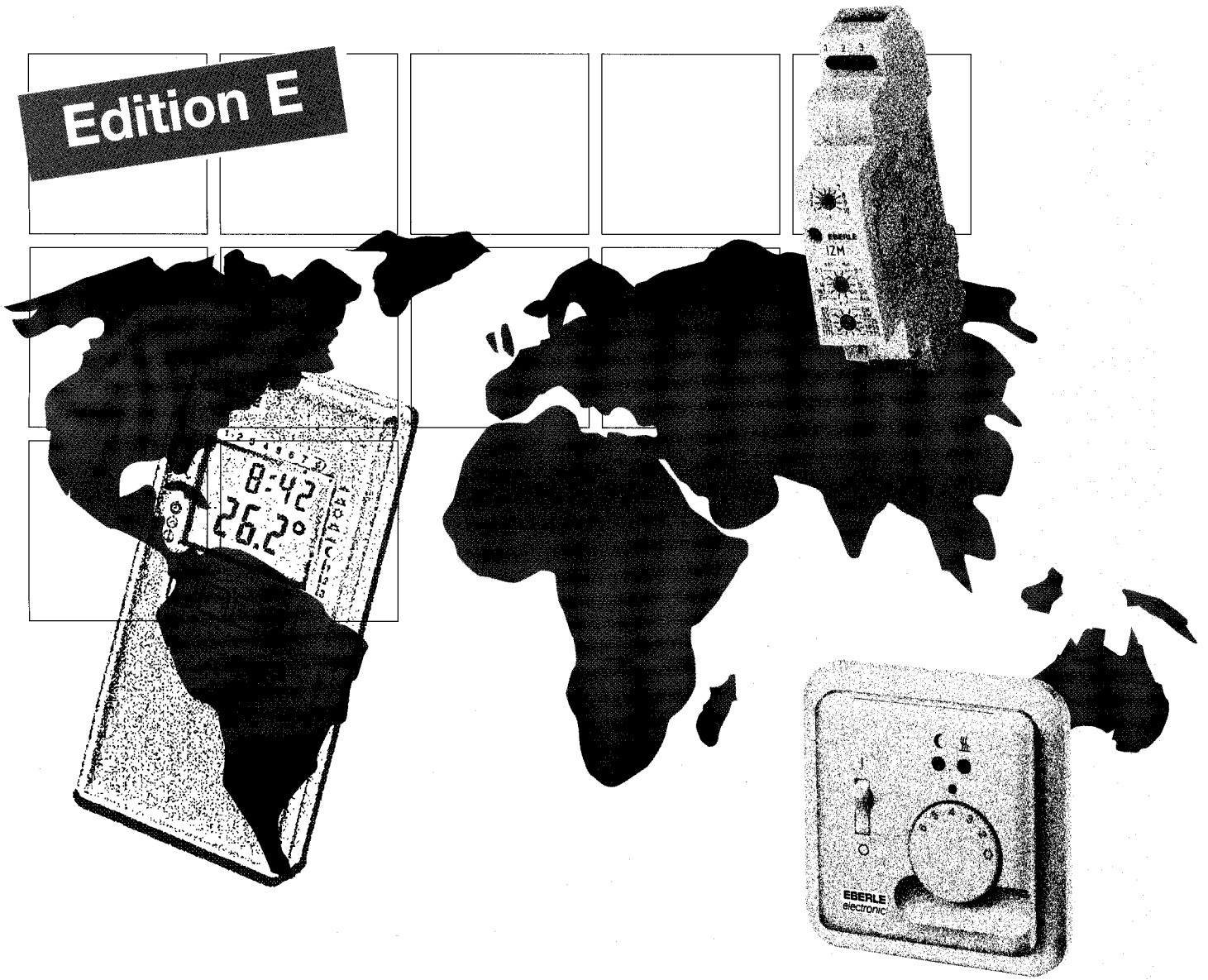


EBERLE

Edition E



Heating
Controls



EBERLE — heating controls

Introduction

EBERLE produces an extensive range of thermostats for heating applications and is European market leader in this sector.

The typical design of the room thermostats is well-known and stands along with the name EBERLE for quality and reliability.

The thermostats for industrial use are either designed for DIN rail mounting or are encased in extremely robust housings which are suitable for even the most demanding application conditions.

The products shown within this catalogue represent an extensive range to suit most applications. However, the company's policy is one of continuing development and further products are currently under design to meet specific applications.

Therefore, if you have an application which you do not feel can be fully met with one or other of the products illustrated, please contact us to enable information on new or modified products to be forwarded.

Note:

**Colour of housing generally now:
RAL 9010 polar white**



C E R T I F I C A T E

**DQS Deutsche Gesellschaft zur Zertifizierung
von Managementsystemen mbH**
Qualitäts- und Umweltgutachter

hereby certifies that the company

EBERLE

EBERLE Controls GmbH
Oedenberger Straße 55 - 65
90491 Nürnberg

HVAC Products
Relay Products

A Siebe Group Company

has implemented and maintains a

quality system.

A quality audit has verified that
this quality system fulfills the requirements
of the following standard:

DIN EN ISO 9001
issue August 1994

This certificate is valid until	November 15, 1999
Certificate Registration No.:	0898 - 03
Frankfurt am Main, Berlin	November 16, 1996


PRESIDENT
Dipl.-Ing. W. Hansen


MANAGING DIRECTOR
Dipl.-Ing. J. Parsch

Member of


INTERNATIONAL STANDARDS ORGANIZATION

Office:

D-69113 Frankfurt am Main, August Schanz-Strasse 21
D-10787 Berlin, Burgstrasse 6

Deutscher
Zertifizierungs-
Verband


TKA 20 9109 01
FGA 20 9109 01

Statement of conformity

EBERLE controls are constructed, manufactured and tested according to all relevant VDE regulations, VDE standards and IEC recommendations.



Environment-friendly

The paper for this catalogue was bleached without using chlorine.

Contents

EBERLE heating controls

cover sheet

A short introduction to the EBERLE range of heating control products

Table of contents

page 1

Application matrix

page 2

Suitability of EBERLE heating controls

Temperature control technology

page 3

A survey of relevant technical data

Domestic wet central heating controls

Electromechanical room thermostats (3000 and 6000 series)	page	4 – 8
Room thermostat with TRIAC output (52580/81/82/83/85)	page	9
Electromechanical clock thermostats (9000 series)	page	12
Electronic clock thermostats (525 15/17)	page	13
Electronic digital clock thermostat (INSTAT 2/525 32)	page	15
Electronic digital clock thermostat (INSTAT 6)	page	14
Cylinder thermostats (875 01/02)	page	26

Domestic and commercial electric heating controls

Electromechanical room thermostats (3000 and 6000 series)	page	4 – 8
Electromechanical clock thermostats (9000 series)	page	12
Electromechanical room thermostats for storage heating (7000 series)	page	10 – 11
Electronic clock thermostats (525 15/17)	page	13
Electronic digital clock thermostat (INSTAT 6)	page	14
Electronic digital clock thermostat (INSTAT 2/525 32)	page	15
Electronic floor heating controls (525 31/29)	page	16
Electronic floor heating controls with clock (525 27/28)	page	17
Electronic floor heating controller, flush mounted (525 22)	page	18
Electronic thermostat for heat pumps (525 50)	page	19
Humidity controls hygrostat and hygrothermostat (6001/7001)	page	27

Industrial heating controls

Electronic temperature controls for DIN rail mounting (528 35)	page	20
Electronic temperature controls for wall mounting (524 60/61/72)	page	21 – 22
Electromechanical weatherproof frost stat (3121)	page	24
Electromechanical high/low heating control (3102)	page	25
Cylinder thermostats (875 01/02)	page	26

Lighting equipment

Twilight switch (565 27/565 07/565 18)	page	23
--	------	----

Accessories

page 28 – 29

Design and dimensions

page 30

Application Matrix

Type of Control	Page	Domestic and Commercial Heating Applications							Industrial Applications
		Wet Central Heating	Warm Air Heating	Electric Direct Heating	Floor Heating Systems	Ceiling or Wall Heating	Night Storage Heaters	Heat Pumps	
RTR 3520 -3585	4-5	●	●	●	●	●	●		
RTR 6110 -6763	6-8	●	●	●	●	●	●		
525 80/81/82/83/85	9	●					●		
RTR 7402 -7712	10-11						●		
9200-9600	12	●	●	●	●	●	●		
525 15/17	13	●	●	●	●	●	●		
525 90/92/96	14	●	●	●	●	●	●		
525 32	15	●	●	●	●	●	●		
525 31/29	16				●				
525 27/28	17				●				
525 22	18				●				
525 50	19							●	
528 35	20		●		●	●			●
524 60/61	21								●
524 72	22								●
3121	24								●
875 01/02	26	●							●
3102	25	for gutter heating only							
6001	27	for humidity control							
7001	27	for combined humidity and temperature control							
565 27/07/18	23	Lighting equipment							

Some facts about temperature control technology

1. Installation

EBERLE thermostats are mainly designed for wall mounting – why?

Unlike many other control manufacturers EBERLE recommends wall mounted thermostats for both heating and air conditioning applications wherever possible. The reason for this is the fact that remote temperature sensing provides a more accurate room temperature compared to single in-built controls.

It is always better to sense the ambient temperature in the local environment rather than in the immediate vicinity of the heating equipment.

If it is absolutely necessary to build the control into the heater, we recommend the use of remote sensors.

2. Correct installation practice

1. Mounting: avoid draughts, direct heat, sunlight and outside walls. The thermostat is intended to sense average room conditions so try to mount it where it can “feel” a representative still air situation.

Correct height is approx. 5’0” above floor level (1.5 m). Mount the right way up: ventilation slots should be top and bottom, never at the sides.

2. Electrical connections.

a) Always connect mains Neutral to the appropriate terminal. Omitting this connection is a common fault and gives rise to complaints of “sluggish” action and long cycling times. Typical correct cycling rate is 5–6 times per hour.

b) Ensure correct polarity in terminals L and load. Reversal of these terminals will result in the accelerator being permanently in circuit which causes sluggish operation (as in [a]) and also a depressed switch point i.e. the thermostat will under-heat by several degrees.

Both the examples quoted above are frequent causes of complaint of discomfort and high fuel bills.

3. Break (B.O.R.)

The contact opens with rising and closes with falling temperatures (for “heating”).

4. Make (M.O.R.)

The contact closes with rising and opens with falling temperatures (for “cooling”).

5. Changeover

This is a changeover switch between make and break contacts. (Function see 3 and 4 for heating or cooling.)

6. Switching temperature differential

a) The switching differential of the controller: This is dependant on the construction of the apparatus.

b) The switching differential of the room: This depends on the behaviour of the entire system i.e. type of heating, positioning of the regulator and the regulator itself, plus room characteristics.

The switching differential mentioned in this catalogue always relates to the thermostat and not to the actual value for the system which varies according to the operating position.

7. Thermal feedback (acceleration)

It takes a certain amount of time for the heat from the energy source to be conducted through the air of the room to the regulator. Until the thermostat observes this heat, there is usually a build up of heat, causing a temperature greater than the desired value. This temperature surge can only be avoided if the regulator switches off before it occurs. This is effected by means of a small resistor (thermal feedback resistor) affixed directly adjacent to the thermostat. As soon as the room temperature regulator requires heat, a voltage occurs across this resistor and the thermostat is “deceived” into controlling a room temperature which in fact has not yet been reached, and therefore switches off earlier.

8. Acclimatization

The thermostat shall be allowed to acclimatize to the environment for at least 2 hours after installation to ensure that the unit functions accurately.

9. Night set back (temperature reduction)

This is a resistor similar to that used under 7, but with greater power. This resistor is operated either by means of a manual switch or a time clock.

This resistor indicates an ambient temperature to the thermostat of approximately 5°C higher than is actually the case. For example, the regulator is set to 20°C, the time switch gives the instructions at 22.00 hours to switch on the night set back resistor. The room temperature will then be allowed to fall by 5°C so that during the evening and night a constant room temperature of 15°C will be maintained. In the morning, the time switch will switch off the resistor at some pre-determined time and the room temperature will again rise to the set value and remain constant.

10. °Celsius or Kelvin

Since the final adoption of the system of International Measurement Units (SI) to avoid any further legal units for the measurement of temperature differences, confusion and misunderstandings have arisen with regard to expressing actual temperature and temperature difference.

