The radio-controlled individual room control

IN STAT 868 | Cosiness and comfort

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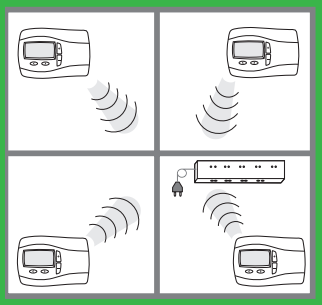
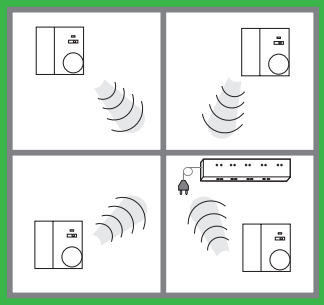
The radio-controlled individual room control

Thermal or electric thermal individual room control has been state of the art in new buildings for years. In many existing buildings, however, there is an increased need to retrofit this comfort-enhancing and energy-saving device. Radiators can be inexpensively retrofitted with radiator thermostats. Retrofitting hot water underfloor heating systems, which have no control devices in the corresponding rooms, is still problematic. These room units are still controlled with manually adjustable flow regulators in the central heating circuit distributor, which are installed on the floor or in the basement. Unfortunately, this type of control takes only limited account of solar radiation or other heat sources such as tiled stoves. The innovation for retrofitting in old buildings or new installations is the radio-controlled individual room control from EBERLE, which solves this problem in the simplest possible way. Expensive investments are no longer necessary. The pioneering, modular system combines the advantages of individual room control with the convenience of radio control. With the mains-independent wireless room temperature controllers, the calculated control values are transmitted by radio to the receiver, which is ideally installed in the heating circuit manifold. Temperature detection and control is therefore conveniently carried out from every zone to be heated in the house, without the need to lay electrical connecting cables from the room temperature controller to the electrothermal actuator. This not only enables a more flexible heating system design, but also significantly reduces the time and costs involved in modernisation or new installations.

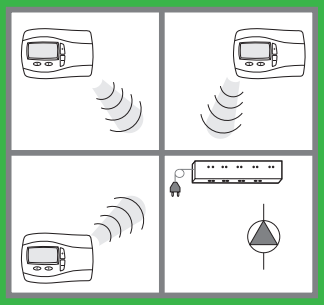
INSTAT 868 radio control system - Application examples
Radio range for all examples approximately one concrete ceiling or three walls



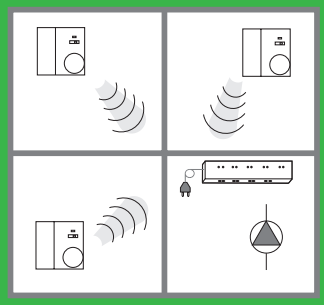
Clock thermostat function per room with 4-channel receiver or 6-channel receiver



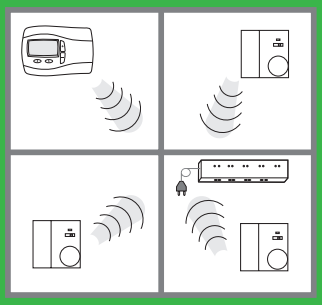
Analogue single-room controller with 4-channel receiver or 6-channel receiver



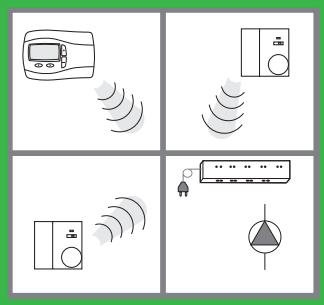
Clock thermostat function per room with 4-channel receiver or 6-channel receiver and heating pump with pump logic



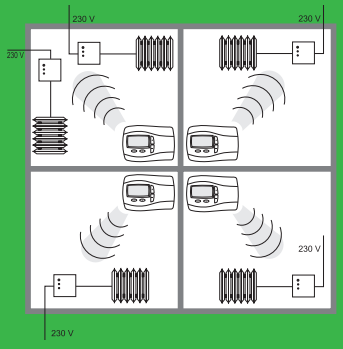
Analogue controller with 4-channel receiver or 6-channel receiver and heating pump with pump logic



