BUILDING AUTOMATION CONTROL TECHNOLOGY SENSOR TECHNOLOGY





PRODUCT CATALOGUE 2020

Smart solutions for smart people.



CERTIFICATE

The Certification Body of TÜV SÜD Management Service GmbH

certifies that



ALRE-IT Regeltechnik GmbH Richard-Tauber-Damm 10 12277 Berlin Germany

has established and applies a Quality Management System for

Design, production and sales of electromechanical and electric controls for heating, cooling and air conditioning technology.

An audit was performed, Report No. 707075483.

Proof has been furnished that the requirements according to

ISO 9001:2015

are fulfilled.

The certificate is valid from **2018-07-05** until **2021-07-03**. Certificate Registration No.: **12 100 55966 TMS**.

Product Compliance Management Munich, 2018-06-13



MS/01-03/2018

CERTIFICAT

CEPTNФИКАТ ♦ CERTIFICAD0 ♦

書證結

CERTIFICATE

ZERTIFIKAT

TÜV SÜD Management Service GmbH • Zertifizierungsstelle • Ridlerstrasse 65 • 80339 München • Germany www.tuev-sued.de/certificate-validity-check TÜV®



ALRE-IT Regeltechnik GmbH Your reliable partner.

We have been in the business of producing high-quality control technology for over 50 years. We are very proud of this as it shows that we know how to fulfil both your expectations as well as our own. We are a German owner-operated business based in Berlin – which is also where we also manufacture our quality products.

We are quick to recognise new trends and respond with innovative products, combining state-ofthe-art technology with decades of expertise. We develop and produce components and systems for operating, controlling and automating heating and air conditioning systems and industrial equipment.

Flawless customer service and top-of-the-line quality are key to our business, and we have held ISO 9001 certification since 1994 to prove it.

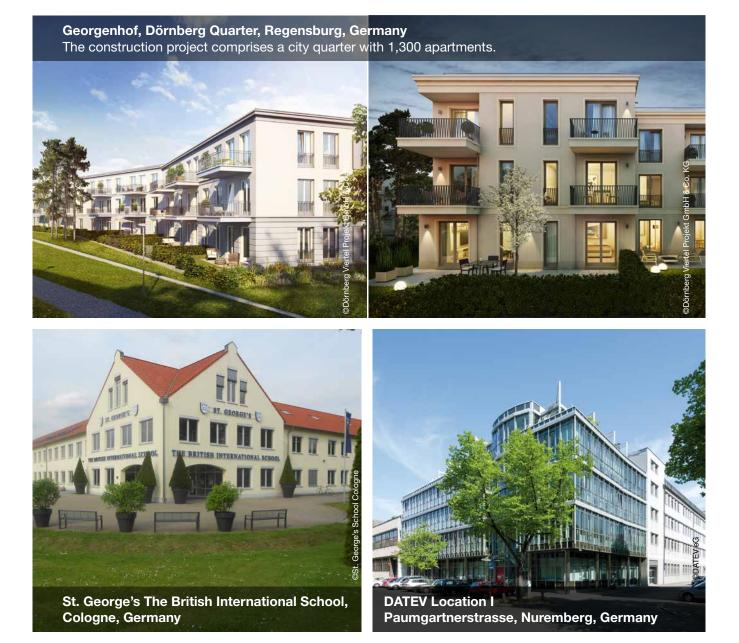
This 2020 product catalogue provides you with information about our wide range of products.

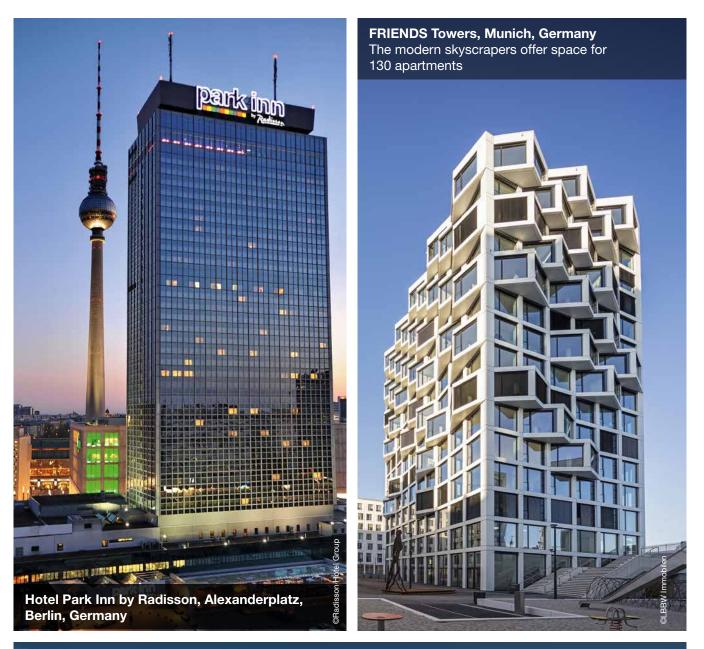
We are looking forward to continuing our successful business partnership.



Our satisfied customers High-quality solutions for every area

ALRE-IT Regeltechnik GmbH products offer numerous solutions for many applications. Whether it's a residential property, hotel or public facilities – alre controllers provide you with optimal climate control for any room. For over 50 years we have met the requirements of our customers and manufactured professional and high-quality control technology in Berlin. Our expertise and high quality standards are also reflected in the many projects we have successfully completed in the past.





DATEV Standort III Sigmundstrasse, Nuremberg, Germany





Discover our new products



SMARTHOME/WIRELESS

Our b@home system is now even smarter. The b@ home contact sensor now extends our range and offers you even more comfort.

See page 24 for more information

BUILDING AUTOMATION

Control buildings sustainably and efficiently with the new BACnet individual room controller from alre. The controller covers a wide range of applications for building automation.





30

See page 42 onwards for more information

HEATING TECHNOLOGY

The new bimetal controller from alre offers a number of advantages. New terminals enable fast and convenient connection without screws. This will save you time, and above all, costs.

See page 74 onwards for more information

HEATING TECHNOLOGY

The optimised terminal strip allows you to wire actuators clearly and conveniently. Screwless spring terminals, labelling fields or integrated strain relief simplify installation enormously.

See page 107 onwards for more information



PLANT ENGINEERING

Our new thermostats for plant engineering are now available in a modern design. They are suitable for optimum temperature control in various fields such as greenhouses, warehouses and industrial halls.



See page 154 onwards for more information

Smarthome/Wireless

Overview of devices	12
System information	13-19
Individual components	20-35
At a glance	36

Building automation

General information	40-49
BACnet room controller	50–54
Adaptation	55

Heating technology

Overview of devices	60
Room/underfloor temperature controllers, surface-mounted, flush-mounted, clock controllers	61–105
Valve actuators/terminal strips for heating circuit distributors	106-109

Air conditioning technology

Overview of devices	114
Climate controllers (including for EC fans)	115-134
Dew point monitoring	135–137
Hygrostats/hygro-thermostats	138–140
Terminal strips for heating manifolds/valve actuators	141–144

Plant engineering

Flow and pressure monitoring, hygrostats	187–196
Mechanical temperature controllers	184-186
Capillary/frost/control cabinet thermostats	154–183
Overview of devices	148-153

Sensor technology

Temperature	200-211
Differential pressure	212

Accessories/miscellaneous/sauna controllers

Sauna controllers	216-217
Accessories	218-223
Technical annex/type comparison (old/new) Ecodesign Directive/funding opportunities	222-231
Index	232-237
General information/contact/addresses	238-240

alre

Catalogue 2020 | Page 8

SMARTHOME/ WIRELESS

For optimal room ambience

alre

12:34



SMARTHOME/WIRELESS Intelligent solutions for your room temperature control.

Rooms with a comfortable climate need perfect control technology. Whether it's an flat, an office building or a hotel room, with b@home, alre offers the smart solution for controlling heating and cooling intelligently. b@home can be retrofitted into existing wireless systems from alre, and can be used for all types of heating.

Your b@home system is simple to install, and you can control it on the move, via the Internet or locally via your home network. It's simple to use, monitoring and program, any time and anywhere, providing maximum comfort and optimal energy consumption. And with the sensors and actuators, individual room control can also be implemented without the b@home gate if required.

555

b@home - Intelligent solutions for intelligent buildings.

Application examples:

- Hot water underfloor heating
- Hot water radiators
- Electric underfloor heating
- Mobile radiators
- Infrared heaters (e.g. natural stone heaters)

alre

Smarthome/ Wireless

SMARTHOME/WIRELESS overview:

System information

	Overview of devices	12
b@home "are	Smart control with b@home	13
b@home "are	System overview	14–15
b@home "are	System configurator for a remotely administered control system con- trollable via app or browser	16–17
	System configurator for a non-remote control system	18–19

Individual components

12 1°	Central components	20-21
-0	Sensors/repeaters	22–27
	Heating actuators	28-32
	Heating/cooling actuators	34-35

At a glance



Advantages/scalability/further information

36

Product innovation



Our b@home system is now even smarter. The b@home contact sensor now extends our range and offers you even more comfort.

See page 24 for more information



Smarthome/Wireless overview of components

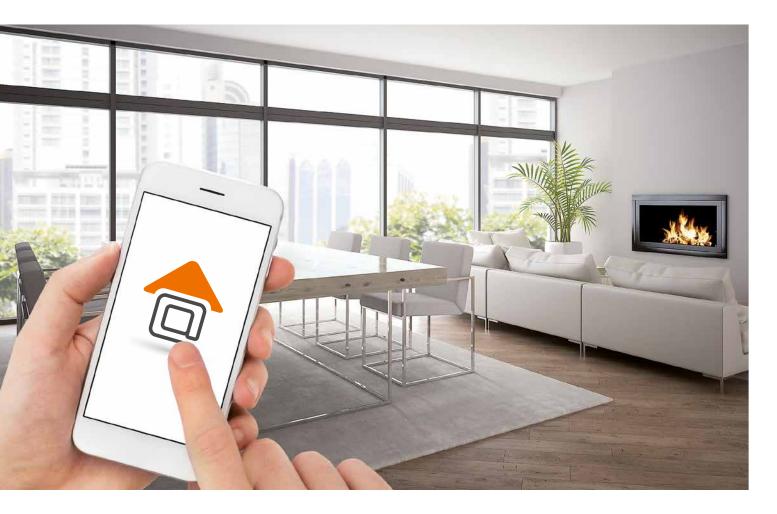
Type 10 1	MAN MBAFA-081.200 (b@home system only)	MRCOA-014.201
Page 22 22 23 23 23 24 28 28 29 20 30 34 34 200 20/21 Page Hating x <		25
Radiator x<		
Radiator x<		
Image: Note of the state o		
Electric underfloor x		
Cooling ceiling x		
Cooling ceiling x		
Cooling ceiling x		
NTC, internal x x x x x x x x x x x x x x x x x x x		
External NTC (optional) x x x x x		
External NTC for floor x control and/or floor x monitoring (optional) x		
Flow sensor (optional) x		
Dew point sensor (optional) x x x x		
"ECO" input x x x		x
"Changeover - heating/ cooling" input		
"Off with frost protection monitoring" input x x x		
Central control x x x x x x x x x x x x x x		
External antenna can be connected x x x x		
Surface/wall-mounted x x x x x x x x x x x x x x x x x x x	x	
Flush-mounted x x x Plug-in (Schuko) x x M30x1.5 (adapter for x x		
Plug-in (Schuko) x		x
M30x1.5 (adapter for Danfoss RA, RAV, RAVL x included) x		
ع FTRFB-280.101 x x x x x x x x x x x x		x
FTRFB-280.119 x <		x
FTRFB-280.120 x <		x
O O X		x
P FTRFBu-180.121/V2 x		x
FTRFB-220.101 Image: Image		x
FTRCUd 210.021#xx x		
MBAFA-081.200 x		
Ö MRCOA-014.201 x <		x



Smart control with b@home Intelligent remote control for heating and cooling systems

Smart controls for smart people

With the b@home system from alre, you can control and monitor your heating and cooling system at any time, from anywhere. Whether you prefer to use your smartphone/the tablet app or your web browser, rooms can be accessed individually or centrally using the intuitive and simple interface. And you can easily control the b@home system remotely, using your home network or, if you are not at home, mobile Internet. Being able to operate the system in a way that suits you not only offers the highest gain in comfort, but also optimises energy consumption.



The b@home gate (MGCBB-064.360) is the central component of the b@home system and the interface between the alre wireless system and the WLAN/LAN router. It can also be retrofitted into existing wireless systems from alre. The optional b@home control panel (FTRCUd 210.021) provides central access to the settings for all channels or heating/cooling zones. It can be used as a central control unit or as a room control unit, and can be integrated into all common switch ranges.

The apps are free of charge and there are no follow-up costs. And thanks to our attention to detail the b@home system is quick and easy to install and set up.



Smart control at home without the Internet





Smart control from anywhere via the Internet





System configurator for a remote control system via app or browser

Selection of central components 1

A minimal system consists of the central b@home gate component and at least one sensor and one actuator. With a b@home gate, up to 32 rooms or heating/cooling zones can be monitored and controlled. Further b@home gates can be operated in the same network if required.



b@home gate MGCBB-064.360

Optional

Using the optional central control panel, the settings of the individual rooms can be displayed and, in some cases, changed independently of the app or browser. The control unit has a contact/sensor input for central control (all rooms) of the b@home gate. A maximum of 1 central control unit can be taught to work with a b@home gate.



FTRCUd 210.021#xx (various variants for optimum integration in almost all switch ranges)



Selection of sensors

One sensor per room is required to measure the room temperature. Depending on the selected sensor, further functions may be available.

Sensor to detect room temperature

(The room temperature is set via app or browser).

Room controller to detect and set room temperature

(Room temperature can also be changed via app or browser). You can use the room control panel to display and, in some cases, change settings for other rooms, including independently of the app or browser. A contact/sensor input for influencing the assigned room is available. Room control panels can be assigned for up to 16 rooms using a b@home gate.

12:34

FTRCUd 210.021#xx (various variants for opti-

mum integration in almost all switch ranges)

Sensor to detect and set room temperature

(It is possible to enable setting the room temperature using an app or browser instead of using the setpoint adjuster).



FTRFB-280.119

Optional

Up to 7 additional sensors per room to detect the room temperature (for finding averages, e.g. in large rooms).



Optional

Up to 10 contact sensors for detection of open windows/doors per room. A contact sensor can be assigned to any number of rooms.

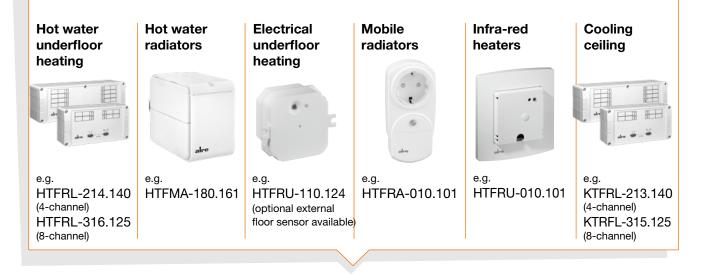
MBAFA-081.200

FTRFB-280.101



3 Selection of actuators

Depending on the type of heating used, a corresponding actuator is required for each room or heating/ cooling zone. Any number of actuators/channels can be assigned to a room.



Optional

In difficult reception conditions, the MRCOA-014.201 plug-in wireless repeater can be used to increase the range of sensors/actuators in conjunction with the b@home gate (except FTRCUd 210.021 and HTFMA-180.161).

If required, an external antenna (JZ-25) can be connected to the multi-channel actuators intended for installation in heating manifolds via a 1m antenna cable (JZ-26).



System configuration for a non-remote wireless control system

Selection of sensors

1

A minimal system consists of at least one sensor and one actuator. These are directly connected to each other without a central component. Different control functions can be implemented by combining the different sensor types. It is possible to teach any number of actuators to work with the sensors.

Individual room control

In each room there is a sensor to detect and set the room temperature. Depending on the selected sensor, further functions may be available.





FTRFB-280.119

Individual room control

FTRFB-280.120 (ECO switch for manual energy-saving operation)

Individual room control with individual clock program

In each room there is a sensor with a clock to detect and set the room temperature. An individual clock programme can therefore be set up for each room.



FTRFBu-180.1xx



FTRFUd 210.123#xx (various variants for optimum integration in almost all switch ranges)

In one room there is a sensor with a clock to detect and set the room temperature, as well as to set up the central clock program. In the other rooms (any number) there is a sensor to detect and set the room temperature. The clock program set centrally affects all rooms (any number, depending on the wireless range).

Sensor with clock to detect and set the room temperature and set up the central clock programme

with central clock program (master-slave)



FTRFBu-180.1xx



FTRFUd 210.123#xx (various variants for optimum integration in almost all switch ranges)



FTRFB-280.119



Sensor to detect and set room temperature

or

FTRFB-280.120 (ECO switch for manual energy-saving operation)

Finding averages

Individual room control with central temperature setting Up to 7 additional One FTRFB-280.101 sensor is required per room (any number) to detect the FTRFB-280.101 room temperature. Furthermore, a sensor is required to set the room temperasensors can be used ture centrally. The room temperature set centrally applies to all rooms. per room for finding averages (for example in large rooms). This is possible with all listed Sensor for centrally setting room temperature control functions. or or or 12:34 FTRFBu-180.1xx FTRFB-280.119 FTRFB-280.120 FTRFUd 210.123#xx Sensor to detect room FTRFB-280.101 FTRFB-280.101 temperature

Selection of actuators 2 Depending on the type of heating used, a corresponding actuator is required for each room or heating/ cooling zone. Any number of actuators/channels can be assigned to a room. Hot water Hot water Electrical Mobile Infra-red Cooling underfloor radiators underfloor radiators heaters ceiling heating heating e.g. e.g. e.g. e.g. e.g. e.g. HTFMA-180.161 HTFRA-010.101 HTFRU-010.101 HTFRL-214.140 HTFRU-110.124 KTFRL-213.140 (4-channel) (4-channel) (optional external KTRFL-315.125 HTFRL-316.125 floor sensor available (8-channel) (8-channel)

Optional

Central control

In difficult reception conditions, the MRCOA-014.201 plug-in wireless repeater can be used to increase the range of sensors/actuators (except HTFMA-180.161).

If required, an external antenna (JZ-25) can be connected to the multi-channel actuators intended for installation in heating manifolds via a 1m antenna cable (JZ-26).

Smarthome / Wireless – CENTRAL COMPONENTS

Technical data



· 8 alre



Ambient temperature:	040 °C
Storage temperature:	–20…+70 °C
Permissible atmospher- ic humidity:	max. 95% relative hum non-condensing
Protection rating:	IP 30
Safety and EMC:	according to DIN EN 6 and DIN EN 300220
Radio frequency:	868.3 MHz
Range:	150 m line-of-sight or u 30 m in buildings, depe

nidity, 60730 up to pending on the construction

Application

alre wireless systems can be monitored and controlled over the Internet or WLAN/LAN using the new b@home gate MGCBB-064.360. After completing the free registration process at the b@home portal, users can operate the b@home system simply and intuitively via a smartphone app or a laptop/PC. This allows users to control, monitor and reprogram the temperature controls at any time and from any location, either for each individual room or centrally for all rooms. It is also possible to access the system without an Internet connection using the local WLAN/ LAN network.

The b@home control unit FTRCUd 210.021 in conjunction with the b@home gate MG-CBB-064.360 provides central access to the settings for further channels and can be used as a central control unit or room control unit. Changes made using the b@home app or via PC/notebook are shown in the graphic display.

It can be retrofitted to existing alre wireless installations (except wireless room temperature sensors with FTRFBu and FTRFUd clock).

> only compatible with b@home system

Type/image	Item no.	Features	PG
MGCBB-064.360	BA210101	Wireless room temperature management system, controlled remotely via the Internet or smartphone Design: Berlin 2000 Surface finish: matt Housing colour: pure white, like RAL 9010 Housing material: ABS plastic Operating voltage: +5 VDC Mounting/attachment: Direct surface/wall-mounting by means of screws Protection class: III Operating elements: confirmation button	I
		Scope of delivery: b@home gate, network cable (CAT5)/cable length 3 m,	
FTRCUd 210.021#21	UA070000	MicroUSB power supply plug/cable length 1.8 m Wireless room temperature sensor to detect and set the room temperature, control unit for additional active channels, sensor/contact input for central control of the b@home gate General features: Time/temperature display; automatic/comfort/ECO operating mode display; external input for ECO contact or OFF contact or external room sensor or flow sensor for H/C changeover or H/C changeover contact or dew point sensor; automatic adjustment to summer/winter time; power reserve (ap- prox. 3 days); backlight; measured value correction; child lock; operation using direct-dial buttons. Design: Berlin UP Surface finish: glossy Housing colour: pure white, similar to RAL 9010 Housing material: Plastic ABS, PC, PMMA Operating voltage: 230 V AC, 50 Hz Electrical connection: pluggable screw terminals Mounting/attachment: in flush-mounted socket (deep flush-mounted socket recommended); can be adapted to fit virtually any surface switch range, see adaptation list on page 27 Protection class: II, if properly mounted Average power consumption: <1 W Sensors: Internal NTC, optional external ("Sensor 2") Control range: 530 °C Transmission interval: Approx. 3 min and after setpoint change Display type: backlit graphic display Display: set/actual temperature, date, time; set/actual temperature or date, time Scope of delivery: wireless sensor, cover 50 x 50 mm pure white (similar to RAL 9010), glossy, alre frame "Berlin"	I

Smarthome / Wireless – CENTRAL COMPONENTS

85 090

1

28.5

17,5

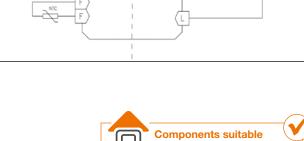
0000

81



O	
	- 4
	- 1
<u></u>	
U J	

Type/image	Item no.	Features	PG
FTRCUd 210.021#07	UA070001	like FTRCUd 210.021#21 but scope of delivery as follows: Wireless room temperature sensor, cover 50 x 50 mm pure white (similar to RAL 9010), glossy, without frame	
FTRCUd 210.021#09	UA070002	like FTRCUd 210.021#21 but scope of delivery as follows: Wireless room temperature sensor, cover 50 x 50 mm pearl white (similar to RAL 1013), glossy, without frame	
TRCUd 210.021#27	UA070003	like FTRCUd 210.021#21 but scope of delivery as follows: Wireless room temperature sensor, cover 50 x 50 mm traffic white (similar to RAL 9016), glossy, without frame	
TRCUd 210.021#28	UA070006	like FTRCUd 210.021#21 but scope of delivery as follows: Wireless room temperature sensor, cover suitable for BUSCH-JAEGER Reflex SI/SI Linear pure white (similar to RAL 9010), glossy, without frame	
FTRCUd 210.021#55	UA070004	like FTRCUd 210.021#21 but scope of delivery as follows: Wireless room temperature sensor, cover 55 x 55 mm pure white (similar to RAL 9010), glossy, without frame	V
TRCUd 210.021#56	UA070008	like FTRCUd 210.021#21 but scope of delivery as follows: Wireless room temperature sensor, cover 55 x 55 mm pure white (similar to RAL 9010), matt, without frame	V
TRCUd 210.021#57	UA070005	like FTRCUd 210.021#21 but scope of delivery as follows: Wireless room temperature sensor, cover 55 x 55 mm pearl white (similar to RAL 1013), glossy, without frame	V
TRCUd 210.021#59	UA070007	like FTRCUd 210.021#21 but scope of delivery as follows: Wireless room temperature sensor, cover 55 x 55 mm traffic white (similar to RAL 9016), glossy, without frame	V
TRCUd with alre fram	e "Berlin"	FTRCUd circuit diagram	
		SELV 2301/~ 50Hz	N N



for the b@home system

Smarthome/Wireless - SENSORS/REPEATERS

humidity:

Range:





Technical data

Protection rating:

Safety and EMC:

Radio frequency:

Permissible atmospheric max. 95% rel. humidity, non-condensing IP 30 according to DIN EN 60730 and DIN EN 300220 868.3 MHz 150 m line-of-sight or up to 30 m in buildings, depending on the construction Transmission interval: approx. 3 min and after setpoint change

Application

Wireless room temperature sensor for measuring temperature in home, office and hotel rooms with normal levels of cleanliness. Single-room temperature control can be implemented with alre wireless actuators and the b@home gate. Primarily used for renovations or for heating system extensions.

The sensors can also be connected to the actuators directly without the b@home gate to implement single-room control.

Battery change: The sensor indicates if a battery change is required soon.

The wireless connection is restored automatically after a voltage interruption at the sensor or actuator.



Type/image	Item no.	Features	PG
FTRFB-280.101	BA010400	General features: Wireless room temperature sensor to detect the room temperature for calculating the average value or for centralised control; "learning mode/battery discharge state" display Design: Berlin 1000 Surface finish: glossy Housing colour: pure white, like RAL 9010 Housing material: ABS plastic Operating voltage: 2x micro AAA batteries, 1.5 V Ambient temperature: -10+50 °C Storage temperature: -10+50 °C Mounting/attachment: Direct surface/wall mounting by means of screws or adhesive	1
		pads Protection class: III Sensor: Internal NTC Scope of delivery: device, batteries, adhesive pads Operating elements: Learn button	V
FTRFB-280.119	BA010409	General features: Wireless room temperature sensor to detect and set room tempera- ture; "learning mode/battery discharge state" display; mechanical range restriction; scale: degrees Celsius; external setting Design: Berlin 1000 Surface finish: glossy Housing colour: pure white, like RAL 9010 Housing material: ABS plastic Operating voltage: 2x micro AAA batteries, 1.5 V Ambient temperature: -10+50 °C Storage temperature: -10+50 °C Mounting/attachment: Direct surface/wall mounting by means of screws or adhesive pads	Ι
		Protection class: III Sensor: NTC, internal Setting range: 530 °C Scope of delivery: device, batteries, adhesive pads Operating elements: Learn button	\checkmark



Smarthome/Wireless – SENSORS/REPEATERS

ושר	Τ		lre
		-	

Smarthome/ Wireless

Type/image	Item no.	Features	PG
FTRFB-280.120	BA010401	General features: Wireless room temperature sensor to detect and set room tempera- ture; reduction 4 K fixed; ECO function; "learning mode/battery discharge state" display; mechanical range restriction; scale: degrees Celsius; external setting Design: Berlin 1000 Surface finish: glossy Housing colour: pure white, like RAL 9010 Housing material: ABS plastic Operating voltage: 2x micro AAA batteries, 1.5 V, 1,100 mAh Ambient temperature: -10+50 °C Storage temperature: -10+50 °C Mounting/attachment: Direct surface/wall mounting by means of screws or adhesive pads Protection class: III Sensor: NTC, internal Setting range: 530 °C Scope of delivery: device, batteries, adhesive pads Operating elements: "Comfort/ECO" switch, learn button	I
FTRFBu-180.117/V2		Operating elements: "Comfort/ECO" switch, learn button General features: Wireless room temperature sensor to detect and set the room tempera- ture with clock pilot function; ECO function, ECO value adjustable; "ECO" display; "on/ off" display; "learning mode/battery discharged state" display; digital actual value display; child-safe features; actual value correction/measured value correction; learning function; valve protection; holiday setting; party setting; automatic adjustment to summer/winter time; mechanical range setting; scale: degrees Celsius; reduction/comfort/automatic but- ton; external setting; operation using direct-dial buttons; on/off button; information button; party function button; holiday setting button; master-slave operation; "heating", "cooling" or "heating and cooling" mode Design: Berlin 3000 Surface finish: matt Housing colour: pure white, like RAL 9010 Housing material: ABS plastic Operating voltage: 2x micro AAA batteries, 1.5 V, 1,100 mAh Ambient temperature: -1050 °C Storage temperature: -10+50 °C Mounting/attachment: Direct surface/wall mounting by means of screws or adhesive pads Protection class: III Sensor: NTC, internal Setting range: 530 °C Display type: symbol display Scope of delivery: device, batteries, adhesive pads Accessories: optional adapter snap-on plate JZ-18 like FTRFBu-180.117, but with backlighting	
FTRFBu-180.121/V2	DAU 10201	like FTRFBu-180.117, but with backlighting Operating voltage: 3x micro AAA batteries, 1.5 V (third battery for backlighting)	I
FTRFUd 210.123#21	UA080000	General features: Flush-mounted wireless room temperature sensor to detect and set the room temperature with clock, holiday setting, party setting, different clock programs can be set for heating and cooling, usable as the master for master-slave operation (pilot controller); pilot function; ECO function; ECO value adjustable; "ECO" display; "on/off" display; digital actual value display; backlighting; child-safe features; power reserve (3 days); actual value correction/measured value correction; learning function; valve protection; holiday setting; party setting; automatic adjustment to summer/winter time; external setting; operation using direct-dial buttons Design: Berlin UP Surface finish: Glossy Housing colour: Pure white, similar to RAL 9010 Housing material: Plastic ABS, PC, PMMA Operating voltage: 230 VAC, 50 Hz Ambient temperature:40 °C Storage temperature:40 °C Electrical connection: pluggable screw terminals Mounting: in flush-mounted socket (deep flush-mounted socket recommended); can be adapted to fit virtually any surface switch range, see adaptation list on page 27 Protection class: II, if properly mounted Average power consumption: <1 W Sensor: NTC internal, optional external (selection option from 7 different sensors, e.g. "Sensor 2"/"Sensor 8") Control range: 530 °C Display type: Backlit graphic display Scope of delivery: Controller, cover 50 x 50 mm, pure white (similar to RAL 9010), glossy, alre fram "Berlin"	

alre

Smarthome/Wireless – SENSORS/REPEATERS

Type/image	Item no.	Features	PG
FTRFUd 210.123#07	UA080001	Like FTRFUd 210.123#21 but scope of delivery as follows: Wireless room temperature sensor, cover 50 x 50 mm pure white (similar to RAL 9010), glossy, without frame	I
FTRFUd 210.123#09	UA080002	Like FTRFUd 210.123#21 but scope of delivery as follows: Wireless room temperature sensor, cover 50 x 50 mm pearl white (similar to RAL 1013), glossy, without frame	I
FTRFUd 210.123#27	UA080003	Like FTRFUd 210.123#21 but scope of delivery as follows: Wireless room temperature sensor, cover 50 x 50 mm traffic white (similar to RAL 9016), glossy, without frame	I
FTRFUd 210.123#28	UA080006	Like FTRFUd 210.123#21 but scope of delivery as follows: Wireless room temperature sensor, cover suitable for BUSCH-JAEGER Reflex SI/SI Linear pure white (similar to RAL 9010), glossy , without frame	I
FTRFUd 210.123#55	UA080004	Like FTRFUd 210.123#21 but scope of delivery as follows: Wireless room temperature sensor, cover 55 x 55 mm pure white (similar to RAL 9010), glossy, without frame	I
FTRFUd 210.123#56	UA080008	Like FTRFUd 210.123#21 but scope of delivery as follows: Wireless room temperature sensor, cover 55 x 55 mm pure white (similar to RAL 9010), matt, without frame	I
FTRFUd 210.123#57	UA080005	Like FTRFUd 210.123#21 but scope of delivery as follows: Wireless room temperature sensor, cover 55 x 55 mm pearl white (similar to RAL 1013), glossy, without frame	I
FTRFUd 210.123#59	UA080007	Like FTRFUd 210.123#21 but scope of delivery as follows: Wireless room temperature sensor, cover 55 x 55 mm traffic white (similar to RAL 9016), glossy, without frame	I
MBAFA-081.200	SA161001	General features: Wireless door/window contact for the b@home system, automatic tem- perature reduction when open windows and doors are detected, "learning mode/battery discharged state/state change" display Surface finish: Glossy Housing colour: Pure white, similar to RAL 9010 Housing material: ABS plastic Operating voltage: Lithium battery CR2477/BN 3V Ambient temperature: -10+45 °C Storage temperature: -10+45 °C Mounting/attachment: using adhesive tape on the window/window frame Protection class: III Sensors: Reed contact Scope of delivery: Device and magnet with adhesive tape, battery Operating elements: Learn button	I

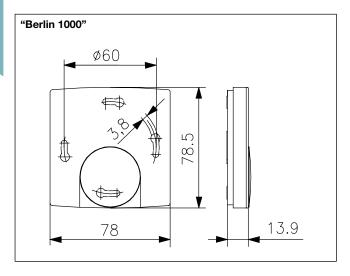
Smarthome/Wireless – SENSORS/REPEATERS

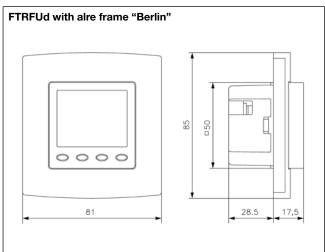
|--|

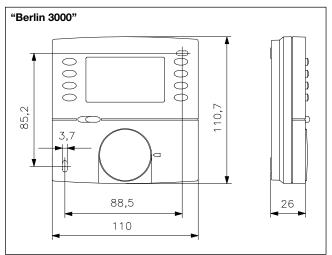
Type/image	Item no.	Features	PG
MRCOA-014.201	BA210200	General features: Plug-in wireless repeater for direct range extension between wireless room temperature sensors and wireless heating controllers (actuators) of an alre wireless system as well as the b@home gate, built-in socket permanently operable with max. load 230V/16A, up to 16 sensors/channels teachable, Housing colour: pure white, like RAL 9010 Housing material: ABS plastic Operating voltage: 230 V AC, 50 Hz Ambient temperature: 040 °C Storage temperature: -20+70 °C Electrical connection: Schuko adapters Protection rating: IP20 Protection class: II for loads of protection classes I and II Operating elements: Learn button	I
JZ-18	MN990002	General features: Optional adapter snap-action plate for wireless room temperature sensor FTRFBu with universal perforation pattern for mounting. The use of the adapter is recommended since the device becomes detachable as a result, which facilitates simpler battery replacement. Surface finish: matt Housing colour: pure white, like RAL 9010 Housing material: ABS plastic	11
JZ-21	MN990006	Adapter frame for mounting wireless sensors of the Berlin 1000 series in flush-mounted sockets up to 80 x 80 mm	I
JZ-090.900	VV000025	General features: alre frame "Berlin" (neutral) for all flush-mounted room temperature sensors with cover 50 x 50 mm Surface finish: glossy Housing colour: pure white, similar to RAL 9010 Housing material: PC plastic	I
JZ-090.910	VV000010	General features: alre frame "Berlin" (neutral) for all flush-mounted room temperature sensors with cover 50 x 50 mm Surface finish: glossy Housing colour: pearl white, like RAL 1013 Housing material: PC plastic	I
ET-01	MA990000	General features: Adjusting knob for B1000 series devices, Scale: Degrees Celsius, pure white glossy	I

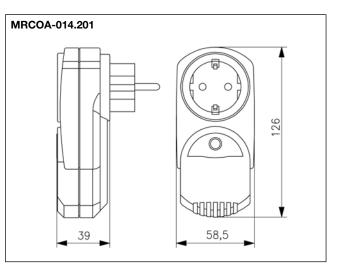


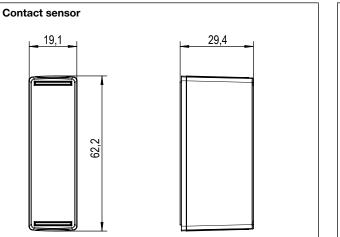
alre Smarthome/Wireless – SENSORS/REPEATERS

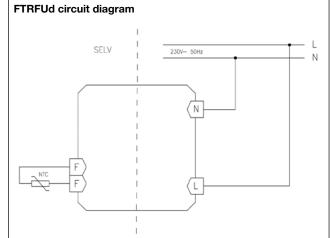














Adaptation of alre flush-mounted FTRxUd-210.021

Manufacturer	Range	Colour RAL 9010	Adaptation in	"50 x 50" adaptation possible
		(surface finish)	switch range	with (insert frame from
			"55 x 55" possible	manufacturer required)
			using	
BERKER	S.1	polar white (matt)	FTRxUd-210.xxx#56	not required
BERKER	S.1	polar white (glossy)	FTRxUd-210.xxx#55	not required
BERKER	Arsys	polar white (glossy)		FTRxUd-210.xxx#07 + (1108 01 69)
BERKER	B.3	aluminium/polar white (matt)	FTRxUd-210.xxx#56	not required
BERKER	B.3	aluminium/polar white (glossy)	FTRxUd-210.xxx#55	not required
BERKER	B.7	glass/polar white (matt)	FTRxUd-210.xxx#56	not required
BERKER	B.7	glass/polar white (glossy)	FTRxUd-210.xxx#55	not required
BERKER	K.1	polar white (glossy)		FTRxUd-210.xxx#07 + (1108 71 09)
BUSCH-JAEGER	Reflex SI/SI Linear	alpine white (glossy)	FTRxUd-210.xxx#28	not required
BUSCH-JAEGER	Busch-balance SI	alpine white (glossy)	FTRxUd-210.xxx#55	not required
BUSCH-JAEGER	impuls	alpine white (glossy)		FTRxUd-210.xxx#07 + (1746/10-74)
BUSCH-JAEGER	solo/future/axcent etc.	studio white - see RAL 9016 below		
ELSO	Joy	pure white (glossy)	FTRxUd-210.xxx#55	not required
ELSO	Fashion/Riva/Scala	pure white (glossy)		FTRxUd-210.xxx#07 + 203084
GIRA	surface switch	pure white (glossy)		FTRxUd-210.xxx#07 + (0282 112)
GIRA (System 55)	Standard/E2	pure white (semi-gloss)	FTRxUd-210.xxx#56	not required
GIRA (System 55)	Standard/E2/E3	pure white (glossy)	FTRxUd-210.xxx#55	not required
GIRA (System 55)	E22	pure white (glossy)	FTRxUd-210.xxx#55	not required
GIRA (System 55)	Event	pure white (semi-gloss) + opaque	FTRxUd-210.xxx#56	not required
GIRA (System 55)	Event	pure white (glossy) + opaque	FTRxUd-210.xxx#55	not required
GIRA (System 55)	Esprit	pure white (semi-gloss) + glass, aluminium	FTRxUd-210.xxx#56	not required
GIRA (System 55)	Esprit	pure white (glossy) + glass, aluminium	FTRxUd-210.xxx#55	not required
GIRA	S-Color	pure white (high-gloss)		FTRxUd-210.xxx#07 + (0282 40)
JUNG	CD 500/CD plus	alpine white (glossy)	ĺ	FTRxUd-210.xxx#07 + (CD 590 Z WW)
JUNG	A 500/A 550/AS 500/A plus/A flow	alpine white (glossy)	FTRxUd-210.xxx#55	not required
JUNG	LS 990	alpine white (glossy)		FTRxUd-210.xxx#07 + (LS 961 Z WW)
JUNG	LS plus	alpine white (glass)		FTRxUd-210.xxx#07 + (LS 961 Z WW)
JUNG	A creation	alpine white (glossy)	FTRxUd-210.xxx#55	not required
JUNG	LS Design	alpine white (glossy)		FTRxUd-210.xxx#07 + (LS 961 Z WW)
MERTEN (System M)	M-Smart, M-Plan, M-Pure	polar white (matt)	FTRxUd-210.xxx#56	not required
MERTEN (System M)	M-Smart, M-Plan, M-Creativ, M-Pure	polar white (glossy)	FTRxUd-210.xxx#55	not required
MERTEN (Basis System)	1-M/Atelier-M	polar white (glossy)	FTRxUd-210.xxx#55	not required
MERTEN (Surface System)	Artec/Antik	polar white (glossy)		FTRxUd-210.xxx#07 + (5160 99)
MERTEN	1-M/M-Smart/M-Plan/M-Pure/D-Life etc.	active white - see RAL 9016 below		
PEHA	Standard	pure white (glossy)		FTRxUd-210.xxx#07 + (80.670.02 ZV)
РЕНА	Dialog	pure white (glossy)		FTRxUd-210.xxx#07 + (95.670.02 ZV)
PEHA	Aura	pure white (matt)/glass		FTRxUd-210.xxx#07 + (20.670.02 ZV)
PEHA	Badora	pure white (glossy)		FTRxUd-210.xxx#07 + (11.670.02 ZV)
Manufacturer	Range	Colour RAL 9016	Adaptation in	"50 x 50" adaptation possible
		(surface finish)	switch range	with (insert frame from
			"55 x 55" possible	manufacturer required)
			using	
BUSCH-JAEGER	solo/future/future linear	studio white (RAL 9016, glossy)		FTRxUd-210.xxx#27 + (1746/10-84)
BUSCH-JAEGER	axcent	studio white (RAL 9016, glossy)		FTRxUd-210.xxx#27 + (1746/10-84)
BUSCH-JAEGER	carat (glass, bronze, gold)	studio white (RAL 9016, glossy)		FTRxUd-210.xxx#27 + (1746/10-84)
BUSCH-JAEGER	alpha (nea/exclusive*)	studio white (RAL 9016, glossy)		FTRxUd-210.xxx#27 + (1746/10-24G)
MERTEN	M-Smart, M-Plan, M-Pure	active white (RAL 9016, glossy)	FTRxUd-210.xxx#59	not required
MERTEN	1-M/Atelier-M	active white (RAL 9016, glossy)	FTRxUd-210.xxx#59	not required
MERTEN	D-Life	lotus white (like RAL 9016)		FTRxUd-210.xxx#27 + (MEG4500-6035)
PEHA	Standard	arctic		FTRxUd-210.xxx#27 + (D 80.670 ZV AW

*) During assembly, you need to remove 4 plastic tabs located at the rear of the frame

NOTE: Most light switches are designed in the colour "like RAL 9010", although different switch manufacturers use different designations for this colour. Coloured, glass and aluminium frames are also combined with white jacks or plugs so that controllers with white covers can also be integrated into these frames. Check the precise application in each individual case. The frames have different surface qualities (matt/glossy). For design reasons, the cover of the controller should have the same quality as the frame. We accept no liability for slight variations in colour and surface finish or for accuracy of fit. When installing devices into multi frames, always assemble the temperature controllers at the lowermost position.

"50 x 50 controller": The housing covers of the 50 x 50 controllers are 50 x 50 mm in size. Using a 50 x 50-mm insert frame, they can be integrated into nearly all light switch ranges in accordance with DIN 49075. The 50 x 50-mm insert frame smust be ordered from the light switch manufacturer or from a wholesaler. The order number of the insert frame corresponding to the switch in question can be found in the column "For adaptation of "50 x 50" FTRxUd".

"55 x 55 controller": The housing covers of the 55 x 55 controllers are 55 x 55 mm in size. Many light switch ranges have inner dimensions of 55 x 55 mm. Therefore, the 55 x 55 controllers can be installed directly in the light switch frame without the use of an insert frame. See the column "Adaptation in switch range (55 x 55)" to determine whether the 55 x 55 controller fits in the given light switch (FTRx-Ud-210.xxx#xx).

All information regarding switch manufacturers" product lines and item numbers was last updated in 12/2019 | No liability is assumed for the information provided. | Technical specifications subject to change.

An adaptation list for RAL 1013 switch ranges is available from our website at www.alre.de.

alre Smarthome/Wireless – Heating ACTUATORS







		010
nnica	5 I I O	

Surface finish:

Permissible atmospheric humidity: Control function: Hysteresis: Radio frequency:

Safety and EMC:

matt max. 95% rel. humidity, non-condensing heating approx. 0.5 K 868.3 MHz

according to DIN EN 60950-1, DIN EN 300220

Application

Wireless actuators (wireless heating controllers) which, in conjunction with alre wireless room temperature sensors and the b@home gate, implement individual room temperature control. Primarily used in renovations or for heating system extensions.

The actuators can also be connected to the sensors directly without the b@home gate to implement single-room control.

Type/image	Item no.	Features	PG
HTFMA-180.161	G8000422	General features: 1-channel wireless temperature actuator for radiator valves; "learning mode/battery discharged state" display; emergency mode; adapter for Danfoss RA, RAV, RAVL Housing colour: Pure white, similar to RAL 9010 Housing material: plastic Operating voltage: 2 x Mignon AA, 1.5 V. Do not use rechargeable batteries or lithium batteries! Ambient temperature: 0 50 °C Storage temperature: -20 +50 °C Mounting/attachment: M30 x 1.5, included adapter for Danfoss RA, RAV, RAVL Protection rating: IP20 Protection class: III Sensor: NTC internal (for emergency operation control) Nominal stroke: approx. 5 mm Nominal closing force: approx. 100 N Control range: 8 28 °C Display: ready to mount/mechanical adjustment/mechanical adjustment error/loss of connection/learning mode	I
HTFRA-010.101	BA110300	Operating elements: learn button, installation button General features: 1-channel wireless temperature actuator; emergency mode; 3000 W switching power, for electric direct heating systems, natural stone heating Housing colour: pure white, similar to RAL 9010 Housing material: plastic Operating voltage: 230 VAC, 50 Hz Ambient temperature: 0 40 °C Storage temperature: -20 +70 °C Electrical connection: Schuko adapter Protection rating: IP 30 Protection class: II for loads of protection classes I and II Max. switching current: 13 (3) A Max. switching voltage: 230 VAC, 50 Hz Min. switching voltage: 230 VAC, 50 Hz Switching power: 3000 W Switching power: 3000 W Switching contact: NO contact Control range: 530 °C Display: installation mode/function check/connection loss/learning mode Operating elements: Learn button	I



Smarthome/Wireless – Heating ACTUATORS

Type/image	Item no.	Features	PG
HTFRB-010.101	BA110500	General features: 1-channel wireless temperature actuator; central control; emergency mode; 3000 W switching power for electrical direct heating systems, natural stone heating Design: Berlin 2000 Housing colour: pure white, like RAL 9010 Housing material: ABS plastic Operating voltage: 230 VAC, 50 Hz Ambient temperature: -20+70 °C Electrical connection: screw-type terminals 0.52.5 mm ² Mounting/attachment: surface/wall mounting (4-hole assembly on flush-mounted socket) Protection rating: IP 30 Protection class: II for loads of protection classes I and II Max. switching current: 13 (2) A	I
		Max. switching voltage: 230 VAC, 50 Hz Min. switching voltage: 230 VAC, 50 Hz	
		Switching power: 3000 W Switching element: relay	
		Switching contact: NO contact	
		Control range: 530 °C Display: installation mode/function check/connection loss/learning mode	
		Operating elements: Learn button	
HTFRU-010.101	BA110200	General features: 1-channel wireless temperature actuator; central control; emergency	I
		operation Design: Berlin UP (flush-mounted)	
		Housing colour: pure white, like RAL 9010	
•		Housing material: plastic PC Operating voltage: 230 VAC, 50 Hz	
		Ambient temperature: -20+50 °C	
		Storage temperature: -20+70 °C	
		Electrical connection: screw-type terminals 0.5 2.5 mm ² Mounting/attachment: in flush-mounted socket (deep flush-mounted socket	
		recommended)	
		Protection rating: IP 30	
		Protection class: II for loads of protection classes I and II Max. switching current: 11 A, from 30 °C ambient temperature 7.5 A	
		Max. switching voltage: 230 VAC, 50 Hz	
		Min. switching voltage: 230 VAC, 50 Hz Switching power: 2500 W, from 30 °C ambient temperature 1700 W	
		Switching element: relay	
		Switching contact: NO contact Control range: 530 °C	
		Display: installation mode/function check/connection loss/learning mode	
		Operating elements: Learn button	
HTFRU-110.124	BA110201	General features: 1-channel wireless temperature actuator; for activating an (electrical) floor heating system, the controller has a sensor input to which an optionally available	I
		remote sensor can be connected, which is then embedded in the floor. The following	
		operating modes can be used in conjunction with such a sensor: Floor temperature	
2		control function or room temperature control function with floor monitoring and direct or central setpoint temperature setting (central control); if the sensor is dispensed with, the	
		HTFRU-110.124 works as a room temperature controller with direct or central setpoint	
		temperature setting (central control); central control; emergency operation Housing colour: Pure white, similar to RAL 9010	
		Housing material: plastic PC	
		Operating voltage: 230 VAC, 50 Hz	
		Ambient temperature: -20+50 °C Storage temperature: -20+70 °C	
		Electrical connection: screw-type terminals 0.51.5 mm ²	
		Mounting/attachment: in flush-mounted socket (deep flush-mounted socket	
		recommended) Protection rating: IP20	
		Protection class: II for loads of protection classes I and II	
		Safety and EMC:according to DIN EN 60950-1, DIN EN 300220 Max. switching current: 10 A to 30 °C ambient temperature	
		Max. switching voltage: 230 VAC, 50 Hz	
		Min. switching voltage: 230 VAC, 50 Hz	
		Switching power: 2300 W up to 30 °C ambient temperature Switching element: relay	
		Switching contact: NO contact	
		Control range: 530 °C	\smile
		Display: installation mode/function check/connection loss/learning mode	

alre Smarthome/Wireless – Heating ACTUATORS



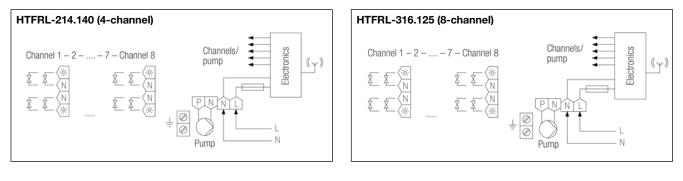
Type/image	Item no.	Features	PG
HTFRL-214.140	BA121000	General features: 4-channel wireless temperature actuator for mounting in the heating manifold, max. 4 actuators/channels can be directly connected, including pump module, one time zone possible per channel, master-slave operation, average value calculation with up to 8 measurement points. The upper part can be removed to teach the wireless sensors in the individual rooms. This requires the use of an optional commercial 9 V battery. The rooms (b@home) or sensors can be configured easily using the channel selection button and a learn button. Emergency mode; 4 fastening screws for wall mounting (see page 34 for implementation of central control using KTFRx) Housing colour: Light grey, similar RAL 7035 Housing material: ABS plastic Operating voltage: 230 V AC, 50 Hz Ambient temperature: -10+50 °C Storage temperature: -20+70 °C Electrical connection: Spring-cage terminals 0.51.5 mm ² Mounting / attachment: surface/wall-mounting Protection rating: IP20 Protection rating: IP20 Protection class: II for loads of protection classes I and II Max. switching current: 3 (1) A Max. switching voltage: 230 VAC, 50 Hz Switching power: total 1150 W, of which 180 W for pump output Switching power: total 1150 W, of which 180 W for pump output Switching contact: 5 relays Switching contact: 5 relays Switching contact: 5 rolo cattest Control range: 530 °C Display: Installation mode, connection and status check, connection loss, learning mode are indicated per channel	I
		Operating elements: Channel selection button, learning button	
HTFRL-316.125	BA120800	General features: 8-channel wireless temperature actuator for mounting in the heating manifold, max. 4 actuators/channel can be directly connected, including pump module, one time zone possible per channel, master-slave operation, average value calculation with up to 8 measurement points; 4 fastening screws for wall mounting; installation mode; connection and status check, connection loss, learning mode are indicated per channel. The upper part can be removed to teach the wireless sensors in the individual rooms. The precondition is the use of an optional commercial 9 V battery. The rooms (b@home) or sensors can be configured easily using the channel selection button and a learn button. (See page 34 for implementation of central control using KTFRx) Housing colour: Light grey, similar to RAL 7035 Housing material: ABS plastic Operating voltage: 230 VAC, 50 Hz Ambient temperature: -10+50 °C Storage temperature: -20+70 °C Electrical connection: spring-cage terminals 0.51.5 mm ² Mounting / attachment: surface/wall-mounting Protection rating: IP20 Protection class: II for loads of protection classes I and II Max. switching voltage: 230 VAC, 50 Hz Switching voltage: 230 VA	I
		Control range: 5 30 °C Operating elements: channel selection button, learn button	

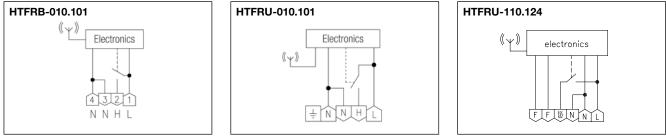


Smarthome / Wireless – Heating ACTUATORS

Type/image	Item no.	Features	PG
HF-8/4-K2	G8000370	General features: Optional external floor sensor for HTFRU-110.124 Ambient temperature: -5 +70 °C Protection rating: IP65 Sensor: NTC Connecting cable: 4 m, PVC	II
HF-8/6-K2	G8000368	General features: Optional external floor sensor for HTFRU-110.124 Ambient temperature: -5+70 °C Protection rating: IP65 Sensor: NTC Connecting cable: 6 m, PVC	II
WP-01	G9990180	General features: heat conduction paste 2 ml; R > 1 T Ω /cm, silicone-free Ambient temperature: -40+150 °C Heat conductivity: > 0.7 W/mK	II
JZ-24	BN990002	General features: magnetic fastening set for simple and safe fastening of the multi-channel actuators on a metallic substrate (for example, heating manifold)	II
JZ-25	BN990003	General features: external antenna for reception enhancement of the multi-channel actuators under difficult reception conditions (antenna cable JZ-26 is not a part of the delivery scope) Design: Berlin 1000 Surface finish: glossy Housing colour: pure white, like RAL 9010	11
		Housing material: ABS plastic Storage temperature: -20+70 °C Admissible humidity: max. 95 % rel. humidity, non-condensing Protection rating: IP 30	\checkmark
JZ-26	BN990004	General features: Antenna cable for connecting the external antenna (JZ-25) with multi-channel actuators Connecting cable: 1 m	II
THF	C1809515	General features: heat conduction paste 2 ml; R > 1 T Ω /cm, silicone-free	II

Compatible with valve actuators ZBOOA-010.100 Page 106



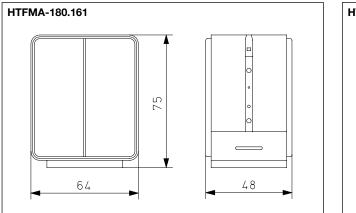


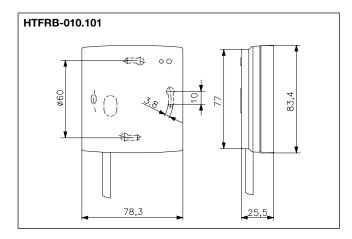
) Dhome _{byalre}

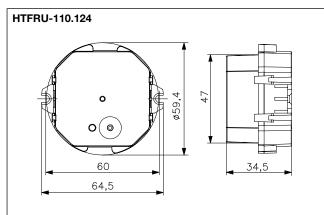


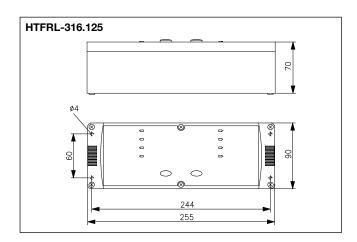


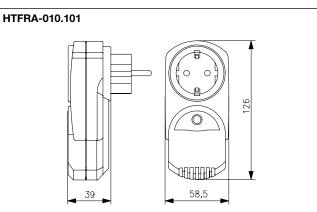
Smarthome/Wireless – Heating ACTUATORS



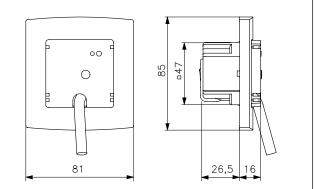


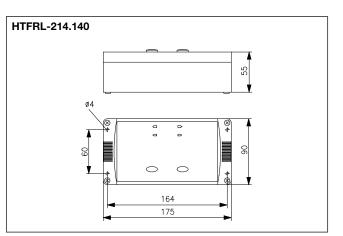






HTFRU-010.101









ð	
Ē	G
5	Ś
Ĕ	0
Ŧ	<u>d</u>
ā	
Ë	2
à	
•••	

Smarthome/Wireless – Heating/cooling ACTUATORS





Technical data		Application
Surface finish:	matt	Wireless temperature of
Housing colour:	light grey, like RAL 7035	(actuators) used to imp a single-room climate of
Housing material:	ABS plastic	conjunction with alre w
Operating voltage:	230 VAC, 50 Hz	temperature sensors. T
Ambient temperature:	−10…+50 °C	can also be connected
Storage temperature:	–20…+70 °C	directly without the b@ implement single-room
Permissible atmospheric humidity:	max. 95% rel. humidity, non-con- densing	Functions: Heating, co
Electrical connection:	spring-cage terminals 0.51.5 mm ²	adjustable neutral zone
Mounting/attachment:	surface/wall mounting	over on site or via an e
Protection class:	II for loads of protection classes I and II	tact; on/off switching b frost protection functio
Safety and EMC:	according to DIN EN 60950-1, DIN EN 300220	channels can be excluding operation; cooling i condensation occurs,
Max. switching voltage:	230 VAC, 50 Hz	sensor or contact; coo
Min. switching voltage:	230 VAC, 50 Hz	energy-saving function
Control function:	heating or cooling	external timer or centra
Control range:	530 °C	in master-slave operati time zones possible, i.e
Hysteresis:	approx. 0.5 K	sensors can be connec
Neutral zone:	adjustable 06 K	status display of the w
Radio frequency:	868.3 MHz	nection for each chann
General features:	external dew point sensor; ECO function; operating mode "off with	emergency mode if con The upper part can be
	frost protection monitoring"; central control; emergency operation mode	configuring the wireles
Factory setting:	neutral zone 0 K	channels in the individu
Operating elements:	Channel selection button, learn button	power supply is ensure time with a standard co block battery. The sense
Accessories:	suitable valve actuators: ZBOOA-010.100 optional magnetic fastening set for simple installation in heating mani- fold: JZ-24 external antenna: JZ-25 antenna cable 1 m: JZ-26	configured easily using selection button and a Attachment: There are wall attachment that ar standard kit; as an opti attachment set JZ-24 f attachment in the heat
Display:	Installation mode, connection and status check, temperature below dew	distribution cabinet car supplied.

point, connection loss, learning mode are indicated per channel

controllers plement control in wireless room The actuators d to the sensors @home gate to m control.

cooling with ne; H/C changeexternal conby contact with ion; individual uded from coolinterruption if via dew point oling limit 18 °C; on centrally via rally or locally tion, (max. 4/8 .e., up to 4/8 ected to clock); wireless connel, automatic onnection lost;

e removed for ss sensors/ dual rooms. The red during this commercial 9-V nsors can be ng the channel a learn button. e 4 screws for are part of the tion, a magnetic for simple ating manifold an also be

Type/image	Item no.	Features	PG
KTFRL-213.140	BA121100	Protection rating: IP 20 Max. switching current: output 1-4: 3 (1) A	I
		Pump output: 0.75 A* Total of all the outputs (4 channels + pump output): 3 (1) A Switching power: Total 920 W, of which 180 W is pump output Switching element: 5 relays Switching contact: 5 NO contacts	V
KTFRL-315.125	BA120900	Protection rating: IP 20 Max. switching current: output 1-8: 3 (1) A Pump output: 0.75 A*	I
		Total of all the outputs (8 channels + pump output): 3 (1) A Switching power: Total 1380 W, of which 180 W is pump output Switching element: 9 relays Switching contact: 9 NO contacts	\checkmark

* Pump module included in scope of delivery

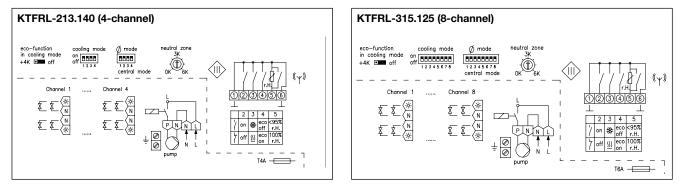


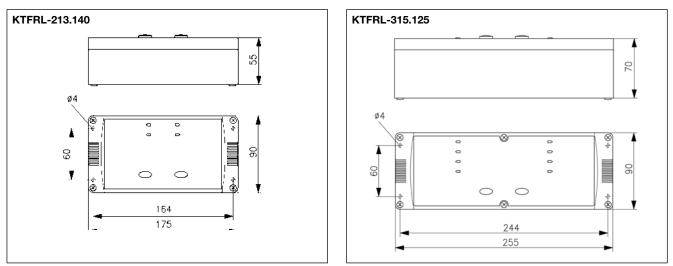
Smarthome/Wireless – Heating/cooling ACTUATORS



Type/image	Item no.	Features	PG
JZ-24	BN990002	General features: Magnetic fastening set for simple and safe fastening of the multi-channel actuators on a metallic substrate (for example heating manifold)	II
JZ-25	BN990003	General features: External antenna for reception enhancement of the multi-chan- nel actuators under difficult reception conditions (antenna cable JZ-26 is not a part of the delivery scope) Design: Berlin 1000 Surface finish: Glossy Housing colour: pure white, like RAL 9010 Housing material: ABS plastic Storage temperature: -20+70 °C Admissible humidity: max. 95% rel. humidity, non-condensing Protection rating: IP 30	"
JZ-26	BN990004	General features: Antenna cable for connecting the external antenna (JZ-25) with multi-channel actuators Connecting cable: 1 m	II

Compatible with valve actuators ZBOOA-010.100 Page 106







All advantages and possibilities of b@home at a glance



- Safe and secure control, monitoring and programming of heating/ cooling controls from any location
- Up to 32 rooms or heating/cooling zones
- Quick and easy commissioning
- Intuitive operation
- Individual room control
- Suitable for all heating systems
- System can be controlled using multiple mobile end devices
- No Internet connection required for the control function
- Can be retrofitted in existing alre wireless systems*
- Free apps, no additional costs, such as monthly subscription costs for example

* Except clock sensors FTRFBu 180.1xx and FTRFUd 210.123, since corresponding functions are implemented in the app/gate/web portal

Scalable from private houses to industrial complexes



ΟΠ	ce building
•	

.. ..



One advantage of the alre modular smarthome solution is its excellent scalability. This smarthome system allows you to automate a single home or commercial premises – from a small office building to an entire industrial complex.

b@home mobile for smartphones or tablets



b@home website



b@home product film



b@home installation film



alre website

BUILDING AUTOMATION



Ahead of the future.



BUILDING AUTOMATION Intelligent, flexible and sustainable

Building automation means the automatic control, regulation, monitoring and optimisation of various building functions such as heating, cooling or ventilation. As an essential component of technical facility management, building automation is intended to improve user comfort as well as reduce energy and operating costs.

For this purpose, all sensors, actuators, operating elements and other technical components in the building are networked. This networking runs in configurations that ensure that all components interact intelligently.

With its applications, the new alre BACnet climate controller covers most fields of application in automated individual room control.

555

555

Application examples:

- Hot water underfloor heating
- Electric underfloor heating
- Ceiling cassettes
- Underfloor convectors
- Heating and cooling ceilings
- Duct devices

BUILDING AUTOMATION overview:

System information

General	40-41
Communication via BACnet MS/TP	42-43
alre BACnet room controller connection options	44–45
alre BACnet room controller/heating and cooling ceiling application example	46-47
Integration into various switch ranges	48-49
Overview of application	50

Individual components

BACnet room controller KTRBUu	51–54
alre BACnet individual room controller adaptation	55

Product innovation



Control buildings sustainably and efficiently with the new BACnet individual room controller from alre. The controller covers a wide range of applications for building automation.

See page 42 onwards for more information





Managing the future safely – sustainably and efficiently

Industry 4.0, cloud computing, blockchain, smart living - digitalisation is THE topic of today. Building automation is also developing at a rapid pace. The latest technologies, networked systems and constantly increasing requirements call for intelligent, flexible and convenient solutions.

In addition to convenience and high levels of functionality, smart systems also have a positive impact on operating costs. Modern building automation increases the value of properties and is therefore becoming increasingly important for rentals and sales.

With the new alre BACnet climate controller, we have developed an innovative device especially for the requirements of individual room control in building automation.



Communication via BACnet MS/TP

In order to use the networked functions, all building automation systems must be interconnected and open. Communication takes place via an open interface such as BACnet, for example.

The alre BACnet room controller (KTRBUu 217.456) communicates via BACnet according to DIN EN ISO 16484-5 with the BACnet MS/TP network protocol. This makes it compatible with all common building automation systems. It corresponds to the BACnet profile "B-AAC" (BACnet Advanced Application Controller) and is therefore much more than a simple setpoint generator.

In contrast to other fieldbus interfaces such as LON or KNX, the BACnet interface does not require an additional gateway for implementation and communication with the management level. This saves costs because service technicians with different qualifications are not required to commission the system. A further cost saving compared to distributed solutions is achieved by combining the room control unit and individual room controller in one device.

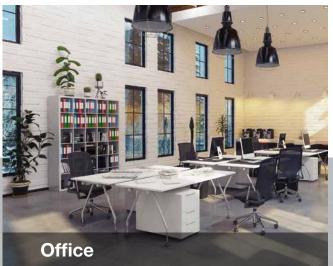
The BACnet individual room controller is therefore extremely versatile – in residential, office and business premises, in hotels, schools, hospitals and more.

Your advantages for all fields of application

- Individual room controller with controller function (B-AAC)
- Flush-mounted integration in all common switch ranges (50 mm/55 mm/60 mm)
- Selectable application for various user applications
- Cost benefit for investment and commissioning
- No additional gateways required (BACnet MS/TP)
- Reduction of installation and operating costs















alre BACnet individual room controller connection options

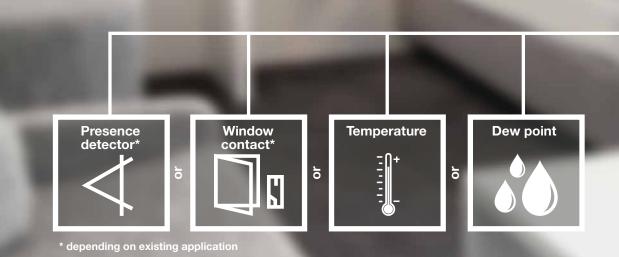
The alre BACnet room controller with graphic display is suitable for time-dependent heating and cooling operation in 2 or 4-pipe systems.

The device has two inputs and three outputs. Two of the outputs switch relays, each of which can address up to 5 actuators. The third output is analogue (0-10 V) and can be used, for example, for EC fan control.

One of the two inputs is used for BACnet communication. The other can be configured to connect sensors, for example for temperature or dew point. Windows or presence contacts can be connected via BACnet.

Technical highlights and features

- Internal temperature sensor
- Connectible external tempera• 0-10 V EC fan coil ture sensor
- Connectible external dew point sensor
- MS/TP interface
- I/O mix integrated in device





Building automation



Cooling

alre BACnet individual room controller/ heating and cooling ceiling application example

Planners prefer heating and cooling ceilings for comfortable air conditioning in buildings because it prevents draughts or disturbing noises.

With its pre-configured system diagrams, the alre BACnet individual room controller (KTRBUu 217.456) supports the most common air conditioning applications.

The "cooling and heating ceiling in 4-pipe system" variant controls heating and cooling valves, monitors the dew point and interrupts cooling operation if condensation begins to form.

The control range of the BACnet individual room controller is determined by the building management system. If this fails, the controller also functions independently and maintains control operation in the room.

eating

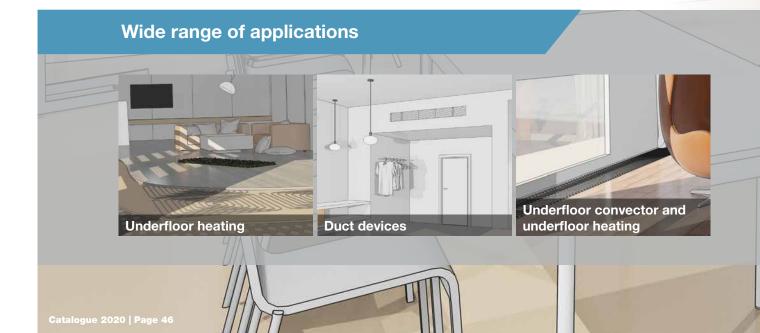




3 0°0

BACnet IP BACnet MS/TP

BACnet room controller



w point





Suitable for all current switch ranges

The alre BACnet individual room controller is mounted in a flush-mounted socket. The housing fits exactly into design frames of sizes 50 x 50 mm, 55 x 55 mm and 60 x 60 mm from surface switch ranges of well-known manufacturers such as Berker, Busch-Jaeger, Gira, Jung, Merten, Peha, Hager or Feller (CH).





Check out the product video now!

> Integration examples of the BACnet individual room controller in switch ranges of different manufacturers.

All variants also fit in multiple frames from all well-known manufacturers. Also available in special colours anthracite and aluminium on request.



KTRBUu 217.456 in **JUNG AS 500**



KTRBUu 217.456 in MERTEN 1-M

alre BACnet room controller application overview

		Sys	stem	S						Ext	. ser	nsors	6		Ac	tuato	ors			
2 = 2-pipe system 4 = 4-pipe system RA = Radiator FB = Floor temperature control KD = Ceiling temperature control UK = Underfloor convector HR = Heating coil KR = Cooling coil		2-pipe system	4-pipe system	Radiator	Floor temperature control	Ceiling temperature control	Underfloor convector	Heating coil	Cooling coil	TP Dew point sensor	TB Temperature limiter	Supply air temperature	Room air temperature	Floor screed temperature	Fan 0 10 V	VAV 010 V	Heating valve	Cooling valve	Heating/cooling valve	6-way ball valve 0 10 V
Туре	Application	2-pi	4-pi	Rad	Floc	Ceil	Unc	Неа	Coc	ЦЦ	Ē	Sup	Roc	Floc	Fan	VAV	Неа	000	Неа	6-W
2-pipe system underfloor heating with screed temperature sensor	2FB001	•			•									•			•			
2-pipe system underfloor heating with limiter	2FB002	•			•						•						•			
2-pipe system cooling/heating ceiling with dew point monitor	2KD001	•				•				•									•	
2-pipe system heating/cooling coil with fan and supply air temperature	2HRKR001	•						•	•			•			•				•	
2-pipe system with radiator with external room temperature sensor	2RA001	•		•									•				•			
4-pipe system radiator (heating), cooling ceiling with dew point monitor	4RAKD001		•	•		•				•							•	•		
4-pipe system radiator, cooling coil with fan and supply air temperature limitation*	4RAKR001		•	•					•		•				•		•	•		
2-pipe system underfloor convector with room temperature sensor and fan	2UK001	•					•						•		•				•	
4-pipe system floor temperature control with temperature limiter	4FB001		•		•						•						•	•		
4-pipe system cooling/heating ceiling with dew point monitor and 6-way ball valve	4KD001		•			•				•										•
4-pipe system cooling/heating ceiling with dew point monitor and VAV	4KD002		•			•				•						•	•	•		
4-pipe system cooling/heating ceiling with dew point monitor	4KD003		•			•				•							•	•		
4-pipe system heating and cooling coil with fan and supply air temperature	4HRKR001		•					•	•			•			•		•	•		
4-pipe system underfloor convector with dew point monitor and fan	4UK001		•				•			•					•		•	•		

alre

BACnet room controller KTRBUu

Flush-mounted installation – Design Berlin UP

	Technical data		Application
	Design: Housing material: Operating voltage: Ambient temperature: Storage temperature: Permissible atmospheric humidity:	Berlin UP (flush-mounted) PC, PMMA, ABS plastic 230 VAC, 50 Hz 040 °C -20+70 °C Max. 95% rel. humidity, non-condensing	The alre BACnet individual room controller with graphic display was specially developed for time-dependent heating and cooling operation in 2- or 4-pipe systems. The controller can be used in a wide range of applications, such as hotels, residential, office and business premises as well as hospitals and schools.
	Electrical connection:	pluggable screw terminals Mains voltage side 0.75-2.5 mm ² Low voltage side 0.08-1.5 mm ²	The communication takes place via BACnet according to DIN EN ISO 16484-5 with the BACnet MS/TP network protocol. The room controller is therefore compatible with all com- mon building automation systems. The control- ber correspondent to the BACnet perfile "B AAC"
Daniel	Mounting/attachment:	In flush-mounted socket, can be adapted to fit virtually any switch range (deep flush-mounted socket recom- mended) see adaptation list on page 55	ler corresponds to the BACnet profile "B-AAC" (BACnet Advanced Application Controller). The predefined applications cover a wide range of applications for room temperature control in room automation.
	Protection rating:	IP 30	Special colours are available for projects on
CONFERCIÓN Sun 20000	Protection class:	II	request.
23.0	Safety and EMC:	according to DIN EN 60730	
	Max. switching voltage:	230 VAC, 50 Hz	
	Min. switching voltage:	230 VAC, 50 Hz	
	Switching power:	690 W	
Clum	Max. power consumption:	approx. 1 W (2.2 VA)	
23.0°C	Max. switching current:	all 3 (0.5) A (max. 5 valve actuators per output)	
THE PARTY PARTY (THE)	Switching element:	2 relays	
1 -	Switching contact:	2 NO contacts	
	Output signal:	Switching heating, cooling, heating/cooling, analogue 010 V (5 mA) to control a speed-controlled fan	
	Sensor:	Internal NTC, optional exter- nal "Sensor 2" * (NTC 47k), dew point sensor	
	Control range:	540 °C	
	Setting range:	Standard setting range for heating (530 °C), second setting range for cooling (1840 °C)	
	Hysteresis:	< 1 K	
	Display type:	illuminated graphical display	
	Pipe system compatibility:	2-pipe and 4-pipe	



* Depending on the selected system scheme, a menu setting can be used to select whether control should be based on the internal or external sensor. In the intermediate positions, if both sensors are used, a weighting is applied to the internal room sensor and the external temperature sensor. The weighting allows for compensation of different structural conditions such as large window areas or cardinal directions. For very slow controlled systems, it is recommended to assign a higher weighting to the temperature sensor than to the internal room sensor.



