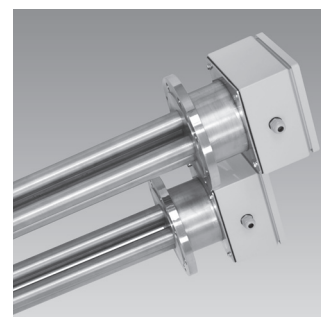
PRODUCT GROUPS

SPIS TREŚCI

A



electric heaters

Limatherm Sensor Sp. z o.o.
Skrudlak Street 1, 34-600 Limanowa
www.limathermsensor.com
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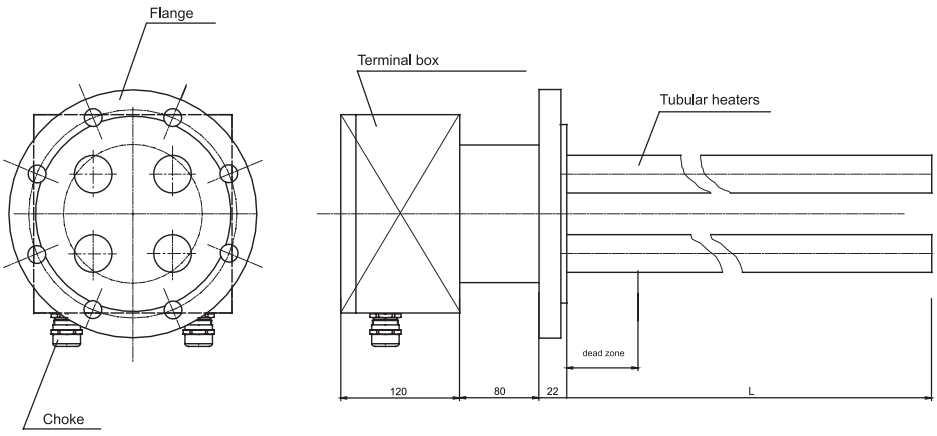
Heating unit **ZGP**

Technical description

Characteristic
– mineral insulated construction – ceramic insert – high efficiency – mounting with: flange, thread or handle – insert replacement without disassembly – degree of head protection: IP66 – the radiator can be extended with a thermostat
Application
Mineral insulated radiators are using for heating: – oil, water and gas

Power	(200 ÷ 6000) W
Voltage	(230 ÷ 500) V
Lenght [mm]	100÷3000
Diameter [mm]	ø16, 20, 35, 40, 50, other
Material	steel: 1.4301, 1.4404, 1.4571
Avaible threads	G½, G1½, M42x2, other
Connection head	metal cover
Degree protection	IP66
Dead zone	100 mm
Working conditions	horizontal, vertical
Working temperature	max. 200 °C
Thermostats	TR (regulation), STB (check)



Ordering code

Heating system	ZGP – ... – ... – ... / ... – ...
Diameter* [mm]	
Length* [mm]	
Power* [W]	
Voltage* [V]	
Connection type*: threaded flange	

* Acc. to requirements

Ordering example

Heating unit ZGP–4xø50–1400–22,5kW/400V

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Cartridge heaters **GP, GPT, GPN, GPF**

Technical description

Characteristic
– compact design – high efficienci – small dimensions – easy assembly – designed for heating solids, liquids and gases
Application
– plastic industry - hot runner molds, mouthpieces and injection molding nozzles, stamps for embossing, sealing in packaging machines – footwear industry - vulcanizing presses, mold heaters, extruder – foundry - core and die heaters, vacuum furnaces – medical and laboratory technology - distilling devices, oil heaters, solder baths, inhalation devices and sterilization – wood industry – punches for burning, lacquer and paint atomizers – general machine construction – automotive industry

Parameters	GP/GPT	GPN	GPF
Heater diameter	standard [mm]: ø6,5; 8; 10; 12,5; 16; 20 inch: ¼, ⅜, ½, ⅝, ¾ custom [mm]: ø6 do ø50		metric [mm]: ø6,5; 8; 10; 12,5; 16; 20 inch: ¼, ⅜, ½, ⅝, ¾; 1
Diameter tolerance [mm]	-0,02 -0,08	+0,2	-0,02 -0,08
Range of length [mm]	20-1000		to 2300
Length tolerance	±1,5%		±2% (min. 2,4 mm)
Voltage	(12 ÷ 380) V		(12 ÷ 480) V
Surface loading	35 W/cm²	5 W/cm²	to 62 W/cm²
Maximum operating temperature	500 °C (on the sheath)		870 °C (on the sheath)
Power	(50 ÷ 3000) W		5000 W
Power tolerance	+5% -10		+5% -10
Tube material	stal Cr-Ni 1H18N9T		Incoloy 800
Minimum lengths of dead zones	– from the bottom [mm]: 4 – from the insulator [mm]: 6		– from the bottom [mm]: 6 – from the insulator [mm]: 6

Non-standard constructions with mounting sleeves or special power distribution on request.

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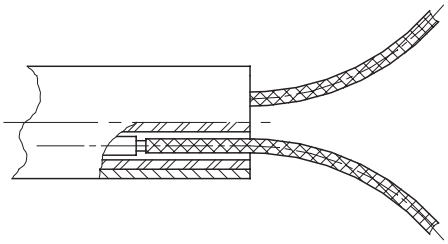
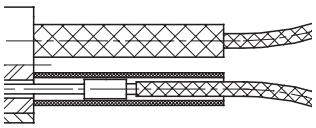
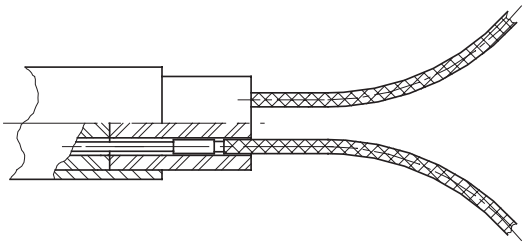
Type **A**



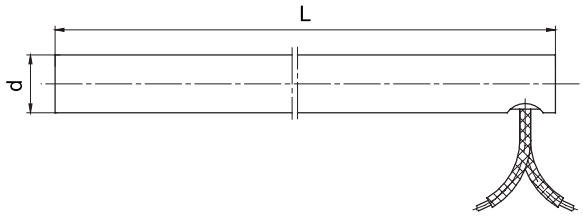
Type **B**



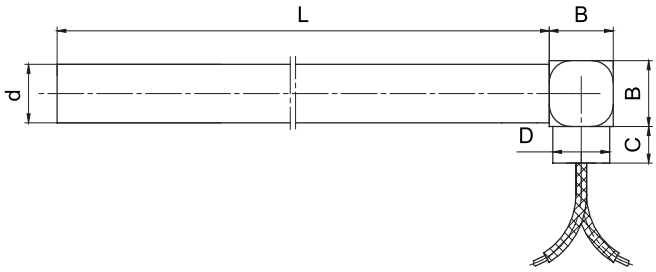
Type **C**



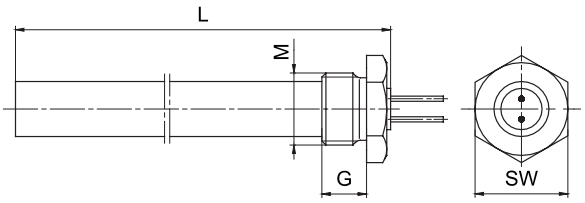
Type **D**



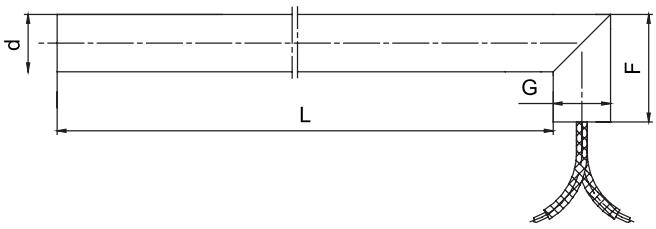
Type **E**



Type **G**



Type **F**



Ordering code

Patron heater	... – ... – ... – ... / ... – ... – ... – ...
Type: max. surface loading 35 W/cm² max. surface loading 35 W/cm² + termopara max. surface loading 5 W/cm² max. surface loading (36 ÷ 62) W/cm²	 **GP** **GPT** **GPN** **GPF**
Diameter* [mm]	
Length* [mm]	
Power* [W]	
Voltage* [V]	
Termination type: straight, inner contact straight, outer contact straight, contact in ceramic block angular, directly form the heater angular, with steel block angular, with sleeve with threaded sleeve (x-thread)	 **A** **B** **C** **D** **E** **F** **G**
Lead wire protection: none corrugated pipe	 **0** **P**
Lead wire length [m]	

* Acc. to requirements

Ordering example **Cartridge heaters GP–ø20–500–300W/230V–A–0–1,5m**

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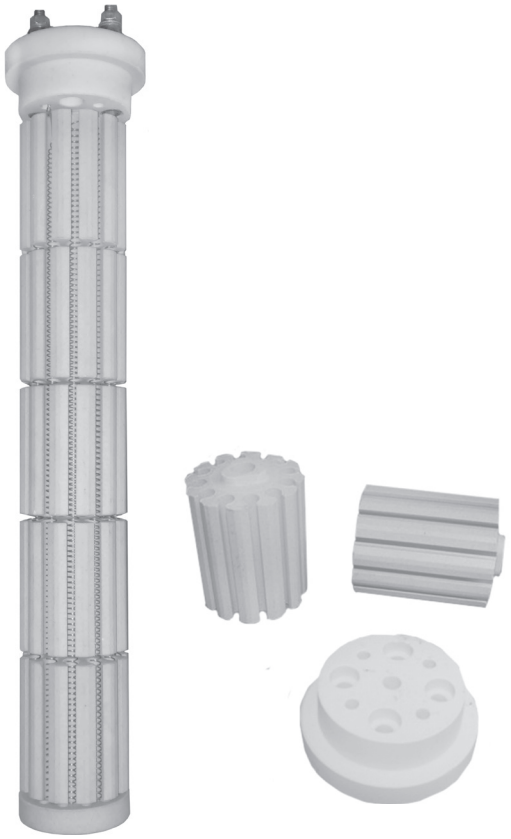
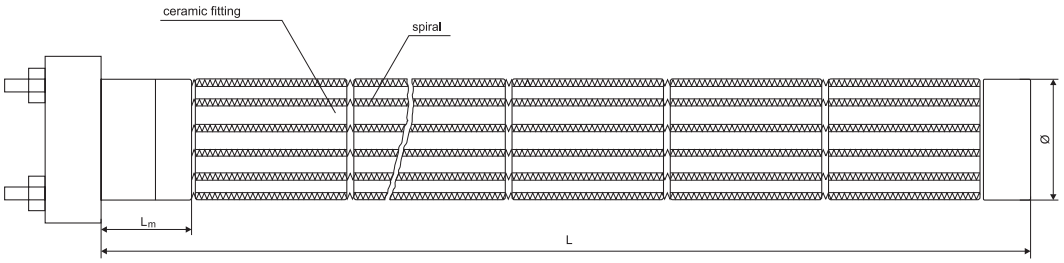
Ceramic heaters **CEG**

Technical description

Characteristic
– modular design – designed for work in a steel sheath – used of the occurrence of temperature radiation – high efficiency – KANTHAL resistance wire material – long service life
Application
Ceramic heating elements are used in: – tiled stoves, accumulative – bakeries – galvanizing plant – rubber and plastic processing



Power	(100 ÷ 10000) W
Voltage	230 V; 380 V; 3x380 V, 400 V
Length [mm]	100÷4000
Diameter [mm]	ø16, 32, 36, 45, 50, other
Dead zone	100 mm
Max. surface loading	7 W/cm^2



Ordering code

Ceramic heaters	CEG – ... – ... – ... / ...
Diameter* [mm]	
Length* [mm]	
Power* [W]	
Voltage* [V]	

* Acc. to requirements

Ordering example

Ceramic heaters CEG–ø50–450–800W/400V

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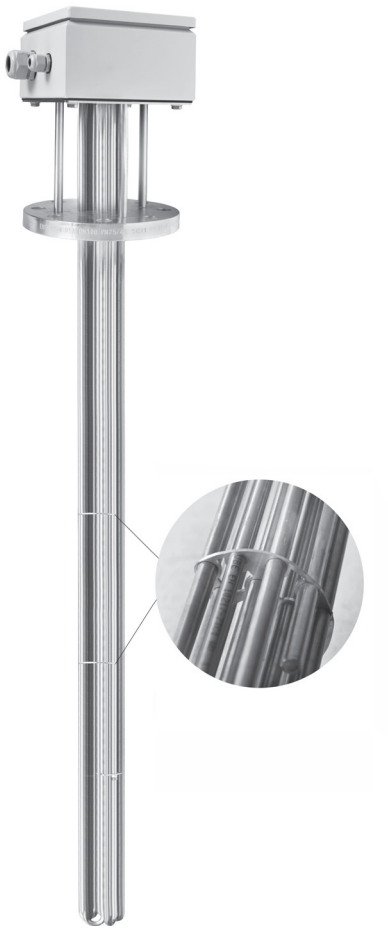
Heating unit ZGR

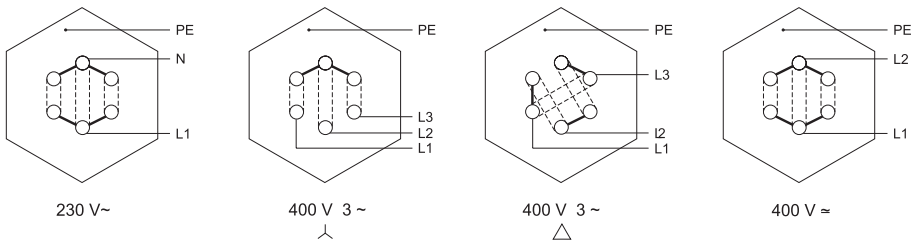
Technical description

Characteristic
– compact housing – high efficiency – mounting with: flange or thread – use of tubular heating element packages – degree of head protection: IP66 – the radiator can be extended with a thermostat
Application
Immersion heaters are used for: – hot watter installations – oil pre-heaitng – flow heaters – air heaters – pressure tanks



Power	(1,5 ÷ 40) kW
Voltage	230 V, 400 V, 3x400 V, other
Length [mm]	250÷4750
Diameter [mm]	ø6,5; 8,5; 10; 16 other
Material	steel: 1.4301, 1.4404, 1.4541, 1.4571, 1.4828, 1.4876, 2.4858, Cu
Connection head	steel, stainless steel, brass
Degree protection	IP66
Dead zone	100 mm
Thermostats	TR (regulation), STB (check)

Connection diagram



Ordering code

Heating unit	ZGR – ... – ... – ... / ... – ...
Diameter* [mm]	
Length* [mm]	
Power* [W]	
Voltage* [V]	
Connection type*: threaded flange	

* Acc. to requirements

Ordering example **Heating unit ZGR–6xø10x1695-6x6666W/400V**

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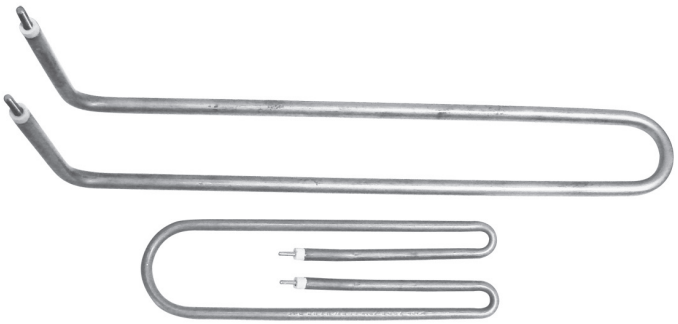
Tubular Heater GR

Technical description

Characteristic
– high and stable quality of electric parameters resulting from the central position of the heating coil – long life and stability of heater operating resulting from the use of homogeneous and dense insulation consisting of the highest quality magnesium oxide (MgO) as well as the use of the highest quality resistance wires; – high surface loading and high allowable surface temperature of the tube resulting from the application of the highest quality stainless steel tubes
Diameter tolerance
±0,1 mm



Standard diameters

ø [mm]	Tube material			Length [mm]
	copper	steel (C10,IF25)	stainless steel (AISI 321, AISI 316, Incoloy 800)	
6,4	+	+	+	200÷3300
6,9	–	–	+	200÷3300
8,0	+	–	–	200÷3100
8,5	+	+	+	200÷3400
10	–	–	+	200÷3400
10,2	–	–	+	200÷3400
13,0	–	–	+	200÷3600

Allowable operating temperature

Sheath material	Allowable operating temperature
A: alloy steel Cr-Ni (np. Incoloy 800)	max. 800 °C
B: alloy steel Cr-Ni (np. AISI-321)	max. 650 °C
C: chromium steel	max. 600 °C
D: carbon steel	max. 350 °C
E: aluminium	max. 300 °C
F: copper, brass	max. 250 °C

Recommended surface loading

Application	Tube material			
	copper	steel	alloy steel (AISI 321,AISI 316)	alloy steel (Incoloy 800)
Standing water	–	–	10	–
Moving water	–	–	14	–
Flowing water (flow heater)	–	–	25	–
Water (steam generator)	–	–	6	–
Thin oil	–	3,5	3,5	–
Thick oil	–	1,2	1,2	–
Special heating oil (heaters)	–	12	12	–
Still air	–	1,7	5	6
Moving air v=2 m/s	–	2	5,5	6,5
Moving air v=10 m/s	–	5	10	10

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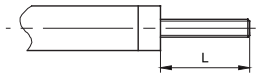
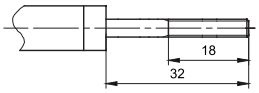
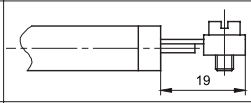
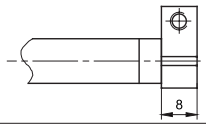
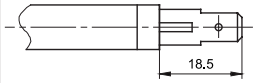
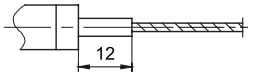
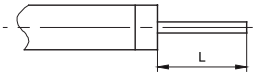
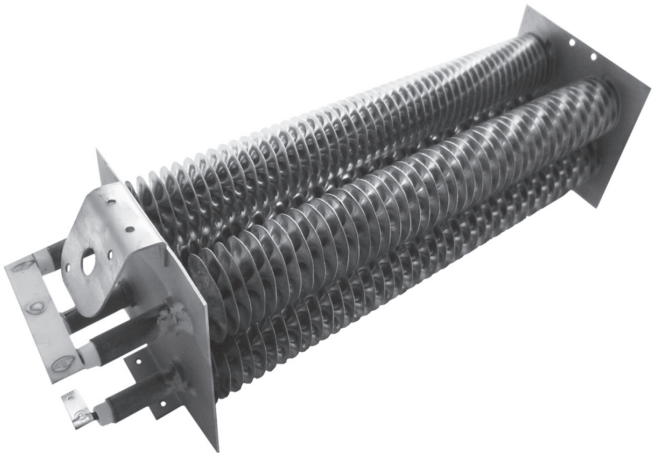
Termination types

Sign	Drawing	Description
A		threaded mandrel M4
B		threaded terminal M4
C		threaded terminal M4
D		threaded terminal M4
E		straight termination 6.3
F		sleeve and steel or copper stranded wire
G		mandrels (sealed heating elements)



Ordering code

Tubular heater	GR – ... – ... – ... / ... – ...
Diameter* [mm]	
Length* [mm]	
Power* [W]	
Voltage* [V]	
Termination types:	
threaded mandrel M4	A
threaded terminal M4	B
threaded terminal M4	C
threaded terminal M4	D
straight termination 6.3	E
sleeve and steel or copper stranded wire	F
mandrels (sealed heating elements)	G

* Acc. to requirements

Ordering example

Tubular heater GR–ø20–500–300W/230V–A–0–1,5m

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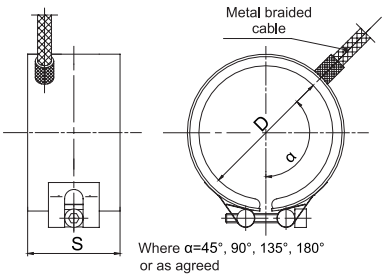
Band heating elements **GM, GC**

Technical description

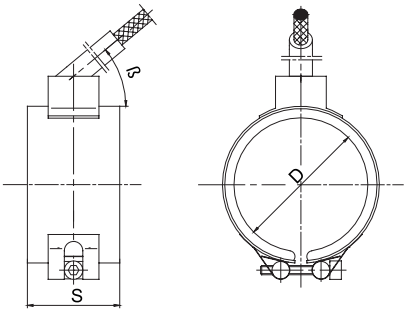
Characteristic
– material: micanite or ceramic – stainless steel sheath – high efficiency – long life
Application
Band heaters are used for heating: – industrial pipes – nozzles – film blowing machines – packing machines; injection moulding machine; excruders

Parameters	In micanite insulation	In ceramic insulation
Heater diameter [mm]	ø25÷1000	ø50÷1500
Width [mm]	25÷1000	40÷1000
Thickness [mm]	3,5÷4	12÷32
Supply voltage	24 V; 48 V; 220 V; 230 V; 380 V; 3x380 V; 400 V; 3x400 V; other	
Surface loading	4,5 W/cm²	7 W/cm²
Max. temperature	450 °C	550 °C
Allowable temperature	500 °C during good heat dissipation	600 °C during good heat dissipation
Housing	steel Cr-Ni (AISI 321), mosiądz	stal Cr-Ni (AISI 321)
Components additional	– an adiabatic sheath holding heat radiation outside (of 25%) – possibility for applying thermocouple J, K, T – hermetic termination – type and way of power supply connections acc. to the figures or requirements	– an adiabatic sheath holding heat radiation outside (of 25%) – possibility for applying thermocouple J, K, T – type and way of power supply connections acc. to the figures or requirements

Type **A**



Type **B**



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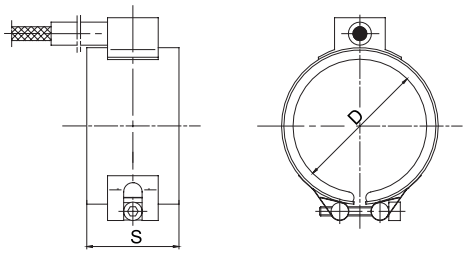
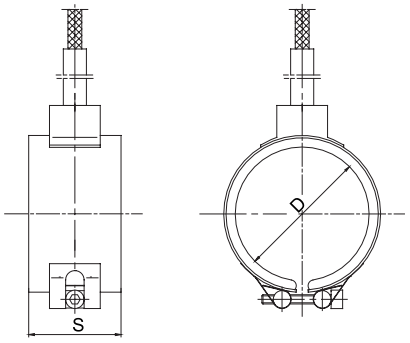
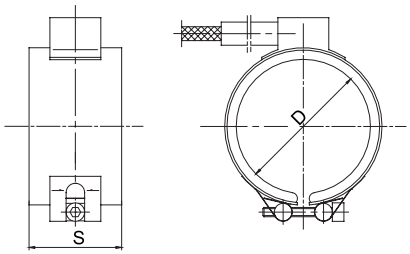
Type **C**



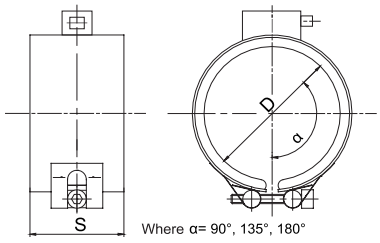
Type **D**



Type **E**

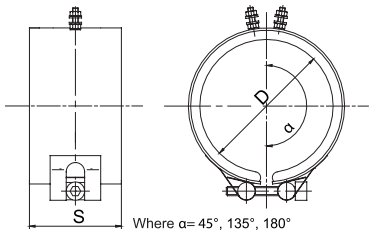


Type **F**



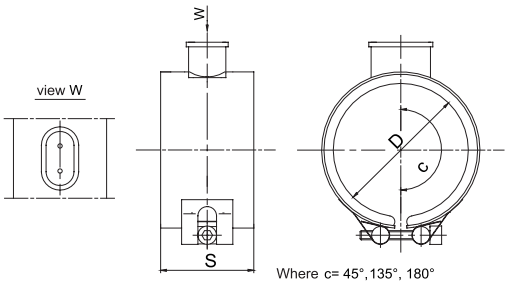
Where α= 90°, 135°, 180°

Type **G**



Where α= 45°, 135°, 180°

Type **H**



Where c= 45°,135°, 180°

Ordering code

Band heating	**... – ... – ... – ... / ... – ... – ... – ...**
Type: micanite ceramics	 **GM** **GC**
Diameter* [mm]	
Width* [mm]	
Power* [W]	
Voltage* [V]	
Termination type: directly form the heater in overbraid axial (angle 3-70º) axial fl at radial tangent flat with block screw: M5 plug	 **A** **B** **C** **D** **E** **F** **G** **H**
Lead wire protection: none adiabatic sheath	 **0** **OS**
Lead wire length [m]	

* Acc. to requirements

Ordering example **Band heating GM–ø100–200–3000W/230V–A–0–1,5m**

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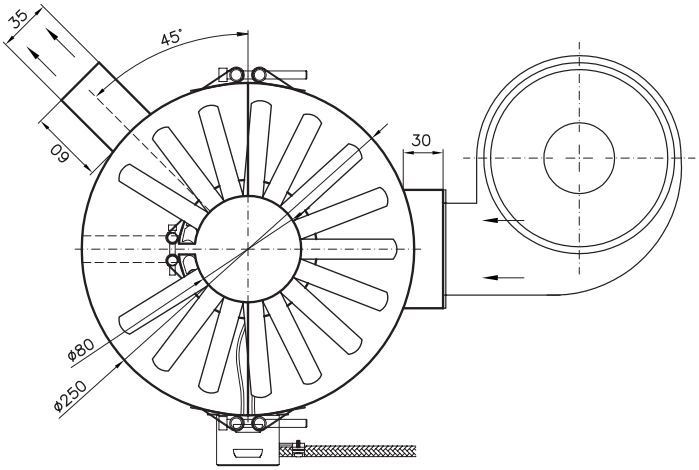
Heating and cooling units **ZGH**

Technical description

Characteristic
– compact design – replaceable heating inserts equipped with brass / steel heat sinks – built-in fan improving thermodynamic properties heater
Application
Heating and cooling units are used in: – extruder cylinders

Power	(100 ÷ 10000) W
Voltage	230 V; 380 V; 3x380 V; 400 V
Length [mm]	100÷4000
Diameter [mm]	ø16, 32, 36, 45, 50, inna
Max. surface loading	7 W/cm^2



Ordering code

Heating and cooling unit	ZGH – ... – ... – ... / ... – ... – ...
Diameter* [mm]	
Width* [mm]	
Power* [W]	
Voltage* [V]	
Type of current leads*: with block screw: M5 wire	 A B C
Fan:	230 V, 400 V*

* Acc. to requirements

Ordering example **Heating and cooling unit ZGH–ø170–300–3000W/400V–A**

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Infrared radiators **FSR, HTS, IOT, SHTS, QP-1/QP-2**

Technical description

Characteristic
– material: refractory ceramics with enamel coating ceramic – quartz tubes with resistance wire – KANTHAL spiral material – use of the phenomenon of temperature radiation in the range of 2 µm to 10 µm for ceramic radiators and 1.3 µm to 3 µm for quartz radiators – achievement max. power 30 s after switching on – high corrosion tolerance – possibility of installing an additional sensor – low temperature interia
Application
Infrared radiators are used in: – plastic industry – food industry – paper and textile industry – medical technology – surface technology

Type	Power [W]								
QP-1, QP-2	100	150	200	250	300	400	500	650	1000
QP-½	50	75	100	125	150	200	250	325	500
QP-¼	25	38	50	63	75	100	125	163	250

Type	FSR				FSR/2				FSR/4			
Dimensions [mm]	245x60				122x60				60x60			
Power of element [W]	250	400	650	1000	125	200	325	500	60	100	200	250
Operating temp. [°C]	400	500	620	730	400	500	620	730	400	500	620	730
Max. op. temp. [°C]	550	600	700	750	550	600	700	750	550	600	700	750
Max. surface loading [W/cm²]	1,6	2,56	4,16	6,4	1,6	2,56	4,16	6,4	1,6	2,56	4,16	6,4

