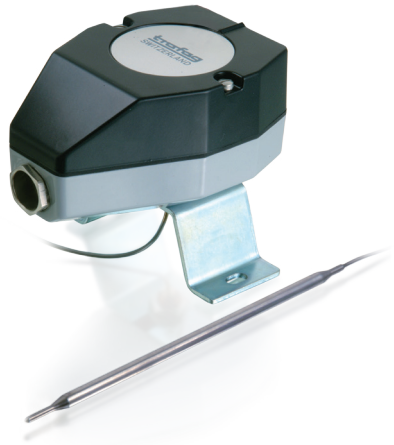
INDUSTAT

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

03/2018
Data sheet H72110p
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

Trafag sensors & controls
Switzerland

Industriestrasse 11
8608 Bubikon

Tel. +41 44 922 32 32
Fax +41 44 922 32 33

www.trafag.com
trafag@trafag.com

trafag
sensors controls

Ordering information/type code

		XXX	XX	XX	XXX	XX	XXXXXXXXX	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 [°C]	Sensor max. [°C]	
-30 ... 40	50	**01**
-10 ... 25	60	**07**
0 ... 35	70	**09**
10 ... 45	85	**11**
10 ... 80	100	**13**
15 ... 30	60	**17**
-10 ... 35	70	**94**

Range [°C]	Sensor max. [°C]	
-10 ... 80	85	**95**
5 ... 95	105	**20**
20 ... 110	115	**23**
20 ... 150	165	**31**
20 ... 230	250	**24**
40 ... 300	330	**53**
70 ... 350	380	**54**

Sensor [1)]

Range	Sensor diameter [mm]	Sensor material	
01, 07, 09, 11, 13, 17	Ø7	Stainless steel	**421**
01, 07, 09, 11, 13, 17	Ø4.7	Copper	**412**
01, 07, 09, 11, 13, 17	Ø7	Copper	**422**
01, 07, 09, 11, 13, 17	Ø9	Copper	**432**
01, 07, 09, 11, 13, 17	Ø4.7	Copper nickel plated	**413**
01, 07, 09, 11, 13, 17	Ø7	Copper nickel plated	**423**
01, 07, 09, 11, 13, 17	Ø9	Copper nickel plated	**433**
94, 95, 20, 23, 31	Ø4.7	Stainless steel	**311**
94, 95, 20, 23, 31	Ø7	Stainless steel	**321**
94, 95, 20, 23, 31	Ø9	Stainless steel	**331**
94, 95, 20, 23, 31	Ø4.7	Copper	**312**
94, 95, 20, 23, 31	Ø7	Copper	**322**

Range	Sensor diameter [mm]	Sensor material	
94, 95, 20, 23, 31	Ø9	Copper	**332**
94, 95, 20, 23, 31	Ø4.7	Copper nickel plated	**313**
94, 95, 20, 23, 31	Ø7	Copper nickel plated	**323**
94, 95, 20, 23, 31	Ø9	Copper nickel plated	**333**
24, 53, 54	Ø4.7	Stainless steel	**111**
24, 53, 54	Ø7	Stainless steel	**121**
24, 53, 54	Ø9	Stainless steel	**131**
24, 53, 54	Ø4.7	Copper	**112**
24, 53, 54	Ø7	Copper	**122**
24, 53, 54	Ø9	Copper	**132**
24, 53, 54	Ø4.7	Copper nickel plated	**113**
24, 53, 54	Ø7	Copper nickel plated	**123**
24, 53, 54	Ø9	Copper nickel plated	**133**

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 H72114/H72163	**XXXX.XXXX**

		XXX	XX	XX	XXX	XX	XXXXXXXXX	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 1-4							**13**	
	Condensators over Pin 1-2 / 1-4							**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 1.4541/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]								

[1] See data sheet H72114/H72163
[2] See data sheet H72106
[3] Overlengths upon request
[4] Only with type 414, internal adjustment
[5] Media max. 150°C in continuous operation

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 322 27	Copper	+20 ... +150	2.5 ... 16 (adjustable)	165
I230S	404 2524 121 27	1.4435/316L	+20 ... +230	3 ... 32 (adjustable)	250
I350S	404 2554 121 27	1.4435/316L	+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 322 27	Copper	+20 ... +150	2.5 ... 16 (adjustable)	165
IS230S	414 2524 121 27	1.4435/316L	+20 ... +230	3 ... 32 (adjustable)	250
IS350S	414 2554 121 27	1.4435/316L	+70 ... +350	4 ... 40 (adjustable)	380