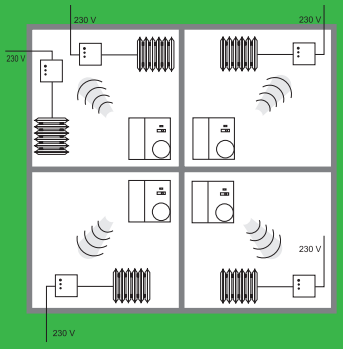
Clock thermostat with analogue individual room controller with 4-channel receiver or 6-channel receiver Master - slave function



Clock thermostat with analogue single room controller and with 4-channel receiver or 6-channel receiver master - slave function and heating pump with pump logic



Clock thermostat with 1-channel receiver surface-mounted or flush-mounted



Analogue controller with 1-channel receiver surface-mounted, flush-mounted or socket receiver

Radio receiver - INSTAT 868-a series

IN STAT 868-a8U | IN STAT 868-a8U/24 V | IN STAT 868-a1S*

8-channel radio receiver / socket receiver

INSTAT 868-a8U 8-channel radio receiver with integrated real-time clock, automatic setting of summer/winter time, timer for time-controlled regulation of up to 8 independent zones, heating/cooling switchover via external signal, e.g. from a heat pump, clock programming and programming of transmitters possible with cover removed, also available as INSTAT 868-a8U/24 V for switching 24 V actuators, pump logic (switch-off). E.g. from a heat pump), programming of the clock and programming of the transmitters possible with the cover removed, also as INSTAT 868-a8U/24 V for switching 24 V actuators, pump logic (switch off the pump when all valves are closed), heating control (switch off the heating when all valves are closed), valve and pump protection (valve/pump runs once a day), dew point monitoring, e.g. by means of a hygrostat in the event of condensation), automatic dew point control (switch off the pump when all valves are closed). e.g. by means of hygrostat in the event of condensation), safe operation in the event of faults (30% heating), switching capacity per contact max. 10 actuators with 3 W, robust switching output (relay), outputs can be switched in parallel, ready to plug in for 230 V with transformer for 24 V, installation on top-hat rail for wall mounting.

The **INSTAT 868-a1S socket radio receiver** can be used universally to control electrical heating appliances (electric radiators, wall-mounted heaters, towel dryers).

General technical data

Order description	INSTAT 868-a8U	INSTAT 868-a8U/24 V	INSTAT 868-a1S*
Item no.	0536 80 140 002	0536 80 060 002	0536 37 140 002
Voltage supply	AC 230 V 50/60 Hz		
Power consumption	4 VA	50 VA	1,5 VA
Relay for load	6 NO contact; 4 (2) A Channel 7, 8 potential-free changeover contact		1 NO contact; 10 (4) A
Button	ESC, plus, minus and OK button		1 x learn mode, 1 x reset
Display	Backlit display		1 LED red (heating on/fault)
Antenna	intern		
Protection type	IP 40		IP 20
Colour	polar white (similar to RAL 9010)		
Installation	with top-hat rail		Socket (SchuKo)
Dimensions (W x H x D)	305 x 90 x 68 mm with top-hat rail	380 x 90 x 68 mm with top-hat rail	71 x 142 x x 21.1 mm

* Available as a replacement unit, otherwise only as a set

* Only available as a set.
Advantage: Transmitter and receiver are already synchronised at the factory and ready for immediate use.

Order description	INSTAT 868-a1S/r1 set
Item no.	0536 01 140 002
consisting of	INSTAT 868-r1 and INSTAT 868a1S

Order description	INSTAT 868-a1S/r1o set
Item no.	0536 04 140 002
consisting of	INSTAT 868-r1o and INSTAT 868a1S

Order description	INSTAT 868-a1S/+r set
Item no.	0536 06 140 002
consisting of	INSTAT+ 868-r and INSTAT 868a1S

Radio transmitter - as clock thermostat with digital display

IN STAT+ 868-r

Radio-controlled clock thermostat (transmitter)

Battery-operated, digital clock thermostat with large LCD display for room temperature, time, etc. 3 preset programmes with up to 6 switching times per day, automatic summer/winter time setting, a combined holiday and party function, an optimum start function, frost protection and unauthorised access protection. Optional continuous control by pulse width modulation or 2-point control can be configured. Can be used for 'heating only' or 'cooling only'.

