



Surface-mounted thermostat ATH.-SE-.. to monitor seagoing vessel equipment

Description

The panel-mounted thermostat controls and monitors thermal processes.

The device is suitable for use as a temperature controller TR, temperature monitor TW, safety temperature monitor STW, or safety temperature limiter STB.

The device is used in heating or cooling sources, climate monitoring and machine rooms.

Switching functions

Temperature monitor TW, and safety temperature monitor STW

If the temperature on the temperature probe exceeds the setpoint value, the electrical circuit is opened or closed by a microswitch. If the temperature falls below the selected setpoint value (by the switching differential), the microswitch is reset to its initial position.

Restart lock at safety temperature limiter STB

If the temperature at the temperature sensor exceeds the set limit value, the electrical circuit is opened and the microswitch is mechanically locked. After falling below the limit value by approx. 10 % of the temperature range (approx. 15 % of the limit value setting > +350 °C), the switch can be unlocked manually.

Use of the safety temperature monitor STW as a safety temperature limiter STB

The circuitry used with the thermostat must comply with DIN EN 14597 and VDE 0631.

Self-monitoring on the safety temperature limiter STB and the safety temperature monitor STW (STB)

If the measuring system is destroyed (i.e. if the expansion fluid escapes) the pressure in the membrane of the STB and STW (STB) drops and permanently opens the electrical circuit. Unlocking is no longer possible.

When the STW (STB) and STB probe cools down into the negative temperature range, the electrical circuit opens. The STB must be manually reset by hand using the reset button when the temperature rises. The reset for the STW (STB) occurs automatically.

Areas of application

- Shipbuilding/shipyards
- Manufacturers of Wind power plants
- Railway technology

Special features

- Electromechanical measuring principle
- Control ranges up to 500 °C
- Shipbuilding approval



Type 603031/70



Type 603031/02, Type 603031/20

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Approval marks and certificates



Certificates for approved device versions are available for download on the manufacturer's website.
 Russian documentation upon request.

Technical data

Electrical data

Switching element Type 603031/02 (ATH.-SE-2) TW, Typ 603031/20 (ATH.-SE-20) STW (STB) Type 603031/70 (ATH.-SE-70) STB Type 603031/70-.../574 (ATH-SE-70/574) STB	Microswitch with change-over contact Microswitch with N/C contact and restart lock Microswitch with N/C contact, restart lock and additional signal contact
Max. contact rating With a hysteresis of 1.5 % Type 603031/02 (ATH.-SE-2) TW, Type 603031/20 (ATH.-SE-20) STW (STB)	AC 230 V +10 %, 10 (2) ^a A, cos φ = 1 (0.6) ^a DC 230 V +10 %, 0.25 A AC 230 V +10 %, 6 (1.2) ^a A, cos φ = 1 (0.6) ^a
Mode of operation TW: 2BL STW (STB): 2BKLN STB: 2BFHKLNPV	DIN EN 60730-1, DIN EN 60730-2-9 and DIN EN 14597 Automatic mode of operation with micro shutdown during operation, as no auxiliary power source is required Automatic mode of operation with micro-disconnection in operation, with breakage safety device

^a Inductive loads

Control ranges and temperature probes

	Control/limit value ranges °C	Max. admissible excessive probe temperature °C	Length of the temperature probe in mm			
			Copper (Cu)		Stainless steel (CrNi)	
			Ø 6	Ø 8	Ø 6	Ø 8
Type 603031/02 (ATH.-SE-2) TW	0 to 100	125	107	75	99	67
	20 to 90	125	138	91	130	83
	30 to 110	135	125	84	117	76
	20 to 120	140	107	75	99	67
	60 to 140	165	123	83	117	76
	20 to 150	175	88	65	80	57
	50 to 200	230	101	72	93	64
	50 to 250	290	-	-	73	54
	50 to 300	345	-	-	63	49
Type 603031/20 (ATH.-SE-20) STW (STB), Type 603031/70 (ATH.-SE-70) STB	30 to 110	135	112	78	104	70
	60 to 140	165	110	77	102	68
	20 to 150	175	80	61	72	53
	50 to 250	290	-	-	66	50
	50 to 300	345	-	-	58	-