Type	HTS HTS/1					HTS/2					HTS/4				
Dimensions [mm]	122x122 122x60					122x60					60x60				
Power of element [W]	250	400	600	800	1000	125	200	300	400	500	60	100	150	200	250
Operating temp. [°C]	450	570	700	810	900	450	570	700	810	900	450	570	700	810	900
Max. op. temp. [°C]	700	750	800	850	900	700	750	800	850	900	700	750	800	850	900
Max. surface loading [W/cm²]	1,6	2,56	3,84	5,12	6,4	1,6	2,56	3,84	5,12	6,4	1,6	2,56	3,84	5,12	6,4

Ordering code

Infrared radiator	... – ... – ... – ...
Type: standard 750 °C insulated 900 °C with bulb thread 530 °C with increased load capacity up to 77 kW/m² quartz heaters	 **FSR** **HTS** **IOT** **SHTS** **QP-1/QP-2..**
Length* [mm]	
Width* [mm]	
Power* [W]	

* Acc. to requirements

Ordering example

Infrared radiator FSR–245–60–400W

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Drum heaters **EOZ**

Technical description

Characteristic
– material: fiberglass or silicone – built-in control system ensuring optimal parameters – clamps for quick assembly and disassembly of the heater

(0 ÷ 90) ºC

(0 ÷ 200) ºC

Thermostat range	(0 ÷ 90) ºC, (0 ÷ 200) ºC
Protection degree	IP40
Heating time	~ 48 hour (200 l water, 15 up to 60 ºC, heater with 530 W power)
Power cord	3 m
Standard sizes [L]	25, 50, 105, 200

No. of element	Tank [L]	Size [mm]	Rated data	
1-9858	200	1990x800	230 V	1200 W
1-9858A	200	1900x800	110 V	1200 W
11-9859	200	1990x450	230 V	530 W
11-9859A	200	1990x450	110 V	530 W
11-9856B	105	1650x370	230 V	400 W
11-9857	50-60	1330x460	230 V	300 W
11-9857A	50-60	1330x460	110 V	300 W
11-9856	25-30	1200x400	230 V	225 W
11-9856A	25-30	1200x400	110 V	225 W

Ordering code

Drum heater	EOZ – ... – ... – ... / ...
Thermostat (0 ÷ 90) ºC (0 ÷ 200) ºC	 **90** **200**
Size* [mm]	
Power* [W]	
Voltage* [V]	

* Acc. to requirements

Ordering example

Drum heater EOZ–200–1990x800–1200W/230V

B

portable meters
temperature and humidity

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Multifunction Installation Tester **DT-6650**

Technical description

Characteristic
– 3.5" TFT color LCD display with 320x240 pixels – fast high current loop test – high accuracy of measurements – variable RCD current mode for customized settings – PASS/FAIL indication for RCD tests – select voltage measurement between L-N, L-PE and N-PE – support SD memory and USB and Bluetooth interface – internal memory – safe Earth Volt Touchpad detects raised earth voltages >50 V, indicating potential dangerous situations – slim probes designed with test button – For easy, always reliable and accurate compensation of test leads and mains cords – size (H x W x D): 220mm x 96.5mm x 60.5mm – weight: 631g
Compatibility with safety standards
– EN 61326 – EN 61010-1 – EN 61010-02-031
Accessories
– gift box with carrying case – USB cable and Software – 8 x1.5V“AAA” batteries – test leads – isolation resistance test leads – test lead terminated in a plug into the socket – mini USB communication cable – 12 V DC car power cable (to the cigarette lighter) – 15 V DC 1.3 A power supply with a set of 230 V adapters – CD with Meterbox software – 4 GB memory card – calibration certificate

Functions	Range	Resolution	Accuracy
Voltage	(80 ÷ 500) V AC/DC	1 V	±2% ±2 digits
Frequency	(45 ÷ 400) Hz	1 Hz	±2 Hz
LOOP Resistance	(0,00 ÷ 999) Ω	(0,01 ÷ 1) Ω	±4% ±4 digits
Insulation resistance	(0,125 ÷ 1,000) MΩ	(0,001 ÷ 1) MΩ	±3% ±2 digits
Low Ohm	(0 ÷ 2000) Ω	(0,001 ÷ 1) Ω	±1,5% ±3 digits
Grounding resistance	(0 ÷ 2000) Ω	(0,001 ÷ 1) Ω	±2% ±6 digits
RCD	(10 ÷ 1000) mA (X½ ÷ X5)	0,1 mA 0,1 ms	±5% ±1 digits ±1% ±1 ms

Ordering example **Multifunction Installation Tester DT-6650**

Voltage/Current calibrator **DT-925**

Technical description

Characteristic
– display resolution 0,01 mA – LCD display with backlight – adjustable current source (0 ÷ 24) mA – adjustable voltage source (-199,9 ÷ 199,9) mV DC – sampling time 0,4 s – function - HOLD – the instrument measures a two-wire current loop
Accessories
– test leads – 9V battery – gift box with carrying case

Functions	Range	Resolution	Accuracy
Current measurement with loop power supply	(0 ÷ 19) mA	0,01 mA	±0,25%
	(0 ÷ 24) mA	0,1 mA	±0,5%
Loop power generated 12 V DC ±2 V			
Current measurement	(0 ÷ 19) mA	0,01 mA	±0,25%
	(0 ÷ 24) mA	0,1 mA	±0,5%
Current source	(0 ÷ 19) mA	0,01 mA	±0,25%
	(0 ÷ 24) mA	0,1 mA	±0,5%
	Range (0 ÷ 20) mA - max. loop resistance 400 Ω Range (0 ÷ 24) mA - max. loop resistance 500 Ω		
Voltage source	(-199,9 ÷ 199,9) mV	0,1 mV	±0,25%
Loop resistance ~1 kΩ			
Dimensions [mm]	150x70x40		
Weight [g]	236		

Ordering example **Voltage/Current calibrator DT-925**

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Multimeter **DT-9929/9939**

Technical description

Characteristic
– display resolution (0,01 mV, 0,01 µA, 0,01 Ω) – triple LCD display with bargraph & Backlit – AC+DC Measurement – 9999 Readings memories – True RMS measurement & Peak capture mode – 1000V input protection on all ranges – 4-20mA process loop measurements with % reading – Data Hold/MAX/MIN recording mode – IP67 Waterproof and Auto Power Off – wide capacitance range – Wireless USB interface (only DT-9939) – size (H x W x D): 183mm x 82mm x 55mm – weight: 447g
Compatibility with safety standards
– EN 61010-1 CAT IV 600 V, CAT III 1000 V – 1000V input protection on all ranges – 10 A/1000 V and 0,5 A/1000 V fuses protection on current ranges
Accessories
– test leads – 9V battery – type K temperature probe – gift box with carrying case – USB cable and Software (9939)

Functions	Range	Resolution	Accuracy
Voltage DC	400 mV 4 V 40 V 400 V 1000 V	0,01 mV 0,0001 V 0,001 V 0,01 V 0,1 V	±0,06%
Voltage AC (AC+DC)	– 400 mV 4 V 40 V 400 V 1000 V	– 0,01 mV 0,0001 V 0,001 V 0,01 V 0,1 V	(50 ÷ 1000) Hz ±1,0%
Current DC	400 µA 4000 µA 40 mA 400 mA 10 A	0,01 µA 0,1 µA 0,001 mA 0,01 mA 0,001 A	±1,0%
20 A: 30 s max with limited accuracy			
Current AC (AC+DC)	– 400 µA 4000 µA 40 mA 400 mA 10 A	– 0,01 µA 0,1 µA 0,001 mA 0,01 mA 0,001 A	(50 ÷ 1000) Hz ±1,5%
20 A: 30 s max with limited accuracy			

Functions	Range	Resolution	Accuracy
Resistance	400 Ω	0,01 Ω	±0,3%
	4 kΩ 40 kΩ 400 kΩ 4 MΩ	0,0001 kΩ 0,001 kΩ 0,01 kΩ 0,1 MΩ	±0,3%
	40 MΩ	0,001MΩ	±2,0%
Capacity	40 nF 400 nF	0,001 nF 0,01 nF	±3,5%
	4 µF 40 µF 400 µF	0,0001 µF 0,001 µF 0,01 µF	±3,5%
	4000 µF 40 mF	0,1 µF 0,001 mF	±5,0%
Frequency (electronic)	40 Hz 400 Hz 4 kHz 40 kHz 400 kHz 4 MHz 40 MHz	0,001 Hz 0,01 Hz 0,0001 kHz 0,001 kHz 0,01 kHz 0,0001 MHz 0,001 MHz	±0,1%
	100 MHz	0,01 MHz	–
Frequency (electronic)	40 Hz 10 kHz	0,01 Hz 0,001 kHz	±0,5%
Temperature	1200 °C	0,1 °C	±1,0%
Duty ratio	99,9%	0,01%	±1,2%
Diode check and continuity test	YES		
Dimensions [mm]	183x82x55		
Weight [g]	447		

Ordering example

Multimeter DT-9929
Multimeter DT-9939 (with USB cable)

Clamp meter **DT-362**

Technical description

Characteristic
– LCD display with backlight – non-contact voltage detector – AC and DC current measurement up to 400 A – AC and DC voltage measurement up to 600 V – low battery indication – automatic or manual change of measuring ranges – Data Hold and Auto Power Off functions – double molded plastic housing
Compatibility with safety standards
– EN 61010-1 CAT III 600 V
Accessories
– test leads – 9V battery – type K temperature probe – gift box with carrying case

Functions	Range	Accuracy
Voltage DC	400,0 mV	±0,8%
	4,000 V 40,00 V 400,0 V	±1,5%
	600,0 V	±2,0%
Voltage AC	400,0 mV	±1,5%
	4,000 V 40,00 V 400,0 V	±1,5%
	600,0 V	±2,0%
Current DC	40,00 A	±2,5%
	400,0 A	±2,8%
Current AC	40,00 A	±2,5%
	400,0 A	±2,8%
Resistance	400,0 Ω	±1,0%
	4,000 kΩ 40,00 kΩ 400,0 kΩ	±1,5%
	4,000 MΩ	±2,5%
	40,00 MΩ	±3,5%

Functions	Range	Accuracy
Capacity	40,00 nF	±1,0%
	400,0 nF 4,000 µF 40,00 µF	±3,0%
	4000 µF	±4,0%
Frequency	10 kHZ	±1,5%
Temperature	(-20 ÷ 760) °C	±3,0%
Jaw opening	1,2” (30 mm)	
Diode check and continuity test	YES	
Dimensions [mm]	197x70x40	
Weight [g]	183	

Ordering example **Clamp meter DT-362**

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Portable temperature meter **DT-3610B**

Technical description

Characteristic
– measuring input for thermocouples type J and K – adjustable offset for compensation measuring probes errors – measurment in °C, °F, K – reading values: MIN, MAX, AVG – displaying the actual measurement time in the AVG function – displaying the time of MIN / MAX value occurrence – Data Hold and Auto Power Off functions – large LCD display with backlight – two K-type probes included – USB interface
Measurement range
(-200 ÷ 1372) °C for K-type (-210 ÷ 1100) °C for J-type
Accuracy
0,15% range (>100 °C) 0,5% range (<100 °C)
Resolution
0,1 °C - measurement (<1000 °C, °F, K) 1 °C - measurement (>1000 °C, °F, K)
Operating conditions
– temperature: (0 ÷ 50) °C – humidity: <80% RH without condensation

Ordering example **Portable temperature meter DT-3610B**

Portable temperature meter **DT-3630**

Dane techniczne

Characteristic
– double measuring inputs for type-J and type-K thermocouples – adjustable offset for compensation measuring probes errors – measurment in °C, °F, K – Scan Function (T1, T2, T1-T2) – reading values: MIN, MAX, AVG – displaying the actual measurement time in the AVG function – displaying the time of MIN / MAX value occurrence – Data Hold and Auto Power Off functions – large LCD display with backlight – two K-type probes included
Measurement range
(-200 ÷ 1372) °C for K-type (-210 ÷ 1100) °C for J-type
Accuracy
0,15% range for T1, T2 (>100 °C) 0,5% range for T1, T2 (<100 °C) 0,5% range for T1, T2
Resolution
0,1 °C - measurement (<1000 °C, °F, K) 1 °C - measurement (>1000 °C, °F, K)
Operating conditions
– temperature: (0 ÷ 50) °C – humidity: <80% RH without condensation

Ordering example **Portable temperature meter DT-3630**

Portable temperature meter **TES-1304**

Technical description

Characteristic
– single thermocouple input (type: K, J, T, E) – single measurement and temperature difference – thermal printer with time programming – LCD display 4½ digits – measuring probes - page: 28-29
Measuring range
(-200 ÷ 1333) ºC for K (-200 ÷ 760) ºC for J (-200 ÷ 700) ºC for E (-200 ÷ 400) ºC for T
Accuracy
Type K: (0.01%rdg+0.5°C) (0÷982°C) Type J: (0.01%rdg+0.5°C) (0÷760°C) Type E: (0.01%rdg+0.5°C) (0÷703°C) Type T: (0.01%rdg+0.5°C) (0÷400°C) Type K, J, E, T: (0.5%rdg+0.7°C) (-200÷0°C)
Resolution
0,1 °C / 0,1 °F
Power source
– battery (6x AAA 1,5 V)
Operating conditions
– temperature: (0 ÷ 50) °C – humidity: <90% RH without condensation

Ordering example **Portable temperature meter TES-1304**

Portable temperature meter **TES-1307**

Dane techniczne

Characteristic
– K/J Type thermocouple input – auto ranging – dual display LCD – 8000 Record Data logging Capacity – Maximum / Minimum / Average reading – relative reading – RS-232 interface
Measuring range
(-150 ÷ 1333) ºC for type-K (-190 ÷ 760) ºC for type-J
Accuracy
±0,1 ºC: for (-200 ÷ 200) ºC 1 ºC: for (200 ÷ 1370) ºC
Resolution
0,1 °C, (-199 ÷ 1000) °C; 1 °C, (1000 ÷ 1333) °C
Operating conditions
– temperature: (0 ÷ 40) ºC – humidity: <80% RH without condensation

Ordering example **Portable temperature meter TES-1307**

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Portable temperature meter **TES-1311, TES-1312**

Technical description

Characteristic
– input for type-K thermocouple – Data hold function. – MAX / MIN / AVG function. – Offset function. – Auto power off function. – Memory and Read function. (1311)
Measuring range
(-50 ÷ 1300) ºC
Accuracy
TES-1311: ±0,1% rdg +1 ºC for (-50 ÷ 1350) ºC TES-1312: ±0,3% rdg +1 ºC for (-50 ÷ 350) ºC ±0,5% rdg +1 ºC for (350 ÷ 1000) ºC, (1000 ÷ 1350) ºC
Resolution
0,1 ºC: for (-50 ÷ 199,9) ºC 1 ºC: for (-50 ÷ 1350) ºC
Input
– single TES-1311 dual TES-1312
Power source
– battery (6x AAA 1,5 V)
Operating conditions
– temperature: (0 ÷ 40) ºC – humidity: <80% RH without condensation

Ordering example **Portable temperature meter TES-1311**

Portable temperature meter **TES-1314**

Dane techniczne

Characteristic
– single input, K/J/E/T/R/N/S type thermocouple – LCD display with backlight – alarm function – measuring probes - page: 28-29
Measuring range
(-150 ÷ 1370) ºC for K (-150 ÷ 1090) ºC for J (-150 ÷ 870) ºC for E (-150 ÷ 400) ºC for T (0 ÷ 1760) ºC for R (-150 ÷ 1300) ºC for N
Accuracy
0,1% rdg ±1 °C - for temperatures up to 1000 °C
Resolution
0,1 ºC for J, K, T, E, N 1 ºC > 200 ºC for S, R
Power source
– battery (6x AAA 1,5 V)
Operating conditions
– temperature: (0 ÷ 40) ºC – humidity: <80% RH without condensation

Ordering example **Portable temperature meter TES-1314**

Portable temperature meter **TES-1315, TES-1316**

Technical description

Characteristic
– K/J/E/T/R/N/S type thermocouple input – internal storage: 7500 readings – LCD display with backlight – measuring probes - page: 28-29
Measuring range
(-150 ÷ 1370) ºC for K (-150 ÷ 1090) ºC for J (-150 ÷ 870) ºC for E (-150 ÷ 400) ºC for T (-2 ÷ 1767) ºC for R, S (-150 ÷ 1300) ºC for N
Accuracy
±0,05% rdg +0,5 °C for J, K, T, E, N ±0,05% rdg +2 °C for R, S
Resolution
0,1 ºC for J, K, T, E, N 1 ºC for S, R
Input
– single TES-1315 dual TES-1316
Power source
– battery (6x AAA 1,5 V)
Operating conditions
– temperature: (0 ÷ 50) °C – humidity: <90% RH without condensation

Ordering example **Portable temperature meter TES-1316**

Portable temperature meter **TES-1318**

Dane techniczne

Characteristic
– dual input, Pt100, 3-wire – double measurment TES-1318 – LCD display with backlight – MAX / MIN with TIME, MAX-MIN AVG Hold function. – measuring probes - page: 28-29
Measuring range
(-190 ÷ 790) ºC
Accuracy
±0,05% rdg +0,5 ºC
Resolution
0,1 ºC
Power source
– battery (6x AAA 1,5 V)
Operating conditions
– temperature: (0 ÷ 50) °C – humidity: <80% RH without condensation

Ordering example **Portable temperature meter TES-1318**

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Portable temperature meter **TES-1317, TES-1317R**

Technical description

Characteristic
– single input, Pt100 sensor, 3-wire – resolution 0,1 ºC – LCD display 4½ digits – measuring probes - page: 28-29
Measuring range
(-200 ÷ 800) ºC
Accuracy
±0,05% rdg +0,5 ºC
Resolution
0,1 ºC
Power source
– battery (6x AAA 1,5 V)
Operating conditions
– temperature: (0 ÷ 40) ºC – humidity: <80% RH without condensation
Additional functions
– 4200 records (TES-1317R)

Ordering example **Portable temperature meter TES-1317**

Portable temperature meter **TES-1319**

Dane techniczne

Characteristic
– single input for type-K thermocouple – MIN, MAX, HOLD function – registration function – sampling time 2 times per second
Measuring range
(-50 ÷ 1350) ºC
Accuracy
±0,5% rdg ±1 ºC; (-50 ÷ 0) ºC and (1000 ÷ 1300) ºC ±0,3% rdg ±1 ºC; (0 ÷ 1000) ºC
Resolution
0,1 ºC / 1 ºC
Power source
– battery (6x AAA 1,5 V)
Operating conditions
– temperature: (0 ÷ 40) ºC – humidity: <80% RH without condensation

Ordering example **Portable temperature meter TES-1319**

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Probe **NR-33**

Technical description

Characteristic
– touch angle probe – measuring head cover attached to the cable – measuring range: (-50 ÷ 450) °C – measuring probe: ø6 mm, L=205x50 mm – coiled cord with length [m]: od 0,5÷1,5 max. – cable with PVC instulation Yc – type-K mini plug termination – PVC handle

Ordering example **Probe NR-33**

Probe **NR-34A**

Dane techniczne

Characteristic
– sharpened straight probe – measuring range: (-50 ÷ 450) °C – measuring probe: ø5 mm, L=185 mm – coiled cord with length [m]: od 0,5÷1,5 max. – cable with PVC instulation Yc – type-K mini plug termination – PVC handle

Ordering example **Probe NR-34A**

Probe **TP-300**

Dane techniczne

Characteristic
– straight probe with exposed hot junction – measuring range: (-50 ÷ 450) °C – fiberglass insulated cable Ws – wire length [m]: 1,3 – type-K mini plug termination

Ordering example **Probe TP-300**

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Measuring probes for portable meters **PTR-24**

Technical description

Measuring range / **processing element**		
(-40 ÷ 400) ºC	**K**	class 2
Weld type		
– SE - exposed / surface measurement		
Wire length		
1,5 m (standard) or other*		
Sheath		
– diameter [mm]: ø15 – length [mm]: 100÷1000		

Ordering code

Measuring probe	PTR-24 – ... – ...
Length: straight L [mm] angular LxL_1 [mm]	 100* 100x50*
Wire length [m]	1,5m*

* Acc. to requirements

Ordering example

Measuring probe PTR-24÷200–1,5m

Measuring probes for portable meters **PTR-1, PTR-2, PTR-3**

Dane techniczne

Measuring range / **processing element**		
(-40 ÷ 400) ºC	**Pt100**	class B
(-40 ÷ 1200) ºC	**K**	class 2
(-40 ÷ 700) ºC	**J**	class 2
Weld type		
– SO - a weld isolated from the sheath is recommended (PTR-2, 3)		
Wire length		
1,5 m (standard) or other*		
Sheath		
– mineral insulated: stal 1.4541 for J i Pt100 – mineral insulated: Inconel 600 for K – diameter d (mm): ø3; 4,5; 6 dla J, K – diameter d (mm): ø3, 6 dla Pt100		

Ordering code

Measuring probe	PTR – ... – ... – ... – ... – ... – ... – ... – ...
Resistor Pt100 Thermocouple Fe-CuNi Thermocouple NiCr-Ni	1 2 3
Sheath diameter [mm]	dx10
Thermocouple class	A, B*/1, 2
Weld type for TC	SO, SP
RTD measuring circuit	2, 3, 4
Sensor length L [mm]	100*
Wire length [m]	1,5m*
Additional accessories: mini plug	W

* Acc. to requirements

Ordering example

Measuring probe PTR–3–30–1–SO–200–1,5m–W

Portable temperature meter **P300 with probe**

Technical description

Characteristic
– NTC input (thermistor) – splashing water proof (IP54) – LCD display with backlight – MIN, MAX, HOLD function – integrated probe holder – measuring probe: ø3,5 mm, L=120 mm, wire length: 1,3 m
Measuring range
(-40 ÷ 200) ºC
Accuracy
±0,5 ºC for (0 ÷ 100) ºC ±1 ºC remaining range
Resolution
0,1 ºC
Power source
– battery (2x AA 1,5 V)
Operating conditions
– temperature: (0 ÷ 50) ºC – humidity: <90% RH without condensation

Ordering example **Portable temperature meter P300**

Portable precision temperature meters **P400/P410 without probe**

Dane techniczne

Characteristic
– input Pt100 (P400); K (P410) – MIN, MAX, AVG, HOLD function – RS232 interface
Measuring range
(-99,9 ÷ 850) ºC for Pt100 (-99,9 ÷ 1370) ºC for K
Accuracy
±0,3 ºC for Pt100 (device accuracy) ±0,5 ºC for K (device accuracy)
Resolution
0,1 ºC, from (-99,9 ÷ 399,9) ºC 1 ºC: remaining range
Input
– single Pt100 (P400); single K (P410)
Power source
– battery (2x AA 1,5 V)
Operating conditions
– temperature: (0 ÷ 50) ºC – humidity: <90% RH without condensation
Additional functions
– PC software – plastic case

Ordering example **Portable precision temperature meter P400**

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Portable humidity and temperature meter **P470**

Technical description

Characteristic
– humidity and temperature measurement – simultaneous display of two measured values – integrated sensor holder for one hand operation – high measuring accuracy – USB Interface – optional SmartGraph software
Measuring range
– temperature: (-40 ÷ 70) °C – humidity: (0 ÷ 100) % RH
Accuracy
– temperature: ±0,5 ºC – humidity: ±2% (10 ÷ 90) % RH – humidity: ±3% RH remaining range
Housing
– ABS material
Power source
– battery (2x AA 1,5 V)
Operating conditions
– temperature: (-20 ÷ 50) ºC – humidity: (10 ÷ 90) % RH without condensation

Ordering example **Portable humidity and temperature meter P470**

Portable multimeter **Omniport 30**

Technical description

Characteristic
– relative humidity (RH) – temperature (T) – dew point temperature (Td) – air velocity (v) – air pressure (p) – absolute humidity (dv) – mixing ratio (r) – volumetric flow (V̇)
Measuring range
– probe RH and T, ø12x100 mm, (0 ÷ 100) %, (-20 ÷ 70) °C – probe RH and T, ø12x250 mm, (0 ÷ 100) %, (-40 ÷ 180) °C – probe RH and T, ø4x250 mm, (0 ÷ 100) %, (-40 ÷ 100) °C – probe V and T, ø6x200 mm, (0 ÷ 2) m/s, (-20 ÷ 70) °C – probe V and T, ø6x200 mm, (0 ÷ 20) m/s, (-20 ÷ 70) °C – probe V and T, ø12x200 mm, (0 ÷ 20) m/s, (0 ÷ 50) °C – oil water content probe, ø12x200, ½" ISO, (0 ÷ 1) aw, (0 ÷ 20000) ppm, (-40 ÷ 120) °C
Accuracy
±2%
Power source
4 x battery (AA/1,5 V)
Housing
– ABS/IP40

Ordering example **Portable multimeter Omniport30**

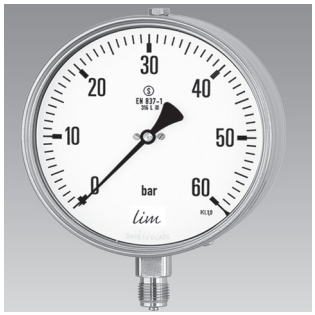
Portable humidity and temperature meter **XC200**

Dane techniczne

Characteristic
– stosunek zmieszania – air temperature – dew point temperature – absolute humidity – relative humidity
Measuring range
– temperature: (-20 ÷ 50) °C – humidity: (0 ÷ 100) % RH
Accuracy
±2% ±0,2 °C (0 ÷ 40 °C) remaining range ±0,4 °C
Power source
4 x battery (AA/1,5 V) via USB interface (5 V DC)

Ordering example **Portable humidity and temperature meter XC200**

C



manometers,
pressure transmitters

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Standard Bourdon tube manometers **MB-P-Cu, MB-SW-Cu**

Technical description

Characteristic
− measurement of liquid and gas pressure − measurement of non-aggressive media − different housing diameters − carbon steel or plastic housing
Measuring range according to 837.1
(0 ÷ 0,6) up to (0 ÷ 400) bar
Housing
− material: plastic; dimensions [mm]: ø40, 50, 63 − material: carbon steel; dimension [mm]: ø100, 150
Housing protection degree (EN60529/IEC929)
IP54 - without filling IP65 - with filling and adapted for filling
Elements in contact with the medium
− brass, copper
Process connection type
G¼; M12x1,5 (ø40, 50, 63 mm) G½; M20x1,5 (ø100, 150 mm)
Accuracy class
1,6% (ø63, 100,150 mm)
Temperature of the medium
max. 60 ºC
Environment temperature
(-40 ÷ 60) ºC

Ordering code

Manometer	MB − ... − Cu − 0 − ... − ... − ... − ... − ...
Housing: plastic carbon steel	 **P** **SW**
Element in contact with the medium: copper	
Fill: none	
Housing diameter	**40, 50, 63, 100, 150**
Thread for: ø40, 50, 63 mm Thread for: ø100, 150 mm	**G¼; M20x1,5** **G½; M20x1,5**
Radial connection Rear connection	**R** **T**
Range [bar]	**(-1÷0)** **(0÷0,6)** **(0÷1)** **(0÷1,6)** **(0÷2,5)** **(0÷4)** **(0÷6)** **(0÷10)** **(0÷16)** **(0÷25)** **(0÷40)** **(0÷60)** **(0÷100)** **(0÷160)** **(0÷250)** **(0÷400)**
Accuracy class	**1,6%**

Ordering example **Manometer MB-P-Cu−0−63−G¼−R−(0÷6)−1,6%**

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Industrial Bourdon tube manometer **MB-SN-Cu-0, MB-SNg-Cu-0**

Technical description

Characteristic
− measurement of liquid and gas pressure − measurement of non-aggressive media − different housing diameters − stainless steel housing
Measuring range according to 837.1
(0 ÷ 0,6) up to (0 ÷ 600) bar (ø63, 100, 160, 250 mm)
Housing
− material: stainless steel 304 (1.4301) – version: rear (T), radial (R), panel mounting (Fr), u-clamp (BFr), wall mounting (Rh)
Housing protection degree (EN60529/IEC929)
IP54 - without filling IP65 - with filling and adapted for filling
Elements in contact with the medium
− brass, copper
Process connection type
G¼; M12x1,5 (ø63 mm) G½; M20x1,5 (ø100, 160, 250 mm)
Accuracy class
1,0% (ø100, 160, 250 mm) 1,6% (ø63 mm)
Temperature of the medium
max. 100 ºC
Environment temperature
(-40 ÷ 60) ºC
Additional accessories
– alarm contacts – version for refrigeration systems – other types of process connections