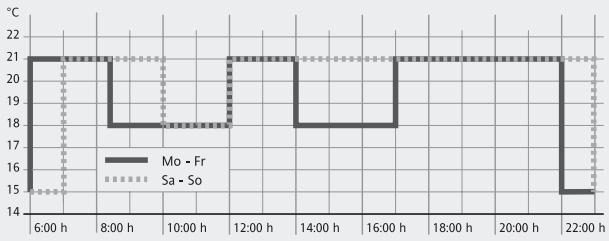
General technical data

Order description	INSTAT+ 868-r
Item no.	0536 21 296 000
Supply voltage battery	2 x 1.5 V (AA), service life approx. 2 years
Control behaviour	Proportional controller (PWM continuous) or on/off
Temperature set point	5 ... 32 °C (adjustable in 0.1 K resolution)
Range of coverage	1 ceiling or 3 walls
Transmission frequency	868 MHz
Antenna	intern
Type of protection/protection class	IP 30 / protective insulation
Dimensions	137 x 9.,5 x 31.3 mm

Preset programmes

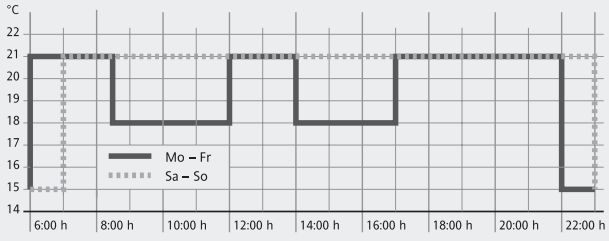
Programme 1 (lunchtime at home)

Monday to Friday						
Switch time	1	2	3	4	5	6
Time	6:00	8:30	12:00	14:00	17:00	22:00
Temperature °C	21.0	18.0	21.0	18.0	21.0	15.0
Saturday and Sunday						
Switch time	1	2	3	4	5	6
Time	7:00	10:00	12:00	14:00	17:00	23:00
Temperature °C	21.0	18.0	21.0	21.0	21.0	15.0



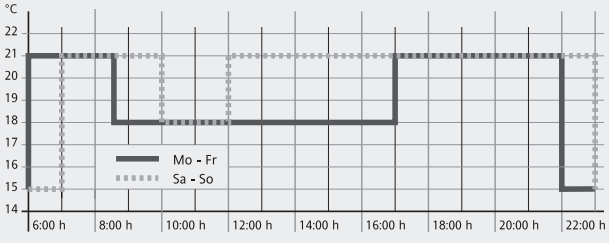
Programme 2 (lunchtime and weekend at home)

Monday to Friday						
Switch time	1	2	3	4	5	6
Time	6:00	8:30	12:00	14:00	17:00	22:00
Temperature °C	21.0	18.0	21.0	18.0	21.0	15.0
Saturday and Sunday						
Switch time	1	2	3	4	5	6
Time	7:00	10:00	12:00	14:00	17:00	23:00
Temperature °C	21.0	21.0	21.0	21.0	21.0	15.0



Programme 3 (full-time working)

Monday to Friday						
Switch time	1	2	3	4	5	6
Time	6:00	8:30	12:00	14:00	17:00	22:00
Temperature °C	21.0	18.0	18.0	18.0	21.0	15.0
Saturday and Sunday						
Switch time	1	2	3	4	5	6
Time	7:00	10:00	12:00	14:00	17:00	23:00
Temperature °C	21.0	18.0	21.0	21.0	21.0	15.0



Radio transmitter - with analogue temperature setting

IN STAT 868-r1

IN STAT 868-r1o

IN STAT 868-r1H

IN STAT 868-r1F

Radio room temperature controller (transmitter)

Battery-operated, electronic room thermostat with rotary knob for setpoint adjustment. The room temperature controller is positioned freely in the room (wall-mounted) without wiring, for wireless radio transmission of the control values to a receiver. The operating mode switch on the INS-TAT 868-r1 enables manual intervention for each control zone for timer operation (master/slave), comfort, night temperature and off.

The INSTAT 868-r1F window contact
detects open windows in conjunction with the receiver ...a1Up and switches the heater off for a maximum of 30 minutes.

