



RAG-TW.1

RAG-ST.1

## Temperature monitor / RAG-TW.1 safety temperature limiter RAG-ST.1 for flue gas ducts

Electromechanical temperature monitor / safety temperature limiter as per  
DIN EN 14597

- Safety temperature limitation, with single-pole changeover microswitch
- Switching capacity 16 (2.5) A, AC 250 V
- For installation in flue gas ducts
- Limit temperature can be checked through the viewing window in the housing cover
- Compensation of ambient temperature at switching mechanism and capillary tube
- Fail-safe design, rupture of the capillary tube opens the switching circuit
- Automatic (thermal) reset (RAG-TW.1)
- Internal reset facility covered by removable threaded nipple (RAG-ST1)
- Degree of protection IP43
- Push-in connection terminals<sup>1)</sup> for fast installation

## Use

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Typical applications:

- Heat generation plants with several heat sources, for switching from solid fuel to oil or gas boiler, and vice versa
- To ensure safe flue gas ducts in plants operating at low flue gas temperatures
- Suited for industrial and residential sectors
- Unit is fitted to a protection pocket for immersion in the flue gas duct

## Functions

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### Temperature monitor RAG-TW.1

When the flue gas reaches the adjustable limit temperature, the RAG-TW1 opens contact 1-2 and closes 1-3. When the temperature of the flue gas falls by the value of the switching differential (about 15 °C below the limit temperature), the RAG-TW1 resets itself automatically (contact 1-2 closes and 1-3 opens).

### Safety temperature limiter RAG-ST.1

When the flue gas reaches the adjusted limit temperature, the RAG-ST1 opens contact 11-12 and closes 11-13 to remain tripped in this position. When the temperature of the flue gas falls by the value of the switching differential (about 20 °C below the limit temperature), the RAG-ST1 must be manually reset after removal of the threaded nipple. When resetting the RAG-ST.1, contact 11-12 closes and 11-13 opens.

Should expansion liquid escape, resulting from a leak in the sensing system (e.g. in the capillary tube), the pressure in the diaphragm drops, causing the microswitch to open contact 11–12.

## Type summary

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<i>Product no.</i>	<i>Stock no.</i>	<i>Temperature range</i>	<i>Protection pocket length</i>
RAG-TW.1	S55700-P134	40...230 °C	150 mm
RAG-ST.1	S55700-P135	40...230 °C	150 mm

## Mounting notes

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Refer to the Mounting Instructions enclosed in the package.

## Ordering

When ordering, please give product no. according to "Type summary" (standard kit).







## Mechanical design

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### Housing


- Housing made of PC (reinforced), designed for pocket mounting of RAG-ST.1 or RAG-TW.1 with capillary tube, protection pocket and spacer
- Cable entry gland M16 x 1.5 mm
- Cover made of PC, with viewing window and a removable threaded nipple for resetting the RAG-ST1
- Properties of PC:
  - Flame-resistant
  - UV-protected, weather- and aging-resistant
  - Resistant to higher temperatures
  - Highly resistant to chemical, mechanical and biological influences

## Notes

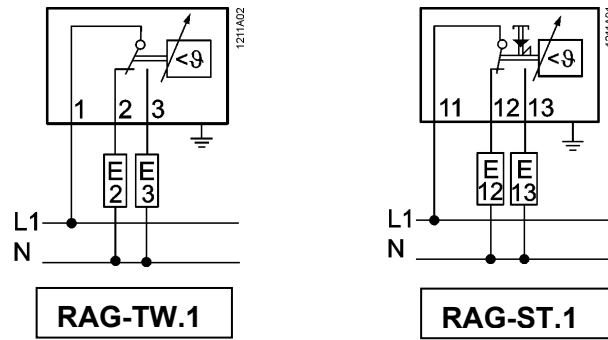
Mounting aid	Installation Instructions are enclosed in the package.
Mounting location	It must be ensured that there is sufficient clearance above the unit for viewing through the window, for adjusting the limit temperature and for removing and replacing the unit, if required.
Mounting	Fit protection pocket with flange to the flue gas duct. Insert spacer in the pocket and tighten the screw. Insert capillary tube and spacer in the protection pocket. Fit base of the unit to the spacer and secure it by tightening the screw.
 Setting the limit temperature	Only authorized personnel are allowed to set the limit temperature.
 Wiring	Only authorized personnel are allowed to wire up the unit. The cables used must meet the insulation requirements for mains voltage. If the expansion liquid escapes from the capillary tube, the contact opens (fail-safe design). In that case, the contact remains open and, for this reason, the unit must not be used as a component of the safety loop.
 Max. AC 250 V	The wiring must be made according to the connection diagram and in compliance with local regulations. Caution: Prior to opening the housing, the unit must be disconnected from power.
 	Protective earth must be connected in compliance with the regulations.
Disposal 	In terms of disposal, the products are classified as electronic scrap conforming to the European Directive 2002/96/EG (WEEE) and must not be disposed of as domestic waste. The relevant national regulations must be observed and the product must be disposed of through the appropriate channels. Local and currently valid legislation must be observed.