BACnet room controller KTRBUu

Flush-mounted installation – Design Berlin UP

Type/image	Item no.	Features	Circuit diagram PG
KTRBUu217.456#07	UA230002	Like KTRBUu217.456#21 but scope of delivery as follows: Controller, cover 50 x 50 mm pure white (similar to RAL 9010), glossy , without frame	IV
KTRBUu217.456#09	UA230003	like KTRRUu217.456#21 but with delivery scope: controller, cover 50 x 50 mm pearl white (similar to RAL 1013), glossy, without frame	IV
KTRBUu217.456#27	UA230004	Like KTRBUu217.456#21 but scope of delivery as follows: Controller, cover 50 x 50 mm traffic/studio white (similar to RAL 9016), glossy, without frame	ΙV
KTRBUu217.456#28	UA230007	Like KTRBUu217.456 but scope of delivery as follows: Controller, cover suitable for BUSCH-JAEGER Reflex SI/SI Linear pure white (similar to RAL 9010), glossy , without frame	IV
KTRBUu217.456#55	UA230005	Like KTRBUu217.456#21 but scope of delivery as follows: Controller, cover 55 x 55 mm pure white (similar to RAL 9010), glossy , without frame	IV
KTRBUu217.456#56	UA230009	Like KTRBUu217.456#21 but scope of delivery as follows: Controller, cover 55 x 55 mm pure white (similar to RAL 9010), matt without frame	IV
KTRBUu217.456#57	UA230006	Like KTRBUu217.456#21 but scope of delivery as follows: Controller, cover 55 x 55 mm pearl white (similar to RAL 1013), glossy , without frame	IV
KTRBUu217.456#59	UA230008	Like KTRBUu217.456#21 but scope of delivery as follows: Controller, cover 55 x 55 mm traffic/ studio white (similar to RAL 9016), glossy, without frame	IV



BACnet room controller KTRBUu

Flush-mounted installation – Design Berlin UP

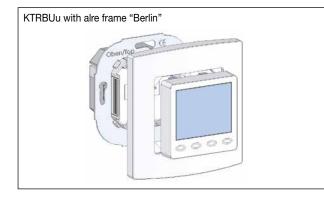
Accessories	Item no.	Features	PG
JZ-090.900	VV000025	Design: Berlin Surface finish: glossy Housing colour: pure white, similar to RAL 9010 Housing material: PC plastic General features: alre frame "Berlin" (neutral) for all flush-mounted controllers with cover 50 x 50 mm	I
JZ-090.910	VV000010	Design: Berlin Surface finish: glossy Housing colour: pearl white, similar to RAL 1013 Housing material: PC plastic General features: alre frame "Berlin" (neutral) for all flush-mounted controllers with cover 50 x 50 mm	I
TPS 1	G8000299	Dew point sensor to detect and report the dew point (see also Air Conditioning Technology chapter, page 136) Mounting/attachment: using clips on cooling ceiling capillary pipe Use: Drywall cooling ceiling (plasterboard) with hung up capillary pipe mat, metal cooling ceiling with integrated capillary pipe system Sensor wire extendible up to: 50 m with 2 x 0.5 mm ² Scope of delivery: sensor, 2 clips for cooling pad	I
TPS 2	G8000300	Dew point sensor to detect and report the dew point (see also Air Conditioning Technology chapter, page 136) Mounting/attachment: using clips on cooling ceiling capillary pipe or cable ties on the pipe Use: Pipe systems transporting cold water, plaster cooling ceiling with capillary tube system Sensor wire extendible up to: 50 m with 2 x 0.5 mm ² Scope of delivery: Sensor, 2 clips for cooling pad, 2 cable ties	I
TPS 3	SN120000	Dew point sensor to detect and report the dew point (see also Air Conditioning Technology chapter, page 136) Mounting/attachment: Attach to pipe by means of cable ties Use: piped cold-water systems Sensor wire extendible up to: 50 m with 2 x 0.5 mm ² Scope of delivery: Sensor, 2 cable ties	I
BTF2-C47-0000	SA140014	Surface-mounted "ultra-thin" room temperature sensor for temperature measure- ment in residential and business premises (see also Sensors chapter, page 200) Mounting/attachment: surface/wall mounting (4-hole assembly on flush-mounted socket) Housing colour: pure white, similar to RAL 9010, glossy Housing material: ABS plastic Ambient temperature: -10+50 °C Admissible humidity: Max. 95% rel. humidity, non-condensing Protection rating: IP 30 Protection class: III Electrical connection: screw-type terminals 0.33 mm ² to 1.5 mm ²	111
FUFC 47-0000	SN090198	Flush-mounted room temperature sensor for temperature measurement in residen- tial and business premises (see also Sensors chapter, page 201) Mounting/attachment: In flush-mounted socket, can be adapted to fit virtually any 50 x 50 mm surface switch range Housing colour: Pure white, similar to RAL 9010, glossy Housing material: PC plastic Ambient temperature: -10+50 °C Admissible humidity: Max. 95% rel. humidity, non-condensing Protection rating: IP 30 Protection class: III Electrical connection: screw-type terminals 0.5 mm ² to 1.5 mm ²	III
AF-2	G9040380	Temperature sensor for temperature measurement outdoors and in humid areas, special protection against dust and humidity (see also Sensors chapter, page 203) Mounting/attachment: surface/wall mounting Housing colour: Pure white, similar to RAL 9010 Housing material: PA plastic (30% GF reinforced) Ambient temperature: -30+70 °C Admissible humidity: Max. 95% rel. humidity, non-condensing Protection rating: IP 65 Protection class: III Electrical connection: screw-type terminals 0.14 mm ² to 2.5 mm ²	III
	Item no.	Features	PG

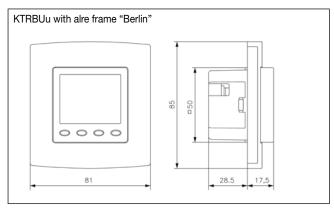


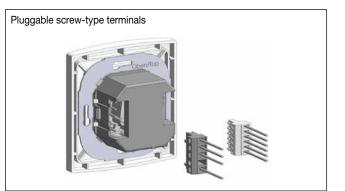
BACnet room controller KTRBUu

Flush-mounted installation – Design Berlin UP

KF-2	G9031446	Cable temperature sensor for floor or supply air temperature measurement/limiting (see also Sensors chapter, page 206) Mounting/attachment: In immersion sleeve, protection coil, on pipe, etc. Pipe material/length: PE, 1.5 m Sensor sleeve material: V4A (1.4571) Ambient temperature: -35+100 °C Admissible humidity: Max. 95% rel. humidity, non-condensing Protection rating: IP 67 Protection class: III Electrical connection: Safety extra low voltage only max. 30 V AC/42 V DC	Ш
ZBOOA-010.100	H9100010	Electro-thermal valve actuator (see also Heating/Air Conditioning Technology chapter) Mounting/attachment: M 30 x 1.5 Housing colour: Pure white, similar to RAL 9010 Housing material: PC plastic, GF (20%) Operating voltage: 230 V~, 50 Hz Max. power consumption: 70 W Max. starting current: Approx. 0.3 A Ambient temperature: 050 °C Storage temperature: -20 +70 °C Admissible humidity: Max. 95% rel. humidity, non-condensing Protection rating: IP 42 Protection class: II Average power consumption: Approx. 3 W Opening/closing time: Approx. 4 min Nominal stroke: 3 mm Function type: Normally closed Nominal closing force: 90 N Connecting cable: 0.8 m/2 x 0.5 mm ²	I









alre BACnet KTRBUu217.456 individual room controller adaptation

Flush-mounted

Manufacturer	Range	Colour RAL 9010 (surface finish)	Adaptation in switch range "55 x 55" possible using	"50 x 50" adaptation possible with (insert frame from manu- facturer required)
BERKER	S.1	polar white (matt)	KTRBUu217.456#56	not required
BERKER	S.1	polar white (glossy)	KTRBUu217.456#55	not required
BERKER	Arsys	polar white (glossy)		KTRBUu217.456#07 + 1108 01 69
BERKER	B.3	aluminium/polar white (matt)	KTRBUu217.456#56	not required
BERKER	B.3	aluminium/polar white (glossy)	KTRBUu217.456#55	not required
BERKER	B.7	glass/polar white (matt)	KTRBUu217.456#56	not required
BERKER	B.7	glass/polar white (glossy)	KTRBUu217.456#55	not required
BERKER	K.1	polar white (glossy)		KTRBUu217.456#07 + 1108 71 09
BUSCH-JAEGER	Reflex SI/SI Linear	alpine white (glossy)	KTRBUu217.456#28	not required
BUSCH-JAEGER	Busch-balance SI	alpine white (glossy)	KTRBUu217.456#55	not required
BUSCH-JAEGER	impuls	alpine white (glossy)	KINDOU217.430#33	KTRBUu217.456#07 + 1746/10-74
BUSCH-JAEGER	solo/future/axcent etc.	studio white – see RAL 9016 below		KINDOU217.430#07 + 1740/10-74
Elso			KTRBUu217.456#55	not required
	Joy	pure white (glossy)	KIRD00217.450#55	not required
Elso GIRA	Fashion/Riva/Scala	pure white (glossy)		KTRBUu217.456#07 + (203084)
	surface switch	pure white (glossy)		KTRBUu217.456#07 + 0282 112
GIRA (System 55)	Standard/E2 Standard/E2/E3	pure white (semi-gloss)	KTRBUu217.456#56	not required
GIRA (System 55)		pure white (glossy)	KTRBUu217.456#55	not required
GIRA (System 55)	E22	pure white (glossy)	KTRBUu217.456#55	not required
GIRA (System 55)	Event	pure white (semi-gloss) + opaque	KTRBUu217.456#56	not required
GIRA (System 55)	Event	pure white (glossy) + opaque	KTRBUu217.456#55	not required
GIRA (System 55)	Esprit	pure white (semi-gloss) + glass, aluminium	KTRBUu217.456#56	not required
GIRA (System 55)	Esprit	pure white (glossy) + glass, alumin- ium	KTRBUu217.456#55	not required
GIRA	S-Color	pure white (high-gloss)		KTRBUu217.456#07 + 0282 40
JUNG	CD 500/CD plus	alpine white (glossy)		KTRBUu217.456#07 + CD 590 Z WW
JUNG	A 500/A 550/AS 500/A plus/A flow	alpine white (glossy)	KTRBUu217.456#55	not required
JUNG	LS 990	alpine white (glossy)		KTRBUu217.456#07 + LS 961 Z WW
JUNG	LS plus	alpine white (glass)		KTRBUu217.456#07 + LS 961 Z WW
JUNG	A creation	alpine white (glossy)	KTRBUu217.456#55	not required
JUNG	LS Design	alpine white (glossy)		KTRBUu217.456#07 + LS 961 Z WW
MERTEN (System M)	M-Smart, M-Plan, M-Pure	polar white (matt)	KTRBUu217.456#56	not required
MERTEN (System M)	M-Smart, M-Plan, M-Creativ, M-Pure	polar white (glossy)	KTRBUu217.456#55	not required
MERTEN (System Basis)	1-M/Atelier-M	polar white (glossy)	KTRBUu217.456#55	not required
MERTEN (Surface System)	Artec/Antik	polar white (glossy)		KTRBUu217.456#07 + 5160 99
MERTEN	1-M/M-Smart/M-Plan/M-Pure/D-Life	active white - see RAL 9016 below		
PEHA	Standard	pure white (glossy)		KTRBUu217.456#07 + 80.670.02 ZV
РЕНА	Dialog	pure white (glossy)		KTRBUu217.456#07 + 95.670.02 ZV
РЕНА	Aura	pure white (matt)/glass		KTRBUu217.456#07 + 20.670.02 ZV
PEHA	Badora	pure white (glossy)		KTRBUu217.456#07 + 11.670.02 ZV
Manufacturer	Range	Colour RAL 9016 (surface finish)	Adaptation in switch range "55 x 55" possible using	To adapt KTRBUu size 50 x 50, an insert frame from the manufactur er is required
BUSCH-JAEGER	solo/future/future linear	studio white (RAL 9016, glossy)		KTRBUu217.456#27 + 1746/10-84
BUSCH-JAEGER	axcent	studio white (RAL 9016, glossy)		KTRBUu217.456#27 + 1746/10-84
BUSCH-JAEGER	carat (glass, bronze, gold)	studio white (RAL 9016)		KTRBUu217.456#27 + 1746/10-84
BUSCH-JAEGER	alpha (nea/exclusive*)	studio white (RAL 9016, glossy)		KTRBUu217.456#27 + 1746/10-24G
MERTEN	M-Smart, M-Plan, M-Pure	active white (RAL 9016, glossy)	KTRBUu217.456#59	not required
MERTEN	1-M/Atelier-M	active white (RAL 9016, glossy)	KTRBUu217.456#59	not required
Verten	D-Life	Lotus white (RAL 9016)		KTRBUu217.456#27 + MEG4500-6035
PEHA	Standard	arctic		KTRBUu217.456#27 + D 80.670 ZV AW

*) During assembly, you need to remove 4 plastic tabs located at the rear of the frame.

NOTE: Most light switches are designed in the colour "similar to RAL 9010", although different switch manufacturers use different designations for this colour. Coloured, glass and aluminium frames are also combined with white jacks or plugs so that controllers with white covers can also be integrated into these frames. Check the precise application in each individual case. The frames have different surface qualities (matt/glossy). For design reasons, the cover of the controller should have the same quality as the frame. We accept no liability for slight variations in colour and surface finish or for accuracy of fit. When installing devices into multi frames, always assemble the temperature controllers at the lowermost position.

"50 x 50 controller": The housing covers of the 50 x 50 controllers are 50 x 50 mm in size. Using a 50 x 50-mm insert frame, they can be integrated into nearly all light switch ranges in accordance with DIN 49075. The 50 x 50-mm insert frames must be ordered from the light switch manufacturer or from a wholesaler. The order number of the insert frame corresponding to the switch range in question can be found in the column "For adaptation of '50 x 50' KTRBUu".

"55 x 55 controller": The housing covers of the 55 x 55 controllers are 55 x 55 mm in size. Many light switch ranges have inner dimensions of 55 x 55 mm. Therefore, the 55 x 55 controllers can be installed directly in the light switch frame without the use of an insert frame. See the column "Adaptation in switch range (55 x 55)" to determine whether the 55 x 55 controller fits in the given light switch range (KTRBUu217.456#xx).

All information regarding switch manufacturers" product lines and item numbers was last updated in 12/2019 | No liability is assumed for the information provided. | Technical specifications subject to change. An adaptation list for RAL 1013 switch ranges is available from our website at www.alre.de.



HEATING TECHNOLOGY



Cozy heating just like magic.



HEATING TECHNOLOGY Warmth and well-being.

From temperature controllers and terminal strips to valve actuators, we offer a complete product range in a timelessly elegant design.

55

The right solution for everyone based on individual needs.

Application examples:

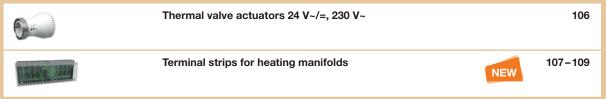
- Hot water underfloor heating
- Electric underfloor heating
- Natural stone heating
- Night storage heating
- Tiled stove heating
- Partial air conditioners
- Mobile radiators
- Accessories such as terminal strips and actuators

S

6

Overview of HEATING TECHNOLOGY:

	Overview of devices	60
	Room temperature controller, bimetal (mechanical) "surface-mounted"	61–66
.0	Room temperature controller, bimetal (mechanical) "surface-mounted ultra-slim"	67–69
	Room temperature controller, bimetal (mechanical) "surface-mounted or plug-in"	70–71
	Room temperature controller, electronic, with clock "surface-mounted"	72-73
60	Room temperature controller, bimetal (mechanical) "flush-mounted"	74–93
1234	Room or floor temperature controller, electronic, with clock "flush-mounted"	94–97
	Floor temperature or surface temperature controller, electronic "surface-mounted"	98-99
	Floor temperature controller, electronic, with clock "surface-mounted"	100-101
0	Floor temperature controller, electronic, "flush-mounted"	102-105



Product innovation



The new bimetal controller from alre offers a number of advantages. New terminals enable fast and convenient connection without screws. This will save you time, and above all, costs.

See page 74 onwards for more information





The optimised terminal strip allows you to wire actuators clearly and conveniently. Screwless spring terminals, labelling fields or integrated strain relief simplify installation enormously.

NEW

See page 107 onwards for more information

alre

Overview of heating controllers

	Туре	RTBSB-001.000	RTBSB-001.002	RTBSB-001.010	RTBSB-001.026	RTBSB-001.045	RTBSB-001.048	RTBSB-001.062	RTBSB-001.065	RTBSB-001.086	RTBSB-001.096	RTRSB-001.110	RTBSB-001.500	RTBSB-001.910	RTBSB-001.910/2	RTBSB-001.948/1	RTBSB-201.000	RTBSB-201.002	RTBSB-201.010	PTPSP-201.034	RTBSB-201.065	RTBSB-201.202	RTBSB-201.500	RTBSB-001.401	RTBSB-001.411	-	RTBSU-401.002	RTBSU-401.010	HIBSU-401.034	RTBSU-401.052	RTBSU-401.063	RTBSU-401.065	RTBSU-401.075	RTBSU-401.202	RTBSU-401.210	RTBSU-401.262	RTBSU-401.265	RTBSU-401.902	HTRRUu 210.021	HTRRB-011.410	HTRRBu-110.021	FETR 101.700	FETR 101.715	FETR 101.716	FETR 101.745
	Page	61	61	62	62	62	63	8 63	63	64	64 6	64 68	5 65	5 65	65	66	67	67	68 6	8 6	8 68	8 68	B 69	70	71 7	2 76	5 77	77	77 7	8 78	78	78	79 7	9 79	80	80	80 8	81 9	94 9	8 98	100	102	102	103	103
	Berlin 1000																x	x	x	< >	x	x	x																						
c	Berlin 2000	x	х	х	x	x	х	x	х	x	x	x x	x	х	x	х)	x x					
Design	Berlin 3000)	ĸ															х				
ă	Berlin flush-mounted Berlin 2000 with plug																							x	x	x	x	x	x	x x	х	x	××	×	x	x	x	x	x			x	x	x	x
	Bimetal (NC contact) Bimetal (toggler)	X	*	x	x	x	x	×	x	x	*	x		x	х	x	х	x	x	< >	x		x	×	*	x	x	x	x >	xx	х	x	××	x	x	*	x	×							
Sensor	NTC, internal																								>	ĸ													x						x
Sen	NTC, external																																						x>	x x	х	х	х	x	
	NTC for floor monitoring																																						x						x
_	Heating controller	x	х	x*	x*	x*	' x*	x	x*	x	x	к* х	x	x*	x*	x*	х	х	x* :	< >	x*	* x	х	x	x	x x	x	x*	x	x x	x	x*	xx	x	x*	x	x*	x	x>	x x	х	х	x	x	x
Controller	Cooling function			х		x	x		х			x		х	x	x			x		x	:						x			х	x			x		x								
true the	Cooling function with fan output				x																																								
ပိ	Model with clock)	ĸ													x						
Pipe Wetam	Air conditioning controller in 2-pipe system			x	x	x	x		x		:	x		x	x	x			x		x	:						x			x	x			x		×								
ů	Natural stone heating									x	x														>	ĸ							×	:					x						
	Tiled stove heating																																							x					
_	Electric direct									x	×													×	x								×						x						
Application	heating systems									^	^													^	~ ′	`													^						
olic	Electric floor heating																								>	ĸ												1	x>	¢	х	х	х	x	x
Apl	Night storage heater)	x															
	Hot water floor heating	x	x	x	x	x	x	x	x		:	x x	×	x	x	x	x	x	x	k >	x	x	x		,	k x	x	x	x	x	x	x	x	x	x	x	x	x	x		x				
	Partial air condi-																																												
	tioner			х	х	x	х		х			x		x	х	х			х		x							х			х	x			х		х								
	Output "tempera- ture reduction"																								>	ĸ															x				
	Input "temperature																																												
	reduction" Switch "On/Off"		х		x			x x				×		~	х			х		×		x)		x	*		x			x	х		x		x		< x		х	x	X	x
	Switch "Heating/				^			^	~											í						`				^		~				x	~		í				х	х	x
	Cooling"								х												х	•										x					x								
	Switch "Heating/ Off/Cooling"																														х														
Features	Switch "Reduction/ Comfort/Automatic"																								>	ĸ							x								x				
Feat	Switch "Auxiliary heating"																												;	x															
	Display Display with back- lighting																								>	`													x		x				
	Indicator lamp							x			x									< >	(x	x						x			x >	< x		x	x	x	x
	"Heating" Indicator lamp																																												
	"Reduction"																																x									х	х	x	x
	Indicator lamp "Auxiliary heating"																												;	x															
	Control range -20+30 °C					x																																							
	Control range	x	x	x	x			x	x	x	x	x x	x	x	x		x	x	x	、	x	x	x	x	x >	x x	x	x	x	x x	x	x	xx	x	x	x	x	x	x						x
	530 °C Control range																																												
	1042 °C																																						x		х			х	
	Control range 1050 °C																																									х	x		
ogy	Control range						x									x																							,	(
lout	1060 °C Control range																																												
Technology	2080 °C																																							x					
	3000 W switching power									x	x													x	x								×												
	Internal setting													x	х	x																						x				х			
	2-wire connection												x										х																						
	24 V~ 230 V~		~							~	~	×			х			¥	~			x			× .		~		× .			~	~ .		x	x		~	~			~		~	
	230 V~ 24 V~ or 230 V~	x	X	~	X	X	X	х	x	~		x	X	X		x	×	^	x	``	X		x	^	~ >	n X	×	^	~)	xx	x	~	^ >					^ .	^ >	< X	×	x	~	x	^

x * Heating controllers using normally open valve actuators

Mechanical room temperature controller, RTBSB

Surface-mounted installation – Design Berlin 2000



Berlin 200
matt
pure whit
ABS plas
-20+7
Max. 95% densing
screw-typ 2.5 mm²
Surface/v sembly or

Protection rating: Safety and EMC: Average power consumption: Switching element: Sensor: General features: Berlin 2000 matt pure white, like RAL 9010 ABS plastic -20...+70 °C Max. 95% rel. humidity, non-condensing screw-type terminals 0.12 mm² to 2.5 mm² Surface/wall mounting (4-hole assembly on flush-mounted socket) IP 30 according to DIN EN 60730 < 0.5 W bimetallic contact

bimetal bimetal thermal feedback

Application

Control or monitoring of temperatures in closed spaces. Suitable for all heating systems.

Valve actuator: normally closed. If normally open heating valves are available, they should be connected with the cooling output of the changeover switch (toggler).

Up to a maximum of 10 actuators for valves can be connected (normally closed, NC); with a toggler, on the NO contact, up to 5 units (in this context, please check the switching capacity listed in the technical specifications).

Installation note: Owing to the existing wiring space in the controller itself, installation on a flush-mounted socket is recommended, but it can also be performed on a plane, non-conducting substrate.

Explanations of technical terms can be found in the annex to the product catalogue or at www.alre.de.

			Circuit diagram	
RTBSB-001.000	MA010000	General features: Mechanical range limitation; scale: Degrees Celsius; external setting Operating voltage: 230 VAC, 50 Hz Ambient temperature: 0 30 °C Protection class: II, if properly mounted Max. switching current: 10 (4) A Max. switching voltage: 230 VAC, 50 Hz Min. switching voltage: 230 VAC, 50 Hz Switching power: 2300 W Switching contact: NC contact (max. 10 actuators) Output signal: switching (230 VAC, 50 Hz) Control function: heating Control range: 530 °C Hysteresis: Approx. 0.5 K at a temperature change of max. 4 K/h	N N * L 4421 0	Ι
RTBSB-001.002	MA010100	General features: ECO function; mechanical range limitation; scale: degrees Celsius; external setting Operating voltage: 230 VAC, 50 Hz Ambient temperature: 030 °C Protection class: II, if properly mounted Max. switching current: 10 (4) A Max. switching voltage: 230 VAC, 50 Hz Min. switching voltage: 230 VAC, 50 Hz Switching power: 2300 W Switching contact: NC contact (max. 10 actuators) Output signal: switching (230 VAC, 50 Hz) Control function: heating Control range: 530 °C Hysteresis: Approx. 0.5 K at a temperature change of max. 4 K/h Input "temperature reduction": Approx. 4 K (230 VAC, 50 Hz)	N N * L O	I



			Circuit diagram	PG
RTBSB-001.010	MA010200	General features: Mechanical range limitation; scale: Degrees Celsius; external setting Operating voltage: 230 VAC, 50 Hz Ambient temperature: 030 °C Protection class: II, if properly mounted Max. switching current: Heating (terminal 3) 10 (4) A, cooling (terminal 1) 5 (2) A Max. switching voltage: 230 VAC, 50 Hz Min. switching voltage: 230 VAC, 50 Hz Switching power: Terminal 3: 2300 W, terminal 1: 1150 W Switching contact: changeover switch (toggler, max. 10 actuators output terminal 3, max. 5 actuators output terminal 1) Output signal: Switching (230 VAC, 50 Hz) Control function: heating or cooling Control range: 530 °C Hysteresis: Approx. 0.5 K at a temperature change of max. 4 K/h		I
RTBSB-001.026	MA010900	General features: mechanical range limitation; scale: Degrees Celsius; on/off switch; external setting Operating voltage: 230 VAC, 50 Hz Ambient temperature: 030 °C Protection class: II, if properly mounted Max. switching current: Heating (terminal 3) 10 (4) A, cooling (terminal 1) 5 (2) A, fan (terminal 2) 5 (2) A Max. switching voltage: 230 VAC, 50 Hz Min. switching voltage: 230 VAC, 50 Hz Switching power:terminal 3: 2300 W, terminal 1: 1150 W, terminal 2: 1150 W Switching contact:Changeover switch (toggler, max. 10 actuators output terminal 3, max. 5 actuators output terminal 1) Output signal: Switching (230 VAC, 50 Hz); fan perma- nently operating (230 VAC, 50 Hz) if device has been switched on Control function: Heating or cooling Control range: 530 °C Hysteresis: Approx. 0.5 K at a temperature change of max. 4 K/h	N N & ☆ ★ L (4 4 2 3 1 5 0 0 0	I
RTBSB-001.045	MA011200	General features: Mechanical range limitation; scale: Degrees Celsius; external setting Operating voltage: 230 VAC, 50 Hz Ambient temperature: -20 +30 °C Protection class: II, if properly mounted Max. switching current: Heating (terminal 3) 10 (4) A, cooling (terminal 1) 5 (2) A, Max. switching voltage: 230 VAC, 50 Hz Min. switching voltage: 230 VAC, 50 Hz Switching power: terminal 3: 2300 W, terminal 1: 1150 W Switching contact: Changeover switch (toggler, max. 10 actuators output terminal 3, max. 5 actuators output terminal 1) Output signal: Switching (230 VAC, 50 Hz) Control function: Heating or cooling Control range: -20 +30 °C Hysteresis: Approx. 1.5 K at a temperature change of max. 4 K/h	N N L ※ ₩ 44231 6	I

alre

Type/image			Circuit diagram	PG
RTBSB-001.048	MA011300	General features: Mechanical range limitation; scale: Degrees Celsius; external setting Operating voltage: 230 VAC, 50 Hz Ambient temperature: 1060 °C Protection class: II, if properly mounted Max. switching current: heating (terminal 3) 10 (4) A, cooling (terminal 1) 5 (2) A Max. switching voltage: 230 VAC, 50 Hz Min. switching voltage: 230 VAC, 50 Hz Switching power:terminal 3: 2300 W, terminal 1: 1150 W Switching contact: changeover switch (toggler, max. 10 actuators output terminal 3, max. 5 actuators output terminal 1) Output signal: switching (230 VAC, 50 Hz) Control function: heating or cooling Control range: 1060 °C Hysteresis: Approx. 1.5 K at a temperature change of max. 4 K/h	N N L * *	I
RTBSB-001.062	MA012400	General features: ECO function; "heating" display; mechanical range limitation; scale: degrees Celsius; on/off switch; external setting Input "temperature reduction": approx. 4 K (230 VAC, 50 Hz) Operating voltage: 230 VAC, 50 Hz Ambient temperature: 030 °C Protection class: II, if properly mounted Max. switching current: 10 (4) A Max. switching voltage: 230 VAC, 50 Hz Min. switching voltage: 230 VAC, 50 Hz Switching power: 2300 W Switching contact: NC contact (max. 10 actuators) Output signal: heating, switching (230 VAC, 50 Hz) Control function: heating Control range: 530 °C Hysteresis: Approx. 0.5 K at a temperature change of max. 4 K/h	© N N * L 14423 • • • • • •	I
RTBSB-001.065	MA010600	General features: mechanical range limitation; scale: Degrees Celsius; "heating/cooling" switch; external setting Operating voltage: 230 VAC, 50 Hz Ambient temperature: 0 30 °C Protection class: II, if properly mounted Max. switching current: 5 (2) A Max. switching voltage: 230 VAC, 50 Hz Min. switching voltage: 230 VAC, 50 Hz Switching power: 1150 W Switching contact: changeover switch (toggler, max. 5 actuators) Output signal: switching (230 VAC, 50 Hz) Control function: heating or cooling Control range: 530 °C Hysteresis: Approx. 0.5 K at a temperature change of max. 4 K/h	N N ** L	I



Type/image			Circuit diagram PC	G
RTBSB-001.086	MA010800	General features: Mechanical range limitation; 3000 W switching power, for electric direct heating systems, natural stone heating; multi-digit display 1 6; external setting Operating voltage: 230 VAC, 50 Hz Ambient temperature: 0 30 °C Protection class: II, if properly mounted Max. switching current: 13 (4) A Max. switching voltage: 230 VAC, 50 Hz Min. switching voltage: 230 VAC, 50 Hz Switching power: 3000 W Switching contact: NC contact Output signal: switching (230 VAC, 50 Hz) Control function: heating Control range: 5 30 °C Hysteresis: Approx. 1 K at a temperature change of max. 4 K/h Accessories: can be combined with plug-in socket JZ-19	N N * L	I
RTBSB-001.096	MA012500	like RTBSB-001.086, but with "heating" display (LED red)	NN×L 4421 0	I
RTBSB-001.110	MA012701	General features: Mechanical range limitation; scale: Degrees Celsius; external setting Operating voltage: 230 VAC, 50 Hz or 24 VAC, 50 Hz Ambient temperature: 030 °C Protection class: II, if properly mounted; with 24 V, protection class III Max. switching current: Heating (terminal 3) 230 VAC 10 (4) A or 24 VAC 2 (2) A, cooling (terminal 1) 5 (2) A or 24 VAC 2 (2) A Max. switching voltage: 230 VAC, 50 Hz Min. switching voltage: 24 VAC, 50 Hz Switching power: Terminal 3: 2300 W at 230 VAC, 48 W at 24 VAC, terminal 1: 1150 W at 230 VAC, 48 W at 24 VAC Switching contact: Changeover switch (toggler, max. 5 actuators) Output signal: Switching (230 VAC, 50 Hz or 24 VAC, 50 Hz) Output signal: Cooling, switching (230 VAC, 50 Hz or 24 VAC, 50 Hz) Control function: heating or cooling Control range: 530 °C Hysteresis: Approx. 0.5 K at a temperature change of max. 4 K/h	24V 230V N N N N L * * * 5 4 4 2 3 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	

alre

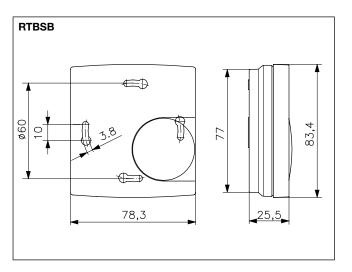
Type/image			Circuit diagram PG
RTBSB-001.202	MA011700	General features: ECO function; mechanical range limitation; scale: Degrees Celsius; external setting Operating voltage: 24 VAC, 50 Hz Ambient temperature: 030 °C Protection class: III Max. switching current: 1 (1) A Max. switching voltage: 24 VAC, 50 Hz Min. switching voltage: 24 VAC, 50 Hz Switching power: 24 W Switching contact: NC contact (max. 5 actuators) Output signal: switching (24 VAC, 50 Hz) Control function: heating Control range: 530 °C Hysteresis: Approx. 0.5 K at a temperature change of max. 4 K/h Input "temperature reduction": Approx. 4 K (24 VAC, 50 Hz)	
RTBSB-001.500	MA013401	General features: 2-wire room temperature controller; mechanical range limitation; multi-digit display * 6; external setting Operating voltage: 230 VAC, 50 Hz Ambient temperature: 0 30 °C Protection class: II, if properly mounted Max. switching current: 1 A or 5 A (see circuit diagram) Min. switching current: 0.5 A or 1 A (see circuit diagram) Min. switching voltage: 230 VAC, 50 Hz Min. switching voltage: 230 VAC, 50 Hz Switching power: 230 W or 1150 W (see circuit diagram) Switching contact: NC contact Output signal: switching (230 VAC, 50 Hz) Control function: heating Control range: 530 °C Hysteresis: Approx. 1 K at a temperature change of max. 4 K/h (load-dependent)	θ 1.5A 3.1A 3.
RTBSB-001.910	MA012000	General features: ECO function; scale: Degrees Celsius; internal setting Operating voltage: 230 VAC, 50 Hz Ambient temperature: 030 °C Protection class: II, if properly mounted Max. switching current: Heating (terminal 3) 10 (4) A, cooling (terminal 1) 5 (2) A, Max. switching voltage: 230 VAC, 50 Hz Min. switching voltage: 230 VAC, 50 Hz Switching power: Terminal 3: 2300 W, terminal 1: 1150 W Switching contact: changeover switch (toggler, max. 10 actuators output terminal 3, max. 5 actuators output terminal 1) Output signal: switching (230 VAC, 50 Hz) Control function: heating or cooling Control range: 530 °C Hysteresis: Approx. 0.5 K at a temperature change of max. 4 K/h Input "temperature reduction": Approx. 4 K (230 VAC, 50 Hz)	
RTBSB-001.910/2	MA012100	General features: ECO function; scale: Degrees Celsius; internal setting Operating voltage: 24 VAC, 50 Hz Ambient temperature: 030 °C Protection class: III Max. switching voltage: 24 VAC, 50 Hz Min. switching voltage: 24 VAC, 50 Hz Switching power: 24 W Switching contact: changeover switch (toggler, max. 3 actuators) Output signal: switching (24 VAC, 50 Hz) Control function: heating or cooling Control range: 530 °C Hysteresis: Approx. 0.5 K at a temperature change of max. 4 K/h Input "temperature reduction": Approx. 4 K (24 VAC, 50 Hz)	

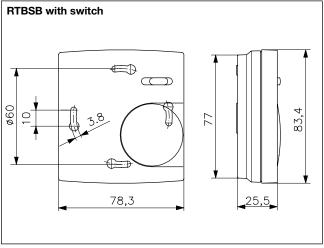
Mechanical room temperature controller, RTBSB Surface-mounted installation – Design Berlin 2000

Type/image			Circuit diagram	PG
RTBSB-001.948/1	MA012600	 General features: scale: Degrees Celsius; internal setting Operating voltage: 230 VAC, 50 Hz or 24 VAC, 50 Hz Ambient temperature: 1060 °C Protection class: II, if properly mounted; with 24 V, protection class III Max. switching current: Heating (terminal 3) 230 VAC 10 (4) A or 24 VAC 2 (2) A, cooling (terminal 1) 5 (2) A or 24 VAC 2 (2) A, Max. switching voltage: 230 VAC, 50 Hz Min. switching voltage: 24 VAC, 50 Hz Switching power:terminal 3: 2300 W at 230 VAC, 48 W at 24 VAC, terminal 1: 1150 W at 230 VAC, 48 W at 24 VAC Switching contact: changeover switch (toggler, max. 10 actuators output terminal 3, max. 5 actuators output terminal 1) Output signal: switching (230 VAC, 50 Hz or 24 VAC, 50 Hz) Control function: Heating or cooling Control range: 1060 °C Hysteresis: Approx. 1.5 K at a temperature change of max. 4 K/h 	24V 230V N N N N L * *	I

Accessories: terminal strips VOOxx, suitable valve actuators ZBOOA

You can find other/similar controllers with outputs for heating/cooling and noiseless controllers in the "Air Conditioning Technology" chapter.







Mechanical room temperature controller, RTBSB Surface-mounted "ultra-thin" installation – Design Berlin 1000

Ī

Surface-mounted	a uitra-thi	n" installation – Design I	Berlin 1000		
		Technical data		Application	
		Design: Surface finish:	Berlin 1000 glossy	Control or monitoring of temperatures in closed spaces.	
alro		Housing colour: Housing material: Ambient temperature: Storage temperature: Permissible atmospheric humidity: Electrical connection: Mounting/attachment: Mounting/attachment: Protection rating: Safety and EMC: Average power consump- tion: Max. switching current: Switching element: Sensor: Control range: Hysteresis: General features:	pure white, like RAL 9010 ABS plastic 030 °C -20+70 °C Max. 95% rel. humidity, non-con- densing screw-type terminals 0.33 mm ² to 1.5 mm ² Surface/wall mounting (4-hole as- sembly on flush-mounted socket) IP 30 according to DIN EN 60730 < 0.25 W 2 (1) A bimetallic contact bimetal 530 °C approx. 0.5 K at a temperature change of max. 4 K/h mechanical range limitation; thermal	 In closed spaces. Valve actuator: normally closed. If normally open heating valves are available, they should be connected with the cooling output of the changeover switch (toggler). Up to a maximum of 10 actuators for valves can be connected (normally closed, NC); with a toggler, on the NO contact, up to 5 units (in this context, please check the switching capacity listed in the technical specifications). Installation note: Owing to the existing wiring space in the controller itself, installation on a flush-mounted socket is recommended, but it can also be performed on a plane, non-conducting substrate. Explanations of technical terms can be found in the annex to the product catalogue or at www.alre.de. 	
Turce/image	ltore no	Factures	feedback; external setting		
Type/image RTBSB-201.000	Item no.	Features General features: scal Operating voltage: 230 Protection class: II, if p Max. switching voltage Min. switching voltage Switching power: 460 Switching contact: NC Output signal: switchin Control function: heati	0 VAC, 50 Hz properly mounted e: 230 VAC, 50 Hz e: 230 VAC, 50 Hz W C contact (max. 10 actuators) ng (230 VAC, 50 Hz)	Circuit diagram PG	
RTBSB-201.000/08	MA300008		ut with multi-digit display 1 6	I	
RTBSB-201.000-20	MA300800	Like RTBSB-201.000 bi studio white, like RAL 9	ut with housing colour: Traffic/ 0016	I	
RTBSB-201.002	MA300100	Celsius Operating voltage: 230 Protection class: II, if p Max. switching voltage Min. switching voltage Switching power: 460	oroperly mounted e: 230 VAC, 50 Hz e: 230 VAC, 50 Hz	L N N * © 14423 0, 0,	

Switching contact: NC contact (max. 10 actuators) Output signal: switching (230 VAC, 50 Hz)

Input "temperature reduction": Approx. 3 K (230 VAC, 50 Hz)

Control function: Heating



			Circuit diagram	
RTBSB-201.010	MA300200	General features: scale: Degrees Celsius Operating voltage: 230 VAC, 50 Hz Protection class: II, if properly mounted Max. switching voltage: 230 VAC, 50 Hz Min. switching voltage: 230 VAC, 50 Hz Switching power: 460 W Switching contact: changeover switch (toggler, max. 10 actuators (NC contact), max. 5 actuators (NO contact)) Output signal: switching (230 VAC, 50 Hz)	L N N * *	Ι
		Control function: Heating or cooling		
RTBSB-201.034	MA301400	General features: "Heating" display; scale: Degrees Celsius Operating voltage: 230 VAC, 50 Hz Protection class: II, if properly mounted Max. switching voltage: 230 VAC, 50 Hz Min. switching voltage: 230 VAC, 50 Hz Switching power: 460 W Switching contact: NC contact (max. 10 actuators) Output signal: switching (230 VAC, 50 Hz) Control function: heating	N N * L 4 4 2 1 Φ	I
RTBSB-201.062	MA300400	General features: ECO function; "heating" display; Scale: Degrees Celsius; "on/off" switch Operating voltage: 230 VAC, 50 Hz Protection class: II, if properly mounted Max. switching voltage: 230 VAC, 50 Hz Min. switching voltage: 230 VAC, 50 Hz Switching power: 460 W Switching contact: NC contact (max. 10 actuators) Output signal: switching (230 VAC, 50 Hz) Control function: Heating Input "temperature reduction": Approx. 3 K (230 VAC, 50 Hz)	N N % L O 44263 +	Ι
RTBSB-201.065	MA300500	General features: Climate controller for 2-pipe sys- tems, especially heat pumps; scale: Degrees Celsius; "heating/cooling" switch Operating voltage: 230 VAC, 50 Hz Protection class: II, if properly mounted Max. switching voltage: 230 VAC, 50 Hz Min. switching voltage: 230 VAC, 50 Hz Switching power: 460 W Switching contact: changeover switch (toggler, max. 5 actuators) Output signal: switching (230 VAC, 50 Hz) Control function: Heating or cooling		Ι
RTBSB-201.065/02	MA300502	Like RTBSB-201.065 but with multi-digit display 1 6		I
RTBSB-201.202	MA302100	General features: ECO function; Scale: Degrees Celsius Operating voltage: 24 VAC, 50 Hz Protection class: III Max. switching voltage: 24 VAC, 50 Hz Min. switching voltage: 24 VAC, 50 Hz Switching power: 48 W Switching contact: NC contact (max. 5 actuators) Output signal: switching (24 VAC, 50 Hz) Control function: Heating Input "temperature reduction": Approx. 3 K (24 VAC, 50 Hz)	L N N * (9 14423 0 0	Ι

Ire

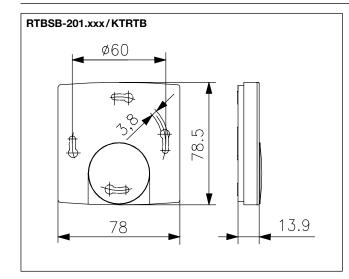
Mechanical room temperature controller, RTBSB Surface-mounted "ultra-thin" installation – Design Berlin 1000

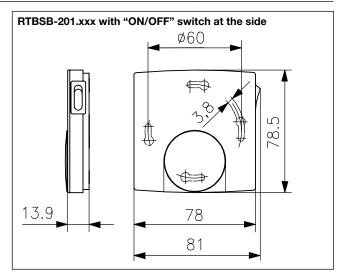
			Circuit diagram	
RTBSB-201.500	MA304000	General features: 2-wire room temperature control- ler; multi-digit display *6 Operating voltage: 230 VAC, 50 Hz Ambient temperature: 030 °C Protection class: II, if properly mounted Max. switching current: 20 mA Min. switching current: 5 mA Max. switching voltage: 230 VAC, 50 Hz Min. switching voltage: 230 VAC, 50 Hz Switching voltage: 230 VAC, 50 Hz Switching power: 4.6 W (max. 2 actuators) Switching contact: NC contact Output signal: Switching (230 VAC, 50 Hz) Control function: heating Control range: 530 °C Hysteresis: Approx. 0.5 K at a temperature change of max. 4 K/h (load-dependent)		I

Accessories: Terminal strips VOOxx, suitable valve actuators ZBOOA

You can find other/similar controllers with outputs for heating/cooling and noiseless controllers in the "Air Conditioning Technology" section.

JZ-21	MN990006	Adapter frame for mounting room temperature controllers of the Berlin 1000 series in flush-mounted sockets up to 80 x 80 mm	I
ET-01	MA990000	Adjusting knob for B1000 series devices, scale: Degrees Celsius, pure white glossy	I
ET-02	MA990001	Adjusting knob for B1000 series devices, multi-digit display 16, pure white glossy	I





Mechanical room temperature controller, RTBSB

Surface-mounted or plug-in installation – Design Berlin

	• • • •
_	

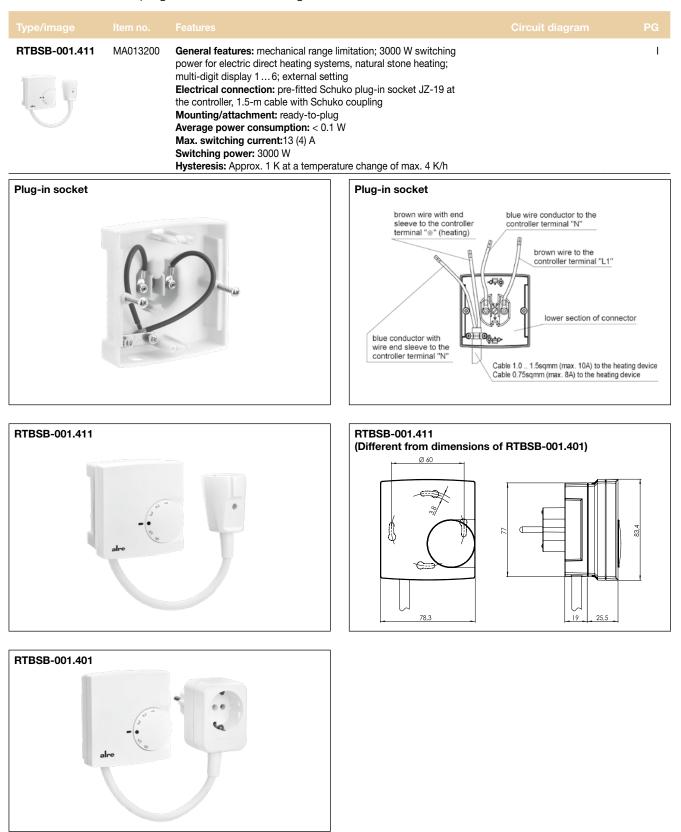
Technical data		Application
Design: Surface finish: Housing colour: Housing material: Operating voltage:	Berlin 2000 matt pure white, like RAL 9010 ABS plastic 230 VAC, 50 Hz	For controlling the room temperature for radiators, heating chimneys, direct electric heating systems, marble heating systems etc. Attention! For loads > 2,300 W, the
Ambient temperature: Storage temperature:	030 °C −20+70 °C	wall socket must be designed for 16 A (danger of fire).
Permissible atmospheric humidity:	Max. 95% rel. humidity, non-con- densing	The plugs are designed in such a way that they can also be used in sockets
Protection rating: Protection class:	IP 30 II for loads of protection classes I and II	with a central pin (for example, as used in France).
Safety and EMC:	according to DIN EN 60730	
Max. switching voltage: Min. switching voltage:	230 VAC, 50 Hz 230 VAC, 50 Hz	
Switching element: Switching contact:	bimetallic contact NC contact	
Output signal: Sensor:	switching (230 VAC, 50 Hz) bimetal	
Control function: Control range:	heating 5…30 °C	
Hysteresis:	approx. 1 K at a temperature change of max. 4 K/h	

Type/image			Circuit diagram	PG
JZ-19	MN990003	General features: plug-in socket (as with RTBSB-001.411/RTBSB-001.474) completely pre-wired Mounting/attachment:can be fitted with room thermostats RTBSB-001.xxx Protection rating: depends on the pre-fitted room thermostat Protection class: depends on the pre-fitted room thermostat Max. switching current: depends on the pre-fitted room thermostat Switching power: 3000 W		I
RTBSB-001.086	MA010800	General features: Mechanical range setting; 3000 W switching power for electric direct heating systems, natural stone heating; thermal feedback; multi-digit display 1 6; external setting Electrical connection: screw-type terminals 0.12 mm ² to 2.5 mm ² Average power consumption: < 0.5 W Max. switching current: 13 (4) A Switching power: 3000 W Accessories: can be combined with plug-in socket JZ-19		I
RTBSB-001.096	MA012500	like RTBSB-001.086, but with "heating" display (LED red)	$\begin{array}{c c} N & N & \stackrel{*}{\Rightarrow} \\ \hline 4 & 4 & 2 \\ \hline \\ \bullet \\ \bullet$	I
RTBSB-001.401	MA013100	General features: mechanical range limitation; 3000 W switching power for electric direct heating systems, natural stone heating; multi-digit display 16; external setting Electrical connection: Schuko adapters Mounting/attachment: optionally surface/wall mounting (4-hole assembly on flush-mounted socket) or with adapter plate (2-hole assembly) for wall hanging Average power consumption: < 0.1 W Max. switching current:13 (4) A Switching power:3000 W Connecting cable: 1.5 m		I

alre

Mechanical room temperature controller, RTBSB

Surface-mounted or plug-in installation - Design Berlin



Electronic room temperature controller with clock, HTRRBu Surface-mounted installation – Berlin 3000

	Technical data		Application
alre	Design: Surface finish: Housing colour:	Berlin 3000 matt pure white, like RAL 9010	For time-dependent control of temperatures in closed spaces. Suitable for all heating systems.
	Housing material: Operating voltage:	ABS plastic 230 VAC, 50 Hz	Valve actuator: normally closed.
	Ambient temperature: Storage temperature:	030 °C –20+70 °C	It can be used as a master (pilot regulator) for the temperature reduction of other con- trollers. Controllers of series FETR, RTBSU
	Permissible atmospher- ic humidity:	Max. 95% rel. humidity, non-con- densing	and RTBSB are suitable as slaves (satellite controllers).
	Electrical connection: Mounting/attachment:	screw-type terminals surface/wall mounting or by means of an adapter plate on a flush-mounted socket	Programming procedures for every day, familiar from mechanical timers, by means of "electronic tabs". Shortest switching time 15 min.
	Protection rating: Protection class:	IP 30 II, if properly mounted	Load setting: The control accuracy is influenced by the different levels of intrinsic heating of the controller depending on the magnitude of the heating load. By inputting
	Safety and EMC: Max. switching current:	according to DIN EN 60730 Heating (terminal 4) 8 (2) A, cool- ing (terminal 3) 100 mA	
	Max. switching voltage: Min. switching voltage:	230 VAC, 50 Hz 230 VAC, 50 Hz	the heating load, this influence is compensat- ed and the control accuracy is retained.
	Switching power:	terminal 4: 1840 W, terminal 3: 23 W	General features: Pilot function; ECO function, ECO value
	Switching element: Switching contact:	relay NO contact	adjustable; "ECO" display; "on/off" display; "heating" display; digital actual value display; child-safe features; power reserve (approx.
	Output signal:	heating, switching (230 VAC, 50 Hz)	4–7 days); load setting; actual value cor- rection/measured value correction; learning
	Sensor: Control function:	NTC heating	function; valve protection; holiday setting; party setting; automatic adjustment to stan-
	Control range: Hysteresis:	530 °C < 1 K	dard/daylight savings time; mechanical range limitation; scale: Degrees Celsius; reduction/ comfort/automatic button; external setting;
	Display type: Output "temperature reduction":	symbol display switching (230 VAC, 50 Hz) (for pilot function)	operation using direct-dial buttons; on/off but- ton; information button; party function button; holiday setting button

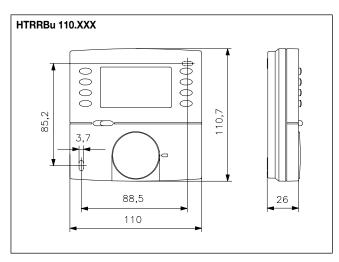
HTRRBu 110.117/21	MA600003		I
JZ-17	MN990001	Surface finish: Matt Colour: pure white, like RAL 9010 Material: ABS plastic General features: adapter plate for mounting devices on flush-mounted sockets (including fastening screws for mounting the controller on the adapter plate)	II

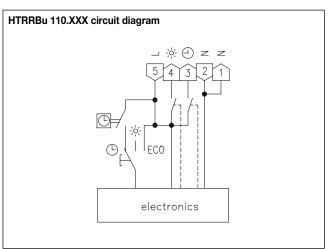
(including fastening screws for mounting the controller on the adapter plate)



Electronic room temperature controller with clock, HTRRBu

Surface-mounted installation – Berlin 3000





Factory setting:

- Setback temperature 17 °C
- Continuous time display
- Programme display using switching segments enabled
- Child-safe features disabled
- Automatic adjustment to standard/daylight savings time enabled
 °C display, valve and pump protection disabled
- Learning function disabled
- Heating load 0.0 kW
- Comfort times: Mon-Fri 5 am-9 am/4 pm-10 pm, Sat/Sun 6 am-10 pm



NEW at alre – FTR is now RTBSU: The next generation bimetal controller

Our FTR controller is now the RTBSU controller. The new and optimised room controller offers you a number of advantages that make mounting and attachment considerably easier. This can save you time, and above all, costs.

Your benefits at a glance

- Simple electrical connection without screws
- New terminals for quick and easy installation
- Simplified wiring through colour-coded terminals
- Time saving modular design: Practical installation sequence for controller, frame and cover
- Low installation volume for convenient and quick installation in the flush-mounted socket
- Temperature can be controlled even without a cover
- Closed design
- Optimal screw entry
- Multifunctional support ring for international use
- Suitable for all current switch ranges (50 mm and 55 mm cover set)
- Up to 30% subsidy with BAFA funding

Old item no.	Old type			Remarks
UA010017	FTR 101.000#00	UA090000	RTBSU-401.000#00	
UN010009	FTR 101.000#21	UA090014	RTBSU-401.000#21	
UA010134	FTR 101.002#00	UA090001	RTBSU-401.002#00	
UA010222	FTR 101.010#00	UA090002	RTBSU-401.010#00	
UA012404	FTR 101.034#07	UA090004	RTBSU-401.034#00	+ JZ-016.000
UA012405	FTR 101.034#55	UA090004	RTBSU-401.034#00	+ JZ-016.100
UA010702	FTR 101.052#21	UA090015	RTBSU-401.052#21	
UA010811	FTR 101.062#00	UA090003	RTBSU-401.062#00	
UA011000	FTR 101.063#00	UA090006	RTBSU-401.063#00	
UA010910	FTR 101.065#00	UA090007	RTBSU-401.065#00	
UA010415	FTR 101.075#00	UA090008	RTBSU-401.075#00	
UA010615	FTR 101.086#00	UA090009	RTBSU-401.086#00	
UN010607	FTR 101.086#21	UA090016	RTBSU-401.086#21	
UA012008	FTR 101.202#00	UA090010	RTBSU-401.202#00	
UN102009	FTR 101.202#21	UA090010	RTBSU-401.202#00	+ JZ-001.000 + JZ-090.900
UA012301	FTR 101.210#00	UA090011	RTBSU-401.210#00	
UA012500	FTR 101.262#00	UA090012	RTBSU-401.262#00	
UA012501	FTR 101.262#21	UA090012	RTBSU-401.262#00	+ JZ-002.000 + JZ-090.900
UA012600	FTR 101.265#00	UA090017	RTBSU-401.265#00	
UA013000	FTR 101.902#07	UA090013	RTBSU-401.902#07	
AR				

The state of the lot

Type comparison overview between old (FTR) and new (RTBSU):

alre Mechanical room temperature controller, RTBSU



(previously FTR) Flush-mounted installation – Design Berlin UP

Design: Berlin UP (flush-mounted) Control or monitoring	
Housing material: PA6 plastic in closed, dry spaces. Ambient temperature: 030 °C heating systems.	
Storage temperature: -20+70 °C Valve actuator: normal	Ily closed. If
Permissible atmospheric humidity: Max. 95% rel. humidity, non-con- densing normally open heating available, they should	be connect-
Electrical connection: Spring-loaded terminals (lever actu- ation type) ed to the cooling outp changeover switch (to	
Mounting/attachment: in flush-mounted socket – with cover RTBSU-401.010	
set 50 x 50 mm or 55 x 55 mm, can be used with almost all switch ranges (deep flush-mounted socket recom- mended) Up to a maximum of 1 valves can be connect closed, NC); up to 5 ut toggler with a NO com	ted (normally inits on the
Protection rating: IP 30	laci.
Protection class: II, if properly mounted, The basic controllers (RTBSU-401.xxx#00) i	in combination
Safety and EMC: according to DIN EN 60730 with a 55 x 55 mm cov	
Max. power consumption: < 0.5 W ly perfectly in many sw without the use of an i	
Switching element: bimetallic contact	insert nume.
Output signal: switching The basic controllers	
Sensor: bimetal (RTBSU-401.xxx#00) i	
Control range: 530 °C nearly all switch range	
Setting range: 530 °C of an insert frame.	
Hysteresis: approx. 0.5 K at a temperature change of max. 4 K/h	
General features: thermal feedback; multi-digit display *6	

			Circuit diagram	
RTBSU-401.000#00 Predecessor type: FTR 101.000#00	UA090000	General features: Mechanical range limitation; external setting; protective cap; VDE-tested Operating voltage: 230 VAC, 50 Hz Max. switching current: 10 (4) A Max. switching voltage: 230 VAC, 50 Hz Min. switching voltage: 230 VAC, 50 Hz Switching power: 2300 W Switching contact: NC contact (max. 10 actuators) Control function: Heating	θ	I
		Cover sets are offered in various designs (see the separate over- view, "alre flush-mounted range (cover sets)") and are not included in the delivery. Suitable set no: JZ-001.xxx, (see page 82/83) e.g.: cover set 50 x 50 mm, pure white, glossy: JZ-001.000 cover set 55 x 55 mm, pure white, glossy: JZ-001.100 BUSCH-JAEGER cover set Reflex SI/SI Linear, pure white, glossy: JZ-001.200/BJ		
RTBSU-401.000#21 Predecessor type: FTR 101.000#21	UA090014	like RTBSU-401.000#00 but scope of delivery as follows: Controller, alre frame "Berlin" (neutral), cover 50 x 50 mm, pure white (like RAL 9010), glossy		I





NEW

Type/image			Circuit diagram	PG
RTBSU-401.002#00 Predecessor type: FTR 101.002#00	UA090001	General features: ECO function; mechanical range limitation; external setting; protective cap; VDE-tested Operating voltage: 230 VAC, 50 Hz Max. switching current: 10 (4) A Max. switching voltage: 230 VAC, 50 Hz Min. switching voltage: 230 VAC, 50 Hz Switching power: 2300 W Switching contact: NC contact (max. 10 actuators) Control function: Heating Input "temperature reduction": Approx. 4 K (230 VAC, 50 Hz) Cover sets are offered in various designs (see the separate overview, "alre flush-mounted range (cover sets)") and are not included in the delivery. Suitable set no: JZ-001.xxx, (see page 82/83) e.g.: cover set 50 x 50 mm, pure white, glossy: JZ-001.000 cover set 55 x 55 mm, pure white, glossy: JZ-001.200/BJ		I
RTBSU-401.010#00 Predecessor type: FTR 101.010#00	UA090002	General features: ECO function; mechanical range limitation; external setting; protective cap; VDE-tested Operating voltage: 230 VAC, 50 Hz Max. switching current: heating terminal 10 (4) A, cooling terminal 5 (2) A, Max. switching voltage: 230 VAC, 50 Hz Min. switching voltage: 230 VAC, 50 Hz Switching power: heating terminal: 2300 W, Cooling terminal: 1150 W Switching contact: changeover switch (toggler, max. 10 actua- tors output heating, max. 5 actuators output cooling) Control function: Heating or cooling Input "temperature reduction": Approx. 4 K (230 VAC, 50 Hz) Cover sets are offered in various designs (see the separate overview, "alre flush-mounted range (cover sets)") and are not included in the delivery. Suitable set no: JZ-001.xxx, (see page 82/83) e.g.: cover set 50 x 50 mm, pure white, glossy: JZ-001.000 cover set 55 x 55 mm, pure white, glossy: JZ-001.200/BJ		I
RTBSU-401.034#00 Predecessor type: FTR 101.034#07/ FTR 101.034#55	UA090004	General features: "Heating" display; mechanical range limitation; external setting; Operating voltage: 230 VAC, 50 Hz Max. switching current: 10 (4) A Max. switching voltage: 230 VAC, 50 Hz Min. switching voltage: 230 VAC, 50 Hz Switching power: 2300 W Switching contact: NC contact (max. 10 actuators) Control function: Heating Cover sets are offered in various designs (see the separate overview, "alre flush-mounted range (cover sets)") and are not included in the delivery. Suitable set no: JZ-016.xxx, (see page 82/83) e.g.: cover set 50 x 50 mm, pure white, glossy: JZ-016.000 cover set 55 x 55 mm, pure white, glossy: JZ-016.100		Ι





			Circuit diagram	
RTBSU-401.052#21 Predecessor type: FTR 101.052#21	UA090015	General features: "Auxiliary heating" display; mechanical range limitation; auxiliary heating switch; external setting Operating voltage: 230 VAC, 50 Hz Max. switching current: the total current (heating + auxiliary heating) may not exceed 10 (4) A Max. switching voltage: 230 VAC, 50 Hz Min. switching voltage: 230 VAC, 50 Hz Switching power: the total power output (heating + auxiliary heating) may not exceed 2300 W Switching contact: NC contact (max. 10 actuators) Control function: Heating Scope of delivery: controller, alre frame "Berlin" (neutral), cover 50 x 50 mm, pure white (like RAL 9010), glossy		Ι
RTBSU-401.062#00 Predecessor type: FTR 101.062#00	UA090003	General features: ECO function; "heating" display; mechanical range limitation; "on/off" switch; external setting; protective cap; VDE-tested Operating voltage: 230 VAC, 50 Hz Max. switching current: 10 (4) A Max. switching voltage: 230 VAC, 50 Hz Min. switching voltage: 230 VAC, 50 Hz Switching power: 2300 W Switching contact: NC contact (max. 10 actuators) Control function: Heating Input "temperature reduction": Approx. 4 K (230 VAC, 50 Hz)		I
		Cover sets are offered in various designs (see the separate over- view, "alre flush-mounted range (cover sets)") and are not included in the delivery. Suitable set no: JZ-002.xxx, (see page 82/83) e.g.: cover set 50 x 50 mm, pure white, glossy: JZ-002.000 cover set 55 x 55 mm, pure white, glossy: JZ-002.100 BUSCH-JAEGER cover set Reflex SI/SI Linear, pure white, glossy: JZ-002.200/BJ		
RTBSU-401.063#00 Predecessor type: FTR 101.063#00	UA090006	General features: Climate controller for 2-pipe systems, mechanical range limitation; "heating/off/cooling" switch; external adjustment; protective cap Operating voltage: 230 VAC, 50 Hz Max. switching current: 5 (2) A Max. switching voltage: 230 VAC, 50 Hz Min. switching voltage: 230 VAC, 50 Hz Switching power: 1150 W Switching contact: changeover switch (max. 5 actuators) Control function: Heating or cooling		Ι
		For cover sets see the separate overview "alre flush-mounted range (cover sets)", not included in the delivery. Suitable set no: JZ-012.xxx, (see page 82/83) e.g.: cover set 50 x 50 mm, pure white, glossy: JZ-012.000 cover set 55 x 55 mm, pure white, glossy: JZ-012.100		
RTBSU-401.065#00 Predecessor type: FTR 101.065#00	UA090007	General features: Climate controller for 2-pipe systems, espe- cially heat pumps; mechanical range limitation; "heating/cool- ing" switch; external setting; protective cap Operating voltage: 230 VAC, 50 Hz Max. switching current: 5 (2) A Max. switching voltage: 230 VAC, 50 Hz Min. switching voltage: 230 VAC, 50 Hz Switching power: 1150 W Switching contact: changeover switch (toggler, max. 5 actuators) Control function: Heating or cooling		1
		Cover sets are offered in various designs (see the separate overview, "alre flush-mounted range (cover sets)") and are not included in the delivery. Suitable set no: JZ-004.xxx, (see page 82/83) e.g.: cover set 50 x 50 mm, pure white, glossy: JZ-004.000 cover set 55 x 55 mm, pure white, glossy: JZ-004.100		



NEW

Type/image			Circuit diagram	PG
RTBSU-401.075#00 Predecessor type: FTR 101.075#00	UA090008	General features: ECO function; "reduction" display; mechanical range limitation; "reduction/ heating/reduction via external timer" switch; external setting; protective cap; VDE-tested Operating voltage: 230 VAC, 50 Hz Max. switching current: 10 (4) A Max. switching voltage: 230 VAC, 50 Hz Min. switching voltage: 230 VAC, 50 Hz Switching power: 2300 W Switching contact: NC contact (max. 10 actuators) Control function: Heating Input "temperature reduction": Approx. 4 K (230 VAC, 50 Hz) Cover sets are offered in various designs (see the separate over- view, "alre flush-mounted range (cover sets)") and are not included in the delivery. Suitable set no: JZ-003.xxx, (see page 82/83) e.g.: cover set 50 x 50 mm, pure white, glossy: JZ-003.000 cover set 55 x 55 mm, pure white, glossy: JZ-003.100		I
RTBSU-401.086#00 Predecessor type: FTR 101.086#00	UA090009	General features: Mechanical range limitation; 3000 W switch- ing power, for electric direct heating systems, natural stone heating; external setting; protective cap Operating voltage: 230 VAC, 50 Hz Max. switching current: 13 (4) A Max. switching voltage: 230 VAC, 50 Hz Min. switching voltage: 230 VAC, 50 Hz Switching power: 3000 W Switching contact: NC contact Control function:Heating Cover sets are offered in various designs (see the separate		I
RTBSU-401.086#21 Predecessor type: FTR 101.086#21	UA090016	overview, "alre flush-mounted range (cover sets)") and are not included in the delivery. Suitable set no: JZ-001.xxx, (see page 82/83) e.g.: cover set 50 x 50 mm, pure white, glossy: JZ-001.000 cover set 55 x 55 mm, pure white, glossy: JZ-001.100 BUSCH-JAEGER cover set Reflex SI/SI Linear, pure white, glossy: JZ-001.200/BJ like RTBSU-401.086#00 but scope of delivery as follows: Controller, alre frame "Berlin" (neutral), cover 50 x 50 mm, pure white (like RAL 9010), glossy	1	1
RTBSU-401.202#00 Predecessor type: FTR 101.202#00	UA090010	General features: ECO function; mechanical range limitation; external setting; protective cap Operating voltage: 24 VAC/50 Hz, 24 VDC Max. switching current: 1 (1) A Max. switching voltage: 24 VAC/50 Hz, 24 VDC Min. switching voltage: 24 VAC/50 Hz, 24 VDC Switching power: 24 W Switching contact: NC contact (max. 5 actuators) Control function: Heating Input "temperature reduction": Approx. 4 K (24 VAC/50 Hz, 24 VDC)		I
		Cover sets are offered in various designs (see the separate over- view, "alre flush-mounted range (cover sets)") and are not included in the delivery. Suitable set no: JZ-001.xxx, (see page 82/83) e.g.: cover set 50 x 50 mm, pure white, glossy: JZ-001.000 cover set 55 x 55 mm, pure white, glossy: JZ-001.100 BUSCH-JAEGER cover set Reflex SI/SI Linear, pure white, glossy: JZ-001.200/BJ	ı	





			Circuit diagram	PG
RTBSU-401.210#00 Predecessor type: FTR 101.210#00	UA090011	General features: ECO function; mechanical range limitation; external setting; protective cap Operating voltage: 24 VAC/50 Hz, 24 VDC Max. switching current: 1 (1) A Max. switching voltage: 24 VAC/50 Hz, 24 VDC Min. switching voltage: 24 VAC/50 Hz, 24 VDC Switching power: 24 W Switching contact: changeover switch (toggler, max. 5 actuators) Control function: Heating or cooling Input "temperature reduction": Approx. 4 K (24 VAC/50 Hz, 24 VDC)		I
		Cover sets are offered in various designs (see the separate overview, "alre flush-mounted range (cover sets)") and are not included in the delivery. Suitable set no: JZ-001.xxx, (see page 82/83) e.g.: cover set 50 x 50 mm, pure white, glossy: JZ-001.000 cover set 55 x 55 mm, pure white, glossy: JZ-001.100 BUSCH-JAEGER cover set Reflex SI/SI Linear, pure white, glossy: JZ-001.200/BJ		
RTBSU-401.262#00 Predecessor type: FTR 101.262#00	UA090012	General features: ECO function; "heating" display; mechanical range limitation; "on/off" switch; external setting; protective cap Operating voltage: 24 VAC/50 Hz Max. switching current: 1 (1) A Max. switching voltage: 24 VAC/50 Hz Min. switching voltage: 24 VAC/50 Hz Switching power: 24 W Switching contact: NC contact (max. 5 actuators) Control function: Heating Input "temperature reduction": Approx. 4 K (24 VAC/50 Hz)		I
		Cover sets are offered in various designs (see the separate overview, "alre flush-mounted range (cover sets)") and are not included in the delivery. Suitable set no: JZ-002.xx, (see page 82/83) e.g.: cover set 50 x 50 mm, pure white, glossy: JZ-002.000 cover set 55 x 55 mm, pure white, glossy: JZ-002.100 BUSCH-JAEGER cover set Reflex SI/SI Linear, pure white, glossy: JZ-002.200/BJ		
RTBSU-401.265#00 Predecessor type: FTR 101.265#00	UA090017	General features: Climate controller for 2-pipe systems, especially heat pumps; mechanical range restriction; "Heating/cooling" switch; external setting; protection cap Operating voltage: 24 VAC/50 Hz, 24 VDC Max. switching current: 1 (1) A Max. switching voltage: 24 VAC/50 Hz, 24 VDC Min. switching voltage: 24 VAC/50 Hz, 24 VDC Switching power: 24 W Switching contact: changeover switch (toggler, max. 5 actuators) Control function: Heating or cooling		I
		Cover sets are offered in various designs (see the separate overview, "alre flush-mounted range (cover sets)") and are not included in the delivery. Suitable set no: JZ-004.xxx, (see page 82/83) e.g.: cover set 50 x 50 mm, pure white, glossy: JZ-004.000 cover set 55 x 55 mm, pure white, glossy: JZ-004.100		



NEW

Mechanical room temperature controller, RTBSU (previously FTR)

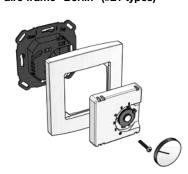
Flush-mounted installation - Design Berlin UP

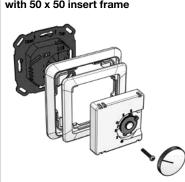
Type/image			Circuit diagram	PG
RTBSU-401.902#07 Predecessor type: FTR 101.902#07	UA090013	General features: ECO function; internal setting Operating voltage: 230 VAC, 50 Hz Max. switching current: 10 (4) A Max. switching voltage: 230 VAC, 50 Hz Min. switching voltage: 230 VAC, 50 Hz Switching power: 2300 W Switching contact: NC contact (max. 10 actuators) Control function: Heating Input "temperature reduction": Approx. 4 K (230 VAC, 50 Hz) Scope of delivery: Controller, cover 50 x 50 mm, pure white (like RAL 9010), glossy		I

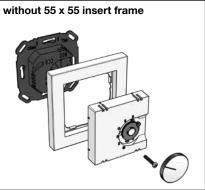
For model RTBSU-401.xxx#21, the contact hazard protection cover plate and protective cap are not included in the delivery.

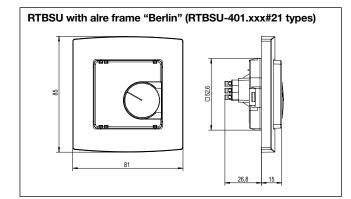
Accessories: terminal strips VOOxx, suitable valve actuators ZBOOA, suitable cover sets: see separate overview "alre flush-mounting range (cover sets)"

JZ-090.900	VV000025	General features: alre frame "Berlin" (neutral) for all flush-mounted controllers with cover 50 x 50 mm Design: Berlin Surface finish: Glossy Colour: Pure white, like RAL 9010 Material: PC plastic					
JZ-090.910	VV000010	as for JZ-090.900, but colour like RAL 1013	I				
alre frame "Berli	in" (#21 types)	with 50 x 50 insert frame without 55 x 55 insert frame					

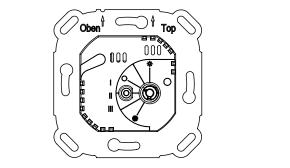








RTBSU scale for temperature adjustment without cover set





alre flush-mounted range (cover sets 50 x 50 mm) all basic types and suitable cover sets 50 x 50 mm

Basic type	Cover set 50 x 50 mm pure white (RAL 9010) glossy (JZ-xxx.000)		Cover set 50 x 50 mm pure white (RAL 9010) matt (JZ-xxx.001)		Cover set 50 x 50 mm pearl white (RAL 1013) glossy (JZ-xxx.010)		PG
	Cover set	Item no.	Cover set	Item no.	Cover set	Item no.	
RTBSU-401.000#00	JZ-00 1 .000	UN990035	JZ-00 1 .001	UN990040	JZ-00 1 .010	UN990045	L
RTBSU-401.002#00	JZ-00 1 .000	UN990035	JZ-00 1 .001	UN990040	JZ-00 1 .010	UN990045	I
RTBSU-401.010#00	JZ-00 1 .000	UN990035	JZ-00 1 .001	UN990040	JZ-00 1 .010	UN990045	L
RTBSU-401.034#00	JZ-0 16 .000	UN990139	-	-	-	-	I
RTBSU-401.062#00	JZ-00 2 .000	UN990036	JZ-00 2 .001	UN990041	JZ-00 2 .010	UN990046	I
RTBSU-401.063#00	JZ-0 12 .000	UN990107	JZ-0 12 .001	UN990132	JZ-0 12 .010	UN990133	I
RTBSU-401.065#00	JZ-00 4 .000	UN990037	JZ-00 4 .001	UN990042	JZ-00 4 .010	UN990047	L
RTBSU-401.075#00	JZ-00 3 .000	UN990038	JZ-00 3 .001	UN990043	JZ-00 3 .010	UN990048	I
RTBSU-401.086#00	JZ-00 1 .000	UN990035	JZ-00 1 .001	UN990040	JZ-00 1 .010	UN990045	L
RTBSU-401.202#00	JZ-00 1 .000	UN990035	JZ-00 1 .001	UN990040	JZ-00 1 .010	UN990045	I
RTBSU-401.210#00	JZ-00 1 .000	UN990035	JZ-00 1 .001	UN990040	JZ-00 1 .010	UN990045	I
RTBSU-401.262#00	JZ-00 2 .000	UN990036	JZ-00 2 .001	UN990041	JZ-00 2 .010	UN990046	I
RTBSU-401.265#00	JZ-00 4 .000	UN990037	JZ-00 4 .001	UN990042	JZ-00 4 .010	UN990047	I

In flush-mounted socket, it can be adapted to fit virtually any switch range.