General technical data

Order description	INSTAT 868-r1	INSTAT 868-r1o	INSTAT 868-r1H	INSTAT 868-r1F
Item no.	0536 10 291 900	0536 11 291 902	0536 12 291 902	0536 13 291 902
Adjustable temperature	5 ... 30 °C	5 ... 30 °C	17 ... 24 °C	
Special features	Energy-saving/timer*/party function for time-limited temperature reduction *also possible without master	Without switch		Only in conjunction with flush-mounted receiver
Indicator light red	or learning mode and battery			
External switch	Timer / Day / Night / Off			
Inside switch	Heating / cooling changeover slide switch Button for learning mode and reset			
Button	for learning mode and reset			
Temperature setback	approx. 2 K or 4 K (internal bridge) or via master controller INSTAT+ 868-r			
Control method optional	Fuzzy (similar to PID) with pulse width modulation output or 2-point (internal bridge)	Fuzzy (similar to PID) with pulse width modulation output		–
Cycle duration with PWM	approx. 10 minutes (sum of switch-off and switch-on time)			–
Temperature sensor	intern			–
Voltage supply	2 batteries** 1.5 V each (Alcaline LR03)			Battery 3 V (CR 2030)
Frequency	868 MHz			
Range of coverage	approx. 1 ceiling or 3 walls			
Antenna	intern			
Protection type	IP 30 protective insulation			IP 54
Dimensions	75 x 75 x 25.5 mm			65 x 12 x 28 mm

** Included in delivery; service life approx. 3 years

Radio receiver - INSTAT 868-a series

IN STAT 868-a1 IN STAT 868-a1Up IN STAT 868-a4 IN STAT 868-a6

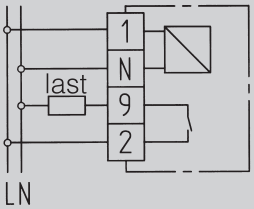
1- / 4- / 6-channel radio receiver

1-channel radio receiver for controlling electric heaters. With valve protection function and emergency programme. **4- and 6-channel radio receiver** for hot water underfloor heating. Ready to plug in for immediate connection to an AC 230 V socket. Actuators for AC 230 V can be connected directly. A separate supply voltage is required for AC 24 V. Pump logic and timer function for connecting additional INSTAT 868-r1 analogue radio transmitters. Valve test function, radio test function, emergency programme. Top-hat rail for mounting included in the scope of delivery.

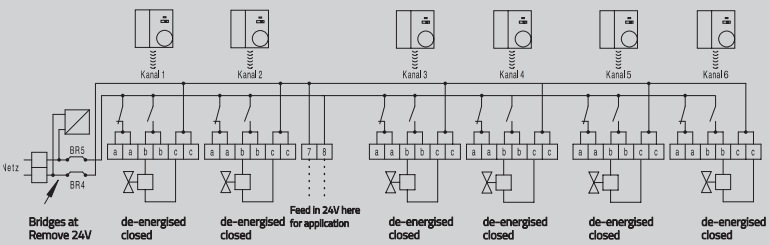
General technical data

Order description	INSTAT 868-a1	INSTAT 868-a1Up	INSTAT 868-a4	INSTAT 868-a6
Item no.	0536 30 140 002	0536 31 140 002	0536 40 140 002	0536 60 140 002
Voltage supply	AC 230 V 50/60 Hz			
Power consumption	1.5 W	0.73 W	3 VA	
Relay for load	1 NO contact 16 (2) A, potential-free Max. 20 actuators 230 V, 3 W Max. 8 actuators 24 V, 3 W	1 NO contact 10 (2) A, potential-bound Max. 10 actuators 230 V, 3 W Max. 6 actuators 24 V, 3 W	4 changeover contacts, 6 (2) A, potential-free Max. 10 actuators 230 V, 3 W per load relay Max. 4 actuators 24 V, 3 W per load relay	6 changeover contacts, 6 (2) A, potential-free Max. 10 actuators 230 V, 3 W per load relay Max. 4 actuators 24 V, 3 W per load relay
Button	1 x learn mode, 1 x reset	1 x learning mode	1 x learn mode per channel, 1 x reset	
Display	1 LED red (heating on/fault)	1 LED red	1 red LED per channel (heating on/fault) 1 LED green (operation)	
Antenna	intern			
Protection type	IP 30		IP 40	
Colour	polar white (similar to RAL 9010)	anthracite	polar white (similar to RAL 9010)	
Installation	Surface mounting	Flush-mounted or in cable duct	Top-hat rail for wall mounting included	
Dimensions (W x H x D)	75 x 75 x 27 mm	48.6 x 49.5 x 26 mm	372 x 42 x 65 mm	450 x 42 x 65 mm

Circuit diagrams



INSTAT 868-a1



INSTAT 868-a6
Connection for actuator de-energised open, terminals a/c.
Connection for actuator de-energised closed, terminals b/c.