## Technical data

Switching mechanism	Switching capacity	
	Rated voltage	AC 24...250 V
	Rated current I (I <sub>M</sub> )	0.1...16 (2.5) A
	External fuse	16 A
	Life expectancy at nominal rating	Min. 3,000 switching cycles for RAG-TW.1 Min. 300 switching cycles for RAG-ST.1
	Safety class	I to EN 60730
	Degree of protection	IP43 to EN 60529
	Internally adjustable limit temperature	(Tool required)
	RAG-TW.1	40...230 °C
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	Thermal switching differential	
	RAG-TW.1	15 K
	RAK-ST.1	20 K
Norms and standards	<b>CE</b> conformity	
	Electromagnetic compatibility in accordance with directive	2004/108/EG
	low voltage directive	2006/95/EG

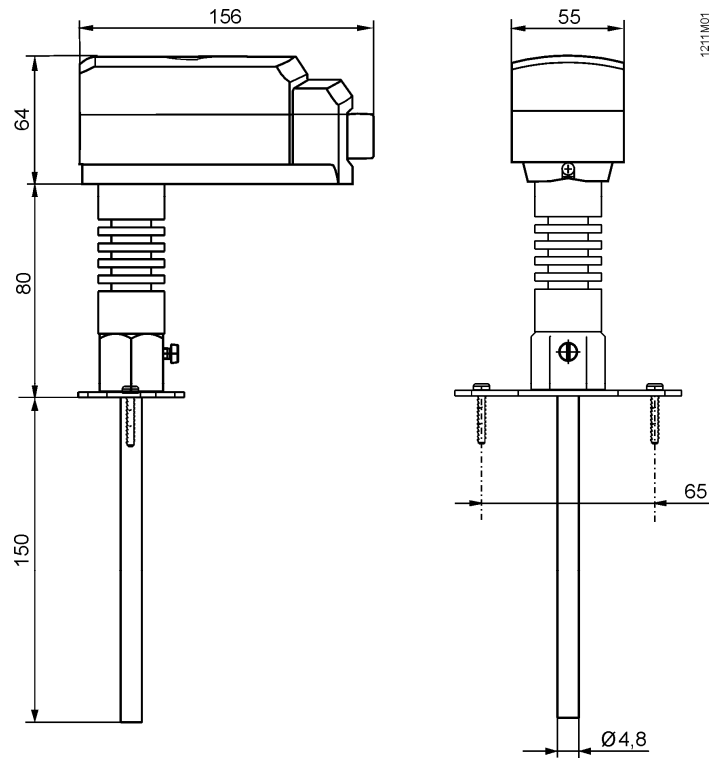
	DIN EN 14597	ATW: ATW 1218 ASTB: ASTB 1217
	C-tick	 N474
	Product standards	
	Automatic electrical controls for household and similar use	EN 60730-1
	Special requirements placed on temperature-dependent controls Type 2 action	EN 60730-2-9 ATW: 2BKLNP ASTB: 2BFHKLNPV
	Radio interference protection	Click rate $N \leq 5$ to EN 55014
Environmental conditions	Operation	Class 3K5 to IEC 60721-3-3
	Max. temperature at sensing element	400 °C
	Humidity	<95% r.h.
	Mechanism	Class 3M2 to IEC 60721-3-3
	Storage and transport	Class 2K3 to IEC 60 721-3-2
	Ambient temperature	-25...70 °C
	Humidity	<95% r.h.
	Degree of pollution	2 to EN 60730
	Media to be monitored	Flue gas (or air)
	Compensation of ambient temperature at switching mechanism and capillary tube	22 °C to DIN EN 14597
Calibration	Calibration temperature	RAG-TW.1: 180 °C RAG-ST.1: 180 °C
	Manufacturing deviation	+0/-15 °C
	Deviation over entire service life	<±5%
	Time constant in: Flue gas	<45 s to DIN EN 14597 (T0.632<45 s)
Connections	Electrical connections	Push In <sup>1)</sup> connection technique for wires 6 x 0.75...2.5 mm <sup>2</sup>
	Protective earth connection	Push In <sup>1)</sup> connection technique for wires 2 x 0.75...2.5 mm <sup>2</sup>
	Cable entry gland	M16 x 1.5 mm (max. 4-core cable)
	Type of wiring	Connection type M (connection of unprepared solid wires or prepared stranded wires, e.g. with ferrules)
General data	Housing colors	Base RAL 7001 (dark-grey) Cover RAL 7035 (light-grey)
Mechanical design	Dimensions of protection pocket	4.8 mm dia. x 150 mm
	Carrier of switching mechanism	Plastic (PC reinforced)
	Capillary tube and sensing element	CrNi steel
	Diaphragm	Stainless steel
	Housing cover	PC (reinforced), temperature-resistant up to 135 °C (PC, with viewing window (PC), temperature-resistant up to 80° C)
	Immersion length of protection pocket	150 mm
	Electrical connections	Push-in <sup>1)</sup>
	Protective earth connection	Push-in <sup>1)</sup>
	Cable entry gland	M16 x 1.5 mm
	Package incl. protection pocket	Approx. 504 g