Basic type	Cover set 50 x 50 mm traffic/studio white (RAL 9016) glossy (JZ-xxx.020)		Cover set 5 traffic/stud (RAL 9016) (JZ-xxx.021	PG	
	Cover set	ltem no.	Cover set	ltem no.	
RTBSU-401.000#00	JZ-00 1 .020	UN990071	JZ-00 1 .021	UN990100	I
RTBSU-401.002#00	JZ-00 1 .020	UN990071	JZ-00 1 .021	UN990100	I
RTBSU-401.010#00	JZ-00 1 .020	UN990071	JZ-00 1 .021	UN990100	I
RTBSU-401.062#00	JZ-00 2 .020	UN990072	JZ-00 2 .021	UN990101	I
RTBSU-401.063#00	JZ-012.020	UN990134	JZ-012.021	UN990135	I
RTBSU-401.065#00	JZ-00 4 .020	UN990073	JZ-00 4 .021	UN990103	I
RTBSU-401.075#00	JZ-00 3 .020	UN990074	JZ-00 3 .021	UN990102	I
RTBSU-401.086#00	JZ-00 1 .020	UN990071	JZ-00 1 .021	UN990100	I
RTBSU-401.202#00	JZ-00 1 .020	UN990071	JZ-00 1 .021	UN990100	I
RTBSU-401.210#00	JZ-00 1 .020	UN990071	JZ-00 1 .021	UN990100	I
RTBSU-401.262#00	JZ-00 2 .020	UN990072	JZ-00 2 .021	UN990101	I
RTBSU-401.265#00	JZ-00 4 .020	UN990073	JZ-00 4 .021	UN990103	I

See the product finder on pages 87 –93 for all cover solutions and special colours





alre flush-mounted range (cover sets 55 x 55 mm)

all basic types and suitable cover sets 55 x 55 mm

Basic type	Cover set 55x55 mm pure white (RAL 9010) glossy (JZ-xxx.100)	Cover set 55x55 mm pure white (RAL 9010) matt (JZ-xxx.101)	Design 55 x 55 mm pearl white (RAL1013) glossy (JZ-xxx.110)	PG	PG Cover set 55x55 mm traffic / studio white (RAL 9016) glossy (JZ-xxx.120)	
	Cover set Item no.	Cover set Item no.	Cover set Item no.		Cover set Item no.	
RTBSU-401.000#00	JZ-00 1 .100 UN990050	JZ-001.101 UN990055	JZ-00 1 .110 UN990060	I	JZ-001.120 UN990086	I
RTBSU-401.002#00	JZ-00 1 .100 UN990050	JZ-001.101 UN990055	JZ-001.110 UN990060	I	JZ-001.120 UN990086	I
RTBSU-401.010#00	JZ-00 1 .100 UN990050	JZ-001.101 UN990055	JZ-001.110 UN990060	I	JZ-001.120 UN990086	I
RTBSU-401.034#00	JZ-016.100 UN990140			I		I
RTBSU-401.062#00	JZ-00 2 .100 UN990051	JZ-00 2 .101 UN990056	JZ-002.110 UN990061	I	JZ-00 2 .120 UN990088	I
RTBSU-401.063#00	JZ-0 12 .100 UN990123	JZ-012.101 UN990136	JZ-012.110 UN990137	I	JZ-012.120 UN990138	I
RTBSU-401.065#00	JZ-004.100 UN990052	JZ-004.101 UN990057	JZ-004.110 UN990062	I	JZ-004.120 UN990089	I
RTBSU-401.075#00	JZ-00 3 .100 UN990053	JZ-00 3 .101 UN990058	JZ-003.110 UN990063	I	JZ-00 3 .120 UN990090	I
RTBSU-401.086#00	JZ-001.100 UN990050	JZ-001.101 UN990055	JZ-001.110 UN990060	I	JZ-001.120 UN990086	I
RTBSU-401.202#00	JZ-001.100 UN990050	JZ-001.101 UN990055	JZ-001.110 UN990060	I	JZ-001.120 UN990086	I
RTBSU-401.210#00	JZ-00 1 .100 UN990050	JZ-001.101 UN990055	JZ-001.110 UN990060	I	JZ-001.120 UN990086	I
RTBSU-401.262#00	JZ-00 2 .100 UN990051	JZ-00 2 .101 UN990056	JZ-002.110 UN990061	I	JZ-00 2 .120 UN990088	I
RTBSU-401.265#00	JZ-00 4 .100 UN990052	JZ-00 4 .101 UN990057	JZ-00 4 .110 UN990062	I	JZ-004.120 UN990089	I

Can be adapted to fit many switch ranges in flush-mounted sockets (for a current overview of the suitable frames and insert frames, see page 86).

All basic types and suitable cover sets for BUSCH-JAEGER Reflex SI/SI Linear/ Busch-Duro 2000 SI/future/solo/axcent/carat without insert frame



Basic type	Cover set BUSC Reflex SI/SI Lin white (RAL 9010 (JZ-xxx.200/BJ	iear pure)) glossy	Cover set BUSC Busch-Duro 200 Linear pearl wh (RAL 1013) glos (JZ-001.210/BJ	00 SI/SI ite sy	PG	Cover set BUSC future linear/sc carat traffic/stu (RAL 9016) glos (JZ-001.320/BJ	olo/axcent/ Idio white Isy	PG
	Cover set		Cover set	ltem no.		Cover set	Item no.	
RTBSU-401.000#00	JZ-00 1 .200/BJ	G9990490	JZ-00 1 .210/BJ	G9990491	I	JZ-00 1 .320/BJ	G9990493	I
RTBSU-401.002#00	JZ-00 1 .200/BJ	G9990490	JZ-00 1 .210/BJ	G9990491	I	JZ-00 1 .320/BJ	G9990493	I
RTBSU-401.010#00	JZ-00 1 .200/BJ	G9990490	JZ-00 1 .210/BJ	G9990491	I	JZ-00 1 .320/BJ	G9990493	I
RTBSU-401.062#00	JZ-00 2 .200/BJ	G9990492	-	-	I	-	-	I
RTBSU-401.086#00	JZ-00 1 .200/BJ	G9990490	JZ-00 1 .210/BJ	G9990491	I	JZ-00 1 .320/BJ	G9990493	I
RTBSU-401.202#00	JZ-00 1 .200/BJ	G9990490	JZ-00 1 .210/BJ	G9990491	I	JZ-00 1 .320/BJ	G9990493	I

Can be adapted to fit the corresponding BUSCH-JAEGER switch ranges In flush-mounted sockets.

Special colours aluminium/anthracite

alre controller types	Manufacturer Switch range	Colour/ surface finish	50 x 50 mm insert frame*	alre cover set: Type	(Item no.)	PG
FTR 101.000#00	BERKER	aluminium/matt	not required	JZ-00 1 .131/BE	(UN990114)	I
FTR 101.002#00	S.1/B.3/B.7	anthracite/matt	not required	JZ-00 1 .141/BE	(UN990115)	I
FTR 101.010#00 FTR 101.086#00 FTR 101.202#00	BUSCH-JAEGER	aluminium silver/ glossy	1746/10-83	JZ-00 1 .030/BJ	(UN990108)	I
FTR 101.210#00	future linear	anthracite/glossy	1746/10-81	JZ-00 1 .040/BJ	(UN990109)	I
	GIRA	aluminium/matt	not required	JZ-00 1 .131/GI	(UN990110)	I
	System 55	anthracite/matt	not required	JZ-00 1 .141/GI	(UN990111)	I
	JUNG	aluminium/glossy	not required	JZ-00 1 .130/JU	(UN990112)	I
	Series A	anthracite/matt	not required	JZ-00 1 .141/JU	(UN990113)	I
	MERTEN	aluminium/matt	not required	JZ-00 1 .131/ME	(UN990116)	I
	System M	anthracite/matt	not required	JZ-00 1 .141/ME	(UN990117)	I

*) must be ordered from switch manufacturer or electronics wholesaler

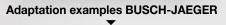
Further details and information on cover sets in white tones can be found online at www.alre.de or in the catalogue.





Adaptation examples BERKER









Controllers for all switch ranges

Integration examples in switch ranges with or without insert frame



See page 96 for further 55 x 55 mm adaptation examples



Adaptation of alre flush-mounted controllers

_				
Manufacturer	Range	Colour RAL 9010 (surface finish)	Adaptation using "55 x 55" or "BJ" cover sets possible (without insert frame)	Only adaptation with "50 x 50" cover set requires an insert frame from the manufacturer
BERKER	S.1	polar white (matt)	✓	1109 19 19
BERKER	S.1	polar white (glossy)		1109 90 89
BERKER	Arsys	polar white (glossy)		1108 01 69
BERKER	B.3	aluminium/polar white (matt)	✓	1109 19 19
BERKER	B.3	aluminium/polar white (glossy)	✓ ✓	1109 90 89
BERKER	B.7	glass/polar white (matt)	· ✓	1109 19 19
BERKER	B.7	glass/polar white (glossy)	· · ·	1109 90 89
BERKER	Q.1/Q.3	polar white (velvet)	•	1109 60 79
BERKER	K.1	polar white (glossy)		1108 71 09
BUSCH-JAEGER	Reflex SI/SI Linear	alpine white (glossy)		1746-214-101
BUSCH-JAEGER	Busch-balance SI	alpine white (glossy)		1746-914-101
BUSCH-JAEGER			✓	
	impuls	alpine white (glossy)		1746/10-74
BUSCH-JAEGER	solo/future linear/axcent/etc.	studio white – see RAL 9016 below		000004
ELSO	Joy	pure white (glossy)	✓	363084
ELSO	Fashion/Riva/Scala	pure white (glossy)		203084
GIRA	surface switch	pure white (glossy)		0282 112
GIRA (System 55)	Standard/E2	pure white (semi-gloss)	✓	0282 27
GIRA (System 55)	Standard/E2/E3	pure white (glossy)	✓	0282 03
GIRA (System 55)	E22	pure white (glossy)	✓	0282 03
GIRA (System 55)	Event	pure white (semi-gloss) + opaque	✓	0282 27
GIRA (System 55)	Event	pure white (glossy) + opaque	✓	0282 03
GIRA (System 55)	Esprit	pure white (semi-gloss) + glass, aluminium	✓	0282 27
GIRA (System 55)	Esprit	pure white (glossy) + glass, aluminium	✓	0282 03
GIRA	S-Color	pure white (high-gloss)		0282 40
JUNG	CD 500/CD plus	alpine white (glossy)		CD 590 Z WW
JUNG	A 500/A 550/AS 500/A plus/A flow	alpine white (glossy)	✓	A 590 Z WW
JUNG	LS 990	alpine white (glossy)		LS 961 Z WW
JUNG	LS plus	alpine white (glass)		LS 961 Z WW
JUNG	A creation	alpine white (glossy)	✓	A 590 Z WW
JUNG	LS Design	alpine white (glossy)		LS 961 Z WW
MERTEN (System M)	M-Smart, M-Plan, M-Pure	polar white (matt)	✓	5181 19
MERTEN (System M)	M-Smart, M-Plan, M-Creativ, M-Pure	polar white (glossy)	·	5185 19
MERTEN (Basis System)	1-M/Atelier-M	polar white (glossy)	✓ ✓	5185 19
MERTEN (Surface System)	Artec/Antik	polar white (glossy)	•	5160 99
MERTEN	1-M/M-Smart/M-Plan/M-Pure/D-Life	active white – see RAL 9016 below or product finder		
PEHA	Standard	pure white (glossy)		80.670.02 ZV
РЕНА	Dialog	pure white (glossy)		95.670.02 ZV
РЕНА	A	pure white (glossy) pure white (matt)/glass		20.670.02 ZV
РЕНА	Badora	pure white (glossy)		11.670.02 ZV
Manufacturer	Range	Colour RAL 9016 (surface finish)	Adaptation using 55 x 55 or BJ cover sets possible (without insert frame)	Only adaptation with "50 x 50" cover set requires an insert frame from the manufacturer
BUSCH-JAEGER	solo/future linear	studio white (RAL 9016, glossy)	✓	1746/10-84
BUSCH-JAEGER	future linear	studio white (RAL 9016 matt)		1746/10-884
BUSCH-JAEGER	impuls	studio white (RAL 9016 matt)		1746/10-774
BUSCH-JAEGER	axcent	studio white (RAL 9016, glossy)	✓	1746/10-84
BUSCH-JAEGER	carat (glass, bronze, gold)	studio white (RAL 9016, glossy)	· · ·	1746/10-84
BUSCH-JAEGER	alpha (nea/exclusive*)	studio white (RAL 9016, glossy)	•	1746/10-24G
BUSCH-JAEGER	alpha (nea/exclusive*)	studio white (RAL 9016, glossy) studio white (RAL 9016 matt)		1746/10-24
MERTEN	M-Smart, M-Plan, M-Pure			5185 25
		active white (RAL 9016, glossy)	✓	
MERTEN	1-M/Atelier-M	active white (RAL 9016, glossy)	✓	5185 25
MERTEN	D-Life	lotus white (RAL 9016)		MEG4500-6035
PEHA	Standard	arctic		D 80.670 ZV AW

*) During assembly, you need to remove 4 plastic tabs located at the rear of the frame

NOTE: Most light switch ranges are designed in a colour like RAL 9010, although different switch manufacturers use different designations for this colour. Coloured, glass and aluminium frames are also combined with white jacks or plugs so that controllers with white covers can also be integrated into these frames. Check the precise application in each individual case. The frames have different surface qualities (matt/glossy). For design reasons, the cover of the controller should have the same quality as the frame. We accept no liability for slight variations in colour and surface finish or for accuracy of fit. When installing devices into multi frames, always assemble the temperature controllers at the lowermost position.

"50 x 50 controller": The housing covers of the 50 x 50 controllers are 50 x 50 mm in size. Using a 50 x 50-mm insert frame, they can be integrated into nearly all light switch ranges in accordance with DIN 49075. The 50 x 50-mm insert frames must be ordered from the light switch manufacturer or from a wholesaler. The order number of the insert frame corresponding to the switch range in question can be found in the column "Only for adaptation with "50 x 50" cover set".

"55 x 55 controller": The housing covers of the 55 x 55 controllers are 55 x 55 mm in size. Many light switch ranges have inner dimensions of 55 x 55 mm. Therefore, the 55 x 55 controllers can be installed directly in the light switch frame without the use of an insert frame. See the column "Adaptation with "55 x 55" cover set" to determine whether the 55 x 55 controller fits in the given light switch range (\checkmark).

All information regarding switch manufacturers" product lines and item numbers was last updated in 12/2019 | No liability is assumed for the information provided. | Technical specifications subject to

change. An adaptation list for RAL 1013 switch ranges is available from our website at www.alre.de and all information on integration is available in the product finder.

Product finder for alre cover sets for switch ranges from BERKER

Integration examples	RTBSU - in S. 1	RTBSU – in B.3	RTBSU – in B.7	RTBSU - in K.1	RTBSU – in Arsys
Type alre	Berker range	Colour (RAL)/surface finish	alre cover set	Cover set Item no.	PG Insert frame 50x50*
RTBSU-401.000#00	S. 1/B. 3/B. 7	polar white (RAL 9010) glossy	JZ-001.100 (55 x 55, glossy)	UN990050	I not required
RTBSU-401.002#00	S.1/B.3/B.7	polar white (RAL 9010) matt	JZ-001.101 (55 x 55, matt)	UN990055	I not required
RTBSU-401.010#00 RTBSU-401.086#00	Arsys	polar white (RAL 9010) glossy	JZ-001.000 (50 x 50, glossy)	UN990035	I 1108 01 69
RTBSU-401.202#00	Q.1/Q.3	polar white (RAL 9010) velvet	JZ-001.001 (50 x 50, matt)	UN990040	I 1109 60 79
RTBSU-401.210#00	K.1	polar white (RAL 9010) glossy	JZ-001.000 (50 x 50, glossy)	UN990035	I 1108 71 09
	S.1	white (RAL 1013) glossy	JZ-001.110 (55 x 55, glossy)	UN990060	I not required
0	Arsys	white (RAL 1013) glossy	JZ-001.010 (50 x 50, glossy)	UN990045	I 1108 01 02
Standard (without switch)	S.1/B.3/B.7	aluminium/matt	JZ-001.131/BE (55x55)	UN990114	I not required
Standard (without switch)	S.1/B.3/B.7	anthracite/matt	JZ-001.141/BE (55x55)	UN990115	I not required
Type alre	Berker range	Colour (RAL) / surface finish	alre cover set	Cover set Item no.	PG Insert frame 50×50*
RTBSU-401.034#00	S.1/B.3/B.7	polar white (RAL 9010) glossy	JZ-016.100 (55x55 glossy)	UN990140	I not required
	Arsys	polar white (RAL 9010) glossy	JZ-016.000 (50x50 glossy)	UN990139	I 1108 01 69
·	K. 1	polar white (RAL 9010) glossy	JZ-016.000 (50x50 glossy)	UN990139	I 1108 71 09

(LED)

Type alre	Berker range	Colour (RAL)/surface finish	alre cover set	Cover set Item no.	PG	Insert frame 50 x 50 *
RTBSU-401.062#00	S. 1/B. 3/B. 7	polar white (RAL 9010) glossy	JZ-002.100 (55 x 55, glossy)	UN990051	1	not required
RTBSU-401.262#00	S. 1/B. 3/B. 7	polar white (RAL 9010) matt	JZ-002.101 (55 x 55, matt)	UN990056	I	not required
	Arsys	polar white (RAL 9010) glossy	JZ-002.000 (50 x 50, glossy)	UN990036	I	1108 01 69
	Q.1/Q.3	polar white (RAL 9010) velvet	JZ-002.001 (50 x 50, matt)	UN990041	I	1109 60 79
	K.1	polar white (RAL 9010) glossy	JZ-002.000 (50 x 50, glossy)	UN990036	1	1108 71 09
	S.1	white (RAL 1013) glossy	JZ-002.110 (55 x 55, glossy)	UN990061		not required
(ON/OFF switch, LED)	Arsys	white (RAL 1013) glossy	JZ-002.010 (50 x 50, glossy)	UN990046		1108 01 02
Type alre	Berker range	Colour (RAL) / surface finish	alre cover set	Cover set Item no.	PG	Insert frame 50 x 50 *
RTBSU-401.063#00	S. 1/B. 3/B. 7	polar white (RAL 9010) glossy	JZ-012.100 (55x55 glossy)	UN990123	1	not required
	S. 1/B. 3/B. 7	polar white (RAL 9010) matt	JZ-012.101 (55x55 matt)	UN990136	I	not required
	Arsys	polar white (RAL 9010) glossy	JZ-012.000 (50x50 glossy)	UN990107	I	1108 01 69
	Q.1/Q.3	polar white (RAL 9010) velvet	JZ-012.001 (50x50 matt)	UN990132	1	1109 60 79
	K.1	polar white (RAL 9010) glossy	JZ-012.000 (50x50 glossy)	UN990107		1108 71 09
(Switch H/OFF/C)	S.1	white (RAL 1013) glossy	JZ-012.110 (55x55 glossy)	UN990137		not required
(Switch H/OFF/C)	Arsys	white (RAL 1013) glossy	JZ-012.010 (50x50 glossy)	UN990133	1	1108 01 02
Type alre	Berker range	Colour (RAL) / surface finish	alre cover set	Cover set Item no.	PG	Insert frame 50 x 50 *
RTBSU-401.065#00	S. 1/B. 3/B. 7	polar white (RAL 9010) glossy	JZ-004.100 (55 x 55, glossy)	UN990052	I	not required
RTBSU-401.265#00	S. 1/B. 3/B. 7	polar white (RAL 9010) matt	JZ-004.101 (55 x 55, matt)	UN990057	I	not required
	Arsys	polar white (RAL 9010) glossy	JZ-004.000 (50 x 50, glossy)	UN990037	I	1108 01 69
	Q.1/Q.3	polar white (RAL 9010) velvet	JZ-004.001 (50 x 50, matt)	UN990042	I	1109 60 79
	K.1	polar white (RAL 9010) glossy	JZ-004.000 (50 x 50, glossy)	UN990037	1	1108 71 09
· · · · · · · · · · · · · · · · · · ·	S.1	white (RAL 1013) glossy	JZ-004.110 (55 x 55, glossy)	UN990062	1	not required
(H/C switch)	Arsys	white (RAL 1013) glossy	JZ-004.010 (50x50, glossy)	UN990047	1	1108 01 02
Type alre	Berker range	Colour (RAL)/surface finish	alre cover set	Cover set Item no.	PG	Insert frame 50 x 50 *
RTBSU-401.075#00	S.1/B.3/B.7	polar white (RAL 9010) glossy	JZ-003.100 (55 x 55, glossy)	UN990053	I	not required
	S. 1/B. 3/B. 7	polar white (RAL 9010) matt	JZ-003.101 (55 x 55, matt)	UN990058	I	not required
1	Arsys	polar white (RAL 9010) glossy	JZ-003.000 (50 x 50, glossy)	UN990038	I	1108 01 69
	Q.1/Q.3	polar white (RAL 9010) velvet	JZ-003.001 (50 x 50, matt)	UN990043	I	1109 60 79
	K.1	polar white (RAL 9010) glossy	JZ-003.000 (50 x 50, glossy)	UN990038	1	1108 71 09
(3-way switch, LED)	S.1	white (RAL 1013) glossy	JZ-003.110 (55 x 55, glossy)	UN990063	I	not required
	Arsys	white (RAL 1013) glossy	JZ-003.010 (50 x 50, glossy)	UN990048	1	1108 01 02

*) must be ordered from switch manufacturer or electronics wholesaler

Product finder for alre cover sets for switch ranges from BUSCH-JAEGER

Integration examples	RTBSU – in Reflex SI	RTBSU – in Busch-balance SI	NEW	RTBSU - in solo	RTBSU – in alpha nea
Type alre	Busch-Jaeger range	Colour (RAL) / surface finish	alre cover set	Cover set Item no.	PG Insert frame 50x50*
RTBSU-401.000#00	Reflex SI/SI Linear NEW	alpine white (RAL 9010) glossy	JZ-001.200/BJ	G9990490	I not required
RTBSU-401.002#00	Busch-balance SI	alpine white (RAL 9010) glossy	JZ-001.100 (55 x 55, glossy)	UN990050	I not required
RTBSU-401.010#00 RTBSU-401.086#00	impuls	alpine white (RAL 9010) glossy	JZ-001.000 (50 x 50, glossy)	UN990035	l 1746/10-74
RTBSU-401.202#00 RTBSU-401.210#00	future linear/solo/ NEW axcent/carat	studio white (RAL 9016) glossy	JZ-001.320/BJ	G9990493	I not required
	future linear	studio white (RAL 9016) matt	JZ-001.021 (50 x 50, matt)	UN990100	I 1746/10-884
	alpha nea	studio white (RAL 9016) glossy	JZ-001.020 (50 x 50, glossy)	UN990071	l 1746/10-24G
Sec. 19	alpha nea	studio white (RAL 9016) matt	JZ-001.021 (50 x 50, matt)	UN990100	I 1746/10-24
	Duro 2000 SI/SI Linear NEW	white (RAL 1013) glossy	JZ-001.210/BJ	G9990491	I not required
Standard (without switch)	future linear/solo/carat	ivory white (RAL 1013) glossy	JZ-001.010 (50 x 50, glossy)	UN990045	l 1746/10-82
	alpha nea	ivory white (RAL 1013) glossy	JZ-001.010 (50 x 50, glossy)	UN990045	l 1746/10-22G
	impuls	ivory white (RAL 1013) glossy	JZ-001.010 (50 x 50, glossy)	UN990045	l 1746/10-72
	future linear	aluminium silver/glossy	JZ-001.030/BJ (50x50)	UN990108	I 1746/10-83
	future linear	anthracite/glossy	JZ-001.040/BJ (50x50)	UN990109	l 1746/10-81
Type alre	Busch-Jaeger range	Colour (RAL)/surface finish	alre cover set	Cover set Item no.	PG Insert frame 50x50*
RTBSU-401.034#00	Busch-balance SI	alpine white (RAL 9010) glossy	JZ-016.100 (55x55 glossy)	UN990140	I not required
	impuls	alpine white (RAL 9010) glossy	JZ-016.000 (50x50 glossy)	UN990139	l 1746/10-74
· 14	-	*	*		•



Type alre Busch-Jaeger range Colour (RAL)/surface finish alre cover set Cover set PG Insert frame 50x50* RTBSU-401.062#00 RTBSU-401.262#00 Reflex SI/SI Linear NEW alpine white (RAL 9010) glossy JZ-002.200/BJ G9990492 I not required Busch-balance SI alpine white (RAL 9010) glossy JZ-002.100 (55 x 55, glossy) UN990051 I not required impuls alpine white (RAL 9010) glossy JZ-002.000 (50 x 50, glossy) UN990036 I 1746/10-74 future linear/solo/axcent/carat studio white (RAL 9016) glossy JZ-002.020 (50 x 50, glossy) UN990072 I 1746/10-84
Reflex SI/SI Linear NEW alpine white (RAL 9010) glossy JZ-002.200/BJ G9990492 I not required Busch-balance SI alpine white (RAL 9010) glossy JZ-002.100 (55 x 55, glossy) UN990051 I not required impuls alpine white (RAL 9010) glossy JZ-002.000 (50 x 50, glossy) UN990036 I 1746/10-74
Busch-balance SI alpine white (RAL 9010) glossy JZ-002.100 (55 x 55, glossy) UN990051 I not required impuls alpine white (RAL 9010) glossy JZ-002.000 (50 x 50, glossy) UN990036 I 1746/10-74
Busch-balance Si alpine white (RAL 9010) glossy 32-002.100 (50 x 50, glossy) ONesting I Interquired impuls alpine white (RAL 9010) glossy JZ-002.000 (50 x 50, glossy) UN990036 I 1746/10-74
future linear/solo/axcent/carat studio white (BAL 9016) glossy JZ-002 020 (50 x 50, glossy) UN990072 I 1746/10-84
future linear studio white (RAL 9016) matt JZ-002.021 (50 x 50, matt) UN990101 I 1746/10-884
alpha nea studio white (RAL 9016) glossy JZ-002.020 (50 x 50, glossy) UN990072 I 1746/10-24G
(ON/OFF switch, LED) alpha nea studio white (RAL 9016) matt JZ-002.021 (50 x 50, matt) UN990101 I 1746/10-24
Duro 2000 SI/SI Linear white (RAL 1013) glossy JZ-002.010 (50 x 50, glossy) UN990046 I 1746-212-101
future linear/solo/carat ivory white (RAL 1013) glossy JZ-002.010 (50 x 50, glossy) UN990046 I 1746/10-82
alpha nea ivory white (RAL 1013) glossy JZ-002.010 (50 x 50, glossy) UN990046 I 1746/10-22G
impuls ivory white (RAL 1013) glossy JZ-002.010 (50 x 50, glossy) UN990046 I 1746/10-72
impuls ivory white (RAL 1013) glossy JZ-002.010 (50 x 50, glossy) UN990046 I 1746/10-72
Impuls ivory white (RAL 1013) glossy JZ-002.010 (50 x 50, glossy) UN990046 I 1746/10-72 Type alre Busch-Jaeger range Colour (RAL)/surface finish alre cover set Cover set PG Insert frame
Impuls ivory white (RAL 1013) glossy JZ-002.010 (50 x 50, glossy) UN990046 I 1746/10-72 Type alre Busch-Jaeger range Colour (RAL)/surface finish alre cover set Cover set PG Insert frame 50x50*
Impuls ivory white (RAL 1013) glossy JZ-002.010 (50 x 50, glossy) UN990046 I 1746/10-72 Type alre Busch-Jaeger range Colour (RAL)/surface finish alre cover set Cover set PG Insert frame 50x50* RTBSU-401.063#00 Reflex SI/SI Linear alpine white (RAL 9010) glossy JZ-012.000 (50x50 glossy) UN990107 I 1746-214-101
Impuls ivory white (RAL 1013) glossy JZ-002.010 (50 x 50, glossy) UN990046 I 1746/10-72 Type alre Busch-Jaeger range Colour (RAL)/surface finish alre cover set Cover set PG Insert frame 50 x 50* RTBSU-401.063#00 Reflex SI/SI Linear alpine white (RAL 9010) glossy JZ-012.000 (50x50 glossy) UN990107 I 1746-214-101 Busch-balance SI alpine white (RAL 9010) glossy JZ-012.100 (55x55 glossy) UN990123 I not required
Impuls ivory white (RAL 1013) glossy JZ-002.010 (50 x 50, glossy) UN990046 I 1746/10-72 Type alre Busch-Jaeger range Colour (RAL)/surface finish alre cover set Cover set PG Insert frame 50x50 ⁻ RTBSU-401.063#00 Reflex SI/SI Linear alpine white (RAL 9010) glossy JZ-012.000 (50x50 glossy) UN990107 I 1746-214-101 Impuls alpine white (RAL 9010) glossy JZ-012.100 (55x55 glossy) UN990107 I 1746/10-74
Impuls ivory white (RAL 1013) glossy JZ-002.010 (50 x 50, glossy) UN990046 I 1746/10-72 Type alre Busch-Jaeger range Colour (RAL)/surface finish alre cover set Cover set PG Insert frame 50 x 50* RTBSU-401.063#00 Reflex SI/SI Linear alpine white (RAL 9010) glossy JZ-012.000 (50x50 glossy) UN990107 I 1746-214-101 Busch-balance SI alpine white (RAL 9010) glossy JZ-012.000 (50x50 glossy) UN990123 I not required Impuls alpine white (RAL 9010) glossy JZ-012.020 (50x50 glossy) UN990107 I 1746/10-74 future linear/solo/axcent/carat studio white (RAL 9016) glossy JZ-012.020 (50x50 glossy) UN990134 I 1746/10-84 alpha nea studio white (RAL 9016) glossy JZ-012.020 (50x50 glossy) UN990134 I 1746/10-24G
Impuls ivory white (RAL 1013) glossy JZ-002.010 (50 x 50, glossy) UN990046 I 1746/10-72 Type alre Busch-Jaeger range Colour (RAL)/surface finish alre cover set Cover set PG Insert frame 50x50* RTBSU-401.063#00 Reflex SI /SI Linear alpine white (RAL 9010) glossy JZ-012.000 (50x50 glossy) UN990107 I 1746-214-101 Busch-balance SI alpine white (RAL 9010) glossy JZ-012.100 (55x55 glossy) UN990123 I not required Impuls alpine white (RAL 9010) glossy JZ-012.020 (50x50 glossy) UN990107 I 1746/10-74 future linear/solo/axcent/carat studio white (RAL 9016) glossy JZ-012.020 (50x50 glossy) UN990134 I 1746/10-84 future linear studio white (RAL 9016) glossy JZ-012.021 (50x50 matt) UN990135 I 1746/10-84
Impuls ivory white (RAL 1013) glossy JZ-002.010 (50 x 50, glossy) UN990046 I 1746/10-72 Type alre Busch-Jaeger range Colour (RAL)/surface finish alre cover set Cover set Item no. PG Insert frame 50 x 50* RTBSU-401.063#00 Reflex SI/SI Linear alpine white (RAL 9010) glossy JZ-012.000 (50x50 glossy) UN990107 I 1746/10-72 Busch-balance SI alpine white (RAL 9010) glossy JZ-012.000 (50x50 glossy) UN990107 I 1746/10-74 Impuls alpine white (RAL 9010) glossy JZ-012.020 (50x50 glossy) UN990107 I 1746/10-74 Impuls alpine white (RAL 9016) glossy JZ-012.020 (50x50 glossy) UN990134 I 1746/10-84 Ifuture linear/solo/axcent/carat studio white (RAL 9016) glossy JZ-012.020 (50x50 glossy) UN990134 I 1746/10-84 Igha nea studio white (RAL 9016) glossy JZ-012.020 (50x50 glossy) UN990134 I 1746/10-24G
Impuls ivory white (RAL 1013) glossy JZ-002.010 (50 x 50, glossy) UN990046 I 1746/10-72 Type alre Busch-Jaeger range Colour (RAL)/surface finish alre cover set Cover set Item no. PG Insert frame 50x 50* RTBSU-401.063#00 Reflex SI/SI Linear alpine white (RAL 9010) glossy JZ-012.000 (50x50 glossy) UN990107 I 1746/10-72 Busch-balance SI alpine white (RAL 9010) glossy JZ-012.000 (50x50 glossy) UN990107 I 1746/10-74 Impuls alpine white (RAL 9010) glossy JZ-012.000 (50x50 glossy) UN990107 I 1746/10-74 Impuls alpine white (RAL 9010) glossy JZ-012.020 (50x50 glossy) UN990133 I not required Impuls alpine white (RAL 9016) glossy JZ-012.020 (50x50 glossy) UN990134 I 1746/10-84 Switch H/OFF/C Impuls studio white (RAL 9016) glossy JZ-012.021 (50x50 matt) UN990135 I 1746/10-24G alpha nea studio white (RAL 9016) glossy JZ-012.021 (50x50 matt) UN990135 I 1746/10-24G alpha nea
Type alreBusch-Jaeger rangeColour (RAL)/surface finishalre cover setCover setPGInsert frame 50x50*RTBSU-401.063#00Reflex SI/SI Linearalpine white (RAL 9010) glossyJZ-012.000 (50x50 glossy)UN990107I1746/10-72Busch-balance SIalpine white (RAL 9010) glossyJZ-012.000 (50x50 glossy)UN990107I1746/214-101Busch-balance SIalpine white (RAL 9010) glossyJZ-012.000 (50x50 glossy)UN990107I1746/10-74Busch-balance SIalpine white (RAL 9010) glossyJZ-012.000 (50x50 glossy)UN990107I1746/10-74Impulsalpine white (RAL 9010) glossyJZ-012.020 (50x50 glossy)UN990133I1746/10-84future linear/solo/axcent/caratstudio white (RAL 9016) glossyJZ-012.021 (50x50 matt)UN990135I1746/10-24Galpha neastudio white (RAL 9016) glossyJZ-012.021 (50x50 glossy)UN990134I1746/10-24Galpha neastudio white (RAL 9016) glossyJZ-012.021 (50x50 glossy)UN990135I1746/10-24GDuro 2000 SI/SI Linearwhite (RAL 1013) glossyJZ-012.010 (50x50 glossy)UN990133I1746/10-24G

Ire

Product finder for alre cover sets for switch ranges from **BUSCH-JAEGER**

					-	
Integration examples	NEW 3		NEW	• • • • • • • • • • • • • • • • • • •	EW	
	RTBSU – in Reflex SI	RTBSU – in Busch-balance SI	RTBSU – in future linear	RTBSU – in solo	RTB	SU – in alpha nea
Type aire	Busch-Jaeger range	Colour (RAL)/surface finish	alre cover set	Cover set Item no.	PG	Insert frame 50 x 50 *
RTBSU-401.065#00	Reflex SI/SI Linear	alpine white (RAL 9010) glossy	JZ-004.000 (50 x 50, glossy)	UN990037	L	1746-214-101
RTBSU-401.265#00	Busch-balance SI	alpine white (RAL 9010) glossy	JZ-004.100 (55 x 55, glossy)	UN990052	I	not required
	impuls	alpine white (RAL 9010) glossy	JZ-004.000 (50 x 50, glossy)	UN990037	I	1746/10-74
	future linear/solo/axcent/carat	studio white (RAL 9016) glossy	JZ-004.020 (50 x 50, glossy)	UN990073	I	1746/10-84
	future linear	studio white (RAL 9016) matt	JZ-004.021 (50 x 50, matt)	UN990103	I	1746/10-884
	alpha nea	studio white (RAL 9016) glossy	JZ-004.020 (50 x 50, glossy)	UN990073	I	1746/10-24G
(H/C switch)	alpha nea	studio white (RAL 9016) matt	JZ-004.021 (50 x 50, matt)	UN990103	I	1746/10-24
	Duro 2000 SI/SI Linear	white (RAL 1013) glossy	JZ-004.010 (50x50, glossy)	UN990047	I	1746-212-101
	future linear/solo/carat	ivory white (RAL 1013) glossy	JZ-004.010 (50x50, glossy)	UN990047	I	1746/10-82
	alpha nea	ivory white (RAL 1013) glossy	JZ-004.010 (50x50, glossy)	UN990047	I	1746/10-22G
	impuls	ivory white (RAL 1013) glossy	JZ-004.010 (50x50, glossy)	UN990047	I	1746/10-72
Type alre	Busch-Jaeger range	Colour (RAL) / surface finish	alre cover set	Cover set Item no.	PG	Insert frame 50 x 50 *
RTBSU-401.075#00	Reflex SI/SI Linear	alpine white (RAL 9010) glossy	JZ-003.000 (50 x 50, glossy)	UN990038	I	1746-214-101
	Busch-balance SI	alpine white (RAL 9010) glossy	JZ-003.100 (55 x 55, glossy)	UN990053	I	not required
	impuls	alpine white (RAL 9010) glossy	JZ-003.000 (50 x 50, glossy)	UN990038	I	1746/10-74
	future linear/solo/axcent/carat	studio white (RAL 9016) glossy	JZ-003.020 (50 x 50, glossy)	UN990074	I	1746/10-84
	future linear	studio white (RAL 9016) matt	JZ-003.021 (50 x 50, matt)	UN990102	I	1746/10-884
(3-way switch, LED)	alpha nea	studio white (RAL 9016) glossy	JZ-003.020 (50 x 50, glossy)	UN990074	I	1746/10-24G
	alpha nea	studio white (RAL 9016) matt	JZ-003.021 (50 x 50, matt)	UN990102	I	1746/10-24
	Duro 2000 SI/SI Linear	white (RAL 1013) glossy	JZ-003.010 (50 x 50, glossy)	UN990048	I	1746-212-101
	future linear/solo/carat	ivory white (RAL 1013) glossy	JZ-003.010 (50 x 50, glossy)	UN990048	I	1746/10-82
	alpha nea	ivory white (RAL 1013) glossy	JZ-003.010 (50 x 50, glossy)	UN990048	I	1746/10-22G
	impuls	ivory white (RAL 1013) glossy	JZ-003.010 (50 x 50, glossy)	UN990048	I	1746/10-72

*) must be ordered from switch manufacturer or electronics wholesaler For BJ future/solo there are also 55 x 55 insert frames (for use with alre 55 x 55 cover set) – BJ item no. 1747-84 (studio white) and 1784-82 (ivory white)

Note: Busch-Jaeger central disc cannot be used with alre RTBSU.

Product finder for alre cover sets for switch ranges from ELSO

Integration examples









RTBSU – in Joy

RTBSU – in Fashion

RTBSU – in Riva RTBS

RTBSU – in Scala

Type alre	Elso range	Colour (RAL) / surface finish	alre cover set	Cover set Item no.		Insert frame 50 x 50 *
RTBSU-401.000#00 RTBSU-401.002#00	Joy Joy	pure white (RAL 9010) glossy pearl white (RAL 1013) glossy	JZ-001.100 (55 x 55, glossy) JZ-001.110 (55 x 55, glossy)	UN990050 UN990060		not required not required
RTBSU-401.010#00 RTBSU-401.086#00 RTBSU-401.202#00 RTBSU-401.210#00	Fashion/Riva/Scala Fashion/Riva/Scala	pure white (RAL 9010) glossy pearl white (RAL 1013) glossy	JZ-001.000 (50 x 50, glossy) JZ-001.010 (50 x 50, glossy)	UN990035 UN990045		203084 203080



Standard (without switch)

Type alre	Elso range	Colour (RAL) / surface finish	alre cover set	Cover set Item no.	PG	Insert frame 50 x 50 *
RTBSU-401.034#00	Joy	pure white (RAL 9010) glossy	JZ-016.100 (55x55 glossy)	UN990140	I	not required
	Fashion/Riva/Scala	pure white (RAL 9010) glossy	JZ-016.000 (50x50 glossy)	UN990139	I	203084

(LED)

Type alre	Elso range	Colour (RAL) / surface finish	alre cover set	Cover set Item no.	PG	Insert frame 50 x 50 *
RTBSU-401.062#00	Joy	pure white (RAL 9010) glossy	JZ-002.100 (55 x 55, glossy)	UN990051	I	not required
RTBSU-401.262#00	Joy	pearl white (RAL 1013) glossy	JZ-002.110 (55 x 55, glossy)	UN990061	I	not required
	Fashion/Riva/Scala	pure white (RAL 9010) glossy	JZ-002.000 (50 x 50, glossy)	UN990036	I	203084
0	Fashion/Riva/Scala	pearl white (RAL 1013) glossy	JZ-002.010 (50 x 50, glossy)	UN990046	I	203080

(ON/OFF switch, LED)

Type alre	Elso range	Colour (RAL) / surface finish	alre cover set	Cover set Item no.	PG	Insert frame 50 x 50 *
RTBSU-401.063#00	Јоу	pure white (RAL 9010) glossy	JZ-012.100 (55x55 glossy)	UN990123	I	not required
	Joy	pearl white (RAL 1013) glossy	JZ-012.110 (55x55 glossy)	UN990137	L	not required
	Fashion/Riva/Scala	pure white (RAL 9010) glossy	JZ-012.000 (50x50 glossy)	UN990107	I	203084
- 1 i 🕐 🤍	Fashion/Riva/Scala	pearl white (RAL 1013) glossy	JZ-012.010 (50x50 glossy)	UN990133	I	203080

(Switch H/OFF/C)

Type alre	Elso range	Colour (RAL) / surface finish	alre cover set	Cover set Item no.	PG	Insert frame 50 x 50*
RTBSU-401.065#00	Joy	pure white (RAL 9010) glossy	JZ-004.100 (55 x 55, glossy)	UN990052	1	not required
RTBSU-401.265#00	Joy	pearl white (RAL 1013) glossy	JZ-004.110 (55 x 55, glossy)	UN990062	I	not required
	Fashion/Riva/Scala	pure white (RAL 9010) glossy	JZ-004.000 (50 x 50, glossy)	UN990037	I	203084
	Fashion/Riva/Scala	pearl white (RAL 1013) glossy	JZ-004.010 (50x50, glossy)	UN990047	I	203080

(H/C switch)

Type alre	Elso range	Colour (RAL)/surface finish	alre cover set	Cover set Item no.	PG	Insert frame 50 x 50 *
RTBSU-401.075#00	Joy	pure white (RAL 9010) glossy	JZ-003.100 (55 x 55, glossy)	UN990053	1	not required
	Joy	pearl white (RAL 1013) glossy	JZ-003.110 (55 x 55, glossy)	UN990063	I	not required
	Fashion/Riva/Scala	pure white (RAL 9010) glossy	JZ-003.000 (50 x 50, glossy)	UN990038	I	203084
	Fashion/Riva/Scala	pearl white (RAL 1013) glossy	JZ-003.010 (50 x 50, glossy)	UN990048	L I	203080

(3-way switch, LED)

*) must be ordered from switch manufacturer or electronics wholesaler

Product finder for alre cover sets for switch ranges from **GIRA**

20	
RTBSU – in Standard 55	RTBS









RTBSU - in E22

RTBSU - in surface switch

Type alre	Gira range	Colour (RAL) / surface finish	alre cover set	Cover set Item no.	PG	Insert frame 50 x 50 *
RTBSU-401.000#00	Standard 55/E2/E3/E22/Event/Esprit	pure white (RAL 9010) glossy	JZ-001.100 (55 x 55, glossy)	UN990050	I	not required
RTBSU-401.002#00 RTBSU-401.010#00	Standard 55/E2/E22/Event/Esprit	pure white (RAL 9010) matt	JZ-001.101 (55 x 55, matt)	UN990055	I	not required
RTBSU-401.010#00 RTBSU-401.086#00				•		
RTBSU-401.202#00	Surface switch	pure white (RAL 9010) glossy	JZ-001.000 (50 x 50, glossy)	UN990035	I	0282 112
RTBSU-401.210#00						
Ø	Standard 55/Event/Esprit/ClassiX	cream white (RAL 1013) glossy	JZ-001.110 (55 x 55, glossy)	UN990060	I	not required
	System 55	aluminium/matt	JZ-001.131/GI (55x55)	UN990110	I	not required
	System 55	anthracite/matt	JZ-001.141/GI (55x55)	UN990111	I	not required
Standard (without switch)						

Integration examples

alre	Gira range	Colour (RAL) / surface finish	alre cover set	Cover set Item no.	PG	Insert frame 50 x 50 *
SU-401.034#00	Standard 55/E2/E3/E22/Event/Esprit	pure white (RAL 9010) glossy	JZ-016.100 (55x55 glossy)	UN990140	I	not required
	Surface switch	pure white (RAL 9010) glossy	JZ-016.000 (50x50 glossy)	UN990139	I	0282 112



RTBSL

RTBSU-401.062#00 Standard 55/E2/E3/E22/Event/Esprit UN990051 pure white (RAL 9010) glossy JZ-002.100 (55 x 55, glossy) 1 not required RTBSU-401.262#00 Standard 55/E2/E22/Event/Esprit UN990056 pure white (RAL 9010) matt JZ-002.101 (55 x 55, matt) not required 1 Surface switch pure white (RAL 9010) glossy JZ-002.000 (50 x 50, glossy) UN990036 Ι 0282 112 Standard 55/Event/Esprit/ClassiX cream white (RAL 1013) JZ-002.110 (55 x 55, glossy) UN990061 not required I glossy

(ON/OFF switch, LED)

Type alre	Gira range	Colour (RAL) / surface finish	alre cover set	Cover set Item no.	PG	Insert frame 50 x 50 *
RTBSU-401.063#00	Standard 55/E2/E3/E22/Event/Esprit	pure white (RAL 9010) glossy	JZ-012.100 (55x55 glossy)	UN990123	I	not required
	Standard 55/E2/E22/Event/Esprit	pure white (RAL 9010) matt	JZ-012.101 (55x55 matt)	UN990136	I	not required
	Surface switch	pure white (RAL 9010) glossy	JZ-012.000 (50x50 glossy)	UN990107	I	0282 112
				-		
(Switch H/OFF/C)	Standard 55/Event/Esprit/ClassiX	cream white (RAL 1013)	JZ-012.110 (55x55 glossy)	UN990137	I	not required
(0111011101110)		glossy				

	not required
	not required
Surface switch pure white (RAL 9010) glossy JZ-004.000 (50 x 50, glossy) UN990037 I 02	0282 112
Standard 55/Event/Esprit/ClassiX cream white (RAL 1013) glossy JZ-004.110 (55 x 55, glossy) UN990062 I nd	not required

(H/C switch)

Type alre	Gira range	Colour (RAL) / surface finish	alre cover set	Cover set Item no.	PG	Insert frame 50x50*
RTBSU-401.075#00	Standard 55/E2/E3/E22/Event/Esprit	pure white (RAL 9010) glossy	JZ-003.100 (55 x 55, glossy)	UN990053	I	not required
	Standard 55/E2/E22/Event/Esprit	pure white (RAL 9010) matt	JZ-003.101 (55 x 55, matt)	UN990058	1	not required
	Surface switch	pure white (RAL 9010) glossy	JZ-003.000 (50 x 50, glossy)	UN990038	1	0282 112
	Standard 55/Event/Esprit/ClassiX	cream white (RAL 1013) glossy	JZ-003.110 (55 x 55, glossy)	UN990063	I	not required

(3-way switch, LED)

*) must be ordered from switch manufacturer or electronics wholesaler

**) for GIRA surface switches, there are also 55 x 55 insert frames (for the use of alre 55 x 55 cover set) – GIRA item no. 0289 112 (pure white) and 0289 111 (cream white)

Ino a

Product finder for alre cover sets for switch ranges from JUNG

Integration examples	
----------------------	--









RTBSU – in A creation



RTBSU - in AS 500

RTBSU - in A 500

RTBSU – in A plus

RTBSU – in LS-design

Type alre	Jung range	Colour (RAL) / surface finish	alre cover set	Cover set Item no.	PG	Insert frame 50 x 50 *
RTBSU-401.000#00	AS 500/A 500/A550/A creation/A plus/A flow	alpine white (RAL 9010) glossy	JZ-001.100 (55 x 55, glossy)	UN990050	I	not required
RTBSU-401.002#00	CD 500/CD plus	alpine white (RAL 9010) glossy	JZ-001.000 (50 x 50, glossy)	UN990035	I	CD 590 Z WW
RTBSU-401.010#00 RTBSU-401.086#00	LS 990/LS design/LS plus	alpine white (RAL 9010) glossy	JZ-001.000 (50 x 50, glossy)	UN990035	I	LS 961 Z WW**
RTBSU-401.202#00						
RTBSU-401.210#00	AS 500	white (RAL 1013) glossy	JZ-001.110 (55 x 55, glossy)	UN990060	I	not required
	CD 500/CD plus	white (RAL 1013) glossy	JZ-001.010 (50 x 50, glossy)	UN990045	I	590 Z
1	LS 990/LS design/LS plus	white (RAL 1013) glossy	JZ-001.010 (50 x 50, glossy)	UN990045	I	LS 961 Z**
	•					
1 m	Series A	aluminium/glossy	JZ-001.130/JU (55x55)	UN990112	I	not required
Standard (without switch)	Series A	anthracite/matt	JZ-001.141/JU (55x55)	UN990113	I	not required
	Jung range	Colour (RAL)/surface finish		Cover set Item no.	PG	Insert frame 50 x 50 *
RTBSU-401.034#00	AS 500/A 500/A550/A creation/A plus/A flow	alpine white (RAL 9010) glossy	JZ-016.100 (55x55 glossy)	UN990140	1	not required
	CD 500/CD plus	alpine white (RAL 9010) glossy	JZ-016.000 (50x50 glossy)	UN990139		CD 590 Z WW
·	LS 990/LS design/LS plus	alpine white (RAL 9010) glossy	JZ-016.000 (50x50 glossy)	UN990139	I	LS 961 Z WW**



Type alre	Jung range	Colour (RAL) / surface finish	alre cover set	Cover set Item no.	PG	Insert frame 50 x 50 *
RTBSU-401.062#00	AS 500/A 500/A550/A creation/A plus/A flow	alpine white (RAL 9010) glossy	JZ-002.100 (55 x 55, glossy)	UN990051	1	not required
RTBSU-401.262#00	CD 500/CD plus	alpine white (RAL 9010) glossy	JZ-002.000 (50 x 50, glossy)	UN990036	I	CD 590 Z WW
	LS 990/LS design/LS plus	alpine white (RAL 9010) glossy	JZ-002.000 (50 x 50, glossy)	UN990036	1	LS 961 Z WW**
•	AS 500	white (RAL 1013) glossy	JZ-002.110 (55 x 55, glossy)	UN990061	I	not required
- (CD 500/CD plus	white (RAL 1013) glossy	JZ-002.010 (50 x 50, glossy)	UN990046	I	590 Z
	LS 990/LS design/LS plus	white (RAL 1013) glossy	JZ-002.010 (50 x 50, glossy)	UN990046	I	LS 961 Z**

(ON/OFF switch, LED)

Type alre	Jung range	Colour (RAL) / surface finish	alre cover set	Cover set Item no.	PG	Insert frame 50 x 50 *
RTBSU-401.063#00	AS 500/A 500/A550/A creation/A plus/A flow	alpine white (RAL 9010) glossy	JZ-012.100 (55x55 glossy)	UN990123	I	not required
	CD 500/CD plus	alpine white (RAL 9010) glossy	JZ-012.000 (50x50 glossy)	UN990107	I	CD 590 Z WW
	LS 990/LS design/LS plus	alpine white (RAL 9010) glossy	JZ-012.000 (50x50 glossy)	UN990107	1	LS 961 Z WW**
. 👝 🔪	AS 500	white (RAL 1013) glossy	JZ-012.110 (55x55 glossy)	UN990137	I	not required
- (CD 500/CD plus	white (RAL 1013) glossy	JZ-012.010 (50x50 glossy)	UN990133	I	590 Z
	LS 990/LS design/LS plus	white (RAL 1013) glossy	JZ-012.010 (50x50 glossy)	UN990133	I	LS 961 Z**

(Switch H/OFF/C)

Type alre	Jung range	Colour (RAL) / surface finish	alre cover set	Cover set Item no.	PG	Insert frame 50 x 50 *
RTBSU-401.065#00	AS 500/A 500/A550/A creation/A plus/A flow	alpine white (RAL 9010) glossy	JZ-004.100 (55 x 55, glossy)	UN990052	1	not required
RTBSU-401.265#00	CD 500/CD plus	alpine white (RAL 9010) glossy	JZ-004.000 (50 x 50, glossy)	UN990037	I	CD 590 Z WW
	LS 990/LS design/LS plus	alpine white (RAL 9010) glossy	JZ-004.000 (50 x 50, glossy)	UN990037	1	LS 961 Z WW**
	AS 500	white (RAL 1013) glossy	JZ-004.110 (55 x 55, glossy)	UN990062		not required
	CD 500/CD plus	white (RAL 1013) glossy	JZ-004.010 (50x50, glossy)	UN990047	I	590 Z
	LS 990/LS design/LS plus	white (RAL 1013) glossy	JZ-004.010 (50x50, glossy)	UN990047		LS 961 Z**

(H/C switch)

Type alre	Jung range	Colour (RAL) / surface finish	alre cover set	Cover set Item no.	PG	Insert frame 50 x 50 *
RTBSU-401.075#00	AS 500/A 500/A550/A creation/A plus/A flow	alpine white (RAL 9010) glossy	JZ-003.100 (55 x 55, glossy)	UN990053	I	not required
	CD 500/CD plus	alpine white (RAL 9010) glossy	JZ-003.000 (50 x 50, glossy)	UN990038	I	CD 590 Z WW
	LS 990/LS design/LS plus	alpine white (RAL 9010) glossy	JZ-003.000 (50 x 50, glossy)	UN990038	1	LS 961 Z WW**
	AS 500	white (RAL 1013) glossy	JZ-003.110 (55 x 55, glossy)	UN990063	I	not required
	CD 500/CD plus	white (RAL 1013) glossy	JZ-003.010 (50 x 50, glossy)	UN990048	I	590 Z
	LS 990/LS design/LS plus	white (RAL 1013) glossy	JZ-003.010 (50 x 50, glossy)	UN990048		LS 961 Z**

(3-way switch, LED)

*) must be ordered from switch manufacturer or electronics wholesaler **) for the Jung LS series, there are also 55 x 55 insert frames (for the use of alre 55 x 55 cover set) – JUNG item no. LS 961 Z5 WW (alpine white) and LS 961 Z5 (white)

Product finder for alre cover sets for switch ranges from **MERTEN**

Integration examples



RTBSU - in 1-M











RTBSU – in Antik

Type alre	Merten range	Colour (RAL) / surface finish	alre cover set	Cover set Item no.	PG	Insert frame 50 x 50 *
RTBSU-401.000#00	1-M, Atelier-M/M-Smart, M-Pure, M-Plan, M-Creativ	polar white (RAL 9010) glossy	JZ-001.100 (55 x 55, glossy)	UN990050	1	not required
RTBSU-401.002#00	1-M, Atelier-M/M-Smart, M-Pure, M-Plan, M-Creativ	polar white (RAL 9010) matt	JZ-001.101 (55 x 55, matt)	UN990055	1	not required
RTBSU-401.010#00	1-M, Atelier-M/M-Smart, M-Pure, M-Plan, M-Creativ	active white (RAL 9016) glossy	JZ-001.120 (55 x 55, glossy)	UN990086	1	not required
RTBSU-401.086#00 RTBSU-401.202#00	D-Life	lotus white (RAL 9016) glossy	JZ-001.020 (50 x 50, glossy)	UN990071	I	MEG4500-6035
RTBSU-401.210#00	System Design: Artec, Antik	polar white (RAL 9010) glossy	JZ-001.000 (50 x 50, glossy)	UN990035	1	5160 99
	1-M, Atelier-M/M-Smart, M-Pure, M-Plan, M-Creativ	white (RAL 1013) glossy	JZ-001.110 (55 x 55, glossy)	UN990060	I	not required
0	System Design: Artec, Antik	white (RAL 1013) glossy	JZ-001.010 (50 x 50, glossy)	UN990045	I	5160 94
	System M	aluminium/matt	JZ-001.131/ME (55x55)	UN990116	I	not required
Standard (without switch)	System M	anthracite/matt	JZ-001.141/ME (55x55)	UN990117	I	not required
					-	
Type alre	Merten range	Colour (RAL)/surface finish	alre cover set	Cover set Item no.	PG	Insert frame 50 x 50 *
RTBSU-401.034#00	1-M, Atelier-M/M-Smart, M-Pure, M-Plan, M-Creativ	polar white (RAL 9010) glossy	JZ-016.100 (55x55 glossy)	UN990140	I	not required
	System Design: Artec, Antik	polar white (RAL 9010) glossy	JZ-016.000 (50x50 glossy)	UN990139	I	5160 99



Type alre	Merten range	Colour (RAL)/surface finish	alre cover set	Cover set Item no.	PG	Insert frame 50 x 50 *
RTBSU-401.062#00	1-M, Atelier-M/M-Smart, M-Pure, M-Plan, M-Creativ	polar white (RAL 9010) glossy	JZ-002.100 (55 x 55, glossy)	UN990051	I	not required
RTBSU-401.262#00	1-M, Atelier-M/M-Smart, M-Pure, M-Plan, M-Creativ	polar white (RAL 9010) matt	JZ-002.101 (55 x 55, matt)	UN990056	I	not required
	1-M, Atelier-M/M-Smart, M-Pure, M-Plan, M-Creativ	active white (RAL 9016) glossy	JZ-002.120 (55 x 55, glossy)	UN990088	I	not required
· · ·	D-Life	lotus white (RAL 9016) glossy	JZ-002.020 (50 x 50, glossy)	UN990072	I	MEG4500-6035
	System Design: Artec, Antik	polar white (RAL 9010) glossy	JZ-002.000 (50 x 50, glossy)	UN990036	I	5160 99
	1-M, Atelier-M/M-Smart, M-Pure, M-Plan, M-Creativ	white (RAL 1013) glossy	JZ-002.110 (55 x 55, glossy)	UN990061		not required
(ON/OFF switch, LED)	System Design: Artec, Antik	white (RAL 1013) glossy	JZ-002.010 (50 x 50, glossy)	UN990046	1	5160 94
Type alre	Merten range	Colour (RAL)/surface finish	alre cover set	Cover set Item no.	PG	Insert frame 50 x 50 *
RTBSU-401.063#00	1-M, Atelier-M/M-Smart, M-Pure, M-Plan, M-Creativ	polar white (RAL 9010) glossy	JZ-012.100 (55x55 glossy)	UN990123	I	not required
	1-M, Atelier-M/M-Smart, M-Pure, M-Plan, M-Creativ	polar white (RAL 9010) matt	JZ-012.101 (55x55 matt)	UN990136	I	not required
	1-M, Atelier-M/M-Smart, M-Pure, M-Plan, M-Creativ	active white (RAL 9016) glossy	JZ-012.120 (55x55 glossy)	UN990138	I	not required
	D-Life	lotus white (RAL 9016) glossy	JZ-012.020 (50x50 glossy)	UN990134	I	MEG4500-6035
1 🧐 🛬	System Design: Artec, Antik	polar white (RAL 9010) glossy	JZ-012.000 (50x50 glossy)	UN990107	1	5160 99
	1-M, Atelier-M/M-Smart, M-Pure, M-Plan, M-Creativ	white (RAL 1013) glossy	JZ-012.110 (55x55 glossy)	UN990137	I	not required
(Switch H/OFF/C)	System Design: Artec, Antik	white (RAL 1013) glossy	JZ-012.010 (50x50 glossy)	UN990133	I	5160 94
Type alre	Merten range	Colour (RAL)/surface finish	alre cover set	Cover set Item no.	PG	Insert frame 50 x 50 *
RTBSU-401.065#00	1-M, Atelier-M/M-Smart, M-Pure, M-Plan, M-Creativ	polar white (RAL 9010) glossy	JZ-004.100 (55 x 55, glossy)	UN990052	I	not required
RTBSU-401.265#00	1-M, Atelier-M/M-Smart, M-Pure, M-Plan, M-Creativ	polar white (RAL 9010) matt	JZ-004.101 (55 x 55, matt)	UN990057	I	not required
	1-M, Atelier-M/M-Smart, M-Pure, M-Plan, M-Creativ	active white (RAL 9016) glossy	JZ-004.120 (55 x 55, glossy)	UN990089	I	not required
14	D-Life	lotus white (RAL 9016) glossy	JZ-004.020 (50 x 50, glossy)	UN990073	I	MEG4500-6035
	System Design: Artec, Antik	polar white (RAL 9010) glossy	JZ-004.000 (50 x 50, glossy)	UN990037	I	5160 99
	1-M, Atelier-M/M-Smart, M-Pure, M-Plan, M-Creativ	white (RAL 1013) glossy	JZ-004.110 (55 x 55, glossy)	UN990062	I	not required
(H/C switch)	System Design: Artec, Antik	white (RAL 1013) glossy	JZ-004.010 (50x50, glossy)	UN990047	I	5160 94
Type alre	Merten range	Colour (RAL)/surface finish	alre cover set	Cover set Item no.	PG	Insert frame 50 x 50 *
				110000050		not required
RTBSU-401.075#00	1-M, Atelier-M/M-Smart, M-Pure, M-Plan, M-Creativ	polar white (RAL 9010) glossy	JZ-003.100 (55 x 55, glossy)	UN990053	I	notroquirou
RTBSU-401.075#00	1-M, Atelier-M/M-Smart, M-Pure, M-Plan, M-Creativ 1-M, Atelier-M/M-Smart, M-Pure, M-Plan, M-Creativ	polar white (RAL 9010) glossy polar white (RAL 9010) <u>matt</u>	JZ-003.100 (55 x 55, glossy) JZ-003.101 (55 x 55, matt)	UN990053 UN990058		not required
RTBSU-401.075#00					 	
RTBSU-401.075#00	1-M, Atelier-M/M-Smart, M-Pure, M-Plan, M-Creativ	polar white (RAL 9010) matt	JZ-003.101 (55 x 55, matt)	UN990058		not required
RTBSU-401.075#00	1-M, Atelier-M/M-Smart, M-Pure, M-Plan, M-Creativ 1-M, Atelier-M/M-Smart, M-Pure, M-Plan, M-Creativ	polar white (RAL 9010) <u>matt</u> active white (RAL 9016) glossy	JZ-003.101 (55 x 55, matt) JZ-003.120 (55 x 55, glossy)	UN990058 UN990090		not required not required
RTBSU-401.075#00	1-M, Atelier-M/M-Smart, M-Pure, M-Plan, M-Creativ 1-M, Atelier-M/M-Smart, M-Pure, M-Plan, M-Creativ D-Life	polar white (RAL 9010) <u>matt</u> active white (RAL 9016) glossy lotus white (RAL 9016) glossy	JZ-003.101 (55 x 55, matt) JZ-003.120 (55 x 55, glossy) JZ-003.020 (50 x 50, glossy)	UN990058 UN990090 UN990074	I	not required not required MEG4500-6035

Electronic room or floor temperature controller with clock HTRRUu Flush-mounted installation – Design Berlin UP

	Technical data		Application
	Design:	Berlin UP (flush-mounted)	Flush-mounted controller for time-dependent single room or floor
	Housing material:	PC, PMMA, ABS plastic	temperature control for electrical
	Operating voltage:	230 VAC, 50 Hz	and hot water heating systems
155	Storage temperature:	-20+70 °C	(normally closed actuators). The
1	Permissible atmospheric humidity:	Max. 95% rel. humidity, non-condensing	device can be used as a room temperature controller with interna
+	Electrical connection:	pluggable screw terminals	sensor or (in combination with an optional remote sensor) as a room
	Mounting/attachment: Protection rating:	in flush-mounted socket, can be adapt- ed to fit virtually any switch range (deep flush-mounted socket recommended) see adaptation list on page 97 IP 30	temperature controller with floor monitoring or floor temperature controller. (Remote sensor is not a part of the scope of delivery)
	Protection class:		This clock thermeetet has a weak
	Safety and EMC:	II, if properly mounted according to DIN EN 60730	This clock thermostat has a weekl timer with individually adjustable
	•	· ·	programs (factory setting: "norma
	Max. switching current: Max. switching voltage:	10 (2) A 230 VAC, 50 Hz	daily sequences).
	Max. switching voltage: Min. switching voltage:	230 VAC, 50 Hz	Self-learning function: Automatic
	Switching power:	2300 W	adjustment of the controller to
	Switching element:	relay	the start of the heating period.
	Switching contact:	NO contact	The goal is to achieve the comfort
2	Output signal:	230 VAC. 50 Hz	temperature at the time that has been set. The learning function is
	Sensor:	NTC internal, optional external floor sensor see accessories, optional external	disabled upon delivery, but it can be enabled.
	Sensor rupture and short-circuit protection:	room sensor see Sensors "Sensor 2" If the internal or external sensor is faulty or the external sensor is not connected to the functions room temperature con-	Standby function: This function disables the control; frost protecti is still ensured.
		troller with floor monitoring, floor tem- perature controller or room temperature controller with ext. sensor, emergency operation is triggered.	General features: ECO function, adjustable ECO value; "ECO" display; "on/off" display; "heating" display; digital
	Control function:	heating	actual value display; backlighting;
	Control range:	530 °C (room)/1042 °C (floor)	standby mode with frost protection
	Setting range:	The setting range varies, depending on the use of the controller as a room tem- perature controller (5 30 °C) or floor temperature controller (10 42 °C)	monitoring; child-safe features; load setting; power reserve (approx. 5 days); actual value correction/measured
	Hysteresis:	for room control < 1 K, for floor control < 2 K	value correction; learning function valve protection; holiday setting;
	Display type:	illuminated graphical display	party setting; external setting; cor fortable operation using touch-set
	Display:	setpoint, actual temperature/date, time; setpoint, actual temperature or date, time	sitive buttons; VDE-tested
	Accessories:	terminal strips: VOOPL suitable valve actuators: ZBOOA-010.100	Special colours are available for projects on request.

			Circuit diagram	
HTRRUu 210.021#21	UA060000	Scope of delivery: controller, cover 50 x 50 mm pure white (like RAL 9010), glossy, alre frame "Berlin"		I
HTRRUu 210.021#21/7	UN060011	like HTRRUu 210.021#21 but scope of delivery as follows: controller, cover 50 x 50 mm pure white (like RAL 9010), glossy, alre frame "Berlin", external floor sensor (HF-8/4-K2)		I
HTRRUu 210.021#07	UA060001	like HTRRUu 210.021#21 but scope of delivery as follows: controller, cover 50 x 50 mm pure white (like RAL 9010), glossy, without frame		I

Catalogue 2020 | Page 94

Electronic room or floor temperature controller with clock HTRRUu Flush-mounted installation – Design Berlin UP

Type/image		Features Circuit diagram	
HTRRUu 210.021#09	UA060002	like HTRRUu 210.021#21 but scope of delivery as follows: controller, cover 50 x 50 mm pearl white (like RAL 1013), glossy, without frame	I
HTRRUu 210.021#27	UA060003	like HTRRUu 210.021#21 but scope of delivery as follows: Controller, cover 50 x 50 mm traffic/ studio white (like RAL 9016), glossy, without frame	I
HTRRUu 210.021#28	UA060006	like HTRRUu 210.021#21 but scope of delivery as follows: controller, cover suitable for BUSCH JAEGER Reflex SI/SI Linear pure white (like RAL 9010), glossy, without frame	I
HTRRUu 210.021#55	UA060004	like HTRRUu 210.021#21 but scope of delivery as follows: controller, cover 55 x 55 mm pure white (like RAL 9010), glossy, without frame	I
HTRRUu 210.021#56	UA060020	like HTRRUu 210.021#21 but scope of delivery as follows: controller, cover 55 x 55 mm pure white (like RAL 9010), matt, without frame	I
HTRRUu 210.021#57	UA060005	like HTRRUu 210.021#21 but scope of delivery as follows: controller, cover 55 x 55 mm pearl white (like RAL 1013), glossy, without frame	I
HTRRUu 210.021#59	UA060014	like HTRRUu 210.021#21 but scope of delivery as follows: Controller, cover 55 x 55 mm traffic/ studio white (like RAL 9016), glossy, without frame	I
Accessories			
HF-8/4-K2	G8000370	General features: optional, external floor sensor Ambient temperature: -5+70 °C Protection rating: IP65 Sensor: NTC Connecting cable: 4 m, PVC	II
HF-8/6-K2	G8000368	General features: optional, external floor sensor Ambient temperature: -5+70 °C Protection rating: IP65 Sensor: NTC Connecting cable: 6 m, PVC	II
WP-01	G9990180	General features: heat conduction paste 2 ml; R > 1 T Ω /cm, silicone-free Ambient temperature: -40 +150 °C Heat conductivity: > 0.7 W/mK	II
THF	C1809515	General features: protective sleeve for screed mounting (for sleeve sensor HF \emptyset 7.7, for example, HF-8/4-K2 or HF-8/6-K2), copper	II
JZ-090.900	VV000025	General features: alre frame "Berlin" (neutral) for all flush-mounted controllers with cover 50 x 50 mm Design: Berlin Surface finish: Glossy Colour: Pure white, like RAL 9010 Material: PC plastic	Ι

lre

Electronic room or floor temperature controller with clock HTRRUu Flush-mounted installation – Design Berlin UP

JZ-090.910	VV000010	General features: alre fran cover 50 x 50 mm Design: Berlin Surface finish: Glossy Colour: Pearl white, like R Material: PC plastic	ne "Berlin" (neutral) for all flush-mounted o	controllers with I
HTRRUu with alre fra	DE		pluggable screw-type terminals	
Other benefits: • Pluggable screw-type t nals facilitate quick and assembly • Illuminated, graphics-c display • Choice of 4 different ex floor sensors (2 kOhm - 12 kOhm – OJ/AEG, 15 – DEVI, 33 kOhm – Ebe meaning they are also i retrofitting • VDE mark • Automatic adjustment t dard/daylight savings ti • Learning function • Correction of measurer values	d easy during variou apable Germ Polish ternal Limit - alre, ture 5 kOhm Stanc orle), Key lo deal for Valve Confi PWM to stan- Holida ime Powe "Heat nent (orang	protection function gurable control method (Pl- or 2-point control) ay and party function r reserve ing operation" display ge LED) setting for improved	 Factory setting: Holiday temperature 17 °C, Setback temperature 17 °C, Comfort temperature 20 °C, Comfort times: Mon–Fri 5 am–9 am 10 pm Key lock deactivated Automatic adjustment to standard// Valve and pump protection disabled Display lighting 10 s Heating load 0.1 kW 2-point control method External sensor 2 kOhm and max. floor temperature temperature controller) 	daylight savings time enabled d
HTRRUu with alre fra	8		HF-8/4-K2 4000 Ø Ø Ø Ø Ø Ø Ø Ø Ø Ø Ø Ø Ø	THF Ø10+0.5 0.5 0.5 0.5 0.5
Examples of integration	ion in switch rang	ges with or without insert	frames	





Adaptation of alre flush-mounted controllers HTRRUu 210.021

				#50 50% 1 1 1
Manufacturer	Range	Colour RAL 9010	Adaptation in	"50 x 50" adaptation possible
		(surface finish)	switch range ("55 x 55") possible	with (insert frame from manu- facturer required)
			using	
BERKER	S.1	polar white (matt)	HTRRUu 210.021#56	not required
BERKER	S.1	polar white (glossy)	HTRRUu 210.021#55	not required
BERKER	Arsys	polar white (glossy)		HTRRUu 210.021#07 + (1108 01 69)
BERKER	B.3	aluminium/polar white (matt)	HTRRUu 210.021#56	not required
BERKER	B.3	aluminium/polar white (glossy)	HTRRUu 210.021#55	not required
BERKER	B.7	glass/polar white (matt)	HTRRUu 210.021#56	not required
BERKER	B.7	glass/polar white (glossy)	HTRRUu 210.021#55	not required
BERKER	K.1	polar white (glossy)		HTRRUu 210.021#07 + (1108 71 09)
BUSCH-JAEGER	Reflex SI/SI Linear	alpine white (glossy)	HTRRUu 210.021#28	not required
BUSCH-JAEGER	Busch-balance SI	alpine white (glossy)	HTRRUu 210.021#55	not required
BUSCH-JAEGER	impuls	alpine white (glossy)		HTRRUu 210.021#07 + (1746/10-74)
BUSCH-JAEGER	solo/future/axcent etc.	studio white - see RAL 9016 below		
ELSO	Joy	pure white (glossy)	HTRRUu 210.021#55	not required
ELSO	Fashion/Riva/Scala	pure white (glossy)		HTRRUu 210.021#07 + 203084
GIRA	surface switch	pure white (glossy)		HTRRUu 210.021#07 + (0282 112)
GIRA (System 55)	Standard/E2	pure white (semi-gloss)	HTRRUu 210.021#56	not required
GIRA (System 55)	Standard/E2/E3	pure white (glossy)	HTRRUu 210.021#55	not required
GIRA (System 55)	E22	pure white (glossy)	HTRRUu 210.021#55	not required
GIRA (System 55)	Event	pure white (semi-gloss) + opaque	HTRRUu 210.021#56	not required
GIRA (System 55)	Event	pure white (glossy) + opaque	HTRRUu 210.021#55	not required
GIRA (System 55)	Esprit	pure white (semi-gloss) + glass,	HTRRUu 210.021#56	not required
GIRA (System 55)	Esprit	aluminium pure white (glossy) + glass, aluminium	HTRRUu 210.021#55	not required
GIRA	S-Color	pure white (high-gloss)		HTRRUu 210.021#07 + (0282 40)
JUNG	CD 500/CD plus	alpine white (glossy)		HTRRUu 210.021#07 + (CD 590 Z WW)
JUNG	A 500/AS 500/A plus	alpine white (glossy)	HTRRUu 210.021#55	not required
JUNG	LS 990	alpine white (glossy)		HTRRUu 210.021#07 + (LS 961 Z WW)
JUNG	LS plus	alpine white (glass)		HTRRUu 210.021#07 + (LS 961 Z WW)
JUNG	A creation	alpine white (glossy)	HTRRUu 210.021#55	not required
JUNG	LS Design	alpine white (glossy)		HTRRUu 210.021#07 + (LS 961 Z WW)
MERTEN (System M)	M-Smart, M-Plan, M-Pure	polar white (matt)	HTRRUu 210.021#56	not required
MERTEN (System M)	M-Smart, M-Plan, M-Creativ, M-Pure	polar white (glossy)	HTRRUu 210.021#55	not required
MERTEN (Basis System)	1-M/Atelier-M	polar white (glossy)	HTRRUu 210.021#55	not required
MERTEN (Surface System)	Artec/Antik	polar white (glossy)		HTRRUu 210.021#07 + (5160 99)
MERTEN	1-M/M-Smart/M-Plan/M-Pure/D-Life	active white - see RAL 9016 below		
PEHA	Standard	pure white (glossy)		HTRRUu 210.021#07 + (80.670.02 ZV)
PEHA	Dialog	pure white (glossy)		HTRRUu 210.021#07 + (95.670.02 ZV)
PEHA	Aura	pure white (matt)/glass		HTRRUu 210.021#07 + (20.670.02 ZV)
PEHA	Badora	pure white (glossy)		HTRRUu 210.021#07 + (11.670.02 ZV)
	Range	Colour RAL 9016	Adaptation in	"50 x 50" adaptation possible
	Thango	(surface finish)	switch range	with (insert frame from manu-
			"55 x 55" possible	facturer required)
			using	
BUSCH-JAEGER	solo/future/future linear	studio white (RAL 9016, glossy)		HTRRUu 210.021#27 + (1746/10-84)
BUSCH-JAEGER	axcent	studio white (RAL 9016, glossy)		HTRRUu 210.021#27 + (1746/10-84)
BUSCH-JAEGER	carat (glass, bronze, gold)	studio white (RAL 9016, glossy)		HTRRUu 210.021#27 + (1746/10-84)
BUSCH-JAEGER	alpha (nea/exclusive*)	studio white (RAL 9016, glossy)		HTRRUu 210.021#27 + (1746/10-24G)
MERTEN	M-Smart, M-Plan, M-Pure	active white (RAL 9016, glossy)	HTRRUu 210.021#59	not required
MERTEN	1-M/Atelier-M	active white (RAL 9016, glossy)	HTRRUu 210.021#59	not required
MERTEN	D-Life	lotus white (RAL 9016)		HTRRUu 210.021#27 + MEG4500-6035

*) During assembly, you need to remove 4 plastic tabs located at the rear of the frame

NOTE: Most light switch ranges are designed in a colour like RAL 9010, although different switch manufacturers use different designations for this colour. Coloured, glass and aluminium frames are also combined with white jacks or plugs so that controllers with white covers can also be integrated into these frames. Check the precise application in each individual case. The frames have different surface qualities (matt/glossy). For design reasons, the cover of the controller should have the same quality as the frame. We accept no liability for slight variations in colour and surface finish or for accuracy of fit. When installing devices into multi frames, always assemble the temperature controllers at the lowernost position.

