

## OPERATING INSTRUCTIONS, MOUNTING & INSTALLATION

### ALTR 060

**ALTR 090** including tension spring

Surface contact temperature controllers

**ETR** including immersion sleeve

Built-in temperature controllers, one-step and two-step



**S+S** REGELTECHNIK

Congratulations!

You have bought a German  
quality product.



S+S stands for reliable control technology resulting from certified development and production while employing high-quality materials.

Our products combine easy mounting & installation and precision you feel with long service life in the patented original design.

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# THERMASREG® ETR including immersion sleeve

Built-in temperature controllers, one-step and two-step,  
EC type-tested, TÜV tested



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**DIN tested quality product. EC type-tested (module B) according to directive 97 / 23 / EC.**  
Temperature control and limiting device for heat generation plants in accordance with DIN EN 14597:2005-12.

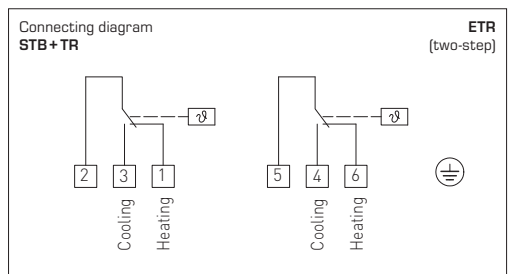
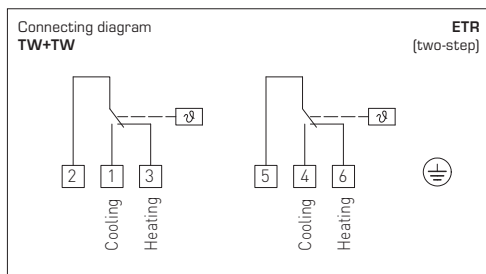
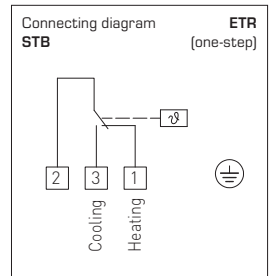
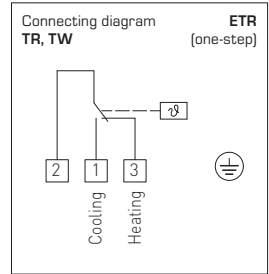
Mechanical temperature control device / rod thermostat THERMASREG® ETR with switching output, used for monitoring, controlling and limitation of temperatures of liquid or gaseous media, as boiler controller, or in heating ventilation and air conditioning technology, in mechanical and apparatus engineering and in heat generation plants. It is available as one-step or two-step device, as adjustable temperature controller TR, temperature monitor TW, or as safety temperature limiter STB.

**TECHNICAL DATA:**

- Switching capacity:..... 24...250V AC + 10%, 10A, cos φ = 1.0  
(Contact load) 24...250V AC + 10%, 1.5A, cos φ = 0.6  
at 24V AC min. 150 mA
- Contact:..... dustproof switch block unit as potential-free  
single-pole or two-pole changeover contact
- Enclosure:..... plastic, material polyamide, 30% glass-globe-reinforced,  
with quick-locking screws, colour pure white (similar RAL9010)
- Dimensions:..... 108x72.5x70 mm
- Design principle:..... torsion meter with liquid filling
- Mounting position:..... arbitrary
- Cable gland:..... M 20, including strain relief
- Ambient temperature:..... - 10 °C...+65 °C at the switch block enclosure
- Tolerance:..... T<sub>min</sub> ± 5K; T<sub>max</sub> ± 3K
- Immersion sleeves:..... Single sleeve brass, nickel-plated, G 1/2" straight pipe thread, wrench size  
22, p<sub>max</sub>= 10bar, T<sub>max</sub>= 150°C  
Single sleeve stainless steel 1.4571, V4A, G 1/2" straight pipe thread,  
wrench size 22, p<sub>max</sub>= 25 bar, T<sub>max</sub>= 150°C  
Double sleeve stainless steel 1.4571, V4A, G 1/2" straight pipe thread,  
wrench size 22, p<sub>max</sub>= 40 bar, T<sub>max</sub>= 450°C
- Media controlled:..... water, oil, air, flue and exhaust gases
- Inserted length:..... 130 mm, 200 mm
- Process connection:..... screwed socked with G 1/2" straight pipe thread
- Electrical connection:..... 0.14 - 2.5 mm<sup>2</sup> via terminal screws
- Protection class:..... I (according to EN 60730)
- Protection type:..... IP 65 (according to EN 60529)
- Standards:..... CE conformity, EMC directive 2004 / 108 / EC, low-voltage directive  
73 / 23 / EEC
- Tests:..... EC type test (module B) according to directive 97 / 23 / EC,  
certificate No.: IS-TAF-MUC 08 02 100248356 001,  
DIN EN 14597: 2005-12,  
register Nos.: TW 120008, TR 119908, STB 120108, TR / STB 120208

