

Temperature limiter

RAK-TB.1..M



Electromechanical limit thermostat

- Limit thermostat with single-pole changeover microswitch
- Switching capacity
 - Contact 11-12...16 (2.5) A, AC 250 V
- Terminal for alarm
 - Contact 11-13...0.5 A, AC 250 V
- Time constant to DIN EN 14597
- Mounting types
 - Pipe mounting
 - Pocket mounting
 - Wall mounting
- View the switching value through the viewing window in the housing
- Internal reset facility covered by removable threaded nipple
- Push-in terminals for fast installation

Application

Typical applications

- Heat generation plants
- For general use in heating, ventilation and air conditioning plants
- Floor heating systems (RAK-TB.1400S-M)

Functions

At the switch-off temperature, the contacts (11-12 opens; alarm 11-13 closes) switch and the thermostat remains locked in this position. After cooling down by the amount of the switching differential, manually unlock the thermostat by opening the removed protective cover.

The control current circuit opens if the probe has cooled down to a temperature below approx. -20°C, but automatically closes once the temperature rises.

Mechanical design

Housing

- The base of the thermostat is made of PC (reinforced) and is designed for pipe, pocket, or wall mounting; the electromechanical thermal reset limit thermostat uses a capillary type sensing element.
- Cover: Made of PC with a viewing window

Cable gland:

- M16 x 1.5 mm

PC plastic has the following properties:

- Flame retardant
- UV protected, weatherproof and aging resistant
- Suited for higher temperatures
- High resistance against chemical, mechanical, and biological influences

Type summary

Type	Ordering number	Degree of protection	Switch-off temperature	Capillary length	Capillary tube length ¹
RAK-TB.1400S-M	S55700-P108	IP43	40...60 °C	700 mm	-
RAK-TB-1410B-M	S55700-P109	IP43	50...70 °C	700 mm	100 mm
RAK-TB-1420S-M	S55700-P110	IP43	65...80 °C	700 mm	-

¹ Protective pipe ALT-SB100, brass, nickel plated, PN10

Delivery

Included in delivery:

- Pocket (for RAK...B)
- Clamping band for max. Ø 100 mm
- Cable gland M16 x 1.5 mm
- Mounting instructions

Additional accessories may be ordered separately.

Accessories

See section 'Product documentation [▶ 3]', data sheet 'Pocket' (N1194) and 'Accessories and spare parts' (N1193).

Ordering

Specify the quantity, order number, and product designation when ordering.

Example:

Type	Order number	Designation
ALT-AB200	BPZ:ALT-AB200	Protection pocket, perforated, 200 mm

Product documentation



Topic	Title	Document ID
Installation	Installation instructions for authorized personnel	G1202
Data sheet	Protection pocket ALT-Sxx, ALT-Dxx	N1194
Data sheet	Accessories and spare parts ALT-Axx, ALT-Cxx, AQM63.2/3, FK-TZ1	N1193

Related documents such as the environmental declarations, declarations of conformity, etc., can be downloaded from the following Internet address:

www.siemens.com/bt/download

Notes

Safety

 CAUTION	
	<p>National safety regulations</p> <p>Failure to comply with national safety regulations may result in personal injury and property damage.</p> <ul style="list-style-type: none">• Observe national provisions and comply with the appropriate safety regulations.

Mounting

Mounting location

Ensure sufficient clearance for:

- Unobstructed viewing of the viewing window
- Setting the switch-off temperature
- Removing and replacing the unit as needed

Mounting types

Pipe mounting:


- Tighten the clamping band so that the entire length of the sensing element touches the pipe.


Pocket mounting:


- Mount the pocket and adjust the hexagon as required. Insert the capillary sensing element in the pocket and secure the base to the pocket with the screw.

Wall mounting with sensing element in the pocket:

- Prepare the wall mounting by knocking out the holes in the housing and pulling out the capillary tube to the required length. Insert the capillary sensing element in the pocket and secure it with a clamp (mounting accessories).

⚠ WARNING	
	Incorrect temperature setting may cause overheating Only qualified personnel may set the switch-off temperature.

⚠ WARNING	
	Incorrect wiring Only qualified personnel may connect the device as per the connection diagram.

⚠ WARNING	
	Voltage max. AC 250 V Disconnect device from mains power before opening it.

Maintenance

The temperature limiter is maintenance-free.

Disposal



This symbol or any other national label indicate that the product, its packaging, and, where applicable, any batteries may not be disposed of as domestic waste. Delete all personal data and dispose of the item(s) at separate collection and recycling facilities in accordance with local and national legislation.

