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Surface-mounting Thermostats ATH.-SE Series

for monitoring installations on
seagoing ships

Brief description

Thermostats control and monitor thermal processes. ATH.-SE series instruments are available as temperature monitors TW, safety temperature monitors STW (STB) and safety temperature limiters STB. In the event of a fault, the STB sets the installation being monitored to a safe operational state.

Surface-mounting thermostats operate on the principle of fluid expansion, with a microswitch serving as the electrical switching element.

Switching action

Temperature monitor TW and safety temperature monitor STW

When the temperature at the probe exceeds the set limit, the circuit is opened by a snap-action switch. After the temperature has fallen below the set limit (by the switching differential), the switch returns to its initial position.

Lock-out facility on the safety temperature limiter STB

When the temperature at the probe exceeds the set limit, the circuit is opened and locked out mechanically.

After the temperature has dropped below the set limit by about 10% of the span, the switch can be reset mechanically.

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

The circuitry to which the thermostat is connected must comply with DIN 3440 and VDE 0116.

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

Failure of the measuring system on an STB or STW (STB), i.e. a leakage of the expansion liquid, will cause the pressure under the diaphragm to drop, thus permanently opening the circuit. A reset is now impossible.

If the temperature of the probe cools down to below -20°C, the circuit will also be opened. As the temperature rises to above -20°C, the STB has to be reset manually, by pressing the reset button. On the STW (STB), the reset is performed automatically.



ATHs-SE-70



ATHf-SE..

You will find the Declarations of Conformity on the Internet at:
www.jumo.net
 ⇨ Products
 ⇨ Data Sheet 60.3031
 or ask for them to be sent.

Types and approvals

Type	Switching action	Switching differential	Type No.	Test/approval
ATHs-SE-2 ATHf-SE-2	TW	3%	68.262-F03-S1 68.262-F04-S1	Det Norske Veritas Germanische Lloyd DIN 3440 (not for the ATH.-SE-70) Bureau Veritas. Pressure Equipment Directive 97/23/EC CE0036 (ATH.-SE-20 and ATH.-SE-70 only)
ATHs-SE-2 ATHf-SE-2		6%	68.262-F03-S2 68.262-F04-S2	
ATHs-SE-2 ATHf-SE-2		1.5%	68.262-F03-S3 68.262-F04-S3	
ATHs-SE-20 ATHf-SE-20	STW (STB)	3%	68.261-F03-S1 68.261-F04-S1	
ATHs-SE-20 ATHf-SE-20		6%	68.261-F03-S2 68.261-F04-S2	
ATHs-SE-20 ATHf-SE-20		1.5%	68.261-F03-S3 68.261-F04-S3	
ATHs-SE-70 ATHf-SE-70	STB	-	68.266-F03 68.266-F04	

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Technical data

Control ranges and temperature probes

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

Capillary and temperature probe

Type	End of scale	Capillary	Temperature probe	Notes
ATH.-SE-2 ATH.-SE-20 ATH.-SE-70	≤200 °C	copper (Cu) 1.5mm dia. Mat. Ref. 2.0090	copper (Cu) Mat. Ref. 2.0090 brazed	-
	>200 °C	copper (Cu) 1.5mm dia. Mat. Ref. 2.0090	stainless steel (CrNi) Mat. Ref. 1.4571 brazed	-
	all ranges	stainless steel (CrNi) 1.5mm dia. Mat. Ref. 1.4571	stainless steel (CrNi) Mat. Ref. 1.4571 welded	at extra cost
Capillary length	normally 1000 mm, 2000 mm max.			
Min. bending radius of capillary	5 mm			

Electrical data

Switching element	ATH.-SE-2 ATH.-SE-20	ATH.-SE-70	ATH.-SE-70/U
	microswitch with changeover contact	microswitch with break (n.c.) contact and lock-out	microswitch with break (n.c.) contact, lock-out and additional signal contact
Max. contact rating	10(2) A, 230 V AC +10%, p.f. = 1(0,6) 0.25A, 230 V DC +10%		
	with switching differential 1.5%: 6(1,2) A, 230 V AC +10%, p.f. = 1(0,6)		

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Operating data

Switching differential in % of control / limit setting range	Nominal value	Possible actual value	Designation
	3	3-4	S1
	6	6-8	S2
	1.5	1-2	S3
Switching point accuracy in % of control / limit setting range	TW: in upper third of scale $\pm 1.5\%$ STB, STW (STB): in upper third of scale $+0/-5\%$		
Ambient temperature error referred to control / limit setting range	A deviation of the ambient temperature at the case from the calibration ambient temperature of $+22^\circ\text{C}$ produces a shift of the switching point. higher ambient temperature = lower switching point lower ambient temperature = higher switching point for instruments with end-of-scale value		
	$< 200^\circ\text{C}$		$\geq 200^\circ\text{C}$
	ATH.-SE-2	ATH.-SE-20 ATH.-SE-70	ATH.-SE-2 ATH.-SE-20 ATH.-SE-70
	due to the case		
	0.08%/°C	0.17%/°C	0.06%/°C 0.13%/°C
	due to the capillary per m		
	0.047%/°C	0.054%/°C	0.09%/°C 0.11%/°C
Permissible storage temperature	-50 to 50°C		
Permissible ambient temperature in use	$+80^\circ\text{C}$ max.		
Nominal position (NL)	to DIN 16 257, nom. position 0 — 90° (other nom. positions on request)		