**FUNCTION:**

- TR, STW:..... Contact 2-3 breaks when temperature rises  
to the preset value.
- STB:..... Contact 2-1 breaks when temperature rises  
to the preset value.  
Restart is possible only after cooling off by ca. 15K- 20K  
by pressing the reset button.

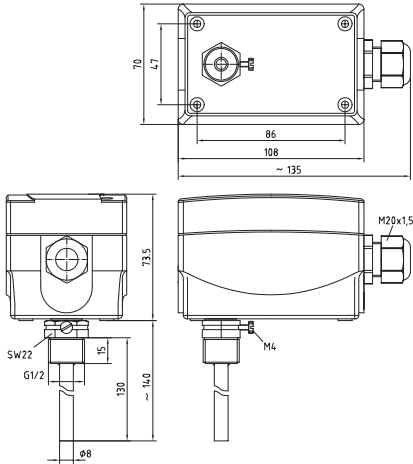




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Dimensional drawing  
TW

ETR  
(one-step)



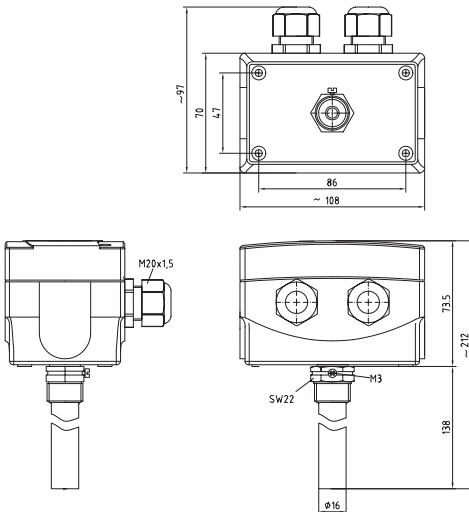
ETR-060-U  
ETR-090-U  
(one-step)  
TW



Registernr.:  
TW 120008

Dimensional drawing  
TW+TW

ETR  
(two-step)



ETR-090090-U  
(two-step)  
TW+TW



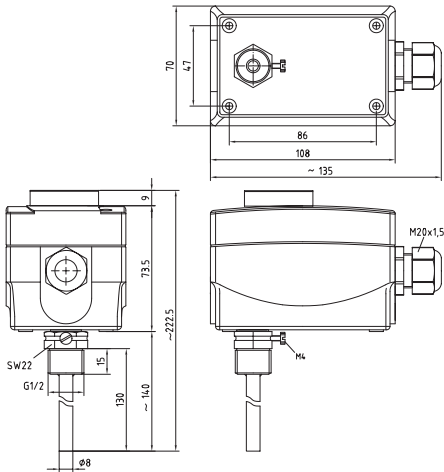
Registernr.:  
TW 120008



S+S REGELTECHNIK

Dimensional drawing  
TR

ETR  
(one-step)