"50 x 50 controller": The housing covers of the 50 x 50 controllers are 50 x 50 mm in size. Using a 50 x 50-mm insert frame, they can be integrated into nearly all light switch ranges in accordance with DIN 49075. The 50 x 50-mm insert frames must be ordered from the light switch manufacturer or from a wholesaler. The order number of the insert frame corresponding to the switch range in question can be found in the column "For adaptation of size "50 x 50" MTRRUu".

"55 x 55 controller": The housing covers of the 55 x 55 controllers are 55 x 55 mm in size. Many light switch ranges have inner dimensions of 55 x 55 mm. Therefore, the 55 x 55 controllers can be installed directly in the light switch frame without the use of an insert frame. See the column "Adaptation in switch range (55 x 55)" to determine whether the 55 x 55 controller fits in the given light switch range (HTRRUu 210.021#xx).

All information regarding switch manufacturers" product lines and item numbers was last updated in 12/2019 | No liability is assumed for the information provided. | Technical specifications subject to change.

An adaptation list for RAL 1013 switch ranges is available from our website at www.alre.de.

Electronic floor or surface temperature controller with remote sensor (for floor heating/wall and ceiling heating/tiled stove) HTRRB

Surface-mounted installation - Design Berlin 2000

	Teach			Application
	Tech	nical data		Application
	Desig	n:	Berlin 2000	Temperature control (e.g., of electrical
	Surfa	ce finish:	matt	heating systems) for floor, fringe
1 0	Hous	ing colour:	pure white, like RAL 9010	zone, bathroom, ceiling, tiled stove, marble and wall heating systems or
5_6	Hous	ing material:	ABS plastic	tempering systems.
•	Opera	ating voltage:	230 VAC, 50 Hz	
3	Ambi	ent temperature:	030 °C	Note: The sensor line must be routed
alre 2	Stora	ge temperature:	–20…+70 °C	in a protective duct. Parallel routing together with lines that carry alternat-
aire	Perm humio	issible atmospheric lity:	Max. 95% rel. humidity, non-con- densing	ing currents is not admissible.
	Elect	rical connection:	screw-type terminals	Floor temperature controller
	Moun	ting/attachment:	Surface/wall mounting (4-hole as- sembly on flush-mounted socket)	with clock: HTRRBu-110.021 Floor temperature controller for
	Prote	ction rating:	IP 30	distributor assembly: ITR 79 Series (plant engineering)
	Prote	ction class:	II, if properly mounted	int ro benes (plant engineering)
	Safet	y and EMC:	according to DIN EN 60730	
		switching current:	13 (2) A	
	Max.	switching voltage:	230 VAC, 50 Hz	
	Min. s	witching voltage:	230 VAC, 50 Hz	
	Switc	hing power:	3000 W	
	Switc	hing element:	relay	
	Switc	hing contact:	NO contact	
	Outpu	ıt signal:	230 VAC, 50 Hz	
	Sense	or:	external, NTC	
		or rupture and -circuit protection:	heating is switched off	
	Contr	ol function:	heating	
	Hyste	resis:	approx. 1 K	
	Gene	ral features:	"Heating" display: mechanical range limitation; 3000 W switching power for electric direct heating systems, natural stone heating; "on/off" switch; external setting	
				Circuit diagram PG
HTRRB-011.010 D/	400000		r temperature controller with K2 4 m, multi-digit display) °C	NNL * 654321

Note: The setting range can be adjusted to 10...40 °C (for example) using the mechanical range

General features: Tiled stove surface temperature

controller with remote sensor HF-5/4-K3 4 m; scale:

limitation as a replacement for the type

Degrees Celsius; threshold arrow **Control range:** 20...80 °C

HTRRB-010.310.

DA400100

electronics

Ŕ

electronics

NNL 🔅

1]

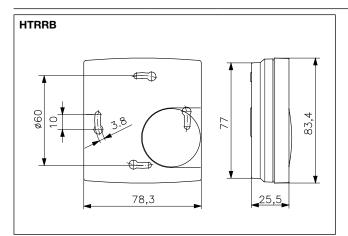
L

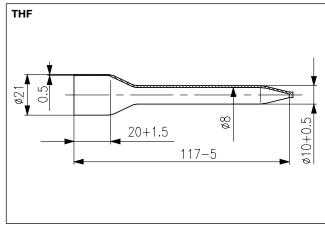
HTRRB-011.410

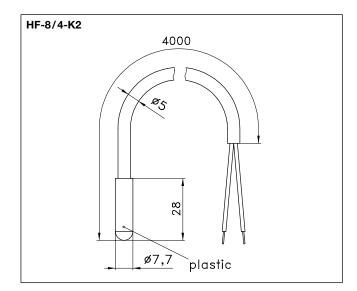
Electronic floor or surface temperature controller with remote sensor (for floor heating/wall and ceiling heating/tiled stove) HTRRB

Surface-mounted installation – Design Berlin 2000

Accessories			
HF-8/4-K2	G8000370	General features: Spare sensor for HTRRB-011.010 Ambient temperature: -5+70 °C Protection rating: IP 65 Sensor: NTC Connecting cable: 4 m, PVC	II
HF-8/6-K2	G8000368	General features: Spare sensor for HTRRB-011.010 Ambient temperature: -5+70 °C Protection rating: IP 65 Sensor: NTC Connecting cable: 6 m, PVC	II
HF-5/4-K3	G9031456	General features: Spare sensor for HTRRB-011.410 Ambient temperature: -50+150 °C Protection rating: IP 65 Sensor: NTC Connecting cable: 4 m, silicone, H05SS-F <vde> 2 x 0.75 mm²</vde>	111
WP-01	G9990180	General features: heat conduction paste 2 ml; $R > 1 T\Omega/cm$, silicone-free Heat conductivity: > 0.7 W/mK Ambient temperature: -40+150 °C	II
THE	C1809515	General features: protective sleeve for screed mounting (for sleeve sensor HF Ø 7.7, for example, HF-8/4-K2 or HF-8/6-K2), copper	II







Electronic floor temperature controller with clock and remote sensor (for floor heating/wall and ceiling heating) HTRRBu Surface-mounted installation – Berlin 3000

	Technical data		Application
9 0 (1234) 5 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	Design: Surface finish: Housing colour: Housing material: Operating voltage:	Berlin 3000 matt pure white, like RAL 9010 ABS plastic 230 VAC, 50 Hz	Time-dependent temperature control (for example, of electrical heating systems) for floor, fringe zone, bath- room, ceiling, tiled stove, marble and wall heating systems or tempering systems.
aire	Ambient temperature: Storage temperature: Permissible atmospheric humidity: Electrical connection: Mounting/attachment:	030 °C -20+70 °C Max. 95% rel. humidity, non-con- densing screw-type terminals 0.51.5 mm ² surface/wall mounting or by means of an adapter plate on a flush-mounted	It can be used as a master (pilot reg- ulator) for the temperature reduction of other controllers. Controllers of the series FETR, RTBSU and RTBSB are suitable for use as slaves (satellite controllers).
	Protection rating: Protection class: Safety and EMC: Max. switching current: Max. switching voltage: Min. switching voltage:	socket IP 30 II, if properly mounted according to DIN EN 60730 Heating (terminal 4) 13 (2) A, clock output (terminal 3) 100 mA 230 VAC, 50 Hz 230 VAC, 50 Hz	Note: The sensor line must be routed in a protective duct. Parallel routing together with lines that carry AC voltage is not permissible. Programming procedures for every day, familiar from mechanical timers, by means of "electronic tabs". Short- est switching time 15 min.
	Switching power: Switching element: Switching contact: Output signal: Sensor: Control function: Control function: Control range: Hysteresis: Display type: Output "temperature reduc- tion":	terminal 4: 3000 W, terminal 3: 23 W relay NO contact switching (230 VAC, 50 Hz) external, NTC heating 1042 °C approx. 1 K symbol display switching (230 VAC, 50 Hz), for pilot function	General features: Pilot function; ECO function; ECO value adjustable; display "ECO"; display "On/Off"; display "Heating"; child-safe features; power reserve (approx. 4–7 days); learning function; valve protection; holiday setting; party setting; automatic ad- justment to standard/daylight savings time; mechanical range limitation; reduction/comfort/automatic button; external setting; operation using direct-dial button; on/off button; information button; party function button; holiday setting button

I

HTRRBu-110.021

MA600400 With backlighting



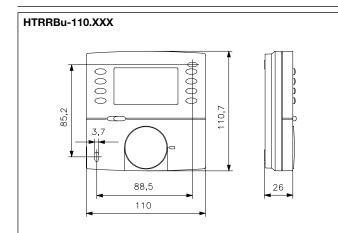
Accessories: terminal strips: VOOPL compatible valve actuators: ZBOOA-010.100

Electronic floor temperature controller with clock and remote sensor (for floor heating/wall and ceiling heating) HTRRBu

Surface-mounted installation – Berlin 3000

JZ-17	MN990001	General features: Adapter plate for mounting devices on flush-mounted sockets (including fastening screws for mounting the controller on the adapter plate) Surface finish: matt Colour: pure white, like RAL 9010 Material:ABS plastic	II
HF-8/4-K2	G8000370	General features: Spare sensor for HTRRBu-110.021 Ambient temperature: -5+70 °C Protection rating: IP 65 Sensor: NTC Connecting cable: 4 m, PVC	II
HF-8/6-K2	G8000368	General features: Spare sensor for HTRRBu-110.021 Ambient temperature: -5+70 °C Protection rating: IP 65 Sensor: NTC Connecting cable: 6 m, PVC	II
WP-01	G9990180	General features: Heat conduction paste 2 ml; R > 1 T Ω /cm, silicone-free Ambient temperature: -40+150 °C	II
THF	C1809515	General features: protective sleeve for screed mounting (for sleeve sensor HF Ø 7.7, for example, HF-8/4-K2 or HF-8/6-K2), copper	II

JZ-17

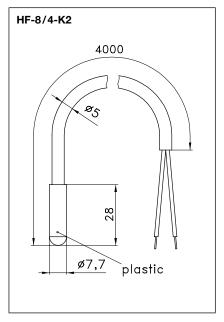


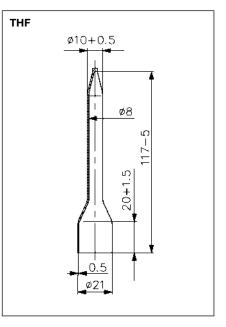


Factory setting:

- Setback temperature 1.7 °C
- Continuous time display
- Programme display using switching segments enabled
- Child-safe features disabled
- Automatic adjustment to summer/winter time enabled
- Valve and pump protection disabled
- Learning function disabled
- Comfort times: Mon–Fri 5 am–9 am/4 pm– 10 pm, Sat/Sun 6 am–10 pm
- Sensor rupture and short-circuit safeguarding:

In case of a sensor rupture or sensor short-circuit, the heating is activated with a power-on time of 30% to prevent cooling or frost damage in the room. Temperatures below -20 °C are also interpreted as sensor rupture, and the emergency function is triggered.





Electronic floor temperature controller with remote sensor (for floor heating/wall and ceiling heating) FETR Flush-mounted installation – Design Berlin UP

	Technical data		Application
	Design: Housing material: Operating voltage: Storage temperature: Permissible atmospheric humidity:	Berlin UP (flush-mounted) PC plastic 230 VAC, 50 Hz -20+70 °C Max. 95% rel. humidity, non-con- densing	Temperature control (e.g., of electrical heating systems) for floor, fringe zone, bathroom, ceiling, tiled stove, marble and wall heating systems or tempering systems, direct floor heating systems.
	Electrical connection: Mounting/attachment:	screw-type terminals In flush-mounted socket (deep flush-mounted socket recommend- ed), can be adapted with 50 x 50 mm or 55 x 55 mm cover set to fit virtually any switch range	Reduction: With these flush-mounted controllers, the temperature can be reduced by 5 K. For this purpose, potential is applied to the clock input terminal by an external pilot controller or an external timer L1.
**************************************	Protection rating: Protection class: Safety and EMC: Max. switching voltage:	IP 30 II, if properly mounted according to DIN EN 60730 230 VAC, 50 Hz	Note: The sensor line must be routed in a protective duct. Parallel routing together with lines that carry alternat- ing currents is not admissible.
alro	Min. switching voltage: Switching element: Switching contact: Output signal:	230 VAC, 50 Hz relay NO contact switching (230 VAC, 50 Hz)	The 55 x 55-mm variants visually fit perfectly without an insert frame in many switch ranges of 55 x 55 mm.
	Sensor: Sensor type (external): Sensor rupture and	external or internal/external (monitors) HF-8/4-K2 heating is switched off	Using an insert frame, the 50 x 50- mm variants fit in almost all switch ranges.
	short-circuit protection: Sensor wire extendable up to: Control function:	50 m with min. 0.5 mm ² double- insulated heating	See page 86 for an overview of currently possible combinations and insert frames.
	Hysteresis: General features:	< 1 K ECO function; "reduction" display; "heating" display	
	Input "temperature reduc- tion":	approx. 5 K (230 VAC, 50 Hz)	

			Circuit diagram	
FETR 101.700#07	UN030000	General features: Floor temperature controllers; internal setting; multi-digit display 16 Ambient temperature: 040 °C Max. switching current:16 (2) A Switching power: 3680 W Control range: 1060 °C Scope of delivery: controller, remote sensor 4 m, cover 50 x 50 mm, pure white (like RAL 9010), glossy		I
FETR 101.715#00	UA030119	General features: Floor temperature controller; mechan- ical range limitation; "on/off" switch; external setting; protective cap; contact hazard protection cover plate; multi-digit display 15 Ambient temperature: 040 °C Max. switching current:16 (2) A Switching power: 3680 W Control range: 1050 °C Scope of delivery: controller, remote sensor 4 m Cover sets are offered in various designs		I
		(see the separate overview, "alre flush-mounted range (cover sets)") and are not included in the delivery. Suitable set no: JZ-005.xxx, for example: cover set 50 x 50 mm, pure white, glossy: JZ-005.000 cover set 55 x 55 mm, pure white, glossy: JZ-005.100		

Electronic floor temperature controller with remote sensor (for floor heating/wall and ceiling heating) FETR Flush-mounted installation – Design Berlin UP

Type/image			Circuit diagram	PG
FETR 101.715#21	UN030109	like FETR 101.715#00, but with scope of delivery: controller, remote sensor 4 m, alre frame "Berlin" (neutral), cover 50 x 50 mm, pure white (like RAL 9010), glossy		I
FETR 101.716#00	UA030502	like FETR 101.715#00, but with control range 1042 °C (multi-digit display 14) Cover sets are offered in various designs (see the sepa- rate overview, "alre flush-mounted range (cover sets)") and are not included in the delivery. Suitable set no: JZ-009.xxx, e.g.: cover set 50 x 50 mm, pure white, glossy: JZ-009.000 cover set 55 x 55 mm, pure white, glossy: JZ-009.100 Complete device with alre frame "Berlin" (neutral), cover 50 x 50 mm (pure white, like RAL 9010, glossy) on request.		I
FETR 101.745#00	UA030412	General features: Room temperature controller with floor monitoring; mechanical range limitation; multi-digit display *6; "on/off" switch; external setting; protective cap; contact hazard protection cover plate Ambient temperature: 030 °C Max. switching current: 10 (1.5) A Switching power: 2300 W Control range: 530 °C (room), 2060 °C (internal scale for limiting the floor temperature) Scope of delivery: controller, remote sensor 4 m Cover sets are offered in various designs (see the separate overview, "alre flush-mounted range (cover sets)") and are not included in the delivery. Suitable set no: JZ-006.xxx, for example: cover set 50 x 50 mm, pure white, glossy: JZ-006.100 Complete device with alre frame "Berlin" (neutral), cover 50 x 50 mm (pure white, like RAL 9010, glossy) on request.		I
Accessories				PG
HF-8/4-K2	G8000370	General features: Spare sensor for FETR 101.7xx Ambient temperature: -5+70 °C Protection rating: IP 65 Sensor: NTC Connecting cable: 4 m, PVC		II
HF-8/6-K2	G8000368	General features: Spare sensor for FETR 101.7xx Ambient temperature: -5+70 °C Protection rating: IP 65 Sensor: NTC Connecting cable: 6 m, PVC		II
WP-01	G9990180	General features: Heat conduction paste 2 ml; R > 1 T Ω /cm Ambient temperature: -40+150 °C	n, silicone-free	II
THF	C1809515	General features: protective sleeve for screed mounting (for sleeve sensor HF \emptyset 7.7, for example, HF-8/4-K2 or HF-8	/6-K2), copper	ll

alre

Electronic floor temperature controller with remote sensor (for floor heating/wall and ceiling heating) FETR Flush-mounted installation – Design Berlin UP

JZ-090.900	VV000025	General features: alre frame "Berlin" (neutral) for all flush-mounted controllers with cover 50 x 50 mm Design: Berlin Surface finish: Glossy Colour: Pure white, like RAL 9010 Material: PC plastic	Ι
JZ-090.910	VV000010	General features: alre frame "Berlin" (neutral) for all flush-mounted controllers with cover 50 x 50 mm Design: Berlin Surface finish: Glossy Colour: Pearl white, like RAL 1013 Material: PC plastic	I

alre flush-mounted range (cover sets) all basic types and suitable cover sets 50 x 50 mm

Basic type	Cover set 5 pure white glossy (JZ-)		Cover set 5 pure white matt (JZ-xx	(RAL 9010)	Cover set 5 pearl white glossy (JZ-)	(RAL 1013)	Cover set 5 traffic/stud (RAL 9016) (JZ-xxx.020	io white glossy	PG
	Cover set	ltem no.	Cover set	Item no.	Cover set		Cover set	Item no.	
FETR 101.715#00	JZ-00 5 .000	UN990003	JZ-00 5 .001	UN990006	JZ-00 5 .010	UN990009	JZ-00 5 .020	UN990075	ļ
FETR 101.716#00	JZ-00 9 .000	UN990004	JZ-00 9 .001	UN990007	JZ-00 9 .010	UN990010	JZ-00 9 .020	UN990076	I
FETR 101.745#00	JZ-00 6 .000	UN990005	JZ-00 6 .001	UN990008	JZ-00 6 .010	UN990011	JZ-00 6 .020	UN990077	I

Basic type	Cover set 5 traffic white (RAL 9016) (JZ-xxx.021	PG	
	Cover set	ltem no.	
FETR 101.715#00	JZ-00 5 .021	UN990104	I
FETR 101.716#00	JZ-00 9 .021	UN990106	I
FETR 101.745#00	JZ-00 6 .021	UN990105	I

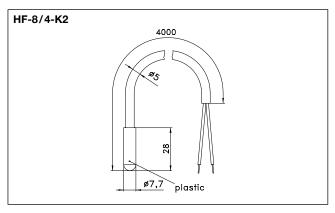
In flush-mounted socket, it can be adapted to fit virtually any switch range.

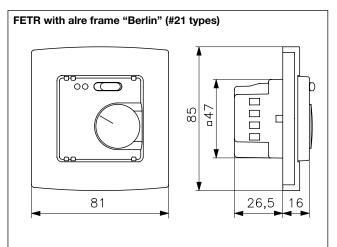
all basic types and suitable cover sets 55 x 55 mm

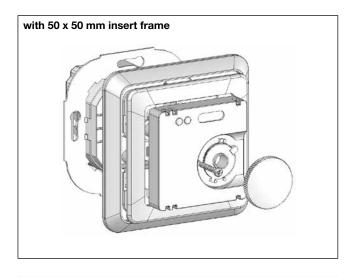
Basic type	Cover set 5 pure white glossy (JZ-)	(RAL 9010)	Cover set 5 pure white matt (JZ-xx	(RAL 9010)	Cover set 5 pearl white glossy (JZ-)	(RAL 1013)	Cover set 55 traffic/studi (RAL 9016) (JZ-xxx.120)	io white glossy	PG
	Cover set		Cover set		Cover set	ltem no.	Cover set	ltem no.	
FETR 101.715#00	JZ-00 5 .100	UN990012	JZ-00 5 .101	UN990015	JZ-00 5 .110	UN990018	JZ-00 5 .120	UN990091	I
FETR 101.716#00	JZ-00 9 .100	UN990013	JZ-00 9 .101	UN990016	JZ-00 9 .110	UN990019	JZ-00 9 .120	UN990092	Ι
FETR 101.745#00	JZ-00 6 .100	UN990014	JZ-00 6 .101	UN990017	JZ-00 6 .110	UN990020	JZ-00 6 .120	UN990093	I



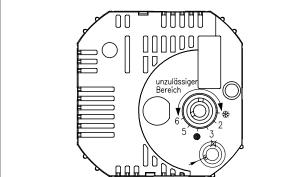
Electronic floor temperature controller with remote sensor (for floor heating/wall and ceiling heating) FETR Flush-mounted installation – Design Berlin UP

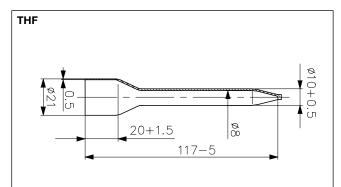




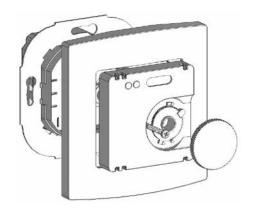


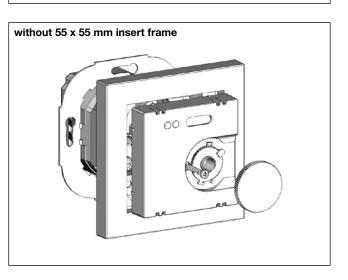
Contact hazard protection cap with setting range (for FETR 101.700 with internal setting - similar to illustration)





alre frame "Berlin" (#21 types)





Electrothermal valve actuators

for heating, ventilation and air conditioning technology

	Technical data		Application
II.	Housing colour: Housing material: Ambient temperature: Storage temperature:	pure white, like RAL 9010 PC plastic, GF (20%) 050 °C -20+70 °C	Extremely compact design: Can be fitted quickly and comfortal thanks to the slim shape in the area around the fastening nut.
	Permissible atmospheric humidity: Mounting/attachment: Protection rating:	max. 95% rel. humidity, non-con- densing M 30 x 1.5 IP 42	Can be fitted in any position: Lateral drainage holes carry off any leakage water that from the valve plunger into the open, thus avoiding
	Protection class: Safety and EMC: Average power consump-	II according to DIN EN 60730 approx. 3 W	damage to the drive. Additional valve monitoring: Two additional viewing windows
	tion: Opening/closing time: Nominal stroke:	approx. 4 min 3 mm	at the side allow users to visually check the respective valve position with ease; this does not work when mounted in a suspended manner.
	Function type: Nominal closing force: Connecting cable:	normally closed 90 N 0.8 m / 2 x 0.5 mm²	
	Valve position indicator:	2X (at the top and the side)	

Type/image			PG
2BOOA-010.100	H9100010	Operating voltage: 230 V~, 50 Hz Max. power consumption: 70 W Max. starting current: approx. 0.3 A	I
ZBOOA-040.100	H9100000	Operating voltage: 24 VDC or 24 VAC Max. power consumption: 12 W Max. starting current: approx. 0.5 A	1

Thanks to their M 30 x 1.5 fastening and their characteristics (normally closed), the actuators are suitable for the following valve and distributor makes: Beulco, Empur, Heimeier, Kamo, Oventrop, Purmo, SBK, SKV, Strawa, Taconova, Watts

Brief description:

The drive features a compact, space-saving design.

The device can be mounted easily thanks to the narrowed shape, especially in the fastening area of the nut.

The fastening cable is not located near the fastening nut. This reduces the probability of contact with equipment carrying hot water.

Since the fastening nut allows continuous screwing onto the thread, by unscrewing the nut by two or three turns, it is possible to open the valve in an electrically de-energised state – something that cannot be done with bayonet couplings and impulse couplings.

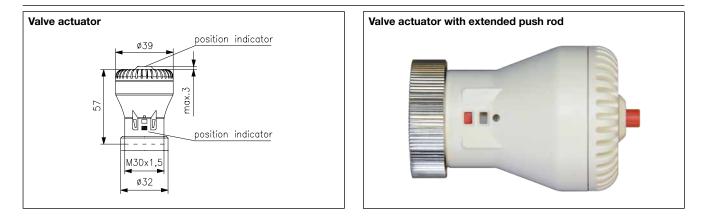
Discharged water is dissipated via a draining system.

Gaskets are not required thanks to the careful design.

The double position display has the following advantages:

The upper display provides the option of a visual or, in conditions of bad visibility, tactile function test of the drive.

The lower viewing windows allow an additional check to determine whether the valve to be actuated follows the lifting movement of the drive. At the beginning of the heating period, it can happen off and on that the valve plungers get "stuck". Therefore, with the additional display, it is possible to determine whether the cause lies with the actuator or with the valve in the event the valve does not open. However, that is not possible when mounted in a suspended manner.



Terminal strip for heating manifold for 6 or 8 room thermostats

B



	Technical data		Application
	Surface finish: Housing colour:	Upper part glossy, lower part matt Upper part transparent, lower part anthracite grey, like RAL 7016	Terminal strip for heating controller with or without ECO function, also for heating/cooling controller with integrated heating/cooling switch.
	Housing material:	PC plastic	Depending on the controller used,
0	Operating voltage:	230 VAC/50 Hz	actuators can be connected in the
	Ambient temperature:	–10…+50 °C	NC (normally closed) or NO (normally
	Storage temperature:	–20…+70 °C	open) mode of operation.
	Permissible atmospheric humidity:	Max. 95% rel. humidity, non-con- densing	Can be set up with master-slave control when using a clock regulator
	Electrical connection:	Spring terminals 0.75 mm ² to 1.5 mm ² for rigid cables 0.5 mm ² to 1 mm ² for flexible cables	or an external timer.
	Protection rating:	IP 20	
	Mounting/attachment:	Surface/wall mounting with 4 fas- tening screws included in delivery or using optional JZ-32 magnetic fastening set	
	Protection class:	II, if properly mounted	
	Control function:	heating or cooling	
	General features:	Ready for operation display (mains voltage), active channels display, inte- grated strain relief, labelling fields	
m no.	Features		PG

Type/image			PG
VOOPL-216.176	DA480510	General features: Terminal strip in housing for wiring up to 6 room thermostats and up to 12 actuators; (channel 1–2: 1 actuator / channel 3: 4 actuators/channel 4–6: 2 actuators), T3,15 A/250 V device fuse, installation dimensions Ø 5 x 20 mm (also secures the circuits of the connected controllers and valve gears)	I
VOOPL-318.178	DA480520	General features: Terminal strip in housing for wiring up to 8 room thermostats and up to 16 actuators; (channel 1–2: 1 actuator/channel 3, 5–8: 2 actuators/channel 4: 4 actuators), T3,15 A/250 V device fuse, installation dimensions Ø 5 x 20 mm (also secures the circuits of the connected controllers and valve gears)	I

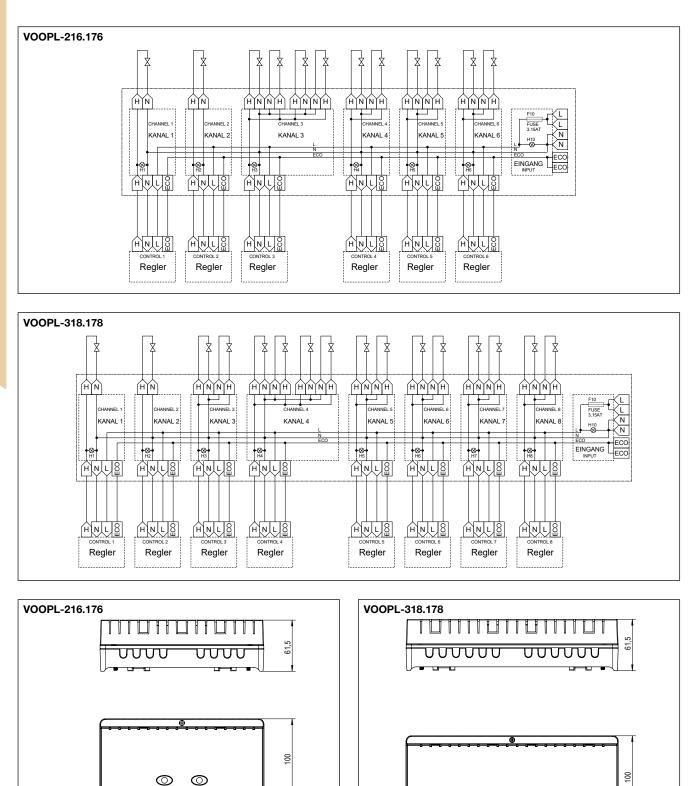
other/similar items: VOORL terminal strip for heating and cooling Accessories: suitable valve actuators ZBOOA

Accessories			PG
JZ-32	BN990005	General features: Magnetic fastening set for simple and safe fastening of the VOOPL terminal strip on a metallic substrate (for example, heating manifold)	II



Terminal strip for heating manifold

for 6 or 8 room thermostats



 \odot

É d

 \odot

255

Þ

ੈ ਦ

197

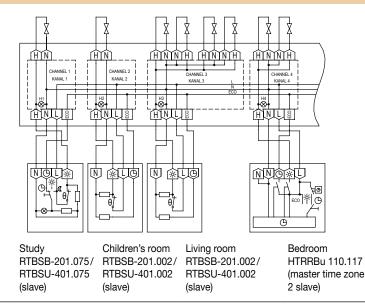


Notes and examples of wiring for VOOPL terminal strips

1 heating system with master-slave time zone

The controllers and valve actuators are supplied with power via the terminal strip.

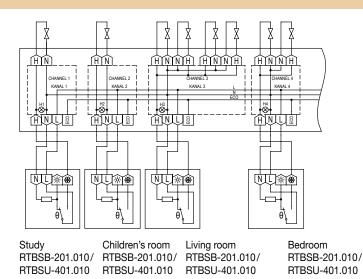
The equipment and features of the individual controller types can be found in the controller matrix on page 60. The information listed in this matrix applies for normally closed valve actuators.



2 Cooling system

The controllers and valve actuators are supplied with power via the terminal strip.

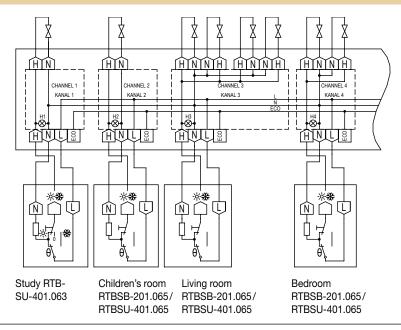
The equipment and features of the individual controller types can be found in the controller matrix on page 60. The information listed in this matrix applies for normally closed valve actuators.



3 Heating/cooling systems with heating/cooling switches at the controllers

The controllers and valve actuators are supplied with power via the terminal strip.

The equipment and features of the individual controller types can be found in the controller matrix on page 60. The printing on the heating/cooling changeover switches on the RTBSU-401.065 and RTBSU-401.063 applies to normally closed valve actuators. The medium status "hot" or "cold" must always correspond to the switch settings.





AIR CONDITIONING TECHNOLOGY



When it gets too hot, you can rely on our help.



AIR CONDITIONING TECHNOLOGY The perfect climate for your comfort.

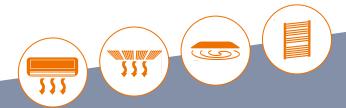
Office buildings, hotel rooms and living rooms require efficient control technology for the perfect climate. The key parameters in this context are temperature and humidity. The optimum combination of these provides an ambient temperature tailored to individual needs.

Safe and comfortable operation is what sets our controllers apart. Our devices offer numerous additional functions to continue to control the temperature in an economical and environmentally friendly manner – including in the evening and at night. This means that any energy not required is saved, which reduces the impact on the environment and your wallet.

Comfort thanks an ideal indoor climate.

Application examples:

- Cooling ceilings
- Fan coils
- Hot water underfloor heating
- Air distribution systems
- Partial air conditioners
- Heat pumps
- AC split units
- Dew point monitoring
- Relative humidity control
- Accessories such as terminal strips and actuators



AIR CONDITIONING TECHNOLOGY overview:

Climate controllers

	Overview of devices	114
-0	Electronic with triac output (noiseless)	115
1 h/ 1 h/ 1 h/ 4 (Bimetal (mechanical) "surface-mounted"	116–117
- Ca	Electronic "surface-mounted" (including for EC fans)	118–119
- E	Electronic for cooling ceilings orsurface heating/cooling systems, "flush-mounted"	120-122
0	Electronic for cooling ceilings orsurface heating/cooling systems, "flush-mounted"	123–125
1224	Electronic for cooling ceilings or surface heating/cooling systems, "flush-mounted" with clock (including for EC fans)	127–131
	Continuous electronic climate controller, "surface-mounted"	132-134

Dew point monitoring

Dew point monitor	135
Dew point sensors	136–137

Hygrostats/Hygro-thermostats

 Room "surface-mounted/flush-mounted"	138-140

Terminal strips for heating/cooling manifolds/valve actuators

0	Terminal strips for heating/cooling manifolds	141–143
0-	Thermal valve actuators	144

alre Climate controller overview

	Туре	KTRTB-211.108	KTRTB-251.108	KTBSB-112.000	KTBSB-113.500	KTBSB-112.070	KTRRB-117.128	KTRRB-117.163	KTRRB-117.169	KTRRB-052.244	KTRRB-052.245	KTRRU-052.245	KTRRUu 217.456	KTRRUu 257.456	KTRVB-048.100	KTRVB-048.200	KTRVB-052.244	KTRVB-052.245
	Page	115	115	116	116	116	118	118	118	120	121	123	127	129	133	133	134	134
2	Berlin 1000	x	x															
esig	Berlin 2000									x	x				x	x	x	x
ng d	Berlin 3000			x	х	x	x	x	х									
Housing design	Berlin flush-mounted kit Pikolo											x	x	x				
	Bimetal (toggler)			x	х	x												
è	NTC internal	х	x				x	x	x	x	x	x	x	x	x	x	x	x
Sensor	NTC external						x	x	х	x	х	х	x	х			х	x
0)	Floor monitor (NTC) Dew point sensor (external)									x	x	x	x	x			x	x
	Climate controllers	х	х															
	Climate controller (0 10 V)								х				х	х	х	х	х	x
type	Climate controller with fan output			x	х								x	x				
Control type	Climate controller with neutral zone							x		x	х	x	x	x			x	x
Con	Climate controller with neu-					x	x		x				x	х				
	tral zone and fan output Mixing chamber controller																	
	(0 10 V)														х	x		
a E	Air conditioning controller as a 2-pipe system	х	x				x	x	x	x	x	x	x	x			x	x
Pipe system	Air conditioning controller as a 4-pipe system			x	x	x	x	x	x	x	x	x	x	x			x	x
es	Hot water floor heating									x	x	x	x	x	x	x	x	x
Idm	Fan coil			x	х	x	x		x									
еха	Air distribution systems			х		х	х											
ation	Partial air conditioner Cooling ceiling	x x	x x	х	х	x	x	х	х	x x	x x	x x	x x	x x	x x	x x	x x	x x
Application examples	Heat pump	~	~		x					~	~	~	~	~	~	~	~	^
Ap	AC split unit				x													
	Input "ECO"	х	x				x	x	x	x	x	x	x	x			x	x
	Input "changeover - heat- ing/cooling"	x	x							x	x	x	x	x			x	x
	Input "off with frost protec- tion monitoring"						x	x	x	x	x		х	x				
	Switch "on/off"			x	х	х												
	Switch "on/off with frost protection monitoring"						x	x	x									
	Switch "heating/cooling" Switch "heating/ventilation/																	x
seur	cooling" Switch "ECO/comfort/				Х													
Features	off with frost protection monitoring"										x	х						x
	Switch "ventilator"			x	х	x	х		х									
	Indicator lamp "ON/OFF" Indicator lamp "heating				х													
	mode"				х													
	Indicator lamp "heating"	х	x							x	х	x	x	x			х	x
	Indicator lamp "cooling" Indicator lamp "heating/	x	x		x					x	x	x	х	x			x	x
	cooling" Indicator lamp "cooling interruption due to con- densate"				X					x	x	x					×	x
	230 V~																	
aneous		x		x	x	x	x	x	x				x					
Miscellaneous	24 V~		x							x	x	x		x	x	x	x	x

Electronic climate controller with triac output (noiseless) Surface-mounted "ultra-thin" installation – Design Berlin 1000

		Technical data		Application
		Design:	Berlin 1000	This controller was specifically
	Surface finish:	glossy	designed for heating/cooling	
	Housing colour:	pure white, like RAL 9010	regulation of 2-pipe systems used in hotels, homes and offices and	
		Housing material:	ABS plastic	can control up to 5 valve actuators
		Ambient temperature:	040 °C	(normally closed).
25 20	15	Storage temperature:	–20…+70 °C	
05 6	8	Permissible atmospheric humidity:	max. 95% rel. humidity, non-condensing	The KTRTB's internal sensor mea- sures the room temperature and
0		Electrical connection:	screw-type terminals 0.5 mm ² to 1.5 mm ²	activates heating or cooling de- pending on the deviation from the
alre		Mounting/attachment:	Surface-/wall-mounting (4-hole assem- bly on flush-mounted socket)	configured setpoint temperature. As the switching element used is a
		Protection rating:	IP 30	triac rather than a relay or bimetal,
-		Safety and EMC:	according to DIN EN 60730	the system operates without both-
1		Max. power consumption:	< 0.8 W	ersome switching sounds.
		Switching power:	15 W	ECO function: if this function is se-
		Switching element:	triac	lected, the temperature is adjusted
		Switching contact:	NC contact	down by 3 K in heating mode and
		Sensor:	NTC, internal	up by 3 K in cooling mode.
		Control function:	heating or cooling	
		Control range:	530 °C	
		Hysteresis:	0 K since control is practically continuous	
		Proportional range:	approx. 1 K	
		General features:	ECO function; "heating/cooling" display; "off with frost protection monitoring" operating mode; mechanical range restriction; scale: degrees Celsius; external setting	
Type/image	Item no.	Features		Circuit diagram PG

Type/image	Item no.	Features	Circuit diagram	PG
KTRTB-211.108	MA700300	Operating voltage: 230 VAC, 50 Hz Protection class: II, if properly mounted Max. switching current: 65 mA Max. switching voltage: 230 VAC, 50 Hz Min. switching voltage: 230 VAC, 50 Hz Output signal: switching PWM (230 VAC, 50 Hz) ECO contact: 230 VAC, 50 Hz, optionally configurable as ECO or OFF function	230V~ 2 4 4 5 1 6 1 1 2 4 1 1 1 1 1 1 1 1 1 1 1 1 1	I
KTRTB-251.108	MA700400	Operating voltage: 24 VAC, 50 Hz Protection class: III, protective low voltage Max. switching current: 625 mA Max. switching voltage: 24 VAC, 50 Hz Min. switching voltage: 24 VAC, 50 Hz Output signal: switching PWM (24 VAC, 50 Hz) ECO contact: optionally configurable as ECO or OFF function	24V~ 4 4 4 4 4 4 4 4 4 4 4 4 4	I

Accessories: suitable valve actuators ZBOOA

Accessories	Item no.	Features	PG
JZ-21	MN990006	Adapter frame for mounting room temperature controllers of the Berlin 1000 series in flush-mounted sockets up to 80 x 80 mm	I
ET-01	MA990000	General features: Adjusting knob for B1000 series devices, scale: Degrees Celsius, pure white glossy	I
ET-02	MA990001	General features: Adjusting knob for B1000 series devices, multi-digit display 1 6, pure white glossy	I

Mechanical climate controllers KTBSB

Surface-mounted installation - Berlin 3000

	Technical data		Application
• A A A • * A • • * A • • * A • • * alro	Design: Surface finish: Housing colour: Housing material: Operating voltage: Ambient temperature: Storage temperature: Permissible atmospheric humidity: Electrical connection: Mounting/attachment:	Berlin 3000 matt pure white, like RAL 9010 ABS plastic 230 VAC, 50 Hz 030 °C -20+70 °C max. 95% rel. humidity, non-condensing screw-type terminals surface-/wall-mounting or by means of an adapter plate on a flush-mounted	Control and monitoring of tempera- tures in closed, dry spaces. Remote control of air conditioners, climate chests, fan coil systems in living and office spaces and doctors" prac- tices. Individual room optimisation in central air conditioning systems (hotels, hospitals etc.). Suitable for all heating systems. (Please note the maximum switching current.)
	Protection rating: Protection class: Safety and EMC: Max. switching current: Max. switching voltage: Min. switching voltage: Switching power: Switching element: Switching element: Switching contact: Output signal: Sensor: Control function: Control function: Control range: General features:	socket IP 30 II, if properly mounted according to DIN EN 60730 6 (3) A 230 VAC, 50 Hz 230 VAC, 50 Hz 1380 W bimetallic contact changeover switching (230 VAC, 50 Hz) bimetal heating or cooling 530 °C mechanical range restriction; thermal feedback; scale: degrees Celsius; on/ off switch; external setting	

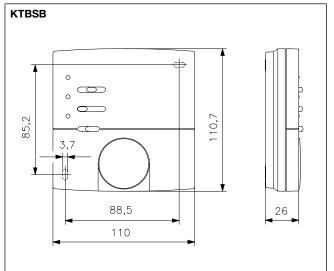
Type/image	Item no.	Features	Circuit diagram	PG
KTBSB-112.000	MA200100	General features: 3-stage fan output; 3-stage fan switch; "on/off" switch Hysteresis: Approx. 0.5 K at a temperature change of max. 4 K/h	* ₩ L & & A N N N 1 2 3 4 5 6 7 8 9 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	I
KTBSB-112.070	MA200202	General features: single-room climate con- troller with neutral zone for 4-pipe systems; 3-stage fan output; 2x auxiliary output "on/ off"; "on/off" display, 3-stage fan switch; "on/off" switch Hysteresis: Heating approx. 1 K, cooling approx. 2 K, at a temperature change of max. 4 K/h Neutral zone: Approx. 2 K		I
KTBSB-113.500	MA200000	General features: "on/off" display; "heat- ing" display; "cooling" display; for 4-pipe systems; 3-stage fan output; heating/venti- lation/cooling switch; 3-stage fan switch; "on/off" switch Hysteresis: Approx. 0.5 K at a temperature change of max. 4 K/h		I

Accessories: Terminal strips VOOPL, compatible valve actuators for ZBOOA-010.100, adapter plates to mount in flush-mounted socket JZ-17 You can find other controllers with outputs for heating/cooling in the "Heating technology" section (RTBSB/RTBSU).

Mechanical climate controllers KTBSB

Surface-mounted installation – Berlin 3000

Accessories	Item no.	Features	PG
JZ-17	MN990001	General features: Adapter plate for mounting devices on flush-mounted sockets (including fastening screws for mounting the controller on the adapter plate) Surface finish: Matt Housing colour: Pure white, like RAL 9010 Housing material: ABS plastic	II





Electronic climate controller, KTRRB Surface-mounted installation – Design Berlin 3000

Sunace-mount		UII - Desigit Benin 3000	,	
		Technical data		Application
aho v	7) 20 5 5	 Design: Surface finish: Housing colour: Housing material: Operating voltage: Ambient temperature: Storage temperature: Storage temperature: Permissible atmospheric humidity: Electrical connection: Mounting/attachment: Protection rating: Protection class: Safety and EMC: Max. switching voltage: Switching element: Switching element: Switching contact: Output signal: Sensor: ECO contact*: Control function: Control range: Neutral zone: General features: 	Berlin 3000 matt pure white, like RAL 9010 ABS plastic 230 VAC, 50 Hz 040 °C -20+70 °C max. 95% rel. humidity, non-con- densing screw-type terminals surface-/wall-mounting or by means of an adapter plate on a flush-mount- ed socket IP 30 II, if properly mounted according to DIN EN 60730 230 VAC, 50 Hz 230 VAC, 50 Hz 230 VAC, 50 Hz relay NO contact switching (230 VAC, 50 Hz) internal NTC, optional external NTC "Sensor 2" reduction by 3 K; alternatively, this input can be configured as a frost protection contact heating and/or cooling 530 °C approx. 2 K operating mode "off with frost protec- tion monitoring"; mechanical range restriction; scale: degrees Celsius; external setting	Single-room temperature controller with neutral zone for 2-pipe or 4-pipe air conditioners. External flow sensor (H/C sensor): For automatically switching the controller to heating or cooling mode in 2-pipe operation depending on the inflow temperature; alterna- tively, this input can be used as an H/C changeover contact. Sensor rupture and short-circuit protection: In case of a sensor rupture or sensor short-circuit, the heating is activat- ed with a power-on time of 30% to prevent cooling or frost damage in the room.
Type/image	Item no.	Features		PG
KTRRB-117.128	MA601300	zone ON/OFF selectable; on/of	ig 5 (1) A, cooling 5 (1) A, fan 3 (1) A	n operation in neutral I
KTRRB-117.163	MA601400	like KTRRB-117.128 but withou	t 3-stage fan output and 3-stage fan swit	tch I
KTRRB-117.169	MA601500	"ventilator 3-stage 0-10 V" sw cooling, frost protection, senso 3-stage fan output 0-10 V with activate EC fans; ON/OFF: vent Max. switching current: heatin Switching power: Heating 1156		t" button; "heating, al sensor" display; namic 0–10 V to e

Accessories: Adaptor plate for mounting on flush-mounted socket JZ-17, terminal strips VOOxx (see page 107/141), compatible valve actuators ZBOOA (see page 144), compatible external sensors ("Sensor 2"; see "Sensor Technology").

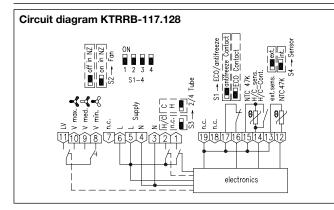
You can find other/similar controllers with outputs for heating/cooling in the "Heating technology" section (RTBSB/RTBSU).

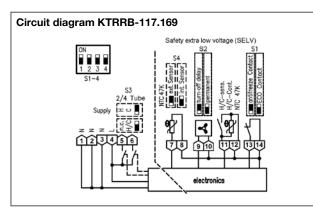
*With ECO operation, the neutral zone (2 K) is extended by the ECO zone (+/- 3 K). ECO operation is a savings mode that should be controlled, for example, via a window contact and/or a timer.

re

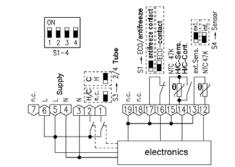
Electronic climate controller, KTRRB Surface-mounted installation – Design Berlin 3000

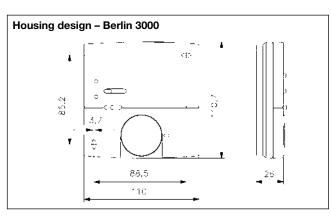
Accessories	Item no.	Features	PG
JZ-17	MN990001	General features: Adapter plate for mounting devices on flush-mounted sockets (including fastening screws for mounting the controller on the adapter plate) Surface finish: matt Housing colour: pure white like RAL 9010 Housing material: ABS plastic	II





Circuit diagram KTRRB-117.163





Electronic climate controller for cooling ceilings, KTRRB Surface-mounted installation – Design Berlin 2000 – with internal and external (optional) temperature sensor

	ECO * 0
	1+
	•[-
alre	6-

Technical data		Application				
Design:	Berlin 2000	Temperature controller for cooling				
Surface finish:	matt	ceilings/walls and all kinds of hot				
Housing colour:	pure white, like RAL 9010	water heaters in 2- and 4-pipe sys- tems for hotels, offices and private				
Housing material:	ABS plastic	homes. As the KTRRB features dew				
Ambient temperature:	040 °C	point monitoring, it is highly suited for				
Operating voltage:	24 VAC/50 Hz, 24 VDC	controlling ceiling cooling systems.				
Storage temperature:	–20…+70 °C	The unit can control up to 5 valve				
Permissible atmospheric humidity:	max. 95% rel. humidity, non-condensing	actuators (24 V~ normally closed) per output. The types KTRRB-052.24x				
Electrical connection:	screw-type terminals	can be adapted to normally open				
Mounting/attachment:	Surface-/wall-mounting	actuators (24 V~, max. 5 pieces) with				
Protection rating:	IP 30	a jumper.				
Protection class:	III	When using 0-10 V actuators:				
Safety and EMC:	according to DIN EN 60730	KTRVB-052.24x.				
Max. switching current:	1 A					
Max. switching voltage:	24 VAC/50 Hz, 24 VDC					
Min. switching voltage:	24 VAC/50 Hz, 24 VDC					
Switching power:	24 W					
Switching element:	relay					
Switching contact:	NO contact					
Output signal:	Switching, 24 VAC/50 Hz, 24 VDC					
Sensor:	NTC internal, optional external, "Sensor 2"*					
Hysteresis:	approx. 1 K					
General features:	External dew point sensor connec- tion; mechanical range limitation; external setting					
Faaturas		Circuit diagram BG				

Type/image	Item no.	Features	Circuit diagram	PG
Type/image KTRRB-052.244	Item no. DA420600	Features General features: ECO function; "heating/cooling/ cooling interruption due to condensation/off" display; "sensor rupture, sensor short-circuit, frost protection" display; relative scale External flow sensor (H/C sensor): For automatic switching of the controller in heating or cooling mode depending on the inflow temperature ("Sensor 2"). Alternatively, this input can be used as an H/C changeover contact Eco contact: Upon closing the contact, the ECO function is actuated Forced switch-off contact: External switch-off function with frost protection function Control function: heating and/or cooling, cooling interruption upon condensation of the dew point sensor, frost protection function in the switched-off condition Control function: 1329 °C	Circuit diagram see page 122	PG
		Setting range: -8+8 °C Neutral zone: Approx. 2 K		
		Pipe system compatibility:2-pipe and 4-pipe		



Electronic climate controller for cooling ceilings, KTRRB

Surface-mounted installation – Design Berlin 2000

Type/image	Item no.	Features	Circuit diagram	PG
KTRRB-052.245	DA420700	General features: ECO function; "heating/cooling/ cooling interruption due to condensation/off" display; "sensor rupture, sensor short-circuit, frost protection" display; "off with frost protection monitoring" operating mode; relative scale; "off/ comfort/ECO" switch External flow sensor (H/C sensor): for automatic switching of the controller in heating or cooling mode depending on the inflow temperature ("Sensor 2"); alternatively, this input can be used as an H/C changeover contact Eco contact: upon closing the contact, the ECO function is actuated Forced switch-off contact: external switch-off function with frost protection function Control function: heating and/or cooling, cooling interruption upon condensation of the dew point sensor, frost protection function in the switched-off condition Control range: 1329 °C Setting range: -8+8 °C Neutral zone: Approx. 2 K Pipe system compatibility: 2-pipe and 4-pipe	see page 122	Ι

Replacement for KTRRB-040.213

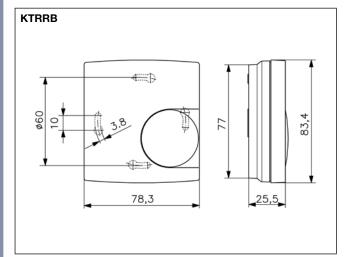
* An internal trimming potentiometer can be used to select whether control should be based on the internal (left stop) or external sensor (right stop). In the intermediate positions, if both sensors are used, a weighting is applied to the internal room sensor and the external radiation sensor. The weighting allows for compensation of different structural conditions such as large window areas or cardinal directions. For very slow controlled systems, it is recommended to assign a higher weighting to the radiation sensor than to the internal room sensor.

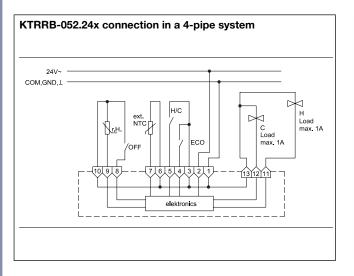
Accessories: suitable valve actuators ZBOOA-040.100 (see page 144), dew point sensor TPS 1/TPS 2 (TPS 3 (see page 136), suitable external sensors ("Sensor 2"); see "Sensor Technology").

Accessories	Item no.	Features	PG
TPS 1	G8000299	Mounting/Attachment: using clips on cooling ceiling capillary pipe Use: drywall cooling ceiling (plasterboard) with hung up capillary pipe mat, metal ceiling cooling ceiling with integrated capillary pipe system Sensor line extendable up to: 50 m with 2 x 0.5 mm ² Box contents: sensor, 2 clips for cooling pad	Ι
TPS 2	G8000300	Mounting/attachment: Using clips on cooling ceiling capillary pipe or cable ties on the pipe Use: pipe systems transporting cold water, plaster cooling ceiling with capillary tube system Sensor line extendable up to: 50 m with 2 x 0.5 mm ² Box contents: sensor, 2 clips for cooling pad, 2 cable ties	I
TPS 3	SN120000	Mounting/Attachment: attach to pipe by means of cable ties Use: Pipe systems transporting cold water Sensor line extendible up to: 50 m with 2 x 0.5 mm ² Box contents: sensor, 2 cable ties	I

Electronic climate controller for cooling ceilings, KTRRB

Surface-mounted installation - Design Berlin 2000





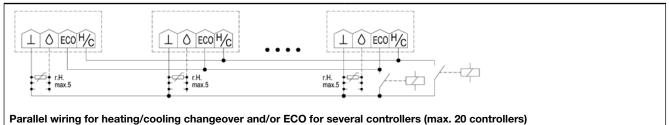
KTRRB-052.24x connection in a 2-pipe system 24V~ COM,GND,⊥ H/K H/C Last/Load max. 1A NTC D **г.н**. ECO AUS 10 9 4 3 2 13 12 11 Elektronik

Important note:

The inflow ducts of TPS-1 and TPS-2 are closed before shipping to avoid them becoming dirty during assembly. After assembly, they must be shortened with a knife until they are flush with the wall or ceiling to ensure air circulation. The air ducts should be arranged such that soiling during operation is avoided. It is important that the air surrounding the sensor has the same temperature as the room air to be cooled. If the humidity and temperature of the air to be cooled (ceiling cooling system) is different from that of the air surrounding the sensor, condensation may be detected prematurely or too late. As regards TPS-3, contact with the PCB paths must be avoided to prevent long-term corrosion.

Attention in case of sensor extension:

Laying parallel to conductors carrying a mains voltage can result in faults. The use of shielded conductors reduces sensitivity to electromagnetic fields.



Electronic climate controller for cooling ceilings, KTRRU

- with internal and external (optional) temperature sensor - flush-mounted installation - Design Berlin UP

Obe P		
	L	

Technical data		Application	
Design:	Berlin UP (flush-mounted)	For heating/cooling control of 2- and	
Housing material:	PC plastic	4-pipe systems used in hotels, homes and offices.	
Operating voltage:	24 VAC/50 Hz, 24 VDC	and onces.	
Ambient temperature:	040 °C	The unit can control up to 5 valve	
Storage temperature:	–20…+70 °C	actuators (24 V~ normally closed) per	
Permissible atmospheric humidity:	max. 95% rel. humidity, non-condensing	output. The controllers are configured for 2-pipe or 4-pipe operation by means of a jumper. In 2-pipe opera-	
Electrical connection:	screw-type terminals	tion, the controller is operated with	
Protection rating:	IP 30	a common heating/cooling output,	
Protection class:	111	whose mode of operation action can	
Safety and EMC:	according to DIN EN 60730	be toggled by means of an external contact (changeover contact). Con-	
Average power consump- ion:	approx. 0.6 W (1 VA)	nection of TPS dew point sensors is possible (max. 5 of them in parallel).	
Max. switching current:	1 A	Condensate formation at the TPS	
Max. switching voltage:	24 VAC/50 Hz, 24 VDC	can result in the cooling valve getting	
Min. switching voltage:	24 VAC/50 Hz, 24 VDC	closed.	
Switching power:	24 W	It is possible to actuate the energy	
Switching element:	relay	saving (ECO) function via an externa	
Switching contact:	NO contact	contact.	
Dutput signal:	switching, 24 VAC/50 Hz, 24 VDC	In the "off" quitch position the room	
Sensor:	NTC internal, optional external "Sensor 2"*	In the "off" switch position, the room frost protection function is activated (when the temperature drops below	
mbient temperature: torage temperature: ermissible atmospheric umidity: lectrical connection: rotection rating: rotection class: afety and EMC: verage power consump- on: lax. switching current: lax. switching voltage: lin. switching voltage: witching power: witching element: witching contact: utput signal: ensor: CO contact: ontrol function: ontrol range: etting range: ysteresis: eutral zone:	when the contact is closed, the ECO function is actuated (+/- 3 K)	5 °C, all valves are forced open).	
Control function:	heating and/or cooling, cooling interruption upon condensation of the dew point sensor, frost protection function in the switched-off condition	External flow sensor (H/C sensor): for automatic switching of the controller to heating or cooling mode depending on the inflow temperature	
Control range:	13 29 °C	("Sensor 2"); alternatively, this input can be used as an H/C changeover	
Setting range:	−8 +8 °C	contact.	
Hysteresis:	approx. 1 K		
Neutral zone:	approx. 2 K		
General features:	single-room climate controller; op- tional external dew point sensor; ECO function; "heating/cooling/cooling interruption due to condensation/off" display; mechanical range restriction; relative scale; external setting		
	-		

Pipe system compatibility: 2-pip

2-pipe and 4-pipe

Type/image	Item no.	Features	PG
KTRRU-052.245#00	UA210401	General features: "Off with frost protection monitoring" operating mode; "off/comfort/ECO" switch Surface finish: depending on the cover set selected Housing colour: depending on the cover set selected Mounting/attachment: In flush-mounted socket – adaptable with cover set 50 x 50 mm or 55 x 55 mm in almost all surface switch ranges (deep flush-mounted socket recommended) Accessories: Cover sets are offered in several design variants (see "Overview", page 125) and are not included in the delivery scope. Matching set no: JZ-007.xxx, e.g.: cover set 50 x 50 mm, pure white, glossy: JZ-007.000 cover set 55 x 55 mm, pure white, glossy: JZ-007.100 Scope of delivery: controller, protective cap If the functions of the "off/comfort/eco" switch are not required, JZ-008.xxx cover sets can be used instead (in switch position comfort).	I

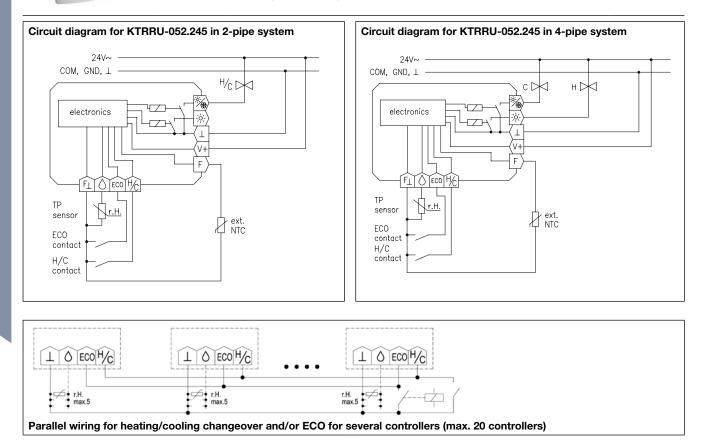
* An internal trimming potentiometer can be used to select whether control should be based on the internal (left stop) or external sensor (right stop). In the intermediate positions, if both sensors are used, a weighting is applied to the internal room sensor and the external radiation sensor. The weighting allows for compensation of different structural conditions such as large window areas or cardinal directions. For very slow controlled systems, it is recommended to assign a higher weighting to the radiation sensor than to the internal room sensor.

Accessories: suitable valve actuators ZBOOA-040.100 (see page 144), dew point sensor TPS 1/TPS 2/TPS 3 (see page 136), suitable external sensors ("Sensor 2"); see "Sensor Technology").

Electronic climate controller for cooling ceilings, KTRRU

- with internal and external temperature sensor - flush-mounted installation - Design Berlin UP

Accessories	Item no.	Features	PG
JZ-090.900	VV000025	General features: alre frame "Berlin" (neutral) for all flush-mounted controllers with cover 50 x 50 mm Design: Berlin Surface finish: glossy Housing colour: pure white like RAL 9010 Housing material: PC plastic	I
JZ-090.910	VV000010	General features: alre frame "Berlin" (neutral) for all flush-mounted controllers with cover 50 x 50 mm Design: Berlin Surface finish: glossy Housing colour: pearl white like RAL 1013 Housing material: PC plastic	I





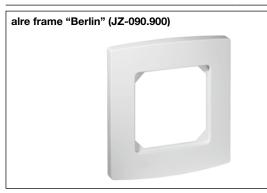
alre flush-mounted range (cover sets) all basic types and suitable cover sets 50 x 50 mm

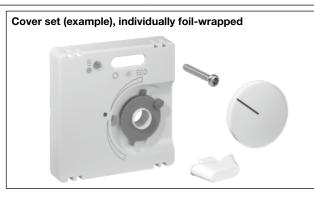
Basic type	Cover set 50 x 50 mm pure white (RAL 9010) glossy (JZ-xxx.000)		Cover set 50 x 50 mm pure white (RAL 9010) matt (JZ-xxx.001)		Cover set 50 x 50 mm pearl white (RAL 1013) glossy (JZ-xxx.010)		Cover set 50 x 50 mm traffic/studio white (RAL 9016) glossy (JZ-xxx.020)		PG
	Cover set	Item no.	Cover set	Item no.	Cover set	Item no.	Cover set	Item no.	
KTRRU-052.245#00	JZ-00 7 .000	UN990022	JZ-00 7 .001	UN990024	JZ-00 7 .010	UN990026	JZ-00 7 .020	UN990080	I
Cover sets for function without switch	JZ-00 8 .000	UN990021	JZ-00 8 .001	UN990023	JZ-00 8 .010	UN990025	JZ-00 8 .020	UN990079	I

FHY 101.060#00	JZ-0 21 .000	UN990039	JZ-0 21 .001	UN990044	JZ-0 21 .010	UN990049	JZ-0 21 .020	UN990081	I

Frames					
alre frame	JZ-090.900 VV00002	5	JZ-090.910	VV000010	I

In a flush-mounted socket, it can be adapted to fit virtually any rocker switch range.



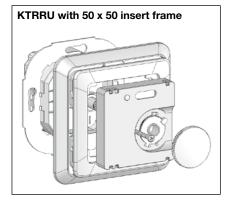


all basic types and suitable cover sets 55 x 55 mm

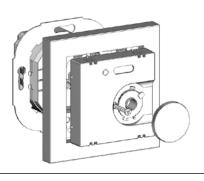
Basic type	Cover set 55 x 55 mm pure white (RAL 9010) glossy (JZ-xxx.100)		pure white (RAL 9010)		pearl white (RAL 1013) glossy (JZ-xxx.110)		Cover set 55x55 mm traffic/studio white (RAL 9016) glossy (JZ-xxx.120)		PG
	Cover set	Item no.	Cover set	Item no.	Cover set	Item no.	Cover set	Item no.	
KTRRU-052.245#00	JZ-00 7 .100	UN990028	JZ-00 7 .101	UN990030	JZ-00 7 .110	UN990032	JZ-00 7 .120	UN990095	I
Cover sets for function without switch	JZ-00 8 .100	UN990027	JZ-00 8 .101	UN990029	JZ-00 8 .110	UN990031	JZ-00 8 .120	UN990094	I

FHY 101.060#00	JZ-0 21 .100	UN990054	JZ-0 21 .101	UN990059	JZ-0 21 .110	UN990064	JZ-0 21 .120	UN990096	I

Can be adapted to fit many surface switch ranges in flush-mounted sockets, (for a current overview of the suitable frames and insert frames, see page 126).



KTRRU without 55 x 55 insert frame



Adaptation of alre flush-mounted controllers

Manufacturer	Range	Colour RAL 9010	Adaptation possi-	Only adaptation with
	Tunge	(surface finish)	ble using "55 x 55"	"50 x 50" cover set requires
			cover set (without	an insert frame from the
			insert frame)	manufacturer
BERKER	S.1	polar white (matt)	✓	1109 19 19
BERKER	S.1	polar white (glossy)	✓	1109 90 89
BERKER	Arsys	polar white (glossy)		1108 01 69
BERKER	B.3	aluminium/polar white (matt)	✓	1109 19 19
BERKER	B.3	aluminium/polar white (glossy)	✓	1109 90 89
BERKER	B.7	glass/polar white (matt)	✓	1109 19 19
BERKER	B.7	glass/polar white (glossy)	✓	1109 90 89
BERKER	Q.1/Q.3	polar white (velvet)		1109 60 79
BERKER	K.1	polar white (glossy)		1108 71 09
BUSCH-JAEGER	Reflex SI/SI Linear	alpine white (glossy)		1746-214-101
BUSCH-JAEGER	Busch-balance SI	alpine white (glossy)	✓	1746-914-101
BUSCH-JAEGER	impuls	alpine white (glossy)		1746/10-74
BUSCH-JAEGER	solo/future/axcent etc.	studio white - see RAL 9016 below		
ELSO	Joy	pure white (glossy)	✓	3630 84
ELSO	Fashion/Riva/Scala	pure white (glossy)		2030 84
GIRA	rocker switch	pure white (glossy)		0282 112
GIRA (System 55)	Standard/E 2	pure white (semi-gloss)	✓	0282 27
GIRA (System 55)	Standard/E2/E3	pure white (glossy)	✓	0282 03
GIRA (System 55)	E 22	pure white (glossy)	✓	0282 03
GIRA (System 55)	Event	pure white (semi-gloss) + opaque	✓	0282 27
GIRA (System 55)	Event	pure white (glossy) + opaque	✓	0282 03
GIRA (System 55)	Esprit	pure white (semi-gloss) + glass, aluminium	✓	0282 27
GIRA (System 55)	Esprit	pure white (glossy) + glass, aluminium	✓	0282 03
GIRA	S-Color	pure white (high-gloss)		0282 40
JUNG	CD 500/CD plus	alpine white (glossy)		CD 590 Z WW
JUNG	A 500/A 550/AS 500/A plus/A flow	alpine white (glossy)	✓	A 590 Z WW
JUNG	LS 990	alpine white (glossy)		LS 961 Z WW
JUNG	LS plus	alpine white (glass)		LS 961 Z WW
JUNG	A creation	alpine white (glossy)	✓	A 590 Z WW
JUNG	LS Design	alpine white (glossy)		LS 961 Z WW
MERTEN (System M)	M-Smart, M-Plan, M-Pure	polar white (matt)	✓	5181 19
MERTEN (System M)	M-Smart, M-Plan, M-Pure	polar white (glossy)	✓	5185 19
MERTEN (System Basis)	1-M/Atelier-M	polar white (glossy)	✓	5185 19
MERTEN (System Design)	Artec/Antik	polar white (glossy)		5160 99
MERTEN	1-M/M-Smart/M-Plan/M-Pure/D-Life	active white - see RAL 9016 below		
PEHA	Standard	pure white (glossy)		80.670.02 ZV
PEHA	Dialog	pure white (glossy)		95.670.02 ZV
PEHA	Aura	pure white (matt)/glass		20.670.02 ZV
PEHA	Badora	pure white (glossy)		11.670.02 ZV
Manufacturer	Range	Colour RAL 9016 (surface finish)	Adaptation possi- ble using "55 x 55" cover set (without insert frame)	Only adaptation with "50 x 50" cover set requires an insert frame from the manufacturer
BUSCH-JAEGER	solo/future/future linear	studio white (RAL 9016, glossy)		1746/10-84
BUSCH-JAEGER	future linear	studio white (RAL 9016 matt)		1746/10-884
BUSCH-JAEGER	impuls	studio white (RAL 9016 matt)		1746/10-774
BUSCH-JAEGER	axcent	studio white (RAL 9016, glossy)		1746/10-84
BUSCH-JAEGER	carat (glass, bronze, gold)	studio white (RAL 9016)		1746/10-84
BUSCH-JAEGER	alpha (nea/exclusive*)	studio white (RAL 9016, glossy)		1746/10-24G
BUSCH-JAEGER	alpha (nea/exclusive*)	studio white (RAL 9016 matt)		1746/10-24
MERTEN	M-Smart, M-Plan, M-Pure	active white (RAL 9016, glossy)	✓	5185 25
MERTEN	1-M/Atelier-M	active white (RAL 9016, glossy)	4	5185 25
MERTEN	D-Life	lotus white (RAL 9016)		MEG4500-6035
PEHA	Standard	arctic		D 80.670 ZV AW

*) During assembly, you need to remove four plastic tabs located at the rear of the frame

NOTE: Most light switches are designed in the colour "like RAL 9010", although different switch manufacturers use different designations for this colour. Coloured, glass and aluminium frames are also combined with white jacks or plugs so that controllers with white covers can also be integrated into these frames. Check the precise application in each individual case. The frames have different surface qualities (matt/glossy). For design reasons, the cover of the controller should have the same quality as the frame. We accept no liability for slight variations in colour and surface finish or for accuracy of fit. When installing devices into multi frames, always assemble the temperature controllers at the lowermost position.

"50 x 50 controller": The housing covers of the 50 x 50 controllers are 50 x 50 mm in size. Using a 50 x 50-mm insert frame, the 50 x 50 controllers can be integrated into nearly all light switch ranges in accordance with DIN 49075. The 50 x 50-mm insert frames must be ordered from the light switch manufacturer or from a wholesaler. The order number of the insert frame corresponding to the switch range in question can be found in the column "Only for adaptation with 50 x 50 cover set."

"55 x 55 controller": The housing covers of the 55 x 55 controllers are 55 x 55 mm in size. Many light switch ranges have inner dimensions of 55 x 55 mm. Therefore, the 55 x 55 controllers can be installed directly in the light switch frame without the use of an insert frame. See the column "Adaptation with 55 x 55 cover set" to determine whether the 55 x 55 controller fits in the given light switch range (</

All information regarding switch manufacturers" product lines and item numbers was last updated in 12/2019 | No liability is assumed for the information provided. | Technical specifications subject to change. An adaptation list for RAL 1013 switch ranges is available from our website at www.alre.de.

Electronic climate controller with timer KTRRUu – 230 VAC

Flush-mounted installation – Design Berlin UP

alre Autoretk Rr 14122012 12:34





Technical data		Арр
Design: Housing material: Ambient temperature:	Berlin UP (flush-mounted) PC, PMMA, ABS plastic 040 °C	Flush- for hea syster
Storage temperature: Permissible atmospheric	–20+70 °C max. 95% rel. humidity,	adapta The ur
humidity: Protection rating:	non-condensing IP 30	(norm In 2-p
Safety and EMC: Max. power consumption:	according to DIN EN 60730 approx. 1 W (2.2 VA)	chang or a te as a n
Max. switching current: Switching element:	3 (0.5) A each 2 relays	ECO r
Switching contact: Output signal:	2 NO contacts Switching, analogue 0 10 V max. 5 mA for activating an rpm-controlled fan	It is po (ECO) extern inputs extern
Sensor:	NTC internal, optional exter- nal "Sensor 2"*	senso
External flow sensor (H/C sensor):	For automatic switching of the controller to heating or cooling mode depending on the inflow temperature ("Sensor 2"); alternatively, this input can be used as an H/C changeover contact	A 0 speed Gener Digital troller senso
ECO contact:	upon closing the contact, the ECO function is actuated	"ECO" play; " due to
Control range: Setting range:	540 °C Standard setting range for heating (530 °C), second setting range for cooling (1840 °C)	displa frost p faciliti correct function
Hysteresis: Neutral zone: Display type: Pipe system compatibility:	approx. 1 K adjustable illuminated graphical display 2-pipe and 4-pipe	setting summ able o with d

lication

-mounted controller with timer function eating/cooling regulation of 2- and 4-pipe ms used in hotels, homes and offices. The tation takes place in a menu.

init can control up to 5 valve actuators nally open or normally closed) per output. pipe operation, the operating mode can be ged via an external contact (changeover) emperature sensor. The clock can serve master for other controllers for switching to mode.

ossible to activate the energy saving) or frost protection (OFF) functions via an nal contact. Alternatively, the controller"s s can be configured to connect with an nal temperature sensor or dew point or (TPS).