## Connection diagrams

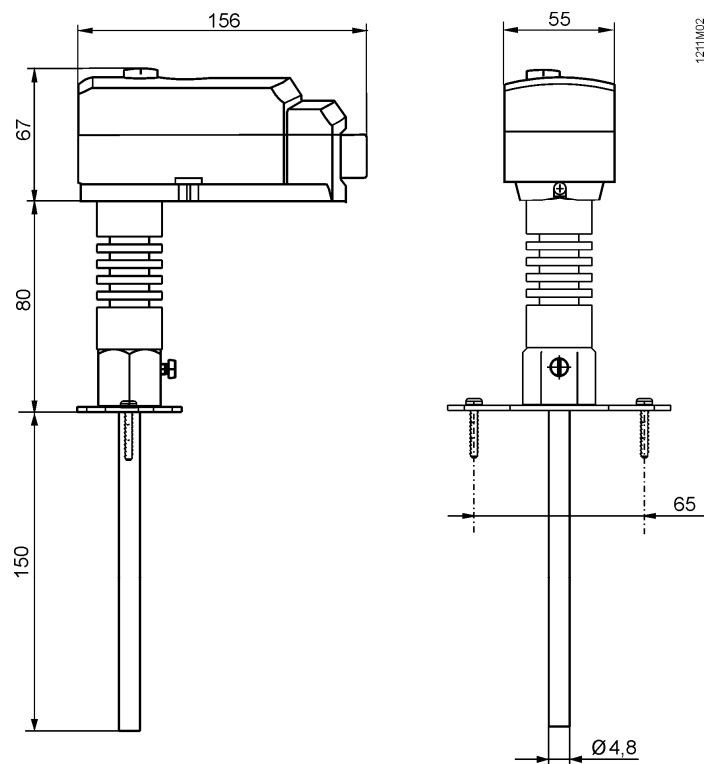


<sup>1)</sup> "Push In" is a patented connection technique developed by Weidmüller, Germany's leading manufacturer of electrical connection technology

# Dimensions



**RAG-TW.1**



**RAG-ST.1**