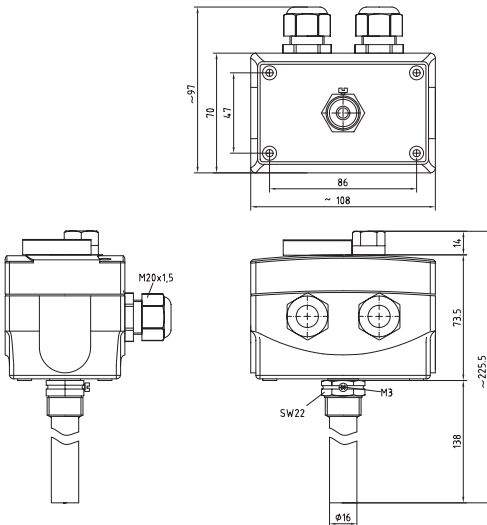
ETR-1  
ETR-060  
ETR-090  
ETR-0120  
ETR-50140  
(one-step)  
TR



Registernr.:  
TR 119908

Dimensional drawing  
TR+STB

ETR  
(two-step)



ETR-060R85  
ETR-090R110  
(two-step)  
TR + STB



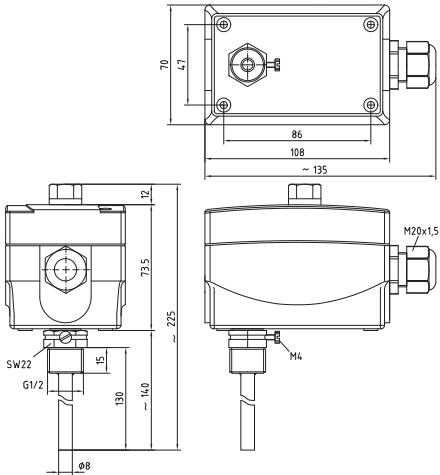
Registernr.:  
TR / STB 120208



S+S REGELTECHNIK

Dimensional drawing  
STB

ETR  
(one-step)



ETR-R6585  
ETR-R90110  
(one-step)  
STB



Registernr.:  
STB 120108

# THERMASREG® ETR including immersion sleeve

Built-in temperature controllers, one-step and two-step  
EC type-tested, TÜV tested