Ordering code

Manometer	MB – ... – Cu – 0 – ... – ... – ... – ... – ... – ... – ...
Housing type: disassembled rolled down	 SN SNg
Connection material: brass	
Fill: none	
Housing diameter	63, 100, 160, 250
Thread for: ø63 mm Thread for: ø100, 160, 250 mm	G¼; M12x1,5 G½; M20x1,5
Radial connection Rear connection	R T
Range [bar]	(-1÷0) (-1÷0,6) (-1÷1,5) (-1÷3) (-1÷5) (-1÷9) (-1÷15) (0÷0,6) (0÷1) (0÷1,6) (0÷2,5) (0÷4) (0÷6) (0÷10) (0÷16) (0÷25) (0÷40) (0÷60) (0÷100) (0÷160) (0÷250) (0÷400) (0÷600) (0÷1000)
Accuracy class	1,0%; 1,6%
Housing types	Rh, Fr, BFr

Ordering example **Manometer MB-SN-Cu-0–100–G½–R–(0÷10)–1,0%–Fr**

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Shockproof Bourdon tube manometer **MB-SN-Cu-G, MB-SNg-Cu-G**

Technical description

Characteristic
– measurement of liquid and gas pressure – pressure measurement in case of vibration – housing IP65 – glycerin filling – high quality
Measuring range according to 837.1
(0 ÷ 600) bar (ø63 mm) (0 ÷ 0,6) up to (0 ÷ 1000) bar (ø100, 160, 250 mm)
Housing
– material: stainless steel (ø63, 100, 160, 250 mm) – version: rear (T), radial (R), panel mounting (Fr), u-clamp (BFr), wall mounting (Rh)
Housing protection degree (EN60529/IEC929)
IP54 - without filling IP65 - with filling and adapted for filling
Elements in contact with the medium
– brass, copper
Process connection type
G¼; M12x1,5 (ø63 mm) G½; M20x1,5 (ø100, 160, 250 mm)
Accuracy class
1,0% (ø100, 160, 250 mm) 1,6% (ø63 mm)
Temperature of the medium
max. 100 ºC
Environment temperature
(-20 ÷ 60) ºC - glycerin filling

Ordering code

Manometer	MB – ... – Cu – G – ... – ... – ... – ... – ... – ... – ...
Housing type: disassembled rolled down	 SN SNg
Connection material: brass	
Fill: glycerin	
Housing diameter	63, 100, 160, 250
Thread for: ø63 mm Thread for: ø100, 160, 250 mm	 G¼; M12x1,5 G½; M20x1,5
Radial connection Rear connection	
Range [bar]	(-1÷0) (-1÷0,6) (-1÷1,5) (-1÷3) (-1÷5) (-1÷9) (-1÷15) (0÷0,6) (0÷1) (0÷1,6) (0÷2,5) (0÷4)
	R T (0÷6) (0÷10) (0÷16) (0÷25) (0÷40) (0÷60) (0÷100) (0÷160) (0÷250) (0÷400) (0÷600) (0÷1000)
Accuracy class	1,0%; 1,6%
Housing types	Rh, Fr, BFr

Ordering example **Manometer MB-SN-Cu-G–100–M20x1,5–R–(0÷2,5)–1,6%–Rh**

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Industrial stainless steel Bourdon tube manometer **MB-SN/SNg-SN-0, MB-SN/SNg-SN-G**

Technical description

Characteristic
– measurement of liquid and gas pressure – pressure measurement in case of vibration (filling version) – all stainless steel components – high quality
Measuring range according to 837.1
(0 ÷ 0,6) up to (0 ÷ 1000) bar (ø63 mm) (0 ÷ 0,6) up to (0 ÷ 1600) bar (ø100, 160, 250 mm)
Housing
– material: stainless steel 304 (1.4301) – version: rear (T), radial (R), panel mounting (Fr), u-clamp (BFr), wall mounting (Rh)
Housing protection degree (EN60529/IEC929)
IP54 - without filling IP65 - with filling and adapted for filling
Elements in contact with the medium
– 316Ti stainless steel (1.4571)
Process connection type
G¼; M12x1,5 (ø63 mm) G½; M20x1,5 (ø100, 160, 250 mm)
Accuracy class
1,0% (ø100, 160, 250 mm) acc. to EN837.1 1,6% (ø63 mm) acc. to EN837.1
Temperature of the medium
MB-SN-SN-0: max. 200 ºC MB-SN-SN-G: max. 100 ºC

Environment temperature
(-40 ÷ 60) ºC
Additional options
– output (4 ÷ 20) mA – alarm contacts – chemical separator – version for ammonia - temperature scale on the dial – version for oxygen - degreasing the measuring system – special type of the dial

Ordering code

Manometer	**MB – ... – SN – ... – ... – ... – ... – ... – ... – ... – ...**
Housing type: rozbieralna zawalcowana	**SN** **SNg**
Connection material: stainless steel	
Fill: none glycerin	**0** **G**
Housing diameter	**63, 100, 160, 250**
Thread for: ø63 mm Thread for: ø100, 160, 250 mm	**G¼; M12x1,5** **G½; M20x1,5**
Radial connection Rear connection	**R** **T**
Range [bar]	**(-1÷0) (-1÷0,6) (-1÷1,5) (-1÷3) (-1÷5) (-1÷9) (-1÷15) (0÷0,6) (0÷1) (0÷1,6) (0÷2,5) (0÷4) (0÷6) (0÷10) (0÷16) (0÷25) (0÷40) (0÷60) (0÷100) (0÷160) (0÷250) (0÷400) (0÷600) (0÷1000) (0÷1600)**
Accuracy class	**1,0%; 1,6%**
Housing types	**Rh, Fr, BFr**

Ordering example **Manometer MB-SN-SN-0–63–G¼–R–(0÷1)–1,6%BFr**

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Industrial Bourdon tube (safe) manometer **MB-SNB-SN/Cu-0, MB-SNB-SN/Cu-G**

Technical description

Characteristic
– made of solid stainless steel partition – measurement of liquid and gas pressure – pressure measurement in case of vibration (filling version) – safety glass
Measuring range according to 837.1
(0 ÷ 0,6) up to (0 ÷ 1000) bar (ø63 mm) (0 ÷ 0,6) up to (0 ÷ 1600) bar (ø100, 160 mm)
Housing
– material: stainless steel 304 (1.4301) – version: rear (T), radial (R), panel mounting (Fr), u-clamp (BFr), wall mounting (Rh)
Housing protection degree (EN60529/IEC929)
IP54 - without filling IP65 - with filling and adapted for filling
Elements in contact with the medium
– 316Ti stainless steel (1.4571) – brass
Process connection type
G¼; M12x1,5 (ø63 mm) G½; M20x1,5 (ø100, 160 mm)
Accuracy class
1,0% (ø100, 160 mm) acc. to EN837.1 1,6% (ø63 mm) acc. to EN837.1
Temperature of the medium
MB-SNB-SN/Cu-0: max. 200 ºC MB-SNB-SN/Cu-G: max. 100 ºC

Environment temperature
(-40 ÷ 60) ºC
Additional options
– output (4 ÷ 20) mA – alarm contacts – version for oxygen – mounting with chemical separators system

Ordering code

Manometer	MB – SNB – ... – ... – ... – ... – ... – ... – ... – ... – ...
Housing material: stainless steel	
Connection material: stainless steel brass	 **SN** **Cu**
Fill: none glycerin	**0** **G**
Housing diameter	**63, 100, 160**
Thread for: ø63 mm Thread for: ø100, 160 mm	**G¼; M12x1,5** **G½; M20x1,5**
Radial connection Rear connection	**R** **T**
Range [bar]	**(-1÷0) (-1÷0,6) (-1÷1,5) (-1÷3) (-1÷5) (-1÷9) (-1÷15) (0÷0,6) (0÷1) (0÷1,6) (0÷2,5) (0÷4) (0÷6) (0÷10) (0÷16) (0÷25) (0÷40) (0÷60) (0÷100) (0÷160) (0÷250) (0÷400) (0÷600) (0÷1000) (0÷1600)**
Accuracy class	**1,0%; 1,6%**
Housing types	**Rh, Fr**

Ordering example **Manometer MB-SNB-Cu-0–63–G¼–R–(0÷6)–1,6%–Fr**

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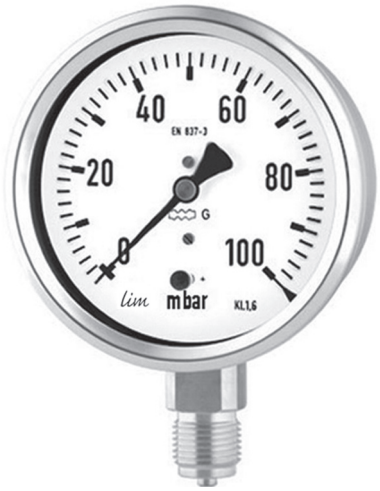
Capsule pressure manometer MP-SN/SNg-Cu, MP-SN/SNg-SN

Technical description

Characteristic
– gases pressure measurement – shockproof, filled with glycerin – EN 837 – housing diameters acc. to standards
Measuring range according to 837.1
(0 ÷ 2,5) mbar up to (0 ÷ 600) mbar - without filling (0 ÷ 100) mbar up to (0 ÷ 600) mbar - with filling
Housing
– dial diameter [mm]: ø63, 100, 160 – housing type: assembled (no mark), rolled down (g) – material: steel 304 (1.4301) – version: rear (T), radial (R), panel mounting (Fr), u-clamp (BFr), wall mounting (Rh)
Elements in contact with the medium
– brass – 316L stainless steel
Process connection type
G¼; M12x1,5 - ø63 mm G½; M20x1,5 - ø100 i 160 mm
Accuracy class (acc. to EN 837-3)
1,6%
Temperature of the medium
max. 60 ºC
Environment temperature
(-40 ÷ 60) ºC



Additional options
– process connection special types – double scale of indication mbar/kPa, special marks on the dial – housing material: 316L stainless steel – version for oxygen: degreased – location of the connecting stub in the configuration for 3, 9, 12 hours – GOST certified version (Russia, Ukraine, Kazakhstan)

Ordering code

Manometer	MP – ... – ... – ... – ... – ... – ... – ... – ... – ... – ... – ...
Housing type: assembled rolled down	SN SNg
Connection material: brass stainless steel	Cu SN
Fill: without filling glycerin	0 G
Housing diameter	63, 100, 160
Thread for: ø63 mm Thread for: ø100, 160 mm	G¼; M12x1,5 G½; M20x1,5
Radial connection Rear connection	R T
Range [mbar]	(0÷2,5) (0÷4) (0÷6) (0÷10) (0÷16) (0÷25) (0÷40) (0÷60) (0÷100) (0÷160) (0÷250) (0÷400) (0÷600) (-2,5÷0) (-4÷0) (-6÷0) (-10÷0) (-16÷0) (-25÷0) (-40÷0) (-60÷0) (-100÷0) (-160÷0) (-250÷0) (-600÷0) (1÷1,5) (-1,5÷1) (-1,5÷2,5) (-2,5÷1,5) (-2÷4) (-4÷2) (-4÷6) (-6÷4) (-6÷10) (-10÷6) (-10÷15) (-15÷10) (-15÷25) (-25÷15) (-20÷40) (-40÷20) (-40÷60) (-60÷40) (-60÷100) (-100÷60) (-100÷150) (-150÷100) (-150÷250) (-250÷150) (-200÷400) (-400÷200)
Accuracy class	1,6%
Housing type	Rh, Fr, BFr

Ordering example **Manometr MP-SN-SN-0–63–G¼–R–(-4÷6)–1,6**

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Membrane manometers **MM-SN-SN/...-0, MM-SN-SN/...-G**

Technical description

Characteristic
– media pressure measurement: thick, aggressive, dirty and sticky – shockproof, filled with glycerin – EN 837 – corrosive and various atmospheres proof
Measuring range according to 837.1
(0 ÷ 10) mbar up to (0 ÷ 40 bar) - without filling (0 ÷ 40) mbar and above - with filling and membrane with PTFE foil
Housing
– dial diameter [mm]: ø100, 160 – material: steel 304 (1.4301)
Housing protection degree (EN60529/IEC929)
IP54 - without filling IP65 - with filling
Elements in contact with the medium
– SN/2 bottom flange: galvanized carbon steel gasket: NBR membrane: (10 ÷ 250) mbar: 316Ti (0,4 ÷ 1,6) bar: duratherm (alloy NiCrCo) (2,5 ÷ 40) bar: galvanized carbon steel **– SN/3 bottom flange: 316Ti** gasket: FPM membrane: (10 ÷ 250) mbar: 316Ti (0,4 ÷ 1,6) bar: duratherm **– SN/4 bottom flange: galvanized carbon steel, PTFE** gasket: PTFE membrane: (40 ÷ 250) mbar: 316Ti, PTFE foil (0,4 ÷ 1,6) bar: durotherm, PTFE foil **– SN/5 bottom flange: 316Ti, PTFE** gasket: PTFE membrane: (40 ÷ 250) mbar: 316Ti, PTFE foil (0,4 ÷ 1,6) bar: durotherm , PTFE foil
Bottom flange
– material: stainless steel 304 (1.4301)
Flange diameter
– pressure range ≤250 mbar: ø160 mm – pressure range ≥400 mbar: ø100 mm
Process connection type
G½; M20x1,5; ½"NPT

Accuracy class (acc. to EN 837-3)
1,6% 2,5% - version with PTFE foil
Temperature of the medium
max. 100 ºC - without filling; membrane material: 316Ti
Environment temperature
(-40 ÷ 60) ºC
Additional functions
– hygienic process connection (acc. to DIN 11851) – other protective foil material - silver, PFTE, tantalum, FPM etc. – other flange materials – safety acrylic glass – specially made dial - inscriptions, range, dual scale – accuracy class 1% wg EN837-3 – version for medium temperature >100 °C – electrical contacts – top or aside mounting on the installation

Ordering code

Manometer	**MM – SN – ... – ... – ... – ... – ... – ... – ...**
Housing type: assembled	
Connection material: acc. to description	**SN/2, SN/3, SN/4, SN/5***
Fill: without filling glycerin	**0** **G**
Housing diameter	**100, 160**
Thread for: ø63 mm Thread for: ø100, 150, 160 mm	**G¼; M12x1,5** **G½; M20x1,5**
Radial connection Rear connection	**R** **T**
Range [mbar]	**wg typoszeregu**
Accuracy class	**1,6%; 2,5%**

* Acc. to requirements

Ordering example

Manometer MM-SN-SN/2-0–160–G½–R–6bar–1,6%

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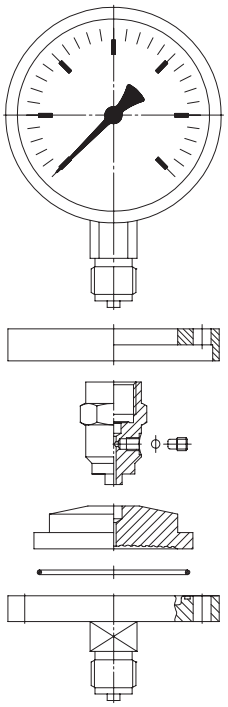
Diaphragm seal type **7210**

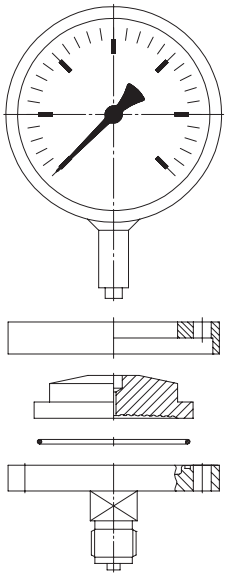
Technical description

Characteristic
– working with the measuring device like: pressure transmiters, manometer, differential pressure manometers, flow and level measurement – process connection type: external thread or flange – nominal pressure PN40 optional pressure PN100
Top flange
– material: 316L stainless steel (1.4435)
Measuring device connection
7210vG½: G½ internal thread 7210vd8: ø8 mm whole (welded version)
Bottom flange with process connection
– material: 316L stainless steel (1.4435) - standard
Membrane
– material: 316L stainless steel (1.4435) (standard) – welded to remaining elements – active diameter 60 mm
Process conection type
– thread G½; M20x1,5; ½NPT or other – flange DN15-50 PN40 – flange NPS½"-2" Classe 150/300
Min. pressure range
– 0,6 bar - in the case of Bourdon tube manometer with 100 mm diameter
Temperature error correction
– 0,13 bar/10 K - when silicone oil filled (FA1)
Additional functions
– membrane material: 316L/PTFE, Monel 400, Hastelloy, Tytan – intake hole diameter: ø10 mm – other flange materials: Tytan, Hastelloy, Monel etc. – separator seal up to -60 °C – dedicated measuring sets for process temperature through appropriate system calibration – possibility of adding additional extensions, e.g. bent capillaries, coolers

7210vG½



7210vd8



Ordering example **Diaphragm seal type 7210vd8–M20x1,5**

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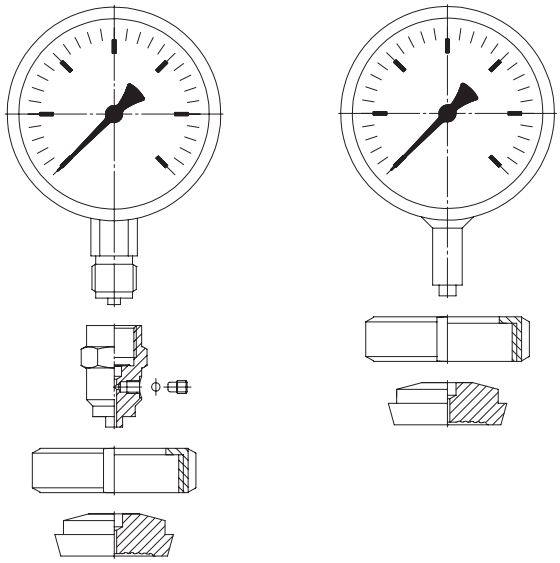
Diaphragm seal for the food and pharmaceutical industries type **7300**

Technical description

Characteristic
– made according to standards: DIN 11 864-1, 2, 3 (PN16-40); DIN 11851; APV RJT; ISO 2853 (IDF); SMS; DS 722; DRD; Clamp ISO 2852; DIN 32676; Tri-Clamp – working with the measuring device like: pressure transmiters, manometer, differential pressure manometers – nominal pressure PN10-40
Process connection and sealing
– material: 316L stainless steel (1.4435)
Measuring device connection
7300vG½: G½ internal thread 7300vd8: ø8 mm whole (welded version)
Membrane
– material: 316L steel (standard) - welded to seal with Helium measurement (above 10-90 mbar l/s) – effective membrane diameter dM - acc. to size and implementation standard
Surface roughness of wetting parts
Ra < 0,8 µm
Cap (acc. to requirements of the standard)
– stainless steel
Nominal preassure
– acc. to the PN10-40 and implementation standard
Min. preassure
– depending on the size dM
Additional functions
– surface roughness Ra<0,4 µm – electropolishing of parts in cotact with the medium – calibration of the measuring device with eliminated measurement temperature error – assembly of measuring instrument with separator by capillaries or cooling elements - in the case of high temperatures – material certificates for the elements in contact with the media – other implementation materials

7310vG½ **7310vd8**



Type	Norm	Size
MDM 7310v	DIN 11851	DN20 ÷ DN80
MDM 7330v	APV-RJT	NPS1" ÷ NPS3"
MDM 7350v	ISO 2853 (IDF)	NPS1" ÷ NPS3"
MDM 3770v	SMS	NPS1" ÷ NPS3"
MDM 7380v	DS-722	DN25 ÷ DN75
MDM 7315v	DIN 11851	DN20 ÷ DN80
MDM 7335v	APV-RJT	NPS1" ÷ NPS3"
MDM 7335v	ISO 2853	NPS1" ÷ NPS3"
MDM 7375v	SMS	NPS1" ÷ NPS3"
MDM 7385v	DS-722	DN25 ÷ DN75
MDM 7392v	DRD	DN50
MDM 7340v	ISO 2852	DN25 ÷ DN76.1
MDM 7340.1v	DIN 32676	DN15 ÷ DN80
MDM 7340.6v	TRI-clamp	DN20 ÷ DN76.1

Ordering example **Diaphragm seal MDM 7340.6v–DN20PN16–t_A80 °C** (t_A - calibration temperature)

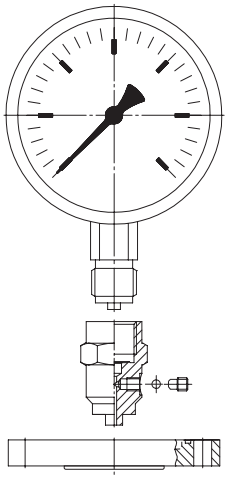
Limatherm Sensor Sp. z o.o.
Skrudlak Street 1, 34-600 Limanowa
www.limathermsensor.com
tel. +48 18 330 10 00
fax. +48 18 330 10 04
e-mail export@limathermsensor.com

Diaphragm seal type **7510v, 7520v**

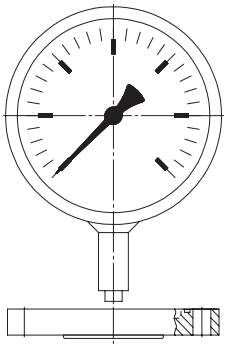
Technical description

Characteristic
– made of variety of material in accordance with kind of the medium – nominal pressure max. PN400 or Classe 2500 – assembly with measuring device i.e. manometer, pressure transmiter, permanently or with thread – made in accordance with DIN EN 1092-1 or ASME B16.5 – separators series 75xx dedicated for high temperature and agresive media
Top flange
– material: 1.4435 steel (316L)
Measuring device connection
75..vG½: G½ internal thread 75..vd8: whole ø8 mm
Membrane
– materiał: 316L steel (standard) - welded to other elements – the active diameter of membrane depends of flange DN
Process conection type
– flange acc. to DIN EN 1092-1 from DN25 up to DN100 PN10-400 – flange acc. to ASME B16.5 NPS1”-4” Classe 150-1500
Min. pressure range
– 0,6 bar with separator of the DN65PN25/40 class or 3”Classe 150
Temperature error correction
– 0,13 bar/10K - when silicone oil filled (FA1)
Additional functions
– membrane material: 316L/PTFE, Monel 400, Hastelloy C276, Tytan – membrane with protection foil PTFE (0,5 mm) Silver (0,1 mm) – other flange material: Tytan, Hastelloy, Monel etc.. – possibility of adding additional extensions, e.g. bent capillaries, coolers

75..vG½



75..vd8



Type	Norm	Size
MDM 7510v	DIN EN 1092-1	DN25 ÷ DN100
MDM 7520v	ASME B16.5	NPS1" ÷ NPS4"

Ordering example **Diaphragm seal type MDM7510v–DN25PN16**

Limatherm Sensor Sp. z o.o.
Skrudlak Street 1, 34-600 Limanowa
www.limathermsensor.com
tel. +48 18 330 10 00
fax. +48 18 330 10 04
e-mail export@limathermsensor.com

Pressure transmitter **1200/1600**

Technical description

Characteristic
– highly resistant to vibrations and overloads – transmiter material: 316 stainless steel (17-4PH) – protection degree IP65, IP67, IP30 depends on kind of the electrical connection
Measuring range
(-1 ÷ 0) up to (0 ÷ 400) bar
Accuracy class
0,5% full range
Stability
0,2%
Acceptable overload
– 4x range
Power source
(7 ÷ 35) V DC - current output 1,5 V above the output signal - voltage output
Operating conditions
– temperature of the medium: (-40 ÷ 125) ºC – temperature of the environment: (-10 ÷ 80) ºC – compensation temperature: (-20 ÷ 80) ºC

Ordering code

Pressure transmitter	... – ... – G – ... – ...– ...– ...
Series:	**1200/1600**
Output:	**B** - (4 ÷ 20) mA, **C** - (1 ÷ 6) V, **D** - (1 ÷ 11) V, **H** - (1 ÷ 5) V, **J** - (0,5 ÷ 5,5) V, **R** - (0 ÷ 5) V, **S** - (0 ÷ 10) V
Kind of pressure: relative	
Pressure range [bar]	**A10** - (0 ÷ 1), **A16** - (0 ÷ 1,6), **A25** - (0 ÷ 2,5), **A40** - (0 ÷ 4), **A60** - (0 ÷ 6), **B10** - (0 ÷ 10), **B16** - (0 ÷ 16), **B25** - (0 ÷ 25), **B40** - (0 ÷ 40), **B60** - (0 ÷ 60), **C10** - (0 ÷ 100), **C16** - (0 ÷ 160), **C25** - (0 ÷ 250), **C40** - (0 ÷ 400), **1A0** - (-1 ÷ 0), **1A6** - (-1 ÷ 0,6), **2A5** - (-1 ÷ 1,5), **4A0** - (-1 ÷ 3), **6A0** - (-1 ÷ 5), **1B0** - (-1 ÷ 9), **1B6** - (-1 ÷ 15), **2B5** - (-1 ÷ 24), **4B0** - (-1 ÷ 39)
Process connection type	**01** - G¼ (ext.), **02** - ¼NPT (ext.), **04** - 7/16-20 (ext.), **08** - ⅛NPT (ext.), **09** - G⅛ (ext.), **4F** - M20x1,5, **0A** - R¼ (ext.), **0E** - ¼NPT (int.), **0J** - ¼NPT (ext.), **0H** - ½NPT (ext.), **1P** - 9/16-18 UNF (ext.), **IJ** - 7/16-20 UNF (ext.)
Electrical connection	**1200**: **A** - mini DIN with plug, **B** - mini DIN without plug, **F** - choke IP67 **1600**: **G** - plug DIN 43650, **3** - connector with cable, **1** - connector Mil-C 8-4, **C** - connector Mil-C 10-6
Cable length	**U** - none, **D** - 1 m, **E** - 3 m, **F** - 5 m, **G** - 10 m

Ordering example

Pressure transmitter 1200–B–G–A60–0J–A–U

Limatherm Sensor Sp. z o.o.
Skrudlak Street 1, 34-600 Limanowa
www.limathermsensor.com

tel. +48 18 330 10 00
fax. +48 18 330 10 04
e-mail export@limathermsensor.com

Pressure transmitter **2200/2600**

Technical description

Characteristic
– highly resistant to vibrations and overloads – transmiter material: 316 stainless steel (17-4PH) – non-accumulating temperature error – high accuracy class – no fluid filling between the sensor and the membrane – 100 million test cycles
Measuring range
(-1 ÷ 0) up to (0 ÷ 400) bar * max. absolute pressure range 25 bar
Acceptable overload
2x range up to 400 bar 1x range above 400 bar
Accuracy class
0,25% full range - standard; (optional 0,15%)
Stability
0,2% (CVD technology)
Power source
(7 ÷ 35) V DC - current output 1,5 V above output signal - voltage output
Operating conditions
– temperature of the medium: (-40 ÷ 125) °C – temperature of the environment: (-10 ÷ 80) °C – compensation temperature: (-20 ÷ 80) °C

Ordering code

Pressure transmitter	... – ... – ... – ... – ... – ... – ... – ...
Series:	**2200 / 2600**
Output:	**A** - 100 mV; **B** - (4 ÷ 20) mA; **C** - (1 ÷ 6) V; **D** - (1 ÷ 11) V; **G** - (0,2 ÷ 10,2) V; **H** - (1 ÷ 5) V; **J** - (0,5 ÷ 5,5) V; **R** - (0 ÷ 5) V; **S** - (0 ÷ 10) V
Kind of pressure: relative absolute	 **G** **A**
Pressure range [bar]	**A10** - (0 ÷ 1); **A16** - (0 ÷ 1,6); **A25** - (0 ÷ 2,5); **A40** - (0 ÷ 4); **A60** - (0 ÷ 6); **B10** - (0 ÷ 10); **B16** - (0 ÷ 16); **B25** - (0 ÷ 25); **B40** - (0 ÷ 40); **B60** - (0 ÷ 60); **C10** - (0 ÷ 100); **C16** - (0 ÷ 160); **C25** - (0 ÷ 250); **C40** - (0 ÷ 400); **1A0** - (-1 ÷ 0); **1A6** - (-1 ÷ 0,6); **2A5** - (-1 ÷ 1,5); **4A0** - (-1 ÷ 3); **6A0** - (-1 ÷ 5); **1B0** - (-1 ÷ 9); **1B6** - (-1 ÷ 15); **2B5** - (-1 ÷ 24); **4B0** - (-1 ÷ 39)
Process connection type	ext **01** - G¼ (ext.); **02** - ¼NPT (ext.); **04** - 7/16-20 (ext.); **08** - ⅛NPT (ext.); **09** - G⅛ (ext.); **0A** - R¼ (ext.); **0E** - ¼NPT (int.); **0H** - ½NPT (ext.); **1P** - 9/16-18 UNF (ext.); **IJ** - 7/16-20 UNF (ext.); **4F** - M20x1,5
Electrical connection	**2200**: **A** - mini DIN with plug; **B** - mini DIN without plug; **F** - cable PVC IP67; **2** - cable IP65 **2600**: **1** - connector Mil-C 8-4; **3** - connector with ½NPT cable; **C** - connector Mil-C 10-6; **G** - plug DIN 43650; **M** - immersion connection
Cable length	**U** - none; **D** - 1 m; **E** - 3 m; **F** - 5 m; **G** - 10 m
Accuracy class: accuracy/temperature error 0,25%/1,5% 0,15%/1,0%	 **A** **B**

Ordering example

Pressure transmitter 2600–B–A60–02–G–3–U–A

Limatherm Sensor Sp. z o.o.
Skrudlak Street 1, 34-600 Limanowa
www.limathermsensor.com

tel. +48 18 330 10 00
fax. +48 18 330 10 04
e-mail export@limathermsensor.com

Pressure transmitter **22IC/26IC**

Technical description

Charakterystyka	
– transmitter Exi; Ex II 1G; Ex ia IIC T4 (-20 ºC <Ta< 75 ºC) – highly resistant to vibrations and overloads – transmiter material: 316 stainless steel (17-4PH) – non-accumulating temperature error – 100 million test cycles	
Measuring range	
(-1 ÷ 0) up to (0 ÷ 400) bar * max. absolute pressure range 25 bar	
Stability	
0,2% (CVD technology)	
Acceptable overload	
2x range up to 400 bar 1,5x range 400 bar	
Accuracy class	
0,25% full range - standard; (optional 0,15%)	
Power source	
(7 ÷ 35) V DC - current output 1,5 V above output signal up to 25,5 V DC - voltage output	
Operating conditions	
– temperature of the medium: (-40 ÷ 125) ºC – temperature of the environment: (-20 ÷ 80) ºC – compensation temperature: (-20 ÷ 80) ºC	

Ordering code

Pressure transmitter – ... – ... – ... – ... – ... – ... – ... – ... ...

