

# Temperature switch series T4 and T7

General purpose or Ex-proof according UL or ATEX (Ex d or Ex ia)

Accuracy:  $\pm 1\%$

## Features

- Ambient temperature up to 60 °C for Ex applications
- $\text{Ex}$  II 2 GD or  $\text{Ex}$  II 1 GD
- Class 1 Division 1 Gr. B, C and D according UL
- Protection IP54, IP66 or NEMA 4, 4X, 7, 9 and 13 (UL)
- Rigid stem and capillary types up to 15 m

## Ranges

-40/16 °C up to 260/400 °C

-40/60 °F up to 500/750 °F

## Applications

Chemical and petrochemical industry

Machine and apparatus construction

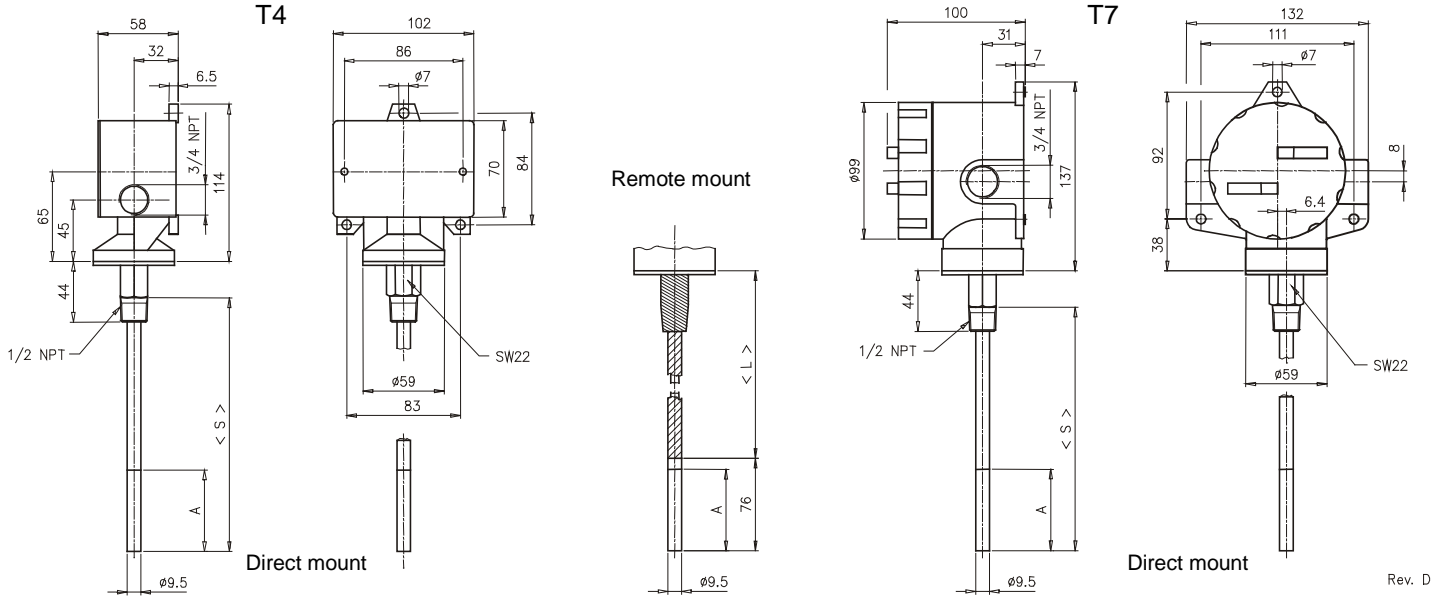
Food and beverage industry

Pulp and paper industry



Technical specification	T4 series	T7 series	
Construction	Weatherproof	Ex-proof according UL CSA on request	Flame proof according EN 60079-0, -1, -31 Intrinsically safe acc. IEC 60079-0 and EN 60079 -11, -26
Switch functions	One setpoint, single pole double throw (SPDT) or 2 times SPDT (2SPDT)		
Adjustable range	From 15 % to 100 %, below 15 % consult factory		
Deadband	From 0,5 % to 15 % F.S., depending on range and microswitch		
Measuring principle	Piston/cylinder system actuated by a vapor pressure thermal system, SAMA Class II system		
Range in °C	-40/16	-20/40	20/95 65/125 110/190 175/275 260/400
in °F	-40/60	0/100	75/205 150/260 235/375 350/525 500/750
Limits (temperature ranges)	-40/16 °C, -20/40 °C, 20/95 °C and 65/125 °C 110/190 °C 175/275 °C 260/400 °C		
Max. temperature	204 °C 260 °C 371 °C 482 °C		
Stem diameter	3/8" (9,5 mm)		
Stem length	2 3/4" (70 mm)	4" (102 mm)	6" (152 mm) 9" (229 mm) 12" (305 mm)
Bulb length (capillary type)	3" (76 mm)		
Capillary length	5' (1,5 m)	10' (3,0 m)	15' (4,5 m) 20' (6,0 m) 25' (7,5 m) longer lengths on request
Process connection	1/2 NPT male for rigid stem, 1/2 NPT bushing sliding on capillary or bulb		
Connection location	Lower		
Material			
Connection	Stainless steel 316 (1.4401)		
Bushing	Stainless steel 316 (1.4401)		
Capillary and armor	Stainless steel 316 (1.4401)		
Housing	Aluminum, epoxy coated black		
Accuracy	1,0 % F.S.		
<b>Electrical specification</b>			
Microswitch ratings	From 6 A 30 VDC up to 22 A 250 VAC (see microswitch table)		
Flameproof and dust ignition protection by enclosure		Class 1 Div. 1 Gr. B, C and D Class 2 Div. 1 Gr. E, F and G	$\text{Ex}$ II 2GD Ex d IIC T6 Gb Ex t IIIC T85°C Db IP6X Sira 02 ATEX 1391X
Intrinsically safe and dust ignition protection by enclosure			$\text{Ex}$ II 1 GD Ex ia IIC T4 Ga Ex ia IIIC T135°C Da SIRA 04 ATEX 2081
Electrical connection	3/4 NPT female, optional cable glands, 1/2 NPT with reducer bushing, M20x1,5, others on request		
<b>General specification</b>			
Permissible			
Ambient temperature	-25 ... 65 °C		-20 ... 60 °C
Storage temperature	-40 ... 60 °C		
Effect	Max. 0,4 % / 10 K ref. 20 °C		
Protection according UL	NEMA 4, 4X and 13		NEMA 7 and 9
Protection according EN 60 529/IEC 529	IP54, optional IP66		IP66
CE-mark	Low voltage regulations EN 61 010-1, EN 60 947-1		
Mounting	Direct, wall mounted or rigid stem, 2" pipe mounting (TM) with capillary system		
Weight rigid stem/capillary in kg	1,2/1,7 (with 1 m capillary)		1,7/2,0 (with 1 m capillary)
Accessories, options	Thermowells screwed or flanged		