Case

Case	aluminium die-casting surface in impact-resistant textured paint: cover: RAL 7032, base: RAL7015
Setpoint adjustment	switching point adjustable using a screwdriver, after removing case cover
Protection	EN 60 529-IP 54
Weight	ATHf-SE-...approx. 0.70 kg ATHs-SE-...approx. 0.65 kg with pocket U ATHs-SE-...approx. 0.85 kg with pocket UZ

Process connection

Series ATHs-SE-.. with rigid stem	end-of-scale value <u>up to</u> 150°C Pocket U	end-of-scale value <u>above</u> 150°C Pocket UZ
		screw-in pocket with screw-in spigot 1/2" pipe Form A to DIN 3852/2
Series ATHf-SE-.. with capillary	plain cylindrical probe A (standard)	
	pocket U (on request)	
	screw-in pocket with screw-in spigot 1/2" pipe Form A to DIN 3852/2 and clip with fixing screw for securing the probe	
Material	Pocket U	Pocket UZ
	up to $+150^\circ\text{C}$ brass as standard above $+150^\circ\text{C}$ steel as standard (CrNi on request)	above $+150^\circ\text{C}$ steel as standard (CrNi on request)
Fitting length S (max. 200 mm)	standard lengths: 100, 120, 150 (material: brass, steel, CrNi) with 200 mm, only in brass or steel	
Immersion tube dia.	D = 8 mm, D = 10 mm	

Note:

Physical and toxicological properties of the expansion media which may escape in the event of a system fracture.

Control range with end-of-scale value °C	Dangerous reactions	Fire/explosion hazard		Water contamination	Toxicological data		
		Ignition temp. °C	Explosion limit % v/v		irritant	danger to health	toxic
$< +200$	no	+ 355	0.6 — 8	yes	yes	1	no
$\geq 200^\circ\text{C} \leq +300$	no	+ 490	- -	yes	yes	1	no

At present there is no restrictive statement from the health authorities concerning any danger to health over short periods and at low concentrations, for example after a fracture of the measuring system.

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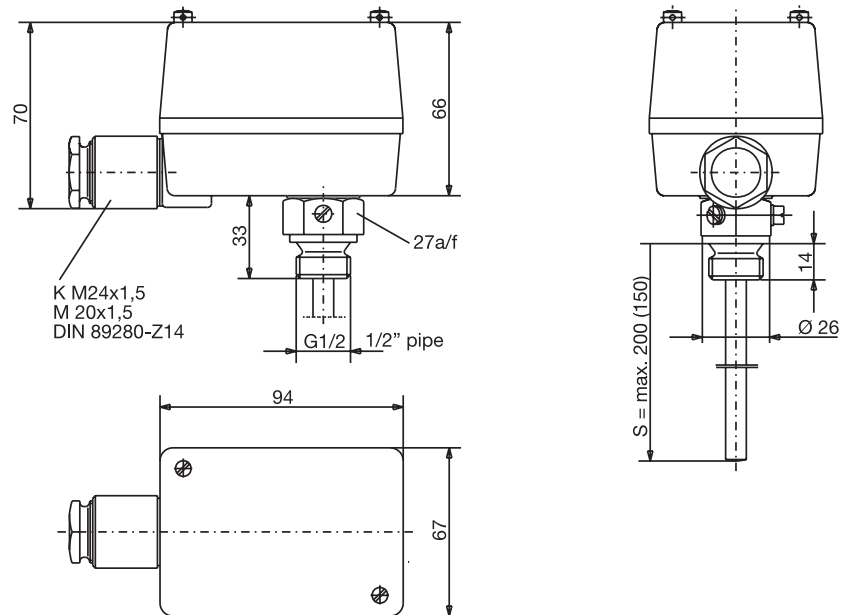
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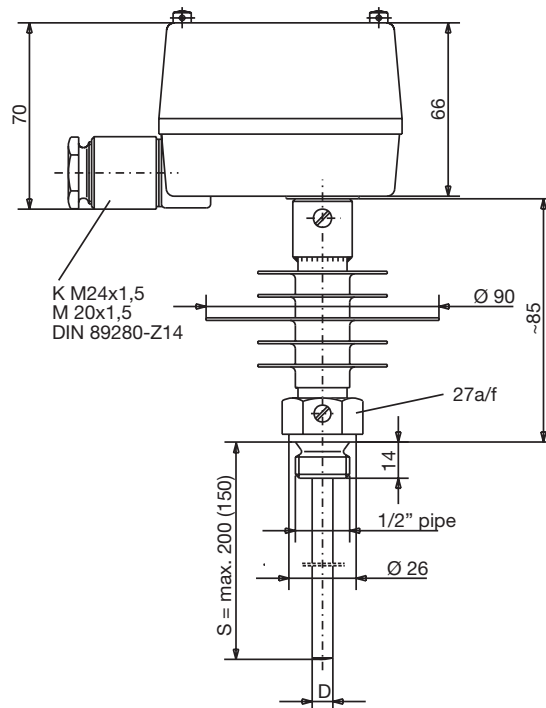