Series:	22IC / 26IC
Output:	B - (4 ÷ 20) mA C - (1 ÷ 6) V D - (1 ÷ 11) V H - (1 ÷ 5) V J - (0,5 ÷ 5,5) V R - (0 ÷ 5) V S - (0 ÷ 10) V
Kind of pressure: relative absolute	 G A
Pressure range [bar]	A10 - (0 ÷ 1) A16 - (0 ÷ 1,6) A25 - (0 ÷ 2,5) A40 - (0 ÷ 4) A60 - (0 ÷ 6) B10 - (0 ÷ 10) B16 - (0 ÷ 16) B25 - (0 ÷ 25) B40 - (0 ÷ 40) B60 - (0 ÷ 60) C10 - (0 ÷ 100) C16 - (0 ÷ 160) C25 - (0 ÷ 250) C40 - (0 ÷ 400) 1A0 - (-1 ÷ 0) 1A6 - (-1 ÷ 0,6) 2A5 - (-1 ÷ 1,5) 4A0 - (-1 ÷ 3) 6A0 - (-1 ÷ 5) 1B0 - (-1 ÷ 9) 1B6 - (-1 ÷ 15) 2B5 - (-1 ÷ 24) 4B0 - (-1 ÷ 39)
Process connection type	01 - G¼ (ext.) 02 - ¼NPT (ext.) 03 - G½ (ext.) 04 - 7/16-20 (ext.) 05 - G¼ z uszczelką (ext.) 08 - ⅛NPT (ext.) 09 - G⅛ (int.) 00 - G¼ (wew.) 0A - R¼ (ext.) 19 - immersion connection
Electrical connection	**22IC** A - connector DIN with plug B - connector DIN without plug F - cable IP67 **26IC** 1 - connector Mil-C plug 8-4 3 - connector with ½NPT cable C - connector Mil-C 10-6 G - plug DIN 43650 M - immersion connection max. 200 m
Transmitter protection: Ex ia IIC T4 (-20 ºC <Ta< 75 ºC) Zener barrier, only relative pressure Galvanic isolation	 B G
Cable length	U - none D - 1 m E - 3 m F - 5 m G - 10 m
Accuracy class: accuracy/temperature error 0,25%/1,5% 0,15%/1,0%	 A B

Ordering example

Pressure transmitter 22IC–B–G–B10–01–A–G–U–A

Limatherm Sensor Sp. z o.o.
Skrudlak Street 1, 34-600 Limanowa
www.limathermsensor.com
tel. +48 18 330 10 00
fax. +48 18 330 10 04
e-mail export@limathermsensor.com

Pressure transmitter **3100/3200**

Technical description

Characteristic

– highly resistant to vibrations and stability
– elements made of stainless steel
– temperature compensated sensor up to 120 ºC
– posibility temperature and pressure measuring with one sensor (only voltage output)
– small size, perfect for OEM solutions

Measuring range

(0 ÷ 10) up to (0 ÷ 1600) bar

Accuracy class / Stability

0,25 / 0,2% full range (3100 series)
0,5 / 0,2% full range (3200 series)

Acceptable overload

Pressure range [bar]	3100 series	3200 series
up to 25	3x range	3x range
from 25 up to 700	2x range	
from 700 up to 1000		2,5x range
from 1000 up to 1800	1,4x range	

Power source

(8 ÷ 30) V DC - current output
2 V above output signal up to 30 V DC - voltage output

Zero tolerance / Span tolerance

3100 - 0,5%
3200 - 1%

Operating conditions

– temperature of the medium: (-40 ÷ 125) ºC
– temperature of the environment: (-20 ÷ 80) ºC
– compensation temperature: (-20 ÷ 80) ºC

Ordering code

Pressure transmitter ... – ... – ... – ... – ... – ... – ... – ...

Series:
temperature range: (-40 ÷ 125) °C **3100/3200**
temperature range: (0 ÷ 100) °C **3101/3201**
temperature range: (0 ÷ 100) °C **3102/3202**
temperature range: (0 ÷ 80) °C **3103/3203**

Output:
B - (4 ÷ 20) mA
C - (1 ÷ 6) V
H - (1 ÷ 5) V
N - (0,5 ÷ 4,5) V
R - (0 ÷ 5) V
S - (0 ÷ 10) V
T - (0,5 ÷ 4,5) V ratiometric

Pressure range [bar]
0007G - (0 ÷ 7)
0010G - (0 ÷ 10)
0016G - (0 ÷ 16)
0025G - (0 ÷ 25)
0040G - (0 ÷ 40)
0060G - (0 ÷ 60)
0100G - (0 ÷ 100)
0160S - (0 ÷ 160)
0250S - (0 ÷ 250)
0400S - (0 ÷ 400)
0600S - (0 ÷ 600)
1000S* - (0 ÷ 1000)
1600S* - (0 ÷ 1600)

Process connection type
01 - G¼ (ext.)
02 - ¼NPT (ext.)
04 - 7/16-20 (ext.)
05 - G¼ (ext.)
08 - ⅛NPT (ext.)
0E - ¼NPT (int.)
0K - M14x1,5
0L - M12x1,5
1J - 7/16-20 (ext.)
4N - ⅜ UNF (ext.)

Electrical connection
B - DIN 9,4 mm connector
E - M12x1P (4-pin)
F - cable version
G - DIN 43650 plug
R - DIN 9,4 mm connector
3 - ½NPT
6 - Amp - Superseal 1,5
8 - Deutsch DT04-4P
9 - Packard MetriPack

Pulsation damper (3200 only): none **0**
with damper **R**

Cable length
00 - none
01 - 1 m
02 - 2 m
03 - 3 m
04 - 4 m
05 - 5 m

* 3100 only

Ordering example **Pressure transmitter 3100 B–0016G–01–3–0–00**

Limatherm Sensor Sp. z o.o.
Skrudlak Street 1, 34-600 Limanowa
www.limathermsensor.com
tel. +48 18 330 10 00
fax. +48 18 330 10 04
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Pressure transmitter **3500**

Technical description

Characteristic
– small size, perfect for OEM solutions – made of 316L stainless steel – choice of outputs, electrical connections and pressure ports – temperature compensated sensor up to 100 ºC – fatigue life: designed for more than 100 M cycles
Measuring range
(0 ÷ 0,35) do (0 ÷ 16) bar
Accuracy class
0,25% full range
Acceptable overload
2x range 3x range - destructive pressure
Stability
<0,2%
Power source
(10 ÷ 30) V DC - current output 30 V DC - voltage output
Operating conditions
– temperature of the medium: (-40 ÷ 125) ºC – temperature of the environment: (-10 ÷ 80) ºC
Approvals
CE, PED, RoHs

Ordering code

Pressure transmitter	3500 – ... – ... – ... – ... – ... – ...
Output:	**B** - (4 ÷ 20) mA **C** - (1 ÷ 6) V **H** - (1 ÷ 5) V **N** - (0,5 ÷ 4,5) V **P** - (1 ÷ 10) V **R** - (0 ÷ 5) V **S** - (0 ÷ 10) V **T** - (0,5 ÷ 4,5) V ratiometric
Pressure range [bar]	**0000** - 0 bar **0001** - 1 bar **01B6** - 1,6 bar **02B5** - 2,5 bar **0004** - 4 bar **0006** - 6 bar **0010** - 10 bar **0016** - 16 bar
Type of pressure: relative absolute compound (-1 bar)	 **G** **A** **V**
Process connection type	**01** - G¼ (ext.) **02** - ¼NPT (ext.) **04** - 7/16-20 (ext.) **05** - G¼ (ext.) **08** - ⅛NPT (ext.) **0L** - M12x1,5 **0S** - G⅛
Electrical connection	**B** - DIN 9,4 mm connector **E** - M12x1 **8** - Deutsch DT04-4P **9** - Packard MetriPack
Pulsation damper: none with damper	**0** **R**

Ordering example

Pressure transmitter 3500–B–01B6–G–02–E–0

Limatherm Sensor Sp. z o.o.
Skrudlak Street 1, 34-600 Limanowa
www.limathermsensor.com
tel. +48 18 330 10 00
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e-mail export@limathermsensor.com

Flush pressure transmitter **1701**

Technical description

Characteristic
– for viscous and density media – from 1 bar up to 400 bar static pressure – fill: silicone oil; DTEFM32 Mobil - for version in contact with food – material: 316 stainless steel (17-4PH) – flush process connection – fatigue life: designed for up to 100M cycles – approval: Ex II 1G, Eex ia IIC T4
Measuring range
(-1 ÷ 0) up to (0 ÷ 400) bar - relative pressure (0 ÷ 25) bar - absolute pressure
Accuracy class
±0,25% full range
Acceptable overload
– 2x range (1,5 for 400 bar)
Housing protection degree
IP65 - angular connector IP67 - M12 connector with cable
Long-term temperature drift
±0,3%
Temperature error
max. 2%
Power source
(12 ÷ 36) V DC - current/voltage output (14 ÷ 28) V - Exi version
Operating conditions
– temperautre of medium: (-25 ÷ 125) ºC – temperature of environment: (-25 ÷ 85) ºC – compensation temperature (-20 ÷ 80) ºC

Ordering code

Pressure transmitter	**1701 – ... – ... – ... – ... – ... – ... – ... – 0 – ... – ...**
Output:	**B** - (4 ÷ 20) mA **S** - (0 ÷ 10) V
Pressure type: relative absolute	 **G** **A**
Pressure range [bar]	**A10** - 1 **A16** - 1,6 **A25** - 2,5 **A40** - 4 **A60** - 6 **B10** - 10 **B16** - 16 **B25** - 25 **B40** - 40 **B60** - 60 **C10** - 100 **C16** - 160 **C25** - 250 **C40** - 400 **1A0** - (-1 ÷ 0)
Process connect type	**F3** - G1" DIN 3852 **F1** - G½" DIN 3852* **F2** - G¾" DIN 3852
Fill: silicone oil DTEFM32 Mobil for food industry	 **1** **2**
Sealing: gum <100 bar Nitrile ≥100 bar	 **1** **5**
Membrane material: stainless steel	
Electrical connection	**E** - M12x1 (4-pin) **F** - 2m cable with choke **G** - DIN 43650 plug
Approvals: CE Mark Ex II 1G, EEx ia IIC T4 (-20<Ta<60 °C)	 **3** **G**

* possible underpressure >1,6 bar

Ordering example **Pressure transmitter 1701–B–G–C25–F1–2–1–E–G**

Limatherm Sensor Sp. z o.o.
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www.limathermsensor.com
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Transmitters for low pressure ranges **1702**

Technical description

Characteristic
– for pneumatics, petrochemistry and the gas industry – measurement in installations with low pressure values – material: 316 stainless steel – flush membrane version possible – fatigue life: designed for up to 100M cycles – elements in contact with the medium - 316 stainless steel, gum seal
Measuring range
(-1 ÷ 40) for (0 ÷ 600) mbar - relative pressure min. (0 ÷ 100) mbar - absolute pressure
Accuracy class
±0,25% full range
Acceptable overload
– 2x range
Housing protection degree
IP65 - angular connector IP67 - M12 connector with cable
Long-term temperature drift
±0,1% of range
Temperature error
1% (0 ÷ 70) ºC 2% for range (40 ÷ 250) mbar; (0 ÷ 50) ºC
Power source
(12 ÷ 36) V DC - current output (14 ÷ 36) V DC - voltage output (14 ÷ 28) V - Exi version
Operating conditions
– temperautre of medium: (-25 ÷ 125) ºC – temperature of environment: (-25 ÷ 85) ºC – compensation temperature (-20 ÷ 80) ºC

Ordering code

Pressure transmitter	**1702 – ... – ... – ... – ... – 1 – 0 – ... – 3**
Output:	**B** - (4 ÷ 20) mA **S** - (0 ÷ 10) V
Pressure type: relative absolute	 **G** **A**
Pressure range [mbar]	**N04** - 40 **N06** - 60 **N10** - 100 **N25** - 250 **N40** - 400 **N60** - 600
Process connect type	**01** - G¼ **03** - G½ **02** - ¼-18NPT **F0** - G½ flush membrane
Sealing: gum seal	
Membrane material: stainless steel	
Electrical connection	**E** - M12x1 (4 Pin) **F** - 2m cable with choke **G** - DIN 43650 plug
Approvals: CE	

Ordering example

Pressure transmitter 1702–B–G–N25–01–E

Limatherm Sensor Sp. z o.o.
Skrudlak Street 1, 34-600 Limanowa
www.limathermsensor.com
tel. +48 18 330 10 00
fax. +48 18 330 10 04
e-mail export@limathermsensor.com

Pressure transmitter **5000**

Technical description

Characteristic
– possible working with hydrostatic probe (immersion version) – for water and sewage industry – elements in contact with the medium - 316 stainless steel, Inconel 625, – various electrical connections – CE mark in accordance with EN 50091-1 and EN 50082-2 standards – protection degree: IP65, IP67, IP30 acc. to electrical connection type
Measuring range
(25 ÷ 70) mbar (71 ÷ 200) mbar (201 ÷ 350) mbar (351 ÷ 1000) mbar
Accuracy class
0,2% full range
Stability
0,25%
Acceptable overload
from (2 ÷ 7) bar (depending on the range)
Power source
(9 ÷ 35) V DC
Working conditions
– temperature of the medium: (-40 ÷ 125) ºC – temperature of the environment: (-10 ÷ 80) ºC – condensation temperature: (-20 ÷ 60) ºC

Ordering code

Pressure transmitter	5000 – ... – G – ... – ... – ... – ... – ... – A – ...
Output:	**B** - (4 ÷ 20) mA **F** - (0,1 ÷ 5,1) V **J** - (0,5 ÷ 5,5) V **C** - (1 ÷ 6) V **H** - (1 ÷ 5) V **R** - (0 ÷ 5) V
Pressure type: relative	
Pressure range [mbar]	**M70** - (25 ÷ 70) **N35** - (201 ÷ 350) **N20** - (71 ÷ 200) **A10** - (351 ÷ 1000)
Process connection type	**00** - G¼ (internal) **BK** - ¼NPT (ext.) **AK** - G¼ (external) **KK** - 7/16 UNF **MK** - M14x1,5 (int.) **OF** - flange KF25
Electrical connection type	**G** - DIN 43650 **M** - IP67 cable **L** - M12x1 - 5-pin **3** - ½NPT **W** - welded version with IP68 cable
Approvals: CE ATEX Ex ia IIB T4 (-20<Ta<+75 °C)	 **3** **G**
Cable length: none 1 m 999 m	**none.** **001** **999**
Accuracy class: accuracy/temperature error 0,25%/2%	
Measuring range	**acc. to series of type**

Ordering example

Pressure transmitter 5000–B–N20–19–M–3–000–A–350 mbar

Limatherm Sensor Sp. z o.o.
Skrudlak Street 1, 34-600 Limanowa
www.limathermsensor.com
tel. +48 18 330 10 00
fax. +48 18 330 10 04
e-mail export@limathermsensor.com

Differential pressure transmitter **5266**

Technical description

Characteristic
– possible measuring of relative and differential pressure and underpressure – min. range (0 ÷ 50) Pa – for climatic, ventilation and heating systems – pressure measurement in pneumatic systems – small size, perfect for OEM solutions – max. static pressure: 69 kPa
Measuring range
(0 ÷ 50) up to (0 ÷ 5000) Pa - relative pressure (-50 ÷ 50) do (-5000 ÷ 5000) Pa - underpressure and relative pressure
Accuracy class
±1% full range
Long-term temperature drift
0,5%
Temperature error
5% full range
Process connection type
2x 6,2 mm tube (for connecting flexible tubes)
Acceptable overload
– range (100 ÷ 250) kPa - max. 14 kPa – range 500 Pa - max. 35 kPa – range (1000 ÷ 5000) Pa - max. 69 kPa
Power source
24 V DC - current output (4 ÷ 20) mA (12 ÷ 30) V DC/AC - voltage output (0 ÷ 10) V (9 ÷ 30) V DC/AC - voltage output (0 ÷ 5) V
Working conditions
– temperautre of medium: (-18 ÷ 65) ºC – temperautre of environment: (-18 ÷ 65) ºC – compensation temperature (-18 ÷ 65) ºC

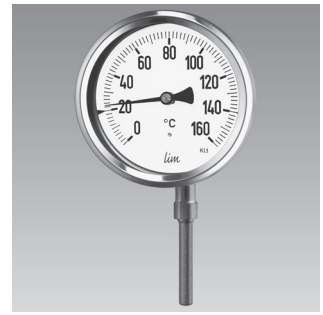
Ordering code

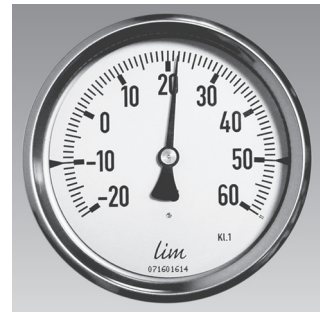
Differential pressure transmitter	5266 – ... – ... – ... – TI – C
Pressure range [Pa]	**050L** - (0÷50), **100L** - (0÷100), **250L** - (0÷250), **500L** - (0÷500), **10CL** - (0÷1000), **25CL** - (0÷2500), **50CL** - (0÷5000)
Pressure type: overpressure underpressure 100LB = ±100 Pa	**B** **D**
Power source - output signal: 24 V DC/AC - (0 ÷ 10) V 24 V DC/AC - (0 ÷ 5) V 24 V DC - (4 ÷ 20) mA	 **AC** **AB** **H**
Electrical connection type: mounting box	
Series	

Ordering example

Differential pressure transmitter 5266–050L–D–AC–TI–C

D





bimetallic and gas thermometers

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fax. +48 18 330 10 04
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Industrial bimetallic thermometer **TB**

Technical description

Characteristic
– fast: acrylic glass – rear or radial construction – bimetallic thermometr ideal for measuring and temperature control of liquid, gas and steam in heating devices
Measuring range
(-50 ÷ 500) °C acc. to series of types
Accuracy class
2% full range (optional 1%)
Sheath
– material: brass (optional acid-resistant steel) – diameter acc. to the construction [mm]: ø9 – length [mm]: 40, 60, 100 or other
Housing
– material: galvanized steel sheet (optional acid-resistant steel or plastic) – diameter [mm]: ø63, 80, 100
Process connection type
M20x1,5; G½ or other - thread permanently sheath sleeve with thread

Ordering code

Bimetallic thermometer	TB – ... – ... – ... – ... – ... – ... – ...
Connection: rear radial	 T R
Dial diameter [mm]	63, 100, 160
Measuring range	(0 ÷ 60) °C (0 ÷ 120) °C*
Immersion length [mm]: Thermometer with sheath sleeve Thermometer without sheath sleeve Thermometer without sheath sleeve, thread permanently	 R70* L70* RL70*
Thread size	G½; M20x1,5*
Material of construction: steel 1.4301 brass (standard)	 KO no sign
Accuracy class	1, 2

* Acc. to requirements

Ordering example

Bimetallic thermometer TB–T–63–(0 ÷ 120) °C–R70–G½–KO–2%

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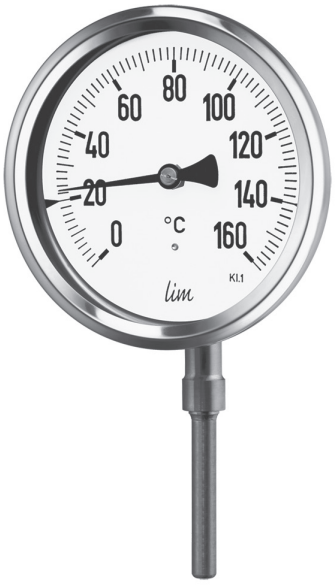
Industrial bimetallic thermometer **TBiSChg**

Technical description

Characteristic
– rear or radial construction – stainless steel housing and cover – fast: safety acrylic glass – threaded connection or protective sheath – non-dismantled rolled housing – 25 bar static pressure (without additional sheath)
Measuring range
(-20 ÷ 40); (0 ÷ 500) °C acc. to series of types
Accuracy class
1% full range
Sheath
– material: 316 Ti steel (1.4571) – diameter [mm]: ø6, 8 – length [mm]: 40÷800 depending on the range and type of connection
Housing
– material: 304 steel (1.4301) – diameter [mm]: ø63, 80, 100
Process connection type
– thread: M20x1,5; M24x1,5; M27x2; G½; ½NPT or other – type: B1 - smooth sensor without thread B3 - cap with internal thread B4 - external rotary thread (only for mounting with sheaths) B4.1 - thread permanently welded to the sensor UG - sliding handle on the sensor
Construction
– EN-60529/IEC529 - IP65 protection degree – EN-13190 - accuracy class and temperature range
Additional functions
– alarm contacts – marks on the dial – shockproof construction – hygienic construction



Ordering code

Bimetallic thermometer	TBiSChg – ... – ... – ... – ... – ... – ... – ... – ... – ... – ...
Connection: rear radial	 T R
Fill: none glycerin or silicone oil	0 G
Dial diameter [mm]	63, 80, 100
Measuring range	(-20 ÷ 40) °C (0 ÷ 500) °C*
Sensor diameter	6, 8
Length [mm]	40÷800*
Thread size	G½; M20x1,5*
Connection type	B1, B3, B4, B4.1*
Accuracy class	1%

* Acc. to requirements

Ordering example

Bimetallic thermometer TBiSChg–R–0–63–(0 ÷ 100) °C–6–100–G½–B4.1–1%

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Industrial bimetallic thermometer **TBiSCh**

Technical description

Characteristic
– rear or radial construction – TWIST stainless steel housing - disassembled – IP56 protection degree – fast: acrylic glass or special – 25 bar static pressure (without additional sheath)
Measuring range
(-20 ÷ 40) °C; (0 ÷ 500) °C acc. to series of types
Accuracy class
1% full range
Sheath
– material: stal 1.4571 – diameter [mm]: ø6, 8 – length [mm]: 40÷400 depending on the range and type of connection
Housing
– material: 316 Ti steel (1.4571) – diameter [mm]: ø63, 80, 100, 160
Process connection type
– thread M20x1,5; M24x1,5; M27x2; G½; ½NPT or other – type: B1 - smooth sensor without thread B3 - cap with internal thread B4 - external rotary thread (only for mounting with sheaths) B4.1 - thread permanently welded to the sensor UG - sliding handle on the sensor
Construction
– EN-60529/IEC529 - IP56 protection degree – EN-13190 - accuracy class and temperature range
Additional functions
– alarm contacts – marks on the dial – hygienic construction

Ordering code

Bimetallic thermometer	TBiSCh – ... – ... – ... – ... – ... – ... – ... – ... – ...
Connection: rear radial	 T R
Dial diameter [mm]	63, 80, 100, 160
Measuring range	(-20 ÷ 40) °C (0 ÷ 500) °C*
Sensor diameter	6, 8
Length [mm]	40÷400*
Thread size	G½; M20x1,5*
Connection type	B1, B3, B4, B4.1*
Accuracy class	1%

* Acc. to requirements

Ordering example

Bimetallic thermometer TBiSCh–T–63–(0 ÷ 60) °C–6–300–G¼–B4.1–1%

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Industrial bimetallic thermometer **TBiGelCh**

Technical description

Characteristic
– tilting dial - tilt and turn – housing made of stainless steel – IP56 housing protection degree – fast: acrylic glass or special – housing type: TWIST and not demountable
Measuring range
(0 ÷ 60) °C; (0 ÷ 500) °C acc. to series of types
Accuracy class
1% full range
Sheath
– material: 1.4571 steel – diameter [mm]: ø6, 8 – length [mm]: 40÷400 depending on the range and type of connection
Housing
– material: 304 steel – diameter [mm]: ø63, 80, 100, 160* * for TWIST
Process connection
– thread: M20x1,5; M24x1,5; M27x2; G½; ½NPT or other – type: B1 - smooth sensor without thread B3 - cap with internal thread B4 - external rotary thread (only for mounting with sheaths) B4.1 - thread premanently welded to the sensor UG - sliding handle on the sensor
Additional functions
– alarm contacts – marks on the dial – shockproof construction - only rolled version – hygienic construction

Ordering code

Bimetallic thermometer	TBiGelCh ... – ... – ... – ... – ... – ... – ... – ... – ... – ... – ... – ...
Housing type: TWIST rolled	 no sign g
Fill: none glycerin or silicone oil	0 G
Dial diameter [mm]	63, 100, 160
Measuring range	(0 ÷ 60) °C (0 ÷ 500) °C*
Sensor diameter	6, 8
Length [mm]	40÷400*
Thread size	G½; M20x1,5*
Connection type	B1, B3, B4, B4.1*
Accuracy class	1%

* Acc. to requirements

Ordering example **Bimetallic thermometer TBiGelChy–0–R/A–100–(0 ÷ 120) °C–8–100–G½–B4.1–1,0%**

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Gas thermometer **TGelCh, TSCh**

Technical description

Characteristic
– tilting dial – acid-proof steel housing - rolled or TWIST – possibility to make a movable housing – IP56 protection degree - acc. to housing type – fast: acrylic glass – resistant to vibration – fast response time
Measuring range
(0 ÷ 80) °C; (0 ÷ 600) °C acc. to series of types
Accuracy class
1% full range
Sheath
– material: 1.4571 steel – diameter [mm]: ø8, 10, 12 – length [mm]: 40 or other, depending on the range and type of connection
Housing
– material: 304 steel – diameter [mm]: ø63, 80, 100, 160* * for TWIST
Process connection
– gwint: M20x1,5; M24x1,5; M27x2; G½; ½NPT lub inny – typ: A1 - smooth sensor without thread A3 - cap with internal thread A4 - external rotary thread (only for mounting with sheaths) A6 - thread premanently welded to the sensor UG - sliding handle on the sensor
Additional functions
– larm contacts – marks on the dial – shockproof construction - only rolled version – hygienic construction