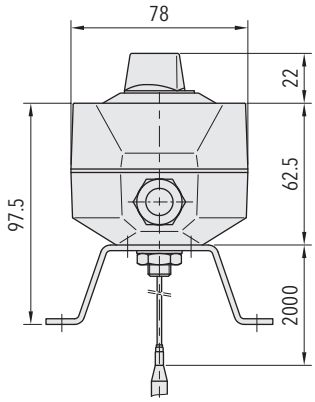
Specifications

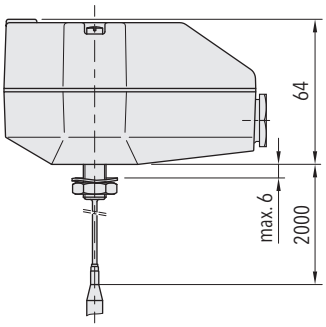
Accuracy	Repeatability	± 0.5 % FS typ.
	Scale accuracy typ.	± 2 % FS typ.
	Switching differential	See table
	Switching point	Temperature compensated with bimetal switch lever
Environmental conditions	Ambient temperature	Range ≤ +45°C: -30°C ... +50°C Range +45°C ... +250°C: -30 ... +70°C Range > +250°C: -10°C ... +70°C (Important: Temperature at sensor may not exceed maximum sensor temperature)
	Storage temperature	Range ≤ +45°C: -30°C ... +50°C Range > +45°C: -30°C ... +85°C
	Protection	IP65
	Humidity	Max. 95 % relative
	Vibration	5...25 Hz: ±1.6 mm 25...100 Hz: 4g
	Shock	50g/ 11 ms
Mechanical Data	Sensor housing	See ordering information
	Filling	Liquid
	Housing	AlSi9Cu3, coated
	Screwed cable gland	Brass nickel plated
	Installation	any position
	Weight	~ 950 g
Microswitch	Rating	See table
	Resistance of insulation	> 2 MΩ
	Dielectric strength	U ≤ 250V: 1.45 kV / U ≤ 500V: 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-Ø 4...10 mm
	Terminal screw	3 x 1...2.5 mm²

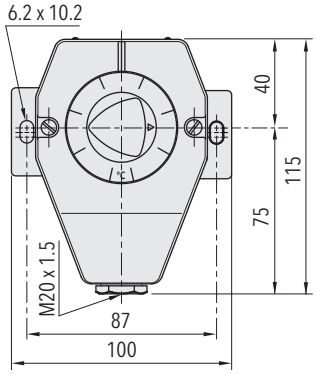
Additional information

Documents	Data sheet	www.trafag.com/H72110
	Instructions	www.trafag.com/H73111
	Flyer	www.trafag.com/H70951

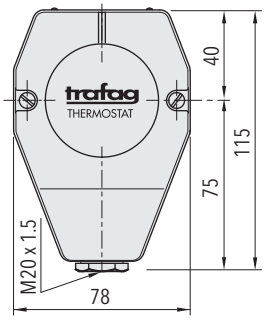
Dimensions



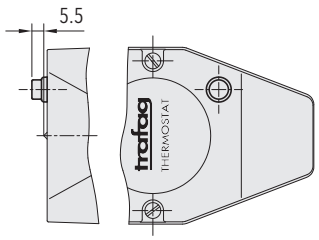




404.XXXX.XXX.**27**.XXXX.XXXX.XX



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

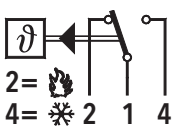


Accessory 14

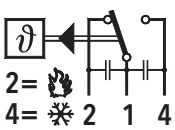
Switching differential typ.						
Range	**[°C]**	–30 ... +40 –10 ... +25 0 ... +35 +15 ... +30 +10 ... +45 +10 ... +80	–10 ... +35 –10 ... +80 +5 ... +95 +20 ... +110	+20 ... +150	+20 ... +230	+40 ... +300 +70 ... +350
Microswitch 10 Switching differential (fixed value, not adjustable)	**[°C]**	0.3	0.8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