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Capillary and temperature probe

	Scale limit value	Capillary	Temperature probe
Type 603031/02 (ATH.-SE-2) TW, Type 603031/20 (ATH.-SE-20) STW (STB), Type 603031/70 (ATH.-SE-70) STB	≤ 200 °C	Copper (Cu) Ø 1.5 mm Material no. 2.0090	Copper (Cu) Material no. 2.0090 Hard soldered
	> 200 °C	Copper (Cu) Ø 1.5 mm Material no. 2.0090	Stainless steel (CrNi) Material no. 1.4571 Hard soldered
	All areas	Stainless steel (CrNi) Ø 1.5 mm	Stainless steel (CrNi) Material no. 1.4571 Welded
Capillary length	1000 mm as standard, max. 2000 mm		
Min. bending radius of the capillary	5 mm		

Environmental influences

Hysteresis in % of the control/limit value range (only for type 603031/02 (ATH.-SE-2) and type 603031/20 (ATH.-SE-20))	Reted value		Possible process value		Designation	
	3		3 to 4		S1	
	6		6 to 8		S2	
	1.5		1 to 2		S3	
Switching point accuracy Type 603031/02 (ATH.-SE-2) TW, Type 603031/20 (ATH.-SE-20), STW (STB)	Of the control/limit value at T _U 22 °C In the upper third of the scale ±1.5 %, at the beginning of the scale ±6 %, in the upper third of the scale +0/-5 %, at the beginning of the scale +0/-10 %					
Setpoint value adjustment	Switching point adjustable with screwdriver after removing housing cover.					
Ambient temperature influence	Referring to the control/limit value range If the ambient temperature at the switching head and/or the capillary deviates from the calibration ambient temperature 22 °C, a switching point shift occurs. Higher ambient temperatures = lower switching point Lower ambient temperatures = higher switching point					
For devices with scale limit value	< 200 °C			≥ 200 °C		
	Type 603031/02 (ATH.-SE-2)	Type 603031/20 (ATH.-SE-20), Type 603031/70 (ATH.-SE-70)	Type 603031/02 (ATH.-SE-2)	Type 603031/20 (ATH.-SE-20), Type 603031/70 (ATH.-SE-70)		
On switching head	0.08 %/K	0.17 %/K	0.06 %/K	0.13 %/K		
On capillary per m	0.047 %/K	0.054 %/K	0.09 %/K	0.11 %/K		
Admissible ambient temperature Capillary, switching head	Max. 80 °C, see nameplate Min. -40 °C at the end of the scale < 200 °C Min. -20 °C at the end of the scale ≥ 200 °C ≤ 300 °C					
Admissible storage temperature	-50 to +50 °C, see nameplate					
Admissible over temperature safety	Max. scale end value 15 % on the probe during use					
Time constant t _{0,632} In water In oil In air, superheated steam	≤ 45 s ≤ 60 s ≤ 120 s					
Protection type	IP54, according to EN 60529					

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Mechanical features

Housing material Surface with impact resistant Textured paint	Aluminium die cast with sealable screws (nickel-plated brass), cable gland (bare brass) Lid: RAL 7032 Bottom section: RAL 7015
Connection line Diameter Conductor cross section	10 to 16.5 mm Max. 2.5 mm ²
Rated position (NL)	NL 0 to NL 90 (other rated position upon request), according to DIN 16257
Operating medium	Water, oil, air, superheated steam
Installation position	Any (for outdoor installation upon request)
Weight With capillary With rigid shaft	Approx. 700 g Approx. 650 g, with screw-in thermowell „20“, approx. 850 g, with screw-in thermowell and adapter „30“