. 10 V interface can be used to control the d of a fan (EC fan).

eral features:

al rocker switch single-room climate conwith timer; optional external dew point or; ECO function, ECO value adjustable; " display; "on/off" display; "heating" dis-"cooling" display; "cooling interruption o condensation"; digital actual value ay; backlighting; operating mode "off with protection monitoring"; child-safe features; ies; power-reserve (3 days); actual value ction/measured value correction; learning ion; emergency operating mode; holiday ng; party setting; automatic adjustment to ner/winter time; external setting; comfortoperation using touch-sensitive buttons dynamic button assignment.

Special colours are available for projects on request.

Type/image	Item no.	Features	Circuit diagram	PG
KTRRUu 217.456#21 (230 VAC)	UA220000	Surface finish: glossy Housing colour: pure white like RAL 9010 Operating voltage:230 VAC, 50 Hz Electrical connection: pluggable screw-type termi- nals, voltage supply side 0.75–2.5 mm², low-volt- age side 0.08–1.5 mm² Mounting/Attachment: in flush-mounted socket – adaptable with cover 50 x 50 mm in almost all rocker switch ranges (deep flush-mounted socket recommended) Protection class: II Max. switching voltage: 230 VAC, 50 Hz Min. switching voltage: 230 VAC, 50 Hz Switching power: 690 W Output signal: switching heating, cooling, heating/ cooling, ECO, OFF, 230 VAC, 50 Hz; analogue 0 10 V (5 mA) for activating an rpm-controlled fan Scope of delivery: controller, cover 50 x 50 mm, pure white (like RAL 9010), glossy, alre frame "Berlin"	Image: Sink and the sink an	I

* A menu setting can be used to select whether control should be based on the internal or external sensor. In the intermediate positions, if both sensors are used, a weighting is applied to the internal room sensor and the external radiation sensor. The weighting allows for compensation of different structural conditions such as large window areas or cardinal directions. For very slow controlled systems, it is recommended to assign a higher weighting to the radiation sensor than to the internal room sensor.

а lre

Electronic climate controller with timer KTRRUu – 230 VAC Flush-mounted installation – Design Berlin UP

Type/image	Item no.	Features	Circuit diagram	PG
KTRRUu 217.456#07 (230 VAC)	UA220002	like KTRRUu 217.456#21 but scope of delivery as follows: Controller, cover 50 x 50 mm pure white (like RAL 9010), glossy, without frame		Ι
1234				
KTRRUu 217.456#09 (230 VAC)	UA220003	Like KTRRUu 217.456#21 but scope of delivery as follows: controller, cover 50 x 50 mm, pearl white (like RAL 1013), glossy, without frame		I
KTRRUu 217.456#27 (230 VAC)	UA220004	like KTRRUu 217.456#21 but scope of delivery as follows: Controller, cover 50 x 50 mm traffic/ studio white (like RAL 9016), glossy, without frame		I
KTRRUu 217.456#28 (230 VAC)	UA220007	like KTRRUu 217.456 but scope of delivery as follows: Controller, cover for use with BUSCH-JAEGER Reflex SI/SI Linear pure white (like RAL 9010), glossy, without frame		I
KTRRUu 217.456#55 (230 VAC)	UA220005	like KTRRUu 217.456#21 but scope of delivery as follows: Controller, cover 55 x 55 mm pure white (like RAL 9010), glossy, without frame		I
KTRRUu 217.456#56 (230 VAC)	UA220009	like KTRRUu 217.456#21 but scope of delivery as follows: Controller, cover 55 x 55 mm pure white (like RAL 9010), matt without frame		I
KTRRUu 217.456#57 (230 VAC)	UA220006	like KTRRUu 217.456#21 but scope of delivery as follows: Controller, cover 55 x 55 mm pearl white (like RAL 1013), glossy, without frame		I
KTRRUu 217.456#59 (230 VAC)	UA220008	like KTRRUu 217.456#21 but scope of delivery as follows: Controller, cover 55 x 55 mm traffic/ studio white (like RAL 9016), glossy, without frame		I

Electronic climate controller with timer KTRRUu – 24 VAC/VDC

Flush-mounted installation - Design Berlin UP

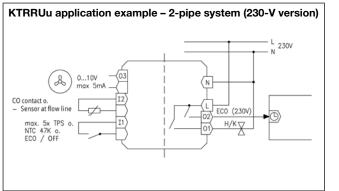
Type/image	Item no.	Features	Circuit diagram	PG
KTRRUu 257.456#21 (24 VAC/VDC)	UA220100	like KTRRUu 217.456#21 but with: Operating voltage: 24 VAC/50 Hz, 24 VDC Protection class: III Max. switching voltage: 24 VAC/50 Hz, 24 VDC Min. switching voltage: 24 VAC/50 Hz, 24 VDC Switching power: 72 W Output signal: switching heating/cooling heating/cooling, ECO, OFF, 24 VAC/50 Hz, 24 VDC; analogue 0 10 V (5 mA) for controlling an rpm-controlled fan	SELV The second	I
KTRRUu 257.456#07 (24 VAC/VDC)	UA220103	like KTRRUu 257.456#21 but scope of delivery as follows: Controller, cover 50 x 50 mm pure white (like RAL 9010), glossy, without frame		I
KTRRUu 257.456#09 (24 VAC/VDC)	UA220104	like KTRRUu 257.456#21 but scope of delivery as follows: Controller, cover 50 x 50 mm pearl white (like RAL 1013), glossy, without frame		I
KTRRUu 257.456#27 (24 VAC/VDC)	UA220105	like KTRRUu 257.456#21 but scope of delivery as follows: Controller, cover 50 x 50 mm traffic/ studio white (like RAL 9016), glossy, without frame		I
KTRRUu 257.456#28 (24 VAC)	UA220108	like KTRRUu 257.456#21 but scope of delivery as follows: Controller, cover for use with BUSCH-JAEGER Reflex SI/SI Linear pure white (like RAL 9010), glossy, without frame		I
KTRRUu 257.456#55 (24 VAC/VDC)	UA220106	like KTRRUu 257.456#21 but scope of delivery as follows: Controller, cover 55 x 55 mm pure white (like RAL 9010), glossy, without frame		I
KTRRUu 257.456#56 (24 VAC/VDC)	UA220110	like KTRRUu 257.456#21 but scope of delivery as follows: controller, cover 55 x 55 mm, pure white (like RAL 9010), matt, without frame		I
KTRRUu 257.456#57 (24 VAC/VDC)	UA220107	like KTRRUu 257.456#21 but scope of delivery as follows: Controller, cover 55 x 55 mm pearl white (like RAL 1013), glossy , without frame		I
KTRRUu 257.456#59 (24 VAC/VDC)	UA220109	like KTRRUu 257.456#21 but scope of delivery as follows: Controller, cover 55 x 55 mm traffic/ studio white (like RAL 9016), glossy, without frame		I

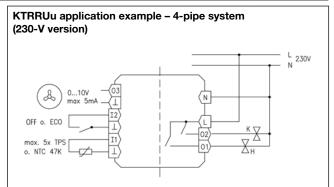
Electronic climate controller with timer KTRRUu

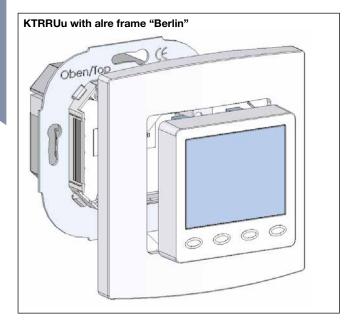
Flush-mounted installation - Design Berlin UP

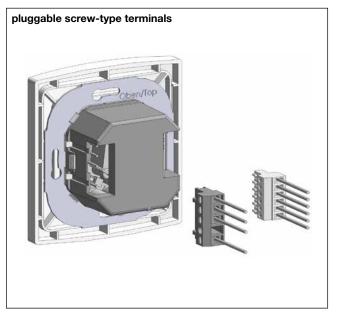
Accessories	Item no.	Features	PG
JZ-090.900	VV000025	Design: Berlin Surface finish: glossy Housing colour: pure white like RAL 9010 Housing material: PC plastic General features: alre frame "Berlin" (neutral) for all flush-mounted controllers with cover 50 x 50 mm	I
JZ-090.910	VV000010	Design: Berlin Surface finish: glossy Housing colour: pearl white like RAL 1013 Housing material: PC plastic General features: alre frame "Berlin" (neutral) for all flush-mounted controllers with cover 50 x 50 mm	I

cover 50 x 50 mm



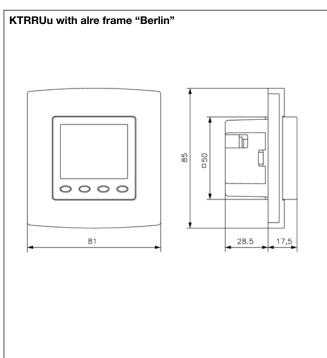


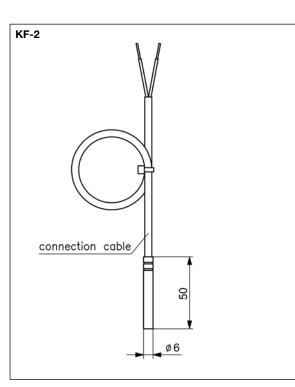




Electronic climate controller with timer KTRRUu

Flush-mounted installation – Design Berlin UP





Other benefits:

- Pluggable screw-type terminals facilitate quick and easy assembly
- Illuminated, graphics-capable display
- Automatic adjustment to standard/daylight savings time
- Learning function
- Correction of measurement values
- Configurable display content
- Choice of various languages during installation: German, English, French, Dutch, Polish, Spanish, Czech, Russian
- Configurable inputs and outputs, for example: - OFF circuit with frost protection
- ECO input
- Dew point sensor input
- Output: Heating/cooling/timer master
- Fan control 0–10 V
- Key lock
- Valve protection function
- Configurable control method (PI-PWM or 2-point control)
- Holiday and party function
- Power reserve
- "Heating operation" indication (LED orange)
- "Cooling operation" indication (LED blue)

Adaptation of alre flush-mounted controllers KTRRUu 2x7.456

Manufacture	Demas	0-1 DAL 0010	A doubettou tu	"FO FO" - d
Manufacturer	Range	Colour RAL 9010 (surface finish)	Adaptation in switch range	"50 x 50" adaptation possible with (insert frame from manufacturer
			"55 x 55" possible	required)
			using	
BERKER	S.1	polar white (matt)	KTRRUu 2x7.456#56	not required
BERKER	S.1	polar white (glossy)	KTRRUu 2x7.456#55	not required
BERKER	Arsys	polar white (glossy)		KTRRUu 2x7.456#07 + 1108 01 69
BERKER	B.3	aluminium/polar white (matt)	KTRRUu 2x7.456#56	not required
BERKER	B.3	aluminium/polar white (glossy)	KTRRUu 2x7.456#55	not required
BERKER	B.7	glass/polar white (matt)	KTRRUu 2x7.456#56	not required
BERKER	B.7	glass/polar white (glossy)	KTRRUu 2x7.456#55	not required
BERKER	K.1	polar white (glossy)		KTRRUu 2x7.456#07 + 1108 71 09
BUSCH-JAEGER	Reflex SI/SI Linear	alpine white (glossy)	KTRRUu 2x7.456#28	not required
BUSCH-JAEGER	Busch-balance SI	alpine white (glossy)	KTRRUu 2x7.456#55	not required
BUSCH-JAEGER	impuls	alpine white (glossy)		KTRRUu 2x7.456#07 + 1746/10-74
BUSCH-JAEGER	solo/future/axcent etc.	studio white – see RAL 9016 below		
ELSO	Joy	pure white (glossy)	KTRRUu 2x7.456#55	not required
ELSO	Fashion/Riva/Scala	pure white (glossy)		KTRRUu 2x7.456#07 + (203084)
GIRA	rocker switch	pure white (glossy)		KTRRUu 2x7.456#07 + 0282 112
GIRA (System 55)	Standard/E 2	pure white (semi-gloss)	KTRRUu 2x7.456#56	not required
GIRA (System 55)	Standard/E2/E3	pure white (glossy)	KTRRUu 2x7.456#55	not required
GIRA (System 55)	E 22	pure white (glossy)	KTRRUu 2x7.456#55	not required
GIRA (System 55)	Event	pure white (semi-gloss) + opaque	KTRRUu 2x7.456#56	not required
GIRA (System 55)	Event	pure white (glossy) + opaque	KTRRUu 2x7.456#55	not required
GIRA (System 55)	Esprit	pure white (semi-gloss) + glass, aluminium	KTRRUu 2x7.456#56	not required
GIRA (System 55)	Esprit	pure white (glossy) + glass, aluminium	KTRRUu 2x7.456#55	not required
GIRA	S-Color	pure white (high-gloss)		KTRRUu 2x7.456#07 + 0282 40
JUNG	CD 500/CD plus	alpine white (glossy)		KTRRUu 2x7.456#07 + CD 590 Z WW
JUNG	A 500/A 550/AS 500/A plus/A flow	alpine white (glossy)	KTRRUu 2x7.456#55	not required
JUNG	LS 990	alpine white (glossy)		KTRRUu 2x7.456#07 + LS 961 Z WW
JUNG	LS plus	alpine white (glass)		KTRRUu 2x7.456#07 + LS 961 Z WW
JUNG	A creation	alpine white (glossy)	KTRRUu 2x7.456#55	not required
JUNG	LS Design	alpine white (glossy)	<u>-</u>	KTRRUu 2x7.456#07 + LS 961 Z WW
MERTEN (System M)	M-Smart, M-Plan, M-Pure	polar white (matt)	KTRRUu 2x7.456#56	not required
MERTEN (System M)	M-Smart, M-Plan, M-Creativ, M-Pure	polar white (glossy)	KTRRUu 2x7.456#55	not required
MERTEN (System Basis)	1-M/Atelier-M	polar white (glossy)	KTRRUu 2x7.456#55	not required
MERTEN (System Design)	Artec/Antik	polar white (glossy)		KTRRUu 2x7.456#07 + 5160 99
MERTEN	1-M/M-Smart/M-Plan/M-Pure/D-Life	active white - see RAL 9016 below		
PEHA	Standard	pure white (glossy)		KTRRUu 2x7.456#07 + 80.670.02 ZV
PEHA	Dialog	pure white (glossy)		KTRRUu 2x7.456#07 + 95.670.02 ZV
PEHA	Aura	pure white (matt)/glass		KTRRUu 2x7.456#07 + 20.670.02 ZV
PEHA	Badora	pure white (glossy)		KTRRUu 2x7.456#07 + 11.670.02 ZV
Manufacturer	Range	Colour RAL 9016	Adaptation in	To adapt KTRRUu in size "50 x 50",
		(surface finish)	switch range "55	an insert frame from the manufac-
			x 55" possible using	turer is required
BUSCH-JAEGER	solo/future/future linear	studio white (RAL 9016, glossy)		KTRRUu 2x7.456#27 + 1746/10-84
BUSCH-JAEGER	axcent	studio white (RAL 9016, glossy)		KTRRUu 2x7.456#27 + 1746/10-84
BUSCH-JAEGER	carat (glass, bronze, gold)	studio white (RAL 9016)		KTRRUu 2x7.456#27 + 1746/10-84
BUSCH-JAEGER	alpha (nea/exclusive*)	studio white (RAL 9016, glossy)		KTRRUu 2x7.456#27 + 1746/10-24G
MERTEN	M-Smart, M-Plan, M-Pure	active white (RAL 9016, glossy)	KTRRUu 2x7.456#59	not required
MERTEN	1-M/Atelier-M	active white (RAL 9016, glossy)	KTRRUu 2x7.456#59	not required
MERTEN	D-Life	lotus white (RAL 9016)	KTT1100 2A7.400#09	KTRRUu 2x7.456#27 + MEG4500-6035
PEHA	Standard	arctic		KTRRUu 2x7.456#27 + MEG4500-6055

*) During assembly, you need to remove four plastic tabs located at the rear of the frame.

NOTE: Most light switch ranges are designed in a colour like RAL 9010, although different switch manufacturers use different designations for this colour. Coloured, glass and aluminium frames are also combined with white jacks or plugs so that controllers with white covers can also be integrated into these frames. Check the precise application in each individual case. The frames have different surface qualities (matt/glossy). For design reasons, the cover of the controller should have the same quality as the frame. We accept no liability for slight variations in colour and surface finish or for accuracy of fit. When installing devices into multi frames, always assemble the temperature controllers at the lowermost position.

"50 x 50 controller": The housing covers of the 50 x 50 controllers are 50 x 50 mm in size. Using a 50 x 50-mm insert frame, the 50 x 50 controllers can be integrated into nearly all light switch ranges in accordance with DIN 49075. The 50 x 50-mm insert frames must be ordered from the light switch manufacturer or from a wholesaler. The order number of the insert frame corresponding to the switch range in question can be found in the column "For adaptation of KTRRUu into size "50 x 50".

"55 x 55 controller": The housing covers of the 55 x 55 controllers are 55 x 55 mm in size. Many light switch ranges have inner dimensions of 55 x 55 mm. Therefore, the 55 x 55 controllers can be installed directly in the light switch frame without the use of an insert frame. See the column "Adaptation in switch range (55 x 55)" to determine whether the 55 x 55 controller fits in the given light switch range (KTRRUu 2x7.456#xx).

All information regarding switch manufacturers" product lines and item numbers was last updated in 12/2019 | No liability is assumed for the information provided. | Technical specifications subject to change.

An adaptation list for RAL 1013 switch ranges is available from our website at www.alre.de.

re

Continuous electronic climate controller, KTRVB Surface-mounted installation – Design Berlin 2000



Technical data		Application
Design:	Berlin 2000	Room temperature controller for
Surface finish:	matt	continuous control of valve actuators.
Housing colour:	pure white, like RAL 9010	Controller for 2-pipe systems (1-duct), 4-pipe systems (2-duct) and
Housing material:	ABS plastic	mixing chambers.
Storage temperature:	−20…+70 °C	Ū.
Operating voltage:	24 VDC, 24 VAC, 50 Hz	
Permissible atmospheric humidity:	max. 95% rel. humidity, non-con- densing	
Electrical connection:	screw-type terminals	
Mounting/attachment:	Surface-/wall-mounting	
Protection rating:	IP 30	
Protection class:	III	
Safety and EMC:	according to DIN EN 60730	
Switching element:	electronic with analogue output signal	
General features:	climate controller for individual room control with proportionally controlled valve; mechanical range restriction; external setting	

Type/image	Item no.	Features	Circuit diagram	PG
KTRVB-048.100	DA450000	General features: scale: degrees Celsius Ambient temperature: 050 °C Output signal: consistently 010 V or 100 V (can be switched using a jumper), max. 5 mA Sensor: NTC internal Control function:Heating or cooling with adjustable p-band, aligned to 5 V at setpoint temperature Control range: 530 °C Hysteresis: 0 K, since control is always via the p-band in the range from +0.5 K3 K (adjustable) Pipe system compatibility: 2-pipe	24V~ COM, GND, L	I
KTRVB-048.200	DA450100	General features: Relative scale Ambient temperature: 050 °C Output signal: consistently 010 V or +100 V (can be switched using a jumper), max. 5 mA Sensor: NTC, internal Control function: Heating or cooling with adjustable p-band, aligned to 5 V at setpoint temperature Control range: 1329 °C Setting range: -3+3 K (the pre-set "zero point" of approx. 21 °C can be adjusted in the machine by +/- 5 K) Hysteresis: 0 K, since control is always via the p-band in the range from +0.53 K (adjustable) Pipe system compatibility: 2-pipe	24V~ COM, GND, 1 1 2 3 4	I



Continuous electronic climate controller, KTRVB Surface-mounted installation – Design Berlin 2000

Type/image	Item no.	Features		Circuit diagram PG
KTRVB-052.244	DA451500	General features: External dew point sensor; ECO function; "heating/cooling/cooling interruption due to condensation/ off" display; "sensor rupture/sensor short-circuit/frost protection" display; operating mode "off with frost protection monitoring"; relative scale Ambient temperature: 040 °C Output signal: consistently 010 V or 100 V (can be switched using a jumper), max. 5 mA Sensor: NTC internal, optional external "Sensor 2" (see "Sensors") External flow sensor (H/C sensor): for automatic switching of the controller to heating or cooling mode depending on the inflow temperature; alternatively, this input can be used as a "Sensor 2" H/C changeover contact ECO contact: Upon closing the contact, the ECO function is actuated (in heating mode, the temperature is adjusted down by 3 K and in cooling mode it is adjusted up by 3 K) Forced switch-off contact: External switch-off function with frost protection monitoring Control function: heating and/or cooling with p-band 1 K, cooling interruption upon condensation of the dew point sensor, frost protection function in "off" state Control range: 1329 °C Setting range: 21 °C ± 8 K Hysteresis: 0 K, since control is always via the p-band in the range from 1 K Neutral zone: Approx. 2 K Pipe system compatibility: 2-pipe and 4-pipe	24V- COM.GND.1 24V- COM.GND.1	HC (10,00/10,00/ max,500A (10,00/10,00/))))))))))))))))))))))))))))
KTRVB-052.245	DA451600	like KTRRB-052.244 but with "off/comfort/cooling" switch		1

Electronic dew point monitor, WFRRN

Standard rail mounting



Technical data

Surface finish: Housing colour: Housing material: Ambient temperature: Storage temperature: Permissible atmospheric humidity: Electrical connection:

Mounting/attachment: Protection rating: Safety and EMC: Average power consumption: Min. switching current:

Min. switching voltage:

Switching element: Switching contact: Output signal: Control function: Hysteresis: Break point fixed: General features: Accessories: matt light grey, like RAL 7035 PC plastic 0...55 °C –20…+70 °C max. 95% rel. humidity. non-condensing screw-type terminals up to 2.5 mm² Standard rail mounting IP 20 according to DIN EN 60730 approx. 1 VA depending on the switching voltage (min. 0.3 W) depending on the switching

current (min. 0.3 W) relay toggler, potential-free switching dew point triggering 8 MΩ approx. 98% relative humidity "dew point triggering" display

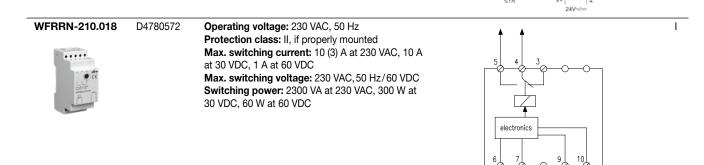
dew point sensors (TPS)

Application

For interrupting cooling when the relative atmospheric humidity exceeds approx. 98%.

Dew point sensor method of operation: If the surface temperature of the dew point sensor is equivalent to the dew point, a microscopic film of moisture forms on its surface. This film changes the resistance value of the dew point sensor to such an extent that the connected controller or monitor detects this change and disables the cooling. In this manner, dripping condensate water at maximum cooling, and hence moisture damage to the building, are avoided. When the dew point sensor dries off again, the resistance value increases and cooling is re-enabled. To ensure that a pending undershooting of the dew point is detected in time, the dew point sensor should be assembled at the point where the dew point is most likely to be reached first along the cooling circuit. Generally, these locations are at the inlet coming into the room and/or near windows. If the place where the dew point is most likely to occur cannot be unambiguously determined, it is possible to connect up to 5 dew point sensors in parallel to one controller or monitor.

Type/image	Item no.	Features	Circuit diagram	PG
WFRRN-240.018	D4780587	Operating voltage: 24 VDC, 24 VAC, 50 Hz Protection class: III Max. switching current: 10 (3) A at 48 VAC, 10 A at 30 VDC, 1 A at 60 VDC Max. switching voltage: 48 VAC, 50 Hz/60 VDC Switching power: 500 VA at 48 VAC, 300 W at 30 VDC, 60 W at 60 VDC		I



Ч_Д % г.н.

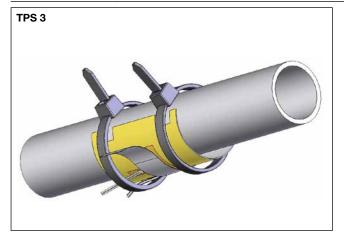
alre Dew point sensor, TPS

Туре TPS

TPS

TPS

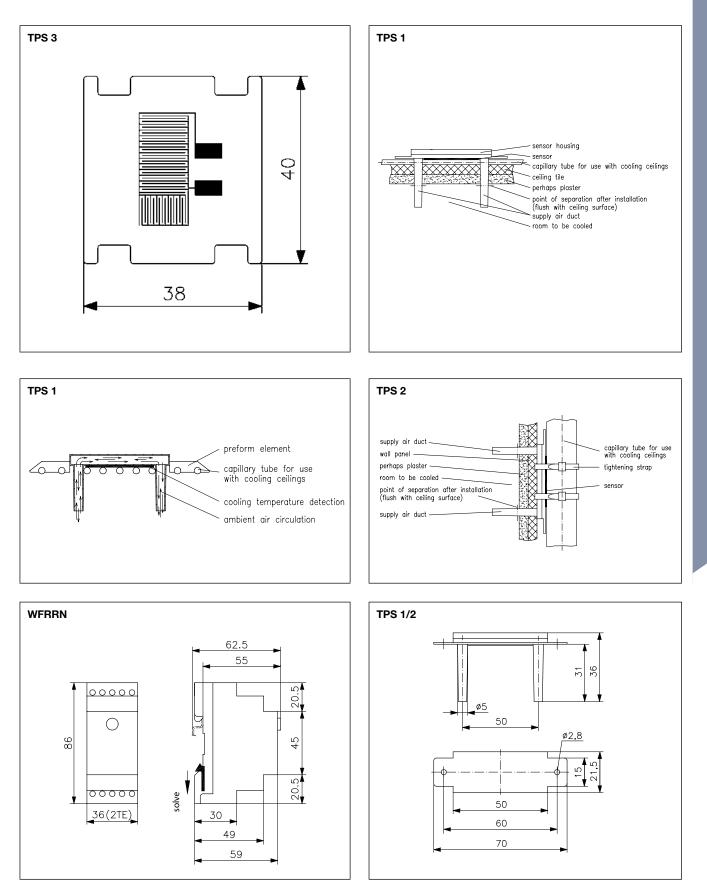
		Technical data		Application
		Storage temperature: Sensor wire extendable up to: Connecting cable: Accessories:	-20+70 °C 50 m with 2 x 0.5 mm ² 10 m For use with dew point sen- sors (e.g. WFRRN) or climate controllers with dew point monitoring (KTRRB, KTRRU, KTRRUu, KTRVB, KTFRL, KTFRD)	These dew point sensor were developed in conjunction with alre dew point monitors and cooling ceiling controllers for the spe- cific purpose of detecting and signalling the dew point. In this way, they prevent dripping condensa- tion water from reaching the cooling circuit parts, if installed correctly.
e/image	Item no.	Features		PG
51	G8000299	Mounting/Attachment: using cli Use: Drywall cooling ceiling (plas ceiling with integrated capillary p Sensor wire extendable up to: 5 Box contents: sensor, 2 clips for	sterboard) with hung up capillary p ipe system 50 m with 2 x 0.5 mm ²	
52	G8000300	Mounting/attachment: Using cli Use: Pipe systems transporting of Sensor wire extendable up to: 5 Box contents: sensor, 2 clips for	cold water, plaster cooling ceiling 50 m with 2 x 0.5 mm ²	
53	SN120000	Mounting/Attachment: attach to Use: Pipe systems transporting of Sensor wire extendable up to: 5 Box contents: sensor, 2 cable tie	cold water 50 m with 2 x 0.5 mm ²	1



Important note: The inflow ducts of TPS-1 and TPS-2 are closed before shipping to avoid dirtying during assembly. After assembly, they must be shortened with a knife until they are flush with the wall or ceiling to ensure air circulation. The air ducts should be arranged such that soiling during operation is avoided. It is important that the air surrounding the sensor has the same temperature as the room air to be cooled. If the humidity and temperature of the air to be cooled (ceiling cooling system) is different from that of the air surrounding the sensor, condensation may be detected prematurely or too late. As regards TPS-3, contact with the PCB paths must be avoided to prevent long-term corrosion.

Attention in case of sensor extension: Parallel laying to conductors carrying a mains voltage can result in faults. The use of shielded conductors reduces sensitivity to electromagnetic fields.

Dew point sensor, TPS



Mechanical room hygrostats/hygro-thermostats, RFSB, FHY, RKKDSB

Surface-mounted installation - Design Berlin 2000/3000/UP

alre Hydratet





Technical data

Storage temperature:

Permissible atmospheric humidity: Electrical connection: Protection rating: Protection class: Safety and EMC: Min. switching current: Max. switching voltage: Min. switching voltage: General features: Other/similar items: -20...+60 °C (RFHSB-060.xxx -20...+70 °C) max. 95% rel. humidity, non-condensing screw-type terminals
IP 30
II, if properly mounted according to DIN EN 60730
100 mA
230 VAC, 50 Hz
24 VAC, 50 Hz
24 VAC, 50 Hz
mechanical range restriction
For duct and control cabinet hygrostats, see "Plant Engineering" chapter

Application

Hygrostat: The room hygrostat is used to monitor and control the relative humidity, e.g., in offices, homes, winter gardens, baths, swimming pools and data centres. The action of the relative humidity on a measuring tape is made to actuate a potential-free changeover contact. The desired value is set by means of the adjusting knob on the front panel. The setting range can be limited.

Hygro-thermostat: Monitoring and control of the relative humidity and the temperature in one device.

Note: Observe the wet room distance according to DIN VDE 0100-701!

Type/image	Item no.	Features	Circuit diagram	PG
FHY 101.060#00	UA020004	General features: external setting; protective cap; contact hazard protection cover plate Design: Berlin UP Surface finish: according to selected cover set Housing colour: according to selected cover set Housing material: PC plastic Operating voltage: no auxiliary energy necessary Ambient temperature: 050 °C Mounting/Attachment: in flush-mounted socket – adaptable with cover set 50 x 50 mm or 55 x 55 mm in almost all rocker switch ranges (deep flush-mounted socket recommended) Max. switching current: dehumidifying (terminal E) 5 (0.2) A, humidifying (terminal B) 2 (0.2) A Switching power: terminal E: 1150 W, terminal B: 460 W Switching element: microswitch Switching contact: Changeover switch (toggler) Output signal: Switching Sensor: plastic fibres Control function: humidifying or de-humidifying Control range: 3585% rel. humidity Hysteresis: Approx. 5% rel. humidity Accessories: Cover sets are offered in various designs (see the separate overview on page 125) and are not included in the delivery. Suitable set no: JZ-021.xxx, e.g.: cover set 50 x 50 mm, pure white, glossy: JZ-021.000 cover set 55 x 55 mm, pure white, glossy: JZ-021.100	dehumidifying	

Mechanical room hygrostats/hygro-thermostats, RFSB, FHY, RKKDSB Surface-mounted installation – Design Berlin 2000/3000/UP

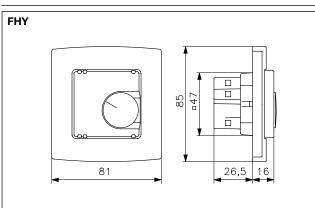
Type/image	Item no.	Features	Circuit diagram	PG
FHY 101.060#21	UA020003	like FHY 101.060#21 but scope of delivery as follows: controller, alre frame "Berlin", cover 50 x 50 mm, pure white (like RAL 9010), glossy		I
RFHSB-060.010	MA020202	General features: External setting Design: Berlin 2000 Surface finish: matt Housing colour: pure white like RAL 9010 Housing material: ABS plastic Operating voltage: no auxiliary energy necessary Ambient temperature: 060 °C Mounting/attachment: surface-/wall-mounting (4-hole assembly on flush-mounted socket) Max. switching current: Dehumidifying (terminal 4) 5 (0.2) A, humidifying (terminal 2) 2 (0.2) A Switching power: terminal 4: 1150 W, terminal 2: 460 W Switching contact: Changeover switch (toggler) Output signal: Switching Sensor: plastic fibres Control function: humidifying or de-humidifying Control range: 3585% rel. humidity Hysteresis: Approx. 7% rel. humidity	Entfeuchten Dehumidification Humidification 321 >	I
RFHSB-060.011	MA020203	like RFHSB-060.010, but with internal setting	Entfeuchten Dehumidifaction Déshumidification Humidification	I
RKDSB-171.000	MA220000	General features: "on/off" switch; external setting Design: Berlin 3000 Surface finish: matt Housing colour: pure white like RAL 9010 Housing material: ABS plastic Operating voltage: 24 VAC or 230 VAC selectable Ambient temperature: 0 50 °C Mounting/Attachment: surface/wall-mounting or by means of adapter plate on flush-mounted socket Max. switching current: dehumidifying (terminal 9) 5 (0.2) A, humidifying (terminal 8) 3 (0.2) A, heating (ter- minal 1) 10 (4) A at 230 VAC/1 (1) A at 24 VAC, cooling (terminal 2) 5 (2) A at 230 VAC/1 (1) A at 24 VAC, switching power: terminal 9: 1150 W, terminal 8: 690 W, terminal 1: 2300 W at 230 VAC/24 W at 24 VAC, terminal 2: 1150 W at 230 VAC/230 W at 24 VAC Switching element: microswitch (hygrostat)/bimetal (thermostat) Switching contact: 2x changeover switch (toggler) Output signal: Switching Sensor: plastic fibres for humidity, bimetal for temperature Control function: Humidifying or de-humidifying, heating or cooling Control ranges: Temperature 1035 °C, Humidity 30100% rel. humidity Setting range: 1035 °C Hysteresis: Approx. 4% rel. humidity, approx. 1 K at a temperature change of max. 4 K/h Accessories: adapter plate flush-mounted socket mounting: JZ-17	24V 1 230V 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 5 6 7 8 9	I

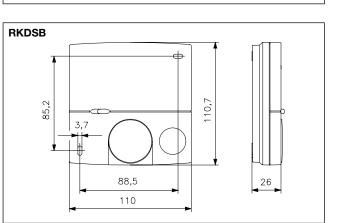
alre

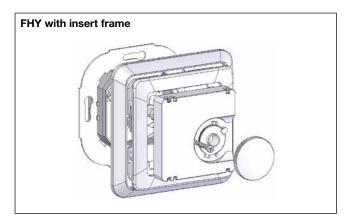


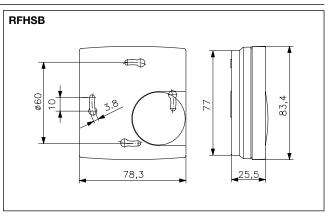
Mechanical room hygrostats/hygro-thermostats, RFSB, FHY, RKKDSB Surface-mounted installation – Design Berlin 2000/3000/UP

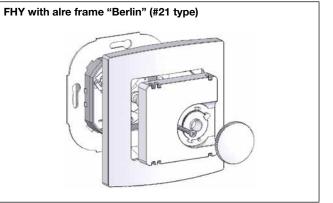
Accessories	Item no.	Features	PG
JZ-17	MN990001	General features: Adapter plate for mounting devices on flush-mounted sockets (including fastening screws for mounting the controller on the adapter plate) Surface finish: matt Housing colour: pure white like RAL 9010 Housing material: ABS plastic	II

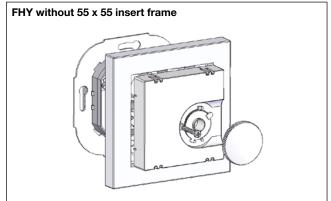














Terminal strip for heating/cooling manifold VOORL for 5 or 8 room thermostats

0		e	8
	3		7
	alro	0	,

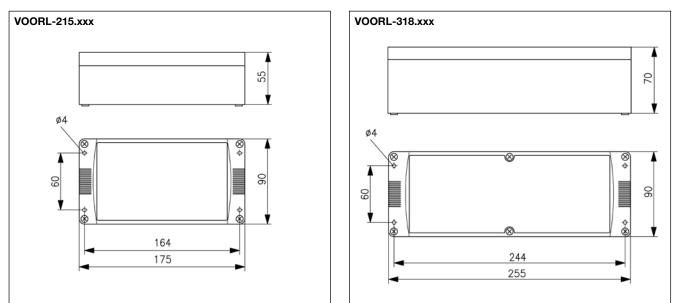
Technical data		Application
Surface finish: Housing colour: Housing material:	matt light grey, like RAL 7035 ABS plastic	This device is specifically designed for fixed wiring of 230 VAC sin- gle-room temperature controllers and the associated valve actuators for
Operating voltage: Ambient temperature: Storage temperature:	230 VAC, 50 Hz -10…+50 °C -20…+70 °C	fixed-location attachment. Switching between heating/cooling is performed via a central contact.
Permissible atmospheric humidity:	max. 95% rel. humidity, non-con- densing	
Electrical connection:	spring-cage terminals 0.2 mm ² to 1.5 mm ² ; if end sleeves are used, 0.25 mm ² to 0.75 mm ²	
Mounting/attachment:	Surface-/wall-mounting	
Protection rating:	IP 20	
Protection class:	II, if properly mounted	
Max. switching voltage:	230 VAC, 50 Hz	
Min. switching voltage:	230 VAC, 50 Hz	
Accessories:	suitable valve actuators: ZBOOA-010.100 optional magnetic fastening set for simple installation in heating mani- fold: JZ-24	

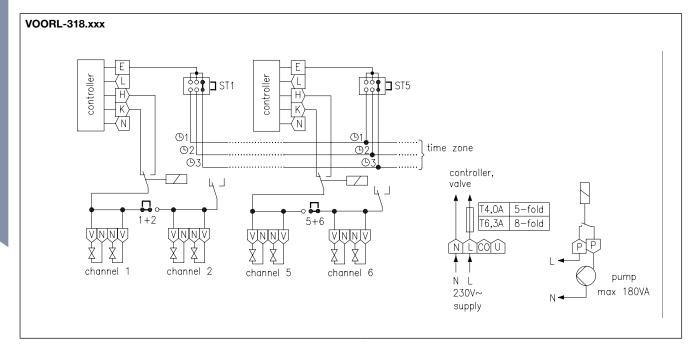
Type/image	Item no.	Features	PG
VOORL-215.008	DA490100	General features: Terminal strip in housing for wiring up to 5 room thermostats and up to 20 actuators; up to 4 actuators per channel can be connected Max. switching current: output 1–5: 3 (1) A Total of all the outputs (5 channels): 3 (1) A Switching power: total of 920 W ECO contact: if clock regulators are used, up to 2 master-slave time zones can be defined; time zone 2 can be switched to ECO function via an external switching contact on terminal U Control function: Heating or cooling	I
VOORL-215.052	DA490300	As for VOORL-215.008, but including pump module (max. 0.75 A)	I
VOORL-318.008	DA490000	General features: Terminal strip in housing for wiring up to 8 room thermostats and up to 32 actuators; up to 4 actuators per channel can be connected Max. switching current: output 1–8: 3 (1) A Total of all the outputs (8 channels): 3 (1) A Switching power: Total of 1380 W ECO contact: if clock regulators are used, up to 3 master-slave time zones can be defined; time zone 3 can be switched to ECO function via an external switching contact on terminal U Control function: Heating or cooling	I
VOORL-318.052	DA490200	As for VOORL-318.008, but including pump module (max. 0.75 A)	I
Accessories	Item no.	Features	PG

Accessories	Item no.	Features	PG
JZ-24	BN990002	Magnetic fastening set for simple and safe fastening of the multi-channel receiver and VOORL terminal strips on a metallic substrate (for example, heating manifold)	II



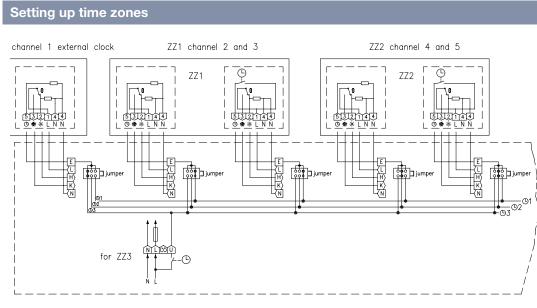
Terminal strip for heating/cooling manifold VOORL for 5 or 8 room thermostats





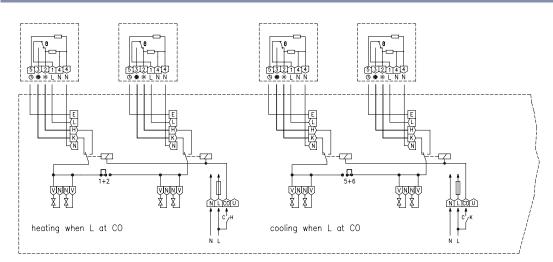


Notes and examples of wiring for VOORL terminal strips

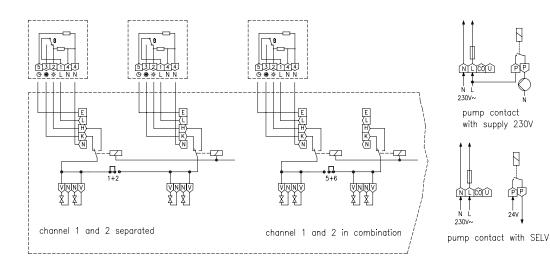


TZ = time zone

Inversion of the CO contact



Standard wiring and combination of channel 1/2



Electrothermal valve actuators

for heating, ventilation and air conditioning technology

	Technical data		Application
II:	Housing colour: Housing material: Ambient temperature:	pure white, like RAL 9010 PC plastic, GF (20%) 050 °C	Extremely compact design: Can be fitted quickly and comfortably thanks to the slim shape in the area around the fastening nut.
	Storage temperature: Permissible atmospheric humidity:	–20+70 °C max. 95% rel. humidity, non-con- densing	Can be fitted in any position: Lateral drainage holes carry off any leakage water that from the valve plunger into the open, thus avoiding damage to the drive. Additional valve monitoring: Two additional viewing windows at the side allow users to visually check the respective valve position with ease; this does not work when mounted in a suspended manner.
	Mounting/attachment: Protection rating:	M 30 x 1.5 IP 42	
	Protection class: Safety and EMC:	II according to DIN EN 60730	
	Average power consump- tion: Opening/closing time:	Approx. 3 W approx. 4 min	
	Nominal stroke: Function type:	3 mm normally closed	
	Nominal closing force:	90 N	
	Connecting cable: Valve position indicator:	0.8 m/2 x 0.5 mm ² 2X (at the top and the side)	
ltem no	Features		PG

Type/image	Item no.	Features	PG
ZBOOA-010.100	H9100010	Operating voltage: 230 V~, 50 Hz Max. power consumption: 70 W Max. starting current: approx. 0.3 A	I
ZBOOA-040.100	H9100000	Operating voltage: 24 VDC or 24 VAC Max. power consumption: 12 W Max. starting current: approx. 0.5 A	1

Thanks to their M 30 x 1.5 fastening and their characteristics (normally closed), the actuators are suitable for the following valve and distributor makes: Beulco, Empur, Heimeier, Kamo, Oventrop, Purmo, SBK, SKV, Strawa, Taconova, Watts

Brief description:

The drive features a compact, space-saving design.

The device can be mounted easily thanks to its narrowed shape, especially in the fastening area of the nut.

The connecting cable is not located near the fastening nut. This reduces the probability of contact with equipment carrying hot water.

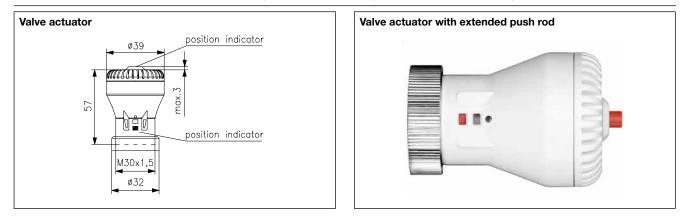
Since the fastening nut allows continuous screwing onto the thread, by unscrewing the nut by two or three turns, it is possible to open the valve in an electrically de-energised state – something that cannot be done with bayonet couplings and impulse couplings.

Discharged water is dissipated via a draining system.

Gaskets are not required thanks to the careful design.

The double position display has the following advantages:

The upper display provides the option of a visual or, in conditions of bad visibility, tactile function test of the drive. The lower viewing windows allow an additional check to determine whether the valve to be actuated follows the lifting movement of the drive. At the beginning of the heating period, it can happen off and on that the valve plungers get "stuck". Therefore, with the additional display, it is possible to determine whether the cause lies with the actuator or with the valve in the event the valve does not open. However, that is not possible when mounted in a suspended manner.



PLANT ENGINEERING

DOCK

Technology for professionals, versatile and robust.



PLANT ENGINEERING Cutting edge, reliable technology for your systems.

Plant engineering has to be robust and fail-safe, as modern heating, ventilation and industrial plants place high demands on components, including tough environments and increasingly intensive use.

Our product portfolio includes devices for monitoring humidity, flow and pressure in order to equip supply air systems, green houses, wind tunnels, etc.

Ultra safe technology for perfectly functioning systems.

Application examples:

- Temperature control/safety temperature control, for example in air ducts, boiler systems, storage tanks, heating coils, burners, pipelines, etc.
- Frost protection of hot water heating coils
- Temperature and humidity control in control cabinets
- Humidity control in ventilation and air-conditioning ducts
- Flow monitoring, for example in ducts, supply and exhaust air devices of fans, water pipes, oil, cooling and lubrication circuits, etc.
- Pressure monitoring of gaseous media, for example for filter monitoring, fume hoods, fans, heating coils, low air pressure safety devices, limit controllers



Capillary, wet room and frost protection thermostats, control cabinet controllers

	Overview of devices	148-153
	Plant room thermostats (1 and 2-setting ranges), wet room thermostats	154–159
	Universal capillary thermostat (boiler thermostat, ventilation thermostat or contact thermostat)	160–166 W
	Single-stage plant room thermostats with adjustable switching differential	167
	Capillary thermostats (1-, 2-stage) 0.54.5 m	168–170
	Contact thermostats	171
u 🗐	Frost protection thermostats/monitors	172–177
	Duct thermostats, ventilation thermostats (TR, TW, STB), air heater thermostats	178–181
- CM -	Control cabinet thermostat, hygrostat	182–183

Temperature controllers, electronic

Controllers for distributor assembly (hat rail)	184–185
Universal controller (wall-mounting)	186

Humidity, flow, pressure monitoring

1.	Mechanical hygrostats	187–188
	Wind indicator relays	189
(Differential pressure switches ("pressure cells")	190–191
	Flow monitors for liquid media	192–196

Product innovation



Our new thermostats for plant engineering are now available in a modern design. They are suitable for optimum temperature control in various fields such as greenhouses, warehouses and industrial halls.

See page 154 onwards for more information





Plant engineering overview 1: Plant room thermostats, wet room thermostats, capillary thermostats

	Plant, capillary,																													
the	t room and double rmostats for indoor and outdoor use	RTKSA-100.010	RTKSA-101.010	RTKSA-100.110	RTKSA-101.110	JET-110 R	JET-110 RF	JET-120 R	JET-120 RF	RTKSA-114.110	RTKSA-114.010	PTR 40.000	JET-110 X	JET-110 XF	JET-120 XF	JET-120 X	JET-120 XG	JET-130 X	JET-130 XF	JET-130 XG	JET-133 X	JET-133 XF	JET-140 X	JET-140 XF	JET-143 XF	JET-150	JET-150 F	JET-153	JET-153 F	JMT-206 X
	Page	156	156	156	156	167	167	167	167	158	158	159	168	168	168	168	168	168	168	168	168	168	168	168	168	168	168	168	168	170
	Bimetal											х																		
Devices	Plant room thermostat	х	х	х	х	х	x	х	х																					
evi	Capillary thermostat												х	х	х	х	х	х	х	х	х	х	х	х	х	х	х	х	х	x
	Wet room thermostat											х																		
	Double thermostat									х	х																			
≥ _	Capillary 1.5 m																													x
Capillary length	Capillary 1.8 m												x	x	x	x		x	x		x	x	x	x	x	x	x	x	x	
Ū	Capillary 4.5 m																x			x										
	–35…+30 °C					х	х						x	х																
	–20…+30 °C											х																		
e	–10…+40 °C	х	х								х																			
Control range	0 50 °C			х	х					х																				
20	060 °C							х	х						х	х	x													
ntre	20 80 °C																													x
ပိ	40 100 °C																	x	x	x	x	х								
	70 130 °C																						x	x	х					
	100 280 °C																						~	~	~	x	х	x	x	
Output	Microswitch (potential-free changeover contact)	1	1	1	1	1	1	1	1	2	2		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
0	Switching steps	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
itching power	NC contact: 16 (2.5) A at 230 V~ NO contact: 6.3 (2.5) A at 230 V~	x	x	x	x					x	x																			
l Bu	15 (8) A, 24–250 V~					х	х	х	x				х	х	х	х	х	x	х	х	х	х	х	х	х	х	х	х	х	x
tchi	10 (4) A, 250 V~,											x																		
Swi	50 Hz, heating 5 (2) A, 250 V~,											x																		
	50 Hz, cooling																													
Supply voltage	None	x	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Sup volt	230 V~, 50 Hz											x																		
Degree of protection	IP 54	x	x	x	x					x	x																			
De	IP 65					x	х	х	х			х	х	x	х	х	х	х	х	х	х	х	x	х	х	х	х	х	х	x
S	External setting	x		x		x		х					х			х	х	x		х	х		х			х		x		x
Miscellaneous	Internal setting		x		х		х		x	2	2	x		x	x				х			х		х	х		х		x	
llan	Temperature controller	x		x		х		x					x			x	x	x		x			х			x				x
sce	Temperature monitor		x		х		х		x	2	2	x		x	x				х					х			x			
Ξ	Temperature limiter																				x	x			x			x	x	
~	Iemperature limiter																				х	х			х			х	х	

alre

Plant engineering overview 2: Universal capillary thermostats/capillary double thermostats

th	Universal capillary ermostats, function thout supply voltage	RTKSA-000.100	RTKSA-000.200	RTKSA-000.300	RTKSA-001.100	RTKSA-001.200	RTKSA-001.300	RTKSA-001.301	RTKSA-002.310	RTKSA-002.410	RTKSA-003.310	RTKSA-004.310	RTKSA-010.200	RTKSA-013.210	RTKSA-014.210
	Page	160	160	160	160	160	160	160	160	160	160	160	164	164	164
	0 50 °C	x			х										
ge	0120 °C	^			^	x								x	2
Control range			x			*					x		x		2
ntro	20150 °C			х			х	х	х		x	х		х	
S	30110 °C									x					
	70 130 °C												х		
Output	Microswitch (potential-free changeover contact)	1	1	1	1	1	1	1	1	1	1	1	2	2	2
Switching power	NC contact: 16 (2.5) A at 230 V~ NO contact TR/TW/STW: 6.3 (2.5) A at 230 V~	x	x	x	x	x	x	x				x	x	x	x
Switchin	NC contact: 16 (2.5) A at 230 V~ NO contact TB/STB: 2 (0.4) A at 230 V~								x	x	x		x	x	
Degree of protection	IP 40	x	x	x	x	x	x	x					x	x	×
Dec	IP 54								x	x	x	x			
	Type testing by TÜV in accordance with DIN EN 14597	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	Temperature controller	x	х	х									x		
sno	Temperature monitor				х	х	х	х						х	2
lane	Temperature limiter								х	x				х	
Miscellaneous	Safety temperature limiter										x		x		
Ξ	Safety temperature monitor											x			
	External setting	x	x	x									x		
	Internal setting				x	x	x	x	x	x	x	х	x	2	2



Plant engineering overview 3: Air heater thermostats

	Duct rod sensors th capillary system, function without supply voltage	JTL-2	JTL-8	JTL-11	JTL-8 NR	JTL-17 NR	JTU-50	JTU-1	JTU-3	JTU-20	JTU-5	JTU-6
	Page	178	178	178	178	178	180	180	180	180	180	180
Devices	Duct thermostat						x	x	x	x	x	x
Dev	Air heater thermostat	x	x	x	x	x						
Capillary Iength	Capillary 350 mm	x	x		x		x	x	x		x	x
Cap len	Capillary 1,250 mm			x		x				x		
	–25 65 °C						x					
	20 70 °C	x	x	x	x	x						
nge	20 100 °C							x	x	х		
ol ra	60 140 °C										х	x
Control range	70 95 °C				x	x						
0	70 100 °C	x	x	x								
	100 °C rod fixed				x	x						
Output	Microswitch (potential-free changeover contact)	x	x	x	x	x	x	x	x	x	x	x
Switching power	15 (8) A, 24–250 V-	x	x	x	x	x	x	x	x	x	x	x
Protection rating	IP 40	×	×	x	x	×	x	x	×	x	×	x
sne	Type testing by TÜV in accordance with DIN EN 14597	x	x	x	x	x			x	x		
Miscellaneous	Temperature monitor	x		x	x	х	x	x			x	
scell	Temperature limiter											x
N	Safety temperature limiter		x		x	x			x	х		
	Internal setting	x	x	x	x	х	x	x	х	x	x	x

Plant engineering overview 4: Contact and frost protection thermostats

Capillary 1,800 mm Image: constrained by 1,800 mm Image: constrained			Contact and frost protection thermostats	ATR 83.000	ATR 83.100	ATR 83.001	ATR 83.101	JTF-1	JTF-1/12	JTF-1 W	JTF-2	JTF-2 W	JTF-3	JTF-3 W	JTF-4	JTF-5	JTF-21	JTF-21/12	JTF-21 W	JTF-22	JTF-22/12	JTF-25	RTKSA-203.000	RTKSA-203.100	RTKSA-203.120	RTKSA-203.200	RTKSA-203.220	RTKSA-203.300	RTKSA-204.000	RTKSA-204.020	RTKSA-204.100	RTKSA-204.200	RTKSA-204.220	RTKSA-204.300
Capillary 1,000 mm Solution Solution <th></th> <th></th> <th>Page</th> <th>171</th> <th>171</th> <th>171</th> <th>171</th> <th>175</th> <th>175</th> <th>175</th> <th>175</th> <th>175</th> <th>175</th> <th>175</th> <th>175</th> <th>175</th> <th>176</th> <th>176</th> <th>176</th> <th>176</th> <th>176</th> <th>176</th> <th>173</th>			Page	171	171	171	171	175	175	175	175	175	175	175	175	175	176	176	176	176	176	176	173	173	173	173	173	173	173	173	173	173	173	173
Opposition Compute y allow y allow mm Compute y allow y allow y allow mm Compute y allow y a		evices		x	x	x	x																											
Applied Capillary 3,000 nm I <td>1</td> <td>۵</td> <td>Frost protection thermostat</td> <td></td> <td></td> <td></td> <td></td> <td>х</td> <td>x</td> <td>х</td> <td>х</td> <td>х</td> <td>х</td> <td>х</td> <td>×</td>	1	۵	Frost protection thermostat					х	х	х	х	х	х	х	х	х	х	х	х	х	х	х	х	х	х	х	х	x	х	х	х	х	х	×
Capillary 12.000 mm I	2												x	x	x								x						x	x				
Capillary 12.000 mm I	oilla	ngth														х						х		х	х						х			
Image Microsovichic (potential-free x <	Sal	<u>e</u>						х		х	х	х					х		х	х						х	х					х	х	
changeover contact) x			Capillary 12,000 mm						х									х			х							x						x
Indice +15 °C Image: space		Output		x	x	x	x	x	x	x	x	x	x	x	x	x	2	2	2	2	2	2	x	x	x	x	x	x	x	x	x	x	x	x
None X		e	–10…+12 °C					x	x	x	x	х	х	х	x	x	x	x	х	x	х	x												
Oblice C Non-		rang	–10to +15 °C																				x	x	x	x	x	x	x	x	x	x	x	x
Oblice C Non-		tro	060 °C			x	x																											
Interview Interview <t< td=""><td></td><td>Con</td><td></td><td>x</td><td>x</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>		Con		x	x																													
16 (2) A, 24-250 V- x																																		
2.0 (0.4) A at 230 V-		er	15 (8) A, 24–250 V~					х	х	x	х	х	х	х	х	x	х	x	х	х	х	x												
2.0 (0.4) A at 230 V-		ŇOC	16 (2) A, 24–250 V~	x	x	x	x																											
Image: problem integrating by TÜV in accordance with DIN EN 145697 x	:	Switching	16 (2.5) A at 230 V~ NO contact STW: 6.3 (2.5) A at 230 V~ NO contact STB:																				x	x	x	×	×	x	×	x	×	x	x	×
Type testing by TÜV in accordance with DIN EN 14597 x <	Sunnly	voltage	None	x	x	x	x	x	x	×	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	×	×
Type testing by TÜV in accordance with DIN EN 14597 x <	Ĵ	5	IP 20	x	x	x	x																											
Type testing by TÜV in accordance with DIN EN 14597 x <	ree	ectic	IP 40					x	x		x		x		x	x	x	x		x	x	x	x	x		x		x	x		x	x		x
Type testing by TÜV in accordance with DIN EN 14597 x <	Dea	prot	IP 65							x		x		x					x						x		x			x			x	
Solution Soluticity Solution Solution <																																		
Temperature monitor x								х	x	х	x	х	х	х	х	x							x	x	х	х	х	x	х	x	х	x	x	x
Femperature monitor x			Temperature controller	x		x																												
Temperature limiter x		sno	Temperature monitor		x		x	x	x	x			x	x		x	x	x	x			x												
Safety temperature limiter x		ane	Temperature limiter																	x	x													
Safety temperature monitor		scell	Safety temperature limiter								x	x			x								x	x	x	x	x	x						
		Ξ	Safety temperature monitor																										x	x	x	x	x	x
External setting x x x x x x x x x x x x x x x x x			External setting	x		x		x	x		x		x		x	x	x	x		x	x	x												
Internal setting x x x x x x x x x x x x x x x x x x x			Internal setting		x		x			x		x		x					x				x	x	x	x	x	x	x	x	x	x	x	x

Plant engineering

alre



Plant engineering overview 5: Temperature controllers, electronic

	Electronic temperature controllers, digital controllers/ displays	ITR 79.402	ITR 79.404	ITR 79.405	ITR 79.408	ITR 79.503	ITR 79.504	ITR 79.508	ITR 79.600	ITR 79.804	ETR 77.008-5	ETR 77.009-5
	Page	184	184	184	184	184	184	184	184	184	186	186
Devices	Standard or top-hat rail controllers	x	x	x	x	x	x	x	x	x		
Dev	Universal controllers										x	x
	–50…+50 °C										х	
	–35…+15 °C	x										
ge	-10+40 °C				x			x				
ran	011 °C					x						
Control range	060 °C		х				х			х		
S	0100 °C											x
	530 °C								2			
	35 95 °C			x								
	10 (3) A, 250 V~, make contact	x	х	x	x	x	х	x	x	x		
Switching power	5 (1.5) A / 250 V~, break contact	x	x	x	x	x	x	x	x	x		
Swit	10 (3) A, 250 V~, heating contact										х	х
-	5 (1) A, 250 V~, cooling contact										х	х
Degree of protection	IP 20	x	x	x	x	x	x	x	x	x		
Degr prote	IP 65										x	x
	Temperature controller	x	х	x	х	x	х	x	х	х		
sno	Temperature monitor										х	x
Miscellaneous	Internal setting										х	x
cells	LED heating (red)	х	х	х	х	х				х	x	x
Mis	LED cooling (green)						х	х				
	230 V~, 50 Hz	x	х	x	х	х	х	x	х	х	х	x

alre

Plant engineering overview 6: Flow monitors and pressure switches

F	low and pressure monitoring	JSL-1E	JDW-3/JDW-3Z	JDW-5/JDW-5Z	JDW-10	JDL-111	JDL-112	JDL-115	JDL-116	JDL-116A	JSF-3E	JSF-4E	JSF-1E	JSF-1RE	JSF-2E	JSF-2RE	JSW-1/2	JSW-3/4	JSW-1
	Page	189	190	190	190	190	190	190	190	190	192	192	192	192	192	192	195	195	195
	Wind indicator relays	х																	
Devices	Differential pressure switches		x	x	x	x	x	x	x	x									
ă	Flow monitors										x	x	х	х	х	x	x	х	x
ъţ	Wind indicator	х																	
Sensor element	Pressure sensor (mem- brane)		x	x	x	x	x	x	х	x									
-	Paddle										х	х	х	х	х	х	х	х	x
Output	Microswitch (potential-free changeover contact)	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	1-8 m/s switch-off value	х																	
	Dependent on the tube diameter										x	x	x	x	x	x	x	x	x
ge	20–300 Pa					х													
Switching range	20-330 Pa		x																
guir	30-500 Pa			х															
vitcl	40-600 Pa						х												
Š	100–1,000 Pa							х											
	250–5,000 Pa								x	х									
	400-1,600 Pa				x														
	100 1,000 1 4				~														
ver	15 (8) A, 24–250 V~	х									х	х	х	х	х	х			
bo	1.5 (0.4) A, 12–250 V~		х	х	х														
Switching power	1 (0.2) A, 12–24 V~/=		x	х	x	х	х	х	х	х									
itch	5 (1) A, 12–250 V~					х	х	х	х	х									
Š	5 (1.5) A, 24–230 V~																х	х	x
Operating voltage	None	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Degree of protection	IP 54		x	x	x	x	x	x	x	x									
Degr prote	IP 65	x									x	x	x	x	x	x	x	x	x
Miscellaneous	Type tested by the TÜV according to the current 100 to 6".										x	x	x	x	x	x			
sce	External setting									х									
Ξ	Internal setting	x	x	х	x	x	x	x	x		x	х	х	x	х	x	х	x	x



Now in a new design – Thermostats for plant engineering from alre

alre is proud to present new thermostats for plant engineering (RTKSA) which can be used in a wide range of fields, offering you many application possibilities.

Whether you need a solution for a greenhouse, industrial building or warehouse, the thermostats are suitable for optimum temperature control in many fields.

In combination with various accessories, the **universal controller can operate as a boiler, ventilation or contact thermostat**.





Combinations with accessories



For double thermostats, use the JZ-30 mounting set.

See page 160 onwards for more information on universal thermostats

alre Plant room thermostat RTKSA

Capillary system – external sensors



Technical data		Application
Colour:	Anthracite grey (similar to RAL7016), front side transparent	RTKSA plant room thermostats were specially developed for
Sensor material:	V4A	use in industrial halls, exhibition halls, air halls and greenhouses.
Max. sensor temperature	Top scale value +15%	When used as a frost protection
Max. head temperature:	50 °C	controller, the higher tolerances
Permissible atmospheric humidity:	Max. 95% rel. humidity, non-condensing	at the end of the scale must be observed.
Operating voltage:	none	
Max. switching current:	NC contact: 16 (2.5) A at 230 VAC +10% 0.25 A at 230 VDC +10% NO contact: 6.3 (2.5) A at 230 VAC +10% 0.25 A at 230 VDC +10%	Type testing by TÜV in accordance with DIN EN 14597
Min. switching current:	Min. 100 mA at 24 V (AC/DC)	
Max. switching voltage:	230 VAC 50/60 Hz, 230 VDC	Conriift
Min. switching voltage:	24 VAC/50 Hz, 24 VDC	depruit
Switching element:	microswitch	
Switching contact:	toggler, potential-free	
Control function:	heating or cooling	
Hysteresis:	1.3 K	
Electrical connection:	Push-in terminals	
Mounting/attachment:	wall mounting	
Protection class:	I	
Protection rating:	IP 54 (optionally IP 65)	
Safety and EMC:	In accordance with DIN EN 60730 (VDE 0631)	
Sensor:	liquid-filled capillary	
General features:	Scale: degrees Celsius	

Туре	ltem no.	Control range	Hysteresis	Features	PG
RTKSA-100.010	KA010000	−10…+40 °C	1.3 K	TR, external setting	Ш
RTKSA-101.010	KA010100	−10…+40 °C	1.3 K	TW, internal setting	II
RTKSA-100.110	KA010001	0…+50 °C	1.3 K	TR, external setting	II
RTKSA-101.110	KA010101	0…+50 °C	1.3 K	TW, internal setting	II

TR = temperature controller, TW = temperature monitor

Type comparison (old/new type)

Old alre types	Control range	Hystere- sis	New alre types	Control range	Hystere- sis
JET-40	0+35 °C	1 K	RTKSA-100.010	−10…+40 °C	1.3 K
JET-40F	0+35 °C	1 K	RTKSA-101.010	−10…+40 °C	1.3 K
JET-41	0+70 °C	2 K	RTKSA-100.110	0+50 °C	1.3 K
JET-41F	0+70 °C	2 K	RTKSA-101.110	0+50 °C	1.3 K

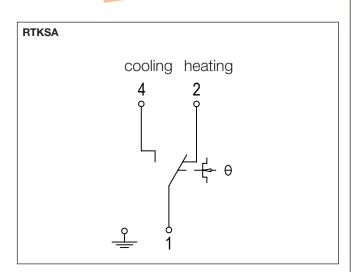
TR = temperature controller, TW = temperature monitor



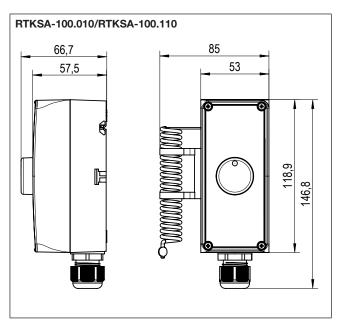
Plant room thermostat RTKSA

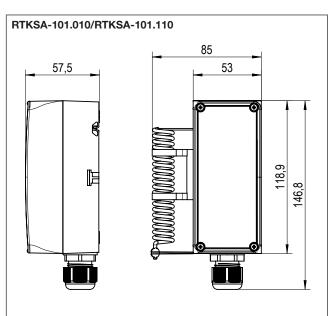
Capillary system – external sensors





NEW





NEW Scan the QR code now and watch the "New thermostats in plant engineering" product film. More information at a glance.



Capillary system – external sensors – 2 separate setting ranges



	Technical data		Application
	Colour:	Anthracite grey (similar to RAL 7016), front side transparent	RTKSA plant room thermostats were specially developed for
	Sensor material:	V4A	use in industrial halls, exhibition
0 0/0 0	Max. sensor temperature	Top scale value +15%	halls, air halls and greenhouses. When used as a frost protection
	Max. head temperature:	50 °C	controller, the higher tolerances
	Permissible atmospheric humidity:	Max. 95% rel. humidity, non-condensing	at the end of the scale must be observed.
	Operating voltage:	none	
ale ale	Max. switching current:	NC contact: 16 (2.5) A at 230 VAC +10% 0.25 A at 230 VDC +10% NO contact:	2 separate setting ranges, heat- ing and/or cooling.
		6.3 (2.5) A at 230 VAC +10% 0.25 A at 230 VDC +10%	Type testing by TÜV in accor- dance with DIN EN 14597
	Min. switching current:	Min. 100 mA at 24 V (AC/DC)	
	Max. switching voltage:	230 VAC 50/60 Hz, 230 VDC	R
	Min. switching voltage:	24 VAC/50 Hz, 24 VDC	
	Switching element:	microswitch	
	Switching contact:	2 x togglers, potential-free	Cenriift
	Control function:	Heating or cooling, heating and cooling	Cortait
	Hysteresis:	1.3 K	
	Electrical connection:	Push-in terminals	
	Mounting/attachment:	wall mounting	
	Protection class:	I	
	Protection rating:	IP 54 (optionally IP 65)	
	Safety and EMC:	In accordance with DIN EN 60730 (VDE 0631)	
	Sensor:	liquid-filled capillary	
	General features:	Scale: degrees Celsius	

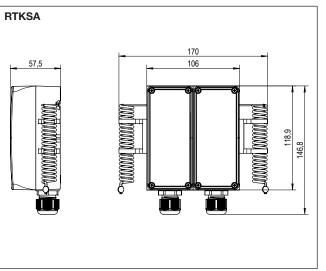
Туре	Item no.	1st Control range	2nd Control range	Features	PG
RTKSA-114.110	KA011100	0…+50 °C (TW, internal)	0+50 °C (TW, internal)	2 x internal setting	11
RTKSA-114.010	KA011101	-10+40 °C (TW, internal)	-10+40 °C (TW, internal)	2 x internal setting	II

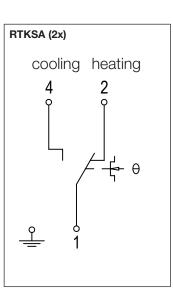
TW = temperature monitor

Type comparison (old/new type)

Old alre types	Control range	Hystere- sis	New alre types	Control range	Hystere- sis
JET-30	10…45 °C (external) TR 0…35 °C (internal) TW	approx. 1 K	RTKSA-114.110	0+50 °C (internal) TW	1.3 K
JET-31	10 +45 °C (internal) TW 0 +35 °C (internal) TW	approx. 1 K		0…+50 °C (internal) TW	

TR = temperature controller, TW = temperature monitor







Scan the QR code now and watch the "New thermostats in plant engineering" product film. More information at a glance.