General dimensions in mm



S = stem length (specify by customer), L = capillary length (specify by customer), A = active bulb, length 59 mm

Order information

Switch element	Thermal system	Bulb length	Range	Engineering unit	Protection	Electrical connection	Options
<b>SPDT</b> (20) Narrow deadband <sup>1)</sup> (15 A 250/480 VAC, 0,4A 120VDC) (21) Ammonia service (5A 250 VAC, 6 A 30 VDC) (22) Hermetically sealed (5 A 250 VAC) (23) Heavy duty AC (22 A 250 VAC) (24) General purpose <sup>1)</sup> (15 A 250 VAC, 6 A 30 VDC) (26) Sealed environment proof <sup>1)</sup> (15 A 250 VAC, 0,4A 120VDC) (27) High temp. (max. 150°C) (15 A 250 VAC) (31) Low level (gold) contacts (1 A 125 VAC, 500mA 28VDC) (32) Hermetically sealed general purpose (11 A 250 VAC, 5 A 28 VDC) (42) Hermetically sealed, gold contacts (1 A 125 VAC) (50) Variable deadband (15 A 250 VAC)	<b>With capillary</b> (T05) 5' (1,5 m) (T10) 10' (3,0 m) (T15) 15' (4,5 m) (T20) 20' (6,0 m) (T25) 25' (7,5 m) longer capillary on request	<b>With capillary</b> (030) bulb 3" (76 mm)	<b>-40/ 16</b> <b>-20/ 40</b> <b>20/ 95</b> <b>65/ 125</b> <b>110/ 190</b> <b>175/ 275</b> <sup>2)</sup> <b>260/ 400</b> <sup>1)</sup>	°C          °F	<b>(IP)</b> Standard T4 IP54 T7 IP66  <b>(IP65)</b> IP66 (for T4)  <b>(UL)</b> UL approval T4 NEMA 4 T7 NEMA 7 & 9  <b>(CEN3)</b> ATEX Ex d with cable gland Ex d PG13,5 (only for T7)  <b>(CEN4)</b> ATEX Ex d and Ex t ¾ NPT thread female (only for T7)  <b>(CEN6)</b> ATEX Ex ia ¾ NPT thread female (only for T7)  <b>(CEN7)</b> ATEX Ex ia with cable gland Ex d PG13,5 (only for T7)	<b>(=)</b> Standard  <b>(JL)</b> ¾ to ½ NPT female reducing bushing  <b>(JM)</b> ¾ NPT to M20x1,5 female reducing bushing  <b>(K3)</b> Terminal block (standard for T7 with 2xSPDT, not for T4)  <b>Only for protection IP</b>  <b>(KV2)</b> Plastic cable gland IP65, PG11  <b>(KV3)</b> Plastic cable gland IP65, PG13,5  <b>(KV4)</b> Plastic cable gland IP65, PG16  <b>(KV52)</b> Plastic cable gland PG13,5	<b>(NH)</b> Tagging wired  <b>(FS)</b> Factory adjusted setpoint  <b>(TM)</b> 2" pipe mounting bracket  <b>(69C)</b> Adjustable union connection on capillary  <b>(69H)</b> Adjustable union connection on bulb
<b>2xSPDT</b> (61) see code (20) (62) see code (26) (63) see code (27) (64) see code (24) (65) see code (21) (67) see code (22) (not T4 series) (68) see code (32) (not T4 series) (70) see code (31) (71) see code (42) (not T4 series)	<b>Rigid stem</b> (TS) direct mounted	<b>Rigid stem</b> (027) 2 ¾" (70 mm) <sup>1)</sup> (040) 4" (102 mm) (060) 6" (152 mm) (090) 9" (229 mm) (120) 12" (305 mm)	<sup>1)</sup> only for remote thermal system  <sup>2)</sup> not for rigid stem 2 ¾"				

How to order

Type	Switch element	Thermal system	Bulb length	Range	Engineering unit	Protection	Electrical connection	Option
T7	24	TS	060	20/95	C	UL	JL	NH