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Type/WG2	Immersion Sleeve Diameter	Temperature Range	Thermal Operating Difference (fixed) ca.		Maximum Capillary Temperature	Function
		1.	-	1.	-	
<b>ETR (one-step)</b>						
ETR-1_ms/130	Ø 8mm	-35°C...+35°C		3K	+75°C	TR
ETR-1_VA/130	Ø 9mm	-35°C...+35°C		3K	+75°C	TR
ETR-1_ms/200	Ø 8mm	-35°C...+35°C		3K	+75°C	TR
ETR-1_VA/200	Ø 9mm	-35°C...+35°C		3K	+75°C	TR
ETR-060_ms/130	Ø 8mm	0°C...+60°C		3K	+75°C	TR
ETR-060_VA/130	Ø 9mm	0°C...+60°C		3K	+75°C	TR
ETR-060_ms/200	Ø 8mm	0°C...+60°C		3K	+75°C	TR
ETR-060_VA/200	Ø 9mm	0°C...+60°C		3K	+75°C	TR
ETR-060-U_ms/130	Ø 8mm	0°C...+60°C		3K	+75°C	TW
ETR-060-U_VA/130	Ø 9mm	0°C...+60°C		3K	+75°C	TW
ETR-060-U_ms/200	Ø 8mm	0°C...+60°C		3K	+75°C	TW
ETR-060-U_VA/200	Ø 9mm	0°C...+60°C		3K	+75°C	TW
ETR-090_ms/130	Ø 8mm	0°C...+90°C		3K	+120°C	TR
ETR-090_VA/130	Ø 9mm	0°C...+90°C		3K	+120°C	TR
ETR-090_ms/200	Ø 8mm	0°C...+90°C		3K	+120°C	TR
ETR-090_VA/200	Ø 9mm	0°C...+90°C		3K	+120°C	TR
ETR-090-U_ms/130	Ø 8mm	0°C...+90°C		3K	+120°C	TW
ETR-090-U_VA/130	Ø 9mm	0°C...+90°C		3K	+120°C	TW
ETR-090-U_ms/200	Ø 8mm	0°C...+90°C		3K	+120°C	TW
ETR-090-U_VA/200	Ø 9mm	0°C...+90°C		3K	+120°C	TW
ETR-0120_ms/130	Ø 8mm	0°C...+120°C		5K	+135°C	TR
ETR-0120_VA/130	Ø 9mm	0°C...+120°C		5K	+135°C	TR
ETR-0120_ms/200	Ø 8mm	0°C...+120°C		5K	+135°C	TR
ETR-0120_VA/200	Ø 9mm	0°C...+120°C		5K	+135°C	TR
ETR-50140_ms/130	Ø 8mm	+50°C...+140°C		5K	+150°C	TR
ETR-50140_VA/130	Ø 9mm	+50°C...+140°C		5K	+150°C	TR
ETR-50140_ms/200	Ø 8mm	+50°C...+140°C		5K	+150°C	TR
ETR-50140_VA/200	Ø 9mm	+50°C...+140°C		5K	+150°C	TR
ETR-R6585_ms/130	Ø 8mm	+65°C...+85°C		+0/-15K...20K	+120°C	STB
ETR-R6585_VA/130	Ø 9mm	+65°C...+85°C		+0/-15K...20K	+120°C	STB
ETR-R6585_ms/200	Ø 8mm	+65°C...+85°C		+0/-15K...20K	+120°C	STB
ETR-R6585_VA/200	Ø 9mm	+65°C...+85°C		+0/-15K...20K	+120°C	STB
ETR-R90110_ms/130	Ø 8mm	+90°C...+110°C		+0/-15K...20K	+120°C	STB
ETR-R90110_VA/130	Ø 9mm	+90°C...+110°C		+0/-15K...20K	+120°C	STB
ETR-R90110_ms/200	Ø 8mm	+90°C...+110°C		+0/-15K...20K	+120°C	STB
ETR-R90110_VA/200	Ø 9mm	+90°C...+110°C		+0/-15K...20K	+120°C	STB
<b>ETR (two-step)</b>						
		1.	2.	1.	2.	
ETR-090090-U_ms/130	Ø 16mm	0°C...+90°C	0°C...+90°C	3K	3K	+120°C TW+TW
ETR-090090-U_VA/130	Ø 16mm	0°C...+90°C	0°C...+90°C	3K	3K	+120°C TW+TW
ETR-090090-U_VA/200	Ø 16mm	0°C...+90°C	0°C...+90°C	3K	3K	+120°C TW+TW
ETR-060R85_ms/130	Ø 16mm	0°C...+60°C	+65°C...+85°C	3K	+0/-15K...20K	+120°C TR+STB
ETR-060R85_VA/130	Ø 16mm	0°C...+60°C	+65°C...+85°C	3K	+0/-15K...20K	+120°C TR+STB
ETR-060R85_VA/200	Ø 16mm	0°C...+60°C	+65°C...+85°C	3K	+0/-15K...20K	+120°C TR+STB
ETR-090R110_ms/130	Ø 16mm	0°C...+90°C	+90°C...+110°C	3K	+0/-15K...20K	+135°C TR+STB
ETR-090R110_VA/130	Ø 16mm	0°C...+90°C	+90°C...+110°C	3K	+0/-15K...20K	+135°C TR+STB
ETR-090R110_VA/200	Ø 16mm	0°C...+90°C	+90°C...+110°C	3K	+0/-15K...20K	+135°C TR+STB
Type designation: ETR-xx_immersion sleeve material/inserted length [mm]						
Accessories:	THR	= Immersion sleeves				
Optional:	U	= Internal setting, unless included in a certain type				
	/2	= 2 steps, unless included in a certain type				
	STW	= Safety temperature monitor [internal setting]				
Features:	FT	= Manual reset when temperature drops				
	ST	= Manual reset when temperature rises				
	TR	= Temperature controller (external setting)				
	TB	= Temperature limiter (internal setting)				
	TW	= Temperature monitor (internal setting)				
	STB	= Safety temperature limiter (internal setting), with external switchpoint confirmation and restart interlock, restart by reset button at ca. 15...20 K below switching temperature (+ 0 K/- 15...20 K)				
Note:	To ensure accurate responsiveness series ETR devices must only be used in connection with the immersion sleeves included in the scope of delivery while applying heat-conductive paste!					