Unfortunately there are no guide lines on units of measurement for temperature differences laid down in Section 36 of the “Interpretation of the Law Regarding Units of Measurement”. However there is a note following Section 36: “Temperature differences should be expressed in Kelvin units, but may also be expressed in degrees Celsius”. The Kelvin Unit (K), or if Celsius temperatures are used, the °C, is in the case of temperature differences used in the same manner as one might measure the length of an object with an unit meter, no matter in which direction.

The temperature in Kelvin or °C is measured from zero or from freezing point.

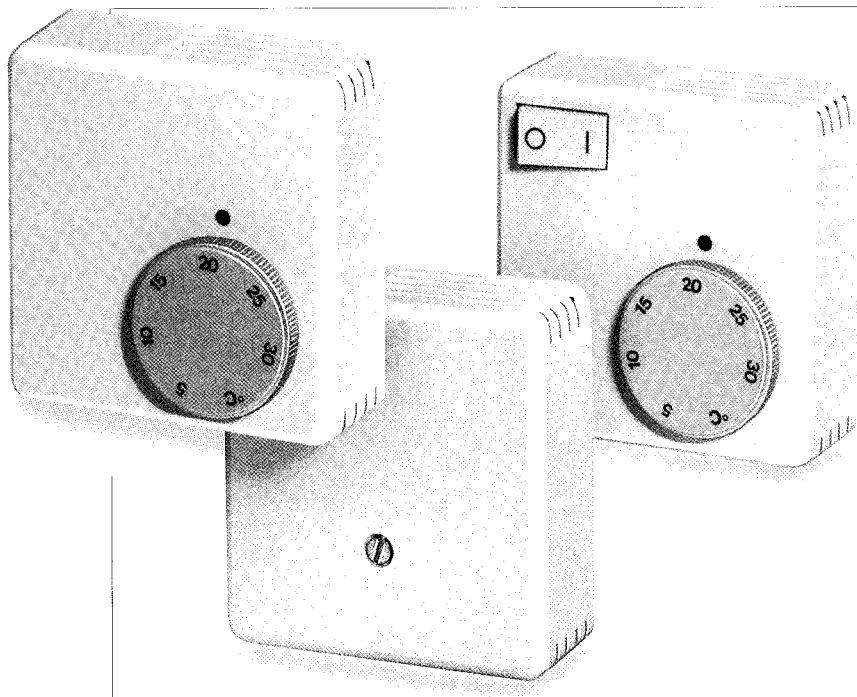
This means:

20°C = 20 K, when it concerns a temperature difference, as one degree Celsius is the same as one Kelvin.

20°C is **not** the same as 20 K when it concerns an actual temperature.

So K is used for temperature difference and °C is used for actual temperature.

Room thermostats EUROPA 3000



Application:

The 3000 series of room thermostats is suitable for wall mounting in living rooms or offices for all types of heating which respond to an electrical on/off signal.

The contact opens with rising temperature.

The operating voltage is 230 V AC unless otherwise stated.

Accessories:

see pages 28/29

General technical data

Contact configuration	SPST (b. o. r.)
Temperature range	0 to 30°C
Switching current at 250 V AC	16 (4) A
Switching differential	approx. 0.6 K
Sensor system	bimetal
Dimensions (see page 30)	"EUROPA" type

RTR 3521

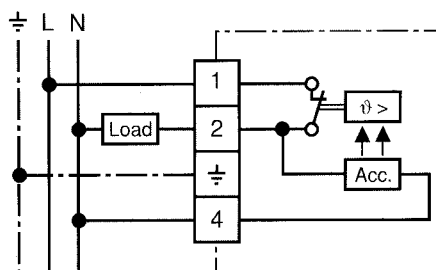
Standard version

Order number: 172153521 106

Special versions:

-15°C... +15°C: 17215 3504 106

+15°C... +45°C: 17215 3506 106

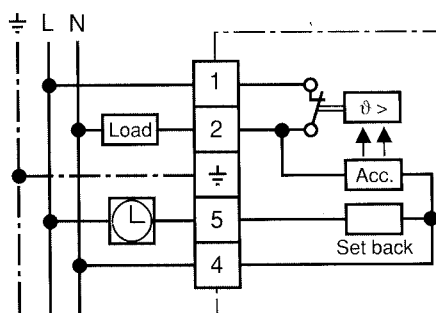


RTR 3524

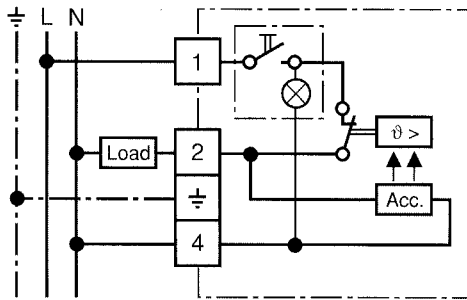
Special features:

Temperature set back (approx. 5 K) possible with external clock.

Order number: 17215 3524 106



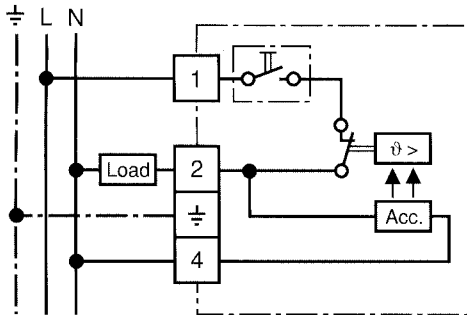
Room thermostats EUROPA 3000



RTR 3555

Special features:
Illuminated on/off switch
Maximum switching current
at 250V AC: 10 (3) A

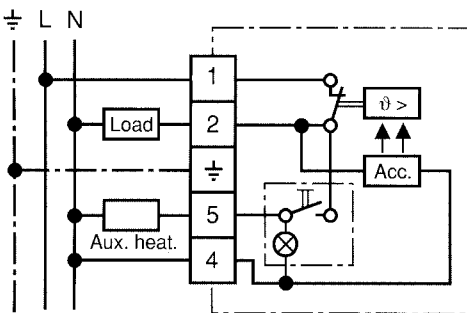
Order number: 172153555 106



RTR 3563

Special features:
On/Off switch
Maximum switching current
at 250V AC: 10 (3) A

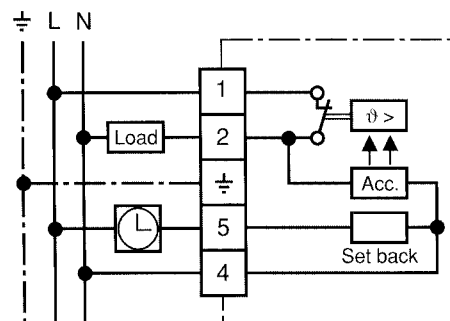
Order number: 172153563 106



RTR 3585

Special features:
Illuminated switch for auxiliary
heating
Maximum switching current
at 250V AC: 10 (3) A

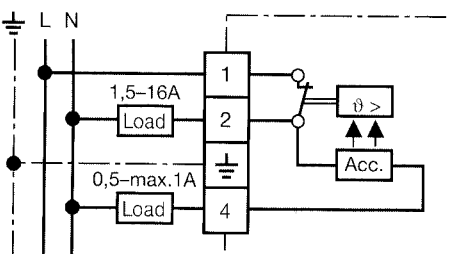
Order number: 172153585 106



RTR 3545

Special features:
Closed cover, temperature set-
ting by means of internal scale
Temperature set back possible
with external clock

Order number: 172153545 106

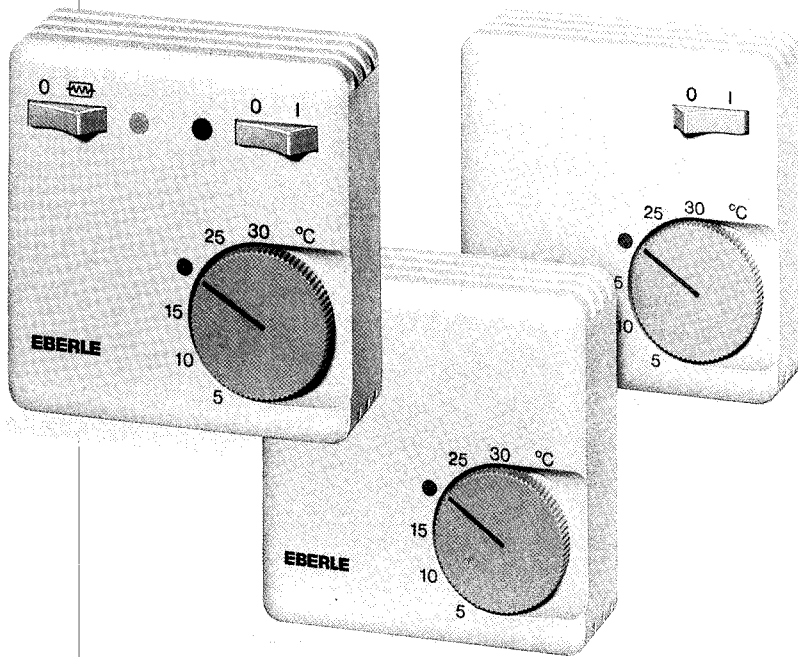


RTR 3520

Special features:
2-wire connection
acceleration in series
load 0.5-1.0A

Order number: 172153520 106

Room thermostats EUROPA S 6000



Application:

The 6000 series of room thermostats is suitable for wall mounting in living rooms and offices for all types of heating which respond to an electrical on/off signal.

This so-called "S-class" series is distinguished by its particularly attractive design.

To reduce heating costs the temperature range can be limited in the setting knob.

The thermostats have a break on rise contact (6100) or a change-over contact (6700).

The operating voltage is 230 V AC unless otherwise stated.

Accessories:

see pages 28/29

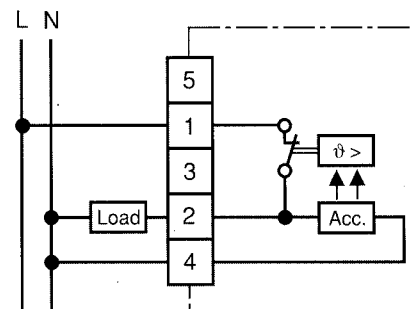
General technical data

Contact configuration	6100	SPST (b. o. r.)
	6700	SPDT
Temperature range	5 to 30°C	
Switching current at 250 V AC	10 (4) A	
Switching differential	approx. 0.5 K	
Sensor system	bimetal	
Dimensions (see page 30)	"1S" type	

RTR 6121

Standard version

Order number: 17225 6121 105

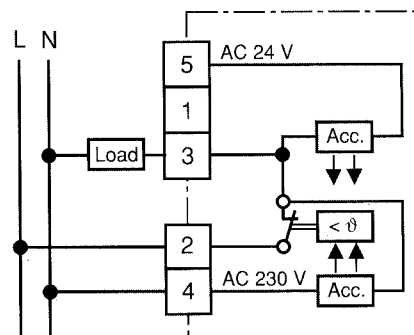


RTR 6122

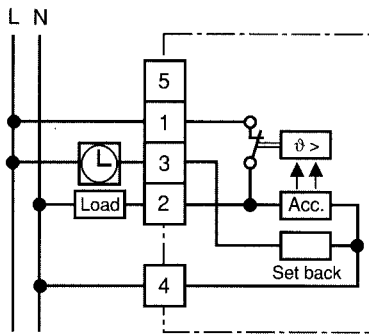
Special features:

Dual voltage version for 24 V AC or 230 V AC.