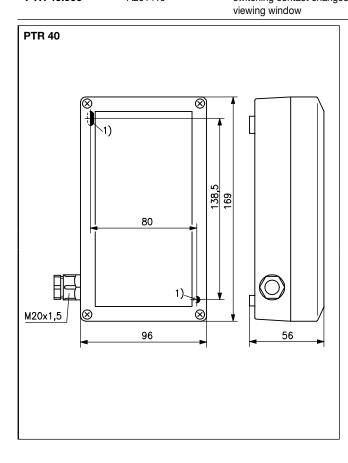


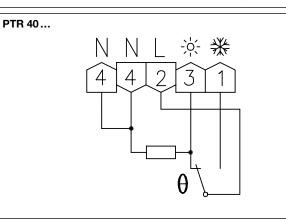
Wet room thermostat PTR 40

Bimetal

Technical data		Application
Housing colour:	grey (lower part like RAL 7016, upper part like RAL 7035)	Control and monitoring of tempera- tures of certain open spaces, for
Ambient temperature:	–20…+60 °C	example, driveways or damp rooms
Permissible atmospheric humidity:	Max. 95% rel. humidity, non-condensing	(greenhouses, sheds, warehouses and basements, garages, etc.).
Operating voltage:	230 VAC, 50 Hz	
Max. switching current:	heating (terminal 3) 10 (4) A, cooling (terminal 1) 5 (2) A	
Max. switching voltage:	230 VAC, 50 Hz	
Min. switching voltage:	230 VAC, 50 Hz	
Switching element:	bimetallic contact	
Control range:	–20…+30 °C	
Hysteresis:	approx. 2 K at a temperature change of max. 4 K/h	
Electrical connection:	screw-type terminals 0.12 mm ² to 2.5 mm ²	
Mounting/attachment:	wall mounting	
Protection rating:	IP 65	
Protection class:	II	
Safety and EMC:	according to DIN EN 60730	
Sensor:	bimetal	
Function type:	TW (temperature monitor)	
General features:	thermal feedback, internal setting, scale: degrees Celsius	







Plant engineering

alre Universal capillary thermostat RTKSA Capillary system – **TÜV-tested**



Technical data Application Colour: Anthracite grey (similar to FAL 7016, front side transparent This series of devices was specially drot side transparent Sensor length: 2 n Max. sensor temperature: To p scale value ±15% Max. sensor temperature: 80 °C Permissible atmospheric humidity: Max. 55% rel. humidity, non-condensition technology: Operating voltage: nore Max. switching current: NC contact: 16 (2.5) A at 230 VDC ±10% 0.25 A at 230 VDC ±10% NO contact TR/TW/STW: 53 (2.5) A at 230 VDC ±10% No. switching ourrent: Min. switching ourrent: Max. switching outage: 20 VAC 50/60 Hz, 230 VDC ±10% Nin. switching outage: 20 VAC 50/60 Hz, 230 VDC ±10% Max. switching outage: 230 VAC 50/60 Hz, 230 VDC Min. switching outage: 230 VAC 50/60 Hz, 230 VDC Switching cortext: toggler, potential-free Control range: heating or cooling Electrical connection: Push-in terminals Mounting/Attachmet: VISA-xxx.x0X IP 40, FTKSA-xxx.x1X IP 54, optonal IP 65 Switching oentact: Loggler, potential-free Lectrical connection <td< th=""><th></th><th></th><th></th><th></th></td<>				
Font side transparent Cu developed for use in heating technology: in bolier systems or storage tanks; district Sensor length: 2 n Max. sensor temperature: 80 °C Permissible atmospheric costale value +15% Max. sensor temperature: 80 °C Permissible atmospheric costale value +15% Max. sensor temperature: 80 °C Permissible atmospheric none Max. sensor temperature: Noc contact: Id (2.5) A at 230 VAC +10% No contact TB: Operating voltage: none Max. switching current: NC contact TB: 0.26 A at 230 VAC +10% No contact TB: 0.26 A at 230 VAC +10% No contact TB: 0.26 A at 230 VAC +10% No contact TB: 0.26 A at 230 VAC +10% No contact TB: 0.26 A at 230 VAC +10% No contact TB: 0.26 A at 230 VAC +10% No contact TB: 0.26 A at 230 VAC +10% No to material free Nin. switching voltage: Nu contact TB: 2.0 (A /A at 230 VAC +10% No contact TB: 2.0 VAC /50 Hz, 24 VAC Potestion colise resonaction (memsion sleeves, protection colise resonaction (memsion sleeves) protec		Technical data		Application
 Sensor length: 2 m Max. sensor temperature Max. head temperature: 80 °C Max. bead temperature: 80 °C Max. sensor temperature: 80 °C Max. 65% rel. humidity, non-condensity Operating voltage: Max. switching current: Mc contact: 16 (2.5) At 230 VAC +10% 0.25 A at 230 VAC +10%		Colour:		developed for use in heating technology;
Sensor length: 2 m Max. sensor temperature Top scale value +15% Max. head temperature 80 °C Permissible atmospheric Max, 95% rel, humidity, non-condensing Operating voltage: NC contact: Max. switching current: NC contact TR/TW/STW: Max. switching current: NC contact TR/TW/STW: Max. switching current: Min. 100 mA at 230 VAC +10% V.25 A at 230 VDC +10% VAC stale 230 VDC +10% V.25 A at 230 VDC +10% VAC stale 230 VDC +10% V.25 A at 230 VDC +10% VAC stale 230 VDC +10% Min. switching current: Min. 100 mA at 24 V (AC/DC) Max. switching voltage: 24 VAC/50 Hz, 24 VDC Min. switching corrent: Switching contact: Max. switching contact: toggler, potential-free Mounting/attachment: Push-in terminals Mounting/attachment: Wall mounting or with optional process connection (mmersion sleeve, protection coils of the pipe mounting) Protection calass: I Protection rating: RTKSA-xxx.XX I/P 54, optional IP 65 Safety and EMC: In accordance with DIN EN 60730 (VDE 6631) Sensor: liquid-filled capillary		Sensor material:	Cu	
Max. sensor temperature Top scale value +15% for supply air or as limiters for electrical heating coils, as well as for controlling and monitoring temperatures in pipelines and tanks. Permissible atmospheric humidity. Max. s6% rel. humidity, non-condensing Operating voltage: nore Max. switching current: NC contact: 16 (2.5) A at 230 VAC +10% 0.25 A at 230 VAC +10% 0.25 A at 230 VAC +10% 0.25 A at 230 VAC +10% 0.25 A at 230 VAC +10% 0.25 A at 230 VAC +10% 0.25 A at 230 VAC +10% 0.25 A at 230 VAC +10% 0.25 A at 230 VAC +10% 0.25 A at 230 VAC +10% 0.25 A at 230 VAC +10% 0.25 A at 230 VAC +10% 0.25 A at 230 VAC +10% 0.25 A at 230 VAC +10% 0.25 A at 230 VAC +10% 0.25 A at 230 VAC +10% 0.25 A at 230 VAC +10% 0.25 A at 230 VAC +10% 0.25 A at 230 VAC +10% 0.25 A at 230 VAC +10% 0.25 A at 230 VAC +10% 0.25 A at 230 VAC +10% 0.25 A at 230 VAC +10% 0.25 A at 230 VAC +10% 0.26 Control range: Min. 100 mA at 24 V (AC/DC) Max. switching oottage: Painterinal-free Control range: Heating or coil or mounting set JZ-31 for pipe mounting set JZ-31 for pipe mounting set JZ-31 for pipe mounting set JZ-31 for		Sensor length:	2 m	0
Permissible atmospheric humidity: Max. 95% rel. humidity, non-condensign and monitoring temperatures in pipelines and tanks. Operating voltage: none Max. switching current: Mc Contact: 16 (2.5) A at 230 VAC +10% D.25 A at 230 VAC +10% D.25 A at 230 VAC +10% NC contact TR/TW/STW: 0.3 (2.5) A at 230 VAC +10% NC contact TR/TW/STW: 0.3 (2.5) A at 230 VAC +10% NC contact TR/TW/STW: 0.3 (2.5) A at 230 VAC +10% NC contact TB: 0.25 A at 230 VAC +10% NC contact TB: 0.25 A at 230 VAC +10% NC contact TB: 0.26 A at 230 VAC +10% NC contact TB: 0.26 A at 230 VAC +10% NC contact TB: 0.26 A at 230 VAC +10% NC contact TB: 0.26 A at 230 VAC +10% NC contact TB: 0.25 A at 230 VAC +10% NC contact TB: 0.26 A at 230 VAC +10% NC contact TB: 0.26 A at 230 VAC +10% NC contact TB: 0.27 At 230 VAC +10% NC contact TB: 0.26 At 230 VAC +10% NC contact Non time voltage: Non. In accordance with Min. switching voltage: Public time voltage Nounting st NC contact		Max. sensor temperature	Top scale value +15%	
Initiality:	40 - 60 - 80 20 100	Max. head temperature:	80 °C	o
Max. switching current: NC contact: 16 (2.5) A at 230 VAC +10% 0.25 A at 230 VAC +10% NO contact TR/TW/STW: 6.3 (2.5) A at 230 VAC +10% NO contact TB: 2.0 (0.4) A at 230 VAC +10% ND contact CD: Solve Control range: Electrical connection: Mounting valtachment: Wall mounting or with optional pro- cess connection (immersion sleeve, protection coil or mounting set JZ-31 for pipe mounting) Protection class: I Protection class: I Protection class: I Protection class: I Protection class: I Protection class: I Protection rating: Safety and EMC: I iquid-filled capillary		-		
Max. switching current: NC contact: 16 (2.5) A at 230 VAC +10% 0.25 A at 230 VAC +10% NO contact TR/TW/STW: 6.3 (2.5) A at 230 VAC +10% NO contact TB: 2.0 (0.4) A at 230 VAC +10% NMin. switching voltage: mounting sets are not included in the scope of delivery. The JZ-29 mounting set must be used in conjunction with immersion sleeves or protection coils. When used as contact controller (pipe mounting), mounting set JZ-31 must be used. Min. switching current: Min. 100 mA at 24 V (AC/DC) 0.25 A at 230 VDC +10% No contact: Type testing by TÜV in accordance with DIN EN 14597 Min. switching voltage: 24 VAC/50 Hz, 24 VDC microswitch Type testing by TÜV in accordance with DIN EN 14597 Switching contact: toggler, potential-free heating or cooling Push-in terminals Mounting/attachment: Wall mounting or with optional pro- cess connection (immersion sleeve, protection coil or mounting set JZ-31 for pipe mounting) F4, RTKSA-xxx.x1x IP 54, optional IP 65 Safety and EMC: In accordance with DIN EN 60730 (VDE 0631) Rigud-filled capillary	0* 120	Operating voltage:	none	Immersion slooves, protection soils and
Max. switching voltage:230 VAC 50/60 Hz, 230 VDCDIN EN 14597Min. switching voltage:24 VAC/50 Hz, 24 VDCSwitching contact:microswitchSwitching contact:toggler, potential-freeControl range:heating or coolingElectrical connection:Push-in terminalsMounting/attachment:Wall mounting or with optional process connection (immersion sleeve, protection col or mounting set JZ-31 for pipe mounting)Protection class:IProtection rating:RTKSA-xxx.x0x IP 40, RTKSA-xxx.x1x IP 54, optional IP 65Safety and EMC:In accordance with DIN EN 60730 (VDE 0631)Sensor:liquid-filled capillary		Max. switching current:	16 (2.5) A at 230 VAC +10% 0.25 A at 230 VDC +10% NO contact TR/TW/STW: 6.3 (2.5) A at 230 VAC +10% 0.25 A at 230 VDC +10% NO contact TB: 2.0 (0.4) A at 230 VAC +10%	mounting sets are not included in the scope of delivery. The JZ-29 mounting set must be used in conjunction with immersion sleeves or protection coils. When used as contact controller (pipe mounting), mounting set JZ-31 must be
Min. switching voltage: 24 VAC/50 Hz, 24 VDC Switching element: microswitch Switching contact: toggler, potential-free Control range: heating or cooling Electrical connection: Push-in terminals Mounting/attachment: Wall mounting or with optional process connection (immersion sleeve, protection coil or mounting set JZ-31 for pipe mounting) Protection class: I Protection rating: RTKSA-xxx.x0x IP 40, RTKSA-xxx.x1x IP 54, optional IP 65 Safety and EMC: In accordance with DIN EN 60730 (VDE 0631) Sensor: liquid-filled capillary		Min. switching current:	Min. 100 mA at 24 V (AC/DC)	
Switching element:microswitchSwitching contact:toggler, potential-freeControl range:heating or coolingElectrical connection:Push-in terminalsMounting/attachment:Wall mounting or with optional pro- cess connection (immersion sleeve, protection coil or mounting set JZ-31 for pipe mounting)Protection class:IProtection rating:RTKSA-xxx.x0x IP 40, RTKSA-xxx.x1x IP 54, optional IP 65Safety and EMC:In accordance with DIN EN 60730 (VDE 0631)Sensor:liquid-filled capillary		Max. switching voltage:	230 VAC 50/60 Hz, 230 VDC	DIN EN 14597
Switching contact:toggler, potential-freeControl range:heating or coolingElectrical connection:Push-in terminalsMounting/attachment:Wall mounting or with optional process connection (immersion sleeve, protection coil or mounting set JZ-31 for pipe mounting)Protection class:IProtection rating:RTKSA-xxx.x0x IP 40, RTKSA-xxx.x1x IP 54, optional IP 65Safety and EMC:In accordance with DIN EN 60730 (VDE 0631)Sensor:liquid-filled capillary		Min. switching voltage:	24 VAC/50 Hz, 24 VDC	
Control range: heating or cooling Electrical connection: Push-in terminals Mounting/attachment: Wall mounting or with optional process connection (immersion sleeve, protection coil or mounting set JZ-31 for pipe mounting) Protection class: I Protection rating: RTKSA-xxx.x0x IP 40, RTKSA-xxx.x1x IP 54, optional IP 65 Safety and EMC: In accordance with DIN EN 60730 (VDE 0631) Sensor: liquid-filled capillary		Switching element:	microswitch	
Electrical connection: Push-in terminals Mounting/attachment: Wall mounting or with optional process connection (immersion sleeve, protection coil or mounting set JZ-31 for pipe mounting) Protection class: I Protection rating: RTKSA-xxx.x0x IP 40, RTKSA-xxx.x1x IP 54, optional IP 65 Safety and EMC: In accordance with DIN EN 60730 (VDE 0631) Sensor: liquid-filled capillary		Switching contact:	toggler, potential-free	
Mounting/attachment: Wall mounting or with optional process connection (immersion sleeve, protection coil or mounting set JZ-31 for pipe mounting) Protection class: I Protection rating: RTKSA-xxx.x0x IP 40, RTKSA-xxx.x1x IP 54, optional IP 65 Safety and EMC: In accordance with DIN EN 60730 (VDE 0631) Sensor: liquid-filled capillary		Control range:	heating or cooling	
cess connection (immersion sleeve, protection coil or mounting set JZ-31 for pipe mounting) Protection class: I Protection rating: RTKSA-xxx.x0x IP 40, RTKSA-xxx.x1x IP 54, optional IP 65 Safety and EMC: In accordance with DIN EN 60730 (VDE 0631) Sensor: liquid-filled capillary		Electrical connection:	Push-in terminals	
Protection rating: RTKSA-xxx.x0x IP 40, RTKSA-xxx.x1x IP 54, optional IP 65 Safety and EMC: In accordance with DIN EN 60730 (VDE 0631) Sensor: liquid-filled capillary		Mounting/attachment:	cess connection (immersion sleeve, protection coil or mounting set	Gepruft
RTKSA-xxx.x1x IP 54, optional IP 65 Safety and EMC: In accordance with DIN EN 60730 (VDE 0631) Sensor: liquid-filled capillary		Protection class:	I	
(VDE 0631) Sensor: liquid-filled capillary		Protection rating:	RTKSA-xxx.x1x IP 54,	
		Safety and EMC:		
General features: Scale: degrees Celsius		Sensor:	liquid-filled capillary	
		General features:	Scale: degrees Celsius	

Туре	Item no.	Control range	Hysteresis	Sensor Ø x L	Features	PG
RTKSA-000.100	KA000000	050 °C	1.3 K	6 x 175 mm	TR, external setting	II
RTKSA-000.200	KA000001	0120 °C	3 K	6 x 87 mm	TR, external setting	II
RTKSA-000.300	KA000002	20150 °C	9.1 K	6 x 56 mm	TR, external setting	II
RTKSA-001.100	KA000100	050 °C	1.3 K	6 x 175 mm	TW, internal setting	II
RTKSA-001.200	KA000101	0120 °C	3 K	6 x 87 mm	TW, internal setting	II
RTKSA-001.300	KA000102	20150 °C	9.1 K	6 x 56 mm	TW, internal setting	II
RTKSA-001.301	KA000103	20150 °C	3.3 K	6 x 82 mm	TW, internal setting	II
RTKSA-002.310	KA000201	20150 °C	-1015 K*	6 x 55 mm	TB, internal setting, external reset	II
RTKSA-002.410	KA000200	30110 °C	-1015 K*	6 x 72 mm	TB, internal setting, external reset	II
RTKSA-003.310	KA000300	20150 °C	-1015 K*	6 x 55 mm	STB, internal setting, external reset	II
RTKSA-004.310	KA000400	20150 °C	–10 K	6 x 55 mm	STW, internal setting	II

TR = temperature controller, TW = temperature monitor, TB = temperature limiter, STB = safety temperature limiter, STW = safety temperature monitor * Manual reset after cooling down by 10–15 K (depending on configured setpoint)

Universal capillary thermostat RTKSA Capillary system – **TÜV-tested**



NEW

Accessories	Item no.	Length of	Material	Diameter IxA**	Features	PG
THK-2-100	KA969901	100 mm	nickel-plated brass	7.5 x 10 mm	Immersion sleeve	II
THK-2-120	KA969902	120 mm	nickel-plated brass	7.5 x 10 mm	Immersion sleeve	II
THK-2-200	KA969903	200 mm	nickel-plated brass	7.5 x 10 mm	Immersion sleeve	II
THK-2-280	KA969904	280 mm	nickel-plated brass	7.5 x 10 mm	Immersion sleeve	II
THK-2-600	KA969905	600 mm	nickel-plated brass	7.5 x 10 mm	Immersion sleeve	II
NTHK-2-100	KA969906	100 mm	V4A (1.4571)	7.5 x 10 mm	Immersion sleeve	II
NTHK-2-120	KA969907	120 mm	V4A (1.4571)	7.5 x 10 mm	Immersion sleeve	II
NTHK-2-200	KA969908	200 mm	V4A (1.4571)	7.5 x 10 mm	Immersion sleeve	II
NTHK-2-280	KA969909	280 mm	V4A (1.4571)	7.5 x 10 mm	Immersion sleeve	II
SWK-2-100	KA989901	100 mm	steel, nickel-plated	10.5 x 17 mm	Protection coil with flange plate	II
SWK-2-200	KA989903	200 mm	steel, nickel-plated	10.5 x 17 mm	Protection coil with flange plate	II

** I = minimum inner diameter / A = nominal outer diameter

See page 218–219 for pictures and dimension diagrams for immersion sleeves/protection coils

Accessories	Item no.	Features	PG
JZ-29	KA999901	Mounting set RTKSA for THK/NTHK/SWK individual controllers	II
JZ-31	KA999903	Mounting set RTKSA for pipe mounting contact controller (worm screw clamp)	II

Type comparison (old/new type)

KR 80.312 fixed at 100 °C -20 K LR 80.312 fixed at 100 °C -20 K KR 80.312 fixed at 100 °C -20 K LR 80.318 fixed at 100 °C -20 K KR 80.318 fixed at 100 °C -20 K KR 80.309 fixed at 75 °C -20 K KR 80.309 fixed at 75 °C -20 K KR 80.310 fixed at 75 °C -20 K KR 80.310 fixed at 75 °C -20 K KR 80.206 3065 °C -8 K KR 80.206 3065 °C -8 K KR 80.207 6095 °C -8 K KR 80.207 6095 °C -8 K KR 80.203 95130 °C
KR 80.318 fixed at 100 °C -20 K LR 80.318 fixed at 100 °C -20 K KR 80.309 fixed at 75 °C -20 K LR 80.310 fixed at 75 °C -20 K KR 80.310 fixed at 75 °C -20 K LR 80.310 fixed at 75 °C -20 K KR 80.206 3065 °C -8 K KR 80.206 IP 54 3065 °C -8 K KR 80.207 6095 °C -8 K KR 80.208 85120 °C -8 K KR 80.203 95130 °C -8 K KR 80.203 IP 54 95130 °C -8 K KR 80.203 IP 54 95130 °C
LR 80.318 fixed at 100 °C -20 K RTKSA-003.310 20150 °C -10 K SWK-2-200 LR 80.309 fixed at 75 °C -20 K PTKSA-003.310 20150 °C -10 K SWK-2-100 THK-2-100 + JZ-29 SWK-2-200 KR 80.309 fixed at 75 °C -20 K PTKSA-003.310 20150 °C -10 K SWK-2-100 THK-2-100 + JZ-29 SWK-2-200 KR 80.310 fixed at 75 °C -20 K PTKSA-002.410 30110 °C PTHK-2-100 + JZ-29 SWK-2-200 KR 80.206 3065 °C -8 K PTKSA-002.410 30110 °C -10 K THK-2-100 + JZ-29 KR 80.207 6095 °C -8 K PTKSA-002.410 30110 °C PTHK-2-100 + JZ-29 THK-2-100 + JZ-29 KR 80.203 95130 °C -8 K PTKSA-002.310 20150 °C PTHK THK-2-100 + JZ-29 KR 80.203 95130 °C -8 K PTKSA-002.310 20150 °C PTHK THK-2-100 + JZ-29 KR 80.203 95130 °C -8 K PTKSA-002.310 20150 °C PTHK PTHK-2-100 +
KR 80.309 fixed at 75 °C -20 K RTKSA-003.310 20150 °C -10 K THK-2-100 + JZ-29 SWK-2-100 LR 80.309 fixed at 75 °C -20 K KR 80.310 fixed at 75 °C -20 K THK-2-200 + JZ-29 SWK-2-100 LR 80.310 fixed at 75 °C -20 K FTKSA-003.310 20150 °C -10 K THK-2-100 + JZ-29 LR 80.206 3065 °C -20 K FTKSA-002.410 30110 °C -10 K THK-2-100 + JZ-29 KR 80.206 IP 54 3065 °C -8 K FTKSA-002.410 30110 °C -10 K THK-2-100 + JZ-29 KR 80.207 6095 °C -8 K FTKSA-002.410 30110 °C -10 K THK-2-100 + JZ-29 KR 80.202 95130 °C -8 K FTKSA-002.310 20150 °C -10 K THK-2-100 + JZ-29 KR 80.203 95130 °C -8 K FTKSA-002.310 20150 °C -10 K THK-2-200 + JZ-29 KR 80.203 95130 °C -8 K FTKSA-002.310 20150 °C -10 K THK-2-200 + JZ-29 KR 80.203
KR 80.309 fixed at 75 °C -20 K THK-2-100 + JZ-29 LR 80.309 fixed at 75 °C -20 K SWK-2-100 KR 80.310 fixed at 75 °C -20 K THK-2-200 + JZ-29 LR 80.310 fixed at 75 °C -20 K SWK-2-200 LR 80.310 fixed at 75 °C -20 K THK-2-100 + JZ-29 KR 80.206 3065 °C -8 K THK-2-100 + JZ-29 KR 80.207 6095 °C -8 K THK-2-100 + JZ-29 LR 80.207 6095 °C -8 K THK-2-100 + JZ-29 KR 80.208 85120 °C -8 K THK-2-100 + JZ-29 KR 80.203 95130 °C -8 K THK-2-100 + JZ-29 KR 80.203 95130 °C -8 K THK-2-100 + JZ-29 KR 80.203 95130 °C -8 K THK-2-100 + JZ-29 KR 80.203 95130 °C -8 K SWK-2-200 KR 80.203 95130 °C -8 K SWK-2-200 KR 80.203 95130 °C -8 K THK-2-200 + JZ-29 KR 80.203 IP 54 95130 °C
KR 80.310 fixed at 75 °C -20 K THK-2-20 + JZ-29 LR 80.310 fixed at 75 °C -20 K SWK-2-200 KR 80.206 3065 °C -8 K FKR 80.206 THK-2-100 + JZ-29 KR 80.206 IP 54 3065 °C -8 K THK-2-100 + JZ-29 THK-2-100 + JZ-29 KR 80.207 6095 °C -8 K THK-2-100 + JZ-29 THK-2-100 + JZ-29 LR 80.207 6095 °C -8 K THK-2-100 + JZ-29 SWK-2-100 KR 80.208 85120 °C -8 K THK-2-100 + JZ-29 SWK-2-100 KR 80.202 95130 °C -8 K THK-2-100 + JZ-29 THK-2-100 + JZ-29 KR 80.203 95130 °C -8 K THK-2-100 + JZ-29 THK-2-100 + JZ-29 KR 80.203 95130 °C -8 K Z0150 °C -10 K THK-2-200 + JZ-29 KR 80.203 IP 54 95130 °C -8 K THK-2-200 + JZ-29 THK-2-200 + JZ-29
LR 80.310 fixed at 75 °C -20 K SWK-2-200 KR 80.206 3065 °C -8 K THK-2-100 + JZ-29 KR 80.206 IP 54 3065 °C -8 K 1HK-2-100 + JZ-29 KR 80.207 6095 °C -8 K 1HK-2-100 + JZ-29 LR 80.207 6095 °C -8 K 1HK-2-100 + JZ-29 KR 80.208 85120 °C -8 K YHK-2-100 KR 80.202 95130 °C -8 K THK-2-100 + JZ-29 KR 80.203 95130 °C -8 K THK-2-100 + JZ-29 KR 80.203 95130 °C -8 K 20150 °C -10 K KR 80.203 95130 °C -8 K 20150 °C -10 K KR 80.203 95130 °C -8 K 20150 °C -10 K KR 80.203 IP 54 95130 °C -8 K YHK-2-200 + JZ-29
KR 80.206 3065 °C -8 K THK-2-100 + JZ-29 KR 80.206 IP 54 3065 °C -8 K KR 80.207 6095 °C -8 K ILR 80.207 6095 °C -8 K KR 80.208 85120 °C -8 K KR 80.202 95130 °C -8 K KR 80.203 95130 °C -8 K KR 80.203 IP 54 95130 °C -8 K
KR 80.206 IP 54 3065 °C -8 K RTKSA-002.410 30110 °C -10 K THK-2-100 + JZ-29 THK-2-200 + JZ-29 TH
KR 80.207 6095 °C -8 K RTKSA-002.410 30110 °C -10 K THK-2-100 + JZ-29 LR 80.207 6095 °C -8 K SWK-2-100 SWK-2-100 KR 80.208 85120 °C -8 K THK-2-100 + JZ-29 SWK-2-100 KR 80.202 95130 °C -8 K THK-2-100 + JZ-29 THK-2-100 + JZ-29 KR 80.203 95130 °C -8 K THKSA-002.310 20150 °C -10 K LR 80.203 95130 °C -8 K THK-2-200 + JZ-29 SWK-2-200 THK-2-200 + JZ-29 KR 80.203 IP 54 95130 °C -8 K THK-2-200 + JZ-29 SWK-2-200
KR 80.207 6095 °C -8 K THK-2-100 + JZ-29 LR 80.207 6095 °C -8 K SWK-2-100 KR 80.208 85120 °C -8 K THK-2-100 + JZ-29 KR 80.202 95130 °C -8 K THK-2-100 + JZ-29 KR 80.203 95130 °C -8 K THKSA-002.310 20150 °C -10 K THK-2-200 + JZ-29 LR 80.203 95130 °C -8 K THKSA-002.310 20150 °C -10 K THK-2-200 + JZ-29 KR 80.203 95130 °C -8 K THKSA-002.310 20150 °C -10 K THK-2-200 + JZ-29 KR 80.203 95130 °C -8 K THK THK-2-200 + JZ-29 THK-2-200 + JZ-29 KR 80.203 IP 54 95130 °C -8 K THK-2-200 + JZ-29 THK-2-200 + JZ-29
KR 80.208 85120 °C -8 K THK-2-100 + JZ-29 KR 80.202 95130 °C -8 K THK-2-100 + JZ-29 KR 80.203 95130 °C -8 K THK-2-100 + JZ-29 LR 80.203 95130 °C -8 K THK-2-200 + JZ-29 KR 80.203 IP 54 95130 °C -8 K SWK-2-200
KR 80.202 95130 °C -8 K THK-2-100 + JZ-29 KR 80.203 95130 °C -8 K 20150 °C -10 K THK-2-200 + JZ-29 LR 80.203 95130 °C -8 K SWK-2-200 SWK-2-200 KR 80.203 IP 54 95130 °C -8 K THK-2-200 + JZ-29
KR 80.203 95130 °C -8 K RTKSA-002.310 20150 °C -10 K THK-2-200 + JZ-29 LR 80.203 95130 °C -8 K RTKSA-002.310 20150 °C 10 K THK-2-200 + JZ-29 KR 80.203 IP 54 95130 °C -8 K THK-2-200 + JZ-29 THK-2-200 + JZ-29
LR 80.203 95130 °C -8 K SWK-2-200 KR 80.203 IP 54 95130 °C -8 K THK-2-200 + JZ-29
KR 80.203 IP 54 95 130 °C -8 K THK-2-200 + JZ-29
KR 80.003-1 035 °C 1 K RTKSA-000.100 050 °C 1.3 K THK-2-120 + JZ-29
LR 80.003-1 035 °C 1 K SWK-2-120
WR 81.009-2 070 °C 1 2 K
KR 80.035-2 070 °C 2 K THK-2-100 + JZ-29
KR 80.027-5 070 °C 5 K THK-2-100 + JZ-29
LR 80.027-5 070 °C 5 K SWK-2-100
LR 80.035-2 070 °C 2 K SWK-2-100
KR 80.028-2 070 °C 2 K THK-2-200 + JZ-29
LR 80.028-2 070 °C 2 K SWK-2-200
KR 80.029-2 070 °C 2 K RTKSA-000.200 0120 °C 3 K THK-2-280 + JZ-29
KR 80.029-2 V4A 070 °C 3 K NTHK-2-280 + JZ-29
LR 80.029-2 070 °C 2 K SWK-2-280
KR 80.011-1 V4A 1045 °C 1 K NTHK-2-120 + JZ-29
KR 80.009-1 V4A 1045 °C 1 K NTHK-2-200 + JZ-29
KR 80.000-5 3595 °C 5 K THK-2-100 + JZ-29
KR 80.001-5 3595 °C 5 K THK-2-200 + JZ-29
KR 80.001-5 V4A 3595 °C 5 K NTHK-2-200 + JZ-29
KR 80.008-8 40110 °C 8 K THK-2-100 + JZ-29

re

Catalogue 2020 | Page 161

a Ino **Universal capillary thermostat RTKSA** Capillary system – **TÜV-tested**

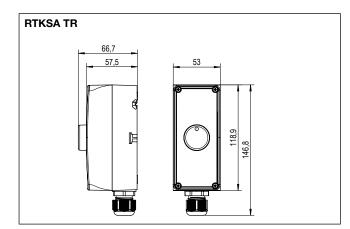


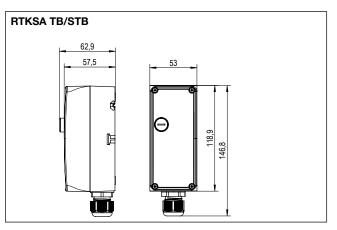
Type comparison (old/new type)

Old alre types	Control range	Hysteresis	New alre types	Control range	Hysteresis	Accessories
KR 80.006-8	50130 °C	8 K	RTKSA-000.300	20150 °C	9.1 K	THK-2-100 + JZ-29
WR 81.101-1	035 °C	0.51 K				-
WR 81.129-1	035 °C	0.51 K				-
KR 80.108-1	035 °C	1 K	RTKSA-001.100	0…50 °C	1.3 K	THK-2-120 + JZ-29
LR 80.108-1	035 °C	1 K	HINSA-001.100	050 C	1.5 K	SWK-120
KR 80.109-1	035 °C	1 K				THK-2-200 + JZ-29
LR 80.109-1	035 °C	1 K				SWK-2-200
WR 81.115-5	070 °C	4 K				JZ-31
WR 81.109-2	070 °C	12 K				-
KR 80.116-2	070 °C	2 K				THK-2-100 + JZ-29
LR 80.116-2	070 °C	2 K	RTKSA-001.200	0120 °C	3 K	SWK-2-100
KR 80.111-3	0…80 °C	1 K				THK-2-100 + JZ-29
KR 80.120-1	10 45 °C	1 K				THK-2-200 + JZ-29
LR 80.120-1	10 45 °C	1 K				SWK-2-200
KR 80.100-5	35 95 °C	5 K				THK-2-100 + JZ-29
KR 80.100-5 IP 54	35 95 °C	5 K				NTHK-2-100 + JZ-29
KR 80.101-5	35 95 °C	5 K	RTKSA-001.301	20150 °C	3.3 K	THK-2-200 + JZ-29
LR 80.101-5	35 95 °C	5 K				SWK-2-200
KR 80.124-5	35 95 °C	5 K				THK-2-280 + JZ-29
KR 80.112-5	35 95 °C	8 K				THK-2-600 + JZ-29
KR 80.102-8	40110 °C	8 K				THK-2-100 + JZ-29
KR 80.103-8	40110 °C	8 K	RTKSA-001.300	20150 °C	9.1 K	THK-2-200 + JZ-29
WR 81.117-5	50130 °C	4 K				JZ-31
KR 80.006-8	50130 °C	8 K				THK-2-100 + JZ-29



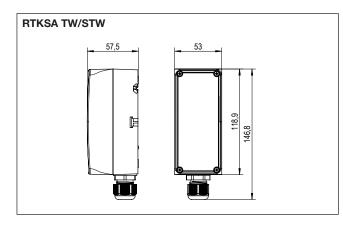


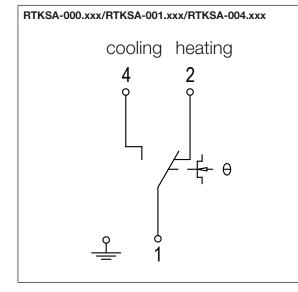






Universal capillary thermostat RTKSA Capillary system – **TÜV-tested**

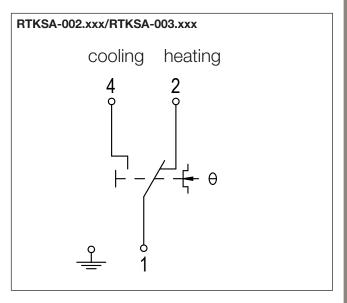




NEW Scan the QR code now and watch the "New thermostats in plant engineering" product film. More information at a glance.



NEW







Plant engineering



Technical data		Application
	Anthracite grey (similar to RAL7016), front side transparent	This series of devices was specially developed for use in heating technology
Sensor material:	Cu	in boiler systems or storage tanks; distri
Sensor length:	2 m	heating transfer stations and heat transf systems; in ventilation technology to mo
Max. sensor temperature	Top scale value +15%	itor supply air or as limiters for electrical
Max. head temperature:	Max. 95% rel. humidity, non-con-	heating coils, as well as for controlling
		and monitoring temperatures in pipeline and tanks.
Operating voltage:	none	Immercian classical protection spile and
	NC contact: 16 (2.5) A at 230 VAC +10% 0.25 A at 230 VDC +10%	Immersion sleeves, protection coils and mounting set JZ-31 for pipe mounting an not included in the scope of delivery.
	NO contact TR/TW: 6.3 (2.5) A at 230 VAC +10% 0.25 A at 230 VDC +10% NO contact TB/STB:	Accessory JZ-30 must be used in conjunction with immersion sleeves.
	2.0 (0.4) A at 230 VAC +10% 0.25 A at 230 VDC +10%	Type testing by TÜV in accordance wi DIN EN 14597
Min. switching current:	Min. 100 mA at 24 V (AC/DC)	
Max. switching voltage:	230 VAC 50/60 Hz, 230 VDC	
Min. switching voltage:	24 VAC/50 Hz, 24 VDC	$\langle \rangle$
Switching element:	microswitch	
Switching contact:	2 x togglers, potential-free	
Control range:	heating or cooling	Geprüft
Electrical connection:	Push-in terminals	•
-	Wall mounting or with optional pro- cess connection (immersion sleeve or protection coil)	
Protection class:	I	
Protection rating:	IP 40, optional IP 65	
	In accordance with DIN EN 60730 (VDE 0631)	
Sensor:	liquid-filled capillary	
General features:	Scale: degrees Celsius	

Туре	Item no.	Control range	Hysteresis	Sensor Ø x L	Features	PG
RTKSA-010.200	KA001000	TR: 0 120 °C STB: 70 130 °C	TR: 3 K STB: -1015 K*	6 x 87 mm 6 x 66 mm	TR (external setting), STB (internal setting/external reset)	II
RTKSA-013.210	KA001200	TW: 0 120 °C TB: 20 150 °C	TW: 3 K TB: -1015 K*	6 x 87 mm 6 x 55 mm	TW (internal setting) TB (internal setting/external reset)	II
RTKSA-014.210	KA001100	TW: 0 120 °C TW: 0 120 °C	TW: 3 K TW: 3 K	6 x 87 mm 6 x 87 mm	2x TW (internal setting)	II

TR = temperature controller, TW = temperature monitor, TB = temperature limiter, STB = safety temperature limiter * Manual reset after cooling down by 10–15 K (depending on configured setpoint)

Accessories	Item no.	Length of	Material	Diameter IxA**	Features	PG
THK-2-100x17	KA979901	100 mm	nickel-plated brass	14.8 x 17 mm	Immersion sleeve	II
THK-2-200x17	KA979902	200 mm	nickel-plated brass	14.8 x 17 mm	Immersion sleeve	II
NTHK-2-100x17	KA979903	100 mm	V4A (1.4571)	14.8 x 17 mm	Immersion sleeve	II
NTHK-2-200x17	KA979904	200 mm	V4A (1.4571)	14.8 x 17 mm	Immersion sleeve	II
SWK-2-100	KA989901	100 mm	steel, nickel-plated	10.5 x 17 mm	Protection coil with flange plate	II
SWK-2-200	KA989903	200 mm	steel, nickel-plated	10.5 x 17 mm	Protection coil with flange plate	II

** I = minimum inner diameter / A = nominal outer diameter

See page 218-219 for pictures and dimension diagrams for immersion sleeves/protection coils



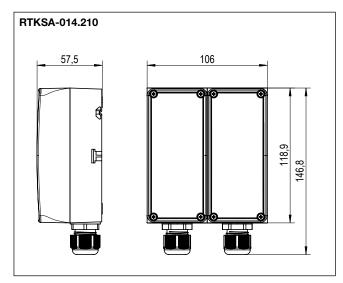
Universal capillary double thermostat RTKSA Capillary system – **TÜV-tested**

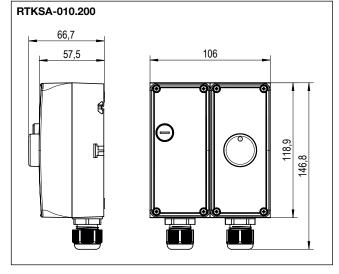
Accessories	Item no.	Features	PG
JZ-30	KA999902	Mounting set RTKSA for THK/NTHK/SWK double controllers	II

NEW

Type comparison (old/new type)

Old alre types	Control range	Hysteresis	New alre types	Control range	Hysteresis	Accessories
KR 85.100-5	TR 35 95 °C TW 35 95 °C	5 K 5 K				THK-2-100x17 + JZ-30
KR 85.406-2	TW 0 70 °C TW 0 70 °C	2 K 2 K				THK-2-100x17 + JZ-30
KR 85.101-5	TR 35 95 °C TW 35 95 °C	5 K 5 K				THK-2-200x17 + JZ-30
KR 85.102-5	TR 35 95 °C TW 50 130 °C	5 K 8 K	RTKSA-014.210	TW: 0 120 °C TW: 0 120 °C	3 K 3 K	THK-2-100x17 + JZ-30
KR 85.109-2	TR 070 °C TW 070 °C	2 K 2 K				THK-2-100x17 + JZ-30
KR 85.400-5	TW 35 95 °C TW 35 95 °C	5 K 5 K				THK-2-100x17 + JZ-30
KR 85.401-5	TW 35 95 °C TW 35 95 °C	5 K 5 K				THK-2-200x17 + JZ-30
KR 85.315-5	TR 35…95 °C STB fixed at 100 °C	5 K –20 K			3 K -1015 K	THK-2-200x17 + JZ-30
KR 85.311-2	TR 0 70 °C STB fixed at 75 °C	2 K –20 K				THK-2-100x17 + JZ-30
KR 85.312-2	TR 0 70 °C STB fixed at 75 °C	2 K –20 K		TR: 0 120 °C		THK-2-200x17 + JZ-30
KR 85.314-5	TR 35 95 °C STB fixed at 100 °C	5 K –20 K	RTKSA-010.200	STB: 7 130 °C		THK-2-100x17 + JZ-30
LR 85.315-5	TR 3595 °C STB fixed at 100 °C	5 K –20 K				SWK-2-200
LR 85.312-2	TR 0 70 °C STB fixed at 75 °C	2 K –20 K				SWK-2-200
KR 85.204-8	TR 50 130 °C TB 95 130 °C	8 K –8 K				THK-2-100x17 + JZ-30
KR 85.230-5	TR 35 95 °C TB 95 110 °C	5 K 5 K	RTKSA-013.210	TW: 0 120 °C TB: 20 150 °C	3 K -1015 K	THK-2-100x17 + JZ-30
KR 85.207-5	TR 35 95 °C TB 85 120 °C	5 K –8 K				THK-2-200x17 + JZ-30



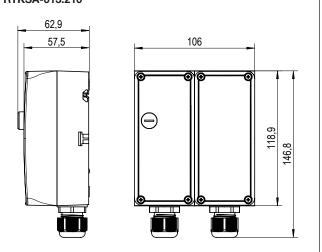




Universal capillary double thermostat RTKSA

Capillary system – **TÜV-tested**

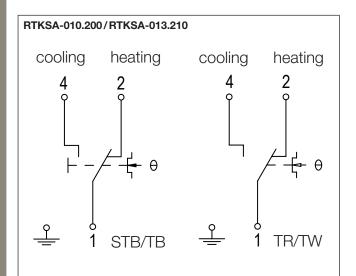




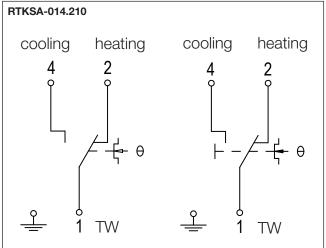
NEW Scan the QR code now and watch the "New thermostats in plant engineering" product film. More information at a glance.



NEW







Single-stage plant room thermostats JET-110/-120 Capillary system – External sensors – Configurable hysteresis



Technical data С

olour:	

Permissible atmospheric humidity:
Operating voltage:
Max. switching current:
Min. switching current:
Max. switching voltage:
Min. switching voltage:
Switching element:
Switching contact:
Control function:
Electrical connection:
Mounting/attachment:
Protection class:
Protection rating:
Safety and EMC:
Sensor:
Sensor material:
General features:

grey (lower part like RAL 7016, upper part like RAL 7035) Max. 95% rel. humidity, non-condensing none 15 (8) A 150 mA 230 VAC, 50 Hz 24 VAC, 50 Hz microswitch toggler, potential-free heating or cooling screw-type terminals wall mounting L IP 65 according to DIN EN 60730 liquid-filled capillary Cu Scale: degrees Celsius

Application
Control or monitoring of the tem- perature in the industrial domain in a non-aggressive environment, for example, for controlling heating or cooling systems in greenhouses, industrial and sports halls, air-inflated domes, cold storage and refrigeration rooms.

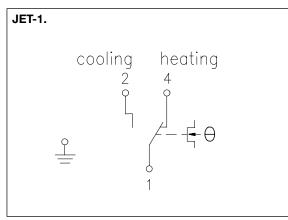
The JET-110 RF is particularly suitable as an external thermostat.

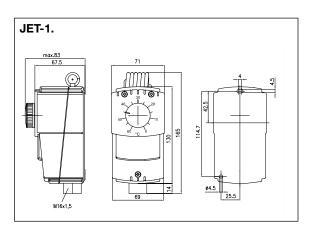
For successor types for JET-4x and JET-4x F see page 156 (plant room thermostat RTKSA)

Туре	Item no.	Control range	Max. sensor temperature	Hysteresis (approx.)	Ambient temperature	Features	PG
JET-110 R	JA045100	−35…+30 °C	35 °C	220 K adjustable	−35…+35 °C	External setting with range restriction, TR	II
JET-110 RF	JA045200	−35…+30 °C	35 °C	220 K adjustable	−35…+35 °C	Internal setting with viewing window, TW	II
JET-120 R	JA046100	0 60 °C	70 °C	220 K adjustable	−35…+70 °C	External setting with range restriction, TR	II
JET-120 RF	JA046200	0 60 °C	70 °C	220 K adjustable	−35+70 °C	Internal setting with viewing window, TW	II

TR = temperature controller, TW = temperature monitor







Technical data		Application
Housing colour: Sensor material: Capillary length: Ambient temperature: Max. sensor temperature Permissible atmospheric humidity: Operating voltage: Max. switching current: Max. switching current: Max. switching voltage: Min. switching voltage: Switching element: Switching contact: Electrical connection: Mounting/attachment: Protection rating: Protection class: Safety and EMC: Sensor: General features:	grey (lower part like RAL 7016, upper part like RAL 7035) Cu (capillaries made from V2A) 1.8 m (for types with "G" in the type specification: 4.5 m) -20+55 °C top scale value +15% Max. 95% rel. humidity, non-con- densing none 15 (8) A 150 mA 230 VAC, 50 Hz 24 VAC, 50 Hz 24 VAC, 50 Hz microswitch toggler, potential-free screw-type terminals wall mounting IP 65 I according to DIN EN 60730 liquid-filled capillary scale: degrees Celsius, mechani- cal range restriction when external setting is used	 Monitoring or control of temperatures of non-aggressive, liquid and gaseous media. Particularly suitable for wall mounting. The SW-200-12 protecting coil is to be used for temperature control of non-aggressive gases in ducts; for temperature control in non-aggressive fluids, use the TH immersion sleeve, and in aggressive fluids, the NTH immersion sleeve. Immersion sleeves or protection coils are not a part of the scope of delivery (see "Accessories/Miscellaneous" chapter).
Control range	Hysteresis Sensor adjustable a x l (approx.):	Features PG

Туре	Item no.	Control range	Hysteresis adjustable (approx.):	Sensor a x I	Features	PG
JET-110X	JA040100	−35 … +30 °C	220 K	9.6 x 122 mm	external setting/TR*	II
JET-110XF	JA040200	−35 +30 °C	220 K	9.6 x 122 mm	internal setting/TW*	II
JET-120X	JA041100	060 °C	220 K	9.6 x 122 mm	external setting/TR*	II
JET-120XG	JA041101	060 °C	220 K	9.6 x 122 mm	external setting/TR*	II
JET-120XF	JA041200	060 °C	220 K	9.6 x 122 mm	internal setting/TW*	II
JET-130X	JA042100	40100 °C	220 K	9.6 x 122 mm	external setting/TR*	II
JET-130XG	JA042101	40100 °C	220 K	9.6 x 122 mm	external setting/TR*	II
JET-130XF	JA042200	40100 °C	220 K	9.6 x 122 mm	internal setting/TW*	II
JET-133X	JA042300	40100 °C		9.6 x 122 mm	external setting/TB**	II
JET-133XF	JA042400	40100 °C		9.6 x 122 mm	internal setting/TB**	II
JET-140X	JA043100	70130 °C	220 K	9.6 x 122 mm	external setting/TR*	II
JET-140XF	JA043200	70130 °C	220 K	9.6 x 122 mm	internal setting/TW*	II
JET-143XF	JA043400	70130 °C		9.6 x 122 mm	internal setting/TB**	II
JET-150	JA044100	100280 °C	850 K	6 x 80 mm	external setting/TR*	II
JET-150F	JA044200	100280 °C	850 K	6 x 80 mm	internal setting/TW*	II
JET-153	JA044300	100280 °C		6 x 80 mm	external setting/TB**	II
JET-153F	JA044400	100280 °C		6 x 80 mm	internal setting/TB**	II

 $\mathsf{TR} = \mathsf{temperature}\ \mathsf{controller},\ \mathsf{TW} = \mathsf{temperature}\ \mathsf{monitor},\ \mathsf{TB} = \mathsf{temperature}\ \mathsf{limiter}$

* Control function heating or cooling

** Control function heating or cooling, locks when temperature rises, manual reset after temperature fall of at least 8 K

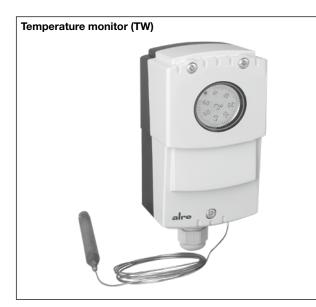
Accessories

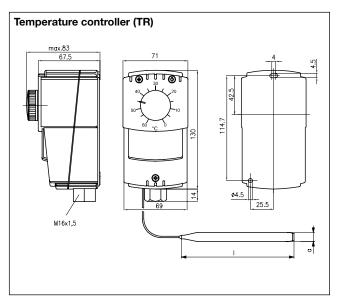
Immersion sleeves for types with "X" in the type specification: TH/NTH-140 see page 220 Immersion sleeves for types without "X" in the type specification: TH/NTH-100/200/280 see page 220 Protection coil for all types: SW-200-12 see page 218–219

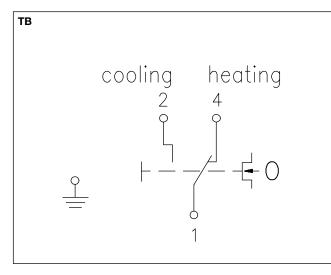




Single-stage capillary thermostats JET-1

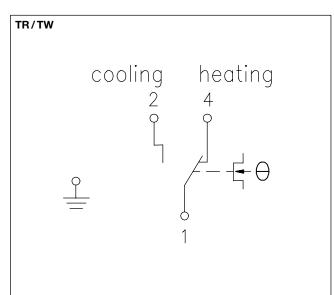






Temperature limiter (TB)





alre Multi-stage capillary thermostat JMT-206 X

2 stages

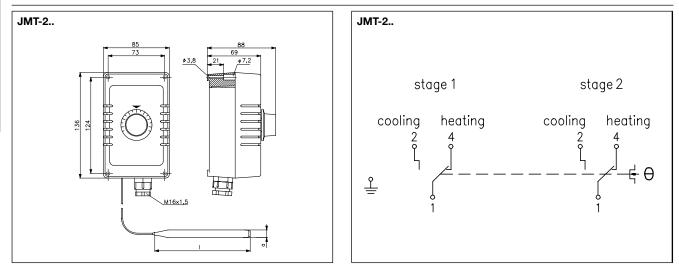
Technical data		Application
Housing colour:	grey (lower part like RAL 7016, upper part like RAL 7035)	Multi-stage control of the tem ture of liquid or gaseous medi
Sensor material:	Cu	for activating two-stage burne
Capillary length:	1.5 m	heating registers.
Ambient temperature:	–15…+55 °C	The SW-200-12 protecting co
Max. sensor temperature	top scale value +15%	be used for temperature cont
Permissible atmospheric humidity:	Max. 95% rel. humidity, non-con- densing	non-aggressive gases in duct temperature control in non-ag
Operating voltage:	none	sive fluids, use the TH immers sleeve, and in aggressive fluid
Max. switching current:	15 (8) A	NTH immersion sleeve.
Min. switching current:	150 mA	
Max. switching voltage:	230 VAC, 50 Hz	Immersion sleeves or protect
Min. switching voltage:	24 VAC, 50 Hz	coils are not a part of the so delivery (see "Accessories/
Switching element:	microswitch	laneous" chapter).
Switching contact:	2 x togglers, potential-free	·····
Control function:	2-stage heating, 2-stage cooling, heating or cooling with neutral zone	
Hysteresis between the stages:	approx. 17 K, adjustable	
Electrical connection:	screw-type terminals	
Mounting/attachment:	wall mounting	
Protection rating:	IP 65	
Protection class:	I	
Safety and EMC:	according to DIN EN 60730	
Sensor:	liquid-filled capillary	
General features:	Scale: degrees Celsius	

Туре	Item no.	Control range	Hysteresis in the stage (approx.):		Features	PG
JMT-206 X	E6060340	2080 °C	1 K	9.6 x 122 mm	External setting, TR	II

TR = Temperature controller

Accessories

Immersion sleeves TH-140/NTH-140 (see page 220), protection coil SW-200-12 (see page 218-219)





Contact thermostats ATR 83

Capillary system

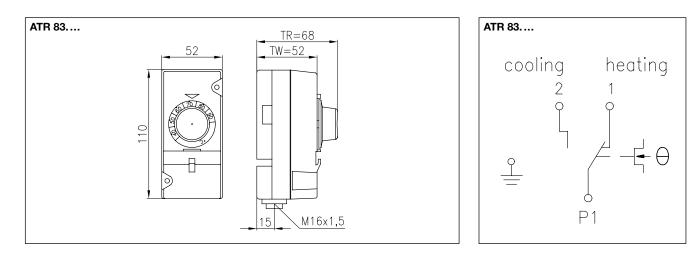


Technical data		Application
Housing colour:	grey (lower part like RAL 7016, upper part like RAL 7035)	Control or monitoring of temperatures at heat registers, pipelines or tanks,
Sensor material:	Cu	for example, temperature-dependent pump control or control of motor
Ambient temperature:	0…80 °C	valves.
Permissible atmospheric humidity:	Max. 95% rel. humidity, non-condens- ing	
Operating voltage:	none	
Max. switching current:	16 (2) A	
Min. switching current:	150 mA	
Max. switching voltage:	230 VAC, 50 Hz	
Min. switching voltage:	24 VAC, 50 Hz	
Switching element:	microswitch	
Switching contact:	toggler, potential-free	
Control function:	heating or cooling	
Hysteresis:	Approx. 4 K	
Electrical connection:	screw-type terminals	
Mounting/attachment:	On pipe by means of a cable tie (450 x 8.9 mm, easy to remove, heat-resistant up to 105 °C)	
Protection class:	I	
Safety and EMC:	according to DIN EN 60730	
Sensor:	liquid-filled capillary	
General features:	Scale: degrees Celsius	
Scope of delivery:	Controller, cable ties	

Туре	Item no.	Control range	Max. sensor tem- perature	Features	PG
ATR 83.000	C1810492	30…90 °C	100 °C	external setting, TR, IP 20	Ш
ATR 83.100	C1810493	30…90 °C	100 °C	internal setting, TW, IP 20	II
ATR 83.001	C1810494	0…60 °C	80 °C	external setting, TR, IP 20	II
ATR 83.101	C1810495	0…60 °C	80 °C	internal setting, TW, IP 20	II

TR = temperature controller, TW = temperature monitor

Accessories	Item no.	Features	PG
ATRS-1	C1809518	Temperature determination set for ATR with external setting (ATR 83.000, ATR 83.001)	II
WP-01	G9990180	heat conduction paste 2 ml	II



a re Frost protection thermostat RTKSA Capillary system – TÜV-tested

Technical data

Colour:



Anthracite grey (similar to RAL

7016), front side transparent

Application

The RTKSA frost protection thermostat was

designed especially for ensuring air or water-

	7016), front side transparent	designed especially for ensuring air or water-
Sensor material:	Cu	exposed frost protection for hot-water heating
Max. sensor temperature	120 °C	coils and heat exchangers in ventilation, heat- ing or air conditioning systems.
Max. head temperature:	80 °C	The capillaries, except RTKSA-203.000/
Permissible atmospheric humidity:	Max. 95% rel. humidity, non-condensing	RTKSA-204.000/RTKSA-204.020, are active along their entire length. The device actuates
Operating voltage:	none	when the minimum response length of the cap illary (at 3 m: 15 cm, at 6 m: 30 cm, at 12 m:
Max. switching current:	NC contact: 16 (2.5) A at 230 VAC +10% 0.25 A at 230 VDC +10% NO contact STW: 6.3 (2.5) A at 230 VAC +10% 0.25 A at 230 VDC +10% NO contact STB: 2.0 (0.4) A at 230 VAC +10%	40 cm) reaches the set scale value. If a sensor rupture occurs, contact 1–2 is permanently opened and contact 1–4 is per- manently closed in the STB/STW application. Unlocking is no longer possible with STB. Air-exposed application:
	0.25 A at 230 VDC +10%	For the frost protection of heating coils
Min. switching current:	Min. 100 mA at 24 V (AC/DC)	(except RTKSA-203.000/RTKSA-204.000/ RTKSA-204.020) the capillaries are braced in
Max. switching voltage:	230 VAC 50/60 Hz, 230 VDC	front of the heating coil to be protected using
Min. switching voltage:	24 VAC/50 Hz, 24 VDC	mounting brackets. Mounting brackets
Switching element:	microswitch	JZ-05/6 M (metal) or JZ-05/6 K (plastic) should be used for this purpose.
Switching contact:	toggler, potential-free	
Control range:	–10…+15 °C	The RTKSA-203.000/RTKSA-204.000/
Electrical connection:	Push-in terminals	RTKSA-204.020 types can be used in con- junction with the SWK-2-xxx protection coils
Mounting/attachment:	Wall mounting; controller hous- ing must be fitted in such a way that the ambient temperature	to measure the temperature of non-aggressive gases in the duct.
	is at least 2 K higher than the setpoint.	Water-exposed application:
Protection class:	I (including switch head and Cu capillary up to 4000 mm)	The RTKSA-203.000/RTKSA-204.000/ RTKSA-204.020 types can be used in conjunction with the THK-2-xxx immersion sleeves for
Safety and EMC:	In accordance with DIN EN 60730 (VDE 0631)	temperature measurement in non-aggressive fluids and in conjunction with the NTHK-2-xxx immersion sleeves in aggressive fluids.
Sensor:	Liquid-filled capillary, active over its entire length (except RTKSA-203.000, RTKSA-204.000, RTKSA-204.020)	Note: Mounting flanges, immersion sleeves and protecting coils are not part of the delivery scope and must be ordered separately as accessories.
General features:	Scale: degrees Celsius	Type testing by TÜV in accordance with DI EN 14597



Frost protection thermostat RTKSA Capillary system



Туре	Item no.	Capillary length	Degree of protection	Hysteresis	Features	PG
RTKSA-203.000	KA020300	1.8 m	IP 40	+3 K*	STB, internal setting, external reset, sen- sor dimensions: 9.5 x 98 mm, also for use in water-exposed applications	II
RTKSA-203.100	KA020301	3 m	IP 40	+3 K*	STB, internal setting, external reset	II
RTKSA-203.120	KA020302	3 m	IP 65	+3 K*	STB, internal setting, external reset	II
RTKSA-203.200	KA020304	6 m	IP 40	+3 K*	STB, internal setting, external reset	II
RTKSA-203.220	KA020303	6 m	IP 65	+3 K*	STB, internal setting, external reset	11
RTKSA-203.300	KA020305	12 m	IP 40	+3 K*	STB, internal setting, external reset	11
RTKSA-204.000	KA020400	1.8 m	IP 40	1.5 K	STW, internal setting, sensor dimensions: 9.5 x 98 mm, also for use in water-ex- posed applications	II
RTKSA-204.020	KA020401	1.8 m	IP 65	1.5 K	STW, internal setting, sensor dimensions: 9.5 x 98 mm, also for use in water-ex- posed applications	II
RTKSA-204.100	KA020402	3 m	IP 40	1.5 K	STW, internal setting	11
RTKSA-204.200	KA020403	6 m	IP 40	1.5 K	STW, internal setting	II
RTKSA-204.220	KA020404	6 m	IP 65	1.5 K	STW, internal setting	II
RTKSA-204.300	KA020405	12 m	IP 40	1.5 K	STW, internal setting	II

 \mbox{STB} = safety temperature limiter, \mbox{STW} = safety temperature monitor *Manual reset after heating by approx. 3 K

Accessories	Item no.	Features	PG
JZ-05/6 K	C1809536	1 set of mounting brackets (6 pieces) for frost protection thermostat RTKSA/JTF, made of plastic (max. 145 $^{\circ}\mathrm{C})$	II
JZ-05/6 M	C1809474	1 set of mounting brackets (6 pieces) for frost protection thermostat RTKSA/JTF, made of metal	II
JZ-05/1 M	C1809462	Single mounting bracket for frost protection thermostat RTKSA/JTF, made of metal	11
JZ-29	KA999901	Mounting set for RTKSA THK/NTHK/SWK individual controllers	II
THK-2-100	KA969901	Immersion sleeve for RTKSA-203.000/RTKSA-204.000/RTKSA-204.020, length 100 mm, material nickel-plated brass	II
THK-2-200	KA969903	Immersion sleeve for RTKSA-203.000/RTKSA-204.000/RTKSA-204.020, length 200 mm, material nickel-plated brass	II
NTHK-2-100	KA969906	Immersion sleeve for RTKSA-203.000/RTKSA-204.000/RTKSA-204.020, length 100 mm, material V4A	II
NTHK-2-200	KA969908	Immersion sleeve for RTKSA-203.000/RTKSA-204.000/RTKSA-204.020, length 200 mm, material V4A	II
SWK-2-100	KA989901	Protection coil for RTKSA-203.000/RTKSA-204.000/RTKSA-204.020 to attach capillary in the air duct, length 100 mm, material nickel-plated steel	II
SWK-2-200	KA989903	Protection coil for RTKSA-203.000/RTKSA-204.000/RTKSA-204.020 to attach capillary in the air duct, length 200 mm, material nickel-plated steel	II

Type comparison (old/new type)

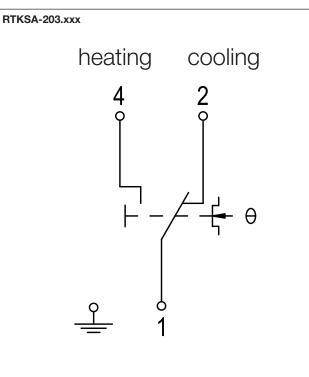
Old alre types	Capillary length	General features	New alre types	Capillary length	General features
JTF-101	6 m		RTKSA-204.200	6 m	Degree of protection: IP 40
JTF-103	1.8 m	Degree of protection: IP 54 Hysteresis: approx. 1 K Control range: -8+8 °C Tmax sensor: 150 °C	RTKSA-204.000	1.8 m	Hysteresis: Approx. 1.5 K
JTF-105	3 m		RTKSA-204.100	3 m	Control range: -10+15 °C
JTF-112	12 m	THIAX SENSOL 130 C	RTKSA-204.300	12 m	Tmax sensor: 120 °C

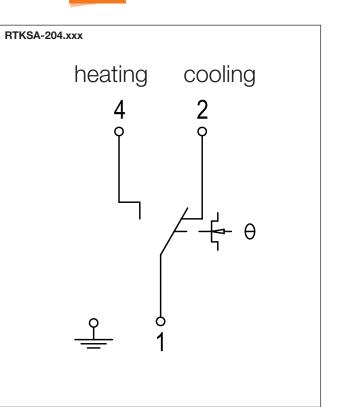
re



Frost protection thermostat RTKSA

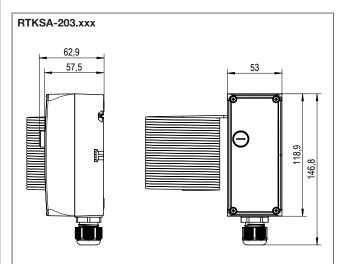
Capillary system

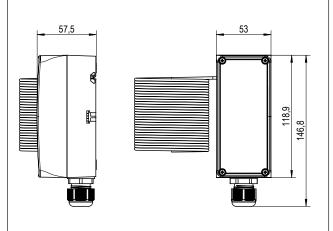




NEW

RTKSA-204.xxx





NEW Scan the QR code now and watch the "New thermostats in plant engineering" product film. More information at a glance.



Frost protection thermostat JTF-1 ... -25

Capillary system - 1 or 2 stages - TÜV-tested - switching





JTF-..W

JTE

JTF



Technical data	
Housing colour:	grey
Sensor material:	Cu
Ambient temperature:	–10…+55 °C
Permissible atmospheric humidity:	Max. 95% rel. humidity, non-con- densing
Max. sensor temperature	200 °C
Operating voltage:	none
Max. switching current:	15 (8) A
Min. switching current:	150 mA
Max. switching voltage:	230 VAC, 50 Hz
Min. switching voltage:	24 VAC, 50 Hz
Switching element:	microswitch
Switching contact:	toggler, potential-free
Control range:	–10…+12 °C
Electrical connection:	screw-type terminals
Mounting/attachment:	wall mounting, controller housing must be fitted in such a way that it is not subjected to any temperature that is less than the scale value that has been set
Protection class:	1
Safety and EMC:	according to DIN EN 60730
Sensor:	gas-filled capillary, active over its entire length (except for JTF-3, JTF-3

General features:

Note:

Mounting flanges, immersion sleeves and protecting coils are not part of the delivery scope and must be ordered separately as accessories.

Celsius

W und JTF-4)

intrinsic safety, scale: degrees

Type testing by TÜV in accordance with DIN EN 14597

Application

Securing hot water registers against freezing. The frost protection thermostats JTF-21 to JTF-25 have two switch outputs that allow for intervention in the system before the critical point is reached. All the devices are intrinsically safe and offer a sealable setpoint configuration.

The capillaries, with the exception of JTF-3/-4, are active over the entire length. The device gets actuated when about 30 cm of the capillary (or approx. 60 cm capillary in the case of 12-m variants) reach the defined value.

JTF-1 to -25:

For temperature measurement of non-aggressive gases. The mounting brackets JZ-05/6 M (metal) or JZ-05/6 K (plastic) should be used for bracing the capillaries against the heat register.

JTF-3/-4 (additional application):

The SW-200-12 protecting coil is to be used for temperature measurement of non-aggressive gases in the duct; for temperature measurement in non-aggressive fluids, the TH-140 immersion sleeve is to be used, and in aggressive fluids, the NTH-140 immersion sleeve.



Туре	Item no.	Capillary length	Features	PG
1-stage				
JTF-1 *	E6090301	6 m	external setting, TR, IP 40, hysteresis approx. 1 K	II
JTF-1/12 *	E6090328	12 m	external setting, TR, IP 40, hysteresis approx. 1 K	II
JTF-1 W *	E6090014	6 m	internal setting, TW, IP 65, hysteresis approx. 1 K	II
JTF-2 **	E6090308	6 m	external setting, external reset, TB, IP 40, hysteresis: manual reset after temperature rise of approx. 4 K	II
JTF-2 W**	E6090287	6 m	internal setting, internal reset, TB, IP 65, hysteresis: manual reset after temperature rise of approx. 4 K	II
JTF-3*	E6090309	1.8 m	external setting, TR, IP 40, hysteresis approx. 1 K, sensor dimensions: 9.5 x 76 mm, also for use in applications exposed to water	II
JTF-3 W*	E6090065	1.8 m	internal setting, TW, IP 65, hysteresis approx. 1 K, sensor dimensions: 9.5 x 76 mm, also for use in applications exposed to water	II
JTF-4**	E6090310	1.8 m	external setting, external reset, TB, IP 40, hysteresis: manual reset after temperature rise of approx. 4 K, sensor dimensions: 9.5 x 76 mm, also for use in applications exposed to water	II
JTF-5*	E6090311	3 m	external setting, TR, IP 40, hysteresis approx. 1 K	II

Frost protection thermostat JTF-1 ... -25 Capillary system – 1 or 2 stages – TÜV-tested – switching

Туре	Item no.	Capillary length	Features	PG
2-stage: 1st stag	ge emits a signal	5 K before the switch	n-off point	
JTF-21 ***	E6090320	6 m	external setting, TR, IP 40, hysteresis in the stage approx. 1 K, hysteresis between the stages approx. 5 K	II
JTF-21/12***	E6090330	12 m	external setting, TR, IP 40, hysteresis in the stage approx. 1 K, hysteresis between the stages approx. 5 K	II
JTF-21 W***	E6090283	6 m	internal setting, TW, IP 65, hysteresis in the stage approx. 1K,hysteresis between the stages approx. 5 K	II
JTF-22****	E6090322	6 m	external setting, external reset, TB, IP 40, hysteresis in the stage approx. 1 K, hysteresis between the stages approx. 5 K	II
JTF-22/12****	E6090331	12 m	external setting, external reset, TB, IP 40, hysteresis in the stage approx. 1 K, hysteresis between the stages approx. 5 K	II
JTF-25***	E6090324	3 m	external setting, TR, IP 40, hysteresis in the stage approx. 1 K, hysteresis between the stages approx. 5 K	II

TR = temperature controller, TW = temperature monitor, TB = temperature limiter

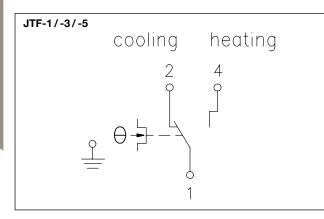
* Control function heating or cooling

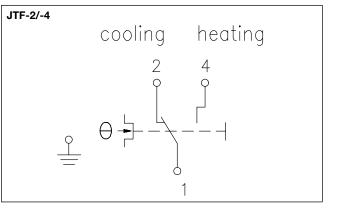
** Control function heating or cooling, locked when the temperature is dropping

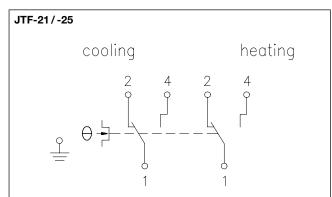
*** Control function heating or cooling, 1st stage emits a signal 5 K before the switch-off signal

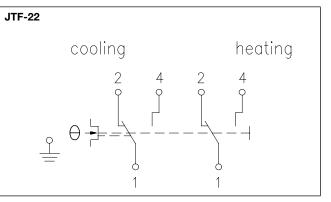
^{****} Control function heating or cooling, 1st stage emits a signal 5 K before the switch-off signal, locks at dropping temperature (manual reset after temperature rise of approx. 4 K)

Accessories	Item no.	Features	PG
JZ-04	E6160133	capillary tube leadthrough for air ducts with 30-cm protective hose	11
JZ-05/6 K	C1809536	1 set of mounting brackets (6 pieces) for frost protection thermostat JTF, made of plastic (max. 145 $^{\circ}\mathrm{C})$	II
JZ-05/6 M	C1809474	1 set of mounting brackets (6 pieces) for frost protection thermostat JTF, made of metal	II
JZ-05/1 M	C1809462	single mounting bracket for frost protection thermostat JTF, made of metal	II
JZ-07	E6160145	mounting bracket for frost protection thermostat JTF	11
TH-140	C1809409	immersion sleeve for JTF-3, JTF-4; material nickel-plated brass	II
NTH-140	C1809435	immersion sleeve for JTF-3, JTF-4; material V4A (1.4571)	11
SW-200-12	C1809220	protecting coil for JTF-3, JTF-4 to attach capillary in the air duct; made of nickel-plated steel	11



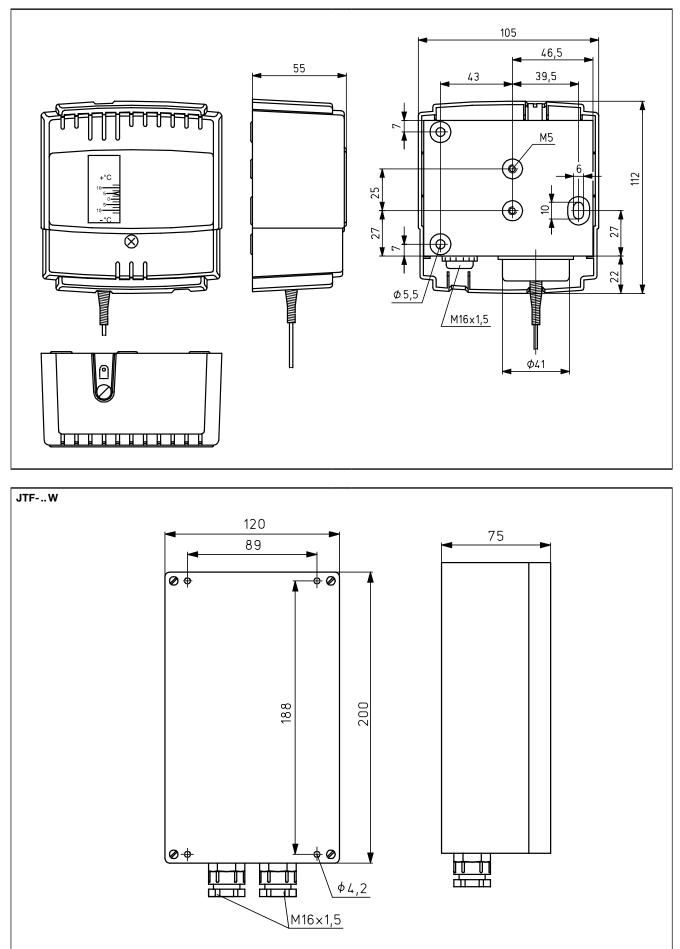








Frost protection thermostat JTF-1 ... -25 Capillary system – 1 or 2 stages – TÜV-tested – switching



Air heater thermostat JTL-2 ... -11/JTL-8 NR ... -17 NR

Capillary system – 2 functions or 3 functions – TÜV-tested



Technical data		Application
Housing colour:	grey	Minimum or maximum thermostat for
Sensor material:	Cu	inflow air monitoring and fan regula- tion in ventilation and air conditioning
Ambient temperature:	–15…+80 °C	systems. Overheating protection
Permissible atmospheric humidity:	Max. 95% rel. humidity, non-con- densing	thermostat for electrical heat registers and directly fired air heaters with oil
Max. sensor temperature	200 °C	and gas operation.
Operating voltage:	none	
Max. switching current:	15 (8) A	The "MAN – AUTO" switch allows the fan to be used for ventilation
Min. switching current:	150 mA	in summer.
Max. switching voltage:	230 VAC, 50 Hz	
Min. switching voltage:	24 VAC, 50 Hz	Type NR: Temperature-controlled
Switching element:	microswitch, toggler, potential-free	fan regulation, burner monitoring and safety temperature limiter, 3
Control function:	heating or cooling	functions.
Control range ventilator:	2070 °C	
Hysteresis of fan:	adjustable approx. 830 K	Attention: Assemble the device in
Electrical connection:	screw-type terminals	a vibration-free manner in order to avoid malfunctions and/or sensor
Mounting/attachment:	mounting on air duct	rupture.
Protection rating:	IP 20	
Protection class:	I	Type-tested by TÜV according to
Safety and EMC:	according to DIN EN 60730	DIN EN 14597 For hot air heaters in accordance with
Sensor:	liquid-filled capillary, active over its entire length	DIN 4794
General features:	intrinsic safety, protection against cold, internal setting, scale: degrees Celsius	

Operating elements:

Туре	Item no.	Control range burner	Hysteresis of burner (approx.)	Capillary length	Features*	PG
JTL-2	E6110013	70…100 °C	8 K	350 mm	TW	II
JTL-8	E6110049	70 100 °C	external reset	350 mm	STB, locked when the tem- perature is rising, overheating protection	II
JTL-11	E6110064	70100 °C	8 K	1250 mm	TW	II
JTL-8 NR	E6120038	70 95 °C	8 K	350 mm	locked when the temperature is rising, TW / STB, tolerances: STB +0/-10 K, overheating protection, external reset STB, shut-off tem- perature STB fixed: 100 °C	II
JTL-17 NR	E6120077	70 95 °C	8 K	1,250 mm	locked when the temperature is rising, TW / STB, tolerances: STB +0/-10 K, overheating protection, external reset STB, shut-off tem- perature STB fixed: 100 °C	II

fan switch

* TW = temperature monitor, STB = safety temperature limiter

JTL-4 is replaced by JTL-8.

JTL-4 NR is replaced by JTL-8 NR.

Intrinsic safety/protection against cold: The devices are intrinsically safe, i.e., upon loss of the sensor medium owing to sensor rupture, for example, the burner is switched off. Since minus temperatures generate the same effect through volume reduction of the sensor medium, the devices are adjusted by means of the "cold screw" such that they switch off the burner only at temperatures below -15 °C. They can only be switched on again manually at temperatures above approx. -5 °C by means of the manual reset button.

Overheating protection: This device provides protection from uncontrolled overheating caused, for example, by heat building up or by creeping capillary filling losses when there is invisible damage to the sensor or the capillary tube, etc. Upon reaching a temperature of 220 °C, the safety slot in the sensor melts and, in reaction to losing the filling medium, the device switches off the burner towards the safe side. The burner cannot be switched on again. The device is then unusable and serves as evidence of the presence of an over-temperature of at least 220 °C.

Locking: For types JTL-8, JTL-8 NR and JTL-17 NR, a restart after cooling down is only possible by manual reset.