Dimensions

ATHs-SE-... 2 and 20
 with pocket U
 up to 150°C



ATHs-SE-... 70
 with pocket UZ
 up to 300°C



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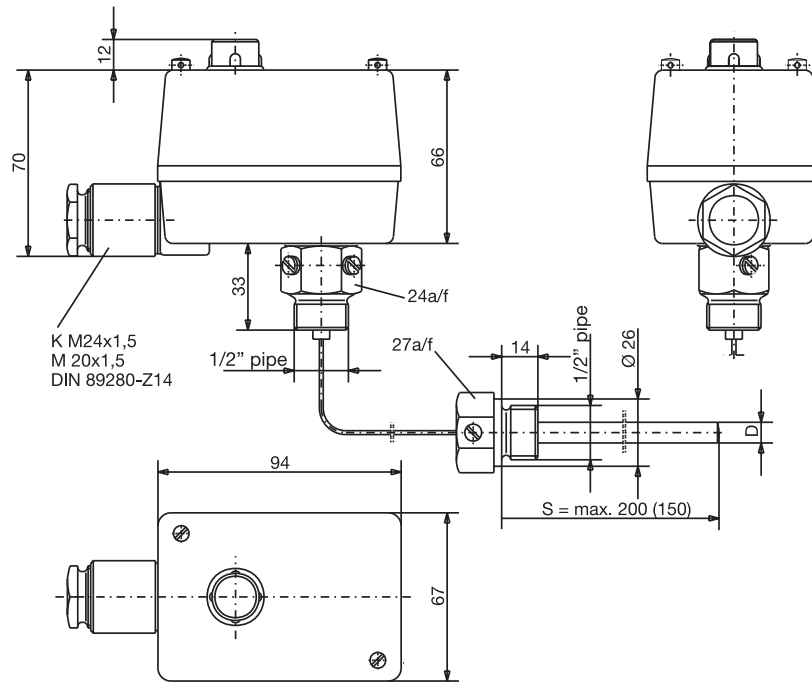
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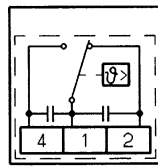


Dimensions

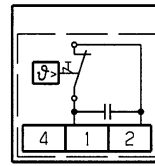
ATHs-SE-... 7
 with pocket U
 up to 300°C



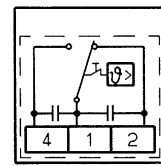
Connection diagrams



ATH.SE-2 / ATH.SE-20



ATH.SE-70



ATH.SE-70/U

Order details

ATH.-SE Series for application on seagoing ships

Order code	(1) Basic type
603031	Surface-mounting thermostat, ATH.-SE series
(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) Style	
1	ATHs-SE-... with rigid stem
2	ATHf-SE-... with capillary
(4) Control / limit ranges	
041	20 to 90°C
025	0 to 100°C
052	30 to 110°C
042	20 to 120°C
067	60 to 140°C
043	20 to 150°C
062	50 to 200°C
063	50 to 250°C
064	50 to 300°C

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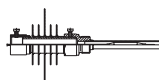
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Order details

ATH.-SE Series for application on seagoing ships

Order code	(5) Switching differential	
00	no switching differential (-70 STB)	
30	3% of scale span S1	
60	6% of scale span S2	
15	1.5% of scale span S3	
	(6) Capillary length	
0	ATHs-SE without capillary	
1000	1000 mm	
2000	2000 mm	
...	(special length, details in plain text)	
	(7) Material of capillary	
00	ATHs-SE without capillary	
40	Cu (copper)	
20	CrNi (stainless steel 1.4571)	
	(8) Process connection	
10	A = plain cylindrical probe (for ATHf-SE only)	
20	U = screw-in pocket	
30	UZ = screw-in pocket with extension	
	(9) Thread for process connection	
00	no thread (process connection A)	
13	external thread G 1/2	
	(10) Material of process connection	
00	for process connection A only	
46	CuZn (brass)	
01	St (steel)	
20	CrNi (stainless steel 1.4571)	
	(11) Fitting length S (immersion tube length)	
000	ATHf-SE without pocket	
100	100 mm	
120	120 mm	
150	150 mm	
200	200 mm (not CrNi)	
	(12) Diameter D (immersion tube diameter)	
00	ATHf-SE without pocket	
8	8 mm	
10	10 mm	
	(13) Diameter d (probe diameter)	
6	6 mm	
8	8 mm	
	(14) Extra codes	
000	no extra code	
574	U= STB with break contact, lock-out + additional signal contact (-70 STB)	

Order code

(1) (2) (3) (4) (5) (6) (7) (8) (9) (10) (11) (12) (13) (14)
 603031 / .. - . - ... - .. - - .. - .. - .. - .. - ... - .. - . / ...

Order example

603031 / 20 - 1 - 025 - 15 - 0 - 00 - 20 - 13 - 46 - 150 - 8 - 6 / 000