Order number: 17225 6122 105



Room thermostats EUROPA S 6000



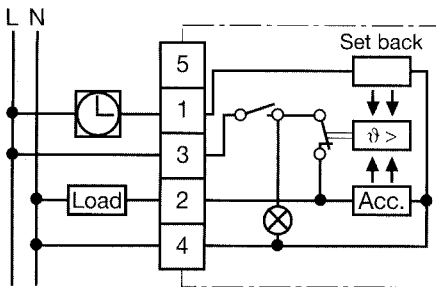
RTR 6124

Special features:
Temperature set back (approx. 5 K)
possible with external clock

Order number: 17225 6124 105

Note:
RTR 6124/24 V AC

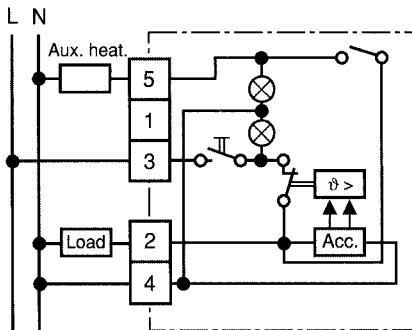
Order number: 17225 6124 205



RTR 6165

Special features:
On/off switch
Temperature set back (approx. 5 K)
possible with external clock
Control lamp for On/Off

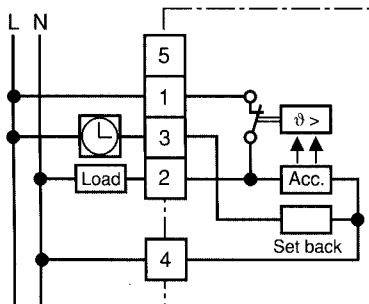
Order number: 17225 6165 105



RTR 6181

Special features:
On/off switch and
switch for auxiliary heating
2 indication lamps

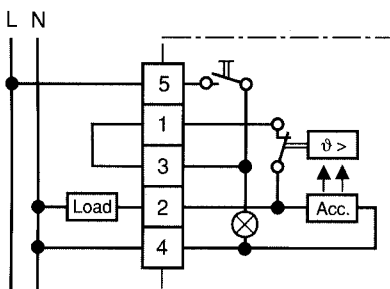
Order number: 17225 6181 105



RTR 6145

Special features:
Closed cover, temperature setting
by means of internal scale
Temperature set back possible
with external clock

Order number: 17225 6145 605



RTR 6136

Special features:
Special version for **24 V DC**
Maximum switching load 3 A
On/off switch voltage free,
control LED for I/O
Black housing

Order number: 17225 6136 210

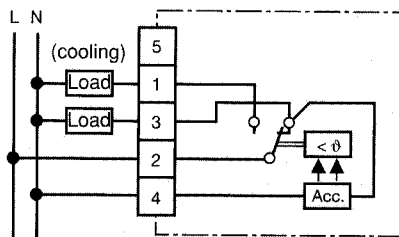
Room thermostats EUROPA S 6000

RTR 6721

Special features:
 Changeover contact
 Switching current of the make on rise contact: 5 (2) A

Order number: 17225 6721 105

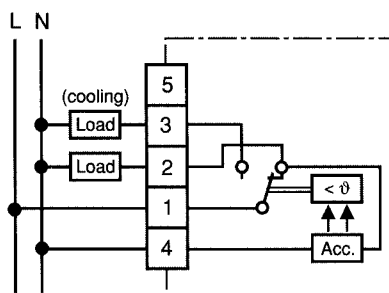
Note: 17225 6722 105
Dual Voltage: 24 V AC or 230 V AC



RTR 6704/RTR 6705

Special features:
 Switching current of the make on rise contact: 5 (2) A

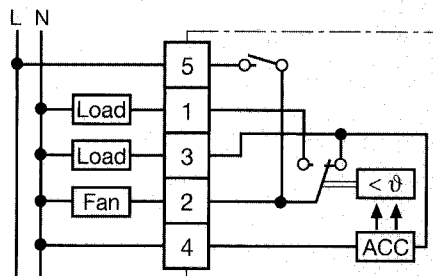
Order number: 17225 6704 105/-20 to +30°C
 17225 6705 105/+10 to +60°C



RTR 6763

Special features:
 Changeover contact
 Switching current of the make on rise contact: 5 (2) A
 On/Off switch

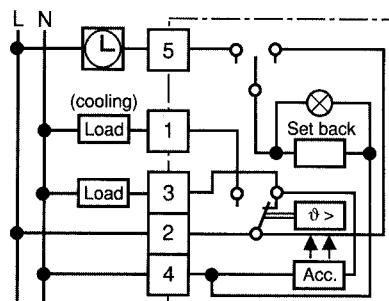
Order number: 17225 6763 105



RTR 6726

Special features:
 Settings for day, night or auto-
 matic operation
 Temperature set back (approx. 5 K)
 possible with external clock

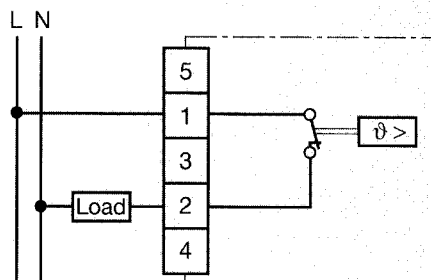
Order number: 17225 6726 105



RTR 6110

Special features:
 Switching current of the
 break on rise contact: **10 to 16 A**
 without acceleration
 numerical scale

Order number: 17225 6110 105



Room Thermostat with TRIAC output RTRt 525 80/81/82/83/85

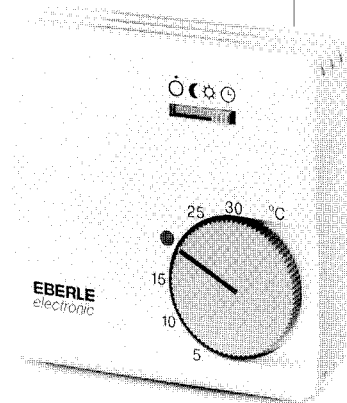
Features:

For controlling of wet central heating in conjunction with motorised valves and actuators (currentless open resp. closed) eg. convector or floorheating systems.

- Triac output
- Silent operation
- No relay chatter
- No radio interference

- Versions available 24 V or 230 V AC
- Load activated whilst heating "ON" (N/O contacts)
- Load activated whilst heating "OFF" (N/C contacts)
- With or without switch (day, night, auto, off)

Note: with TRIAC changeover output: Type 525 85/AC 230V (remote sensor not possible)



Technical data (generally for all types)		
Temperature range	5 ... 30°C	
Range limitation	inside adjustment knob	
Temperature set-back	3 K	
Cycle period	approx. 5 min. (sum of on- and off time of pulse width modulation)	
Output	Triac	
Voltage drop	approx. 1,1 V	
Temperature sensor interior	NTC (33 kOhm ± 5%, B 25/100 = 4300 K ± 5%)	
Proportional band	1,5 K (At this variation of actual value, set capacity moves nearly linear between 0 and 100% – outside this range, it is steadily switched on resp. off)	
Housing protection	IP 30	
Protection class	II	
Operating temperature	-25 ... 40°C	
Storage temperature	-25 ... 70°C	
Weight	approx. 75 g	
Remote sensor	F 193 720 (optional)	
Colour of housing	RAL 9010	
Technical data for type		
	525 80/81/82/83	525 80/81/82/83
Supply voltage	AC 24 V (20 ... 30 V, 50/60 Hz)	AC 230 V (195 ... 253 V, 50/60 Hz)
Switching current		
continuously (see note)	0 ... 1,2 A (cosφ = 1) 0 ... 0,7 A (cosφ = 0,6)	0 ... 0,8 A (cosφ = 1) 0 ... 0,5 A (cosφ = 0,6)
short time for 2s	max. 5 A	max. 5 A
No. of actuator 3 W each	5 (electrothermic)	10 (electrothermic)
Switching voltage	AC 0 ... 250 V	AC 0 ... 250 V
Power consumption	< 0,7 W	< 0,3 W

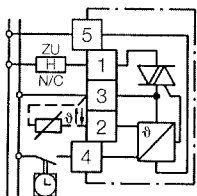
Note: The types 525 82/83 (while heating current off) without remote sensor should operate with max. 0,5 A. The temperature set-back terminal 4, should be switched only by the contact of an external timer. This timer has to be connected to neutral line.

Order Numbers:

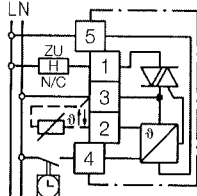
0525 80 061 900	5 ... 30°C	AC 24 V	while heating current on (n/o contact)	without switch
0525 81 061 900				with switch
0525 80 141 900	5 ... 30°C	AC 230 V	while heating current on (n/o contact)	without switch
0525 81 141 900				with switch
0525 82 061 900	5 ... 30°C	AC 24 V	while heating current off (n/c contact)	without switch
0525 83 061 900				with switch
0525 82 141 900	5 ... 30°C	AC 230 V	while heating current off (n/c contact)	without switch
0525 83 141 900				with switch

Wiring diagramm

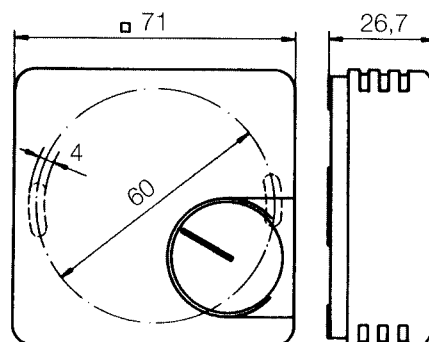
Type 525 80
U_N AC 24 V
-H- 0 ... 1,2 A



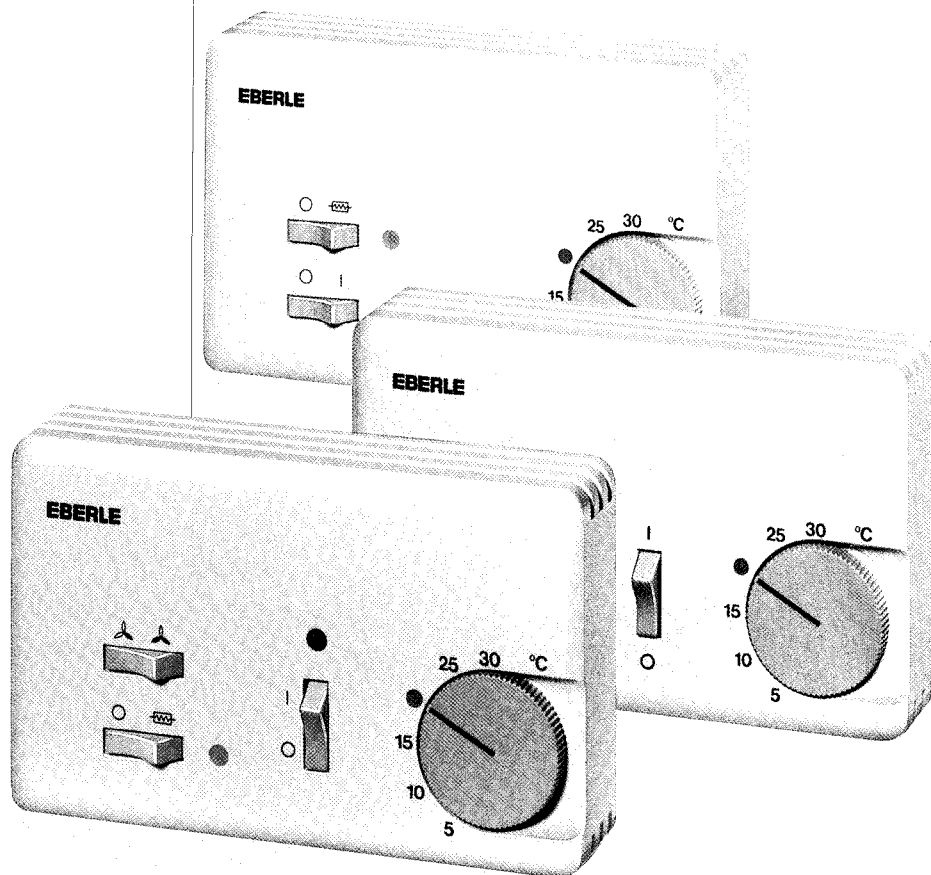
Type 525 80
U_N AC 230 V
-H- 0 ... 0,8 A



Dimensions:



Room thermostats 7000 series



Application:

The 7000 series of room thermostats is suitable for wall mounting in living rooms and offices to control electric storage heaters with or without auxiliary heaters.

The operating voltage is 230 V AC unless otherwise stated.

Accessories:

see pages 28/29

General technical data

Contact configuration	changeover contact
Temperature range	5 to 30°C
Switching current at 250 V AC	10 (4) A
Switching differential	0.5 K to 1.5 K
Sensor system	bimetal
Dimensions (see page 30)	"1.7 S" type

RTR 7611

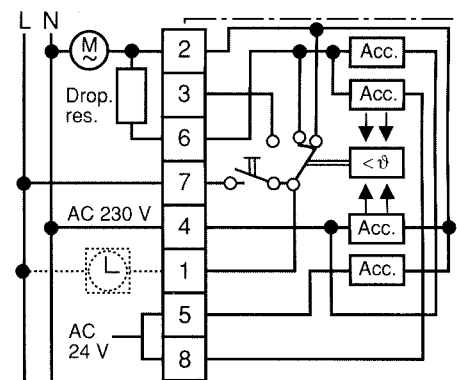
Special features:

Sequential changeover contact for automatic switching between low and high fan speed.

On/off switch. Control by external clock possible.

Dual voltage version.

