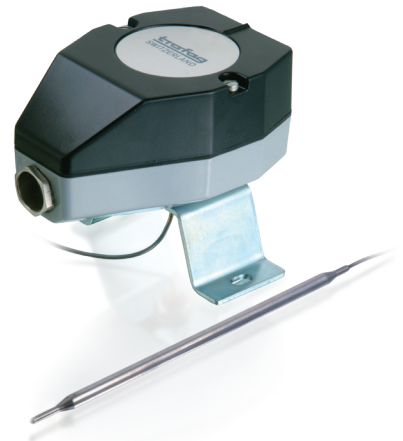


INDUSTAT

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



Applications

- Railways
- Machine tools

Features

- Compact design
- Rugged housing
- Protection IP65
- Any mounting position possible

06/2024

Data sheet H72110u

Subject to change

Technical Data

Designation of application	Industrial thermostat with remote sensor	Switching differential	Adjustable / 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

Ordering information/type code

				XXX	XX	XX	XXX	XX	XXXXXXXXXX	XX	XX
Custom build code	External adjustment			404							
	Internal adjustment			414							
Microswitch	Small switching differential, not adjustable				10						
	Average switching differential, not adjustable				11						
	With gold plated contacts, switching differential not adjustable				21						
	Adjustable large switching differential				24						
	Adjustable standard switching differential				25						
Range	Range	Sensor max.		Range	Sensor max.						
	[°C]	[°C]		[°C]	[°C]						
	-30 ... 40	50	01	5 ... 95	105	20					
	-10 ... 25 ⁶⁾	60	07	20 ... 110	115	23					
	0 ... 35	70	09	20 ... 150	165	31					
	10 ... 45 ⁶⁾	85	11	20 ... 230	250	24					
	10 ... 80 ⁶⁾	100	13	40 ... 300	330	53					
	-10 ... 35 ⁴⁾	70	94	70 ... 350	380	54					
	-10 ... 80 ⁴⁾	85	95								
Sensor ¹⁾	See table "Ordering-no. for sensors"						XXX				
Fixing ²⁾	Nut M10 (for remote sensing version)						10				
	Flange connection (for remote sensing version)						16				
	Angle bracket (for remote sensing version)						17				
	Bracket (for remote sensing version)						27				
	Grubscrew locked, lateral (direct mounting version) ⁵⁾						12				
	Cap nut (for direct mounting version) ⁵⁾						13				
	Cap nut (for direct mounting version) ⁵⁾						14				
	Grubscrew locked with spacer (cooling element) (for direct mounting version)						18				
Protection tube	See data sheet www.trafag.com/H72114 and www.trafag.com/H72163							XXXX.XXXX			
Accessories	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										
	Capacitor over Pin 1-2 ⁶⁾						12				
	Capacitor over Pin 1-4						13				
	Capacitors over Pin 1-2 / 1-4 ⁶⁾						23				
	Railway version IEC 61373, category 2						28				
	Outdoor application (vented)						44				
	Capillary tube protection: Flexible metal tube, brass nickel-plated						90				
	Capillary tube protection: Flexible metal tube 1.4301 (AISI 304)						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⁾										

¹⁾ See data sheet www.trafag.com/H72114 and www.trafag.com/H72163

²⁾ See data sheet www.trafag.com/H72106

³⁾ Overlengths upon request

⁴⁾ Only with type 414, internal adjustment

⁵⁾ Media max. 150°C in continuous operation

⁶⁾ Do not use for new designs. Will be phased out in 2024.

Ordering no. for sensors

Range	Sensor-Ø	Sensor material		
		Stainless steel	Copper	Copper nickel plated
01, 07, 09, 11, 13, 17	4.7 mm		412 ¹⁾	413 ¹⁾
	7.0 mm	421	422	423 ¹⁾
	9.0 mm		432	433 ¹⁾
94, 95, 20, 23	4.7 mm	311 ¹⁾	312 ¹⁾	313 ¹⁾
	7.0 mm	321	322	323 ¹⁾
	9.0 mm	331 ¹⁾	332	333 ¹⁾
31	4.7 mm	111 ¹⁾	112 ¹⁾	113 ¹⁾
	7.0 mm	121	122	123 ¹⁾
	9.0 mm	131 ¹⁾	132	133 ¹⁾
24, 53, 54	4.7 mm	011 ¹⁾	012 ¹⁾	013 ¹⁾
	7.0 mm	021	022	023 ¹⁾
	9.0 mm	031 ¹⁾	032	033 ¹⁾

¹⁾ Do not use for new designs. Will be phased out in 2024.

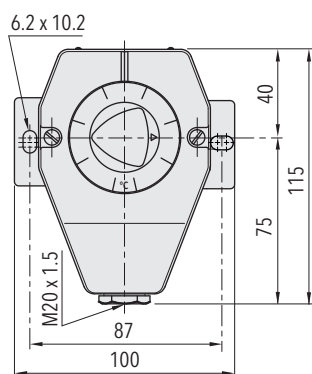
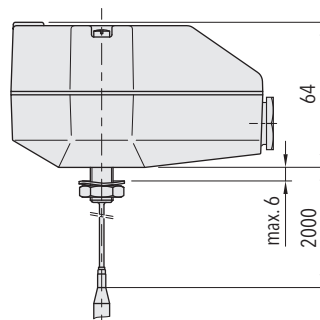
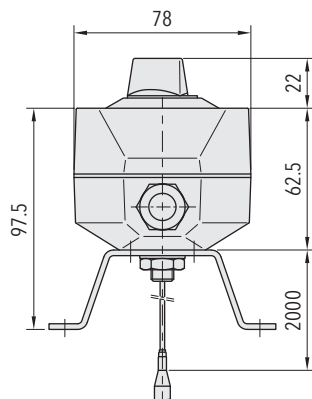
Standard products (extra short lead time)