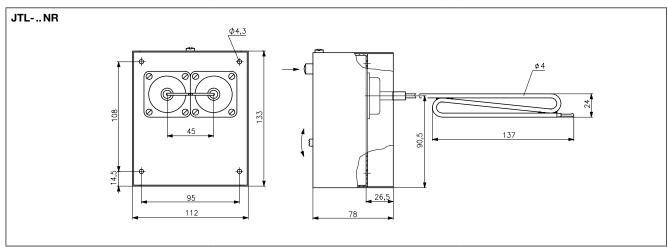


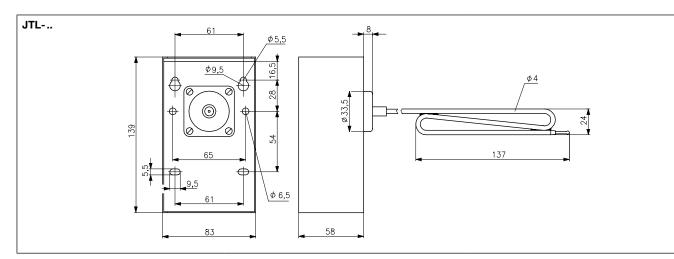
Air heater thermostat JTL-2 ... -11/JTL-8 NR ... -17 NR

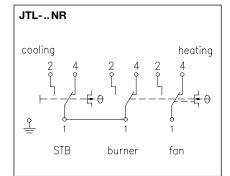
Capillary system – 2 functions or 3 functions – **TÜV-tested**

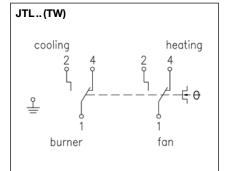


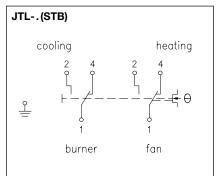












Capillary system - TÜV-tested



Technical data		Application
Housing colour: Sensor material:	grey Cu	Minimum or maximum thermostat for inflow air monitoring and fan regula-
Ambient temperature: Permissible atmospheric	−15…+80 °C Max. 95% rel. humidity, non-con-	tion in ventilation and air conditioning systems.
humidity: Max. sensor temperature Operating voltage:	densing 200 °C none	Overheating protection thermostat for electrical heat registers and directly fired air heaters with oil and gas
Max. switching current: Min. switching current:	15 (8) A 150 mA	operation. Attention: Assemble the device in
Max. switching voltage: Min. switching voltage: Switching element:	230 VAC, 50 Hz 24 VAC, 50 Hz microswitch	a vibration-free manner in order to avoid malfunctions and/or sensor rupture.
Switching contact: Electrical connection:	toggler, potential-free screw-type terminals	JTU-20, -3: Type testing by TÜV in accordance with
Mounting/attachment: Protection rating: Protection class:	mounting on air duct IP 40 I	DIN EN 14597, for hot air heaters in accordance with DIN 4794
Safety and EMC: Sensor:	according to DIN EN 60730 liquid-filled capillary, active over its	
General features:	entire length internal setting, scale: degrees Celsius	

Туре	Item no.	Control range	Hysteresis (approx.)	Capillary length	Features	PG
JTU-50	E6100000	−25…+65 °C	1.5 K	350 mm	Control function: heating or cooling, TW	II
JTU-1	E6100012	20100 °C	830 K adjustable	350 mm	Control function: heating or cooling, TW, intrinsic safety, protection against cold	II
JTU-3	E6100036	20100 °C	external reset	350 mm	Control function: heating or cooling, locked when the temperature is rising, STB, intrinsic safety, protection against cold, overheating protection	II
JTU-20	E6100075	20100 °C	external reset	1250 mm	Control function: heating or cooling, locked when the temperature is rising, STB, intrinsic safety, protection against cold	II
JTU-5	E6100048	60140 °C	830 K adjustable	350 mm	Control function: heating or cooling, TW	II
JTU-6	E6100051	60140 °C	external reset	350 mm	Control function: heating or cooling, locked when the temperature is rising, TB	II

TW = temperature monitor, STB = safety temperature limiter, TB = temperature limiter

JTU-2 is replaced by JTU-3.

Geprüft

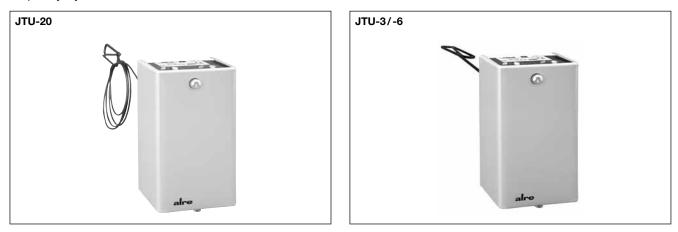
Intrinsic safety / protection against cold: The devices are intrinsically safe, i.e., upon loss of the sensor medium owing to sensor rupture, for example, the burner is switched off. Since minus temperatures generate the same effect through volume reduction of the sensor medium, the devices are adjusted by means of the "cold screw" such that they switch off the burner only at temperatures below -15 °C. They can only be switched on again manually at temperatures above approx. –5 $^\circ\text{C}$ by means of the manual reset button.

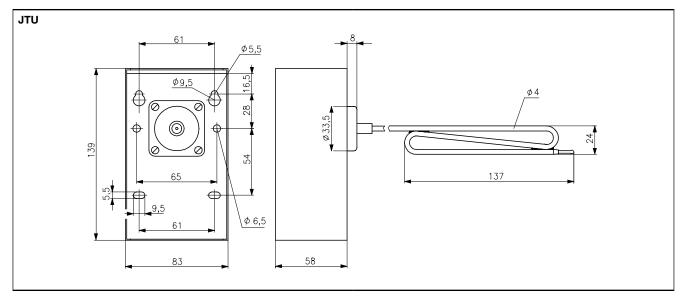
Overheating protection: This device provides protection from uncontrolled overheating, which is caused, for example, by a heat build-up or by creeping capillary filling losses when there is invisible damage to the sensor or the capillary tube etc. Upon reaching a temperature of 220 °C, the safety slot in the sensor melts and, in reaction to losing the filling medium, the device switches off the burner towards the safe side. The burner cannot be switched on again. The device is then unusable and serves as evidence of the presence of an over-temperature of at least 220 °C.

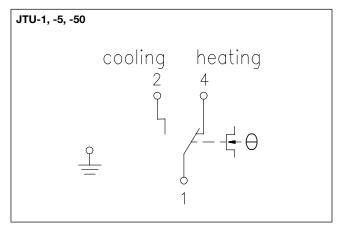
Locking: For types JTU-3, JTU-6 and JTU-20, a restart after cooling down is only possible by manual reset.

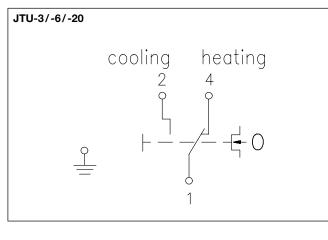
lre

Duct thermostat JTU-1 ... -50 Capillary system – TÜV-tested









alre Control cabinet thermostats

mechanical, bimetal

Technical data		Application
Housing colour:	grey, like RAL 7035	Application scenarios include
Ambient temperature:	060 °C	temperature monitoring in contro
Permissible atmospheric humidity:	Max. 95% rel. humidity, non-condensing	cabinets, machines and housing
Max. switching voltage:	230 VAC/50 Hz, 48 VDC	
Min. switching voltage:	24 VAC/50 Hz, 24 VDC	
Min. switching current:	The resistance of the contact transition results in a voltage drop across the contact. This can have a strong influence on very small switching signals.	
Switching element:	bimetallic contact	
Hysteresis:	Approx. 47 K (RTBSS-112.211/12 approx. 1 K at operating voltage of 230 VAC) at a temperature change of max. 4 K/h	
Electrical connection:	screw-type terminals 0.5 mm ² up to 2.5 mm ²	
Mounting/attachment:	on supporting rails (35 mm) according to EN 60715	
Protection rating:	IP 30	
Protection class:	0, determined by the assembly location	
Safety and EMC:	according to DIN EN 60730	
Sensor:	bimetal	
Function type:	TR (temperature controller)	
General features:	external setting, scale: degrees Celsius, snap-lock control button	
Test mark/Approbation:	UL, VDE	

Type/image	Item no.	Features	Circuit diagram	PG
RTBSS-110.250/04	ZN111524	Max. switching current: 10 (2) A/VAC, max. 30 W/VDC Switching contact: NC contact Control function: heating Control range: 060 °C scale red	Heizen Heating 3 4 8 4 8 4 8 4 8 4 8 1 8 1 8 1 8 1 8 1 8	II
RTBSS-111.250/05	ZN112525	Max. switching current: 10 (2) A/VAC, max. 30 W/VDC Switching contact: NO contact Control function: cooling Control range: 0 60 °C scale blue	Kühlen Cooling 3 3 2 4 4 4 3 3 3 3 3 3 3 3 3 3 3 3 3 3	II
RTBSS-112.250/07	ZN113527	Max. switching current: NC contact 10 (2) A/ VAC, max. 30 W/ VDC NO contact 5 (2) A/ VAC, max. 30 W/ VDC Switching contact: changeover Control function: heating or cooling Control range: 060 °C scale grey	Heizen Heating Cooling Heating	II
RTBSS-112.211/12	ZN113152	Max. switching current: NC contact 10 (2) A/ VAC, max. 30 W/ VDC NO contact 5 (2) A/ VAC, max. 30 W/ VDC Switching contact: changeover Control function: heating or cooling Control range: 0 60 °C Scale grey, thermal feedback	Heizen Heating Cooling N	II
Accessories It	em no.	Features		PG

Accessories	Item no.	Features	PG
JZ-13	ZA990001	standard rail with drilled holes for fastening control cabinet controllers (length 40 mm)	II

See page 183 for dimension diagram (RFHSS/RTBSS)



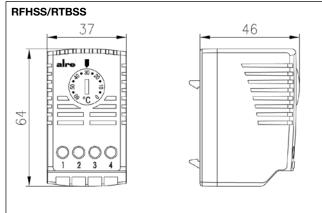
Control cabinet hygrostats with changeover contact

alre

Technical data		Application
Housing colour:	grey, like RAL 7035	Hygrostat for monitoring and con-
Operating voltage:	none	trolling humidity in control cabinets
Max. switching current:	De-humidifying: 5 (0.2) A, Humidifying: 2 (0,2) A	and machines
Min. switching current:	100 mA at 24 VAC	
Max. switching voltage:	230 VAC, 50 Hz	
Min. switching voltage:	24 VAC, 50 Hz	
Switching element:	microswitch	
Switching contact:	changeover	
Control function:	humidifying or de-humidifying	
Mounting/attachment:	on supporting rails (35 mm) according to EN 60715	
Protection rating:	IP 30	
Protection class:	0, determined by the assembly location	
Safety and EMC:	according to DIN EN 60730	
Sensor:	plastic fibres	
Function type:	controller	
General features:	external setting	
Test mark/Approbation:	RFHSS-114.110/01 UL at 230 VAC	

Type/image	Item no.	Features	Circuit diagram	PG
RFHSS-114.110/01	ZN275001	Ambient temperature: 060 °C Admissible humidity: max. 95% rel. humidi- ty, non-condensing Control range: 4090% rel. humidity Hysteresis: approx. 5% rel. humidity Electrical connection: screw-type terminals 0.5 mm ² to 2.5 mm ² Test mark/approbation: UL for 230 VAC snap-in turning knob	Entfeuchten Dehumidfying Befeuchten Humidfying Humidfier 3	II

Accessories	Item no.	Features	PG
JZ-13	ZA990001	standard rail with drilled holes for fastening control cabinet controllers (length 40 mm)	II



а Ire Controller for distributor assembly (hat rail) ITR 79

remote sensor, electronic

. .

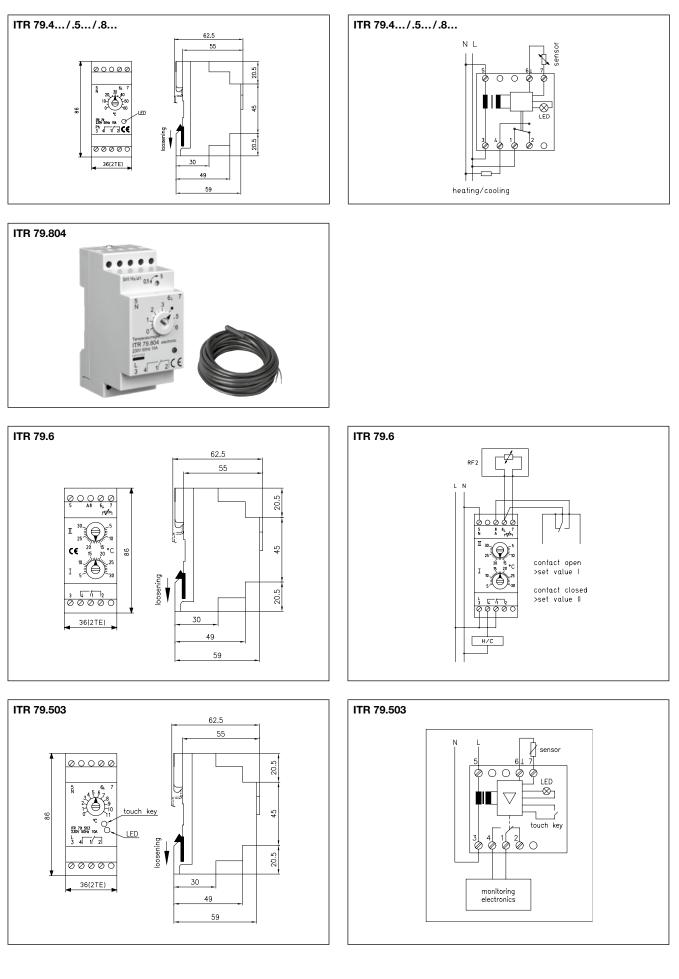
	Technical data		Application
Invation 5	Housing colour: Ambient temperature: Permissible atmospheric humidity: Operating voltage:	grey, like RAL 7035 -10+40 °C Max. 95% rel. humidity, non-condensing 230 VAC, 50 Hz	Control and monitoring of the tem- perature in large halls, greenhouses and floor heating systems. The de- vices have sensor rupture and sensor short-circuit protection.
5 61 7 N 20 1 40	Max. switching current: Min. switching current:	NO contact: 10 (2) A, NC contact: 5 (1.5) A The resistance of the contact transi-	Sensors are not a part of the deliv- ery scope (except for ITR 79.804) For available sensors, see the 'Sen-
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		tion results in a voltage drop across the contact. This can have a strong influence on very small switching signals.	sor Technology' chapter. Use sensors according to the speci- fied sensor number (for example, for sensor number 4: all sensors with
3 41 11 2 2	Max. switching voltage:	e: 230 VAC, 50 Hz this number ca	this number can be used, e.g., KF-4).
	Min. switching voltage:	5 VAC, 50 Hz	Avoid parallel routing of sensor wires
	Switching element:	relay	together with mains voltage-bearing
	Switching contact:	toggler, potential-free	wires ore use shielded wires.
	Electrical connection:	screw-type terminals up to 2.5 mm ²	
	Mounting/attachment:	on supporting rails (35 mm) according to EN 60715	
	Protection rating:	IP 20	
	Protection class:	II	
	Safety and EMC:	according to DIN EN 60730	
	Function type:	TR (temperature controller)	
	General features:	external setting	
Item no.	Control range Fe	atures	PG
D4780167	-35+15 °C Co	ntrol function: heating, hysteresis adjustable	e: approx. 0.55 K, II

Туре	Item no.	Control range	Features	PG
ITR 79.402	D4780167	−35…+15 °C	Control function: heating, hysteresis adjustable: approx. 0.55 K, sensor: NTC 1 K (sensor 1), scale: Degrees Celsius, display "heating" red	II
ITR 79.404	D4780155	0…60 °C	Control function: heating, hysteresis adjustable: approx. 0.55 K, sensor: NTC 10 K (sensor 4), scale: degrees Celsius, display "heating" red	II
ITR 79.405	D4780181	35 95 °C	Control function: heating, hysteresis adjustable: approx. 0.55 K, sensor: NTC 50 K (sensor 5), scale: Degrees Celsius, display "heating" red	II
ITR 79.408	D4780179	−10…+40 °C	Control function: heating, hysteresis adjustable: approx. 0.55 K, sensor: NTC 8 K (sensor 3), scale: Degrees Celsius, display "heating" red	II
ITR 79.503	D4780524	011 °C	Control function: heating, frost protection locked when the tem- perature is dropping, hysteresis approx. 1.5 K, sensor: NTC 2 K 25 (sensor 0), scale: degrees Celsius, display "heating" red	II
ITR 79.504	D4780371	0…60 °C	Control function: cooling, hysteresis adjustable: approx. 0.55 K, sensor: NTC 10 K (sensor 4), scale: Degrees Celsius, display "cooling" green	II
ITR 79.508	D4780369	–10…+40 °C	Control function: cooling, hysteresis adjustable: approx. 0.55 K, sensor: NTC 8 K (sensor 3), scale: degrees Celsius, display "cool- ing" green	II
Two setpoint ad	djusters (e.g. day	night temperature via	external clock)	PG
ITR 79.600	D4780508	2 x 530 °C	Control function: heating, hysteresis: approx. 0.5 K, sensor: NTC 47 K (sensor 2), ECO contact: toggling between setpoint value 1 and setpoint value 2, scale: degrees Celsius	II
Complete devic	ce including remo	te sensor HF-8/4-K2 (4-m cable)	PG
ITR 79.804	D4780545	060 °C	Control function: heating, hysteresis adjustable: approx. 0.55 K, sensor: NTC 2 K (sensor 8), multi-digit scale 06, display "heating" red	II
Accessories	Item no.	Features		PG
JZ-13	ZA990001	atondard roll with	drilled holes for fastening control cabinet controllers (length 40 mm)	



Controller for distributor assembly (hat rail) ITR 79

remote sensor, electronic



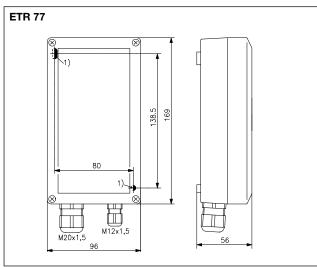
alre Universal controller ETR 77

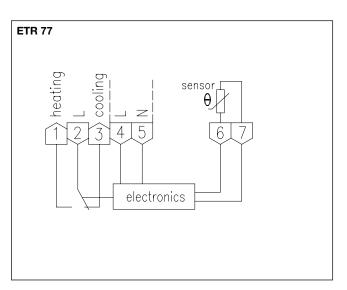
remote sensor, electronic

	Technical data		Application
	Housing colour:	grey (lower part like RAL 7016, upper part like RAL 7035)	Thanks to various sensor models suitable for universal use in heating, ventilation, air-condi-
Ø	Ambient temperature:	–20…+50 °C	tioning and refrigeration technology as well as
	Permissible atmospher- ic humidity:	Max. 95% rel. humidity, non-con- densing	in mechanical and plant engineering.
	Operating voltage:	230 VAC, 50 Hz	Sensors are not a part of the delivery scope
	Max. switching current:	NO contact: 10 (3) A (heating), NC contact: 5 (1.5) A (cooling)	For available sensors, see below or the "Sensors" section.
	Max. switching voltage:	230 VAC, 50 Hz	
	Switching element:	relay	Note: The sensor line is to be routed in a pro- tective duct. Parallel routing together with lines
	Switching contact:	toggler, potential-free	that carry AC voltage is not permissible.
	Control function:	heating or cooling	
	Electrical connection:	screw-type terminals	Safety and EMC: according to
alre 0	Mounting/attachment:	wall mounting	DIN EN 60730
	Protection class:	II	
	Sensor:	KTY 81-121 (sensor 51)	

Туре	Item no.	Control range	Features	Hysteresis adjustable	PG
ETR 77.008-5	D4770014	–50…+50 °C	IP 65, TW, internal setting, scale: degrees Celsius	0.5 5 K	II
ETR 77.009-5	D4770026	0100 °C	IP 65, TW, internal setting, scale: degrees Celsius	0.5 5 K	II

TW = Temperature monitor





Accessories	Item no.	Features	PG
AF-51	G9040420	external temperature sensor	111
ALF-51	G9050210	contact temperature sensor	III
BTF2-Y81/121-0000	SA140017	room temperature sensor, surface-mounted	III
FUFY-81/121-0000	SN090201	room temperature controller, flush-mounted	III
KF-51	G9031452	Cable temperature sensor with 1.5 m silicone cable	111
KF-51/6	G9031453	Cable temperature sensor with 6 m silicone cable	III
STF-51	SN080500	radiation temperature sensor	III

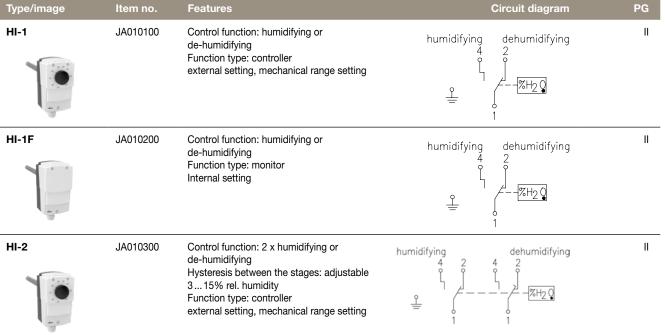


Mechanical hygrostats

۲

Duct assembly

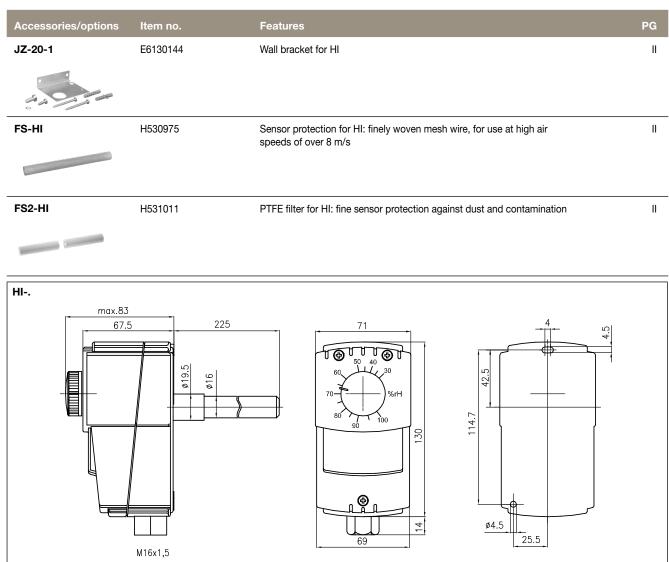
Technical data			Application	
Housing colour:	grey (lower part lik part like RAL 7035	ke RAL 7016, upper 5)	Use in ventilation and air- ducts, climate exposure c	
Ambient temperatu	re: 060 °C		dehumidifiers for controlling	•
Permissible atmosp humidity:	heric non-condensing		monitoring the atmospher in industrial and agricultur	al appli-
Operating voltage:	none		cations. Not suitable for a gases.	ggressive
Max. switching curr	rent: 15 (8) A		Max. air speed 8 m/s, with	n sensor
Min. switching curr	ent: 150 mA at 125 VA	С	protection FS-HI 15 m/s.	
Max. switching volt	age: 230 VAC, 50 Hz (> surroundings)	24 V only in dry		
Min. switching volta	ige: 24 VAC, 50 Hz			
Switching element:	microswitch			
Switching contact:	toggler, potential-	free		
Control range:	30100% rel. hu	midity		
Hysteresis:	approx. 5% rel. hu	umidity		
Tolerances:	> 50%: +/- 3.5% r < 50%: +/- 4% rel			
Electrical connection	on: screw-type termin	als		
Mounting/attachme	nt: mounting on air du using accessory J	uct or wall mounting Z-20-1		
Protection rating:	IP 65 front-side			
Protection class:	II			
Safety and EMC:	according to DIN	EN 60730		
Sensor:	plastic fibres			
Features			Circuit diagram	PC
Control function: hu	midifying or	humidifying	dehumidifying	1



Plant engineering

Mechanical hygrostats

Duct assembly



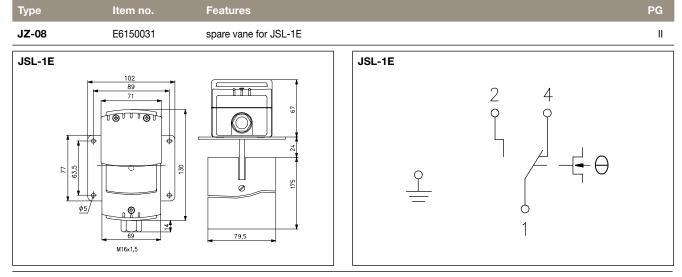


Wind indicator relay JSL-1E

mechanical

Technical data		Application
Housing colour:	grey (lower part like RAL 7016, upper part like RAL 7035)	Monitoring of air flows in ducts, in air supply and air exhausting devices of fans or electrical heat registers.
Ambient temperature:	−40…+80 °C	The second is discussed as is set to the university
Permissible atmospheric humidity:	Max. 95% rel. numidity, non-condensing	The wind indicator relay is set to the minimum switching points at the factory. The switch-on/ switch-off values can be increased by turning
Max. medium temperature:	85 °C	the inner screw clockwise. Fitting is done in
Operating voltage:	none	the vertical paddle position from the top in a
Max. switching current:	15 (8) A	horizontal pipe/duct.
Min. switching current:	150 mA at 24 VAC	
Max. switching voltage:	230 VAC, 50 Hz	
Min. switching voltage:	24 VAC, 50 Hz	
Switching element:	microswitch	
Switching contact:	toggler, potential-free	
Control function:	airflow monitoring	
Hysteresis:	approx. 1 m/s	
Electrical connection:	screw-type terminals	
Mounting/attachment:	mounting on air duct	
Protection rating:	IP 65 housing side, IP 20 medium side	
Protection class:	1	
Safety and EMC:	according to DIN EN 60730	
Sensor:	wind indicator	
Material of lug:	V2A (1.4301)	
Material of lever:	brass	
Function type:	monitor	
General features:	Internal setting	

Туре	Item no.	Min. switch-on value	Min. switch-off value	Max. switch-on value	Max. switch-off value	PG
JSL-1E	JA070100	2 m/s	1 m/s	9.2 m/s	8 m/s	II



Mounting: The device can be mounted in any alignment, but attention must be paid to the correct direction of flow. When fitting in a vertical duct, the weight of the vane must be balanced at the range screw, which results in changed switching values. Attention: Owing to the changed switching values, at flows near the minimum set value the wind indication relay may not function properly! At air speeds higher than 5 m/s, owing to the danger of breakage, the vane must be cut on the sides where indicated. This increases the minimum switch-off value set at the factory from 1 m/s to 2.5 m/s. A calming path that is 5 times the duct diameter must be provided before and after the assembly location. The scope of delivery includes a seal to be fitted between the duct and the device.

Function: The devices are set to the minimum switch-off value at the factory. A higher value can be selected by turning the range screw to the right. If the flow exceeds the value that has been set, contacts 1–2 close and the corresponding assembly is enabled. If the flow drops below the value that has been set, contacts 1–2 close.

Differential pressure switches JDW-3 to 10/JDL-111...116

	1 T 10
	and a second
્યા	
1	

JDW-3



JDL-111



JDL-112

Technical data		A
Housing colour:	black	М
Ambient temperature:	–15…+80 °C	er
Permissible atmospher- ic humidity:	Max. 95% rel. humidity, non-condensing	in Ex m
Max. sensor tempera- ture	80 °C	re
Permissible medium temperature:	−15 +80 °C	va
Operating voltage:	none	JI
Min. switching current:	1 mA	bı (v)
Max. switching voltage:	230 VAC/50 Hz, 24 VDC	(*)
Min. switching voltage:	12 VAC/50 Hz, 12 VDC	JI
Switching element:	microswitch	m
Switching contact:	toggler, gold contact, potential-free	JI
Control function:	switches if the pressure is undershot or exceeded	m
Pressure connection:	6.2 mm	N
Mounting/attachment:	wall mounting	S٧
Electrical connection:	screw-type terminals	24 Ia
Protection class:	II	a\
Protection rating:	IP 54	p
Safety and EMC:	according to DIN EN 60730	at
Sensor:	pressure membrane	N
Function type:	monitor (JDL-116 A controller)	of

Application

Monitoring of overpressure, differential or under-pressure of air and ncombustible, non-aggressive gases. Exhaust or fan monitoring or flow nonitor for securing electrical heat egisters, as filter monitoring, air pressure shortage safeguard, limit alue controller.

IDW-...: Supplied without mounting pracket; can be screwed on directly with 2 screws).

IDW-...Z: Supplied with attached nounting bracket JZ-10.

IDL...: Supplied with attached nounting bracket JZ-10.

Note: Once the differential pressure switch has connected a voltage > 24 V and a current > 0.1 A, the gold aver at the contacts will have burnt away. Thereafter, the differential pressure switch can only be operated at this or a higher power.

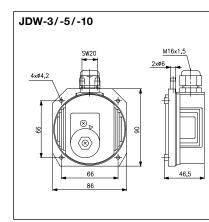
Note: The hose set is not a part of the delivery scope and must be ordered separately.

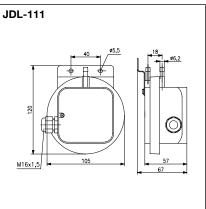
nversion table press

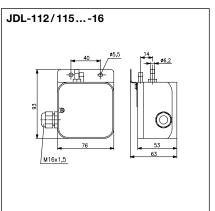
			1		1			1	
	Pa		kPa		bar		mbar	mmWs	
1 Pa =	1		0.001		0.00001		0.01	0.101971	
1 kPa =	1,0	00	1		0.01		10	101.971	
1 bar =	100	0,000	100		1		1,000	10197.1	
1 mbar =	100)	0.1		0.001		1	10.1971	
1 mmWs =	9.8	0665	0.00980665		0.00009806	65	0.0980665	1	
Туре	ltem no.	Control range	Max. pressure	Hystere (depen setting	dent on	Features			PG
JDW-3	H531002	20330 Pa	5,000 Pa	approx.	820 Pa	Max. switching current: 1.5 (0.4) AAC, 1 (0.2) ADC Internal setting		.C, 1 (0.2) ADC	II
JDW-3 Z	H531001	20330 Pa	5,000 Pa	approx.	820 Pa	Max. switching current: 1.5 (0.4) AAC, 1 (0.2) ADC internal setting, fixing bracket		.C, 1 (0.2) ADC	II
JDW-5	H530996	30500 Pa	5,000 Pa	approx.	1025 Pa	Max. switching current: 1.5 (0.4) AAC, 1 (0.2) ADC Internal setting		AC, 1	II
JDW-5 Z	H531000	30500 Pa	5,000 Pa	approx.	1025 Pa	Max. switching current: 1.5 (0.4) AAC, 1 (0.2) ADC internal setting, fixing bracket		.C, 1 (0.2) ADC	II
JDW-10	H530997	4001600 Pa	5,000 Pa	approx.	3060 Pa	Max. switc Internal se	hing current: 1.5 (0.4) AA tting	.C, 1 (0.2) ADC	II
JDL-111	H5309098	20300 Pa	15,000 Pa	approx.	1015 Pa		hing current: 5 (1) AAC, ⁻ tting, silicon-free	I (0.2) ADC	II
JDL-112	H5309100	40600 Pa	30,000 Pa	approx.	2233 Pa		hing current: 5 (1) AAC, ⁻ tting, silicon-free	I (0.2) ADC	II
JDL-115	H5309136	1001,000 Pa	30,000 Pa	approx.	2040 Pa		hing current: 5 (1) AAC, ⁻ tting, silicon-free	I (0.2) ADC	II
JDL-116	H530960	2505,000 Pa	30,000 Pa	approx.	ox. 60150 Pa Max. switching current: 5 (1) AAC, 1 (0.2) ADC internal setting, silicon-free		I (0.2) ADC	II	
JDL-116 A	H530978	2505,000 Pa	30,000 Pa	a approx. 60 150 Pa Max. switchii		hing current: 5 (1) AAC, ⁻ etting, silicon-free	(0.2) ADC	II	

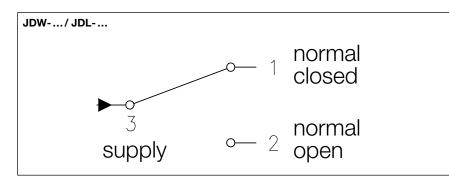
Differential pressure switches JDW-3 to 10/JDL-111...116

	Item no.	Features	PG
JZ-06/1	H5309229	Connection set with duct connections made of silicone-free plastic, $2 \times 90^{\circ}$ angles, 2 extensions 90 mm, 4 self-tapping screws, 2 m tube (external Ø 6 mm)	II
JZ-10	H5309237	Mounting bracket with screws for JDW-3/-5/-10 (Z shape)	II
JZ-28	H531012	IP 65 cover set, consisting of a cover with pressure compensation element, O-ring and 3 screws, suitable for retrofitting types JDL-111, JDL-112, JDL-115 and JDL-116	II
JZ-DA	H5309230	Covering cap with external setting and seal for JDL-111, -112, -115, -116, -117, spare cap for JDL-11x A types	II

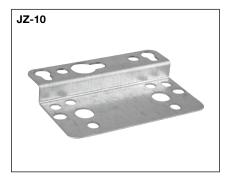




















110 ٢

۲

1

Ø

Technical data		Application
Housing colour:	grey (lower part like RAL 7016, upper part like RAL 7035)	Flow monitoring of liquid media in pipes from $\frac{1}{2}$ " to 8", for example, oil, cooling
Ambient temperature:	–40…+85 °C	and lubricant circuits or as a precaution
Permissible atmospheric	Max. 95% rel. humidity, non-con-	against a shortage of water.
humidity:	densing	Assembly: The device can be mounted in
Permissible medium tem- perature:	120 °C	any position.
Operating voltage:	none	Calming path at least 5 times the pipe
Max. switching current:	15 (8) A	diameter before and after the paddle.*
Min. switching current:	150 mA at 24 VAC, 50 Hz	The max. flow can be significantly higher
Max. switching voltage:	230 VAC, 50 Hz	than the maximum setting value of the
Min. switching voltage:	24 VAC, 50 Hz	Monitor.
Switching element:	Microswitch	Not approved for dripling water applies
Switching contact:	toggler, potential-free	Not approved for drinking water applica- tions.
Control function:	switches if the set value is under- shot or exceeded	TÜV test up to 6" or for all
Hysteresis:	depends on the pipe diame- ter (see the table of switching values)	diameters
Electrical connection:	screw-type terminals	
Mounting/attachment:	assembly by means of tapered Whitworth pipe thread R1"	
Protection rating:	IP 65	
Protection class:	I	
Safety and EMC:	according to DIN EN 60730	
Sensor:	flow paddle	
Material of paddle:	stainless steel	
Function type:	monitor	
General features:	Internal setting	
Accuracy:	+/- 15% of the set value	
Test mark/Approbation:	JSF-1E/JSF-2E/JSF-3E/JSF-4E TÜV.SW.016-13 JSF-1RE/JSF-2RE TÜV.SW.017-13	

Type-tested by the TÜV according to the "Flow 100" VdTÜV circular

Туре	Item no.	Pipe	Medium	Features	PG
JSF-3 E	JA060500	1/2"	normal	material of carrier: brass max. pressure: 5 bar attached T-piece, grey iron	II
JSF-4 E	JA060600	3⁄4"	normal	material of carrier: brass max. pressure: 5 bar attached T-piece, grey iron	II
JSF-1 E	JA060100	1"8"	normal	material of carrier: brass max. pressure: 8 bar	II
JSF-1 RE	JA060200	1"8"	normal	material of carrier: brass max. pressure: 5 bar reduced switching values**	II
JSF-2 E	JA060300	1"8"	aggressive***	material of carrier: V4A max. pressure: 13 bar	II
JSF-2 RE	JA060400	1"8"	aggressive***	material of carrier: V4A max. pressure: 5 bar reduced switching values**	II

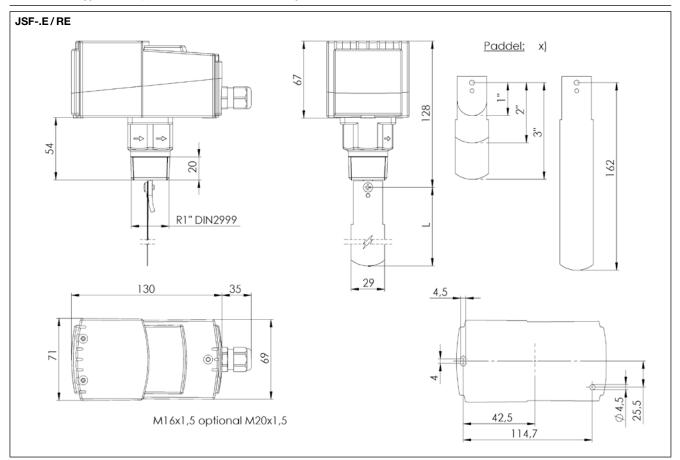
Flow monitor JSF-1E...4E

mechanical - TÜV-tested

Ac rie	cesso- s	Item no.	Features			PG
JZ	-09	E6140170	Spare paddles (each	4 units) from 1"8"		II
*	for 1" for 2" for 3" to 8"		1 1 and 2; 1, 2 and 3;		es (marked in the table under the "Pipe" column with added letter Z) a 4 should be used as follows: = Paddle 1, 2, 3, 4 (shorten Paddle 4 to 92 mm) = Paddle 1, 2, 3, 4 (shorten Paddle 4 to 117 mm); = Paddle 1, 2, 3, 4 (shorten Paddle 4 to 143 mm); = Paddle 1, 2, 3, 4 (Paddle 4 not shortened)	re to

** device types for low flow volume (see switching value table) "RE"

*** medium aggressive: All parts of the current monitor touching the medium are made of V4A.



Pipe

. thread

inches

1/8"

¹/₄"

³/8"

1/2"

3/4"

1"

1 ¹/₄" 1 ¹/₂"

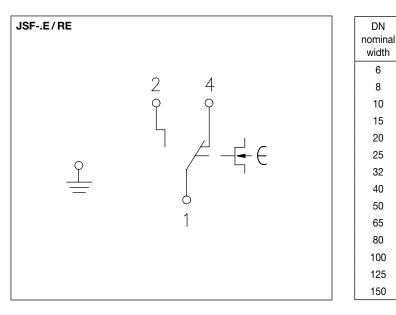
2"

2 ¹/₂"

3"

4"

5" 6"



Flow monitor JSF-1E...4E

mechanical – **TÜV-tested**

a

Switching value table in m³/h for JSF-1E/2E/1RE/2RE

уре	Pipe diameter		n. setting ory setting)	Max	c. setting
		Off	On	Off	On
	1"	0.55	0.86	2.00	2.10
E	1"	0.19	0.57	1.00	1.10
	1 ¼"	0.82	1.30	2.80	3.00
E	1 ¼"	0.24	0.90	1.40	1.60
	1 ½"	1.10	1.70	4.00	4.20
E	1 ½"	0.50	1.20	1.90	2.20
	2"	2.10	3.20	7.30	7.80
E	2"	0.90	2.30	3.60	4.10
	21⁄2"	2.80	4.30	9.80	10.50
RE	2 ½"	1.20	3.10	4.90	5.50
	3"	4.00	6.10	13.80	14.70
E	3"	2.10	4.90	7.40	8.20
	4"	10.40	15.40	32.00	33.90
E	4"	4.90	11.30	17.10	19.10
	4" Z	7.00	10.50	21.70	23.10
E	4" Z	3.30	7.70	11.60	13.00
	5"	20.80	30.60	63.50	67.30
E	5"	9.70	22.40	34.00	37.90
	5" Z	10.70	15.80	33.30	34.70
E	5" Z	5.00	11.50	17.50	19.60
	6"	29.20	43.00	89.10	94.50
RE	6"	13.60	31.50	47.60	53.20
	6" Z	13.10	19.30	39.90	42.40
E	6" Z	6.10	14.10	21.40	23.90
	8"	72.60	85.10	165.70	172.50
RE	8"	25.70	59.60	90.10	100.70
	8" Z	38.60	46.50	90.80	94.20
RE	8" Z	21.70	36.50	55.30	61.80

When there is a "Z" (=additional paddle) in the "Pipe" column, the long paddle 4 included in the delivery must be used in addition to the 3 factory-installed paddles.

Switching value table in I/h for JSF-3E / -4 E					
3 E	1⁄2	174	480	846	948
4 E	3/4	138	408	768	858

The accuracy of the specified values depends on the actual diameter of the pipe, the actual reduction in the extra paddle and the flow monitor's installation depth.

The devices are set to the minimum switch-off value at the factory. By turning the inner adjusting screw in a clockwise direction, you can set a higher deactivation value. The actual flow quantity must in any case be higher than the one specified in the switch table or the switch-on value, but there is no upper limit. The values specified apply to volume-related mass (density) of water. If the flow drops below the value that has been set, contacts 1 and 2 open and contacts 1 and 4 close.



Flow monitor JSW

with device plug



Technical data		Application
Housing colour:	black	
Material of paddle:	stainless steel	Monitoring small and medium,
Material of paddle: Material of carrier:	nickel-plated brass	non-aggressive quantities of liq- uid in pipes with small diameters
	-20+70 °C	1/2" to 1".
Ambient temperature:		-
Permissible atmospheric humidity:	Max. 95% rel. humidity, non-condensing	Assembly: Vertical in a horizontal pipe. Calming path at least5
Max. pressure:	25 bar	times the pipe diameter before
Permissible medium tem- perature:	110 °C	and after the paddle.
Operating voltage:	none	Not approved for drinking water
Max. switching current:	5 A	applications.
Min. switching current:	100 mA at 24 VAC, 50 Hz	
Max. switching voltage:	230 VAC, 50 Hz	
Min. switching voltage:	24 VAC, 50 Hz	
Switching element:	microswitch	
Switching contact:	toggler, potential-free	
Control function:	switches if the set value is undershot or exceeded	
Electrical connection:	4-pin plug according to DIN EN 175301- 803 (previously DIN 43650 - A / ISO 4400)	
Mounting/attachment:	Union nut G ${}^{3}/_{8}{}^{"}$ on soldering socket (for soldering into a standard copper T-piece with outlet ${}^{1}/_{2}{}^{"}$) or T-piece	
Protection rating:	IP 65	
Protection class:	II	
Safety and EMC:	according to DIN EN 60730	
Sensor:	flow paddle	
Function type:	monitor	
General features:	Internal setting	
Accuracy:	+/- 15% of the set value (switching values are only accurate if the flow monitor has been installed in our T-piece If copper T-pieces are used, the switching values will increase.)	

Brass union nut G $^{3}\!/_{4}^{"}$ with O-ring and brazing spout for brazing in a standard copper T-piece with outlet $^{1}\!/_{2}^{"}$ included in the scope of delivery.

increase.)

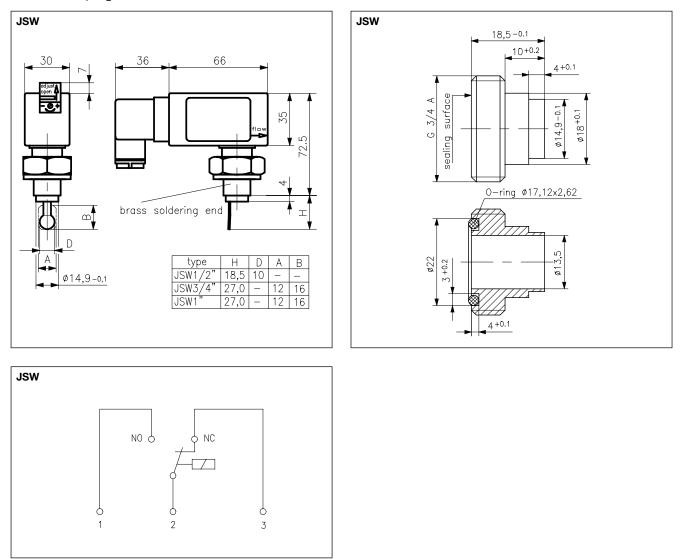
Туре	ltem no.	Pipe	DN	Max.	Switching point dropping*	Switching point rising	∆ l/min	PG
JSW-1/2	H530944	1⁄2"	15	20 l/min	56.5 l/min	5.5 7 l/min	0.5	III
JSW-3/4	H530945	3⁄4"	20	40 l/min	79.5 l/min	911 l/min	2	III
JSW-1	H530946	1"	25	60 l/min	13.516.5 l/min	1720.5 l/min	3.5	III



T-piece (nickel-plated brass):					
T-piece 1/2"	H530957	III			
T-piece 3/4"	H530951	III			
T piece 1"	H530953	III			

alre Flow monitor JSW

with device plug



The device works according to the principle of a spring-loaded paddle with magnetic control of a microswitch. When in rest position or if the switch-off value is undershot (= "dropping switching point"), contacts 2 and 3 are closed and can be used as signal contacts. Upon reaching the upper switching value (= switch-on value or "switching point rising"), the contact changes and 2 to 1 are closed. If used as a water shortage safeguard, for example, a pump can be switched on with these contacts. The actual flow quantity must in any case be higher than the switch-on value, but there is no upper limit. The switching points given in the table apply to flow monitors with an attached T-piece and a water temperature of 20 °C in a horizontal pipe. The devices are set to the minimum value at the factory, but can be adapted to an existing system. To that end, the cover of the setting screw on the front side (which is designed so that it cannot be lost) is pushed up in the direction of the arrow and the setting screw is rotated by a maximum of 7 revolutions in the plus direction. With a switching value range of, for example, 13–16.5 l/min, a setting range of 3.5 l/min is obtained. With a total of 7 permissible screw revolutions, this gives a change of 0.5 l/min per screw revolution.

SENSOR TECHNOLOGY



Perfect control requires excellent sensors.



SENSOR TECHNOLOGY Sense correctly to act intelligently.

Sensor technology is becoming more and more important. It makes life safer and more comfortable through the processing of multifarious data. Physical parameters (temperature or pressure) are captured and made available to the intelligent control technology.

Sensor technology as the basis of safety and comfort.

Application examples:

- Temperature measurement in residential and business spaces, outdoor areas, surface temperatures (contact sensors) in liquid and gaseous media, such as in pipelines and air ducts
- Pressure measurement in liquid and gaseous media, for example in hydraulics, pneumatics, mechanical and plant engineering, process technology, ventilation or air conditioning applications, clean room technology, fine draft measurement
- Temperature measurement in rooms or ducts
- Outdoor temperature measurement, for example in refrigeration, air conditioning and ventilation systems, clean room technology, greenhouses, medical rooms, meteorology

SENSOR TECHNOLOGY overview:

Temperature

	Room temperature sensor (surface-mounted/flush mounted) – passive	200-202
ţ.	Outdoor temperature sensor – passive	203–204
	Sleeve temperature sensors/cable temperature sensors	205-206
	Contact temperature sensors – passive	207
	Pendulum temperature sensors/radiation temperature sensors	208–209
	Assembly-type duct sensors – passive	210
	Industrial assembly type duct sensors – (Form B) passive	211

Differential pressure

Differential pressure transducers (air)	212

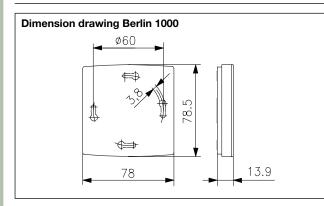
Sensor characteristic curves (see the technical annex in section "Accessories/miscellaneous")

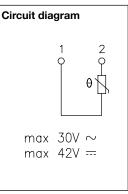
Room temperature sensors – surface-mounted BTF2

Surface-mounted "ultra-thin" - Design Berlin 1000, for measuring the temperature in dry rooms

Technical data		Application
Design: Housing colour:	Berlin 1000 pure white, like RAL 9010	Temperature measurement in living spaces and office spaces.
Housing material:	ABS plastic	Assembly and wiring of the lower part
Ambient temperature:	–10…+50 °C	can take place separately, surface-
Permissible atmospheric humidity:	max. 95% rel. humidity, non-con- densing	mounted or on a switch socket Ø 60 mm by means of socket screws.
Electrical connection:	screw-type terminals 0.33 mm ² to 1.5 mm ² only to safety extra low voltage max. 30 VAC/42 VDC	
Max. measurement current:	< 1 mA	
Sensor wire extendable:	depending on the cross-section of the conductor and the sensor unit type	
Tolerances:	PT100/PT1000 DIN EN 60751 B	
Mounting/attachment:	Surface/wall mounting (4-hole as- sembly on flush-mounted socket)	
Protection rating:	IP 30	
Protection class:	III	
Safety and EMC:	according to DIN EN 60730	
Sensor characteristic curves:	the sensor characteristic curves can be found in the "Miscellaneous" section	

Sensor		Туре	Item no.	PG
PT-100		BTF2-P100-0000	SA140000	III
PT-1000		BTF2-P1000-0000	SA140001	
NTC 2K25 "Se	ensor 0"	BTF2-C225-0000	SA140013	III
NTC 47K "Sen	isor 2"	BTF2-C47-0000	SA140014	III
NTC 8K "Sens	or 3"	BTF2-C08-0000	SA140015	
NTC 10K "Sen	isor 4"	BTF2-C10-0000	SA140006	III
NTC 2K "Sens	sor 8"	BTF2-C02-0000	SA140016	III
KTY 81-121 "S	Sensor 51"	BTF2-Y81/121-0000	SA140017	III
KTY 11-7 "Ser	nsor 57"	BTF2-Y11/7-0000	SA140018	III
Accessories	Item no.	Features		PG
JZ-21	MN990006	Adapter frame for mounting roof flush-mounted sockets up to 8	I	







Room temperature sensors – flush-mounted FUF for measuring the temperature in dry rooms

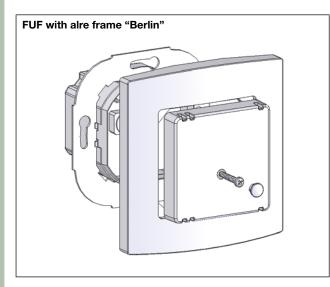
	Technical data		Application
el e	Design: Housing colour: Housing material: Ambient temperature: Permissible atmospheric humidity: Electrical connection:	Berlin UP (flush-mounted) pure white, like RAL 9010 PC plastic -10+50 °C max. 95% rel. humidity, non-con- densing screw-type terminals 0.5 mm ² to 1.5 mm ² only to safety extra low voltage max. 30 VAC/42 VDC	Temperature measurement in living spaces and office spaces. The room temperature sensor with 50 x 50-mm cover can be integrated into almost all switch ranges by means of an insert frame. (Frames are not a part of the delivery scope.) For integration examples, see the "Heating technology" section.
	Max. measurement current:	< 1 mA	
	Sensor wire extendable:	depending on the cross-section of the conductor and the sensor unit type	
	Tolerances:	PT100/PT1000 DIN EN 60751 B	
	Mounting/attachment:	in flush-mounted socket, can be adapted to fit virtually any 50 x 50 mm surface switch ranges	
	Protection rating:	IP 30	
	Protection class:	III	
	Safety and EMC:	according to DIN EN 60730	
	Sensor characteristic curves:	the sensor characteristic curves can be found in the "Miscellaneous"	

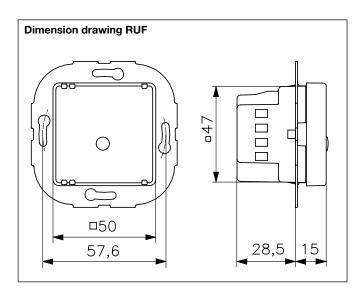
section

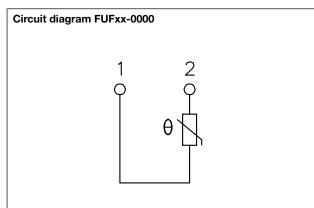
Sensor		Туре	Item no.	Surface finish	PG
PT-100		FUFP 100-0000	SN090000	glossy	III
PT-1000		FUFP 1000-0000	SN090001	glossy	111
NTC 2K25 "Sen	isor 0"	FUFC 225-0000	SN090197	glossy	III
NTC 47K "Sens	or 2"	FUFC 47-0000	SN090198	glossy	III
NTC 8K "Senso	or 3"	FUFC 08-0000	SN090199	glossy	III
NTC 10K "Sens	or 4"	FUFC 10-0000	SN090005	glossy	III
NTC 2K "Senso	or 8"	FUFC 02-0000	SN090200	glossy	III
KTY 81-121 "Se	ensor 51"	FUFY 81/121-0000	SN090201	glossy	III
KTY 11-7 "Sens	sor 57"	FUFY 11/7-0000	SN090202	glossy	III
Accessories	Item no.	Features			PG
JZ-090.900 VV000025 alre frame "Berlin" for all flush-mounted controllers and sensors with 50 x 50-mm pure white cover, glossy, like RAL 9010				I	



Room temperature sensors – flush-mounted FUF for measuring the temperature in dry rooms









Outdoor temperature sensors AF with passive output AF... outdoor temperature sensor with inside sensor

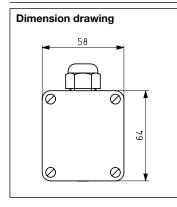
	Technical data		Application
AF	Housing colour: Housing material: Ambient temperature: Permissible atmospheric humidity: Electrical connection:	pure white, like RAL 9010 PA plastic (30% GF reinforced) -30+70 °C max. 95% rel. humidity, non-condensing screw-type terminals 0.14 mm ² up to 2.5 mm ² only to safety extra low voltage	The AF outdoor temperature sensors are used for temperature mea- surement in the outdoors, in damp environments, in cold storage rooms and greenhouses as well as in indus- trial applications and are specially protected against dust and moisture. If there is direct incident sunlight on the sensor housing, the use of a sun
1	Max. measurement current:	max. 30 VAC/42 VDC < 1 mA	shade is recommended.
000	Sensor wire extendable:	depending on the cross-section of the conductor and the sensor unit type	
	Tolerances:	PT100/PT1000 DIN EN 60751 B	
	Mounting/attachment:	surface/wall mounting	
	Protection rating:	IP 65	
	Protection class:	III	
	Safety and EMC:	according to DIN EN 60730	
	Sensor characteristic curves:	the sensor characteristic curves can be found in the "Miscellaneous"	

section

Please follow the EMC directives, avoid parallel routing with mains voltage-bearing wires, or use shielded wires.

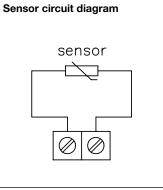
Sensor	Туре	Item no.	PG
PT 100	AFP 100	G9040010	
PT 1000	AFP 1000	G9040020	
NTC 2K25 "Sensor 0"	AF-0	G9040360	III
NTC 1K "Sensor 1"	AF-1	G9040370	III
NTC 47K "Sensor 2"	AF-2	G9040380	III
NTC 8K "Sensor 3"	AF-3	G9040390	
NTC 10K "Sensor 4"	AF-4	G9040400	III
NTC 50K "Sensor 5"	AF-5	G9040561	
NTC 2K "Sensor 8"	AF-8	G9040410	
KTY 81-121 "Sensor 51"	AF-51	G9040420	
KTY 11-7 "Sensor 57"	AF-57	G9040681	III

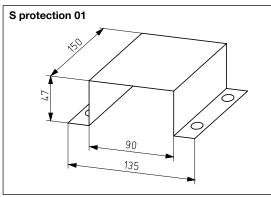
S protection 01 G9990170



Ball impact guard, sun and rain protection; 150 x 90 x 47 mm; stainless steel V4A 1.4571







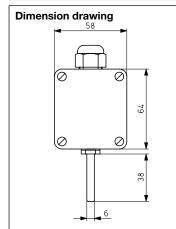
Sensor technology

Outdoor temperature sensors AFH with passive output

AFH...outdoor temperature sensor with sleeve lead-out

Technical data		Application
Housing colour: Housing material: Operating voltage (active): Ambient temperature: Permissible atmospheric humidity: Max. measurement cur- rent (passive): Electrical connection:	pure white, like RAL 9010 PA plastic (30% GF reinforced) 24 VDC -30+70 °C max. 95% rel. humidity, non-condensing < 1 mA screw-type terminals 0.14 mm ² to 2.5 mm ² only to safety extra low voltage, max. passive output: 30 VAC/42 VDC	The outdoor temperature sensors are used for temperature measurement in the outdoors, in damp room appli- cations, in cold storage rooms and greenhouses as well as in industrial applications and are specially protected against dust and moisture. Owing to the external sensor sleeve, this outdoor sensor has a very good actuation response to temperature changes. If there is direct incident sunlight on the sensor, the use of a sun shade is recommended.
Sensor wire extendable:	depending on the cross-section of the conductor and the sensor unit type	
Tolerances:	PT100/PT1000 DIN EN 60751 B	
Mounting/attachment:	surface/wall mounting	
Protection rating:	IP 65	
Protection class:	III	
Safety and EMC:	according to DIN EN 60730	

Sensor	Type (passive)	Item no.	PG
PT 100	AFHP 100	G9040160	III
PT 1000	AFHP 1000	G9040170	III
NTC 10 K "Sensor 4"	AFHC 10	G9040220	III



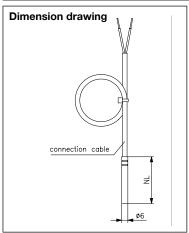


Sleeve temperature sensors HF HF.../P sleeve temperature sensor with PVC cable

HF.../P sleeve temperature sensor with PVC cable HF.../S sleeve temperature sensor with silicone cable

Technical data (HF/P a	nd HF/S)	Application
Sensor dimensions: Sensor sleeve material: Permissible atmospheric humidity: Max. measurement current: Electrical connection:	Ø 6 mm x 45 mm V2A (1.4301) max. 95% relative humidity, non-condensing < 1 mA only to safety extra low voltage max. 30 VAC/42 VDC, HFP 100/S/3L 3-conductor, HFP 100/S/4L 4-conductor	The HF sleeve sensors are used for temperature measurement in liquid or gaseous media. Thanks to the moisture-impermeable burnishing, the sleeve sensor is particularly protected against moisture and dust. If used in liquid media, integra- tion in an immersion sleeve is
Connecting cable:	1 m, 2 x 0.5 mm ² (HFP 100/S/6 m: 6 m, 2 x 0.5 mm ²)	necessary.
Sensor wire extendable:	depending on the cross-section of the conductor and the sensor unit type	
Tolerances:	PT100/PT1000 DIN EN 60751 B	
Mounting/attachment:	in immersion sleeve, protection coil, on pipe etc.	
Protection rating:	IP 65, moisture-impregnable burnishing	
Protection class:	III	
Safety and EMC:	according to DIN EN 60730	
Sensor characteristic curves:	the sensor characteristic curves can be found in the "Miscellaneous" section	
Immersion sleeves:	Immersion sleeves can be found in the "Miscellaneous" section.	

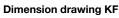
Sensor	Туре	Item no.	Features	PG
PT 100	HFP 100/P	G9030010	Sensor wire PVC, -35 +105 °C	
PT 1000	HFP 1000/P	G9030020	Sensor wire PVC, -35 +105 °C	III
NTC 10 K	HFC 10/P	G9030070	Sensor wire PVC, -35 +105 °C	III
Sensor	Туре	Item no.	Features	PG
PT 100	HFP 100/S	G9030140	Sensor wire, silicone, –50…+150 °C	111
PT 100	HFP 100/S/6 m	G9030411	Sensor wire, silicone, -50 +150 °C	
PT 1000	HFP 1000/S	G9030150	Sensor wire, silicone, –50…+150 °C	111
Ni 1000	HFN 1000/S	G9030160	Sensor wire, silicone, -50 +150 °C	
NTC 10 K	HFC 10/S	G9030200	Sensor wire, silicone, -50 +150 °C	111

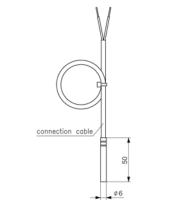


Cable temperature sensor KF (Remote sensor for alre standard devices, for example, ITR79...)

Technical data		Application
Sensor dimensions: Sensor sleeve material: Permissible atmospheric humidity: Max. measurement current: Electrical connection:	see dimension schematic V4A (1.4571) max. 95% rel. humidity, non-condensing < 1 mA only to safety extra low voltage max. 30 VAC/42 VDC KF-100-4 and KF-100/6-4 4-wire	For temperature measurement of liquid media by integrating in immersion sleeves (TH/NTH). For temperature measurement of air and non-aggressive gases in the air duct by integration in a protection coil (SW-200, see the "Accessories/ miscellaneous" section).
Sensor wire extendable up to: Tolerances:	depending on the cross-section of the conductor and the sensor unit type PT100/PT1000 Class B	
Mounting/attachment:	in immersion sleeve, protection coil, on pipe etc.	
Protection rating:	IP 67	
Protection class:	III	
Sensor characteristic curves:	the sensor characteristic curves can be found in the "Miscellaneous" section	
Accessories:	Immersion sleeves/protection coils can be found under Miscellaneous	

Sensor	Туре	Item no.	Features	PG
"Sensor 0" (NTC 2 K 25)	KF-0	G9031441	Wire PE, 1.5 m, -35+100 °C	111
"Sensor 1" (NTC 1K)	KF-1	G9031442	Wire PE, 1.5 m, -35+100 °C	III
"Sensor 2" (NTC 47K)	KF-2	G9031446	Wire PE, 1.5 m, -35+100 °C	III
"Sensor 3" (NTC 8 K)	KF-3	G9031447	Wire PE, 1.5 m, -35+100 °C	III
"Sensor 4" (NTC 10 K)	KF-4	G9031449	Wire PE, 1.5 m, -35 +100 °C	III
"Sensor 4" (NTC 10 K)	KF-4/6	G9031450	Wire PE, 6 m, -35 +100 °C	III
"Sensor 5" (NTC 50 K)	KF-5	G9031451	Wire PE, 1.5 m, -35+100 °C	III
"Sensor 6" (NTC 100 K)	KF-6	G9031455	Wire PE, 1.5 m, -35+100 °C	III
"Sensor 51" (KTY 81-121)	KF-51	G9031452	Wire silicone, 1.5 m, -50 +150 °C	III
"Sensor 51" (KTY 81-121)	KF-51/6	G9031453	Wire silicone, 6 m, -50 +150 °C	111
"Sensor 57" (KTY 11-7)	KF-57	G9031454	Wire PE, 1.5 m, -35+100 °C	III
PT-100	KF-100-4	G9031443	Wire silicone, 1.5 m, -50 +180 °C	111
PT-100	KF-100/6-4	G9031444	Wire silicone, 6 m, -50 +180 °C	111
PT-1000	KF-1000	G9031445	Wire silicone, 1.5 m, -50+180 °C	111







Contact temperature sensor ALF



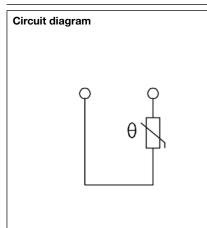
Technical data		Application
Housing colour: Housing material: Ambient temperature: Permissible atmospheric	pure white, like RAL 9010 PA plastic (30% GF reinforced) -30+70 °C max. 95% rel. humidity, non-condensing	The ALF contact temperature sensors are used for temperature measurement on pipes, tubes or heat carriers.
humidity: Max. measurement cur-	< 1 mA	For better temperature transmission between the pipe and the contact
rent (passive): Electrical connection:	Screw-type terminals 0.14 mm ² to 2.5 mm ² only to safety extra low voltage passive max. 30 V AC/42 VDC	sensor, the use of a heat conducting paste is recommended.
Mounting/attachment:	on pipe by means of cable tie	
Tolerances:	PT100/PT1000	
Protection rating:	IP 65	
Protection class:	III	
Safety and EMC:	according to DIN EN 60730	
Sensor characteristic curves:	the sensor characteristic curves can be found in the "Miscellaneous" section	

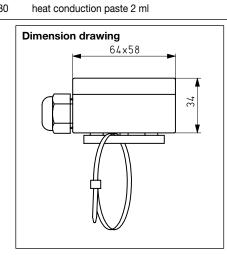
Please follow the EMC directives, avoid parallel routing with mains voltage-bearing wires, or use shielded wires.

Sensor	Туре	Item no.	PG
PT 100	ALFP 100	G9050010	III
PT 1000	ALFP 1000	G9050020	
"Sensor 0" (NTC 2K25)	ALF-0	G9050270	
"Sensor 2" (NTC 47K)	ALF-2	G9050160	
"Sensor 3" (NTC 8K)	ALF-3	G9050180	
"Sensor 4" (NTC 10K)	ALF-4	G9050190	III
"Sensor 5" (NTC 50K)	ALF-5	G9050200	
"Sensor 51" (KTY 81-121)	ALF-51	G9050210	III

WP-01

G9990180





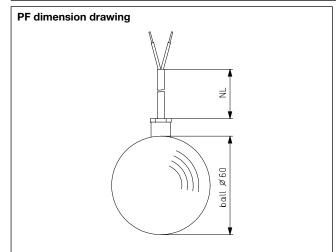
Ш

alre Pendulum temperature sensor PF



Technical data		Application
Sensor material: Sensor dimensions: Ambient temperature:	Al black, PVC wire Ø 60 mm -30+80 °C	The pendulum temperature sensor PF serves to measure the tem- peratures in larger spaces. Owing to the spherical form, this sensor
Permissible atmospheric humidity:	max. 95% rel. humidity, non-condensing	captures the temperature from all directions of the room, so that
Max. measurement current:	< 1 mA	when correctly positioned in the
Electrical connection:	only to safety extra low voltage max. 30 VAC/42 VDC	room, a representative measure- ment result can be achieved.
Sensor wire extendable:	depending on the cross-section of the conductor and the sensor unit type	
Connecting cable:	2 x 0.5 mm ²	
Mounting/attachment:	suspended	
Tolerances:	PT100/PT1000 DIN EN 60751 B NI1000 DIN EN 43760 B	
Protection rating:	IP 65	
Protection class:	111	
Safety and EMC:	according to DIN EN 60730	
Sensor characteristic curves:	the sensor characteristic curves can be found in the "Miscellaneous" section	

Sensor	Туре	Item no.	Features	PG
PT 100	PFP 100	G9130010	Wire length: 1 m	111
PT 1000	PFP 1000	G9130020	Wire length: 1 m	III
"Sensor 4" NTC 10 K	PFC 10	G9130070	Wire length: 1 m	III
"Sensor 2" NTC 47 K	PFC 47/6 (6 m)	G9130180	Wire length: 6 m	III





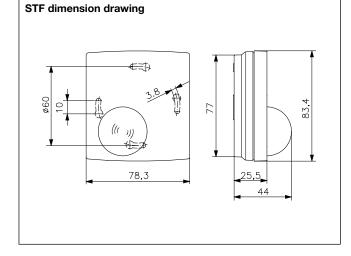
Radiation temperature sensor STF



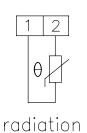
Technical data		Application
Design: Housing colour:	Berlin 2000 pure white, like RAL 9010, ball black	The radiation temperature sensor is a dual sensor for the measurement of radiation and room heat. The radiation
Housing material: Ambient temperature:	ABS plastic –20…+60 °C	sensor is located in the black hemi- sphere; the room sensor is located the plastic housing. Connection with
Permissible atmospheric humidity:	max. 95% rel. humidity, non-con- densing	screw-type terminals.
Max. measurement current:	< 1 mA	
Electrical connection:	screw-type terminals 0.14 mm ² up to 1.5 mm ² only to safety extra low voltage max. 30 VAC/42 VDC	
Sensor wire extendable:	depending on the cross-section of the conductor and the sensor unit type	
Mounting/attachment:	surface/wall mounting (4-hole as- sembly on flush-mounted socket)	
Protection rating:	IP 30	
Protection class:	III	
Safety and EMC:	according to DIN EN 60730	
Sensor characteristic curves:	the sensor characteristic curves can be found in the "Miscella- neous" section	

Please follow the EMC directives, avoid parallel routing with mains voltage-bearing wires, or use shielded wires.

Sensor	Туре	Item no.	PG
"Sensor 0" 2x NTC 2 K 25	STF-0	SN080100	
"Sensor 2" 2x NTC 47 K	STF-2	SN080200	
"Sensor 4" 2x NTC 10 K	STF-4	SN080400	
"Sensor 51" 2x KTY-81-121	STF-51	SN080500	III



STF connection diagram



sensor



ambient temperature sensor with passive output

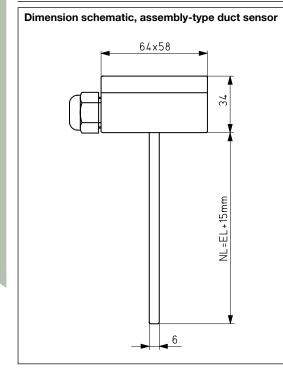


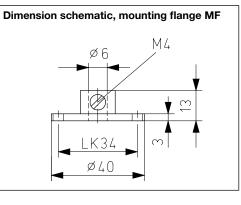
Technical data		Application
Housing colour: Housing material: Sensor tube material: Ambient temperature: Max. sensor temperature Permissible atmospheric humidity: Electrical connection: Tolerances: Mounting/attachment: Protection rating: Protection class: Safety and EMC: Sensor characteristic curves:	pure white, like RAL 9010 PA plastic (30% GF reinforced) V2A (1.4301) -30+70 °C 150 °C max. 95% rel. humidity, non-con- densing screw-type terminals 0.14 mm ² up to 2.5 mm ²	The assembly-type duct sensor EKF is used for measuring tem- peratures in liquids and gases in pipes, air ducts or tanks. A mounting flange (MF) is required for use in air ducts. If used in liquids, immersion sleeves made of brass with nickel plating (THMs) should be used. For aggressive media, immersion sleeves made of stainless steel V4A (THV) are
Tolerances: Mounting/attachment:	only to safety extra low voltage max. 30 VAC/42 VDC PT100/PT1000 DIN EN 60751 B in immersion sleeves (THMs, THV) for fluids or with mounting flange (MF) in air ducts	recommended. Immersion sleeves or mounting flanges are not part of the delivery scope and must be ordered separately as accessories. Accessories: mounting flange for installation in air ducts: MF matching
Protection rating:	IP 65	immersion sleeves in brass: Im- mersion sleeves with brass plating
	III according to DIN EN 60730	can be found in the 'Miscellaneous'
Sensor characteristic curves:	the sensor characteristic curves can be found in the "Miscellaneous" section	section matching immersion sleeves stainless steel (V4A): immersion sleeves made of stainless steel can be found in the "Miscellaneous"
Immersion sleeves:	From the fitting length (EL), subtract 15 mm to determine the nominal length (NL) of the immersion sleeve, for example, EL = 65 mm corre- sponds to THV/50	section Sensor wire extendable: depending on the cross-section of the conductor and the sensor unit type

Please follow the EMC directives, avoid parallel routing with mains voltage-bearing wires, or use shielded wires.

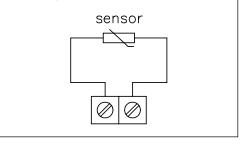
Sensor	Fitting length 65 mm (for 50 mm immersion sleeves)	Fitting length 115 mm (for 100 mm immersion sleeves)	Fitting length 165 mm (for 150 mm immersion sleeves)	PG
PT 100	EKFP 100/50 Item no.: G9140010	EKFP 100 / 100 Item no.: G9140140	EKFP 100 / 150 Item no.: G9140270	III
PT 1000	EKFP 1000/50 Item no.: G9140020	EKFP 1000 / 100 Item no.: G9140150	EKFP 1000 / 150 Item no.: G9140280	III

PG MF G9990160 mounting flange for integrated duct sensor Ш





Circuit diagram, assembly-type duct sensor



Industrial assembly-type duct sensor IKF1 (Form B)

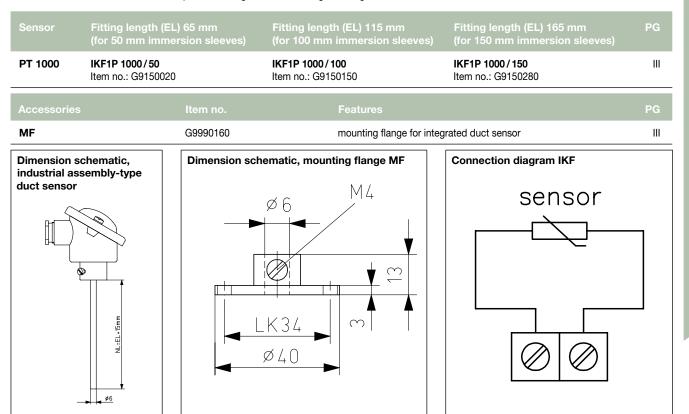
with passive output

	alre
2	

Technical data		Application
Housing colour:	silver-grey	The industrial assembly-type duct
Housing material:	aluminium	sensor IKF1 is used for measuring
Sensor tube material:	V2A (1.4301)	temperatures of liquids and gases in pipes, air ducts or tanks in the
Ambient temperature:	−30…+100°C	mechanical and plant engineering
Permissible atmospheric humidity:	max. 95% rel. humidity, non-condensing	sector. A mounting flange (MF) is required for use in air ducts. If used
Max. sensor temperature	150 °C	in liquids, immersion sleeves made
Electrical connection:	screw-type terminals 0.14 m 2.5 mm ² only to safety extra low volta max. 30 VAC/42 VDC	snould be used. For aggressive
Tolerances:	PT1000 DIN E	EN 60751 B or mounting flanges are not part
Mounting/attachment:	in immersion sleeves (THMs fluids or with mounting flang air ducts	ls, THV) for of the delivery scope and must be
Protection rating:	IP 43	Sensor wire extendable:
Protection class:	III	Depending on the cross-section of the conductor and the sensor unit
Safety and EMC:	according to DIN EN 60730	
Sensor characteristic curves:	the sensor characteristic cur can be found in the "Miscella section	urves
Immersion sleeves:	From the fitting length (EL), s 15 mm to determine the norr length (NL) of the immersion for example, EL = 65 mm co to THV/50	minal on sleeve,
Accessories:	mounting flange for installati ducts: MF matching immersion sleeves Immersion sleeves with bras can be found in the "Miscella section matching immersion stainless steel (V4A): immersion	es in brass: ass plating Ilaneous" n sleeves

sleeves made of stainless steel can be found in the "Miscellaneous" section

Please follow the EMC directives, avoid parallel routing with mains voltage-bearing wires, or use shielded wires.



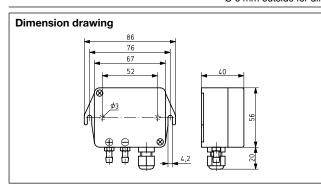
Sensor technology



Technical data

		Application
Housing colour: Housing material: Material of parts coming in contact with the medium: Operating voltage:	grey plastic Ni, PU, Al, Au, Pyrex glass, silicone, Kovar, Duraplast, Ultem Plasic 15–30 VDC, 15–30 VAC	The microprocessor-controlled pressure transducers are suitable for detecting overpressure, under- pressure or differential pressure of non-aggressive
Ambient temperature:	1050 °C	gases.
Permissible atmospheric humidity:	max. 80% rel. humidity, non-con- densing	They are used in heating, ventilation or air conditioning applications as
Max. pressure:	5 times the measurement range end value (relative pressure)	well as in clean room technology or for fine draft measurement.
Electrical connection:	screw-type terminals up to 1.5 mm ²	The pressure measurement is
Mounting/attachment:	wall mounting	performed using a piezo-resistive
Protection rating:	IP 54	pressure sensor.
Protection class:	III	The types MDEKD replace the types
Safety and EMC:	according to DIN EN 60730	DF.
Sensor:	piezo-resistive pressure sensor	
Pressure connection:	d x L: 6.6 x 10 mm (for flexible tubes $d = 6$ mm)	
Cable gland:	M 12 x 1.5	
Output signal:	continuous, adjustable 0–10 V, 0–20 mA, 4–20 mA	
Accuracy:	Linearity: +/-2% FS Influence of supply: <0.05% Influence of position: 0.1% at 3000 Pa, 0.3% at 1500 Pa, 0.9% at 500 Pa, 1.8% at 250 Pa Temperature drift: offset and range respectively +/-0.12% FS/K Long-term stability: +/-2% FS/year	

Туре	Item no.	Measurement ranges	PG
MDEKD-940.000	G9270010	1000 Pa, 750 Pa; 500 Pa; 250 Pa relative pressure	III
MDEKD-940.100	G9270020	10000 Pa; 7500 Pa; 5000 Pa; 2500 Pa relative pressure	11
Accessories	Item no.	Features	PG
JZ-27	G9990450	cover with 3.5-digit LC display for MDEKD, easy assembly	111
JZ-01 L	H5309226	Single duct connection made of plastic (grey) Ø 6 mm external for differential pressure switch JDW, JDL, pressure transducer	II
JZ-06/1	H5309229	Connection set with duct connections made of plastic, 2 x 90° angles, 2 extensions 90 mm, 4 self-tapping screws, 2 m tube Ø 6 mm outside for differential pressure switch JDW, JDL, pressure transducer	II





ACCESSORIES AND MISCELLANEOUS



Personalisation off the rack.