Order number: 17225 7611 105



Room thermostats 7000 series

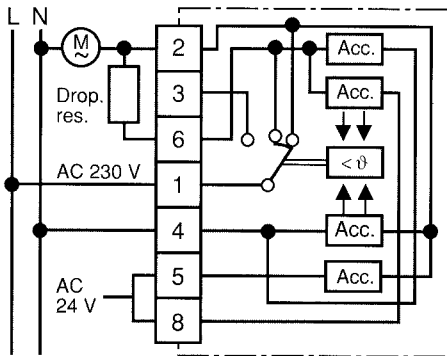
RTR 7603

Special features:

Sequential changeover contact thermostat in **dual voltage** version for 24 V AC and 230 V AC.

Automatic switching from low to high fan speed.

Order number: 17225 7603 105



RTR 7712

Special features:

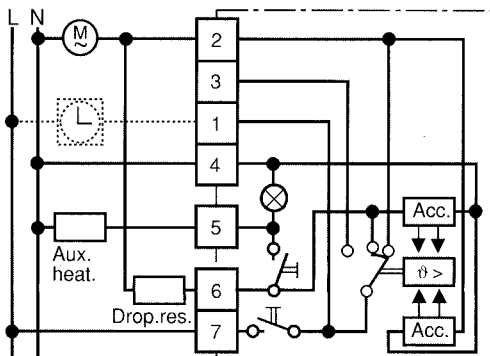
Sequential changeover contact thermostat with on/off switch and switch for auxiliary heater.

Indicator lamp for auxiliary heater

Automatic switching from low to high fan speed.

Control by external clock possible

Order number: 17225 7712 105



RTR 7402

Special features:

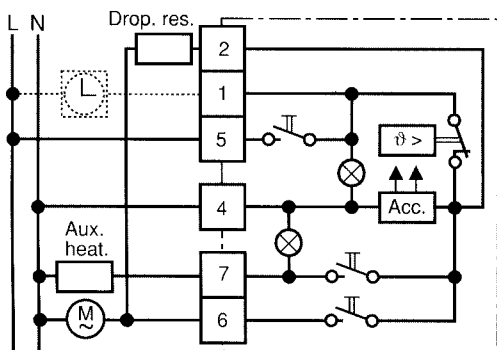
No changeover contact, only break on rise.

Manual switching between fan speeds.

On/off switch with indicator lamp and switch for auxiliary heater with indicator lamp.

Control by external clock possible

Order number: 17225 7402 105



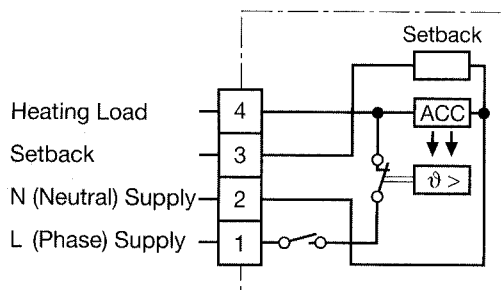
RTR 7420

Special features: **20 A**

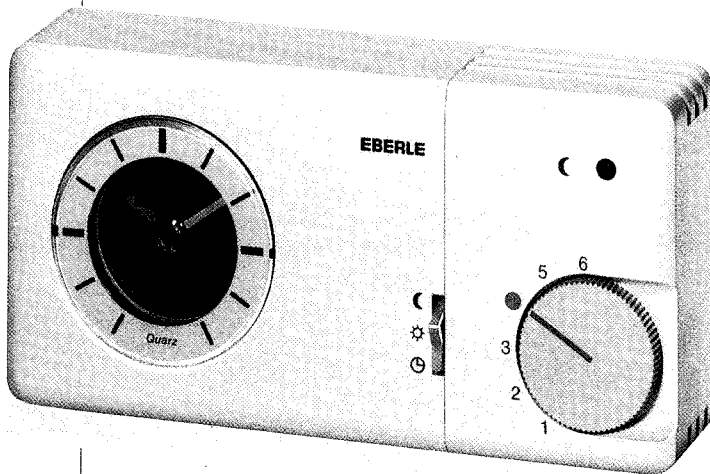
Switching current of the break on rise contact: **20 A**

Temperature setback (approx. 5 K)
Push button: On/Off

Order number: 17225 7420 105



Clock thermostats 9000 series



Application:

The 9000 series of mechanical clock thermostats is suitable for wall mounting in living rooms and offices to control all types of heating which respond to an electrical on/off signal.

The temperature set back (night temperature) can be set between 2 and 10 K below the day temperature.

The thermostat has a break on rise contact.

Accessories:

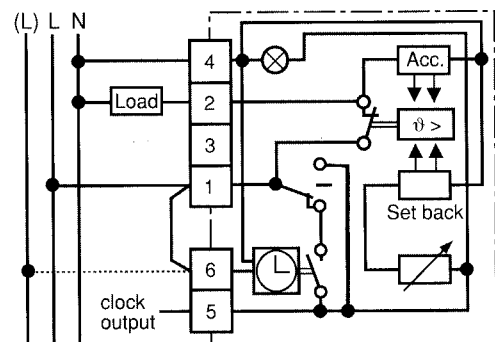
see pages 28/29

General technical data

Operating voltage	230 V AC
Switching current at 250 V AC	10 (4) A
Contact configuration	SPST (b. o. r.)
Temperature range	5 to 30°C
Temperature set back	adjustable 2–10 K
Switching differential	approx. 0.5 K
Program selector switch	day/night/automatic
Sensor system	bimetal
Battery back up	more than 150 hours
Dimensions (see page 30)	"2S" type

Order numbers:

- 17225 9200 105 – Daily program
- 17225 9300 105 – Weekly program
- 17225 9230 105 – Daily program,
24 V AC version
- 17225 9400 105 – Daily program, **SPDT**
- 17225 9600 105 – Daily program with switch
for auxiliary heater



Electronic clock thermostats 525 15/17

Application:

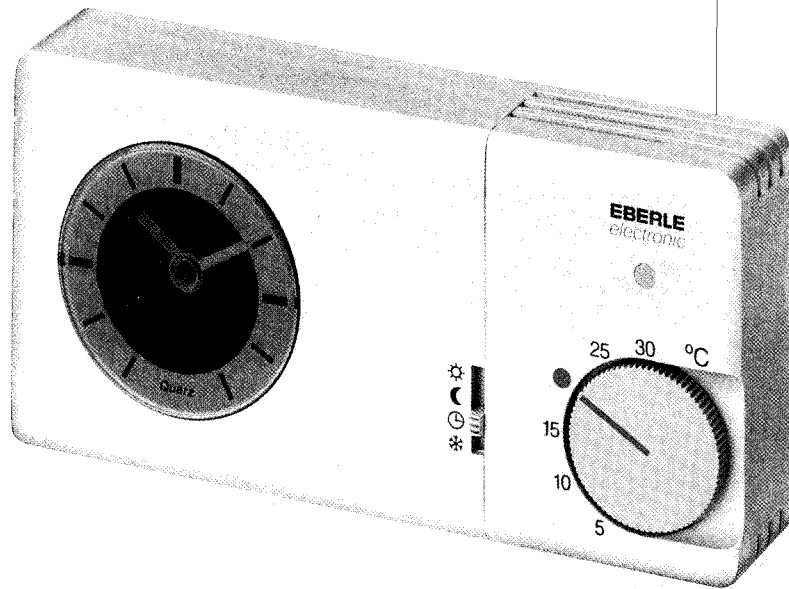
The 525 15/17 series of clock thermostats enable the set back temperature to be selected independently of the day temperature (individual night set point).

A voltage free changeover relay output contact is available with break on rise function.

Independent frost protection operation is possible.

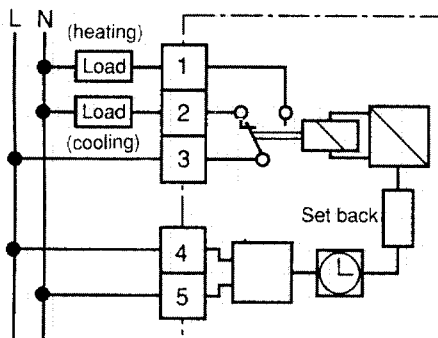
Accessories:

see pages 28/29



General technical data

Operating voltage	220 V + 10/- 15% 50 Hz
	230 V + 6/- 15% 50 Hz
Switching current at 250 V AC	10 (4) A
Contact configuration	SPDT
Temperature range	2 x 5 to 30°C
Switching differential	approx. 0.5 K
Program selector switch	day/night/automatic/frost protection
Sensor system	NTC linearized
Battery back up	more than 150 hours
Power consumption	approx. 7 VA
Dimensions (see page 30)	"2S" type



Order numbers:

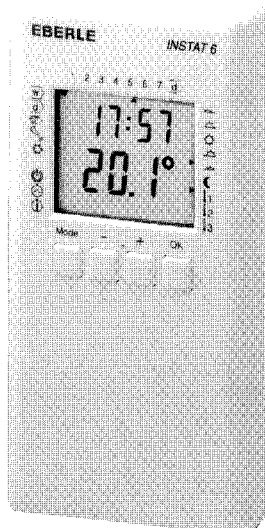
0 525 15 141 960 – Daily program
0 525 17 141 960 – Weekly program

Version for operating voltage
24 V + 10/- 15% 50/60 Hz:

0 525 15 061 960 – Daily program
0 525 17 061 960 – Weekly program

New
with RF-Controller
and RF-Timer

INSTAT 6: Electronic clock thermostat with digital display 52590/92/96



Applications

- For controlling of:
- Actuators in floor and convector heating systems
 - Burners in oil and gas-fired heating systems
 - Circulation pumps
 - Fans in electric storage heaters
 - Heat pumps or gas boilers

Proposal: To use especially the version with RF and for refurbishment of old buildings.

Common features of the INSTAT 6 thermostat family:

- 3 adjustable temperatures (comfort, standard, night)
- 6 freely selectable times for every day (weekly program, repeated weekly)
- each time can be assigned one of the temperatures
- Extra daily program (for special occasions such as public holidays, holidays in addition to the weekly program)
- Manual mode for:
 - Temperature change until next program start
 - Permanent temperature change
- Frost protection for an adjustable time with subsequent continuation of the weekly program
- Party function (the evening temperature is maintained for a further three hours) with manual temperature variation
- Hour counter (time in which the controller requests heat is measured)
- Pump/valve protection (the output is activated daily for three minutes)

Common technical features (for INSTAT 6-2w, 6-3w, 6-r):

Nominal temperature setting	5 to 30°C in 0,5 K steps
Actual temperature display	0 to 40°C in 0,1 K steps
Operating temperature	0 to 40°C
Storage temperature	-20 to +60°C
Control algorithm	Fuzzy
Measuring interval	10 min.
Cycle duration of PWM	About 10 minutes (sum total of on and off time of pulse width modulation)
Frost protection	6°C adjustable for 1 to 99 days
Display	LCD-display with simultaneous display of room temperature, time, weekday, mode, nominal time zone and temperature zone
Display-size	41 x 43 mm visual field, digit size 12 mm for temperature, 9 mm for time
Clock : Display range	24h in 1 minute steps
Accuracy	< 10 minutes/year (at 20°C), radio clock, atomic accuracy (DCF-77)
Minimum switching time	10 minutes
Internal temperature sensor	NTC, linearised
Hour counter	1 to 9999 hours
Protection class of housing	IP 40
Class of protection	II
Humidity rating	F
Colour of housing	Polar white, similar to RAL 9010

Order Numbers:

INSTAT 6-r	0525 90 291 900	RF transmitter-batteries – wireless remote control-handheld
INSTAT 6-2w	0525 92 141 900	2-wire-batteries-relay output –wall mounted
INSTAT 6-3ws	0525 96 141 900	3-wire-mains-relay output – temp. setback-wall mounted

Diagram INSTAT 6-2w

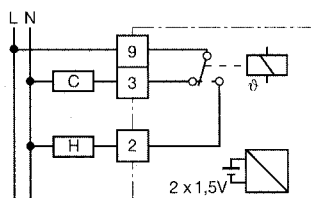
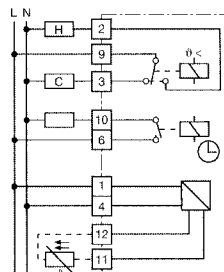
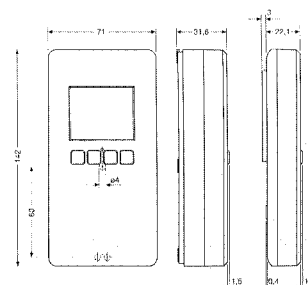


Diagram INSTAT 6-3w



Dimensions



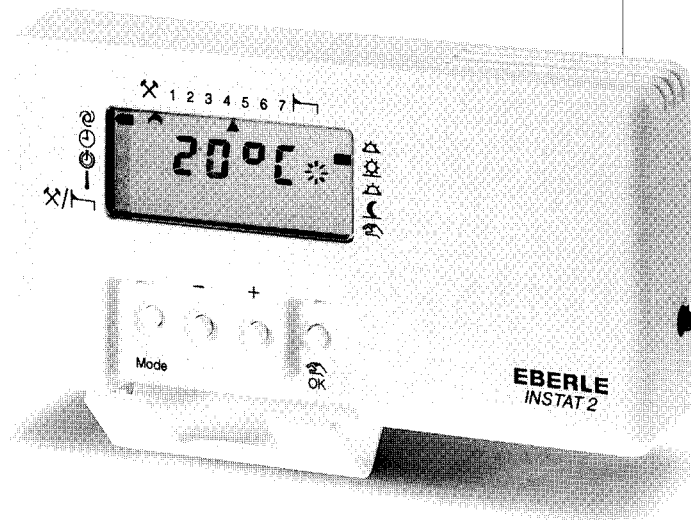
INSTAT 2/525 32

Application:

The INSTAT 2 digital clock thermostat is suitable for wall mounting in living rooms and offices to control electric, gas or warm water heating

Only 2 cables are needed to connect the INSTAT 2, the power supply is provided by 2 1.5 V batteries (AA size).