Product No.	Type Code	Sensor material	Temperature range [°C]	Switching differential [°C]	Sensor max. [°C]
I35	404 2509 422 27	Copper	0 ... +35	0.7 ... 10 (adjustable)	60
I40	404 2501 422 27	Copper	-30 ... +40	0.7 ... 10 (adjustable)	45
I95	404 2520 322 27	Copper	+5 ... +95	2 ... 12 (adjustable)	105
I150	404 2531 122 27	Copper	+20 ... +150	2.5 ... 16 (adjustable)	165
I230S	404 2524 021 27	1.4435 (AISI316L)	+20 ... +230	3 ... 32 (adjustable)	250
I350S	404 2554 021 27	1.4435 (AISI316L)	+70 ... +350	4 ... 40 (adjustable)	380
IS35	414 2509 422 27	Copper	0 ... +35	0.7 ... 10 (adjustable)	60
IS40	414 2501 422 27	Copper	-30 ... +40	0.7 ... 10 (adjustable)	45
IS95	414 2520 322 27	Copper	+5 ... +95	2 ... 12 (adjustable)	105
IS150	414 2531 122 27	Copper	+20 ... +150	2.5 ... 16 (adjustable)	165
IS230S	414 2524 021 27	1.4435 (AISI316L)	+20 ... +230	3 ... 32 (adjustable)	250
IS350S	414 2554 021 27	1.4435 (AISI316L)	+70 ... +350	4 ... 40 (adjustable)	380

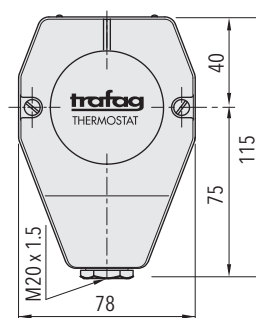
Specifications		
Accuracy	Repeatability	$\pm 0.5 \% \text{ FS typ.}$
	Scale accuracy typ.	$\pm 2 \% \text{ FS typ.}$
	Switching differential	See table
	Switching point	Temperature compensated with bimetal switch lever
Environmental conditions	Ambient temperature	Range $\leq +45^{\circ}\text{C}$: $-30^{\circ}\text{C} \dots +50^{\circ}\text{C}$ 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 sensor temperature)
	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	IP65
	Humidity	Max. 95 % relative
	Vibration	5...25 Hz: $\pm 1.6 \text{ mm}$ 25...100 Hz: 4g
	Shock	50 g / 11 ms
Mechanical data	Sensor housing	See ordering information
	Filling	Liquid
	Housing	AlSi9Cu3, coated
	Screwed cable gland	Brass, nickel-plated
	Installation	any position
	Weight	$\sim 950 \text{ g}$
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 10/11/25: 20 Mio. cycles Microswitch 21: 0.5 Mio. cycles Microswitch 24: 0.3 Mio. cycles
Electrical connection	Cable gland	M20x1.5 Cable- $\varnothing$ 4...10 mm
	Terminal screw	3 x 1 ... 2.5 mm ²

Additional information		
Documents	Data sheet	www.trafag.com/H72110
	Instructions	www.trafag.com/H73111

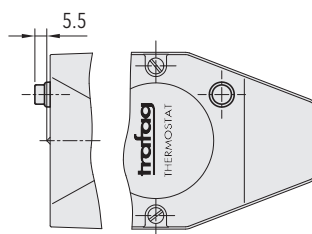
Dimensions



404.XXXX.XXX.27.XXXX.XXXX.XX



414.XXXX.XXX.10.XXXX.XXXX.XX



Accessory 14

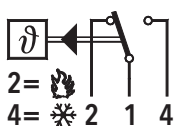
Switching differential typ.

Measuring range	[°C]	-30 ... +40 -10 ... +25 0 ... +35 +15 ... +30 +10 ... +45 +10 ... +80	-10 ... +35 -10 ... +80 +5 ... +95 +20 ... +110	+20 ... +150	+20 ... +230	+40 ... +300 +70 ... +350
Microswitch 10: Switching differential not adjustable	[°C]	0.3	0.8	1	1.2	2
Microswitch 11/21: Switching differential not adjustable	[°C]	0.7	2	2.5	3	4
Microswitch 24: Switching differential adjustable	[°C]	4 ... 21	5.5 ... 26	7 ... 34	15 ... 65	18 ... 84
Microswitch 25: Switching differential adjustable	[°C]	0.7 ... 10	2 ... 12	2.5 ... 16	3 ... 32	4 ... 40

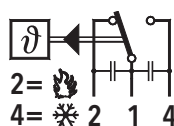
Electrical data switch

Type	Features	Rating Resistive Load (Inductive Load)	
		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
25	Adjustable standard switching differential	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 (2.5) A
24	Adjustable large switching differential	125 V, 15 (1.5) A 250 V, 15 (1.25) A 500 V, 10 (0.75) A	250 V, 0.3 (0.2) A 125 V, 0.75 (0.4) A 30 V, 15 (1.5) A 14 V, 15 (1.5) A

Electrical Connection



404/414



with accessory 23