Radio repeater - INSTAT 868-rep

IN STAT 868-rep

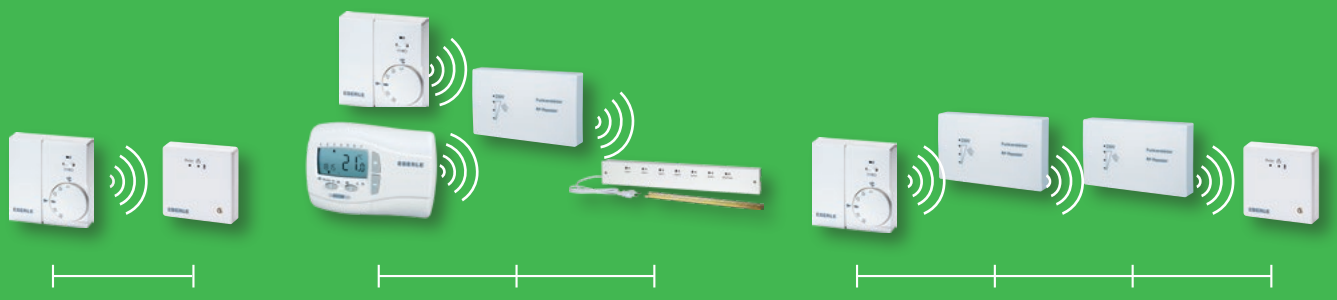
Radio repeater for Instat 868-r...

The INSTAT 868-rep is a signal amplifier for radio signals. This repeater amplifies the signals received from the INSTAT 868-r... transmitters fully automatically. It is used to increase the range between **INSTAT 868-r...** radio thermostats and **INSTAT 868-a...** radio receivers and improves transmission reliability in difficult ambient conditions. 2 repeaters can be used in series. The repeaters automatically integrate themselves into existing connections of the **INSTAT 868 system**. Only one repeater is required for several connections. It works fully automatically, without user intervention. There is an indication of the received signal quality via 3 LEDs and an indication of whether the operating voltage is present. A maximum of 2 repeaters can be used in series, i.e. the transmission range can be increased up to 90 metres.

General technical data

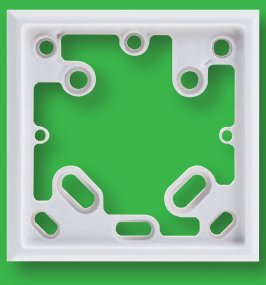
Order description	INSTAT 868-rep
Item no.	0536 91 140 002
Supply voltage	230 V~ (195 ... 253 V) 50/60 Hz
Power loss	< 1.5 W
Antenna	intern
Carrier frequency	868 MHz
Protection type	IP 20
Protection class	II
Weight	~140 g

Principle illustration



TS+ and accessories

TS+



ARA 1 E

TS 193 683 (dew sensor)

Thermal actuator

The **TS+**, a thermal actuator, is robust and noiseless. The manual override enables easy installation and simple emergency operation. The valve stroke indicator provides information on the operating status and stroke position at all times. Significantly smaller, compact design, unique adjustment mechanism, water protection to protection class IP 54, also suitable for overhead mounting, display of operating status and stroke position via window, small diameter, 230 V and 24 V versions (both de-energised closed), low power consumption. Now also with 120 N closing force for industrial valves.

Plastic adapter frame

For variable mounting of control devices on almost all internationally used flush-mounted boxes. For rounding off the device design and for covering flush-mounted boxes that are not cleanly plastered or for flush-mounted boxes larger than the controller base plate. When mounting on flush-mounted boxes with horizontal fixing holes, the adapter frame **ARA 1 E** must also be ordered for the **INSTAT 868-r1** and **INSTAT 868-a1.**

Dew sensor

TS 193 683 for dew point monitoring for INSTAT 868-a8U.

