

ALTEROSTAT

Swiss based Trafag is a leading international supplier of high quality sensors and monitoring instruments for the measurement of pressure and temperature.



Applications

- Machine tools
- HVAC
- Refrigeration
- Process technology

Features

- With 1 adjustable step between 2 stages
- Short response time
- Protection IP54
- Electrical connection on terminal screw

Technical Data

Designation of application	Multistage thermostat with remote sensor	Switching differential	Not adjustable
Measuring range	-30°C ... +40°C to +70°C ... +350°C	Repeatability	± 0.5 % FS typ.
Output signal	Floating change-over contact	Approval / conformity	EN60730-1/ EN60730-2-9: Typ 2.B.H

01/2017

Data sheet H72139m

Subject to change

	XXX	XX	XX	XXX	XX	XXXXXXXXXX	XX	XX
Accessories								
Signal lamp								14
Switchpoint locking ⁴⁾								15
Switchpoint fixed and sealed upon customer's request ⁴⁾								88
Switchpoint preset upon customer's request, no guarantee on switching accuracy ⁴⁾								83
Switchpoint adjustment please indicate when ordering:								
- Switchpoint [°C]								
- Increasing or decreasing								
Condensator over Pin 1-2								12
Condensator over Pin 1-3								13
Condensators over Pin 1-2 / 1-3								23
Railway version (UIC 616)								28
Outdoor application (vented)								44
Capillary tube protection: Flexible metal tube, brass nickel plated								90
Capillary tube protection: Flexible metal tube 1.4541/V2A								91
Capillary tube protection: PVC tube								92
Capillary tube length	Capillary tube length up to 5000 mm (no specification required for direct mounting on protection tube) L=XXXX ³⁾							
Steps between stages	Desired stage difference to be indicated when ordering (without indication = switches synchronous) Switch 1 on scale, difference switch 2 to scale -6°C ... +15°C Minimum distance between switches: Switch 10: ±1°C Switch 11/21: ±2°C							

¹⁾ See data sheet H72114/H72163

²⁾ See data sheet H72106

³⁾ Overlengths upon request

⁴⁾ Only with type 114, internal adjustment

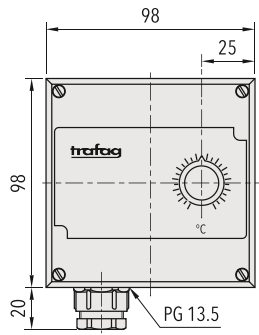
Standard products (extra short lead time)

Product No.	Type Code	Temperature range [°C]	Switching differential [°C]	Smallest stage difference [°C]	Largest stage difference [°C]	Sensor max. [°C]
M2S40	114 1101 422 19	-30 ... +40	1.8 (fixed)	0.8	25	45
M2S35	114 1109 422 19	0 ... +35	1.8 (fixed)	0.8	15	50
M2S95	114 1120 322 19	+5 ... +95	2.5 (fixed)	1.2	35	105
M2S150	114 1131 322 19	+20 ... +150	3 (fixed)	1.5	40	165
M2S230S	114 1124 121 19	+20 ... +230	4.5 (fixed)	2	70	250
M2S350S	114 1154 121 19	+70 ... +350	5 (fixed)	2.5	80	380

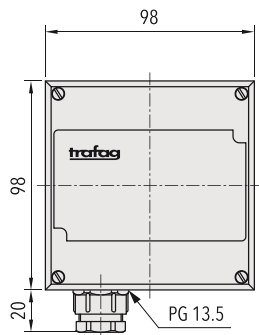
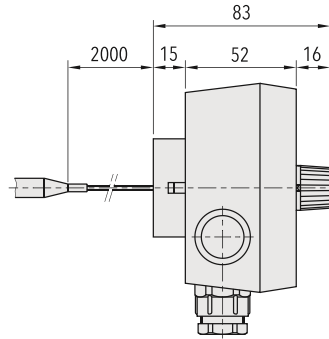
Specifications		
Accuracy	Repeatability	$\pm 0.5\%$ FS typ.
	Scale accuracy typ.	$\pm 2\%$ FS typ.
	Switching differential	See table
	Switching point	Temperature compensated with bimetal switch lever
Environmental conditions	Ambient temperature	Range $\leq +45^{\circ}\text{C}$: $-30^{\circ}\text{C} \dots +50^{\circ}\text{C}$ Range $+45^{\circ}\text{C} \dots +250^{\circ}\text{C}$: $-30^{\circ}\text{C} \dots +70^{\circ}\text{C}$ Range $> +250^{\circ}\text{C}$: $-10^{\circ}\text{C} \dots +70^{\circ}\text{C}$ (Important: Temperature at sensor may not exceed maximum sensortemperature)
	Storage temperature	Range $\leq +45^{\circ}\text{C}$: $-30^{\circ}\text{C} \dots +50^{\circ}\text{C}$ Range $> +45^{\circ}\text{C}$: $-30^{\circ}\text{C} \dots +85^{\circ}\text{C}$
	Protection	IP54
	Humidity	Max. 95 % relative
Mechanical Data	Sensor housing	See ordering information
	Filling	Liquid
	Housing	Noryl
	Screwed cable gland	Polyamide (PA)
	Installation	any position
	Weight	$\sim 480\text{ g}$
Microswitch	Rating	See table
	Resistance of insulation	$> 2\text{ M}\Omega$
	Dielectric strength	$U \leq 250\text{V}$: 1.45 kV $U \leq 500\text{V}$: 2 kV terminal ground
	Life time (mechanical)	Microswitch 10/11: 20 Mio. cycles Microswitch 21: 0.5 Mio. cycles
Electrical connection	Cable gland	PG13.5 Cable- $\varnothing$ 5...12.5 mm
	Terminal screw	$6 \times 1 \dots 2.5\text{ mm}^2$