Process connection

Type 603031/...-1-... (ATHs-SE-..) with rigid shaft	Scale limit value up to 150 °C, thermowell „20“	Scale limit value exceeding 150 °C, thermowell „30“
	Screw-in sleeve with screw-in spigot G 1/2", form A according to DIN 3852/2	Screw-in sleeve with screw-in journal G 1/2", form A according to DIN 3852/2 and intermedi- ate piece, to ensure that the max. admissible ambient tem- peratur of 80 °C is not exceeded on the housing.
Material	Up to 150 °C: CuZn as standard Over 150 °C: CrNi as standard	- Over 150 °C: CrNi as standard
Type 603031/...-2-... (ATHf-SE-..) with capilar	Plain cylindrical probe „10“ (standard), Screw-in thermowell „20“ (on request), Screw-in sleeve with screw-in spigot G 1/2, form A according to DIN 3852/2 and clamping piece with locking screw to lock the probe	
Material	Thermowell „20“ Up to 150 °C: CuZn as standard Over 150 °C: CrNi as standard	Thermowell „30“ - Over 150 °C: CrNi as standard
Fitting length S (max. 200 mm)	Standard length: 100, 120, 150 mm (material CuZn or CrNi), with 200 mm only CuZn	
Immersion tube Ø	D = 8 mm (for probe Ø 6 mm) or D = 10 mm (for probe Ø 8 mm)	

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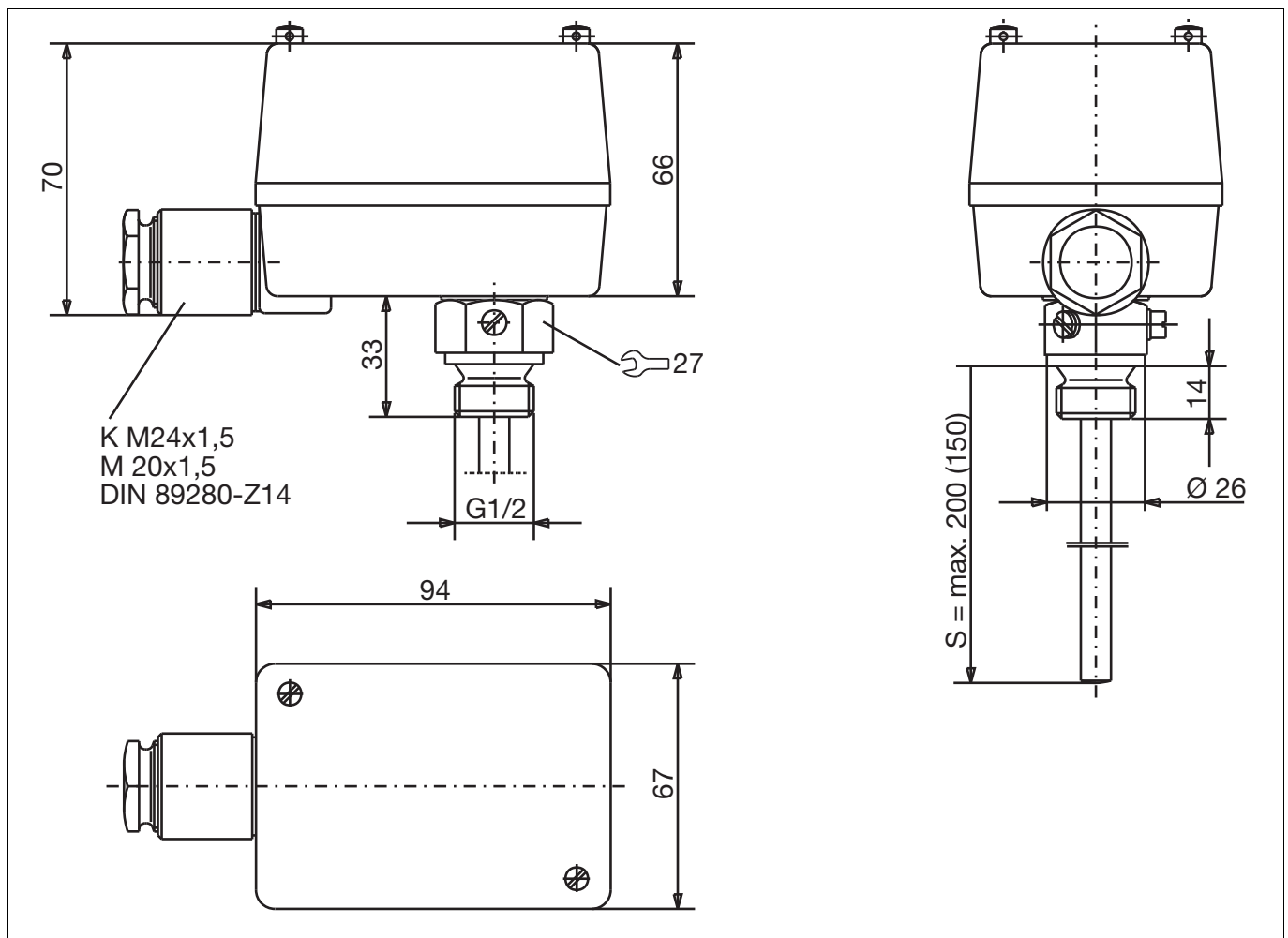
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**Dimensions**

