

# INDU LIMISTAT

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
- Process technology

## Features

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

## Technical Data

Designation of application	Industrial thermostat with remote sensor and limiter	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

03/2018

Data sheet H721380

Subject to change

## Ordering information/type code

		XXX . XX	XX	XXX	XX	XXXXXXXXXX	XX	XX	
<b>Custom build code</b>	For increasing temperatures, internal resetting	410 . 12							
	For increasing temperatures, external resetting	412 . 12							
<b>Range</b>	<b>Range</b> [°C]	<b>Sensor max.</b> [°C]							
	-30 ... +40	45	<b>01</b>	-10 ... +80	85	<b>95</b>			
	-10 ... +25	60	<b>07</b>	+5 ... +95	105	<b>20</b>			
	0 ... +35	70	<b>09</b>	+20 ... +110	115	<b>23</b>			
	+10 ... +45	85	<b>11</b>	+20 ... +150	165	<b>31</b>			
	+10 ... +80	100	<b>13</b>	+20 ... +230	250	<b>24</b>			
	+15 ... +30	60	<b>17</b>	+40 ... +300	330	<b>53</b>			
	-10 ... +35	70	<b>94</b>	+70 ... +350	380	<b>54</b>			
<b>Sensor <sup>1)</sup></b>	<b>Range</b>	<b>Sensor diame- ter</b> [mm]	<b>Sensor material</b>	<b>Range</b>	<b>Sensor diame- ter</b> [mm]	<b>Sensor material</b>			
	01, 07, 09, 11, 13, 17	Ø7	Stainless steel	421	94, 95, 20, 23, 31	Ø9	Copper	332	
	01, 07, 09, 11, 13, 17	Ø12	Stainless steel	441	24, 53, 54	Ø4.7	Copper	112	
	94, 95, 20, 23, 31	Ø4.7	Stainless steel	311	24, 53, 54	Ø7	Copper	122	
	94, 95, 20, 23, 31	Ø7	Stainless steel	321	24, 53, 54	Ø9	Copper	132	
	94, 95, 20, 23, 31	Ø9	Stainless steel	331	01, 07, 09, 11, 13, 17	Ø4.7	Copper nickel plated	413	
	24, 53, 54	Ø4.7	Stainless steel	111	01, 07, 09, 11, 13, 17	Ø7	Copper nickel plated	423	
	24, 53, 54	Ø7	Stainless steel	121	01, 07, 09, 11, 13, 17	Ø9	Copper nickel plated	433	
	24, 53, 54	Ø9	Stainless steel	131	01, 07, 09, 11, 13, 17	Ø12	Copper nickel plated	443	
	01, 07, 09, 11, 13, 17	Ø4.7	Copper	412	94, 95, 20, 23, 31	Ø4.7	Copper nickel plated	313	
	01, 07, 09, 11, 13, 17	Ø7	Copper	422	94, 95, 20, 23, 31	Ø7	Copper nickel plated	323	
	01, 07, 09, 11, 13, 17	Ø9	Copper	432	94, 95, 20, 23, 31	Ø9	Copper nickel plated	333	
	01, 07, 09, 11, 13, 17	Ø12	Copper	442	24, 53, 54	Ø4.7	Copper nickel plated	113	
	94, 95, 20, 23, 31	Ø4.7	Copper	312	24, 53, 54	Ø7	Copper nickel plated	123	
	94, 95, 20, 23, 31	Ø7	Copper	322	24, 53, 54	Ø9	Copper nickel plated	133	
	<b>Fixing <sup>2)</sup></b>	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) <sup>4)</sup>							12
Cap nut (for direct mounting version) <sup>4)</sup>								14	
Grubscrew locked with spacer (cooling element) (for direct mounting version)								18	
<b>Protection tube</b>	See data sheet H72114/H72163							XXXX.XXXX	

	XXX . XX	XX	XXX	XX	XXXXXXXXXX	XX	XX
<b>Accessories</b>	Signal lamp	14	Condensator over Pin 1-3	13			
	Switchpoint locking	15	Condensators over Pin 1-2 / 1-3	23			
	Switchpoint fixed and sealed upon customer's request	88	Railway version IEC 61373, category 2	28			
	Switchpoint preset upon customer's request, no guarantee on switching accuracy	83	Outdoor application (vented)	44			
	Switchpoint adjustment please indicate when ordering: - Switchpoint [°C]		Capillary tube protection: Flexible metal tube, brass nickel plated	90			
	- Increasing or decreasing		Capillary tube protection: Flexible metal tube 1.4541/V2A	91			
	Condensator over Pin 1-2	12	Capillary tube protection: PVC tube	92			
	<b>Capillary tube length</b>	Capillary tube length up to 5000 mm (no specification required for direct mounting on protection tube) L=XXXX <sup>3)</sup>					