Up to four times per day different temperature levels can be programmed. Each day can be selected as a "work" or "rest" day, with a different programme able to be set for each.



Accessories:

see pages 28/29

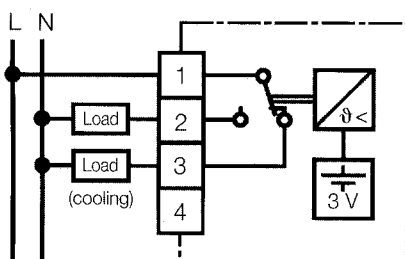


Hour counter up to 9999 hours

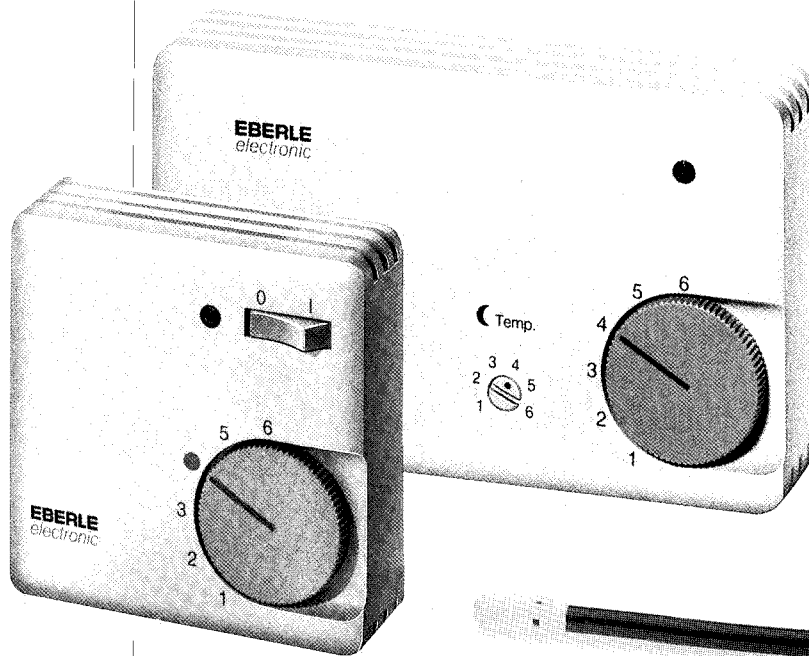
Technical data

Operating voltage	3 V (2 batteries)
Switching current at 250 V AC	8 (2) A
Contact configuration	SPDT
Temperature range	5 to 30°C
Switching differential	approx. 0.2 K
Programs available	2 (work and rest days)
Selectable temperatures	4 per day
Selectable time periods	4 per day
Operation	4 push buttons
Dimensions (see page 30)	"2S" type

Order number: 0 525 32 641 961



Floor heating controls 525 31/29



Application:

The floor heating controls type 525 31/29 are suitable for wall mounting in living rooms and offices to control direct underfloor heating and underfloor storage heating.

They can also be used for other types of heating where a remote sensor is required.

The thermostats are self-monitoring and the heating is switched off automatically if a sensor is damaged or a short circuit occurs.

The contact opens when the required temperature is reached.

Accessories:

see pages 28/29

Technical data	525 31	525 29
Operating voltage	220 V + 10/-15%, 50 Hz	220 V + 10/-15%, 50 Hz
	230 V + 6/-15%, 50 Hz	230 V + 6/-15%, 50 Hz
Switching current at 250 V AC	16 (6) A	16 (6) A
Contact configuration	SPST	SPST
Temperature range day – numerical	10 to 60°C	10 to 60°C
Temperature range night – numerical	-	10 to 60°C
Switching differential	approx. 1 K	approx. 1 K
Switches	on/off (not isolated from mains supply)	on/off (not isolated from mains supply)
Indicator (LED)	“heating on”	-
Dimension (see page 30)	“1S” type	“1.7S” type
Sensor system	NTC linearized, cable length 4 m	NTC linearized, cable length 4 m

Order numbers:

0 525 31 141 860

0 525 29 141 860

Diagram 525 31:

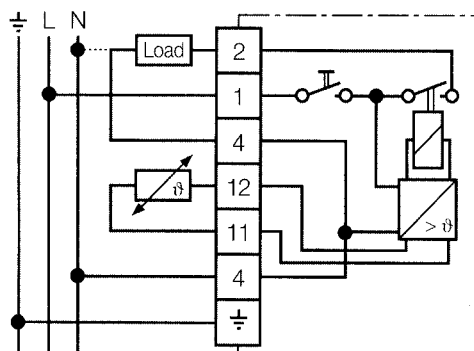
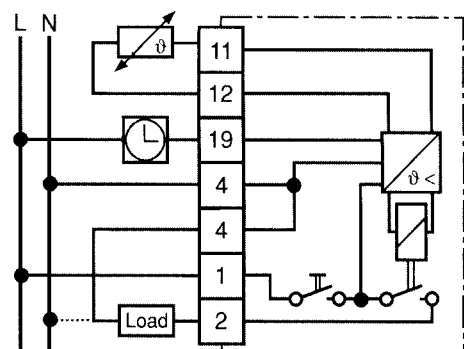


Diagram 525 29:



Floor heating controls 525 27/28

Application:

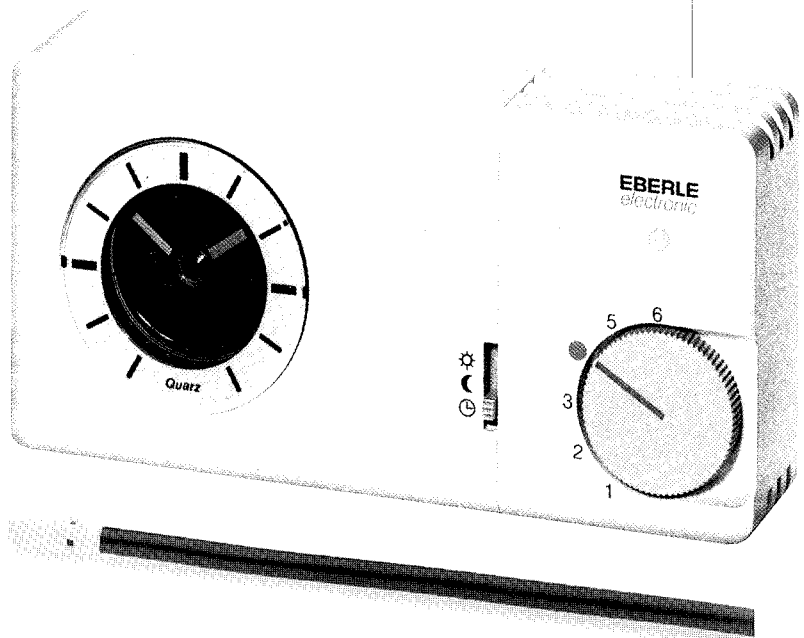
The heating controls 525 27/28 are suitable for wall mounting in living rooms and offices to control direct underfloor and underfloor storage heating.

They can also be used for other types of heating where a remote sensor is required.

The integrated clock makes it possible to switch automatically from day to night temperature.

The controllers are self-monitoring and the heating is switched off automatically if a sensor is damaged or a short circuit occurs.

The contact opens when the required temperature is reached.



Accessories:

see pages 28/29

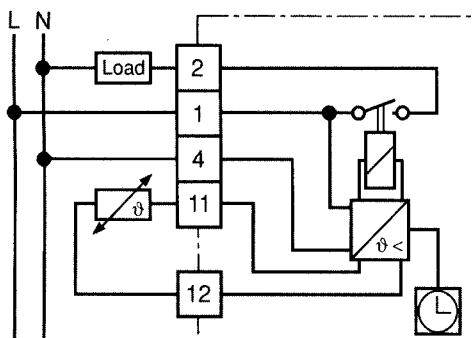
Technical data

Operating voltage	220 V + 10/-15%, 50 Hz
	230 V + 6/-15%, 50 Hz
Switching current at 250 V AC	16 (6) A
Contact configuration	SPST
Temperature range day – numerical	10 to 60°C
Temperature range night – numerical	10 to 60°C
Switching differential	approx. 1 K
Switches	day/night/automatic
Indicator (LED)	"heating on"
Dimensions (see page 30)	"2S" type
Sensor system	NTC linearized, cable length 4 m

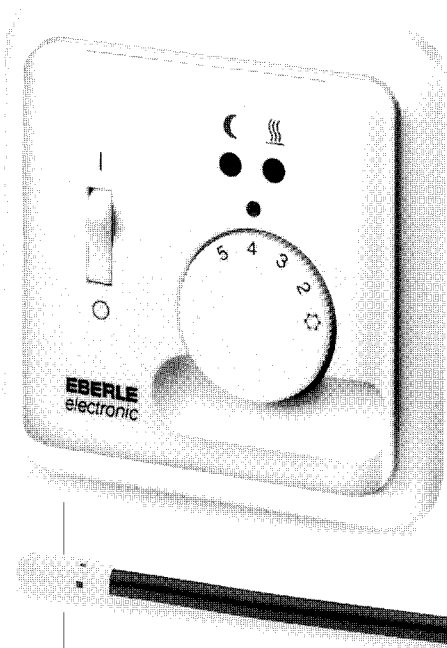
Order numbers:

0 525 27 141 860 – Daily program

0 525 28 141 860 – Weekly program



Floor heating control – Flush mounted – 525 22



Application:

The floor heating control 525 22 is suitable for flush mounting on conduit box 55 mm \varnothing in living rooms and offices to control electric floor heating systems.

They can also be used for other types of heating where a remote sensor is required.

The thermostats are self-monitoring and the heating is switched off automatically if a sensor is damaged or a short circuit occurs.

The contact opens when the required temperature is reached.