General technical data

Order description	TS+ 5.11/230	TS+ 6.11/24	ARA 1 E	TS 193 683 (Tausensor)
Item no.	0493 1001 1015	0492 1001 1015	007632399001	000 193 683 000
Power supply	230 V~ 50 Hz	24 V~ 50 Hz	–	–
Power input	2.5 W		–	–
Thermal actuator	open/closed		–	–
Valve type	de-energised closed		–	–
Connection cable and cable length	2 x 0.5 mm², 100 cm long (optionally any cable length), free cable end with wire end ferrules		–	10 m
Protection txp	IP 54		–	–
Protection class	II		–	–
Stroke	4.5 mm		–	–
Connection dimension	M 30 x 1.5 mm (M 28 x 1.5 mm on request)		–	–
Weight	approx. 120 g		–	–
Dimensions	46 mm Ø; 80.1 mm height		–	–
Operating temperature	0...50 °C		–	–
to be used for:	–		INSTAT 868-r1, INSTAT 868-r1o, INSTAT 868-a1	INSTAT 868-a8U
Screw set	–		SS 001 (article no. 007103188001)	–

General information on radio

The **INSTAT 868** radio control unit family offers the ideal radio transmitter and radio receiver for every application. The INSTAT 868-r1 radio transmitter with analogue temperature setting or the INSTAT+ 868-r digital clock thermostat, both of which can be combined with an INSTAT 868-a1/a1Up 1-channel receiver, are used for one heating zone. For several heating circuits, 4, 6 or 8-channel INSTAT 868-a4/a6/a8 receivers are used, which can be extended or combined as required. The INSTAT 868-a1S socket receiver is the ideal solution for mobile electric heaters, such as wall heaters or towel dryers. This device is supplied as a set, together with a radio transmitter. The advantage of this variant is that both devices are already factory-matched and ready for immediate operation. reits werk seitig aufeinander abgestimmt und sofort betriebsbereit sind.

Commissioning
Commissioning the INSTAT 868 wireless controller family is simple. The radio transmitter is assigned to the radio receiver by starting the learning mode .

Safety
The 868 MHz transmission frequency used is intended for these applications throughout Europe. Internal test procedures and signal repeats guarantee transmission reliability.

The digital radio-controlled clock thermostat (transmitter)
The INSTAT+ 868-r digital radio-controlled clock thermostat offers additional features to save energy and increase comfort, such as 3 preset programmes with up to 6 switching times per day, automatic summer/winter time setting, a combined holiday and party function, an optimum start function (the desired temperature is reached at the set time), manual operation, frost protection and unauthorised access protection. Just 4 buttons and a large, clearly visible LCD display showing the day, time and temperature ensure optimum operating convenience. The INSTAT+ 868-r clock thermostat can be used in conjunction with analogue transmitters INSTAT 868-r1... in conjunction with INSTAT 868-a1/ a1Up / a4 / a6 radio receivers, a time-controlled regulation system (master / slave) can be set up

The wireless room thermostat
Transmitter with analogue temperature setting
The INSTAT 868-r1 wireless room thermostat is quick to operate thanks to the analogue temperature setting. The day / night / automatic / off operating mode switch can be used, for example, to set a setback temperature manually or in conjunction with an INSTAT+ 868-r / r1o radio-controlled clock thermostat. An internal slide switch in the controller can be used to select the function between 'Heating' or 'Cooling'. With the INSTAT 868-r1H, the temperature setting is limited to a value of 17...24 °C

The radio receivers
There is a suitable radio receiver for every application:

1-channel receiver	*INSTAT 868-a1* *INSTAT 868-a1Up* *for flush or duct mounting*
4-channel receiver 6-channel receiver	*INSTA T 868-a4 and* *INSTA T 868-a6* *each ready to plug in for AC 230 V* *including top-hat rail for mounting*
8-channel receiver	*INSTAT 868-a8U* *ready to plug in for 230 V or with transformer for 24 V*
Socket receiver	*INSTAT 868-a1S for AC 230 V*

In the event of a fault, each radio receiver has a visual and acoustic display as well as an emergency programme, i.e. the heating system continues to be regulated at 30 % of the heating output in the event of a fault. This ensures a frost protection function at all times.

INSTAT 868-r1F window contact
Detects open windows in conjunction with the receiver ...a1Up and switches the heater off for max. 30 minutes.

Radio repeater for INSTAT 868 INSTAT 868-rep

Signal repeater for radio signals

Transmitter

Repeater

Receiver

EBERLE

Find out more online

Price lists

Price list

UTE Universal thermostat inserts

Catalogues

Temperature controller

Climate controller

Measuring and monitoring relays

Brochures

Terminal strips

RTR Slimline

INSTAT 868

RTR 9000

FIT np

TS +

FIT

468 931 003 044 - 02 / 23 - Errors and omissions excepted

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