**THERMASREG® ALTR 060** including tension spring

**THERMASREG® ALTR 090** including tension spring

Surface contact temperature controllers



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Mechanical temperature controllers/contact thermostats THERMASREG® ALTR with switching output (two-position controller) for monitoring, controlling and limitation of temperatures at pipes or vessels, e.g. in connection with hot-water or floor heating systems. The contact temperature controller THERMASREG® ALTR is built as one-step device, as adjustable temperature controller TR (with external setting) or as adjustable temperature monitor TW (with internal setting).

**TECHNICAL DATA:**

Switching capacity:..... 16 [4] A; 24...250 V AC  
 (Contact load) at 24 V AC min. 150 mA  
 Contact:..... dustproof switch block unit as potential-free single-pole changeover contact  
 Max. sensor temperature:..... 110 °C  
 Enclosure: ..... ABS (acrylonitrile butadiene styrene), fibre-glass reinforced, base: steel, galvanised, top: grey, M 16 x 1.5  
 Enclosure temperatur:..... -35 °C...+65 °C  
 Tolerance:.....  $T_{min} \pm 5 K$ ;  $T_{max} \pm 5 K$   
 Sensor element:..... bimetal  
 Dimensions: ..... 38 x 48 x 103 mm  
 Process connection:..... by metal tension spring, 220 mm long (included in the scope of delivery)  
 Electrical connection:..... 0.14-1.5 mm<sup>2</sup> via terminal screws  
 Protection class:..... I (according to EN 60 730)  
 Protection type: ..... IP 40 (according to EN 60 529)  
 Standards: ..... CE conformity, EMC directive 2004/108/EC, low-voltage directive 73/23/EEC

**ALTR 060 / 090**

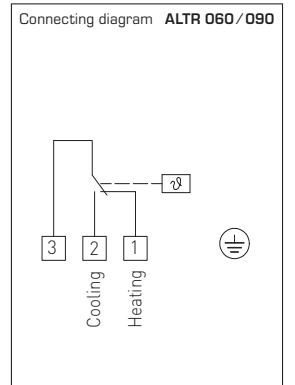
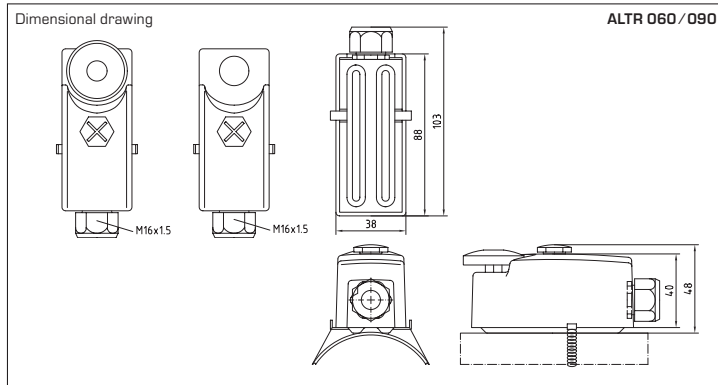