Accessories:

see pages 28/29

Technical data

Operating voltage	AC 230 V 50 Hz (AC 195 to 253 V 50 Hz)
Temperature range – numerical	10 to 50°C
Switching current at 250 V AC	10 A – relay output 1 n/o for heating
Consumption	2.3 kW
Switch	mains "On/Off"
Indication LED red	heating "On"
Indication LED green	temp. setback "On"
Temp. setback	approx. 5 K
Switching differential	approx. 1 K
Sensor system (193 720)	NTC linearized, cable length 4 m

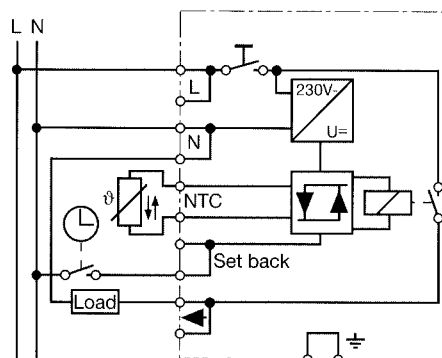
Order number:

0525 22 141 500 – RAL 9010 (inclusive sensor)

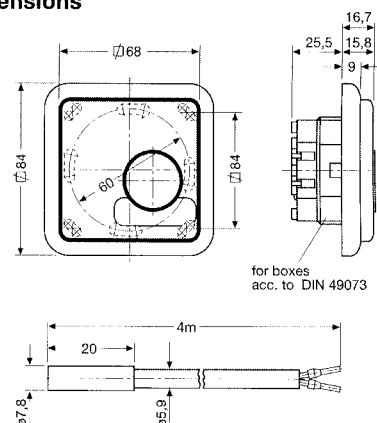
Note:

Quick connection terminals

Diagram



Dimensions



for boxes acc. to DIN 49073

Electronic thermostat 525 50 with 2 switch positions for heat pumps

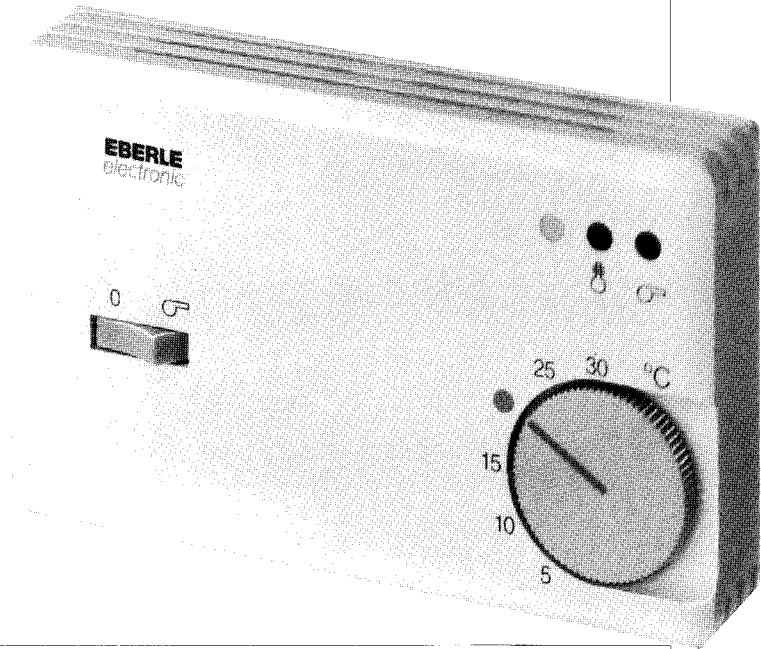
Application:

The electronic thermostat is designed primarily for controlling heating systems which employ two sources of energy.

The most usual application is that of regulating heat pumps, air to air or air to water with supplementary heating, for example solid fuel or electricity. It can also be used for convector heaters, combination systems (mixed static hot water), direct electric heating, etc. This supplementary heating can be switched on/off.

Accessories:

see pages 28/29

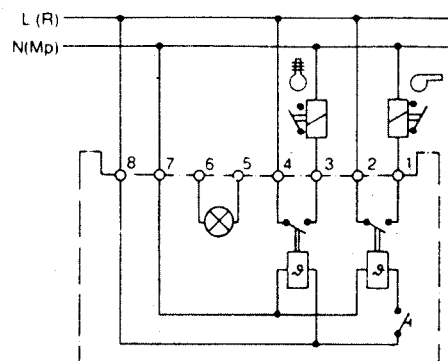


Technical data	
Supply voltage	220 VAC + 10% / - 15%, 50 Hz
Temperature range	+ 5 to 30°C
Range suppression/Locking device	standard
Difference between stages	1 K (or to special order)
Operating differential (static)	approx. ± 0.2 K
Temperature sensor	NTC built-in
Contact rating	5 A (3 + 4) / 10 A, 250 V, 50 Hz (1 + 2)
Power consumption	approx. 2 W / 8 VA
Ambient temperature range	- 20 to + 40°C
Housing	IP30 class II
Material of housing	Plastic (PVC)
Indicator lights	1 neon lamp indicating malfunction on heat pump 1 LED (green) for 1st stage (terminal 3) 1 LED (yellow) for 2nd stage (terminal 1)
1 switch	on/off supplementary heating
Dimensions (see page 30)	"1.7S" type

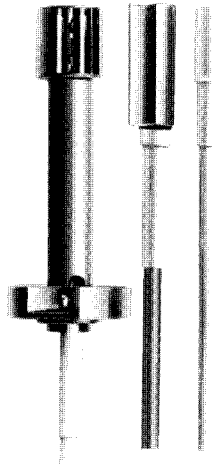
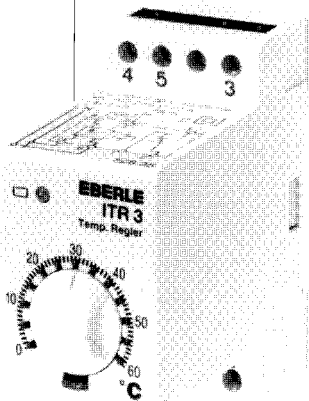
Order number:

0525 50 141 960

Diagram:



DIN rail thermostats 528 35



Application:

The 528 35 series of universal thermostats are suitable for DIN rail mounting in domestic and industrial areas wherever it is necessary to use remote sensors.

In addition to the standard temperature sensor, sensors for pipes and for air temperature are also available.

Note:

A low cost version with capacitor power supply, standard range 0-60°C and ordinary potentiometer for temperature setting is available under order number 0 528 20 641 820.

Technical data	
Operating voltage	AC 230 V (207 to 244V) 50/60 Hz
Switching current at 250 V AC	10 (4) A (2,5 kVA)
Contact configuration	SPDT, voltage free
Switching differential	± 0,5 K
Indicator LED green	Relay "ON"
Sensor system	PTC
Protection class of housing	IP 40
Ambient temperature	-20 to + 50°C

Temperature range:

Order numbers:

Type 528 35

- 40 to + 20°C	0 528 35 143 000
0 to + 60°C	0 528 35 141 800
+ 40 to + 100°C	0 528 35 143 200
+ 100 to + 160°C	0 528 35 143 300

Temperature range:

Order numbers:

Standard sensor

- 40 to + 20°C	1,5m/Silicon	0 528 94 000 002
0 to + 60°C	4m/PVC	0 528 91 040 000
+ 40 to + 100°C	1,5m/Silicon	0 528 94 000 002
+ 100 to + 160°C	1,5m/Silicon	0 528 94 000 002

Curved contact sensor

all temp. ranges	1,5m/Silicon	0 528 92 000 002
------------------	--------------	------------------

Air sensor

all temp. ranges	1,5m/Silicon	0 528 93 000 002
------------------	--------------	------------------

Sensor for outside mounting

Housing IP65 (85x50x35 mm)		0528 97 990 001
Temp. ranges: - 40 to +80°C		

Dimensions:

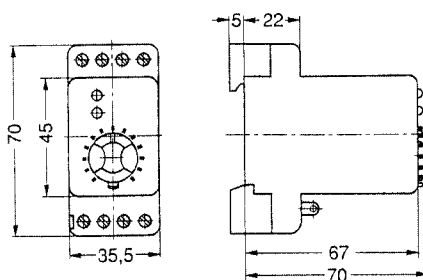
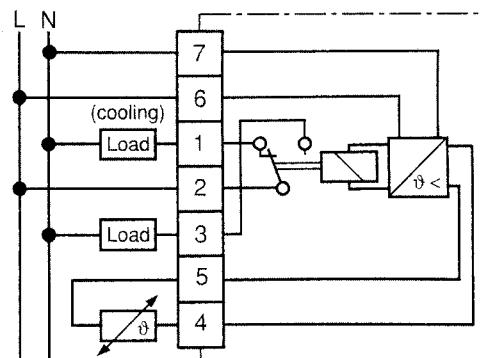


Diagram:



Universal thermostats 524 60/61

Application:

The universal thermostats, series 524 60/61 are suitable for wall mounting in industrial areas for heating and ventilation control.

These units have a **sensor fitted to the side of the housing** and fulfill the requirements of protection class IP54.



Technical data

Operating voltage	220 V + 10 / - 15 %, 50 Hz 230 V + 6 / - 15 %, 50 Hz
Switching current at 250 V AC	10 (4) A
Contact configuration	SPDT
Temperature range (optional)	5 to 30 °C or - 15 to 15 °C
Switching differential	approx. 0.5 K
Indicator (LED)	"heating on"
Sensor system	NTC, linearized
Dimensions	see scale drawing

Order numbers:

- 0 524 60 140 510 – external adjustment, range 5 to 35 °C
- 0 524 60 141 410 – external adjustment, range - 15 to 15 °C
- 0 524 61 140 510 – internal adjustment, range 5 to 35 °C
- 0 524 61 141 410 – internal adjustment, range - 15 to 15 °C

Dimensions:

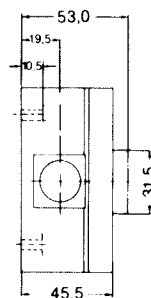
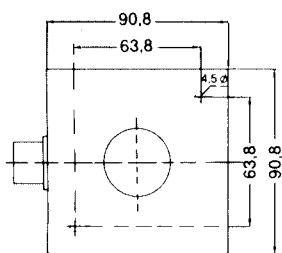
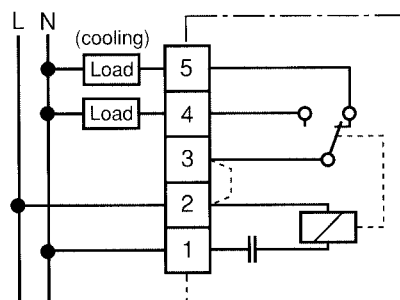
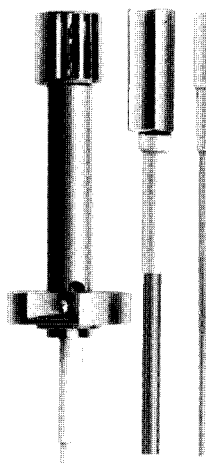
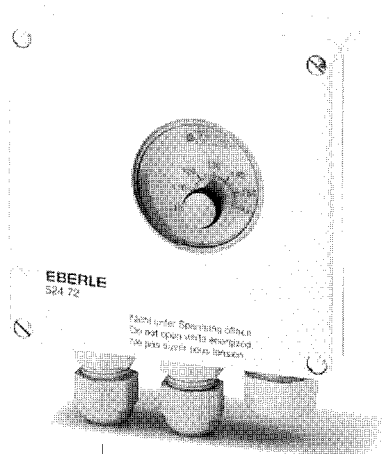


Diagram:



Universal thermostats 524 72



Application:

The 524 72 series of industrial thermostats are suitable for wall mounting in industrial commercial applications to control heating and ventilation wherever **remote sensors** are necessary, e.g. green houses, too.

Note:

suitable either as outside or as inside scale!

Technical data	
Operating voltage	AC 230 V (207 to 244V) 50/60Hz
Switching current at 250 V AC	16 (4) A (4 kW)
Contact configuration	SPDT voltage free
Indicators: LED green LED red	Relay "ON" Sensor disconnected
Temp. setback	approx. 5 K (fixed)
Switching differential (adjustable) up to 100°C at 160°C	± 0,5 K to ± 5 K ± 0,5 K to ± 10 K
Protection class of housing	IP 65
Ambient temperature	-20 to + 50°C

Temperature range: Order numbers: Temperature range: Order numbers:

Type 524 72

- 40 to + 20°C 0 524 72 143 094
 0 to + 60°C 0 524 72 141 894
 + 40 to + 100°C 0 524 72 143 294
 + 100 to + 160°C 0 524 72 143 394

Standard sensor

- 40 to + 20°C 1,5m/Silicon 0 528 94 000 002
 0 to + 60°C 4m/PVC 0 528 91 040 000
 + 40 to + 100°C 1,5m/Silicon 0 528 94 000 002
 + 100 to + 160°C 1,5m/Silicon 0 528 94 000 002

Curved contact sensor

all temp. ranges 1,5m/Silicon 0 528 92 000 002

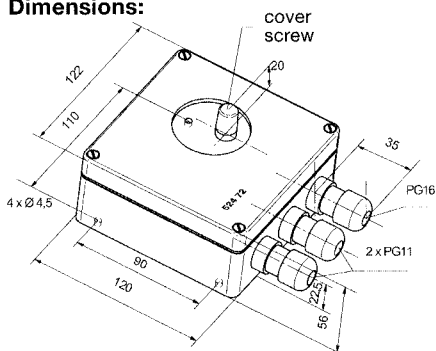
Air sensor

all temp. ranges 1,5m/Silicon 0 528 93 000 002

Sensor for outside mounting

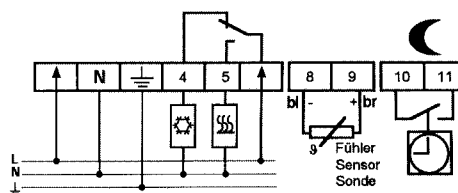
Housing IP65 (85x50x35 mm) 0 528 97 990 001
 Temp. ranges: - 40 to +80°C

Dimensions:



with 3 cable plugs (2x PG 11 and 1x PG 16)
 for cable diameter 8 to 12 mm

Diagram:



Twilight switch 565 27

Application:

Lighting equipment for drives – garages – shop windows etc. If the lighting falls below the value set, the relay contact closes slowly. When the lighting rises above the value set the relay contact opens slowly.