ACCESSORIES AND MISCELLANEOUS Supplements to our range of services.

Perfect control technology becomes even more perfect with our accessories – and there is a broad range of items to choose from. Precise assembly made easy thanks to our technical explanations, assembly instructions and hints on correct use.

This section provides you with the entire range of accessories as well as with valuable tips for experts.

Helping you make things better.

Application examples:

- Controllers for dry and wet saunas
- Process connections for liquid and gaseous media
- Various accessories



ACCESSORIES/MISCELLANEOUS overview

Sauna controllers

Sauna controllers	216 – 217
Accessories	
Accessories	218 - 223
Technical annex	
Type comparison (old/new)	204
Tips for heating installers and electricians	205
Ecodesign Directive and funding opportunities	206 – 209
	010 011

 Sensor characteristic curves
 210 - 211

 Technical terms
 212 - 213

Index

Index by product designations	214 – 216
Index by type designations	217 – 219

General information/Contact/Addresses

General terms and conditions of supply	220 – 221
Safety regulations	222
Notes on technical data	222
General notes	222
Addresses and contact persons	223

Type/image Saunatherm VU

ccc o

Sauna controllers SAUNATHERM VU/HYGROTHERM VU

For dry and wet saunas

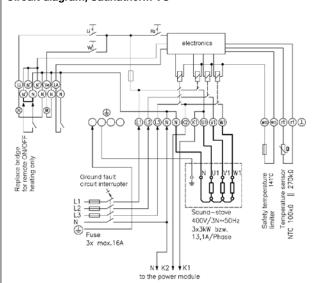
Technical data		Application
Colour:	cream white, like RAL 9001	Sauna controllers for dry or dry/w
Housing material:	ABS	saunas.
Mains voltage:	400 VAC, 3/N 50 Hz	Load expansion possible with LG
Features:	sensor rupture/short-circuit safe- guarding, "light" switch, "ON/OFF" switch, "light/fan/electronics" micro- fuse, "ON/OFF" contact input	9/18 (18 kW) or LG 9/30 (30 kW).
Trigger temperature of safe- ty temperature limiter:	approx. 141 °C	
Heating time limit:	6 h/12 h/none	
Pre-selection timer:	can be set to max. 12 h, 1-h intervals	
Switching power, furnace:	max. 9 kW (max. 3 kW per phase)	
Switching power, light:	max. 100 W, 230 VAC, 50 Hz	
Switching power, fan:	max. 100 W, 230 VAC, 50 Hz	
Switching element:	safety protection, relay 3-stage switching	
Hysteresis:	approx. 1 K	
Display type:	LED	
Protection rating:	IP 44	
Protection class:	II, if properly mounted	
Safeguarding:	T1, 25 A (5 x 20)	
Scope of delivery:	control unit, sensor/STB, fastening screws	
Mounting:	wall mounting	
Ambient temperature:	–15…+25°C	
Electrical connection:	screw-type terminals	
Permissible atmospheric humidity:	max. 95% rel. humidity, non-con- densing	
. Features		P
53 Sauna controller for dr Control range: 30 12 Switch: "Fan On/Off"	, , ,	

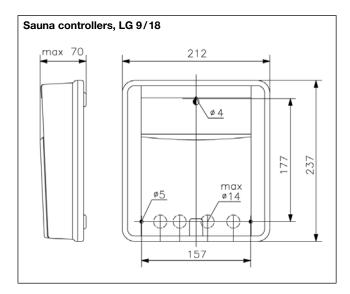
D4700736	Sauna controller for dry saunas (Finnish) or wet saunas	III
	0 7 7	
	Switch: "Fan, 3-stage"	
	Indicators: "Heating", "ON/OFF", "Pre-selection timer"	
	Water shortage detection	
	Post-operation drying temperature adjustable: approx. 6080 °C	
	Post-operation drying limitation: approx. 3.5 h	
	Fan post-operation time: approx. 15 minutes	
	D4700736	Control range, dry sauna: 80110 °C Control range, wet sauna: 4060 °C/approx. 4095 % rel. humidity Switching power vaporiser: max. 3 kW Switch: "Fan, 3-stage" Indicators: "Heating", "ON/OFF", "Pre-selection timer" Water shortage detection Post-operation drying temperature adjustable: approx. 6080 °C Post-operation drying limitation: approx. 3.5 h

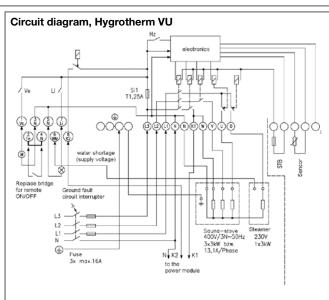
Accessories, sauna controllers SAUNATHERM VU/HYGROTHERM VU

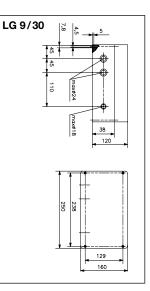
For dry and wet saunas

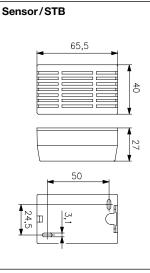
Type/image	ltem no.	Features		PG			
LG 9/18	D4710450	With this unit, all cont switching power (9 k)	Power switching unit 9 kW (max. 3 kW per phase) With this unit, all control units can be enhanced from 9 kW to 18 kW switching power (9 kW via control unit +9 kW via load switch = 18 kW total power).				
LG 9/30	H4690008	With this unit, all cont switching power (9 k	Power switching unit 21 kW (max. 7 kW per phase) With this unit, all control units can be enhanced from 9 kW to 30 kW switching power (9 kW via control unit +21 kW via load switch =30 kW total power).				
Sensor/STB	D4700662	Spare sensor/STB fo	Spare sensor/STB for Saunatherm VU and Hygrotherm VU				
Circuit diagram, Sa	aunatherm VU		Circuit diagram, Hygrotherm VU				











Ire

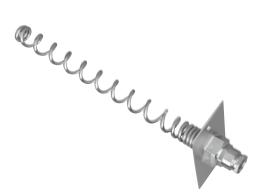
Immersion sleeves/protection coils for RTKSA and for sleeve and cable sensors

SW-200/SW-200-12



THK/NTHK





Туре	Item no.	Length of L	Diameter I x A*	Material	Max. pres- sure (P / bar)	PG
Immersion sleeves	for RTKSA					
THK-2-100	KA969901	100 mm	7.5 x 10 mm	nickel-plated brass	20	II
THK-2-120	KA969902	120 mm	7.5 x 10 mm	nickel-plated brass	20	II
THK-2-200	KA969903	200 mm	7.5 x 10 mm	nickel-plated brass	20	II
THK-2-280	KA969904	280 mm	7.5 x 10 mm	nickel-plated brass	20	II
THK-2-600	KA969905	600 mm	7.5 x 10 mm	nickel-plated brass	20	II
NTHK-2-100	KA969906	100 mm	7.5 x 10 mm	V4 A (1.4571)	40	II
NTHK-2-120	KA969907	120 mm	7.5 x 10 mm	V4 A (1.4571)	40	II
NTHK-2-200	KA969908	200 mm	7.5 x 10 mm	V4 A (1.4571)	40	II
NTHK-2-280	KA969909	280 mm	7.5 x 10 mm	V4 A (1.4571)	40	II
THK-2-100 x 17	KA979901	100 mm	14.8 x 17 mm	nickel-plated brass	20	II
THK-2-200 x 17	KA979902	200 mm	14.8 x 17 mm	nickel-plated brass	20	II
NTHK-2-100 x 17	KA979903	100 mm	14.8 x 17 mm	V4 A (1.4571)	40	II
NTHK-2-200 x 17	KA979904	200 mm	14.8 x 17 mm	V4 A (1.4571)	40	II

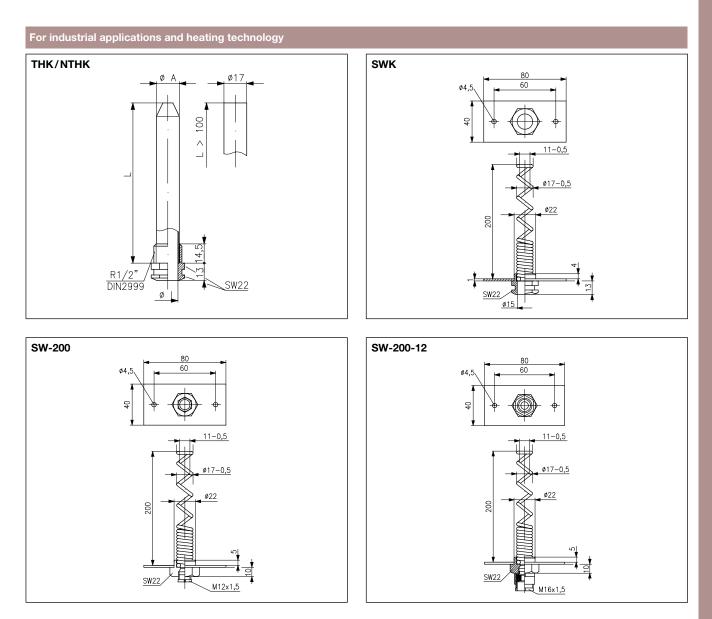
Туре	Item no.	Length of L	Diameter I x A*	Material		PG
Protection coil fo	r RTKSA					
SWK-2-100	KA989901	100 mm	10.5 x 17 mm	steel, nickel-plated		II
SWK-2-120	KA989902	120 mm	10.5 x 17 mm	steel, nickel-plated		II
SWK-2-200	KA989903	200 mm	10.5 x 17 mm	steel, nickel-plated		II
SWK-2-280	KA989904	280 mm	10.5 x 17 mm	steel, nickel-plated		II
Туре	Item no.	Length of L	Cable gland	Diameter I x A*	Material	PG
Protection coil fo	r capillary fastening	in the air duct (JET	/JMT/JTF) and all	sleeve sensors HF a	nd cable sensors	
SW-200	C1809219	200 mm	7.8 mm	11 x 17 mm	steel, nickel-plated	II
SW-200-12	C1809220	200 mm	11.8 mm	11 x 17 mm	steel, nickel-plated	II

* I = minimum inner diameter

A = nominal outer diameter



Immersion sleeves/protection coils for RTKSA and for sleeve and cable sensors



Catalogue 2020 | Page 219

Immersion sleeves for capillary/frost protection thermostats/HF/ screed mounting

```
For industrial applications and heating technology
```

TH/NTH

THF



Туре	Item no.	Length of L	Diameter I x A**	Material	Max. pressure (P/bar)	PG
For sensors HF/	KF Ø 7 mm, capillary	and frost protection	thermostats JET/	JMT/WR 81 and JTF (for JTF, only type TH/I	NTH-140)
TH-55	C1809296	55 mm	8 x 10 mm	nickel-plated brass	20	II
TH-100	C1809310	100 mm	8 x 10 mm	nickel-plated brass	20	II
TH-140*	C1809409	140 mm	10 x 12 mm	nickel-plated brass	20	II
TH-200	C1809438	200 mm	8 x 10 mm	nickel-plated brass	20	II
TH-280	C1809440	280 mm	8 x 10 mm	nickel-plated brass	20	II
NTH-55	C1809284	55 mm	8 x 10 mm	V4 A (1.4571)	40	II
NTH-100	C1809308	100 mm	8 x 10 mm	V4 A (1.4571)	40	I
NTH-140*	C1809435	140 mm	10 x 12 mm	V4 A (1.4571)	40	II
NTH-200	C1809439	200 mm	8 x 10 mm	V4 A (1.4571)	40	I
NTH-280	C1809441	280 mm	8 x 10 mm	V4 A (1.4571)	40	I

* Suitable for all types with an X in the designation, for example JET-1... X or JMT 206 X

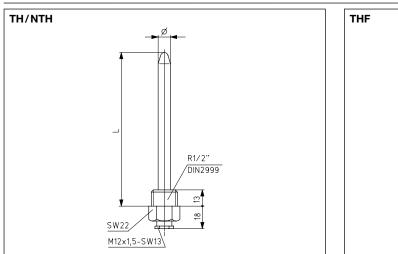
** I = minimum inner diameter

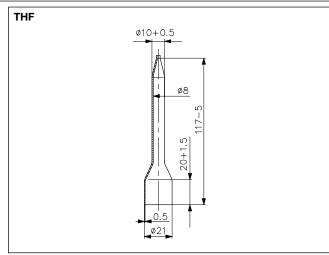
A = nominal outer diameter

Cu protective sleeve for sleeve sensor HF/cable sensor KF Ø 7.7 mm for screed mounting

THF



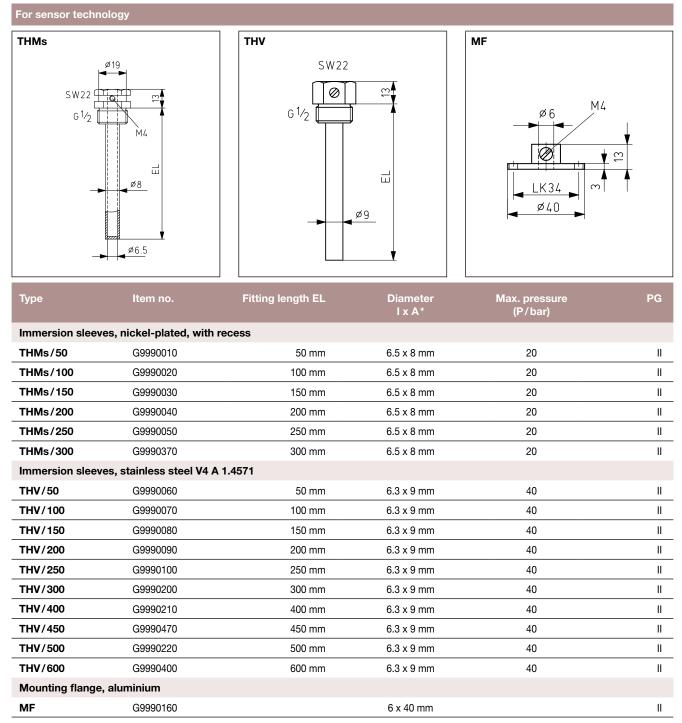




II

Immersion sleeves/mounting flange for HF, KF, EKF and IKF

for sleeve sensors Ø 6 mm PVC and silicone, assembly-type and industrial duct sensors



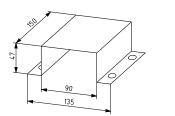
* I = minimum inner diameter

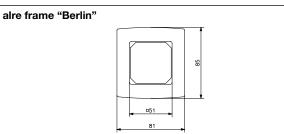
A = nominal outer diameter

Accessories for heating technology/air conditioning technology/plant engineering and sensors

Туре	Item no.	Description	PG
ATRS-1	C1809518	Temperature determination set for ATR 83.0	II
ET-01	MA990000	Adjusting knob for B1000 series devices, scale: Degrees Celsius, pure white glossy	I
ET-02	MA990001	Adjusting knob for B1000 series devices, multi-digit display 16, pure white glossy	I
FS-HI	H530975	Sensor protection (protective wire braiding) for duct hygrostat HI	II
FS2-HI	H531011	PTFE filter fine protection for duct hygrostat HI	
JZ-01 L	H5309226	Single duct connection made of plastic (grey) Ø 6 mm outside for differential pressure switch JDW, JDL, pressure transducers	II
JZ-04	E6160133	capillary tube leadthrough for air ducts with 30 cm protective hose (JTF frost protection thermostats, JMT capillary controllers, WR, JET)	II
JZ-05/6 K	C1809536	1 set of assembly brackets (6 pieces) for JTF frost protection thermostats made of plastic (max. 145 $^\circ \text{C}$)	II
JZ-05/6 M	C1809474	1 set of mounting brackets (6 pieces) for frost protection thermostat JTF, made of metal	II
JZ-05/1 M	C1809462	single mounting bracket for frost protection thermostat JTF, made of metal	11
JZ-06/1	H5309229	Connection set with duct connections made of plastic, 2 x 90° angles, 2 extensions 90 mm, 4 self-tapping screws, 2 m tube Ø 6 mm outside for differential pressure switch, JDW, JDL, pressure transducer DF	II
JZ-07	E6160145	Mounting bracket for frost protection thermostats JTF	II
JZ-08	E6150031	Spare vane for wind indication relay JSL	II
JZ-09	E6140170	Spare paddles (4 pieces), from 1" 8" for flow monitor JSF	
JZ-10	H5309237	Mounting bracket for JDL 109/-113 and JDW-3/-5/-10 with 6 screws	II
JZ-13	ZA990001	standard rail with drilled holes for fastening control cabinet controllers (length 40 mm)	11
JZ-17	MN990001	Adapter plate for Berlin 3000 housing (hard-wired)	
JZ-18	MN990002	Adapter snap-on plate (controller is detachable) for Berlin 3000 housing (wireless)	
JZ-19	MN990003	Fully prewired plug-in socket (as for RTBSB-001.411), can be fitted with room thermo- stats RTBSB-001.086 or RTBSB-001.096	I
JZ-20-1	E6130144	Wall holder including fastening material for duct hygrostat (HI)	11
JZ-21	MN990006	Adapter frame for mounting devices of the Berlin 1000 series in flush-mounted sockets up to 80 x 80 mm	I
JZ-24	BN990002	Magnetic fastening set for simple and safe fastening of multi-channel receivers or wiring strips VOORL	II
JZ-25	BN990003	External antenna for reception enhancement under difficult reception conditions of the multi-channel receiver, antenna cable (JZ-26) is not a part of the delivery scope (see page 31 for product photo)	II
JZ-26	BN990004	Antenna cable 1 m for connecting the external antenna JZ-25 with multi-channel receivers	II
JZ-27	G9990450	LC-display 3½ digit, for MDEKD	111
JZ-28	H531012	IP65 cover set, consisting of a cover with pressure compensation element, O-ring and 3 screws, suitable for retrofitting of the types JDL-111, JDL-112, JDL-114, JDL-115 and JDL-116	II
JZ-29	KA999901	Mounting set RTKSA for THK/NTHK/SWK single thermostat	Ι
JZ-30	KA999902	Mounting set RTKSA for THK/NTHK/SWK double thermostat	I
JZ-31	KA999903	Mounting set RTKSA for pipe mounting as contact thermostat	1
JZ-32	BN990005	Magnetic fastening set for simple and safe fastening	1
JZ-090.900	VV000025	alre frame "Berlin" for all flush-mounted controllers with cover 50 x 50 pure white, glossy, like RAL 9010	I
JZ-090.910	VV000010	alre frame "Berlin" for all flush-mounted controllers with cover 50 x 50 pearl white, glossy, like RAL 1013	Ι
JZ-DA	H5309230	Covering cap with external setting and seal for JDL-111, -112, -115, -116, -117, spare cap for JDL-11x A types	II
S protection 01	G9990170	Ball impact guard, sun and rain protection; 150 x 90 x 47 mm; stainless steel V4A 1.4571	III
			11

S protection 01







Accessories for heating technology/air conditioning technology/plant engineering and sensors



Type comparison overview

Flush-mounted mechanical room temperature controllers old (FTR) and new (RTBSU):

Old item no.	Old type			Remarks
UA010017	FTR 101.000#00	UA090000	RTBSU-401.000#00	
UN010009	FTR 101.000#21	UA090014	RTBSU-401.000#21	
UA010134	FTR 101.002#00	UA090001	RTBSU-401.002#00	
UA010222	FTR 101.010#00	UA090002	RTBSU-401.010#00	
UA012404	FTR 101.034#07	UA090004	RTBSU-401.034#00	+ JZ-016.000
UA012405	FTR 101.034#55	UA090004	RTBSU-401.034#00	+ JZ-016.100
UA010702	FTR 101.052#21	UA090015	RTBSU-401.052#21	
UA010811	FTR 101.062#00	UA090003	RTBSU-401.062#00	
UA011000	FTR 101.063#00	UA090006	RTBSU-401.063#00	
UA010910	FTR 101.065#00	UA090007	RTBSU-401.065#00	
UA010415	FTR 101.075#00	UA090008	RTBSU-401.075#00	
UA010615	FTR 101.086#00	UA090009	RTBSU-401.086#00	
UN010607	FTR 101.086#21	UA090016	RTBSU -401.086#21	
UA012008	FTR 101.202#00	UA090010	RTBSU-401.202#00	
UN102009	FTR 101.202#21	UA090010	RTBSU-401.202#00	+ JZ-001.000 + JZ-090.900
UA012301	FTR 101.210#00	UA090011	RTBSU-401.210#00	
UA012500	FTR 101.262#00	UA090012	RTBSU-401.262#00	
UA012501	FTR 101.262#21	UA090012	RTBSU-401.262#00	+ JZ-002.000 + JZ-090.900
UA012600	FTR 101.265#00	UA090017	RTBSU-401.265#00	
UA013000	FTR 101.902#07	UA090013	RTBSU-401.902#07	

Terminal strip for heating manifold:

Old item no.	Old type				Remarks
DA480500	VOOPL-215.000	5-channel, IP20	DA480510	VOOPL-216.176	6-channel, IP 20
DA480200	VOOPD-215.000	5-channel, IP65	DA480510	VOOPL-216.176	6-channel, IP 20
DA480400	VOOPL-318.000	8-channel, IP20	DA480520	VOOPL-318.178	8-channel, IP 20
DA480300	VOOPD-318.000	8-channel, IP65	DA480520	VOOPL-318.178	8-channel, IP 20

Plant room thermostat old (JET-4x/JET-3x) and new (RTKSA):

Old alre types	Control range	Hysteresis	New alre types	Control range	Hysteresis
JET-40	0+35 °C	1 K	RTKSA-100.010	–10…+40 °C	1.3 K
JET-40F	0+35 °C	1 K	RTKSA-101.010	−10…+40 °C	1.3 K
JET-41	0+70 °C	2 K	RTKSA-100.110	0+50 °C	1.3 K
JET-41F	0+70 °C	2 K	RTKSA-101.110	0+50 °C	1.3 K
JET-30	10… 45 °C (external) TR 0… 35 °C (internal) TW	approx. 1 K	RTKSA-114.110	0…+50 °C (internal) TW	1.3 K
JET-31	10+45 °C (internal) TW 0+35 °C (internal) TW	approx. 1 K		0 +50 °C (internal) TW	

TR = temperature controller, TW = temperature monitor

Type comparison overview

Boiler/ventilation thermostats (old) (KR/LR) and universal capillary thermostat (new) (RTKSA):

Old alre types	Control range	Hysteresis	New alre types	Control range	Hysteresis	Accessories
KR 80.312	fixed at 100 °C	–20 K				THK-2-100 + JZ-29
LR 80.312	fixed at 100 °C	–20 K				SWK-2-100
KR 80.318	fixed at 100 °C	–20 K				THK-2-200 + JZ-29
LR 80.318	fixed at 100 °C	–20 K				SWK-2-200
KR 80.309	fixed at 75 °C	–20 K	RTKSA-003.310	20150 °C	–10 K	THK-2-100 + JZ-29
LR 80.309	fixed at 75 °C	–20 K				SWK-2-100
KR 80.310	fixed at 75 °C	–20 K				THK-2-200 + JZ-29
LR 80.310	fixed at 75 °C	–20 K				SWK-2-200
KR 80.206	30…65 °C	–8 K				THK-2-100 + JZ-29
KR 80.206 IP54	30…65 °C	–8 K		00 110 %	10 1/	THK-2-100 + JZ-29
KR 80.207	60…95 °C	–8 K	RTKSA-002.410	30110 °C	–10 K	THK-2-100 + JZ-29
LR 80.207	60…95 °C	–8 K				SWK-2-100
KR 80.208	85120 °C	–8 K				THK-2-100 + JZ-29
KR 80.202	95130 °C	–8 K				THK-2-100 + JZ-29
KR 80.203	95130 °C	–8 K	RTKSA-002.310	20150 °C	–10 K	THK-2-200 + JZ-29
LR 80.203	95130 °C	–8 K				SWK-2-200
KR 80.203 IP54	95130 °C	–8 K				THK-2-200 + JZ-29
WR 81.029-1	035 °C	0.51 K				-
KR 80.003-1	035 °C	1 K	RTKSA-000.100	050 °C	1.3 K	THK-2-120 + JZ-29
LR 80.003-1	035 °C	1 K				SWK-2-120
WR 81.009-2	070 °C	12 K				-
KR 80.035-2	070 °C	2 K				THK-2-100 + JZ-29
KR 80.027-5	070 °C	5 K				THK-2-100 + JZ-29
LR 80.027-5	070 °C	5 K				SWK-2-100
LR 80.035-2	070 °C	2 K				SWK-2-100
KR 80.028-2	070 °C	2 K				THK-2-200 + JZ-29
LR 80.028-2	070 °C	2 K				SWK-2-200
KR 80.029-2	070 °C	2 K	RTKSA-000.200	0120 °C	3 K	THK-2-280 + JZ-29
KR 80.029-2 V4A	070 °C	3 K				NTHK-2-280 + JZ-29
LR 80.029-2	070 °C	2 K				SWK-2-280
KR 80.011-1 V4A	1045 °C	1 K				NTHK-2-120 + JZ-29
KR 80.009-1 V4A	1045 °C	1 K				NTHK-2-200 + JZ-29
KR 80.000-5	35…95 °C	5 K				THK-2-100 + JZ-29
KR 80.001-5	35…95 °C	5 K				THK-2-200 + JZ-29
KR 80.001-5 V4A	35…95 °C	5 K				NTHK-2-200 + JZ-29
KR 80.008-8	40110 °C	8 K				THK-2-100 + JZ-29
KR 80.006-8	50130 °C	8 K	RTKSA-000.300	20150 °C	9.1 K	THK-2-100 + JZ-29

Type comparison overview

Boiler/ventilation thermostats (old) (KR/LR) and universal capillary thermostat (new) (RTKSA):

Old alre types	Control range	Hysteresis	New alre types	Control range	Hysteresis	Accessories
WR 81.101-1	035 °C	0.5 1 K				-
WR 81.129-1	035 °C	0.51 K				-
KR 80.108-1	035 °C	1 K	RTKSA-001.100	0…50 °C	1.3 K	THK-2-120 + JZ-29
LR 80.108-1	035 °C	1 K	RTK5A-001.100	050 C	1.3 K	SWK-120
KR 80.109-1	035 °C	1 K				THK-2-200 + JZ-29
LR 80.109-1	035 °C	1 K				SWK-2-200
WR 81.115-5	070 °C	4 K				JZ-31
WR 81.109-2	070 °C	12 K				-
KR 80.116-2	070 °C	2 K		0120 °C	3 K	THK-2-100 + JZ-29
LR 80.116-2	070 °C	2 K	RTKSA-001.200			SWK-2-100
KR 80.111-3	080 °C	1 K				THK-2-100 + JZ-29
KR 80.120-1	1045 °C	1 K				THK-2-200 + JZ-29
LR 80.120-1	1045 °C	1 K				SWK-2-200
KR 80.100-5	35…95 °C	5 K				THK-2-100 + JZ-29
KR 80.100-5 IP54	35…95 °C	5 K				NTHK-2-100 + JZ-29
KR 80.101-5	35…95 °C	5 K	RTKSA-001.301	20150 °C	3.3 K	THK-2-200 + JZ-29
LR 80.101-5	35…95 °C	5 K				SWK-2-200
KR 80.124-5	35…95 °C	5 K				THK-2-280 + JZ-29
KR 80.112-5	35 95 °C	8 K				THK-2-600 + JZ-29
KR 80.102-8	40110 °C	8 K				THK-2-100 + JZ-29
KR 80.103-8	40110 °C	8 K	RTKSA-001.300	20150 °C	9.1 K	THK-2-200 + JZ-29
WR 81.117-5	50130 °C	4 K				JZ-31
KR 80.006-8	50130 °C	8 K				THK-2-100 + JZ-29

Frost protection thermostat old (JTF-1xx) and new (RTKSA):

Old alre types	Capillary length	General features	New alre types	Capillary length	General features
JTF-101	6 m		RTKSA-204.200	6 m	Degree of protection: IP 40
JTF-103	1.8 m	Degree of protection: IP 54 Hysteresis: approx. 1 K	RTKSA-204.000	1.8 m	Hysteresis: approx. 1.5 K
JTF-105	3 m	Control range: -8+8 °C Tmax sensor: 150 °C	RTKSA-204.100	3 m	Control range: –10 … +15 °C
JTF-112	12 m		RTKSA-204.300	12 m	Tmax sensor: 120 °C



Tips for heating installers and electricians

Berlin 1000/2000/3000 - bimetal

Cause
1.) The neutral conductor N is not connected to terminal 4 of the controller.
2.) The neutral conductor N is connected to terminal 4 of the controller, but not in the distribution system (distribution box, fuse box).
 Incoming and outgoing (switched) phase have been interchanged. As a re- sult, the feedback resistor continuously carries a voltage and acts like a tem- perature reducer in the room. Moreover, the temperature variation is very high (approx. 5–8 K)
2.) The heating output is dimensioned too low for the room. As a result of this, the power-on time of the controller is too long; the feedback resistor is thus switched on for too long and acts as a temperature reducer in the room.
3.) External heat sources are influencing the controller (for example, the sun, TV, lamp etc.). These external heat sources cause the controller to register a high-er-than-actual temperature and, as a result, the room is not heated sufficiently.
 The controller has been installed, for example, behind a curtain or on an outer wall or next to a door. The controller registers a lower-than-actual temperature and, as a result, the room is overheated.
1.) Faulty actuator element, actuator element does not open the valve.
2.) There may be coarse construction site dirt in the controller. This dirt is prevent- ing the contact from closing.
3.) The controllers of two rooms have been connected in series. These rooms only become warm when both controller contacts are closed.

Other notes:

- 1.) Particularly with floor heating, it is important to remember that there are very long reaction times. Therefore, the room heats up very slowly and also cools slowly (incident sunlight, for example, results in overheating). Therefore, do not expect that a cold room will reach the desired room temperature within a short time after having set the adjusting knob to a high value.
- 2.) Also, with well insulated rooms, remember that the room temperature drops very slowly. As a result, it can happen that at night, despite "Reduced operation" (for example, 4 K lower), the room temperature drops only a little and the heating therefore does not get activated for a prolonged time.
- 3.) Very often, the function of bimetal controllers is impaired or rendered completely useless by construction site dirt that has penetrated into them. Therefore, the controllers should be installed only after any required spatula, painting or wallpapering work. Avoid drilling dust without fail.

Plant engineering

Note for connecting industrial thermostats and controllers to PLC or DDC:

For connecting industrial thermostats and controllers to programmable logic controllers (PLC) or direct digital controls (DDC), the use of normal commercial coupling relays with 230 V~ coil voltage and gold-plated switching contacts is recommended.



Ecodesign Directive

The Ecodesign Directive (EU 2015/1188) lays down requirements for the placing on the market and putting into service of household local space heaters. The Directive entered into force on 10/08/2015 with a transitional period until 01/01/2018. The aim of the Directive is the environmentally compatible design and labelling of local space heaters and the associated reduction of energy consumption.

alre welcomes this development and the demand for energy-saving control technology. The development and production of innovative and products optimised for energy consumption has been our calling for almost 50 years.

The Directive distinguishes between different types of heating, electric local space heaters and local space heaters for gaseous or liquid fuels. The electric local space heaters are additionally subdivided into:

- portable local space heaters;
- fixed local space heaters;
- Storage local space heaters;
- underfloor local space heaters;
- Radiant local space heaters.

Central space heaters that distribute heat to different rooms via a liquid medium are not affected by this regulation.

The following table lists the products that comply with the Directive for use in portable local space heaters, fixed local space heaters and underfloor local space heaters. If you have any questions about suitable products for other types of heating, please do not hesitate to contact us.



Products/Product groups	Electric local space heaters							
		Portable	Fixed	Underfloor				
HTRRUu 210.021 see page 94–97		~	~	~				
HTRRBu 110.1xx/21 see page 72		~	~	~				
Wireless system without weekly programme Actuators: HTFRB, HTFRA, HTFRU, HTFRE Sensors: FTRFB see Smarthome/Wireless chapter		1						
Wireless system with weekly programme* Actuators: HTFRB, HTFRA, HTFRU, HTFRE Sensors: FTRFB, FTRFBu, FTRFUd see Smarthome/Wireless chapter		1	4	*				
b@home system see Smarthome/Wireless chapter		4	4	*				
RTBSU-401.xxx RTBSB-001.xxx RTBSB-001.4xx see Heating Technology chapter		1						
RTBSU-401.xxx or RTBSB-001.xxx (variants with clock input) in conjunction with clock thermostat** see Heating Technology chapter		~	~	*				
FETR-101.7xx HTRRB-01x.xxx see Heating Technology chapter		~						
FETR-101.7xx or HTRRB-01x.xxx in conjunction with clock thermostat** see Heating Technology chapter		~	~	✓				

* Sensors with clock required in each room or master-slave control with central clock programme (transfer of central sensor functions with clock).

** Transfer of clock thermostat functions via clock output to the corresponding clock input of other thermostats.

Funding opportunities with the BAFA subsidy programme

Heat intelligently: Secure a subsidy of 30 percent for the optimisation of your heating system now.

Obsolete technology and non-coordinated plant components often lead to excessive energy consumption. However, many homeowners shy away from renovating their heating systems because they fear high costs.

For this reason, the German Federal Office for Economic Affairs and Export Control (BAFA) has launched a subsidy programme for heating optimisation. The aim of the subsidy programme is to motivate homeowners to renew their heating systems with attractive, non-repayable subsidies. Among other things, this is intended to make an important contribution to the environmentally friendly supply of heat in Germany.

What is subsidised? And does the subsidy also apply to alre products?

Within the framework of BAFA subsidies, two measures for heating optimisation are subsidised at 30 percent by the state:

1st Replacement of heating circulation pumps and hot water circulation pumps by more efficient pumps 2nd Hydraulic balancing (heating system must be at least two years old)

For heating optimisation by **hydraulic adjustment**, you can also have our energy-saving **alre controllers** (from RTBSU-401 to the b@home system) installed by a specialist technician. The acquisition and installation costs are also subsidized at 30 percent.

Heating optimisation with the BAFA subsidy

What is subsidised?

Replacing the pumps

Replacement of heating circulation pumps and/or hot water circulation pumps Measures can be combined with each other

Hydraulic balancing

(for existing heating systems that are at least two years old)



Promotion of the acquisition and installation of energy-saving technology

e.g. **alre** individual room temperature controllers (installation must be carried out by a specialist technician)



Who can apply for the subsidy?

In principle, private individuals, companies, freelancers, municipalities, regional authorities and special-purpose associations as well as other legal entities under private law (in particular associations, foundations, non-profit organisations or cooperatives) are entitled to support. The German Federal Government, German Federal States and their institutions are excluded from funding.





Step 2 Contract a specialist technician and optimise the heating system



Step 3

Submit of the subsidy application and invoice copy

Further information on the BAFA subsidy programme can be found at www.bafa.de



Sensor characteristic curves – table of sensor values

Temperature	PT 100	PT 1000	NI 1000
°C	Ω	Ω	Ω
-50	80.30	803.00	742.55
-45	82.30	823.00	766.76
-40	84.30	843.00	791.31
-35	86.20	862.00	816.21
-30	88.20	882.00	841.46
-25	90.20	902.00	867.04
-20	92.20	922.00	892.96
-15	94.10	941.00	919.22
-10	96.10	961.00	945.82
-5	98.00	980.00	972.74
0	100.00	1000.00	1000.00
5	102.00	1020.00	1027.59
10	103.90	1039.00	1055.52
15	105.80	1058.00	1083.77
20	107.80	1078.00	1112.36
25	109.70	1097.00	1141.29
30	111.70	1117.00	1170.56
35	113.60	1136.00	1200.16
40	115.50	1155.00	1230.11
45	117.50	1175.00	1260.41
50	119.40	1194.00	1291.05
55	121.30	1213.00	1322.05
60	123.20	1232.00	1353.40
65	125.50	1252.00	1385.12
70	127.10	1271.00	1417.21
75	129.00	1290.00	1449.67
80	130.90	1309.00	1482.50
85	132.80	1328.00	1515.73
90	134.70	1347.00	1549.34
95	136.60	1366.00	1583.36
100	138.50	1385.00	1617.79
105	140.40	1404.00	1652.62
110	142.30	1423.00	1687.89
115	144.20	1442.00	1723.58
120	146.10	1461.00	1759.72
125	148.00	1480.00	1796.30
130	149.80	1498.00	1833.35
140	153.60	1536.00	1908.87
150	157.30	1573.00	1986.35



Sensor 57 KTY 11-7	а	1051	1103	1156	1212	1269	1328	1390	1453	1518	1586	1655	1726	1799	1874	1951	2030	2111	2194	2279	2366	2456	2545	2638	2733	2829	2928	3029	3131	3236	3342	3451	3561	3674	3788	3905	4023	4143	4390	4644
Sensor 51 KTY 81-121	α	510	535	562	589	617	647	677	708	740	773	807	842	877	914	951	066	1029	1070	1111	1153	1196	1241	1286	1331	1378	1426	1475	1525	1575	1627	1679	1732	1786	1841	1896	1950	2003	2103	2189
Sensor 8 NTC 2K	α	77977	57655	43039	32427	24651	18902	14615	11391	8947	7079	5642	4527	3657	2973	2431	2000	1654	1376	1151	967	816	693	590	505	434	374	324	282	246	215	189	167	147	130	116	103	91	73	60
Sensor 6 NTC 100K	а	8276704	5751387	4044707	2877133	2069021	1503450	1103398	817535	611269	461045	350656	268840	207702	161654	126708	100000	79428	63489	51056	41297	33591	27470	22582	18656	15478	12917	10821	9105	7693	6527	5559	4752	4077	3511	3033	2629	2287	1745	1348
Sensor 5 NTC 50K	а	2820844	2027885	1473182	1080969	800794	598684	451517	343390	263262	203390	158300	124082	97925	77789	62184	50000	40455	32910	26916	22129	18285	15182	12664	10612	8931	7547	6404	5456	4665	4004	3448	2980	2584	2248	1962	1717	1507	1171	920
Sensor 4 NTC 10K	а	672283	473168	337137	243033	177155	130508	97120	72973	55337	42333	32658	25397	19903	15713	12492	10000	8056	6530	5325	4368	3602	2986	2488	2084	1753	1481	1258	1072	917	788	680	588	511	445	389	342	301	235	185
Sensor 3 NTC 8K	α	537827	378534	269709	194427	141724	104107	77696	58379	44269	33866	26126	20318	15923	12570	9994	8000	6445	5224	4260	3494	2882	2389	1991	1667	1402	1185	1006	857	734	631	544	471	409	356	12	273	240	188	148
Sensor 2 NTC 47K	α	3152409	2230085	1595524	1153886	843120	622133	463401	348285	264028	201812	155480	120696	94377	74314	58910	47000	37732	30472	24750	20214	16597	13697	11360	9466	7925	6664	5627	4771	4062	3471	2978	2563	2215	1919	1669	1456	1274	984	769
Sensor 1 NTC 1KO	α	32540	24432	18515	14156	10916	8486	6648	5248	4172	3340	2691	2182	1780	1460	1205	1000	834	669	588	498	423	361	309	266	230	199	173	151	133	117	103	91	81	72	64	57	51	41	34
Sensor 0 NTC 2K25	a	151398	106557	75923	54731	39895	29390	21871	16434	12462	9533	7355	5719	4482	3539	2813	2252	1814	1471	1199	984	811	673	560	469	395	334	283	241	207	177	153	132	115	100	88	77	68	53	42
Temperature	ů	-50	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	06	95	100	105	110	115	120	125	130	140	150

Sensor characteristic curves – table of sensor values

Miscellaneous



Catalogue 2020 | Page 233

Technical terms

Range limitation (mechanical):

Below the adjusting knob, there are "setting flags" (red/blue) for mechanically delimiting the min./max. temperature range. In this manner, an undesired mis-setting of the setpoint can be prevented, for example, in children's rooms or public buildings.

Bimetal:

Thermo-bimetal is generally constructed of layers of metal or alloys of more or less the same thickness, which are firmly joined to one another and have different coefficients of thermal elongation. As a result, they bend under temperature changes, so that upon heating, the side with the component that has a lower heat elongation becomes hollow. The heat is transferred by conduction, radiation or convection from the surroundings (indirect heating).

Defrosting:

Defrosting is the regular de-icing or heating up of the heat exchanger or cooling unit to maintain efficient operation of the system.

Intrinsic safety (JTU, JTL)

Intrinsic safety/protection against cold: The devices are intrinsically safe, i.e., upon loss of the sensor medium owing to sensor rupture, for example, the burner is switched off. Since minus temperatures generate the same effect through volume reduction of the sensor medium, the devices are adjusted by means of the "cold screw" such that they switch off the burner only at temperatures below –15 °C. They can only be switched on again manually at temperatures above approx. –5 °C by means of the manual reset button.

Air conditioner, 2-pipe fan convector (fan coil):

The 2-pipe air conditioners are supplied with heating or cooling water for heat exchange, depending on the requirement, through the same pipe system via 2 pipes (inflow and outflow).

Air conditioner, 4-pipe fan convector (fan coil):

The 4-pipe air conditioners are supplied with heating or cooling water for heat exchange, depending on the requirement, through a heating circuit and a cooling circuit (4 pipes).

Cooling ceiling:

The cooling ceiling belongs to the group of panel heaters. Cooling ceilings are used often in office spaces for passive cooling. In such systems, cold water (usually at 16 °C) flows through a network of pipes and cools the room air. Lower inflow temperatures are not possible because of condensation water formation.

Neutral zone:

The control range in which neither heating nor cooling takes place is called the neutral zone.

Break contact (bimetal):

The control contact opens with increasing temperature and closes at dropping temperature (for "heating").

Proportional band (p-band):

The proportional band is the range around the target temperature within which the controller delivers a steady output signal. This means that the room temperature is kept more or less constant within the proportional band by the controller (if the heating capacity is sufficient).

2-point control (ON/OFF control):

Control algorithm which, for example, switches off the output when the set temperature is exceeded and switches it on again when the current temperature falls short of the setpoint value. The temperature in the room is always subject to certain variations (control deviations). This deviation results from the switching temperature difference of the controller and the properties of the room, such as heating speed, heat loss etc.

3-point control:

In a 3-point control system, the controller can change between the operating modes heating, neutral zone and cooling.

PWM (pulse width modulation):

Process for generating a continuous-like transmission behaviour in a control path. By varying the power-on time at the input, owing to the time constant of the transmission path, a continuous-like (smooth) signal waveform is generated at its output.



Technical terms

Switching difference (hysteresis):

The difference between the switching on and switching off of the heater or the controller.

a) There is the switching temperature difference of the controller, which depends on the design of the device.

b) There is the switching temperature difference of the room, which is dependent on the behaviour of the entire control path, i.e. on the floor design, the action of external heat sources, the installation location of the controller and the controller itself.

The switching temperature difference always refers to the controller. It does not express the actual switching temperature difference of the control path. The latter changes according to the deployment location and conditions. Any indoor temperature is constantly subject to variations. This deviation results from the switching temperature difference of the controller and the properties of the room, such as heating speed, heat loss etc.

NO contact (bimetal):

NO contact (bimetal): The control contact closes with increasing temperature and opens at dropping temperature (for "cooling").

Toggler (bimetal):

This is a toggler with an NC contact and an NO contact. It operates as described for NC and NC contacts.

Split unit/Multi-split unit:

Split AC units consist of at least two heat exchangers in which one is installed as a vaporiser in the rooms to be cooled and the other serves as a condenser for heat dissipation. Most split units allow reverse operation for heating the rooms if this is required. Multi-split units consist of several vaporisers connected to a condenser (liquefier).

Valve actuator:

Electrical controllable valve for regulating, for example, the hot water flow in heating systems. A distinction is made here between ON/OFF valve actuators and proportional valve actuators. Proportional valves are designed for connecting controllers with a continuous control mode.

Continuous control:

The controller provides an analogue output signal. The value of the output signal changes continuously, i.e., without any steps or jumps, in response to the output signal.

Temperature reduction (TR):

The TR is also implemented via a resistor, as is the case with thermal recirculation. This resistor is activated manually or by a timer. As a result, the bimetal is made to feel a simulated temperature that is about 4 K higher than the actual temperature in the room. Consequently, in a room with a controller setting of, for example, 20 °C, the temperature in the room can drop to a value 4 K lower, to max. $16 \degree$ C. If the temperature drops further, the heating system switches on again, and at > $16 \degree$ C, it gets switched off. The magnitude of the temperature reduction to be actually achieved depends on the insulation of the building and the reduction period (one night, weekend, holiday).

Thermal recirculation (RF):

By means of an additional integrated heating resistor, the controller is made to switch off at the right time during the heating process. As a result, exceeding the desired room temperature is minimised, and there is a smaller switching difference.

Heat pump:

Rooms can be cooled or heated with heat pumps. Modern systems allow efficient heating and cooling operation since they allow reversible process reversing.

Reversing valve:

A reversing valve (4-way control valve) facilitates a reversing cycle by turning the condenser (liquefier) into an evaporator which causes the cooling unit to heat up or defrost.

Valve protection function

Valve and pump protection serves to prevent the valve seat and/or pumps from corroding during long downtimes. It is recommended to activate valve protection for hot water heating systems. If valve and pump protection is activated, the valve or a heating pump is operated once on Mondays between 1100hrs and 1200hrs for 5 minutes. Valve and pump protection only becomes active if no heating has taken place within the last week. This avoids unnecessary additional heating at times of year when heating is in use and does not affect the control system.

Evaporator/Liquefier:

A liquefier or condenser is a heat exchanger in a cooling unit that liquefies a gaseous medium through the dissipation of heat. Usually, further cooling of the cooling agent takes place in the liquefier. According to the definition of terms in the European Standard EN 378 Part 1, the condenser in cooling units is called the liquefier in order to easily distinguish it from an electrical condenser. The vaporiser implements the opposite process, evaporating the liquid medium by heating it up.

alre Index by product designations

Product	Туре	PG	Page
Accessories	Accessories		209-223
Adaptation list for flush-mounted controllers (RTBSU)	Adaptation list, flush-mounted		86
Adaptation list for flush-mounted controllers (HTRRUu)	Adaptation list, flush-mounted		97
Adaptation list for flush-mounted controllers (KTRRUu)	Adaptation list, flush-mounted		132
Air heater thermostat, capillary system, 2 functions	JTL-211	11	178–179
Air heater thermostat, capillary system, 3 functions	JTL-8 NR17 NR	11	178–179
BACnet individual room controller	KTRBUu	IV	51
Ball impact/sunlight/rain protection	S protection 01		222
b@home	Individual components, system information	I	12-36
Cable temperature sensor	KF	III	206
Climate controllers, electronic (flush-mounted) with clock	KTRRUu	I	127-131
Climate controllers, electronic with triac output	KTRTB	I	115
Climate controllers for cooling ceilings, electronic	KTRRU	I	123-126
Climate controllers, mechanical (surface-mounted)	KTBSB	I	116–117
Clock thermostats, electronic (surface-mounted) for room temperature control	HTRRBu	I	72-73
Clock thermostats, electronic (surface-mounted) for floor heating systems	HTRRBu	I	100-101
Contact temperature sensor with passive output	ALF	III	207
Contact thermostats, capillary system	ATR 83	II	171
Continuous room temperature controller, electronic, internal or external sensor	KTRVB	I	133–134
Control cabinet hygrostat	RFHSS	II	183
Control cabinet thermostats	RTBSS	II	182
Controllers for distributor assembly (hat rail), electronic	ITR 79		184–185
Cooling ceiling controllers, electronic (surface-mounted)	KTRRB-05	I	120-122
Cover sets for flush-mounted controllers (heating technology)	JZ-0	I	82
Cover sets for flush-mounted controllers (air-conditioning technology)	JZ-0	I	125
Cover sets for RTBSU in 50 x 50 mm and 55 x 55 mm	Cover sets for RTBSU	I	82
Dew point monitors, electronic	WFRRN	I	135
Dew point sensor	TPS	I	53, 121, 136–137
Differential pressure switch, adjustable	JDL-111117	III	190–191
Differential pressure switch, adjustable	JDW-3/-5/-10	II	190–191
Duct hygrostat, 1-stage and 2-stage	Н	II	187–188
Duct thermostat, capillary system	JTU-150	II	180-181
Electrothermal valve actuators	ZBOOA	I	54
Floor temperature controllers, electronic (surface-mounted)	HTRRB	I	28-31
Floor temperature controllers, electronic (flush-mounted)	FETR	1	98-99
Flow monitors, mechanical	JSF-1E4E/RE	11	192–194
Flow monitors, mechanical	JSW	III	195–196
Flush-mounted thermostats, electronic, with clock, room or floor	HTRRUu	1	94-97
Flush-mounted thermostats, mechanical	RTBSU	1	76-93
Frames for mounting all 50 x 50 flush-mounted units	Frame	1	81
Frost protection thermostats, capillary system, switching	RTKSA/JTF-125		159
Heat conduction paste	WP-01		222
Hygrostat (flush-mounted)	FHY 101.060	1	102-105
Hygrostats (surface-mounted)	RFHSB	1	138-140
Hygro-thermostat (surface-mounted)	RKDSB	1	138–140

Index by product designations

Product	Туре	PG	Page
Immersion sleeves for capillary/frost protection thermostats and sleeve sensors (Ø 7 mm) $$	NTH/TH	II	220
Immersion sleeves for capillary/frost protection thermostats and sleeve sensors (Ø 7 mm)	TH/NTH	II	220
Immersion sleeves for HF, EKF, IKF (Ø 6 mm)	THMs/THV	II	221
Immersion sleeves for RTKSA	NTHK/THK	Ш	218
Integrated duct temperature sensor with passive output	EKF	III	210
Mounting flange for EKF, IKF	MF	III	221
Outdoor temperature sensor with passive output, sensor sleeve lead-out	AFH	III	204
Outdoor temperature sensor with passive output, internal sensor	AF	III	203
Pendulum temperature sensors	PF	III	208
Plug-in socket	JZ-19	Ι	70
Protective sleeve for screed mounting of sleeve sensor HF/cable sensor KF (Ø 7.7 mm)	THF	II	220
Protection coil for sleeve and cable sensors	SW-200/SW-200-12	II	218–219
Protection coil for RTKSA	SWK	II	218–219
radiation temperature sensor	STF	III	209
Room temperature/climate controllers, electronic (surface-mounted)	KTRRB-117	Ι	118
room temperature controller, flush-mounted	FUF	III	202
Room temperature controllers, mechanical (surface-mounted), design "Berlin 1000"	RTBSB-201	I	67–69
Room temperature controllers, mechanical (surface-mounted), design "Berlin 2000"	RTBSB-001	I	70–71
Room temperature controllers, mechanical (surface-mounted plug) for mobile heaters	RTBSB-001.4	I	70-71
Room temperature sensor, surface-mounted	BTF2	III	200
Sauna controllers	SAUNATHERM VU/HYGROTHERM VU	III	216-217
Single-stage industrial thermostats, capillary system, external sensor	JET-1R	II	167
Single-stage plant room thermostats, capillary system, external sensor	RTKSA	II	156
Single-stage industrial thermostats, capillary system, 2 separate setting ranges, external sensor	JET-30/-31	II	158
Single-stage capillary thermostats	JET-1	II	168
Technical terms	Technical terms		
Terminal strip for heating manifold	VOOPL	I	107-109
Terminal strip for heating manifold with heating/cooling toggling	VOORL	I	141–143
Tips for heating installers and electricians	Tips		
Transducer "differential pressure – air"	MDEKD	III	212
Two-stage capillary thermostat	JMT-206 x	II	170
Universal capillary thermostats as boiler, ventilation or contact controller (TR/TW/TB/STB/STW)	RTKSA	II	160-163
Universal capillary double thermostats as boiler, ventilation or contact controller (TR/TW/TB/STB)	RTKSA	II	165–167
Universal controllers, electronic, remote sensor, single-stage	ETR 77	II	186
Wet room controller/double thermostat, bimetal	PTR 40	II	106, 144
Wind indicator relays, mechanical for air duct	JSL-1E	II	189
Wireless actuators heating (1/4/8-channel)	HTFR/HTFMA	I	22-29
Wireless actuators heating/cooling (4/8-channel)	KTFRL	I	172-177
Wireless temperature sensors without clock/with clock/ b@home contact sensor/repeater	FTRFB/FTRFBu/FTRFUd/ MBAFA/MRCOA	I	34-35

alre Index by type designations

Туре	PG	Product	Page
Accessories		Accessories	209-223
Adaptation list, flush-mounted		Adaptation list for flush-mounted controllers (RTBSU)	86
Adaptation list, flush-mounted		Adaptation list for flush-mounted controllers (HTRRUu)	97
Adaptation list, flush-mounted		Adaptation list for flush-mounted controllers (KTRRUu)	132
AF		Outdoor temperature sensor with passive output, internal sensor	203
AFH	III	Outdoor temperature sensor with passive output, sensor sleeve lead-out	171
ALF		Contact temperature sensor with passive output	207
ATR 83	11	Contact thermostats, capillary system	171
BTF2		room temperature sensor, surface-mounted	200
Cover sets for RTBSU	I	Cover sets for RTBSU in 50 x 50 mm and 55 x 55 mm	82
EKF		Integrated duct temperature sensor with passive output	210
ETR 77	11	Universal controllers, electronic, remote sensor, single-stage	186
FETR	1	Floor temperature controllers, electronic (flush-mounted)	102-105
FHY 101.060	1	Hygrostat (flush-mounted)	138–140
FTRCUd	1	Wireless control – central components, b@home control unit	20-21
FTRFB/FTRFBu/FTRFUd/ MBAFA/MRCOA	I	Wireless sensors without clock/with clock, contact sensor b@home/repeater	22-27
FUF		Room temperature sensor (flush-mounted)	202
H		Duct hygrostat, 1-stage and 2-stage	187–188
HTFR	1	Wireless actuators heating (1/4/8-channel)	28-32
HTRRB		Floor temperature controllers, electronic (surface-mounted)	98-99
HTFMA		Radio-controlled heating, motorised actuator	28-32
HTRRBu		Clock thermostats, electronic (surface-mounted) for room temperature control	72-73
HTRRBu		Clock thermostats, electronic (surface-mounted) for floor heating systems	100-101
HTRRUu		Flush-mounted thermostats, electronic, with clock, room or floor	94-97
IKF1		Industrial integrated duct sensor with passive output	211
ITR 79	 	Controllers for distributor assembly (hat rail), electronic	184–185
JDL-111116		Differential pressure switch, adjustable	190
JDW-3/-5/-10		Differential pressure switch, adjustable	190
JET-1R		Single-stage industrial thermostats, capillary system, external sensor	190
JET-1		Single-stage capillary thermostats	167
JET-30/-31		Single-stage capillary inernostats Single-stage industrial thermostats, capillary system, 2 separate setting ranges, external sensor	158
JMT-206 x		Two-stage capillary thermostats	170
JSF-1E4E/RE		Flow monitors, mechanical	192–194
JSE-1E4E7RE			192-194
JSW		Wind indicator relays, mechanical for air duct Flow monitors, mechanical	195–196
JTF-125			
JTL-211		Frost protection thermostats, capillary system, switching	175-177
		Air heater thermostat, capillary system, 2 functions	178-179
JTL-8 NR17 NR		Air heater thermostat, capillary system, 3 functions	178-179
JTU-150		Duct thermostat, capillary system	180-181
JZ	<u> </u>		222
JZ-0		Cover sets for flush-mounted controllers (heating technology)	82
JZ-0		Cover sets for flush-mounted controllers (air-conditioning technology)	125
JZ-19		Plug-in socket	70
KF		Cable temperature sensor	206
KTBSB		Climate controllers, mechanical (surface-mounted)	116–117
KTFRL		Wireless actuators heating/cooling (4/8-channel)	34-35
KTRBUu	IV	BACnet individual room controller	51-55
KTRRB-05		Cooling ceiling controllers, electronic (surface-mounted)	1
KTRRB-117	<u> </u>	Room temperature/climate controllers, electronic (surface-mounted)	118

Catalogue 2020 | Page 238

Index by type designations

Туре	PG	Product	Page
KTRRU	I	Climate controllers for cooling ceilings, electronic	123-126
KTRRUu	1	Climate controllers, electronic (flush-mounted) with clock	127-131
KTRTB	1	Climate controllers, electronic with triac output	115
KTRVB	1	Continuous room temperature controller, electronic, internal or external sensor	133–134
MBAFA	I	Contact sensor b@home	24
MDEKD		Transducer "differential pressure – air"	212
MF	111	Mounting flange for EKF, IKF	221
MGCBB	1	Wireless control - central components, b@home gate	20
MRCOA-014.201	I	Wireless repeater	25
NTH/TH	II	Immersion sleeves for capillary/frost protection thermostats and sleeve sensors (Ø 7 mm)	220
NTHK/THK	Ш	Immersion sleeves for RTKSA	218
PF		Pendulum temperature sensors	208
PTR 40		Wet room controller, bimetal	159
Frame	I	Frames for mounting all 50 x 50 flush-mounted units	81
RFHSB	1	Hygrostats (surface-mounted)	138–140
RFHSS		Control cabinet hygrostat	183
RKDSB	1	Hygro-thermostat (surface-mounted)	138-140
RTBSB-001.4	I	Room temperature controllers, mechanical (surface-mounted plug) for mobile heaters	70-71
RTBSB-001	I	Room temperature controllers, mechanical (surface-mounted), design "Berlin 2000"	61-66
RTBSB-201	1	Room temperature controllers, mechanical (surface-mounted), design "Berlin 1000"	67–69
RTBSS	Ш	Control cabinet thermostats	182
RTBSU	1	Flush-mounted thermostats, mechanical	76-93
RTKSA-00x.xxx		Universal capillary thermostat	160-163
RTKSA-01x.xxx		Universal capillary double thermostat	165–167
RTKSA-10x.xxx		Plant room thermostat	156-157
RTKSA-114.xxx	11	Plant room double thermostat	158
RTKSA-20x.xxx		Frost protection thermostat	172-174
SAUNATHERM VU/HYGROTHERM VU		Sauna controllers	216-217
S protection 01		Ball impact/sunlight/rain protection	222
STF		radiation temperature sensor	209
SW-200/SW-200-12	11	Protecting coil for capillary thermostats, sleeve sensors and air sensors	218–219
SWK		Protection coil for RTKSA	218–219
Technical terms		Technical terms	
TH/NTH	II	Immersion sleeves for capillary/frost protection thermostats and sleeve sensors (Ø 7 mm)	220
THF	II	Protective sleeve for screed mounting of sleeve sensor HF/ cable sensor KF (Ø 7.7 mm)	220
THK/NTHK	II	Immersion sleeves for RTKSA	218
THMs/THV	Ш	Immersion sleeves for HF, EKF, IKF, KF (Ø 6 mm)	221
Tips		Tips for heating installers and electricians	
TPS	1	Dew point sensor	53, 121, 136–137
Type comparison		Old/new capillary thermostats from the plant engineering field	
VOOPL	1	Terminal strip for heating manifold	107-109
VOORL	1	Terminal strip for heating manifold with heating/cooling toggling	141-143
WFRRN	1	Dew point monitors, electronic	135
WP-01	11	Heat conduction paste	22
ZBOOA	1	Electrothermal valve actuators	106, 144

ALRE-IT Terms and Conditions of Sale and Supply (Updated 2019)

1. General

In addition to the General Terms and Conditions of Delivery for Products and Services of the Electrical Industry and the Green Terms and Conditions of Delivery as of 2018 (hereinafter referred to as 'GL'), the following provisions shall apply to all business relations with our customers who are contractors, legal entities under public law or special funds under public law (hereinafter referred to as 'Customer'). These can be viewed and downloaded on our website at www.alre.de. We are the 'Supplier' as defined by the GL.

2. Quotations

2.1. Our offers are subject to change and without obligation, unless we have expressly designated them as binding.

2.2. Declarations of acceptance and purchase orders need our written confirmation for them to become legally valid; the same applies to supplements, changes and subsidiary agreements. Drawings, illustrations, dimensions and other performance data are only binding if they are agreed expressly in writing.

3. Prices and price adjustment

3.1. In addition to the regulations in Art. II (1) of the GL, freight, insurance and customs costs are not included in the prices.

3.2. Price changes caused by changes to the contract product or by changes to the requirements of the contract product are negotiated and determined on the basis of a joint cost analysis.

4. Deadlines for delivery/delay

In addition to the regulations in Art. IV (2) of GL, we will inform the Customer immediately if the service is not available within the extended delivery periods. In this case we shall be entitled to withdraw from the contract in whole or in part. Any consideration already rendered by the Customer shall be reimbursed by us without delay. The case of non-availability of the service in this sense shall include in particular the failure of our suppliers to deliver to us on time if we have concluded a congruent hedging transaction or if neither we nor our suppliers are at fault.

5. Liability

5.1. In principle, our liability is based on GL, in particular Art. XII.

5.2. Deviating from Art. IV (4) and Art. XI (1), and in addition to Art. VIII (10) and Art. XI (1) of GL, we, our legal representatives, executive employees or agents shall be liable under this contract for minor negligence in the event of a breach of an 'essential' obligation under this contract. 'Essential' obligations are those obligations which are necessary for the performance of the contract and the breach of which would jeopardise the achievement of the purpose of the contract and on the observance of which the Customer may therefore regularly rely. In these cases liability is limited to typical and foreseeable damages.

6. Packaging

The packaging will not be taken back, unless this is required by law.

7. Terms of payment

In addition to Article II of GL, the following provisions shall apply:

7.1. Our invoices are payable within 30 days from the date of invoice. For payment within 14 days we grant a discount of 2%.

7.2. The Customer shall be in default upon expiry of the aforementioned payment period. The amount to be paid shall bear interest during the period of default at the applicable statutory default interest rate. We reserve the right to assert further claims for damages caused by default.

7.3. We are entitled to make a delivery in whole or in part only against advance payment or cash on delivery. We will declare corresponding reservations at the latest with the order confirmation.

7.4. If it becomes apparent after conclusion of the contract (e.g. by filing for insolvency proceedings) that our claim to payment is at risk due to the purchaser's inability to pay, we shall be entitled – if applicable, after setting a deadline (Section 321 of the German Civil Code – BGB) – to withdraw from the contract in accordance with the statutory provisions on refusal of performance.

7.5. The Customer shall only be entitled to retention rights to the extent that his claim has been legally established or is undisputed. In the event of defects in the delivery, the Customer's counter rights, in particular the rights under Art. VIII (4) of the GL, remain unaffected.



8. Material defects

8.1. Supplementary to Art. VIII of GL, the purchaser's claims for defects presuppose that it has complied with its statutory obligations to inspect and give notice of defects (Sections 377, 381 of the German Commercial Code – HGB). The Customer must inspect the goods immediately after delivery. Obvious defects must be reported in writing by the Customer immediately, on the 7th day at latest. If a hidden defect only becomes apparent at a later date, the Customer must nevertheless notify us of this in writing immediately after becoming aware of it.

8.2. Supplementary to Art. VIII of GL, there shall be no warranty claims if our operating or assembly instructions are not followed, changes or repair work are carried out on our products or parts are replaced or our products are used contrary to the contractually stipulated suitability. The same applies if the purchaser, in a manner that is not transparent to us, joins, mixes or processes our products, contrary to their normal and/or usual suitability, with his products or products of third parties, or uses our products contrary to the state of science and technology, or in any other manner contrary to their normal and/or usual suitability.

8.3. Technical data on our products in offers, catalogues and other product descriptions has been determined by us in a suitable test environment (we will be happy to provide information on request) and represents the sole basis for agreed quality. Testing for suitability for the purpose intended by the Customer or for the use of the part under specific usage conditions is the responsibility of the Customer; we do not provide any kind of guarantee.

8.4. Subsequent performance does not include the removal of the defective item or its re-installation if we were not originally obliged to install it.

8.5. Deviating from Art. VIII 8 and 9 of GL, we shall bear or reimburse the expenses necessary for the purpose of inspection and subsequent performance, in particular transport, travel, labour and material costs as well as, if applicable, dismantling and installation costs in accordance with the statutory provisions, if a defect actually exists. Otherwise, we may demand compensation from the buyer for the costs (in particular testing and transport costs) incurred as a result of the unjustified request to remedy the defect, unless the buyer was unable to recognise the lack of defectiveness. No. 8.1 remains unaffected.

9. Use of the b@home system

The Terms of Use available on our website at www.alre.de apply for the use of the b@home portal and the b@home app including the updates ('b@home system'), which are made available to the Customer by us. Should the Customer use the b@home system for a company, he accepts the validity of these terms of use in a legally binding manner for this company.



Safety regulations

When handling products, the applicable EU Directives and the assembly and installation instructions in the operating manuals must be followed without fail.

Notes on the technical data

Technical data has been determined by us in a suitable test environment (we will be happy to provide information on request) and represents the sole basis for agreed quality. All the equipment and components shown in this catalogue may only be used in keeping with their intended purpose. Testing for suitability for the purpose intended by the Customer/client or for the use of the part under specific usage conditions is the responsibility of the Customer/client; we do not provide any kind of guarantee.

We reserve the right to make changes to products and documentation as may be required for technical progress and continuous improvement and therefore, there may be deviations from the information in the catalogue. Printing errors excepted.

Any reproduction of this documentation, even in extract form, is not permitted without the consent of ALRE-IT Regeltechnik GmbH, Berlin.

The place of jurisdiction is Berlin.

This price list is valid from 01/01/2020. This price list supersedes all previous price lists and renders them invalid.

We reserve the right to make changes.

General notes

REACH, RoHS, WEEE

REACH: The company ALRE-IT Regeltechnik exclusively sells non-chemical products (articles) from which no substance is released under normal and reasonably foreseeable conditions of use. The products of ALRE-IT Regeltechnik GmbH and their packaging comply with the permissible threshold values for substances on the candidate list according to Annex XVII of Regulation (EC) No. 1907/2006 ('REACH') and Regulation (EU) No. 1272/2013.

RoHs: As of 01/07/2013 the CE marking confirms that the respective products comply with the requirements of the RoHS 2011/65/EU and (EU) 2015/863 Directives.

WEEE: The company ALRE-IT Regeltechnik is registered as a manufacturer according to Section 3 (9) of the ElektroG (German Electricals Act) and under the registration number DE 58457361 at the EAR. All products manufactured by ALRE-IT Regeltechnik that fall within the scope of the ElektroG meet the legal requirements and thus ensure the proper collection, storage, recycling and environmentally friendly disposal of old equipment.

Product testing

For information on our declarations of conformity and various product tests, please visit our website at www.alre.de.



Company headquarters

ALRE-IT Regeltechnik GmbH Richard-Tauber-Damm 10 12277 Berlin, Germany Tel.: +49 (0) 30 399 84-0 Fax: +49 (0) 30 391 7005 E-mail: mail@alre.de Internet: www.alre.de

Sales management

Klaus Lorenz E-mail: Lorenz.Klaus@alre.de **Office** Tel.: +49 (0) 30 399 84-160 Fax: +49 (0) 30 399 84-129 E-mail: vertrieb@alre.de

Northern Region

German postal code zones 02, 03, 1, 2, 30, 31, 38, 39 **Internal contact** Tel.: +49 (0) 30 399 84-127 Fax: +49 (0) 30 391 7005 E-mail: vertrieb@alre.de

Western Region

German postal code zones 32-35, 360 -363, 365-37, 4, 50-53, 57-61, 657-659 **Internal contact** Tel.: +49 (0) 30 399 84-122 Fax: +49 (0) 30 391 7005

Southwestern region

E-mail: vertrieb@alre.de

German postal code zones 54-56, 63, 64, 650-656, 66-69, 7 **Internal contact** Tel.: +49 (0) 30 399 84-123 Fax: +49 (0) 30 391 7005 E-mail: vertrieb@alre.de

Southern region

German postal code zones 8

Internal contact

Tel.: +49 (0) 30 399 84-121 Fax: +49 (0) 30 391 7005 E-mail: vertrieb@alre.de

Southeastern region

German postal code zones 01, 04-09, 364, 9 Internal contact Tel.: +49 (0) 30 399 84-123 Fax: +49 (0) 30 391 7005 E-mail: vertrieb@alre.de

Export

Internal contact Tel.: +49 (0) 30 399 84-213 Fax: +49 (0) 30 391 7005 E-mail: vertrieb@alre.de

Sales partner in Russia

/W

2A-Avtomatizaciya Ltd. Volgogradskiy pr-kt 45, Office 607 109316 Moscow Tel.: +7 (0) 495 98 89 25 7 E-mail: info@2ae.ru Internet: www.2ae.ru

🧲 ТермоТрейд

Thermo Trade Engineering Bumaznaya str. 4 190020 St. Petersburg Tel.: +7 (0) 812 33 25 44 7 E-mail: info@tt-ing.ru Internet: www.tt-ing.ru

Sales partner in Estonia, Latvia, Lithuania, Russia

OLIL Ltd. Khimki, Engelsa Street 7/15, Room 10

141402 Moscow Tel.: +7 (0) 495 54 38 85 4 E-mail: ilja@olil.ru Internet: www.olil.ru

Sales partner in Poland, Romania, Ukraine, Belarus

DACPOL Sp. z o.o. ul. Pulawska 34 05-500 Piaseczno Tel.: +48 (0) 227 03 51 00 Fax: +48 (0) 227 03 51 01 E-mail: dacpol@dacpol.eu Internet: www.dacpol.eu

Sales partner in the Netherlands betec controls

 Veldapparatuur

 Betec Controls BV

 Radeweg 25a

 8171 MD Vaassen

 Tel.: +31 (0) 578 57 71 79

 Fax: +31 (0) 578 57 79 82

E-mail: info@beteccontrols.nl Internet: www.beteccontrols.nl

Sales partner in France

DISIMPEX

DISTRUTION MPORT DEPORT DISIMPEX SA 14, rue Joseph Graff 67810 Holtzheim Tel.: +33 (0) 390 20 74 20 Fax: +33 (0) 388 76 90 83 E-mail: info@disimpex.fr Internet: www.disimpex.com

Sales partner in Austria

eh-technik

eh-technik Reinbacher Ges.m.b.H. & Co KG Gniglerstrasse 54 5020 Salzburg Tel.: +43 (0) 662 87 00 53 Fax: +43 (0) 662 87 00 53 20 E-mail: office@eh-technik.at Internet: www.eh-technik.at

Sales partner in Sweden

BONAB AB

Aröds Industriväg 76 42243 Hisings Backa Tel.: +46 (0) 317 24 24 24 E-mail: alre@bonab.se Internet: www.bonab.se

Sales partner in Switzerland

sensortec

sensortec AG Bahnhofstrasse 87 3232 Ins Tel.: +41 (0) 32 312 70 00 Fax: +41 (0) 32 312 70 09 E-mail: info@sensortec.ch Internet: www.sensortec.ch

Sales partner in the United Arab Emirates

KENYARD

Kenyard Distributors LLC Controller Division PO BOX 231400 Dubai Tel.: +971 50 684 9976 E-mail: faisal@kenyardgroup.ae Internet: www.kenyardgroup.ae

Sales partner in Iceland

LOFT & RAFTÆKI Loft og Raftæki ehf. Hjallabrekka 1

200 Kópavogur Iceland Tel.: +354 564-3000 E-mail: loft@loft.is Internet: www.loft.is

Sales partner in China

alre 欧乐

Hefei Heating-Cooling Equipment Control Technology Ltd Level-7, Block-D, Building-3#, Hefei Xinglu Industrial Park Luyang District 230001 Hefei Tel.: +86 (0) 551 656 33 19 0 Fax: +86 (0) 551 656 33 19 7 E-mail: 443231605@qq.com Contact person: Panpan Li

Ω DBK

DBK-Technology Ltd. Room 10, 3/F, Po Hong Centre 2 Wang Tung Street Kowloon Bay Hong Kong Tel.: +852 (0) 2401 1011 Fax: +852 (0) 2401 7202 E-mail: info@dbk-tech.com Internet: www.dbk-group.com Internet: www.dbk-cn.com

DBK Industrial Equipment (Chongqing) Co. Ltd. Room 5-4, Unit 1, Block 16 No. 18 Qixia Road Northern New District Chongqing P.R. China 401122 Tel.: +86 (0) 23-6342 2511 E-mail: info-cn@dbk-group.com Internet: www.dbk-cn.com

Sales partner in Lithuania

AUREGIS UAB Savanoriu pr. 271 50131 Kaunas Lithuania Tel.: +370 37 313 426 Internet: www.auregis.lt

Miscellaneous





ALRE-IT Regeltechnik GmbH Richard-Tauber-Damm 10 12277 Berlin, Germany
 Phone:
 +49 (0) 30 399 84 0

 Fax:
 +49 (0) 30 391 70 05

 Internet:
 www.alre.de

 E-mail:
 mail@alre.de