

# INDU LIMISTAT

Swiss based Trafag is a leading international supplier of high quality sensors and monitoring instruments for 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

03/2019

Data sheet H72138q

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]		<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>	See table "Ordering-no. for sensors"					XXX		
<b>Fixing <sup>2)</sup></b>	Nut M10 (for remote sensing version)							<b>10</b>
	Flange connection (for remote sensing version)							<b>16</b>
	Angle bracket (for remote sensing version)							<b>17</b>
	Bracket (for remote sensing version)							<b>27</b>
	Grubscrew locked, lateral (direct mounting version) <sup>4)</sup>							<b>12</b>
	Cap nut (for direct mounting version) <sup>4)</sup>							<b>14</b>
	Grubscrew locked with spacer (cooling element) (for direct mounting version)							<b>18</b>
<b>Protection tube</b>	See data sheet H72114/H72163					XXXX.XXXX		
<b>Accessories</b>	Switchpoint locking		<b>15</b>	Condensator over Pin 1-3				<b>13</b>
	Switchpoint fixed and sealed upon customer's request		<b>88</b>	Condensators over Pin 1-2 / 1-3				<b>23</b>
	Switchpoint preset upon customer's request, no guarantee on switching accuracy		<b>83</b>	Railway version IEC 61373, category 2				<b>28</b>
	Switchpoint adjustment please indicate when ordering: - Switchpoint [°C]			Outdoor application (vented)				<b>44</b>
	- Increasing or decreasing			Capillary tube protection: Flexible metal tube, brass nickel plated				<b>90</b>
	Condensator over Pin 1-2		<b>12</b>	Capillary tube protection: Flexible metal tube 1.4541/V2A				<b>91</b>
				Capillary tube protection: PVC tube				<b>92</b>
<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

## Ordering no. for sensors

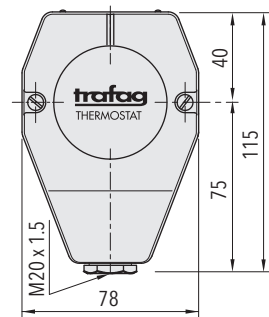
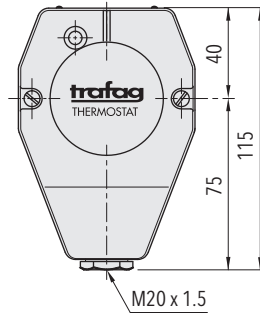
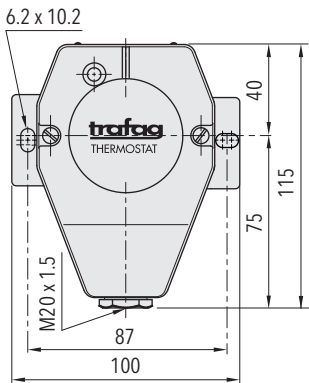
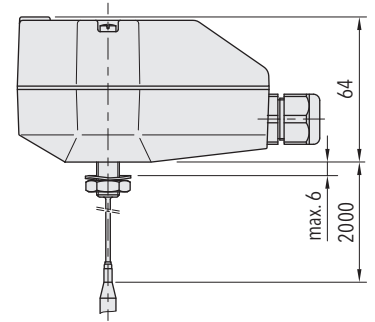
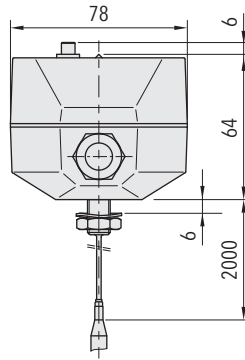
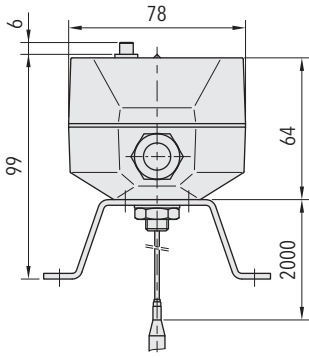
Range	Sensor-Ø	Sensor material		
		Stainless steel	Copper	Copper nickel plated
01, 07, 09, 11, 13, 17	4.7 mm		412	413
	7.0 mm	421	422	423
	9.0 mm		432	433
	12.0 mm	441	442	443
94, 95, 20, 23	4.7 mm	311	312	313
	7.0 mm	321	322	323
	9.0 mm	331	332	333
31	4.7 mm	111	112	113
	7.0 mm	121	122	123
	9.0 mm	131	132	133
24, 53, 54	4.7 mm	011	012	013
	7.0 mm	021	022	023
	9.0 mm	031	032	033

## 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 122 27	Copper	+20 ... +150	165
IS230SR	412 1224 021 27	1.4435 (AISI316L)	+20 ... +230	250
IS350SR	412 1254 021 27	1.4435 (AISI316L)	+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 $\leq +45^{\circ}\text{C}$ : $-30^{\circ}\text{C} \dots +50^{\circ}\text{C}$ 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 $< +45^{\circ}\text{C}$ : $-30^{\circ}\text{C} \dots +50^{\circ}\text{C}$ 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
<b>Mechanical Data</b>	Sensor housing	See ordering information
	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>

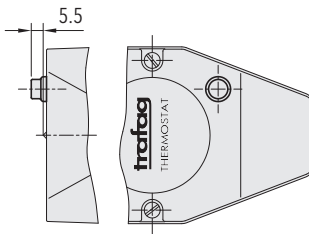
## Dimensions



412.12XX.XXX.27...

412.12XX.XXX.10...

410.12XX.XXX.10...



Accessory 14

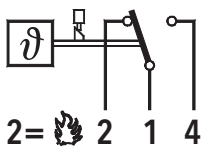
## Switching differential typ.

<b>Measuring range</b>	<b>[°C]</b>	-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>	<b>[°C]</b>	2.0	6.0	7.5	9.0	12.0
Switching differential not adjustable						

## Electrical data switch

Type	Features	Rating	
		Resistive Load (Inductive Load)	
		AC	DC
<b>12</b>	Average switching differential, high vibration resistance	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

<b>Documents</b>	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>