Advantages at a glance

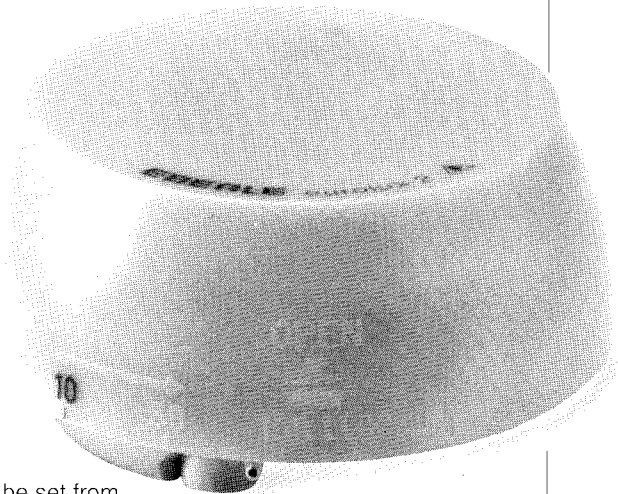
Easy to mount – just one fixing hole
Plenty of room for connections – no need to screw in fasteners
2 sets of fastening clips included – even the earthing lead
Status indicator LED without delay
Fine adjustment possible in low light

Attention:

Type 565 18 with timer and remote sensor available

Light value can be set from the outside
On and Off delay switch approx. 20 seconds

In case of faults the light shines even in daytime
Sodium lamps can be connected



Technical data	
Mains supply voltage	
at 50 Hz	220 to 240 V
Tolerance range	187 to 264 V
Power consumption	approx. 7 VA
Contact (not voltage free)	1 n/c
Switching current $\cos \varphi = 1$	10 A/250 V
Setting range	5 ... 100 Lux
Sensor element	Photoresistance
Switching state indicator (instantaneous)	LED red
Switch delay (by delay relay)	approx. 10 ... 20 sec.
Operating temperature	- 30 to 65 °C
Storage temperature	- 40 to 70 °C
Protection class	II accordance with VDE 0631
Type of protection	IP54 in accordance with DIN 40 050 (when mounted according to instructions)

Lamp values	
Compensated	max. 70 μ F
Light bulbs (IN)	max. 1600 W
Fluorescent light (EL)	
uncompensated	max. 1200 W
parallel compensated	max. 650 W
Duo switching	max. 2 x 1200 W
Halogen lamps (AC 230 V)	max. 1200 W
Halogen lamps NV with transformer	max. 500 VA
Mercury vapour lights	
uncompensated	max. 1000 W
parallel compensated	max. 1000 W
Sodium vapour lamps (High pressure)	
uncompensated	max. 1000 W
parallel compensated	max. 1000 W
Mixed light lamps	max. 2000 W
Dulux lamps	
uncompensated	max. 800 W
parallel compensated	max. 560 W

Note: Previous type 565 07 still available

Order number: 0 565 27 640 000

Dimensions:

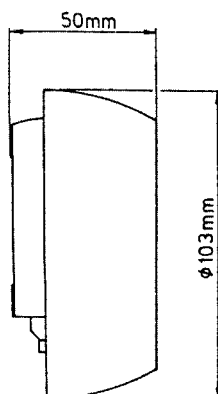
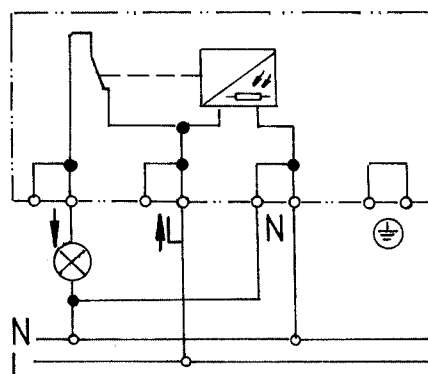
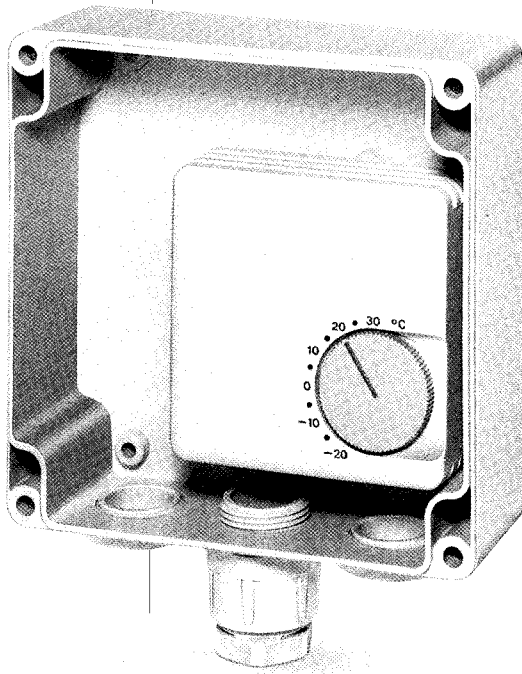


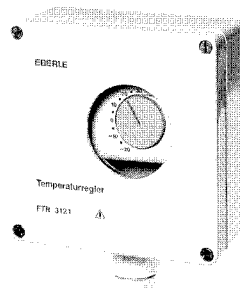
Diagram:



Weatherproof & Humid room control 3121



(open)



Application:

The 3121 control is suitable for wall mounting to control temperature and ventilation in humid rooms.

This unit fulfills the requirements of protection class IP65 and can therefore also be used for outdoor mounting.

Note:

(with cover fitted showing viewing window)

Also available with fully closed cover:
Ref. No. 17225 3121 100

Technical data

Operating voltage	230 V 50/60 Hz
Switching current at 250 V AC	normally closed contact 10 (4) A normally open contact 5 (2) A
Contact configuration	SPDT
Temperature range	-20 to 30 °C
Switching differential	approx. 1 to 3 K
Sensor system	bimetal
Dimensions	see scale drawing

Order number:

17225 3121 200

Dimensions:

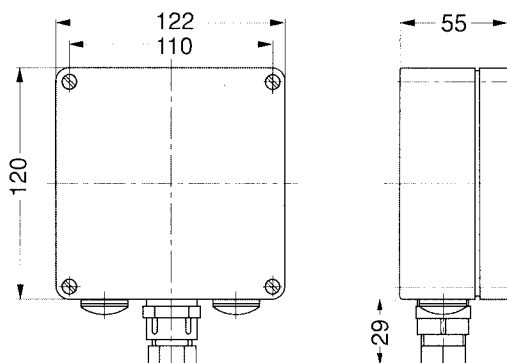
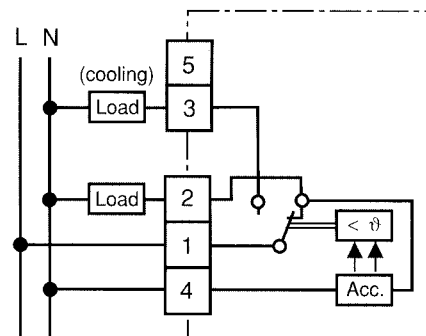


Diagram:



High/Low Heating control 3102

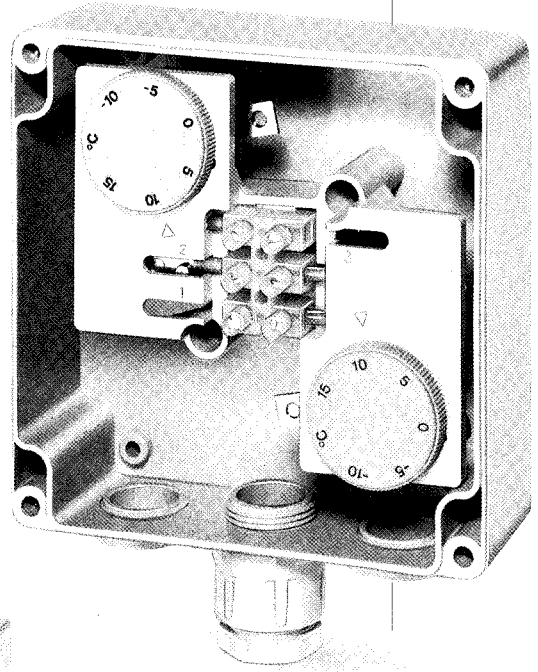
Application:

The 3102 heating control is suitable for wall mounting specially for gutter heating.

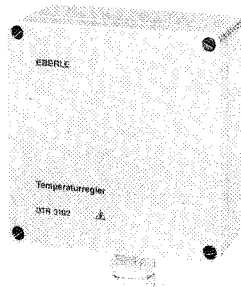
With the 2 controls connected in series it is possible to set the upper and lower values between which the heating is switched on.

The control fulfills the requirements of protection class IP65 and can therefore also be mounted outdoors.

(open)



(with closed cover)



Technical data

Operating voltage	230 V 50/60 Hz
Switching current at 250 V AC	16 (4) A
Contact configuration	2 SPST contacts in series
Temperature range	-15 to 15 °C
Switching differential	approx. 1-3 K
Sensor system	bimetal
Dimensions	see scale drawing

Order number:

17225 3102 100

Dimensions:

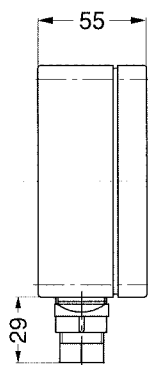
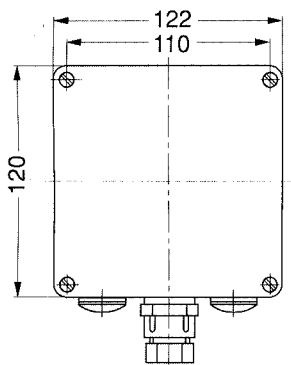
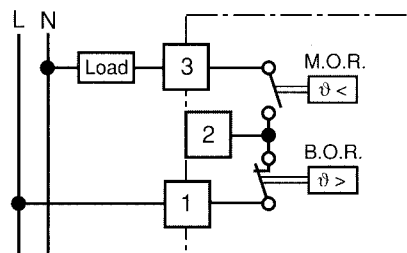
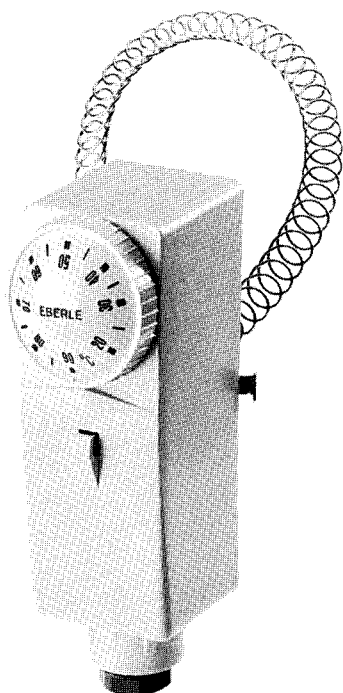


Diagram:



Cylinder thermostats 875 01/02



Application:

The 875 series of cylinder thermostats is suitable for mounting on heating pipes or domestic hot water storage cylinders to control the water temperature.

Technical data

Operating voltage	220V/240V 50/60 Hz
Switching current at 250 V AC	15 (2.5) A
Contact configuration	SPDT
Temperature range	20 to 90°C
Switching differential	approx. 7 K
Sensor system	bimetal
Dimensions	see scale drawing

Order numbers:

87501 0001 000 — with external scale

87502 0001 000 — with internal scale

also available with plastic strap on request

Dimensions:

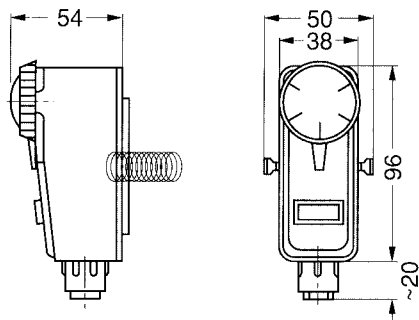
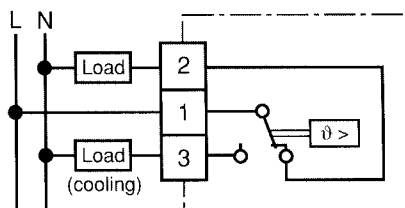


Diagram:



Hygrostats 6001/7001

Application:

The hygrostats 6001 and 7001 are suitable for wall mounting for the automatic operation of humidifiers or de-humidifiers.