Ordering code

Gas thermometer	T ...	Ch	... – ... – ... – ... – ... – ... – ... – ... – ... – ... – ...
Construction: tilt and turn dial static dial	Gel S		
Housing type: TWIST rolled		no sign g	
Fill: none glycerin or silicone oil			0 G
Connection: rear radial			T R
Dial diameter [mm]			63, 80, 100, 160
Measuring range			(0 ÷ 80) °C (0 ÷ 600) °C*
Sensor diameter			8, 10, 12
Length [mm]			40*
Thread size			G½; M20x1,5*
Connection type			A1, A3, A4, A6*
Accuracy class			1%

* Acc. to requirements

Ordering example **Gas thermometer TGelCh–g–0–R–160–(0 ÷ 250) ºC–8–100–M20x1,5–A4–1%**

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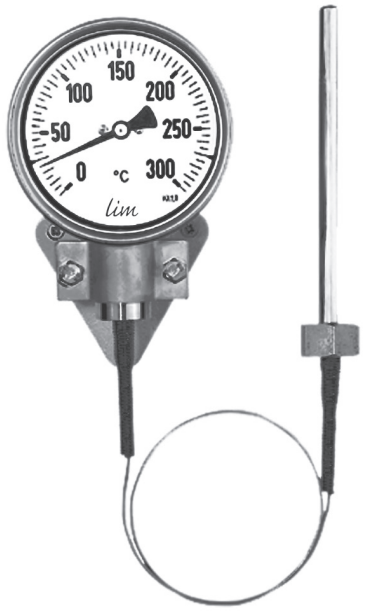
Gas thermometer **TFCh**

Technical description

Characteristic
– remote reading via capillary – stainless steel housing - rolled or TWIST – IP56 protection degree - acc. to housing type – fast: acrylic glass or special
Measuring range
(0 ÷ 80) °C; (0 ÷ 600) °C acc. to series of types
Accuracy class
1% full range
Sheath
– material: 1.4571 steel – diameter [mm]: ø8, 10, 12 – length [mm]: 40 or other, depending on the range and type of connection – capillary length [m]: 1÷15
Housing
– material: 304 steel – diameter [mm]: ø63, 80, 100, 160* 250* * TWIST version
Process connection
– thread: M20x1,5; M24x1,5; M27x2; G½; ½NPT lub inny – type: A1 - smooth sensor without thread A2 - cap with external thread on the capillary A3 - cap with internal thread A4 - external rotary thread (only for mounting sheaths) A6 - thread permanently welded to the sensor A7 - sliding handle on the capillary UG - sliding handle on the sensor
Additional functions
– alarm contacts – marks on the dial – shockproof construction - only rolled version – possibility to make the thermal and mechanical protection of the capillary – hygienic construction



Ordering code

Gas thermometer	TFCh ... – ... – ... – ... – ... – ... – ... – ... – ... – ... – ... – ... – ...
Housing type: TWIST rolled	 no sign g
Fill: none glycerin or silicone oil	0 G
Dial diameter [mm]	63, 80, 100, 160
Measuring range	(0 ÷ 80) °C (0 ÷ 600) °C*
Sensor diameter	6, 8
Length [mm]	40÷400*
Thread size	G½; M20x1,5*
Connection type	A1, A2, A3, A4, A6, A7*
Capillary length [m]	1,5m*
Accuracy class	1%

* Acc. to requirements

Ordering example **Gas thermometer TFCh–0–100–(0 ÷ 200) °C–8–200–G½–4m–W–1,0%**

E

humidity and air temperature transmitters

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Humidity and temperature transmitter **EE06**

Technical description

Characteristic
– small size – air temperature measurement – compact desing – cable connection or lub M12 interface
Measuring range
– temperature: (-40 ÷ 60) ºC – humidity: (0 ÷ 100) % RH
Accuracy
– temperature: ±0,3 ºC – humidity: ±2,5% RH
Output
(0 ÷ 1) V, (0 ÷ 5) V, (0 ÷ 10) V
Power source
(10 ÷ 30) V DC
Housing
– material: polycarbonate
Operating conditions
– temperature: (-40 ÷ 60) ºC – humidity: (0 ÷ 100) % RH without condensation

Ordering code

Humidity and temperature transmitter	EE06 – ...	– ...	– ...	– ...	– ...	– ...
Type: humidity humidity and temperature humidity and passive temperature	 **F** **FT** **FP**					
Output signal: (0 ÷ 1) V (4 ÷ 20) mA		 **1** **6**				
Temperature sensor: Pt100 DIN A Pt1000 DIN A NTC 10 k Ω none			 **A** **C** **E** **no sign**			
Filter: membrane metal grid filter (up to 120 °C)				 **1** **6**		
Sheath material: HC01 none					 **HC01** **no sign**	
Cable: 0,5 m 3 m						 **no sign** **K300**

Ordering example **Humidity and temperature transmitter EE06–FT–1–C–6–HC01–K300**

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Humidity and temperature transmitter **EE08**

Technical description

Characteristic
– small size – air temperature measurement – compact desing – cable connection or lub M12 interface
Measuring range
– temperature: (-40 ÷ 80) ºC – humidity: (0 ÷ 100) % RH
Accuracy
– temperature: ±0,5 ºC – humidity: ±2 % RH (0÷90 % RH) ±3 % RH (90÷100 % RH)
Output
(0 ÷ 1) V, (0 ÷ 5) V, (0 ÷ 10) V
Power source
(12 ÷ 30) V DC
Housing
– material: polycarbonate / IP65
Operating conditions
– temperature: (-40 ÷ 80) ºC – humidity: (0 ÷ 100) % RH without condensation

Ordering code

Humidity and temperature transmitter	EE08 – ... – ... – ... – ... – ... – ... – ... – ... – ... – ...
Type: humidity and temperature humidity and passive temperature	 FT FP
Output signal: (0 ÷ 1) V (0 ÷ 2,5) V (0 ÷ 5) V (0 ÷ 10) V	 1 7 2 3
Power source: (5 ÷ 12) V DC (7 ÷ 30) V DC	 V10 V11
Temperature sensor: Pt100 DIN A Pt1000 DIN A	 A C
Probe type: with cable with connector	 E D
Filter: metal grid filter (up to 120 °C)	 6
Sheath material: HC01 none	 HC01 no sign
Cable: 1 m 2 m 5 m none	 01 02 05 no sign

Ordering example **Humidity and temperature transmitter EE08– FP–3–V11–C–D–6–HC01**

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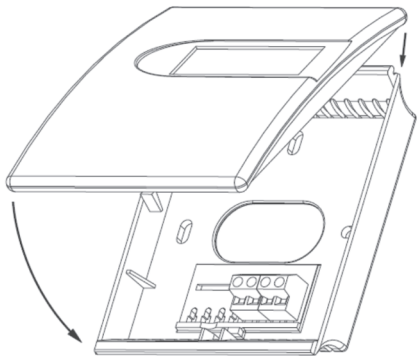
Humidity and temperature transmitter **EE10**

Technical description

Characteristic
– high accuracy and long term stability – indoor climate control – fast and easy installation
Measuring range
– temperature: (-5 ÷ 50) ºC – humidity: (0 ÷ 95) % RH
Accuracy (for T = 20 ºC i U = 24 V DC)
– temperature: voltage output ±0,25 ºC current voltage ±0,4 ºC – humidity: ±2% RH (40 ÷ 60) % RH ±3% RH remaining range
Output
– temperature: (4 ÷ 20) mA lub (0 ÷ 10) V, (0 ÷ 50) ºC or RTD passive for temperature – humidity: (4 ÷ 20) mA lub (0 ÷ 10) V
Power source
(15 ÷ 40) V DC or 24 V AC ±10% for (0 ÷ 10) V (20 ÷ 28) V DC for (4 ÷ 20) mA
Housing
– material: polycarbonate, IP20
Operating conditions
– temperature: (-5 ÷ 55) ºC – humidity: (0 ÷ 95) % RH without condensation
Size [mm]
85x100x26
Additional functions
– LCD display



Ordering code

Humidity and temperature transmitter	EE10 – ...	– ...	– ...
Measurement: humidity and temperature temperature humidity humidity and passive temperature	 FT T F PP		
Output: (0 ÷ 10) V (4 ÷ 20) mA Pt100 class A Pt1000 class A		 3 6 A C	
Display: none LCD display			no sign D04

Ordering example

Humidity and temperature transmitter EE10–FT–6–D04

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Industrial humidity and temperature transmitter **EE31**

Technical description

Characteristic
– high accuracy
– stability of measurements
– humidity measuring range: (0 ÷ 100) % RH
– temperature measuring range: (-40 ÷ 180) ºC
– RS232 interface
– calculating of many measurement values

Measuring range
– temperature: (-40 ÷ 60) ºC; wall mounting
(-40 ÷ 80) ºC; duct mounting
(-40 ÷ 180) ºC; separated duct mounting
– humidity: (0 ÷ 100) % RH

Accuracy
– temperature: (±0,3 ÷ 0,55) ºC
– humidity: standard calibration
±2% RH (0 ÷ 90) % RH; ±3% RH (90 ÷ 100) % RH
– special calibration:
±1% RH (0 ÷ 90) % RH; ±2% RH: (90 ÷ 100) % RH

Output
(0 ÷ 5) V, (0 ÷ 10) V, (0 ÷ 20) mA, (4 ÷ 20) mA for (0 ÷ 100) % RH
for (-40 ÷ 60/80/180) °C

Power source
(8 ÷ 48) V DC, (12 ÷ 35) V AC

Operating condintions
– temperatura: (-40 ÷ 60) ºC (electronics)
– humidity: (0 ÷ 100) % RH

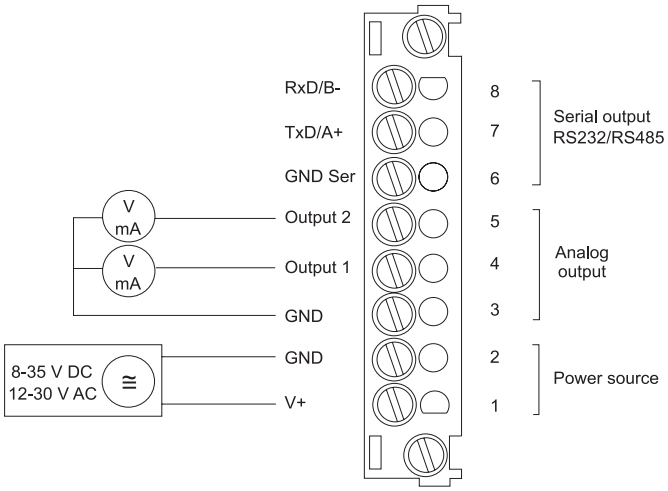
Housing
– material: polycarbonate, IP65

Special calibrate
±1% RH (0 ÷ 90) % RH
±2% RH (90 ÷ 100) %

Calculation options
– dew point temperature (Td)
– freeze temperature (Tf)
– wet thermometer temperature (Tw)
– water steam pressure (e)
– mixture ratio (r)
– absolute humidity (dv)
– specific enthalpy (H)

Additional functions
– RS485 interface
– LCD display
– alarm output 6 A/ 250 V

Wiring diagram



Temperature range (T)		
(-40 ÷ 60) ºC **/T02/**	(-30 ÷ 120) ºC **/T09/**	(0 ÷ 80) ºC **/T21/**
(-20 ÷ 50) ºC **/T03/**	(-20 ÷ 120) ºC **/T10/**	(-40 ÷ 80) ºC **/T22/**
(0 ÷ 50) ºC **/T04/**	(-40 ÷ 120) ºC **/T12/**	(-20 ÷ 80) ºC **/T24/**
(0 ÷ 100) ºC **/T05/**	(-20 ÷ 100) ºC **/T14/**	(-40 ÷ 160) ºC **/T33/**
(0 ÷ 60) ºC **/T07/**	(20 ÷ 100) ºC **/T15/**	(20 ÷ 140) ºC **/T40/**
(-30 ÷ 70) ºC **/T08/**	(-0 ÷ 120) ºC **/T16/**	(-40 ÷ 180) ºC **/T52/**

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Ordering code

Industrial humidity and temperature transmitter	**EE31**	**–**	**...**	**–**	**...**	**–**	**...**	**–**	**...**	**–**	**...**	**–**	**...**	**–**	**...**	**–**	**...**	**–**	**...**	**–**	**...**	**–**	**...**	**–**	**...**
Housing:																									
metal			**M**																						
polycarbonate housing			**P**																						
Wall mounting					**A**																				
Duct mounting					**B**																				
With remote sensing probe					**D**																				
With remote sensing probe for pressure					**E**																				
Filter:																									
stainless steel sintered filter						**3**																			
PTFE filte						**5**																			
H2O2 filter						**8**																			
stainless steel grid filter (up to 180°C/ 356°F)						**9**																			
Cable length :																									
2 m							**02**																		
5 m							**05**																		
10 m							**10**																		
20 m							**20**																		
Probe length:																									
65 mm								**2**																	
200 mm								**5**																	
400 mm								**6**																	
Process connection:																									
none									**no sign**																
½ NPT									**HA07**																
G½									**HA03**																
Communication:																									
RS232										**bez ozn.**															
RS485										**N**															
Display:																									
none											**no sign**														
LCD display											**D05**														
Alarm output:																									
none												**no sign**													
2xSPDT												**SW**													
Plug:																									
1x cable gland													**bez ozn.**												
1x plug for power supply and outputs													**C03**												
1x cable gland / 1 plug for RS232													**C06**												
2x plugs for power supply													**C08**												
Probe type:																									
fixed														**bez ozn.**											
pluggable														**P01**											
Sheath material:																									
none															**no sign**										
HC01															**HC01**										
Supply voltage:																									
(100 ÷ 240) V AC																					**V01**				
24 V AC/DC																					**no sign**				
Switching parameters:																									
relative humidity																						**A**			
temperature																						**B**			
dew-point temperature																						**C**			
frost-point temperature																						**D**			
wet-bulb temperature																						**E**			
water vapour partial pressure																						**F**			
mixture ratio																						**G**			
absolute humidity																						**H**			
specific enthalpy																						**J**			
Output signal:																									
(0 ÷ 5) V																									**2**
(0 ÷ 10) V																									**3**
(0 ÷ 20) mA																									**5**
(4 ÷ 20) mA																									**6**

Ordering example **Industrial humidity and temperature transmitter EE31–PFT–D–20–6–HA03–6–T09**

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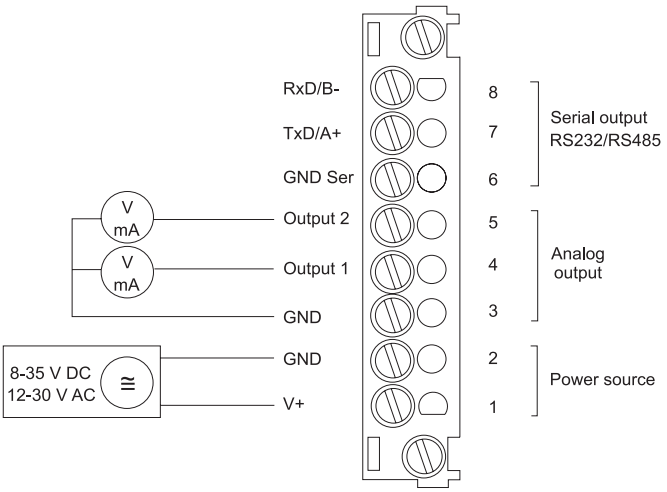
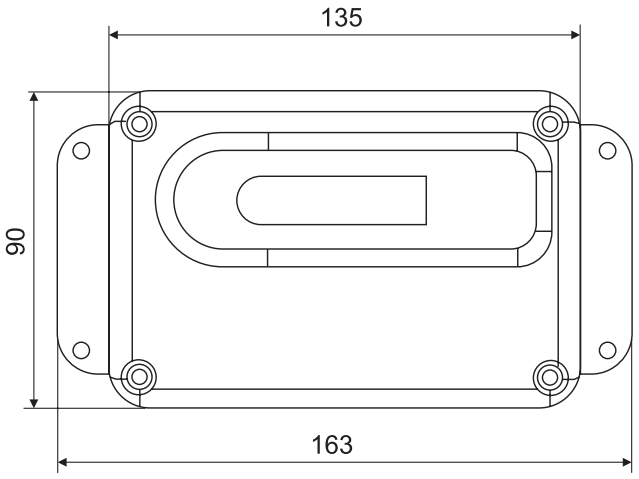
Humidity and temperature transmitter **EE33**

Technical description

Characteristic
– measurement of humidity and temperature – calculation h, r, dv, Tw, Td, Tf, e – 2 freely scaleable and configurable analogue outputs – remote sensing probe up to 20m – on-site adjustment for relative humidity and temperature – configuration software
Measuring range
– humidity: (0 ÷ 100) % RH
Accuracy
– temperature: ±0,3 °C, in range (-40 ÷ 60) °C – temperature: ±0,5 °C, in range (60 ÷ 180) °C – humidity: ±1,3% RH (≤90% RH) – humidity: ±2,3% RH (>90% RH)
Output
(0 ÷ 1) V (0 ÷ 5) V (0 ÷ 10) V (0 ÷ 20) mA (4 ÷ 20) mA
Power source
(100 ÷ 240) V AC 24 V AC/DC
Housing
– material: metal
Operating conditions
– temperature: (-40 ÷ 180) ºC (electronics) – humidity: (0 ÷ 100) % RH
Additional functions
– alarm outputs – LCD display

Wiring diagram





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Ordering code

Humidity and temperature transmitter	EE33 – ...	– ...	– ...	– ...	– ...	– ...	– ...	– ...	– ...	– ...	– ...	– ...	– ...	– ...	– ...
Mounting:															
wall	A														
remote probe	D														
remote pressure probe	E														
Filter:															
stainless steel sintered filter		3													
PTFE filter		5													
stainless steel grid filter(up to 180°C)		9													
Cable length:															
2 m			02												
5 m			05												
10 m			10												
Probe length:															
65 mm				2											
200 mm				5											
400 mm				6											
Process connection: none				no sing											
½ NPT				HA07											
G½				HA03											
Interface:															
RS232					no sing										
RS485					N										
Display: none						no sing									
LCD display						D05									
Alarm output: none							no sing								
2x SPDT							SW								
Connection type:															
1x cable gland								no sing							
1x plug for power supply and outputs								C03							
1x cable gland / plug for RS232								C06							
2x plugs for power supply / outputs and RS485 network								C08							
Probe type:															
fixed									no sing						
connectable in the housing									P03						
Material of sheath: none										no sing					
HC01										HC01					
Power source:															
24 V AC/DC											no sing				
(100 ÷ 240) V AC											V01				
Physical parameters of output:															
relative humidity												A			
temperature												B			
dew point temperature												C			
frost point temperature												D			
wet bulb temperature												E			
water vapour partial pressure												F			
mixture ratio												G			
absolute humdity												H			
specific enthalphy												J			
Output signal:															
(0 ÷ 1) V															1
(0 ÷ 5) V															2
(0 ÷ 10) V															3
(0 ÷ 20) mA															5
(4 ÷ 20) mA															6

Ordering example **Humidity and temperature transmitter EE33–A–3–02–5–A–2**

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Humidity and temperature transmitter **EE23**

Technical description

Characteristic
– humidity measurement of all of range – version A: wall mounting – version B: duct mounting – version C: with separated of probe
Measuring range
– temperature: (-40 ÷ 60) ºC; meteo, wall mounted, sterile (-40 ÷ 80) ºC; duct (-40 ÷ 120) ºC; separated duct – humidity: (0 ÷ 100) % RH
Accuracy
– humidity: standard calibration ±2% RH (0 ÷ 90) % RH; ±3% RH (90 ÷ 100) % RH – humidity: special calibration: ±1% RH (0 ÷ 80) % RH; ±2% RH (90 ÷ 100) % RH
Output
(0 ÷ 5) V, (0 ÷ 10) V, (0 ÷ 20) mA, (4 ÷ 20) mA for (0 ÷ 100) % RH for (-40÷60/80/120) °C
Power source
(15 ÷ 28) V AC/DC
Housing
– material: polycarbonate, IP65
Operating conditions
– temperature: (-40 ÷ 60) ºC (electronics) – humidity: (0 ÷ 100) % RH
Additional functions
– alarm output – LCD display

Temperature range (T)		
(-40 ÷ 60) ºC **/T02/**	(-30 ÷ 120) ºC **/T09/**	(0 ÷ 80) ºC **/T21/**
(-20 ÷ 50) ºC **/T03/**	(-20 ÷ 120) ºC **/T10/**	(-40 ÷ 80) ºC **/T22/**
(0 ÷ 50) ºC **/T04/**	(-40 ÷ 120) ºC **/T12/**	(-20 ÷ 80) ºC **/T24/**
(0 ÷ 100) ºC **/T05/**	(-20 ÷ 100) ºC **/T14/**	(-40 ÷ 160) ºC **/T33/**
(0 ÷ 60) ºC **/T07/**	(20 ÷ 100) ºC **/T15/**	(20 ÷ 140) ºC **/T40/**
(-30 ÷ 70) ºC **/T08/**	(0 ÷ 120) ºC **/T16/**	(-40 ÷ 180) ºC **/T52/**

Ordering code

Humidity and temperature transmitter	**EE23**	..	..	..	..	..	..	..	..	..	..	...
Housing: metal polycarbonate		**M** **P**										
Humidity and temperature			**FT**									
Mounting: wall duct with separated probe up to 120 °C				**A** **B** **C**								
Filter	**3** - steel		**5** - PTFE		**6** - metal grid							
Cable (for C-type)			**02** - 2 m		**05** - 5 m		**10** - 10 m					
Length of probe (for type: B, C)			**2** - 50 mm		**5** - 200 mm		**6** - 400 mm					
Display: none LCD display								**no sign** **D04**				
Alarm output: none With alarm									**no sign** **SW**			
Connection type: 1x cable gland 1x plug										**no sign** **C03**		
Material of sheath: none HC01											**no sign** **HC01**	
Physical parameters of output: relative humidity temperature dew point temperature frost point temperature												**A** **B** **C** **D**
Output signal:	**1** - (0 ÷ 1) V	**2** - (0 ÷ 5) V	**3** - (0 ÷ 10) V	**5** - (0 ÷ 20) mA	**6** - (4 ÷ 20) mA							

Ordering example **Humidity and temperature transmitter EE23–M–FT–B–6–10–4–A**

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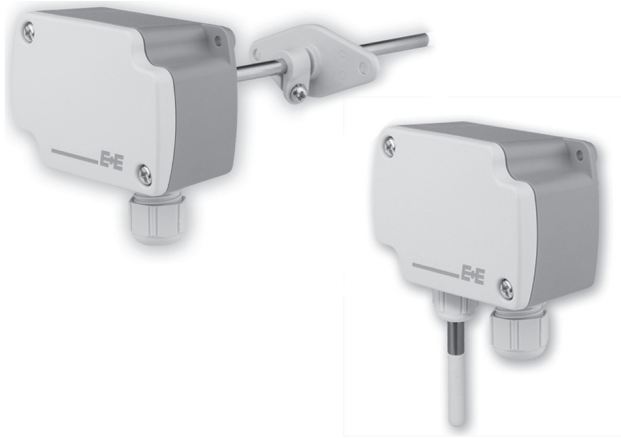
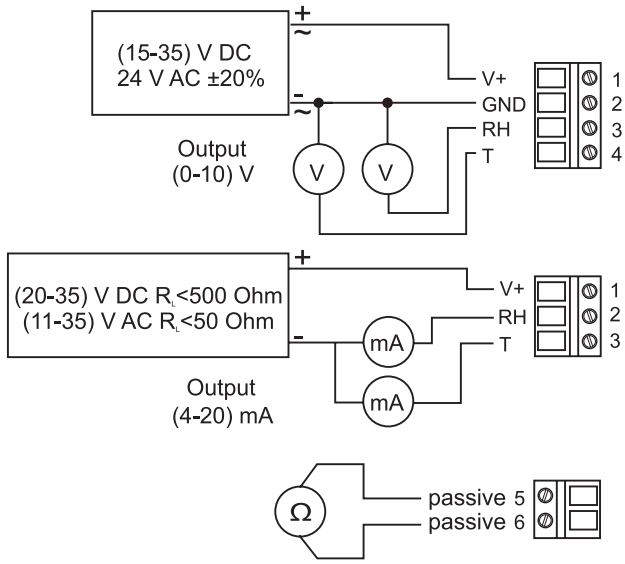
Humidity and temperature transmitter **EE150**

Technical description

Characteristic
– humidity and temperature measurement – additional process output: Pt100, Pt1000, NTC 10 k – humidity resistance – teflon filter of the humidity sensor
Measuring range
– temperature: (-5 ÷ 55) °C – humidity: (10 ÷ 95) % RH
Accuracy
– temperature: ±0,3 °C – humidity: ±3% (30 ÷ 70) % RH, remaining range ±5%
Output
(0 ÷ 10) V (4 ÷ 20) mA
Power source
24 V AC/DC
Housing
– material: polycarbonate, IP65
Additional functions
– temperature: (-5 ÷ 55) ºC – humidity: (0 ÷ 95) % RH



Wiring diagram



Ordering code

Humidity and temperature transmitter	EE150 – ... – ... – ... – ...
Type: humidity and temperature	**M1**
RH/T Output: (0 ÷ 10) V (4 ÷ 20) mA	 **A3** **A6**
Temperature sensor: none Pt100 Pt1000 NTC 10 k Ni1000 TK6180	**no sign** **TP1** **TP3** **TP5** **TP9**
Mounting: duct wall	 **no sign** **T1**

Ordering example **Humidity and temperature transmitter EE150–M1–A6–TP1**

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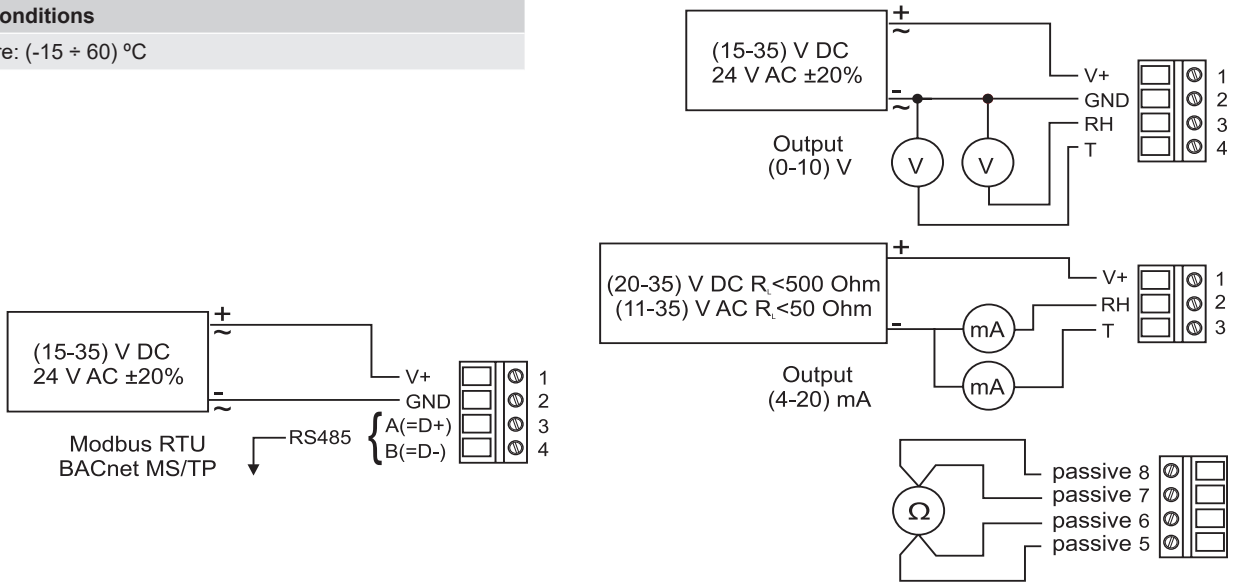
Humidity and temperature transmitter **EE160**

Technical description

Characteristic
– air temperature measurement – relative humidity – mounting: duct, wall
Measuring range
– humidity: (10 ÷ 95) % RH
Accuracy
±2,50%
Output
(0 ÷ 10) V (4 ÷ 20) mA RS485
Power source
24 V AC/DC
Housing
– material: polycarbonate
Operating conditions
– temperature: (-15 ÷ 60) °C