Type 603031/02-1-043-XX-X-XX-20-... (ATHs-SE-2),

Type 603031/20-1-043-XX-X-XX-20-... (ATHs-SE-20)



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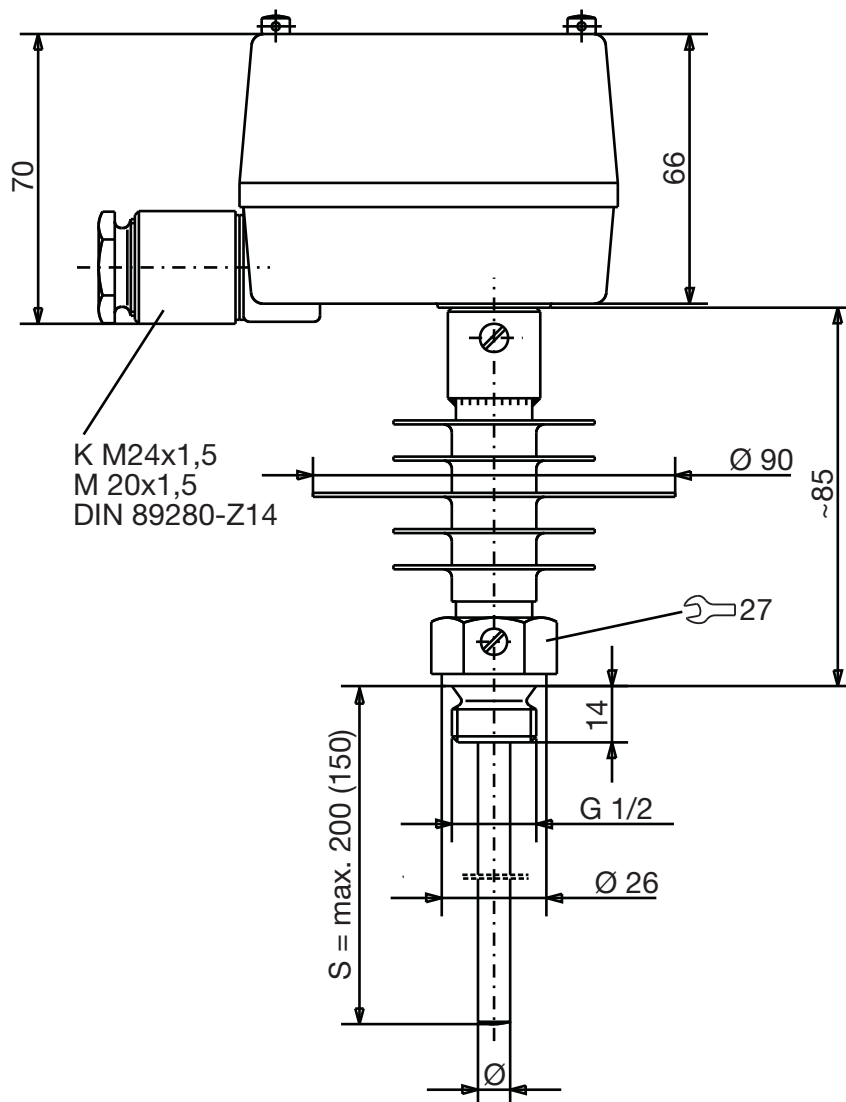
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Type 603031/70-1-064-XX-X-XX-30-... (ATHs-SE-70)