The 7001 hygrothermostat also contains a room thermostat with changeover contact for combined control of humidity and temperature

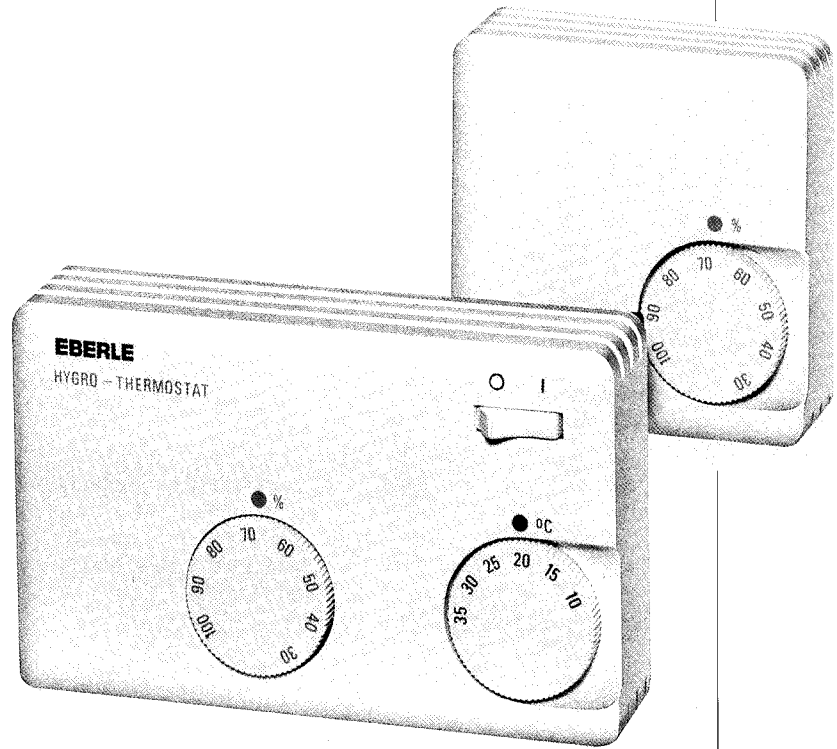
Accessories:

see pages 28/29

Order number:

17905 6001 105 – hygrostat

17925 7001 105 – hygrothermostat



Technical data	6001	7001
Hygrostat		
Operating voltage	24 to 230 V AC ¹⁾	24 or 230 V AC ¹⁾
Switching current at 250 V AC	5 (0.2) A	5 (0.2) A
Contact configuration	SPDT	SPDT
Adjustment range	30 to 100 % RH	30 to 100 % RH
Switching differential	approx. 4 %	approx. 4 %
Thermostat		
Operating voltage	–	24 V or 230 V AC ¹⁾
Switching current at 250 V AC	–	normally closed: 10 (4) A
		normally open: 5 (2) A
Temperature range	–	10 to 35 °C
Switching differential	–	approx. 0.6 K
Contact configuration	–	SPDT
Dimensions (see page 30)	Type "1 S"	Type "1.7 S"

¹⁾ Caution: more than 24 V in dry rooms only!

Diagram 6001:

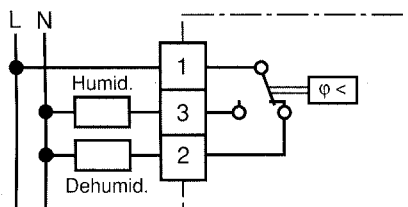
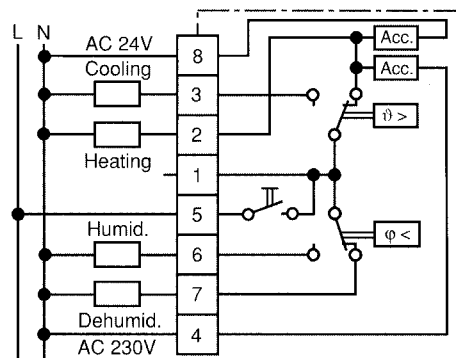
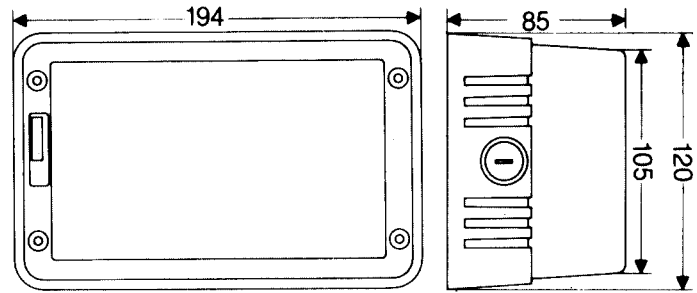
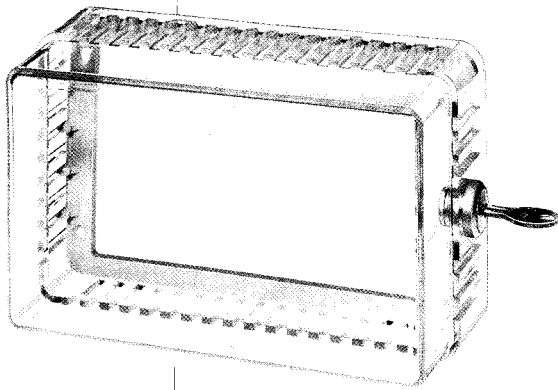


Diagram 7001:



Accessories



Lockable wall mounted housing to prevent unauthorized tampering with various controls. Suitable for public buildings, shops, offices, etc.

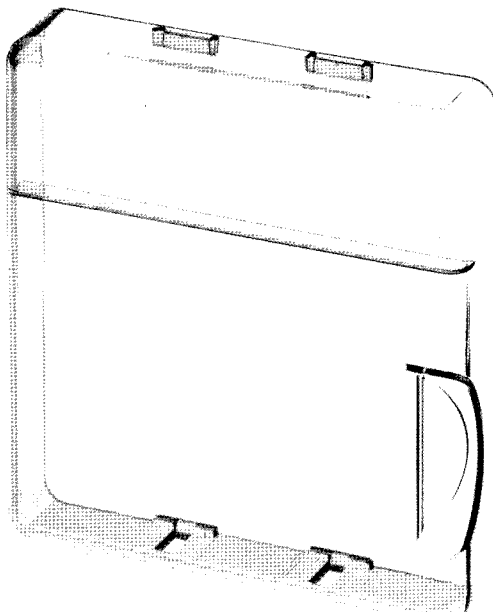
Order number:
473 051 000 006



DIN rail clip

This clip enables all 3000 and 6000 series thermostats to be mounted on 35 mm DIN rail.

Order number:
007 63 1565 000



Tamperproof cover for the type „1 S“ series of thermostats made of smoked plastic.

Order number:
007 63 1446 001 – for „1 S“

Accessories

Plastic mounting plates for mounting controllers to all international junction boxes.

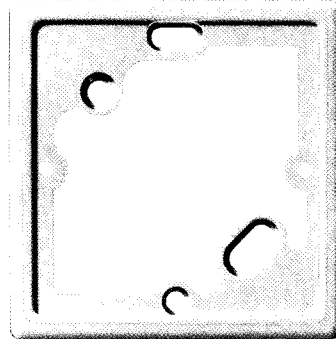
These mounting plates enable all controllers to be fitted to flush junction boxes with rear entry cable or direct to a wall surface to provide an attractive surrounding frame.

Order numbers:

007 700 637 004
plus self tapping screws:
007 10 3188 001

suitable for:

Thermostats series	3000
	6000
	525 31
	525 80-85
Hygrostat	6001

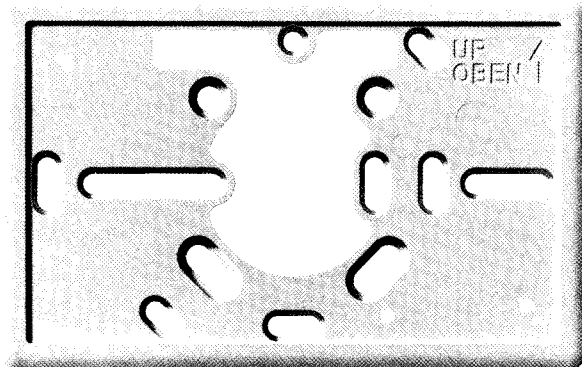


Order numbers:

007 63 1488 005
plus self tapping screws:
007 10 3188 002

suitable for:

Thermostats series	7000
	525 29
	525 50
Hygrothermostat	7001

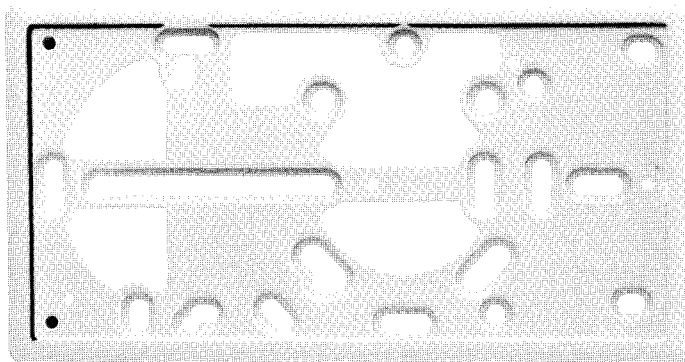


Order numbers:

007 63 1528 104
plus self tapping screws:
007 10 3188 002

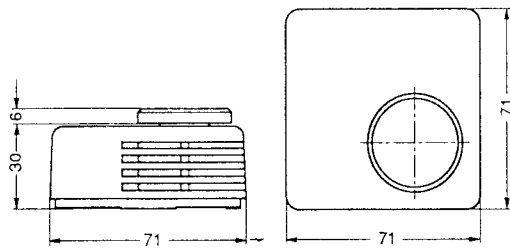
suitable for:

Thermostats series	9000
	525 15/17
	525 27/28
	INSTAT 2
	INSTAT 6

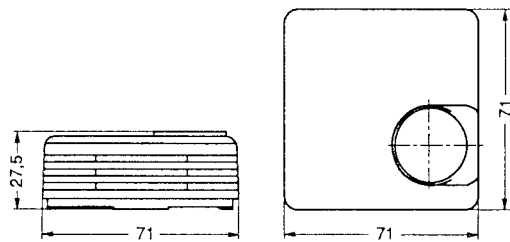


Design and dimensions

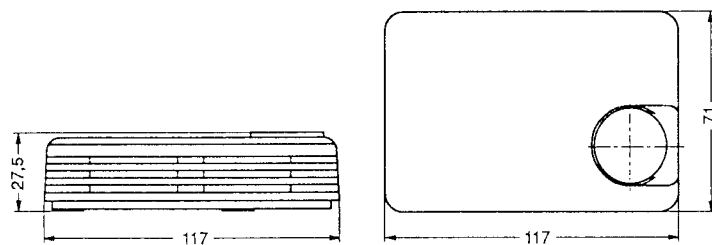
Standard housing
type "EUROPA"



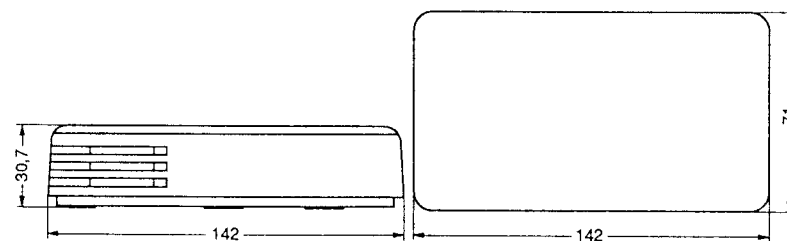
S-class housing
type "1S" (1x1)



S-class housing
type "1.7S" (1x1.7)



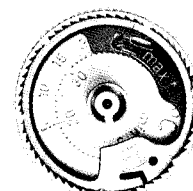
S-class housing
type "2S" (1x2)



Cut energy bills!

Range stops are incorporated in the setting knob as a standard feature in all S-class housings. The required range or a fixed temperature in °C can be decided on. No pegs etc. are necessary, so there is no question of losing these.

All housings meet IP30 protection class according to DIN 40050.



EBERLE

EBERLE Controls GmbH

Postfach 13 01 53
D-90113 Nürnberg
Oedenberger Straße 55-65
D-90491 Nürnberg

Telefon +49 911/56 93-0
Telefax +49 911/56 93-214

A Siebe Group Company