For additional details, refer to [Siemens information on disposal](#).

Warranty service

User-related technical data are only guaranteed when used with Siemens products listed in this document. Siemens rejects any and all warranties in the event that third-party products are used.

Switching mechanism	
Switching capacity <ul style="list-style-type: none"> Nominal voltage range Nominal current I (I_M) <ul style="list-style-type: none"> Terminals 11-12 Terminals 11-13 	<ul style="list-style-type: none"> AC 24...250 V <ul style="list-style-type: none"> 0.1...16 (2.5) A 2 (0.4) A (alarm terminal)
External supply line fusing	16 A
Life expectancy at nominal rating	Min. 300 operations per switch
Protection class	I to EN 60730
Degree of protection	IP43 to EN 60529
Internally adjustable switch-off temperature <ul style="list-style-type: none"> RAK-TB.1400S-M RAK-TB.1410B-M RAK-TB.1420S-M 	45...60 °C 50...70 °C 65...80 °C
Thermal switching differential	10 ±5 K

Standards, directives and approvals	
Product standards	EN 60730-x DIN EN 14597
Electromagnetic compatibility	For residential, commercial, and industrial environments
EU conformity (CE)	See EU declaration of conformance *)
UK compliance (UKCA)	See UK declaration of conformance *)
Radio disturbance level	Click rate N ≤5 per EN 55014

Ambient conditions	
Operation Max. temperatures at sensor Ambient temperature at housing	Max. switch-off temperature + 25 K Max. 80 °C (T80)
Storage and transport Ambient temperature	-25...+70 °C
Operation / storage and transport	Air humidity: <95% r.h. (non-condensing)

Ambient conditions	
Max. temperature socket	125 °C
Degree of pollution	2 to EN 60730.
Controlled media	Water, oil, air

Calibration	
Manufacturing deviation	±0 / 6 ° C
Calibrated for ambient temperature At the switch mechanism and capillary tube to DIN EN 14597 <ul style="list-style-type: none"> • RAK-TB.1400S-M • RAK-TB.1410B-M • RAK-TB.1420S-M 	<ul style="list-style-type: none"> • 22 ° C • 22 ° C • 22 ° C
Time constant in: <ul style="list-style-type: none"> • Water • Oil • Air 	<ul style="list-style-type: none"> • <45 s to DIN EN 14597 • <60 s to DIN EN 14597 • <120 s to DIN EN 14597

Connections	
Electrical connections <ul style="list-style-type: none"> • Protective earth • Cable entry gland 	Push-In ¹ terminals for wires 6 x 0.75...2.5 mm ² Push-In ¹ terminals for wires 2 x 0.75...2.5 mm ² M16 x 1.5 mm
Wiring type	Attachment type M (Connection for prepared conductors, E.g. ferrules)

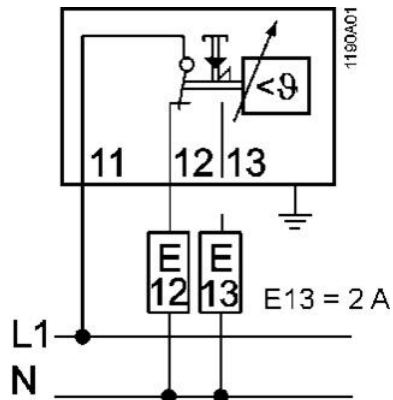
General data	
Housing colors	Base: RAL 7001 (dark gray) Cover: RAL 7035 (light gray)
Sensing element dimensions <ul style="list-style-type: none"> • Capillary length (all types) • Min. bending radius capillary tube 	Ø 6.5 x 73 or 85 mm <ul style="list-style-type: none"> • 700 mm • R min. = 5 mm
Construction <ul style="list-style-type: none"> • Switching mechanism • Capillary tube and sensor • Diaphragm • Contacts 	<ul style="list-style-type: none"> • Plastic • Copper • Stainless steel • Ag. 1000/1000
Weight of standard set <ul style="list-style-type: none"> • RAK..B • RAK..S 	<ul style="list-style-type: none"> • 0.33 kg • 0.27 kg

¹ Push In is a patented connection technology designed by Weidmüller, Germany's leading manufacturer of electrical connection technologies

*) Documents can be downloaded at <http://siemens.com/bt/download>.

Wiring diagrams

Connection diagrams



E13: Alarm

Dimensions