**ALTR 060 / 090 U**



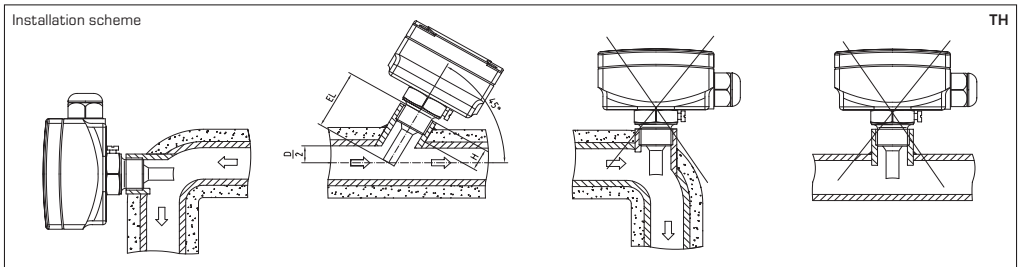
**FUNCTION:**

Heating:..... wire contacts 3-1  
 Cooling:..... wire contacts 3-2



Type/WG2	Temperature Range	Thermal Operating Difference (fixed) ca.	Max. Capillary Temperature	Features
ALTR-060	0 °C...+60 °C	8 ± 1 K	+110 °C	External setting, TR
ALTR-060 U	0 °C...+60 °C	8 ± 1 K	+110 °C	Internal setting, TW
ALTR-090	0 °C...+90 °C	8 ± 1 K	+110 °C	External setting, TR
ALTR-090 U	0 °C...+90 °C	8 ± 1 K	+110 °C	Internal setting, TW

## Notes



### INFORMATION FOR PLANNING AND INSTALLATION

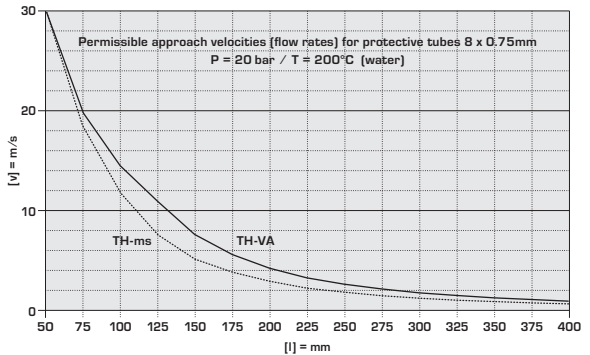
#### Permissible approach velocities (flow rates) for crosswise approached protective tubes in water.

The protective tube is caused to vibrate by the approaching flow.

If the specified approach velocity is exceeded even by a marginal amount, a negative influence on the lifetime of the protective tube may result (material fatigue).

Please observe the permissible approach velocities for stainless steel protective tubes (see diagram TH-VA) as well as for brass protective tubes (see diagram TH-ms).

Gas discharges and pressure surge must be avoided as such have negative influence on lifetime or damage protective tubes.



### GENERAL NOTES

Our "General Terms and Conditions for Business" together with the "General Conditions for the Supply of Products and Services of the Electrical and Electronics Industry" (ZVEI conditions) including supplementary clause "Extended Retention of Title" apply as the exclusive terms and conditions..

- This device shall only be used for its intended purpose. Respective safety regulations issued by the VDE, the states, their control authorities, the TÜV and the local energy supply company must be observed.
- The purchaser has to adhere to the building and safety regulations and has to prevent perils of any kind.
- No warranties or liabilities will be assumed for defects and damages arising from improper use of this device.
- Consequential damages caused by a fault in this device are excluded from warranty or liability.
- These devices must be installed by authorised specialists only.
- The technical data and connecting conditions of the mounting and operating instructions delivered together with the device are exclusively valid. Deviations from the catalogue representation are not explicitly mentioned and are possible in terms of technical progress and continuous improvement of our products.
- In case of any modifications made by the user, all warranty claims are forfeited.
- This device must not be installed close to heat sources (e.g. radiators) or be exposed to their heat flow. Direct sun irradiation or heat irradiation by similar sources (powerful lamps, halogen spotlights) must absolutely be avoided.
- Prevent these devices from exposure to direct influence of water, e.g. splash water.
- If this device is operated beyond the specified range, all warranty claims are forfeited.
- This device must not be used for monitoring applications, which solely serve the purpose of protecting persons against hazards or injury, or as an EMERGENCY STOP switch for systems or machinery, or for any other similar safety-relevant purposes.
- Dimensions of enclosures or enclosure accessories may show slight tolerances on the specifications provided in these instructions.
- Modifications of these records are not permitted.
- In case of a complaint, only complete devices returned in original packing will be accepted.
- This device can be mounted in any position. To do the wiring (electrical connection), the turning knob and the two screws attached at the cover are removed. For wall mounting or mounting on other surfaces, use the screws delivered together with the device. On devices with adjustable operating difference, the same is preset to the desired temperature by a separate adjusting thumb wheel or lever at the clamp block.

Errors and technical changes excepted.