Wiring diagram



Ordering code

Humidity and temperature transmitter	EE160 – ... – ... – ... – ... – ... – ...
Type: humidity and temperature	HT
Output signal: (0 ÷ 10) V (4 ÷ 20) mA RS485	3x 6x x3
Temperature sensor: Pt100 DIN A Pt1000 DIN A NTC 10 k Ω Ni1000, TK6180 none	A C E J x
Mounting: duct wall	PB PA
Filter: membrane filter	B
Interface: none BACnet MS/TP RS485/Modbus RTU	no sign BACnet MODBUS RTU

Ordering example **Humidity and temperature transmitter EE160–3x–A–PB–B**

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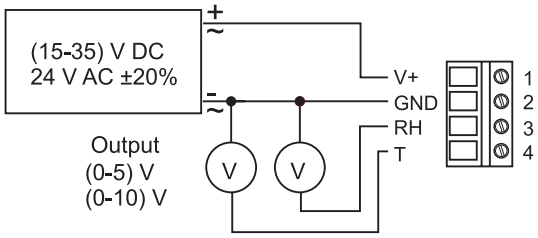
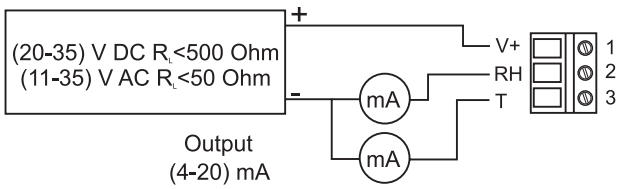
Humidity and temperature transmitter **EE210**

Technical description

Characteristic
– water vapour partial pressure – specific enthalpy – mixing ratio – temperature – dew point temperature – frost point temperature – relative/absolute humidity
Measuring range
– temperature: (-40 ÷ 60) °C – humidity: (0 ÷ 100) % RH
Accuracy
±2%
Output
(0 ÷ 5) V (0 ÷ 10) V (4 ÷ 20) mA RS485
Power source
24 V AC/DC
Housing
– material: polycarbonate
Additional functions
– alarm output – LCD display

Wiring diagram





Ordering code

Humidity and temperature transmitter	EE210 – ... – ... – ... – ... – ... – ... – ... – ... – ...
Type: humidity and temperature	HT
Output signal: (0 ÷ 5) V (0 ÷ 10) V (4 ÷ 20) mA RS485	 2x 3x 6x x3
Mounting: wall duct with separated probe	 PA PB PC
Probe length: 50 mm 150 mm 200 mm 65 mm	 B x F x
Display: none LCD display	no sign D
Filter: none membrane filter stainless steel sintered	x B D
Interface: none BACnet MS/TP RS485/Modbus RTU	no sign BACnet MODBUS RTU
Cable: none (standard) 1 m 3 m	no sign probe on the cable 1 m probe on the cable 3 m

Ordering example **Humidity and temperature transmitter EE210-HT–6x–B–D–B–probe with the cable 1 m**

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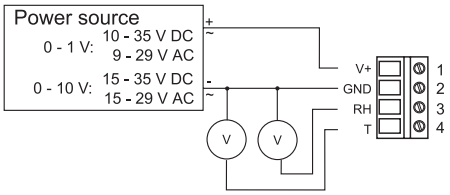
Humidity and temperature transmitter **EE220**

Technical description

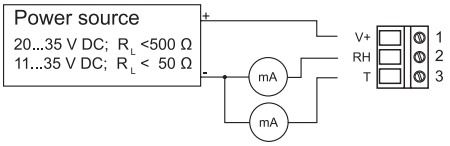
Characteristic
– measurement humidity and temperature with additional EE07 probe – wall mounting – separation of EE07 probe from EE220 transmitter is possible with the cable
Measuring range
– temperature: (-40 ÷ 60) °C – humidity: (0 ÷ 100) % RH
Accuracy
±2%
Output
(0 ÷ 1) V (0 ÷ 10) V (4 ÷ 20) mA
Power source
24 V AC/DC
Housing
– material: polycarbonate or metal
Additional functions
– EE07 probe – LCD display

Wire diagram

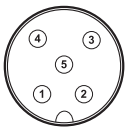
EE220- x1x / - x3x



EE220- x6x



C03



1 .... brown .... T
2 .... white .... RH
3 .... blue .... NC
4 .... black .... GND
5 .... grey .... V+

Ordering code

Humidity and temperature transmitter	EE220 – ... – ... – ... – ... – ... – ... – ... – ... – ... – ...
Housing: metal polycarbonate	**M** **P**
Output signal: (0 ÷ 1) V (0 ÷ 10) V (4 ÷ 20) mA	 **1** **3** **6**
Mounting: wall	**A1**
Display: none LCD display	**no sign** **D07**
Connection: 1x cable gland 1x plug for power supply and ouputs	**no sign** **C03**
Probe type: none RH/T metal RH/T polycarbonate	**no sign** **EE07MFT** **EE07PFT**
Filter: membrane filter PTFE filter stainless steel grid filter (up to 120 °C) stainless steel grid filter (up to 180 °C)	**1** **5** **6** **9**
Sheath material: none HC01	**no sign** **HC01**

Ordering example **Humidity and temperature transmitter EE220-M–3–A1–5**

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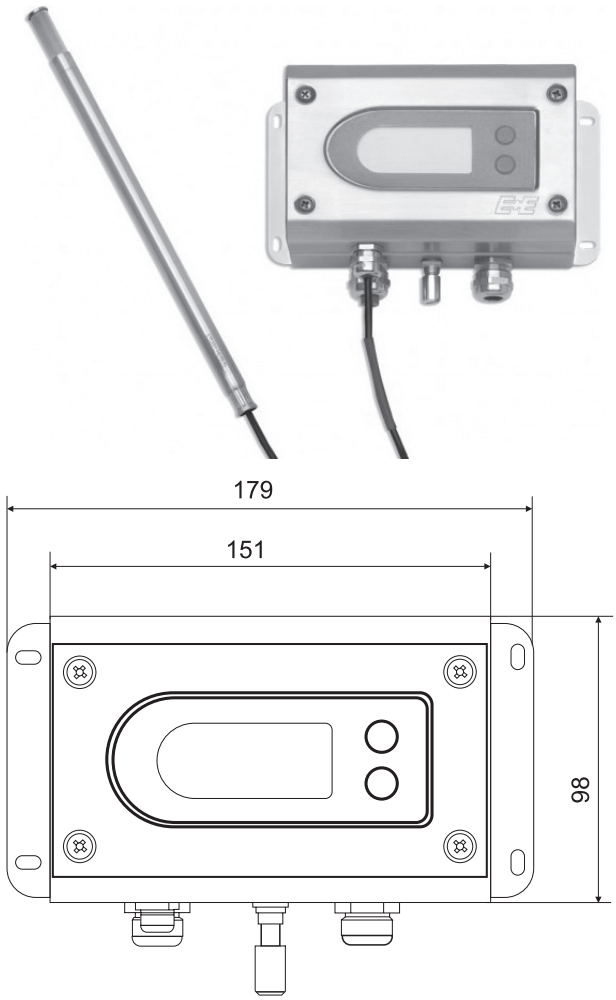
Intrinsically safe transmitter of humidity and temperature **EE300EX**

Technical description

Characteristic
– measurement of water-in-oil activity – water vapour partial pressure – specific enthalpy – mixing ratio – wet-bulb temperature – temperature – dew point temperature – relative/absolute humidity – frost point temperature
Measuring range
(-40 ÷ 60) °C; wall mounting (-40 ÷ 180) °C; with separated probe – humidity: (0 ÷ 100) % RH
Accuracy
±1,60% ±3,00%
Output
(4 ÷ 20) mA
Power source
the device can be powered by any intrinsically safe supply unit or via Zener barriers (4 ÷ 20) mA
Housing
– material: polycarbonate



Ordering code

Intrinsically safe transmitter	EE300EX – ... – ... – ... – ... – ... – ...
Mounting: wall remote pressure probe	 HT6SA HT6SE
Display: none LCD display	x D
Cable: 1 m 2 m 5 m 10 m none (standard)	 C E G H x
Probe length: 65 mm 200 mm 400 mm 50 mm	 C F H x
Filter: stainless steel grid filter PTFE filter stainless steel grid filter (up to 180 °C) oil	 D E I M
Sheath material: none HC01	xAT 1AT

Ordering example **Intrinsically safe transmitter EE300EX–HT6SA–D–H–x–I–xAT**

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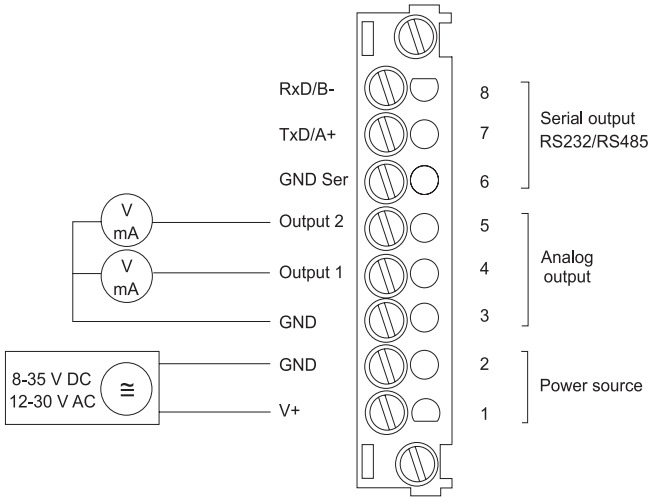
Humidity and temperature transmitter **EE310**

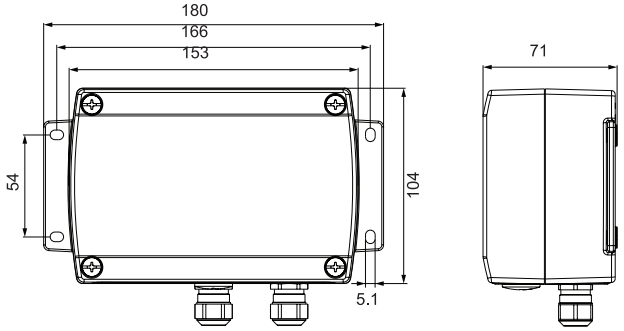
Technical description

Characteristic
– accurate temperature measurement – dew point temperature – wall mounting – remote probe
Measuring range
– temperature: (-40 ÷ 180) °C – humidity: (0 ÷ 100) % RH
Accuracy
±1,3% RH for RH ≤90 % ±2,3% RH for RH >90 %
Output
(0 ÷ 1) V (0 ÷ 5) V (0 ÷ 10) V (4 ÷ 20) mA Modbus RTU (RS485)
Power source
(12 ÷ 30) V DC
Housing
– material: polycarbonate or metal
Operating conditions
– temperature: (-40 ÷ 180) ºC

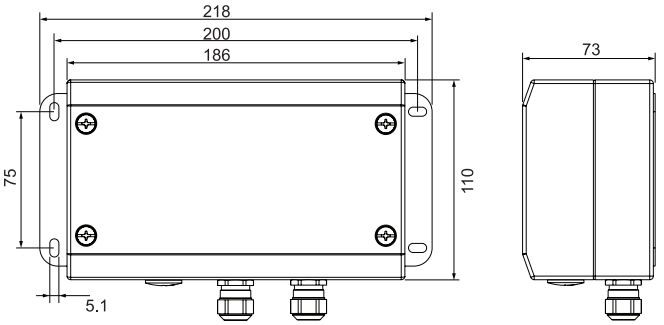
Wire diagram



Polycarbonate housing



Metal housing



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Ordering code

Humidity and temperature transmitter	**EE310 – ... – ... – ... – ... – ... – ... – ... – ... – ... – ... – ... – ... – ... – ... – ... – ...**
Mounting:	
wall	**T1**
duct	**T2**
remote probe	**T5**
remote pressure probe	**T10**
Filter:	
stainless steel	**bez ozn.**
teflon	**F5**
stainless steel grid (up to 120 °C)	**F6**
stainless steel grid (up to 180 °C)	**F9**
Cable:	
none (standard)	**no sign**
2 m	**K2**
5 m	**K5**
10 m	**K10**
Probe length:	
65 mm	**L65**
200 mm	**L200**
400 mm	**L400**
Process connection:	
none	**no sign**
G½	**PA23**
½ NPT	**PA25**
Connection:	
1x plug	**E4**
2x cable gland	**E5**
2x connector	**E6**
Display: none	**no sign**
LCD display	**D2**
Probe type:	
with cable	**no sign**
replaceable with thread	**PC4**
Sheath material:	
none	**no sign**
HC01	**C1**
Alarm output:	
none	**no sign**
2x SPDT	**AM2**
Power source:	
24 V AC/DC	**no sign**
(100 ÷ 240) V AC	**AM3**
Output signal:	
(0 ÷ 5) V	**GA2**
(0 ÷ 10) V	**GA3**
(0 ÷ 20) mA	**GA5**
(4 ÷ 20) mA	**GA6**
RS485/Modbus RTU	**J3**

Ordering example **Humidity and temperature transmitter EE310–F9–K10–L400–PA25–E5–D2–PC4–C1–AM2–J3**

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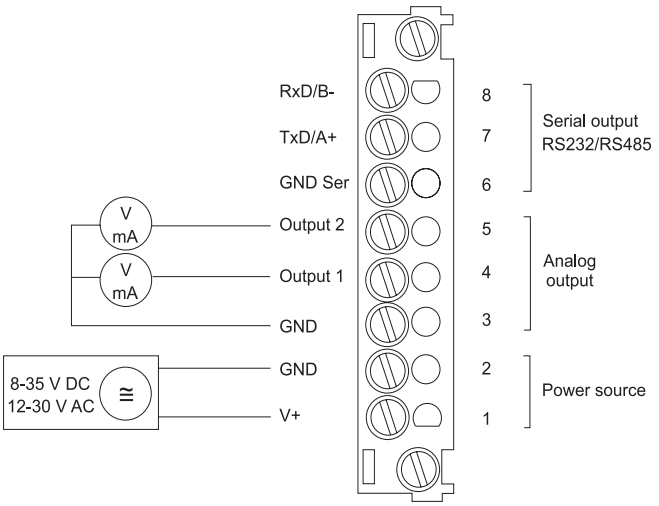
Moisture in Oil Sensor **EE360**

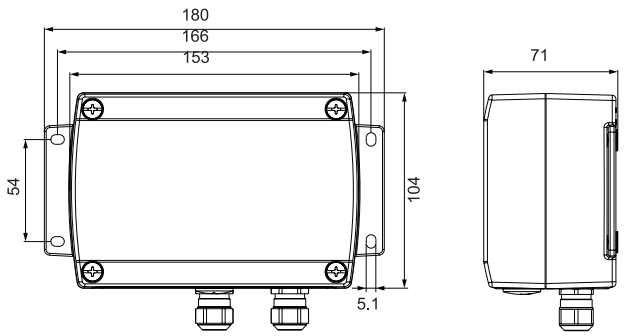
Technical description

Characteristic
– measurement of water-in-oil activity – measurement of wateri-in-oil content – temperature measurement – remote pressure probe
Measuring range
– humidity: (0 ÷ 100) % RH
Output
(0 ÷ 5) V (0 ÷ 10) V (0 ÷ 20) mA (4 ÷ 20) mA Modbus RTU (RS485)
Power source
230 V AC 24 V AC/DC
Housing
– material: polycarbonate or metal
Operating conditions
– temperature : (-40 ÷ 180) ºC
Additional functions
– alarm output – LCD display

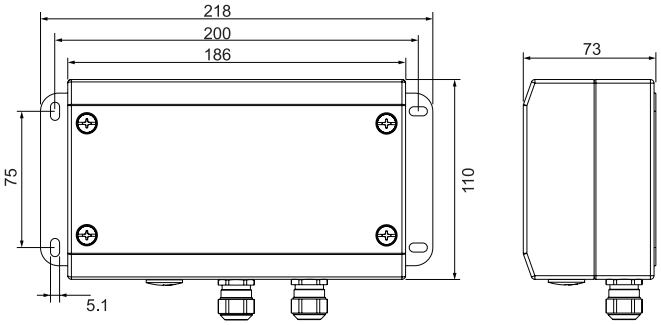
Wiring diagram



Polycarbonate housing



Metal housing



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Ordering code

Moisture in Oil Sensor	EE360 – ...
Housing: metal polycarbonate	 M P
Mounting: remote pressure probe	E
Cable length: 1 m 2 m 5 m 10 m 20 m	 01 02 05 10 20
Probe length: 100 mm 200 mm	 3 5
Process connection: ½ NPT G½	 HA07 HA03
Display: none LCD display	no sign D05
Alarm output: none 2x SPDT	no sign SW
Connection type: 1x cable gland + 1x plug 1x plug 2x plug 2x cable gland	 C06 C03 C07 no sign
Probe type: with cable replaceable with thread	 no sign P01
Power source: 24 V AC/DC 230 V AC	 no sign V01
Physical parameters of output: water-in-oil activity temperature water-in-oil content	 K T L(M)
Output signal: (0 ÷ 5) V (0 ÷ 10) V (0 ÷ 20) mA (4 ÷ 20) mA	 2 3 5 6
Approvals: none CE GL marine approvals	 CE GL marine approvals
Accesories: ball valve set 1/2“ ISO	HA050101

Ordering example **Moisture in Oil Sensor EE360-M–E–05–3–HA07–C07–V01–L(M)–6–HA050101**

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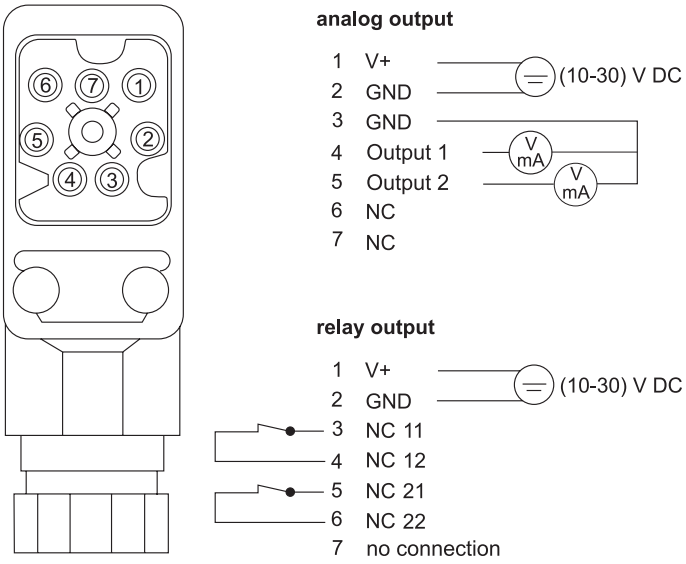
Compact dew point sensor **EE371**

Technical description

Characteristic
– dew point temperature – frost point temperature – duct mounting
Measuring range
– temperature: (-80 ÷ 60) °C, (-60 ÷ 60) °C
Accuracy
±2 °C
Output
(0 ÷ 1) V (0 ÷ 5) V (0 ÷ 10) V (4 ÷ 20) mA relay
Power source
24 V AC/DC
Housing
– material: metal
Operating conditions
– temperature: (-40 ÷ 60) ºC
Additional functions
– alarm output – LCD display

Wiring diagram



Ordering code

Compact dew point sensor	EE371 – ... – ... – ... – ... – ...
Process pressure range: up to 20 bar up to 100 bar	 E I
Process connection: ½ NPT G½	 HA07 HA03
Display: none LCD display	no sign D08
Physical parameters of output: dew point temperature frost point temperature	 C D
Output signal: (0 ÷ 1) V (0 ÷ 5) V (0 ÷ 10) V (4 ÷ 20) mA	 1 2 3 6

Ordering example

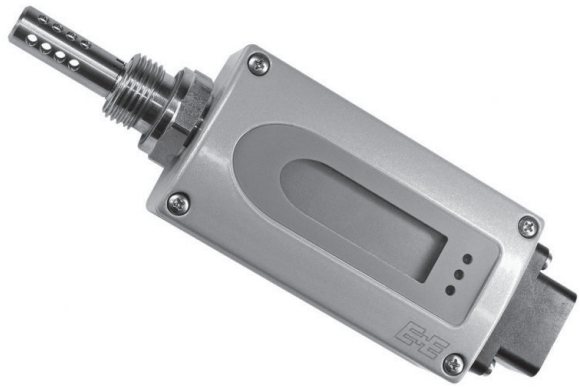
Compact dew point sensor EE371–E–HA03–D–S

Limatherm Sensor Sp. z o.o.
Skrudlak Street 1, 34-600 Limanowa
www.limathermsensor.com
tel. +48 18 330 10 00
fax. +48 18 330 10 04
e-mail export@limathermsensor.com

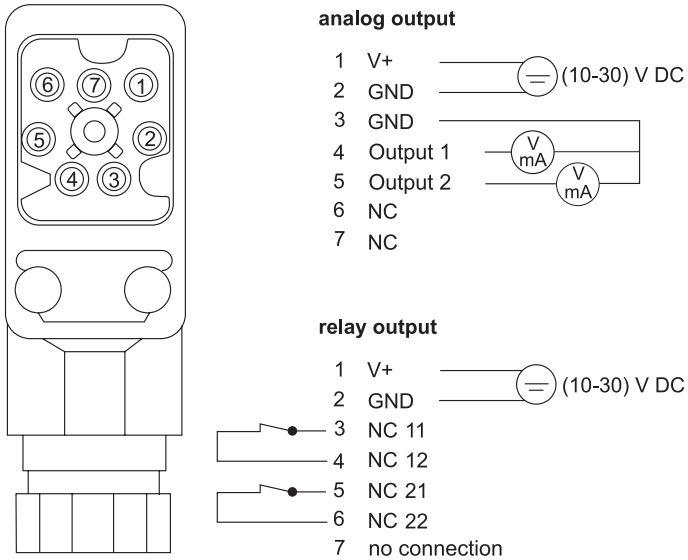
Moisture in Oil Sensor **EE381**

Technical description

Characteristic
– measurement of water-in-oil activity – measurement of wateri-in-oil content – temperature measurement – duct mounting
Measuring range
– humidity: (0 ÷ 100) %
Output
(0 ÷ 5) V (0 ÷ 10) V (4 ÷ 20) mA
Power source
24 V AC/DC
Housing
– material: metal
Operating conditions
– temperature: (-40 ÷ 60) ºC
Additional functions
– alarm output – LCD display



Wiring diagram



Ordering code

Moisture in Oil Sensor	EE381 – ... – ... – ... – ... – ...
Process pressure range: up to 20 bar up to 100 bar	 **E** **I**
Process connection: ½ NPT G½	 **HA07** **HA03**
Display: none LCD display	**no sign** **D08**
Physical parameters of output: water-in-oil activity temperature water-in-oil content	 **K** **B** **L(M)**
Signal output: (0 ÷ 5) V (0 ÷ 10) V (4 ÷ 20) mA	 **2** **3** **6**

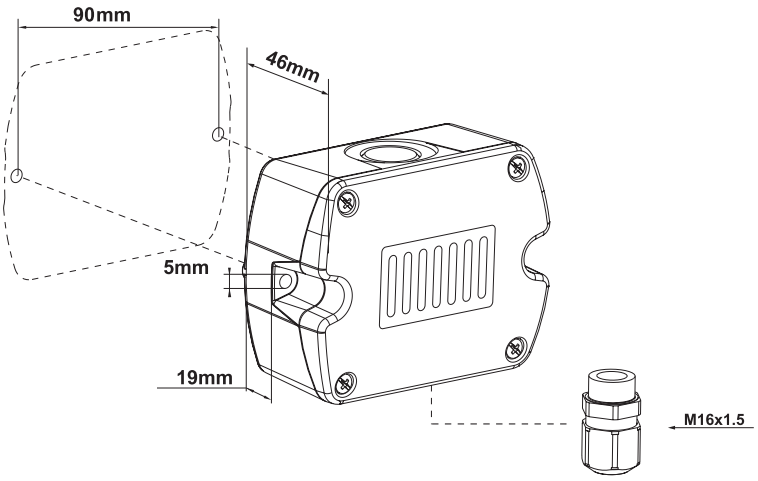
Ordering example **Moisture in Oil Sensor EE381–E–HA07–K–2**

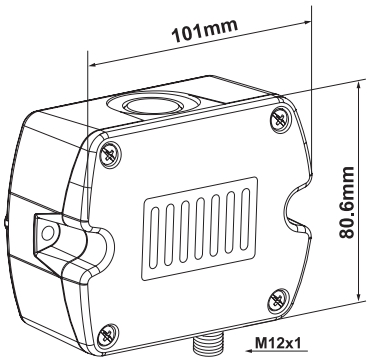
Limatherm Sensor Sp. z o.o.
Skrudlak Street 1, 34-600 Limanowa
www.limathermsensor.com
tel. +48 18 330 10 00
fax. +48 18 330 10 04
e-mail export@limathermsensor.com

CO2 sensor **EE820**

Technical description

Characteristic
– measurement in difficult and demanding applications – high accuracy of measurement – high measurement stability
Accuracy
±50 ppm for range (0 ÷ 5000) ppm ±100 ppm for range (0 ÷ 10000) ppm
Output
(0 ÷ 5) V (0 ÷ 10) V (4 ÷ 20) mA
Power source
(15 ÷ 35) V DC
Housing
– material: polycarbonate
Operating conditions
– temperature: (-20 ÷ 60) °C
Additional functions
– alarm output – LCD display





Ordering code

CO2 sensor	EE820 – ... – ... – ...
Measuring range:	
(0 ÷ 2000) ppm	**2000**
(0 ÷ 5000) ppm	**5000**
(0 ÷ 10000) ppm	**10000**
Output signal:	
(0 ÷ 5) V	**2**
(0 ÷ 10) V	**3**
(4 ÷ 20) mA	**6**
Connections:	
1x cable gland	**no sign**
1x plug	**C03**

Ordering example **CO2 sensor EE820–5000–2**

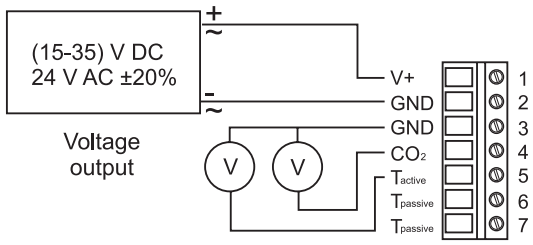
Limatherm Sensor Sp. z o.o.
Skrudlak Street 1, 34-600 Limanowa
www.limathermsensor.com
tel. +48 18 330 10 00
fax. +48 18 330 10 04
e-mail export@limathermsensor.com

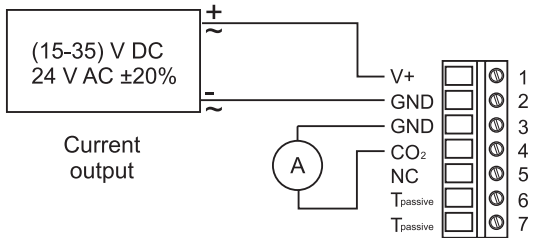
CO2 sensor **EE850**

Technical description

Characteristic
– temperature – CO2 measurement – duct mounting
Measuring range
(0 ÷ 2000) ppm (0 ÷ 5000) ppm (0 ÷ 10000) ppm
Output
(0 ÷ 5) V (0 ÷ 10) V (4 ÷ 20) mA passive temperature signal from RTD sensor
Power source
24 V AC ±20% (15 ÷ 35) V DC
Housing
– material: polycarbonate

Wiring diagram





Ordering code

CO2 sensor	EE850 – ... – ... – ... – ... – ...
Measuring range: (0 ÷ 2000) ppm (0 ÷ 5000) ppm (0 ÷ 10000) ppm	 **2000ppm** **5000ppm** **10000ppm**
Physical parameters of output: temperature CO2	 **T** **CO_2**
Signal output: (0 ÷ 5) V (0 ÷ 10) V (4 ÷ 20) mA passive temperature signal from RTD sensor	 **(0 ÷ 5) V** **(0 ÷ 10) V** **(4 ÷ 20) mA** **no sign**
Temperature sensor: none Pt1000 DIN A NTC 10 k Ω Ni1000, TK6180	**no sign** **Pt1000** **NTC 10 k** **Ni1000**
Probe length: 50 mm 200 mm	 **50 mm** **200 mm**

Ordering example **CO2 sensor EE850–5000ppm–TCO2–(4 ÷ 20) mA–Pt1000–200 mm**

Limatherm Sensor Sp. z o.o.
Skrudlak Street 1, 34-600 Limanowa
www.limathermsensor.com
tel. +48 18 330 10 00
fax. +48 18 330 10 04
e-mail export@limathermsensor.com

Calibration set for humidity sensors

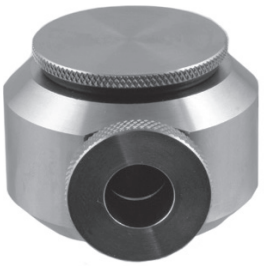
Technical description

Characteristic

The calibration set allows you to quickly and easily check the humidity sensor with 10-12 mm diameter probes. This calibration set includes calibration chamber and a set of ampoules with unsaturated salt solution which can be used for unlimited time and are not harmful for health and environment. .