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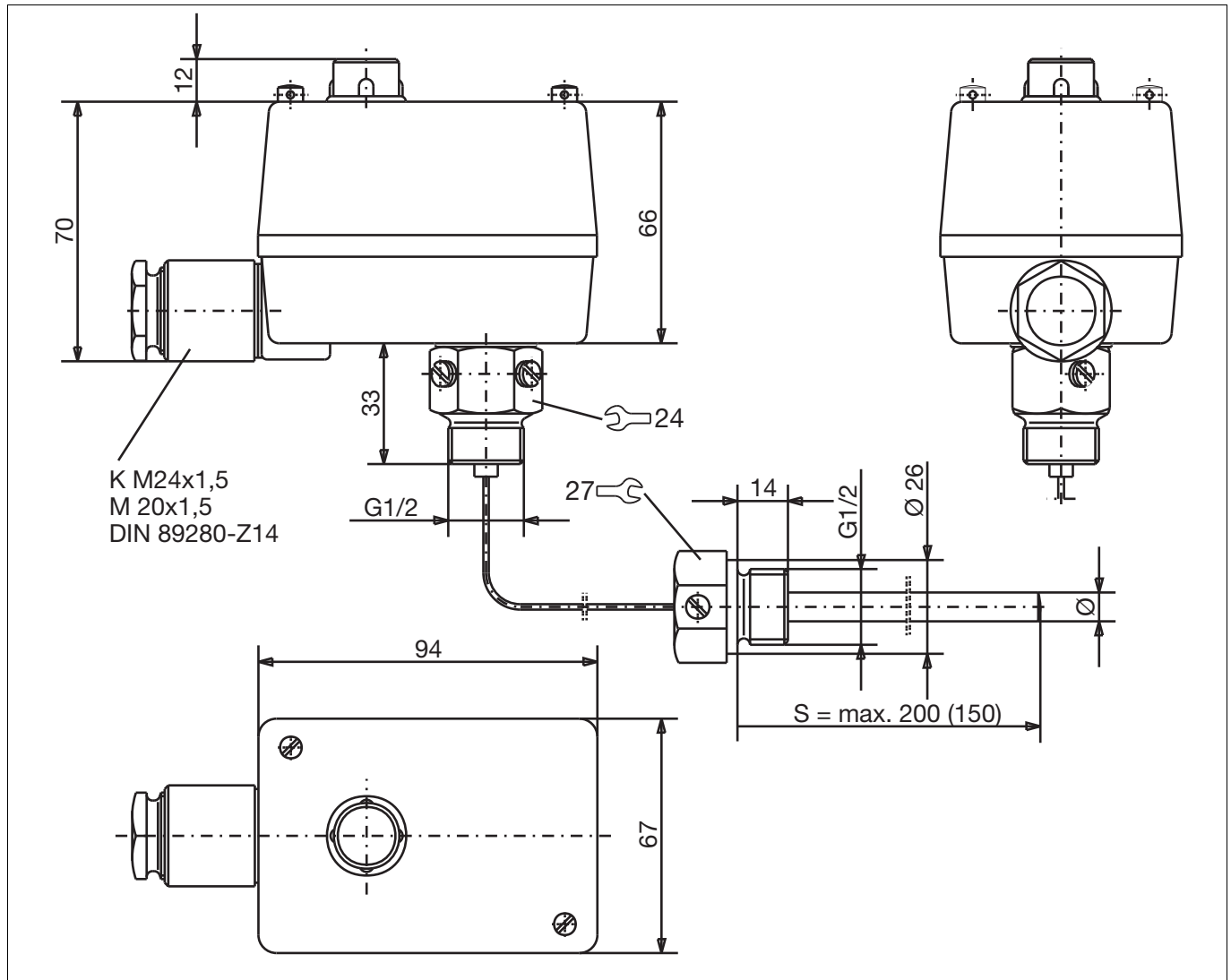
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Type 603031/70-2-064-XX-X-XX-20-... (ATHs-SE-70)



