



Frost Protection Thermostat

RAK-TW.5...

Electromechanical thermal reset limit thermostat

- **Monitoring of frost protection temperature, with single-pole changeover microswitch**
- **Switching capacity:** contact connection 1-2: 10 (2.5) A, AC 250 V
contact connection 1-3: 6 (2.5) A, AC 250 V
- **Time constant conforming to DIN 3440**
- **3 mounting choices: pipe, air duct (with perforated pocket) or wall mounting**
- **Adjusted limit temperature can be checked through the viewing window in the housing**

Use

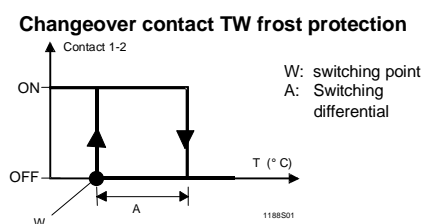
Typical applications:

- Heat generation plant
- For general use in heating, ventilation and air conditioning plant
- Frost protection

Function

Changeover switch
(S.P.D.T.)

When the adjusted limit temperature is reached on falling temperature (frost protection function), contact connection 1-3 changes over to contact connection 1-2. When the temperature of the medium rises by the value of the switching differential, the frost protection thermostat reverts to contact connection 1-3.



Type summary

Standard-set	Temperature setting range	Capillary tube length	Scope of delivery
RAK-TW.5000S	65...5 °C	1,600 mm	Clamping band for max. pipe dia. 100 mm, cable gland M16x1.5 mm, mounting instructions
RAK-TW.5010S	50....-10 °C	1,600 mm	

Accessories

The perforated pocket must be ordered as a separate item: **ALT-AB200** (refer to Data Sheets N1193 and N1194).

Ordering

When ordering, please give type reference according to "Type summary" (standard set).

If the accessories required are not those included in the standard set, they can be ordered separately according to the type references given in Data Sheets N1193 and N1194.

Mechanical design

Housing

The base of the thermostat is made of PA (reinforced) and is designed for pipe, pocket or wall mounting; the electromechanical thermal reset limit thermostat uses a capillary type sensing element.

The cover is made of ABS + PC and has a viewing window.

The cable gland is M16x1.5 mm.

Notes

Mounting aid

Installation Instructions are enclosed in the package.

Mounting location

It must be ensured that there is sufficient clearance above the thermostat for seeing through the viewing window, for adjusting the limit temperature and for removing and replacing the thermostat, if required.

Pipe mounting

The clamping band should be properly tightened to ensure the entire length of the sensing element is in close contact with the pipe's surface.

Pocket mounting in air duct

Install the perforated pocket, immerse the capillary sensing element with the coupling spring in it and secure the base to the pocket by means of the screw.

Wall mounting with sensing element in the pocket

To prepare for wall mounting, knock out the fixing holes in the housing and pull out the capillary tube until the required length is reached. After immersing the capillary sensing element in the perforated pocket (refer to pocket mounting), secure it with a clamp (mounting accessories).

Temperature setting

The limit temperature must be adjusted only by qualified personnel.

Wiring

The appliance must be wired by the installer only.

The cables used must meet the insulation requirements for mains voltage.

Wire the thermostat according to the connection diagram and in compliance with local regulations.

Max. AC 250 V



Caution: prior to opening the housing, disconnect the thermostat from the mains supply.



Earth connections must be made in compliance with the regulations.



Disposal

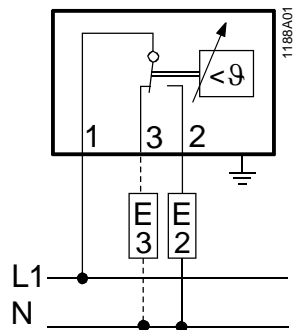
The device is a waste electronic equipment in terms of the European Directive 2002/96/EC (WEEE) and should not be disposed as part of unsorted municipal waste. The relevant national legal rules are to be paid attention. Use for disposal the systems set up to collect electronic waste. Observe all local and applicable laws.

Technical data

Switching mechanism	Switching capacity		
	Nominal voltage	AC 24...250 V	
	Nominal current I_M	contact connection 1-2	0.1...10 (2.5) A
		contact connection 1-3	0.1... 6 (2.5) A
	External fuse	10A	
	Life expectancy at nominal rating	min. 100 000 switching cycles	
	Safety class	I to EN 60 730	
	Degree of protection:	IP 43 to EN 60 529	
	Temperature setting range		
	RAK-TW.5000	65...5 °C (with tool)	
RAK-TW.5010	50... -10 °C (with tool)		
Thermal switching differential	5 K (range dependent)		
Norms and Standards	 conformity		
	Electromagnetic compatibility directive	89/336/EEC	
	Low voltage directive	73/23/EEC	
	Pressure equipment directive	97/23/EC (CE 0497)	
	ENEC (European Norms Electrical Certification)		
	C-tick	 N474	
	Product standards		
	Automatic electrical controls for household and similar use	EN 60 730-1	
	Special requirements placed on temperature-dependent controls	EN 60 730-2-9	
	Type 2 action	BL (EN 60 730-1/2-9)	
Radio interference protection	click rate $N \leq 5$ to EN 55 014		
Environmental conditions	Operation	class 3K5 to IEC 60 721-3-3	
	Max. temperature on bulb	max. switching temperature + 25 K	
	Ambient temperature at the housing	max. 50 °C (T50)	
	Humidity	< 95 % r.h.	
	Mechanism	class 3M2 to IEC 60 721-3-3	
	Storage and transport	class 2K3 to IEC 60 721-3-2	
	Ambient temperature	-25...+70 °C	
	Humidity	< 95 % r.h.	
	Max. temperature socket	135°C	
	Degree of pollution	normal to EN 60 730	
Controlled medium	Water, air, oil		
Calibration	Calibration temperature	Min. limit temperature	
	Manufacturing deviation	± 3 °C	
	Calibrated for ambient temperature at the switching mechanism and capillary tube		
	20 °C to DIN 3440		
	Time constant in:		
water	<45 s to DIN 3440		
oil	<60 s to DIN 3440		
air	<120 s to DIN 3440		
Connections	Electrical connections	screw terminals for wires 2 x 0.75...1.5 mm ²	
	Earth connection	screw terminal for wires 2 x 0.75...1.5 mm ²	
	Cable gland	M16 x 1.5 mm (for max. 4-core cable)	

General data	External wiring flexible cord	Type M attachment (designed to be connected with prepared conductors, e.g. ferrules)
	Housing colors	base RAL 7001 (dark-grey) cover RAL 7035 (light-grey)
	Dimensions of sensing element	6.5 mm dia. x 87 mm
	Capillary length	1 600 mm
	Min. bending radius of capillary	R min. = 5 mm
	Construction	
	Carrier of switching mechanism	plastic
	Capillary tube and sensing element	copper
Diaphragm	stainless steel	
Contacts	Ag.1000/1000 (silver)	
Weight of standard set	0.27 kg	

Connection diagram



For frost protection function, contact connection 1 – 2 closes

Dimensions