Accuracy of the E+E Humidity Standards

Humidity value	Accuracy at 23 °C
0% RH	±0,3% RH
5% RH	±0,5% RH
10% RH	±0,5% RH
20% RH	±0,5% RH
35% RH	±0,5% RH
50% RH	±0,9% RH
65% RH	±0,9% RH
80% RH	±1,2% RH
95% RH	±1,2% RH

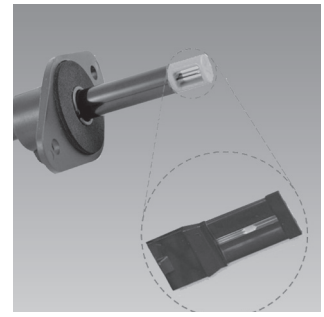


Ordering code

Calibration set for humidity sensors	– ... – ... – ... – ...
Humidity standard (5 ampoules + 5 textile pads):	
0% RH	HA010400
5% RH	HA010405
10% RH	HA010410
20% RH	HA010420
35% RH	HA010435
50% RH	HA010450
65% RH	HA010465
80% RH	HA010480
95% RH	HA010495
Humidity standard (50 ampoules):	
0% RH	HA011500
5% RH	HA011505
10% RH	HA011510
20% RH	HA011520
35% RH	HA011535
50% RH	HA011550
65% RH	HA011565
80% RH	HA011580
95% RH	HA011595
Calibration chamber: for sensor probes of ø10÷12 mm diameter	HA010401
Textile pads: 50 pcs. packed	HA010498

Ordering example **Calibration set for humidity sensors–HA010420–HA010401**

F



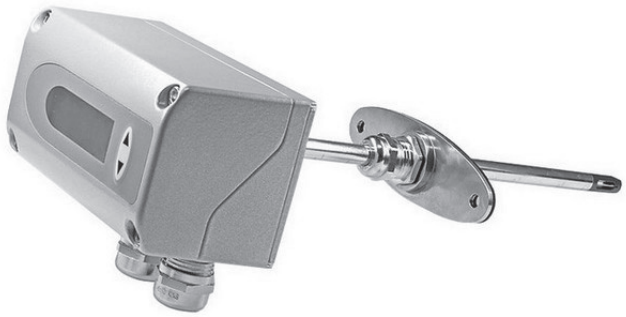
air velocity transmitters

Limatherm Sensor Sp. z o.o.
Skrudlak Street 1, 34-600 Limanowa
www.limathermsensor.com
tel. +48 18 330 10 00
fax. +48 18 330 10 04
e-mail export@limathermsensor.com

Air / Gas velocity transmitter **EE75**

Technical description

Characteristic
– air flow measurement – air temperature measurement – mounting: duct, wall, remote probe or remote pressure probe
Measuring range
(0 ÷ 2) m/s (0 ÷ 10) m/s (0 ÷ 40) m/s
Output
(0 ÷ 10) V (4 ÷ 20) mA
Power source
24 V AC/DC
Housing
– material: polycarbonate
Additional functions
– alarm output – LCD display



Ordering code

Air / Gas velocity transmitter	EE75 – ...	– ...	– ...	– ...	– ...	– ...	– ...	– ...	– ...	– ...
Mounting:										
wall	A									
duct	B									
remote probe	C									
remote pressure probe	E									
Output signal:										
(0 ÷ 10) V		3								
(4 ÷ 20) mA		6								
Measuring range:										
(0 ÷ 2) m/s			1							
(0 ÷ 10) m/s			2							
(0 ÷ 40) m/s			3							
Probe length:										
200 mm				5						
400 mm				6						
600 mm				7						
Cable length: none				no sign						
2 m				K200						
5 m				K500						
10 m				K1000						
Display: none					bez ozn.					
LCD display					D06					
Process connection: none						no sign				
½ NPT						H07				
G½						H03				
Connection:										
1x plug for power supply and outputs							C12			
2x plugs for power supply / outputs and USB							C13			
1x plug for USB							C14			
1x cable gland							no sign			
Physical parameters of output:										
air velocity										N
air flow										O
air temperature										B

Ordering example **Air / Gas velocity transmitter EE75–C–3–1–6–K200–D06–C14–N**

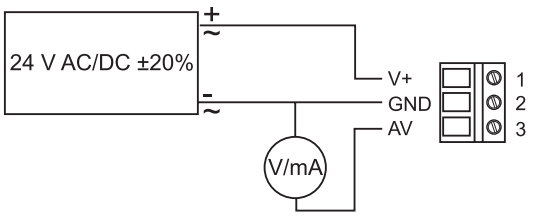
Limatherm Sensor Sp. z o.o.
Skrudlak Street 1, 34-600 Limanowa
www.limathermsensor.com
tel. +48 18 330 10 00
fax. +48 18 330 10 04
e-mail export@limathermsensor.com

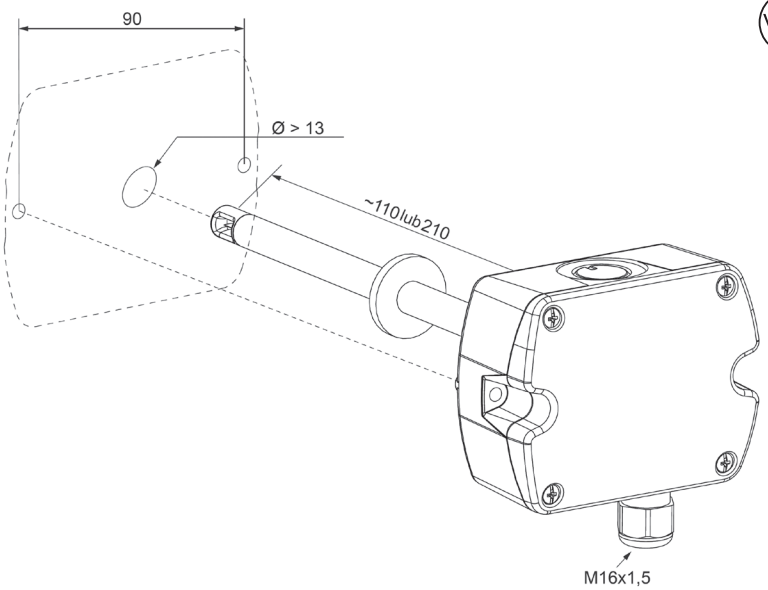
Air velocity transmitter **EE650**

Technical description

Characteristic
– mounting: duct, remote probe
Measuring range
(0 ÷ 10) m/s (0 ÷ 15) m/s (0 ÷ 20) m/s
Output
(0 ÷ 10) V (4 ÷ 20) mA
Power source
24 V AC/DC
Housing
– material: polycarbonate

Wiring diagram





Ordering code

Air velocity transmitter	EE650 – ... – ... – ... – ...
Physical parameters of output: air velocity	V
Mounting: duct remote probe	 T2A6 T3A6
Probe length: 100 mm 200 mm 300 mm	 L100 L200 L300
Cable length: none 1 m 2 m 5 m 10 m	no sign K1 K2 K5 K10

Ordering example **Air velocity transmitter EE650–V–T2A6–L100–K2**

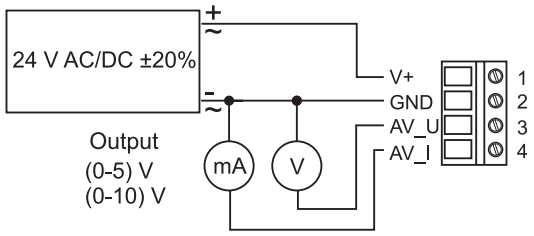
Limatherm Sensor Sp. z o.o.
Skrudlak Street 1, 34-600 Limanowa
www.limathermsensor.com
tel. +48 18 330 10 00
fax. +48 18 330 10 04
e-mail export@limathermsensor.com

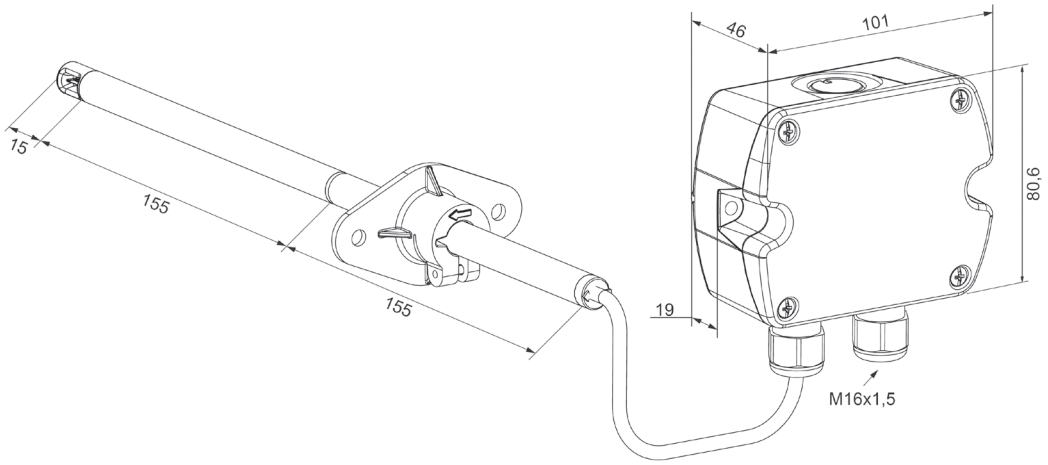
Air velocity transmitter **EE660**

Technical description

Characteristic
– mounting: duct, wall, with cable
Measuring range
(0 ÷ 1) m/s (0 ÷ 1,5) m/s (0 ÷ 2) m/s
Output
(0 ÷ 10) V (4 ÷ 20) mA
Power source
24 V AC/DC
Housing
– material: polycarbonate

Wiring diagram





Ordering code

Air velocity transmitter	EE660 – ... – ... – ... – ... – ...
Physical parameters of output: air velocity	V7x
Mounting: wall duct with cable	 A B C
Probe length: 100 mm 200 mm 300 mm	 D F x
Cable length: none 1 m 2 m 5 m 10 m	 B D G H
Display: none LCD display	x D

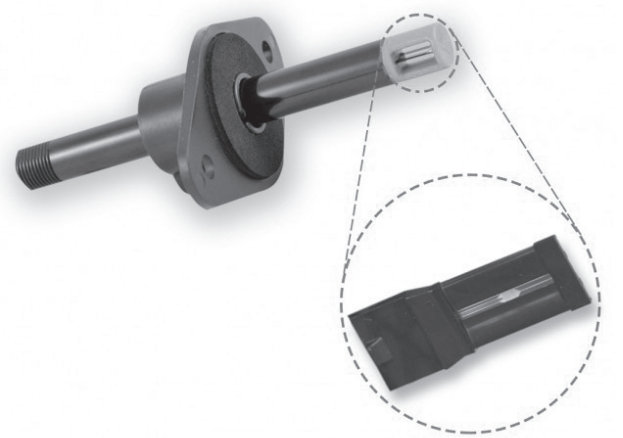
Ordering example **Air velocity transmitter EE660–V7x–B–x–B–x**

Limatherm Sensor Sp. z o.o.
Skrudlak Street 1, 34-600 Limanowa
www.limathermsensor.com
tel. +48 18 330 10 00
fax. +48 18 330 10 04
e-mail export@limathermsensor.com

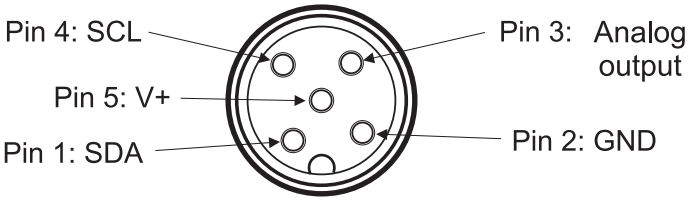
Air velocity transmitter **EE671**

Technical description

Characteristic
– mounting with a cable or with a quick connector
Measuring range
(0 ÷ 5) m/s (0 ÷ 10) m/s (0 ÷ 15) m/s (0 ÷ 20) m/s
Output
(0 ÷ 1) V (0 ÷ 5) V (0 ÷10) V
Power source
24 V AC/DC
Housing
– material: polycarbonate



Wiring diagram



Ordering code

Air velocity transmitter	EE671 – ... – ... – x – ... – ... – ...
Physical parameters of output: air velocity	V
Output signal: (0 ÷ 1) V (0 ÷ 5) V (0 ÷ 10) V	 1 2 3
Digital output: none	
Measuring range: (0 ÷ 5) m/s (0 ÷ 10) m/s (0 ÷ 15) m/s (0 ÷ 20) m/s	 C D E F
Version: with cable with plug	 K S
Cable length: 0,5 m 2 m with cable	 A D x

Ordering example

Air velocity transmitter EE671–V–2–x–D–K–A

G

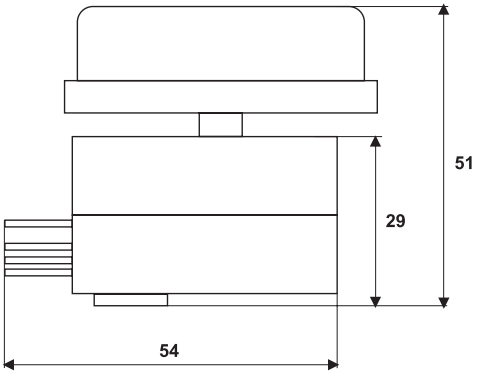
thermostats

Limatherm Sensor Sp. z o.o.
Skrudlak Street 1, 34-600 Limanowa
www.limathermsensor.com
tel. +48 18 330 10 00
fax. +48 18 330 10 04
e-mail export@limathermsensor.com

Single-phase thermostats with capillary **ST**

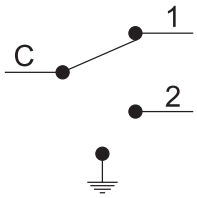
Technical description

Characteristic
– series of universal single-phase built-in thermostats – a lot of adjustment ranges – the ability to work as a cooling or heating thermostat – temperature setting knob – knob and built-in frame included
Application
ST-R2: (-35 ÷ 35) °C - refrigeration ST-04: (0 ÷ 40) °C - beverage coolers, refrigerators ST-09: (0 ÷ 90) °C - water heaters, boilers ST-12: (30 ÷ 120) °C - water heaters ST-22: (50 ÷ 220) °C - deep fryers, electric grills, oil heaters ST-30: (50 ÷ 300) °C - ovens and electric ovens
Knob
ø52x18 mm

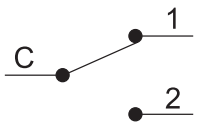


Wiring diagram

ST-R2, ST-04, ST-09, ST-12, ST-22



ST-30



	ST-R2	ST-04	ST-09	ST-12	ST-22	ST-30
Adjustment range [°C]	(-35 ÷ 35)	(0 ÷ 40)	(0 ÷ 90)	(0 ÷ 120)	(50 ÷ 220)	(50 ÷ 300)
Accuracy	3 °C	3 °C	4 °C	4 °C	4 °C	9 °C
Hysteresis	4°C	4 °C	5 °C	5 °C	5 °C	10 °C
Max. housing temp.	65 °C	80 °C	100 °C	110 °C	150 °C	150 °C
Capillary length [cm]	150	90	90	90	90	90
Capillary material	brass	brass	brass	brass	brass	stainless steel
Head size [mm]	6x138	6x125	6x96	6x96	6x96	3,1x245
Capillary bend	min. 5 mm radius					
Integrated contacts	SPDT switching					
Contact load	16(5)A 250 V AC, 10(1)A 400 V AC					
Connectors [mm]	flat plug; 6,3x0,8					

Ordering code

Single-phase thermostat with capillary	**ST – ...**
Temperature range:	
(-35 ÷ 35) °C	**R2**
(0 ÷ 40) °C	**40**
(0 ÷ 90) °C	**90**
(0 ÷ 120) °C	**120**
(50 ÷ 220) °C	**220**
(50 ÷ 300) °C	**300**

Ordering example

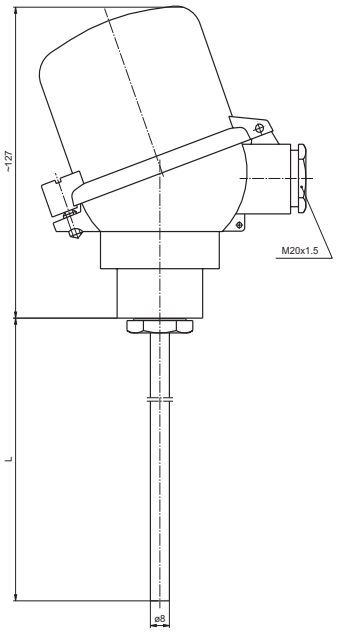
Single-phase thermostat with capillary ST–120

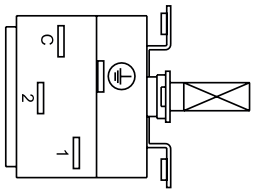
Limatherm Sensor Sp. z o.o.
Skrudlak Street 1, 34-600 Limanowa
www.limathermsensor.com
tel. +48 18 330 10 00
fax. +48 18 330 10 04
e-mail export@limathermsensor.com

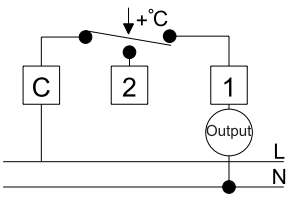
Thermostat **LIM TMS**

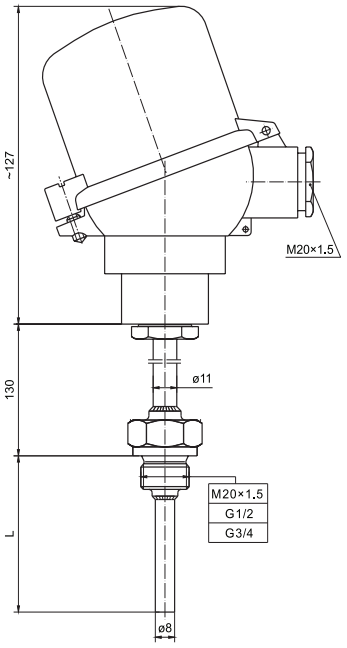
Technical description

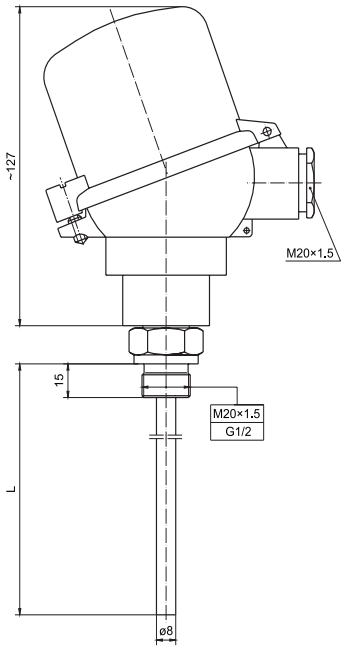
Characteristic
– universal thermostat with aluminum head and steel cover stainless
Sheath
– diameter [mm]: ø8 – material: 1.4541 steel
Head
– DAAW1, IP65, (-40 ÷ 100) °C
Options
– min. immersion length [mm]: 150 – temperature setting knob – hysteresis: 5 °C – SPDT switching (NO + NC) – contact load NO (NC): 16(5) A 250 V, 10(1) A 400 V – connectors: 6.3x0.8 mm flat plug











Ordering code

Thermostat	LIM TMS – ... – ... – ... – ...
Construction: straight with thread with thread and distance	 I GB GN
Sheath length L [mm]	250*
Thread size	G½; M20x1,5*
Temperature rabge: (-35 ÷ 35) °C (0 ÷ 40) °C (0 ÷ 90) °C (0 ÷ 120) °C (50 ÷ 220) °C (50 ÷ 300) °C	 R2 40 90 120 220 300

* Acc. to requirements

Ordering example **Thermostat LIM TMS–GB–250–M20x1,5–120**

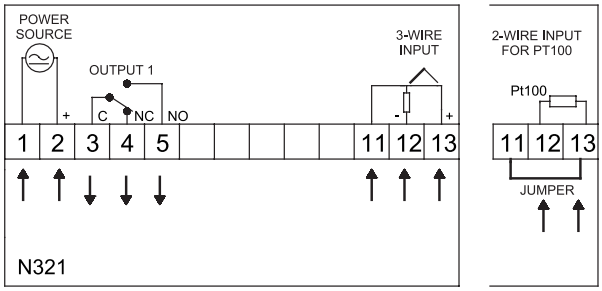
Limatherm Sensor Sp. z o.o.
Skrudlak Street 1, 34-600 Limanowa
www.limathermsensor.com
tel. +48 18 330 10 00
fax. +48 18 330 10 04
e-mail export@limathermsensor.com

Thermostat **LIM N321/N321R**

Technical description

Characteristic
– LED indicators 3 ½ digits – adjustable offset for the sensor – adjustable hysteresis – adjustable minimum off / on time – NTC sensor - 3 m cable, extendable to 100 m – IP65 front panel
Input
– NTC: (-50 ÷ 120) °C 10 kΩ – Pt100: (-50 ÷ 300) °C – J: (0 ÷ 600) °C – K: (-50 ÷ 1000) °C – T: (-50 ÷ 400) °C
Accuracy
±1 ºC: for NTC ±0,7 ºC: for Pt100 ±3 ºC: for J, K, T
Outout
– relay: SPDT 16 A/250 V
Power source
(100 ÷ 240) V AC (±10%) (12 ÷ 30) V AC/DC 5 VA
Operating conditions
– temperature: (0 ÷ 40) ºC – humidity: (20 ÷ 85) % RH without condensation
Dimensions [mm]
75x33x75; hole: 70x29

Wiring diagram



THERMOSTATS

G

Ordering code

Thermostat	LIM N321 – ... – ... – ...
Power source:	
(100 ÷ 240) V AC	4
(12 ÷ 30) V AC/DC	5
Input:	
Pt100	1
J, K, T	3
NTC	4
Interface: none	0

*NTC version with sensor included

Ordering example

Thermostat LIM N321–4–1–0

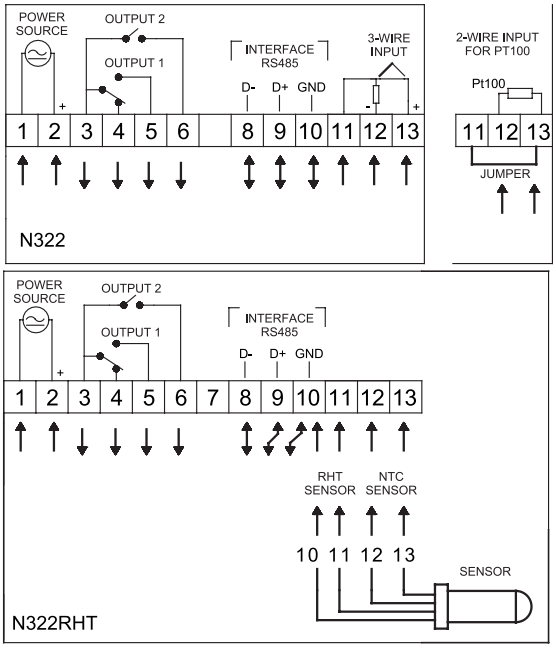
Limatherm Sensor Sp. z o.o.
Skrudlak Street 1, 34-600 Limanowa
www.limathermsensor.com
tel. +48 18 330 10 00
fax. +48 18 330 10 04
e-mail export@limathermsensor.com

Thermostat **LIM N322/N322T/N322RHT**

Technical description

Characteristic
– LED indicators 3 ½ digits – adjustable offset for sensor – independent temperature value for each output – 2 control outputs – adjustable hysteresis – minimum and maximum range for configurable setpoints – configuration is maintained even with energy failures – timer function (N322T) – humidity and temperature measurement (N322RHT) – MODBUS RTU protocol – front-panel with IP65 protection – NTC sensor - 3 m cable, extendable to 100 m – N322T (controller with time functions)
Input
– NTC: (-50 ÷ 120°C) 10 kΩ – Pt100: (-50 ÷ 300) °C – Pt1000: (-200 ÷ 530) °C – J: (0 ÷ 600) °C – K: (-50 ÷ 1000) °C – T: (-50 ÷ 400) °C – RHT: (-40 ÷ 120) °C; (0 ÷ 100) % RH
Accuracy
±1 ºC: for NTC ±0,7 ºC: for Pt100, Pt1000 ±3 ºC: for J, K, T ±1 ºC, ±3% RH: for RHT
Output I
– relay: SPDT 16 A/250 V AC
Output II
– relay: NO 3 A/250 V AC
Power source
(100 ÷ 240) V AC (±10%) (12 ÷ 30) V AC/DC 5 VA
Operating conditions
– temperature: (0 ÷ 40) ºC – humidity: (20 ÷ 85) % RH without condensation
Dimension [mm]
75x33x75; hole: 70x29
Additional functions
– RS485 interface

Wiring diagram



Ordering code

Thermostat	**LIM N322/N322T/N322RHT – ... – ... – ...**		
Power source: (100 ÷ 240) V AC (12 ÷ 30) V AC/DC	**4** **5**		
Input: Pt100 Pt1000 J, K, T NTC NTC/RHT (only N322RHT)		**1** **2** **3** **4** **5**	
Interface: none RS485			**0** **1**

* NTC version with sensor included

Ordering example **Thermostat LIM N322–4–1–0**

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tel. +48 18 330 10 00
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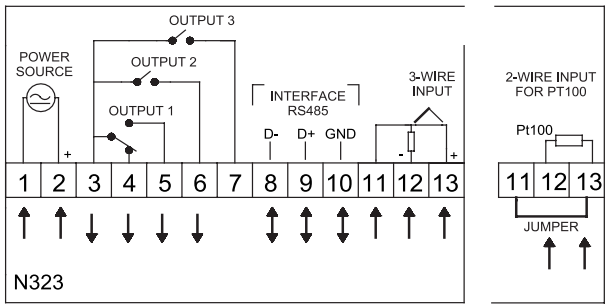
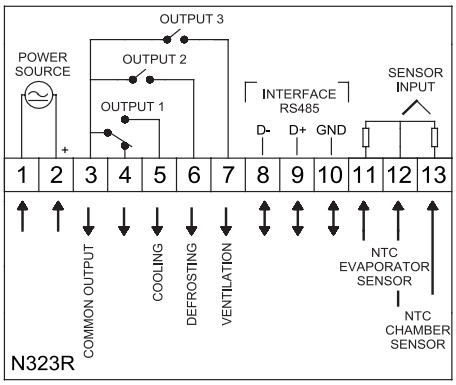
Thermostat **LIM N323/N323R/N323RHT**

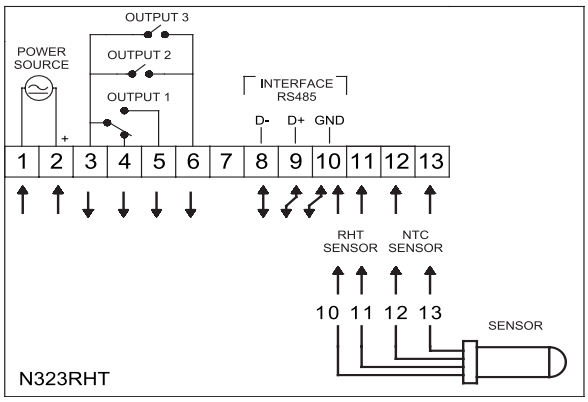
Technical description

Characteristic
– LED indicators 3 ½ digits – adjustable offset for sensor – independent temperature value for each output – 3 control outputs – adjustable hysteresis for each output – minimum and maximum range for configurable setpoints – adjustable time delay of switching on the second output in relation to the first switching on – N323R cooling chamber regulator (two sensors included NTC chamber and evaporator, control at the outputs relay, chiller, fan and heater) – humidity and temperature measurement (N323RHT) – MODBUS RTU protocol – NTC sensor - 3 m cable, extendable to 100 m
Input
– NTC: (-50 ÷ 120) °C 10 kΩ – Pt100: (-50 ÷ 300) °C – Pt1000: (-200 ÷ 530) °C – J: (0 ÷ 600) °C – K: (-50 ÷ 1000) °C – T: (-50 ÷ 400) °C – RHT: (-40 ÷ 120) °C; (0÷100) % RH
Accuracy
±1 ºC: for NTC ±0,7 ºC: for Pt100, Pt1000 ±3 ºC: for J, K, T ±1 ºC, ±3% RH: for RHT
Outpout I
– relay: SPDT 16 A/250 V AC
Outpout II, III
– relay: NO 3 A/250 V AC
Power source
(100 ÷ 240) V AC (±10%) (12 ÷ 30) V AC/DC 5 VA
Operating conditions
– temperature: (5 ÷ 50) ºC – humidity: (20 ÷ 85) % RH without condensation
Dimension [mm]
75x33x75; hole: 70x29
Additional functions
– RS485 interface