Additional information		
Documents	Data sheet	www.trafag.com/H72139
	Instructions	www.trafag.com/H70311
	Flyer	www.trafag.com/H70965

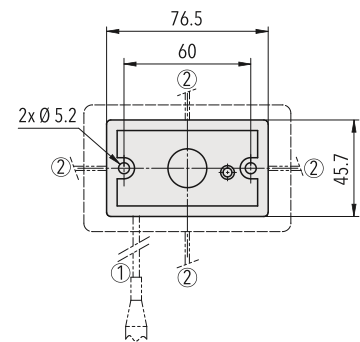
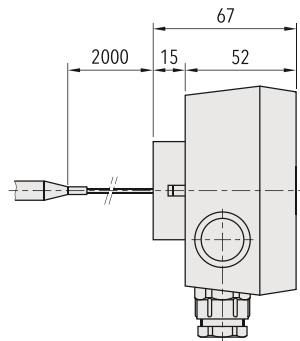
Dimensions



104.XXXX.XXX.XX...

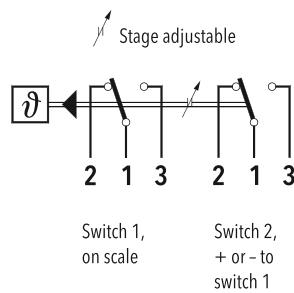


114.XXXX.XXX.XX...



Fixation 19

Electrical connection



Switching differential typ.

Measuring range	[°C]	-30 ... +40 +10 ... +80	-10 ... +25 0 ... +35 +10 ... +45	+15 ... +30	-10 ... +35
Microswitch 10 Switching differential (fixed value, not adjustable)	[°C]	0.7	0.7	0.7	1.5
Microswitch 11 Switching differential (fixed value, not adjustable)	[°C]	1.8	1.8	1.8	2.5
Microswitch 21 Switching differential (fixed value, not adjustable)	[°C]	1.8	1.8	1.8	2.5
Steps between stages from switch S2 to switch S1 (S1 on scale): S1 < S2	[°C]	0.8 ... 25	0.8 ... 15	0.8 ... 10	1.2 ... 25
Steps between stages from switch S2 to switch S1 (S1 on scale): S1 > S2	[°C]	0.8 ... 12	0.8 ... 6	0.8 ... 4	1.2 ... 8
Measuring range	[°C]	-10 ... +80 +5 ... +95 +20 ... +110	+20 ... +150	+20 ... +230	+40 ... +300 +70 ... +350
Microswitch 10 Switching differential (fixed value, not adjustable)	[°C]	1.5	1.8	2	2.5
Microswitch 11 Switching differential (fixed value, not adjustable)	[°C]	2.5	3	4.5	5
Microswitch 21 Switching differential (fixed value, not adjustable)	[°C]	2.5	3	4.5	5
Steps between stages from switch S2 to switch S1 (S1 on scale): S1 < S2	[°C]	1.2 ... 35	1.5 ... 40	2 ... 70	2.5 ... 80
Steps between stages from switch S2 to switch S1 (S1 on scale): S1 > S2	[°C]	1.2 ... 15	1.5 ... 20	2 ... 30	2.5 ... 40

Electrical data switch

		Rating	
		Resistive Load (Inductive Load)	
Type	Features	AC	DC
10	Small switching differential, not adjustable	125 V, 10 (1.5) A 250 V, 10 (1.25) A	250 V, 0.2 (0.02) A 125 V, 0.4 (0.03) A 30 V, 2 (1) A 14 V, 15 (2.5) A
11	Average switching differential, not adjustable	125 V, 15 (1.5) A 250 V, 15 (1.25) A 500 V, 10 (0.75) A	250 V, 0.25 (0.03) A 125 V, 0.5 (0.05) A 30 V, 6 (1.5) A 14 V, 15 (1.5) A
21	Gold plated contacts, not adjustable	24 V, 0.1 (0.1) A 12 V, 1 (1) A 5 V, 2 (2) A	24 V, 0.1 (0.1) A 12 V, 1 (1) A 5 V, 2 (2) A