<sup>1)</sup> See data sheet H72114/H72163

<sup>2)</sup> See data sheet H72106

<sup>3)</sup> Overlengths upon request

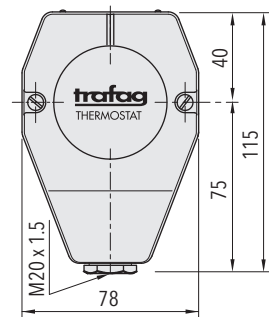
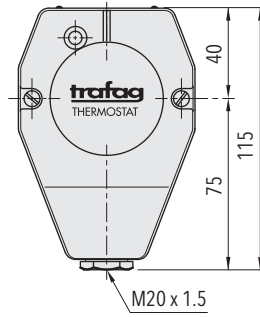
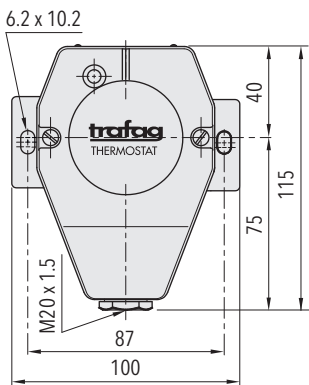
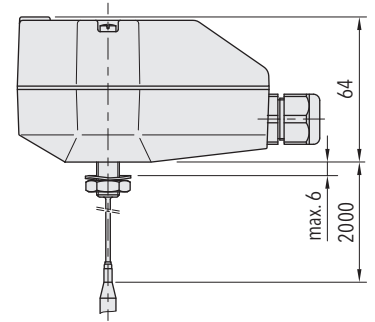
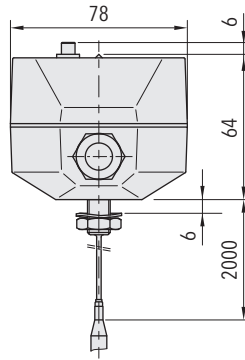
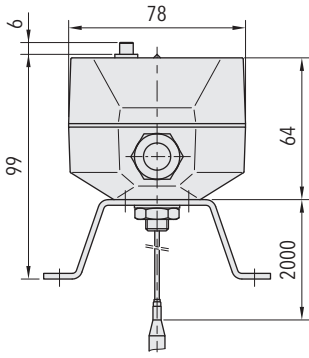
<sup>4)</sup> Media max. 150°C in continuous operation

### Standard products (extra short lead time)

Product No.	Type Code	Sensor material	Temperature range [°C]	Sensor max. [°C]
IS95R	412 1220 322 27	Copper	+5 ... +95	105
IS150R	412 1231 322 27	Copper	+20 ... +150	165
IS230SR	412 1224 121 27	1.4435/316L	+20 ... +230	250
IS350SR	412 1254 121 27	1.4435/316L	+70 ... +350	380

Specifications		
<b>Accuracy</b>	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
<b>Environmental conditions</b>	Ambient temperature	Range $\leq +45^{\circ}\text{C}$ : $-30\dots+50^{\circ}\text{C}$ Range $+45\dots+250^{\circ}\text{C}$ : $-30\dots+70^{\circ}\text{C}$ Range $> +250^{\circ}\text{C}$ : $-10\dots+70^{\circ}\text{C}$ (Important: Temperature at sensor may not exceed maximum sensor temperature)
	Storage temperature	Range $< +45^{\circ}\text{C}$ : $-30\dots+50^{\circ}\text{C}$ Range $> +45^{\circ}\text{C}$ : $-30\dots+85^{\circ}\text{C}$
	Protection	IP65
	Humidity	Max. 95 % relative
	Vibration	5...25 Hz: $\pm 1.6 \text{ mm}$ 25...100 Hz: 4g
	Shock	50g/ 11ms
	<b>Mechanical Data</b>	Sensor housing
Filling		Liquid
Housing		AlSi9Cu3, coated
Screwed cable gland		Brass nickel plated
Installation		Any position
Weight		$\sim 950 \text{ g}$
<b>Microswitch</b>	Rating	See table
	Resistance of insulation	$> 2 \text{ M}\Omega$
	Dielectric strength	2 kV terminal ground
	Life time (mechanical)	0.3 Mio. cycles
<b>Electrical connection</b>	Cable gland	M20x1.5 Cable- $\varnothing$ 4...10 mm
	Terminal screw	3 x 1...2.5 mm <sup>2</sup>

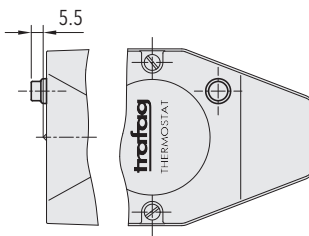
## Dimensions



412.12XX.XXX.27...

412.12XX.XXX.10...

410.12XX.XXX.10...



Accessory 14

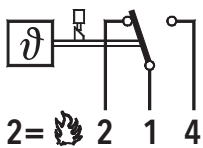
## Switching differential typ.

Range	[°C]	-30 ... +40	-10 ... +35	+20 ... +150	+20 ... +230	+40 ... +300
		-10 ... +25	-10 ... +80			+70 ... +350
		0 ... +35	+5 ... +95			
		+15 ... +30	+20 ... +110			
		+10 ... +45				
		+10 ... +80				
<b>Microswitch 12</b>	[°C]	2.0	6.0	7.5	9.0	12.0
Switching differential (fixed value, not adjustable)						

## Electrical data switch

Type	Features	Rating	
		Resistive Load (Inductive Load)	
		AC	DC
<b>12</b>	High vibration resistance, medium 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



410/412.12

Limiter for increasing temperatures

## Additional information

Documents		
	Data sheet	<a href="http://www.trafag.com/H72138">www.trafag.com/H72138</a>
	Instructions	<a href="http://www.trafag.com/H73111">www.trafag.com/H73111</a>
	Flyer	<a href="http://www.trafag.com/H70966">www.trafag.com/H70966</a>