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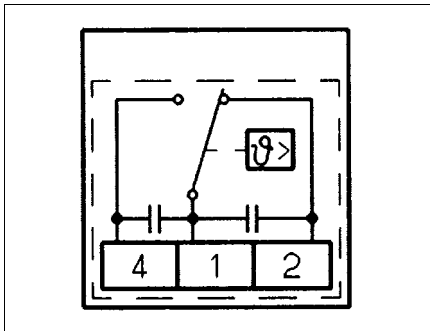


Connection diagram

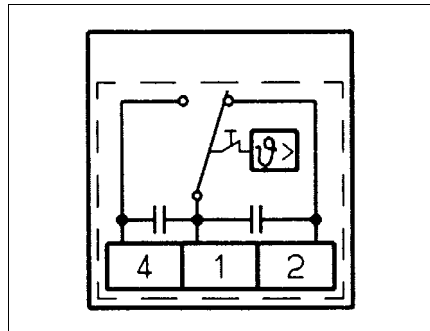
The connection diagram in the data sheet provides information on product selection.

For the electrical connection, only use the installation instructions or the operating manual.

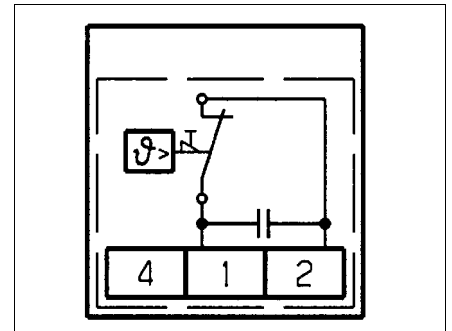
TW/STW (STB)



STB as N/C contact
with signal contact



STB with N/C contact



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Order details

	(1) Basic type
603031	Surface-mounting thermostat ATH.-SE
	(2) Basic type extension
02	ATH.-SE-2 Temperature monitor TW
20	ATH.-SE-20 Safety temperature monitor (STW [STB])
70	ATH.-SE-70 Safety temperature limiter (STB)
	(3) Design
1	ATHs-SE-.. rigid shaft
2	ATHf-SE-.. capillary
	(4) Control range (TW)
025	0 to 100 °C (max. admissible probe temperature 125 °C)
041	20 to 90 °C (max. admissible probe temperature 125 °C)
042	20 to 120 °C (max. admissible probe temperature 145 °C)
043	20 to 150 °C (max. admissible probe temperature 175 °C)
052	30 to 110 °C (max. admissible probe temperature 135 °C)
062	50 to 200 °C (max. admissible probe temperature 230 °C)
063	50 to 250 °C (probe material CrNi, max. admissible probe temperature 290 °C)
064	50 to 300 °C (probe material CrNi, max. admissible probe temperature 345 °C)
067	60 to 140 °C (max. admissible probe temperature 165 °C)
	(5) Hysteresis
00	None
15	1.5 % from scale range S3
30	3 % from scale range S1
60	6 % from scale range S2
	(6) Capillary length
0	None
1000	1,000 mm
2000	2,000 mm
	(7) Capillary material
00	None
20	CrNi (stainless steel)
40	Cu (copper, up to max. 300 °C)
	(8) Process connection
10	Plain cylindrical probe
20	Screw-in thermowell
30	Screw-in thermowell with intermediate piece
	(9) Process connection thread
00	None
13	G 1/2
	(10) Process connection material
00	None
20	CrNi (stainless steel)
46	CuZn (brass up to 150 °C)
	(11) Insertion length
000	Without thermowell
100	100 mm
120	120 mm
150	150 mm
200	200 mm

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(12)	Immersion tube diameter
00	Without thermowell
08	8 mm
10	10 mm
(13)	Probe diameter
6	6 mm
8	8 mm
(14)	Extra codes
000	None
574	Microswitch with N/C contact, restart lock and additional signal contact (only for STB)

Order code (1) (2) (3) (4) (5) (6) (7) (8)
 [] / [] - [] - [] - [] - [] - [] - [] - [] -
Order example 603031 / 20 - 1 - 025 - 15 - 0 - 00 - 20 -

(9) (10) (11) (12) (13) (14)
 [] - [] - [] - [] - [] / [] , ...^a
 13 - 46 - 150 - 08 - 6 / 000

^a List extra codes in sequence, separated by commas.