Schemat połączeń







Ordering code

Thermostat	LIM N323/N323R/N323RHT – ... – ... – ...
Power source: (100 ÷ 240) V AC (12 ÷ 30) V AC/DC	4 5
Input: Pt100 Pt1000 J, K, T NTC NTC/RHT (only N323RHT)	1 2 3 4 5
Interface: none RS485	0 1

* NTC version with sensor included

Ordering example **Thermostat LIM N323R–4–4–0**

H

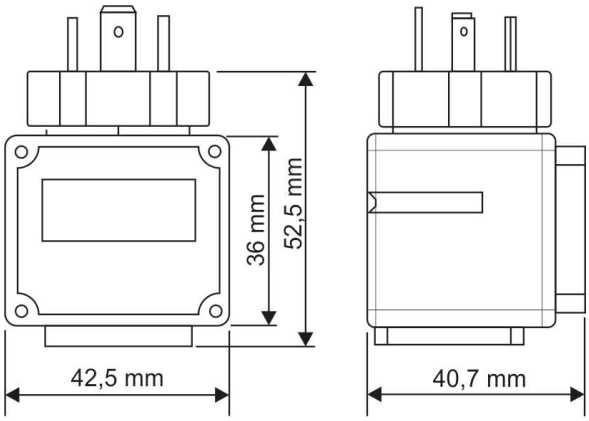
indicators

Limatherm Sensor Sp. z o.o.
Skrudlak Street 1, 34-600 Limanowa
www.limathermsensor.com
tel. +48 18 330 10 00
fax. +48 18 330 10 04
e-mail export@limathermsensor.com

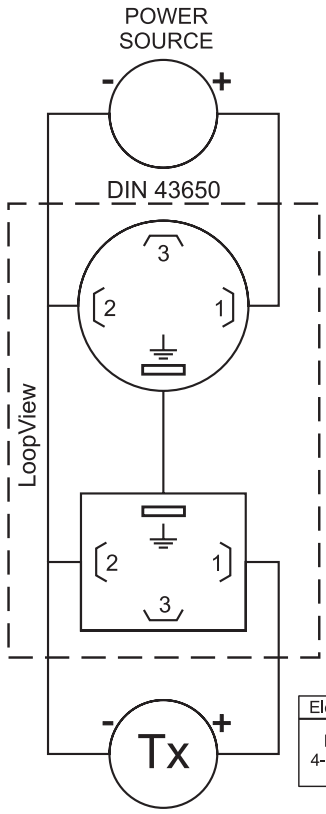
Loop powered indicator **LoopView**

Technical description

Characteristic
– Electrical Connection: EN 175301-803 A standard (DIN 43650 form A) – display: 4-digit red LED display – configuration: External push buttons – password protected configuration access – protection rate: IP65, NEMA4X
Input
– (4 ÷ 20) mA - 16 bit display measurement
Display resolution
- indicating range: -1999 to 9999 or 9999 to -1999
Accuracy
– 0,5% range – thermal deviation ± 0.03% per ° C
Power source
– 4 - 20 mA loop powered, max current load: 60 mA – voltage drop: below than 10 mA: < 5.4 V 10 up to 12 mA: < 3.9 V higher than 12 mA: < 2.8 V
Operating conditions
– temperature: (-40 ÷ 85) °C
Dimensions [mm]
65x45x45 mm



Wiring diagram



Electrical connection		DIN 43650
Loop 4-20 mA	Power source +	1
	Power source -	2
	Grounding	Grounding

Ordering example **Loop powered indicator LoopView**

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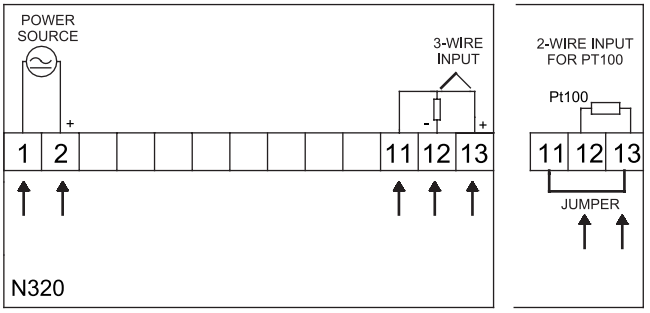
e-mail export@limathermsensor.com

Electronic indicator **LIM N320**

Technical description

Characteristic
– LED indicators 3 ½ digits – sensor offset adjustment – front-panel with IP65 protecton – NTC sensor - 3 m cable, extendable to 100 m
Input
– NTC: (-50 ÷ 120) °C 10 kΩ – Pt100: (-50 ÷ 300) °C – Pt1000: (-200 ÷ 530) °C – J: (0 ÷ 600) °C – K: (-50 ÷ 1000) °C – T: (-50 ÷ 400) °C)
Accuracy
±1 ºC: for NTC ±0,7 ºC: for Pt100, Pt1000 ±3 ºC: for J, K, T
Power source
(100 ÷ 240) V AC (±10%) (12 ÷ 30) V AC/DC 5 VA
Operating conditions
– temperature: (0 ÷ 40) ºC – humidity: (20 ÷ 85) % RH without condensation
Dimensions [mm]
75x33x75; hole: 70x29

Wiring diagram



Ordering code

Electronic indicator	LIM N320 – ... – ... – ...
Power source:	
(100 ÷ 240) V AC	4
(12 ÷ 30) V AC/DC	5
Input:	
Pt100	1
Pt1000	2
J, K, T	3
NTC	4
Interface: none	0

* NTC version with sensor included

Ordering example

Electronic indicator LIM N320–4–1–0

Limatherm Sensor Sp. z o.o.
Skrudlak Street 1, 34-600 Limanowa
www.limathermsensor.com
tel. +48 18 330 10 00
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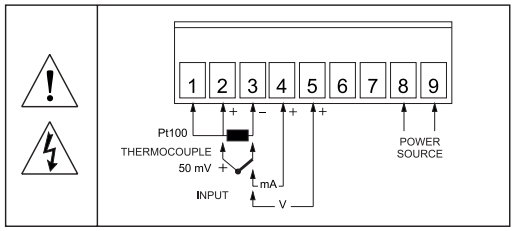
e-mail export@limathermsensor.com

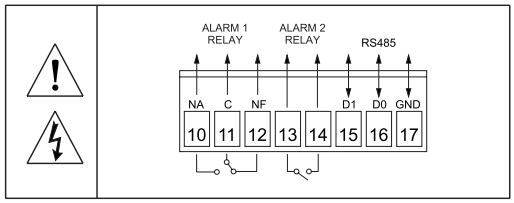
Electronic indicator **LIM N1040i**

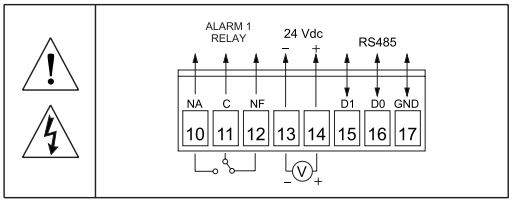
Technical description

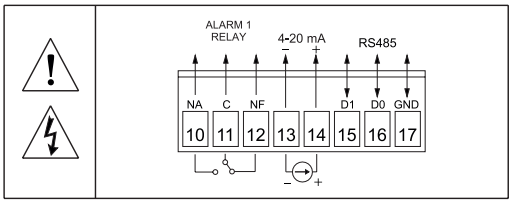
Characteristic
– LED indicators 4 digits – input adjustable offset allows small indication corrections – detection of sensor failure
Input
– TC: J, K, T, E, R, S, B, N – RTD: Pt100 – current: (4 ÷ 20) mA, (0 ÷ 20) mA – voltage: (0 ÷ 50) mV, (0 ÷ 5) V, (0 ÷ 10) V
Accuracy
±0,25% range ±1 ºC: for J, K, T, E ±0,25% range ±3 ºC: for S, R, B, N ±0,2% range: for Pt100 ±0,2% range: for current and voltage outputs
Power source
(100 ÷ 240) V AC/DC (12 ÷ 24) V AC/DC 6 VA
Operating conditions
– temperature: (-10 ÷ 55) ºC – humidity: (20 ÷ 85) % RH without condensation
Dimensions [mm]
48x48x80; hole: 46x46
Additional functions
– 2 alarm outputs - 1 relay 3 A NO/NC, 2 relay 1,5 A NO – transmitter power source 24 V DC - max. 25 mA

Wiring diagram









Ordering code

Electronic indicator	LIM N1040i – ... – ... – ...
Power source: (100 ÷ 240) V AC/DC (12 ÷ 24) V AC/DC	 4 5
Without outputs (indicator) 1 relay AL1 + transmitters power supply 24 V DC/25 mA 2 relays AL1 + AL2 1 relay AL1 + relay (0 ÷ 20) mA, (4 ÷ 20) mA	0 1 2 4
Interface: none RS485	0 1

Ordering example **Electronic indicator LIM N1040i–4–1–0**

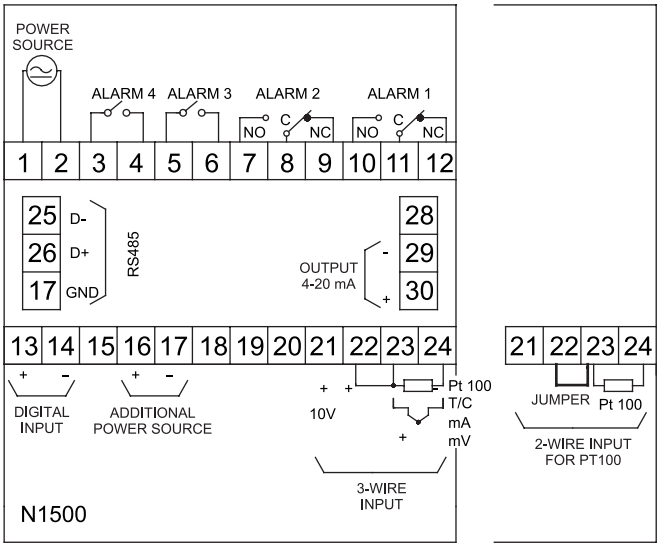
Limatherm Sensor Sp. z o.o.
Skrudlak Street 1, 34-600 Limanowa
www.limathermsensor.com
tel. +48 18 330 10 00
fax. +48 18 330 10 04
e-mail export@limathermsensor.com

Electronic indicator **LIM N1500**

Technical description

Characteristic
– LED indicators 4 digits – 4 alarm outputs (2 as standard) – transmitter power supply – 8 types of alarm – sensor offset adjustment
Output
– TC: J, K, T, E, R, S, B, N – RTD: Pt100 – current: (4 ÷ 20) mA – voltage: (0 ÷ 5) V, (0 ÷ 10) V, (0 ÷ 50) mV
Accuracy
±0,25% of range ±1 ºC: dla J, K, T, N ±0,25% of range ±3 ºC: dla S, R, B, E ±0,2% of range: dla Pt100 ±0,15% of range: for voltage and current output
Output I, II
– relay: SPDT 3 A/240 V
Output III, IV
– relay: NO 1,5 A/250 V
Output V
– (0 ÷ 20) mA, (4 ÷ 20) mA (550 Ω max.)
Additional power source
24 V DC/25 mA (±10%)
Power source
(100 ÷ 240) V AC/DC (±10%) (12 ÷ 24) V AC/DC 7,5 VA
Operating conditions
– temperature: (5 ÷ 50) ºC – humidity for T≥30 ºC $RH_{max.}$ = 80% T<30 ºC $RH_{max.}$ = [80 - (30-T)*3]%
Dimension [mm]
48x96x92; hole: 45x93
Additional functions
– 4 alarm output - relay 4x3 A/240 V AC – RS485 interface – current output (4 ÷ 20) mA

Wiring diagram



Ordering code

Electronic indicator	LIM N1500 –...	– ...	– ...	– ...
Power source: (100 ÷ 240) V AC/DC (12 ÷ 24) V AC/DC	4 5			
Alarm: 2 relays 3 A/240 V (standard) 4 relays 2x3 A/240 V + 2x1,5 A/250 V (optional)		2 4		
Output: none (0 ÷ 20) mA, (4 ÷ 20) mA (opcja)			0 1	
Interface: none RS485 interface (optional)				0 1

Ordering example **Electronic indicator LIM N1500–4–2–0–0**

Limatherm Sensor Sp. z o.o.
Skrudlak Street 1, 34-600 Limanowa
www.limathermsensor.com
tel. +48 18 330 10 00
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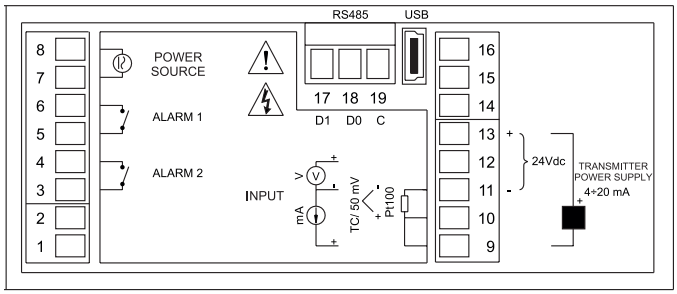
Electronic indicator **LIM N1540**

Technical description

Characteristic
– bright 14 mm display – universal output – 2 alarm outputs 1,5 A/250 V – auxiliary 24 V DC voltage source – USB Interface for configuration and monitoring – IP65 UL 94 V-2 front; IP20 UL 94V-0 enclosure – programmable indicating range from -1999 to 9999 – password for configuration protection – adjustable indication offset – Recorded maximum HI and minimum LO values can be retrieved via keypad
Output
– TC: J, K, S, T, E, N, R, B – RTD: Pt100 – current: (0 ÷ 20) mA, (4 ÷ 20) mA, (4 ÷ 20) mA (nonlinear) – voltage: (0 ÷ 50) mV, (0 ÷ 5) V, (0 ÷ 10) V
Accuracy
±0,25% of range ±1 °C for: J, K, T, E ±0,25% of range ±3 °C for: N, R, S, B ±0,2% of range for: Pt100, ±0,2% of range for: (4 ÷ 20) mA, (0 ÷ 20) mA ±0,2% of range for: (0 ÷ 50) mV, (0 ÷ 5) V, (0 ÷ 10) V
Output I, II
– relay NO 1,5 A/250 V
Additional power source
24 V DC/20 mA (±10%)
Power source
(100 ÷ 240) V AC/DC (±10%) (12 ÷ 24) V AC/DC 6 VA
Operating conditions
– temperature: (0 ÷ 50) °C – humidity: (35 ÷ 80) % RH without condensation
Dimension [mm]
96x48x35; hole: 93x45,5
Additional options
– RS485 Modbus RTU serial communication

Wiring diagram



Ordering code

Electronic indicator	LIM N1540 – ... – ...
Power source:	
(100 ÷ 240) V AC/DC	4
(12 ÷ 24) V AC/DC	5
Communication: none	0
RS485	1

Ordering example

Electronic indicator LIM N1540–4–0

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Skrudlak Street 1, 34-600 Limanowa
www.limathermsensor.com
tel. +48 18 330 10 00
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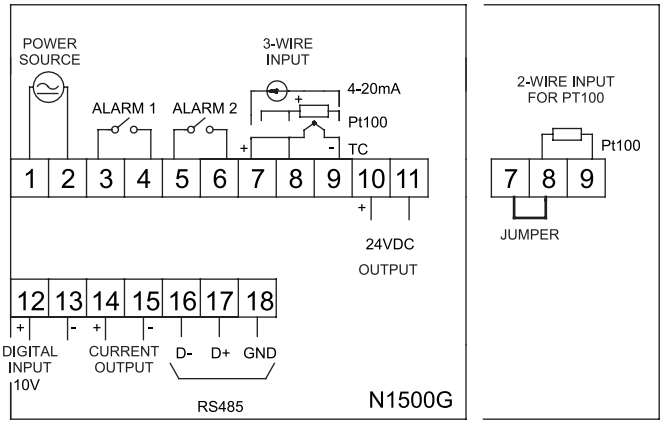
e-mail export@limathermsensor.com

Electronic indicator **LIM N1500G**

Technical description

Characteristic
– LED display 4½ digits – large digits: 56 mm – transmitter power supply – 2 alarm outputs – 5 types of alarms – RS485 interface – adjustable indication offset – detection of sensor failure
Output
– TC: J, K, T, E, B, R, S, N – RTD: Pt100 – current: (4 ÷ 20) mA – voltage: (0 ÷ 5) V, (0 ÷ 10) V, (0 ÷ 50) mV
Accuracy
±0,25% of range ±1 ºC: dla J, K, T, E, N ±0,25% of range ±3 ºC: dla S, R, B ±0,2% of range for Pt100 ±0,15% of range for: current and voltage outputs
Output I, II
– relay: NO 1,5 A/250 V
Output V
– (0 ÷ 20) mA, (4 ÷ 20) mA (550 Ω max.)
Power source
(100 ÷ 240) V AC/DC 10 VA
Operating conditions
– temperature: (5 ÷ 50) ºC – humidity for: T≥30 ºC $RH_{max.}$ = 80% T<30 ºC $RH_{max.}$ = [80 - (30-T)*3]%
Dimensions [mm]
310x110x37

Wiring diagram



Ordering example **Electric indicator LIM N1500G**

Limatherm Sensor Sp. z o.o.
Skrudlak Street 1, 34-600 Limanowa
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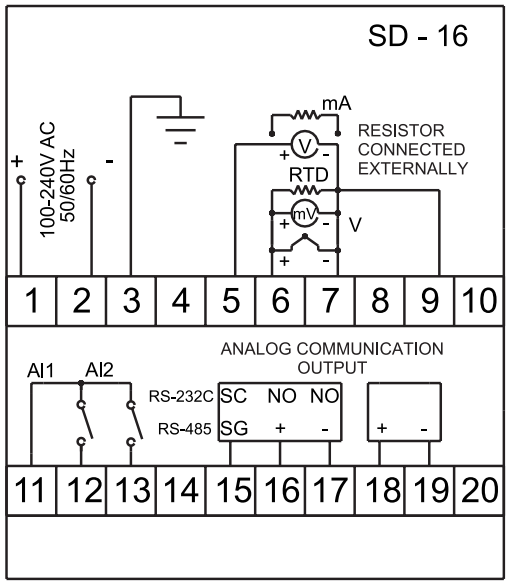
fax. +48 18 330 10 04
e-mail export@limathermsensor.com

Electronic indicator **SD 16**

Technical description

Characteristic
– LED display 4 digits – inverse scaling possible (for analog output) – dust and splash proof IP66 front panel
Output
– TC: B, R, S, K, E, J, T, N, U, L – RTD: Pt100 – current: (4 ÷ 20) mA – voltage: (0 ÷ 10) mV, (0 ÷ 5) V, (1 ÷ 5) V, (0 ÷ 10) V
Accuracy
0,3% within range + 1 digit
Output
– alarm: 2x 1,5 A/240 V relays – analog voltage: (0 ÷ 10) mV DC, (0 ÷ 10) V DC (optional) – analog current: (4 ÷ 20) mA (optional)
Power source
(100 ÷ 240) V AC 24 V AC/DC ±10% (optional)
Operating conditions
– temperature: (-10 ÷ 50) ºC – humidity: <90% RH without condensation
Dimensions [mm]
48x96x110; hole: 45x92
Additional functions
– 2 alarm outputs - 2x1,5 A/ 240 V AC relays – RS485 or RS232 interface – analog output

Wiring diagram



Ordering code

Electric indicator	**SD 16 –... – ... – ... – ... – ...**
Current input	4
Multi input	8
Power source:	
(100 ÷ 240) V AC	90
24 V AC/DC (optional)	08
Alarm: none	0
relay (opcja)	1
Analog output (optional): none	0
(0 ÷ 10) mV	3
(4 ÷ 20) mA	4
(0 ÷ 10) V	6
Transmitters power Supply 24 V DC/25 mA	8
Interface (optional): none	0
RS485 interface	5
RS232C interface	7

Ordering example **Electric indicator SD 16–4–90–0–0–0**

I

temperature controllers

Limatherm Sensor Sp. z o.o.
Skrudlak Street 1, 34-600 Limanowa
www.limathermsensor.com
tel. +48 18 330 10 00
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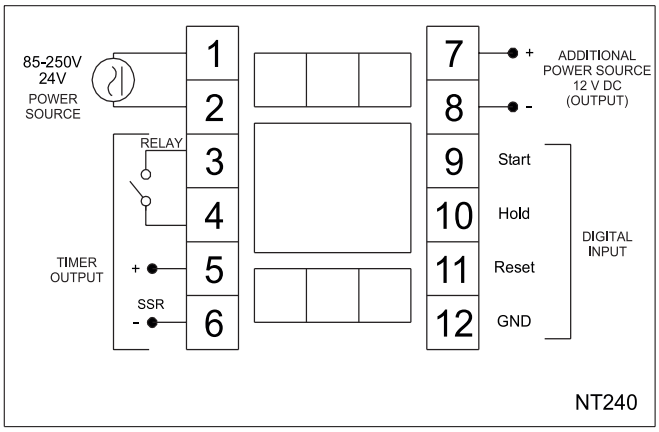
e-mail export@limathermsensor.com

Programmable timer **LIM NT240**

Technical description

Characteristic
– dual 4-digit display – time base: 7 scales, from 99.99 seconds to 9999 hours – controlling the outputs in accordance with the previously defined operating modes (time intervals) – ability to create your own work modes – accuracy: 0.5% of displayed time – available digital inputs for special functions – front panel: IP65, polycarbonate UL94 V-2 – transmitters power suply: 12 V DC/50 mA
Input
– NPN/PNP sensors – NO/NC dry contact - RESET, HOLD, START – logical impulses 0: (-0,5 ÷ 0,5) V DC – logical impulses 1: (5 ÷ 30) V DC
Accuracy
0,1%
Output I
– relay: NO 3 A/250 V
Output II
– SSR 5 V/25 mA
Additional power source
12 V DC/50 mA (±10%)
Power source
(100 ÷ 240) V AC/DC (±10%) (12 ÷ 24) V AC/DC 3 VA
Operating conditions
– temperature: (0 ÷ 55) ºC – humidity: (0 ÷ 85) % RH without condensation
Dimension [mm]
48x48x106; hole: 45,5x45,5

Wiring diagram



Ordering example

Programmable timer LIM NT240 (standard power source (100 ÷ 240) V)
Programmable timer LIM NT240–24 V (optional power source (12 ÷ 24) V)

Limatherm Sensor Sp. z o.o.
Skrudlak Street 1, 34-600 Limanowa
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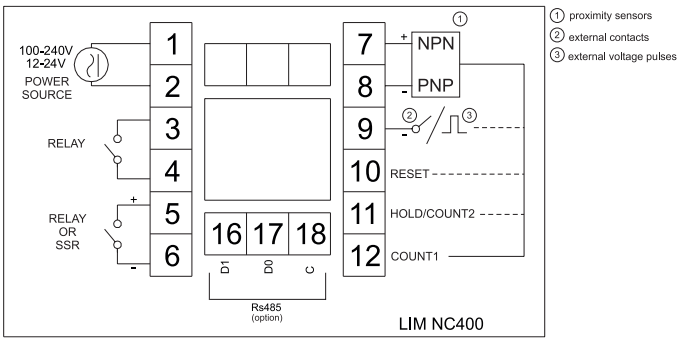
Digital Counter **LIM NC400**

Technical description

Characteristic
– 6-digit red display 12 mm-high – 2 counting input COUNT1, COUNT2, HOLD, RESET – extended counting functions – outputs triggering timing: 0,01 to 9999,99 s – 3 work counters (main, partial, additive) – max. counting frequency up to 20 kHz – max. input voltage up to 30 V DC – input impedance 4700 Ω – auxiliary voltage source: 12 V DC/50 mA
Input
– NPN/PNP, voltage pulse connections – counting input – external voltage pulses max. 30 V DC
Output I
– SSR 5 V output impedance 100 Ω
Output II
– relay: 3 A/250 V
Additional source power
12 V DC/50 mA (±10%)
Power source
(100 ÷ 240) V AC/DC (±10%) (12 ÷ 24) V AC/DC 9 VA
Operating conditions
– temperature: (0 ÷ 50) ºC – humidity: (0 ÷ 85) % RH without condensation
Dimensions [mm]
48x48x110; hole: 45,5x45,5

Wiring diagram



Modes of operation

CODE	Input COUNT2/HOLD	Input COUNT1	Action
0	HOLD	SUB	DOWN
1	HOLD	ADD	UP
4	SUB	SUB	DOWN
5	SUB	ADD	UP
6	ADD	SUB	DOWN
7	ADD	ADD	UP
8	Select ADD	SUB or ADD	DOWN
9	Select SUB	ADD or SUB	UP
12	QUADRATURE		DOWN
13	QUADRATURE		UP
14	QUADRATURE 2x		DOWN
15	QUADRATURE 2x		UP

UP/DOWN - the main counter counts up/down starting from the programmed offset value (usually 0) to the SET POINT value.

HOLD - pause, stop counting

ADD - adding counted pulses from given input

SUB - subtracting the counted pulses from a given input

Select ADD/SUB - COUNT 2 input determines if COUNT1 is an input adding or subtracting

QUADRATURE - fast two-way counting mode that uses two counting inputs to determine if counting will be made adding or subtracting

QUADRATURE 2x -
the same as in QUADRATURE mode but it counts 2x faster with increased resolution

Ordering example

Digital Counter LIM NC400 (standard power source (100 ÷ 240) V)
Digital Counter LIM NC400–24 V (optional power source (12 ÷ 24) V)

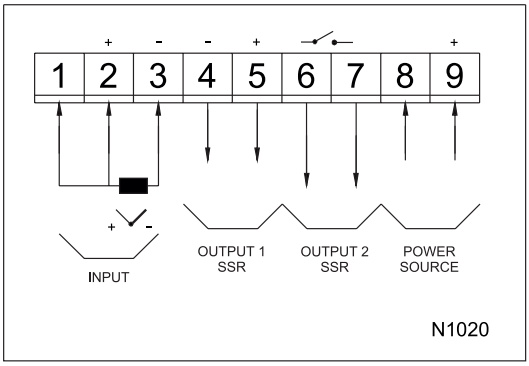
Limatherm Sensor Sp. z o.o.
Skrudlak Street 1, 34-600 Limanowa
www.limathermsensor.com
tel. +48 18 330 10 00
fax. +48 18 330 10 04
e-mail export@limathermsensor.com

Temperature Controller **LIM N1020**

Technical description

Characteristic
– PID parameters auto-tuning; ON/OFF – high brightness red LED display – autotuning – adjustable offset for the sensor – programmable input – 2 programmable control / alarm outputs – ramping – sensor damage detection – simple configuration menu – front pannel: IP65, polycarbonate UL94 V-2 – programmable timer
Input
– TC: J, K, T, N, R, S, B, E – RTD: Pt100 – (0 ÷ 50) mV
Accuracy
±0,25% ±1ºC: for J, K, T, N, R, S, B, E ±0,2% of range: for Pt100
Output I
– SSR: 5 V DC/25 mA max.
Output II
– relay: 1,5 A/240 V AC
Power source
(100 ÷ 240) V AC/DC (±10%) 9 VA
Operating conditions
– temperature: (0 ÷ 50) ºC – humidity: (20 ÷ 80) % RH without condensation
Dimensions [mm]
25x48x105; hole: 45,5x22,5

Wiring diagram



Ordering example

Temperature controller LIM N1020

Limatherm Sensor Sp. z o.o.
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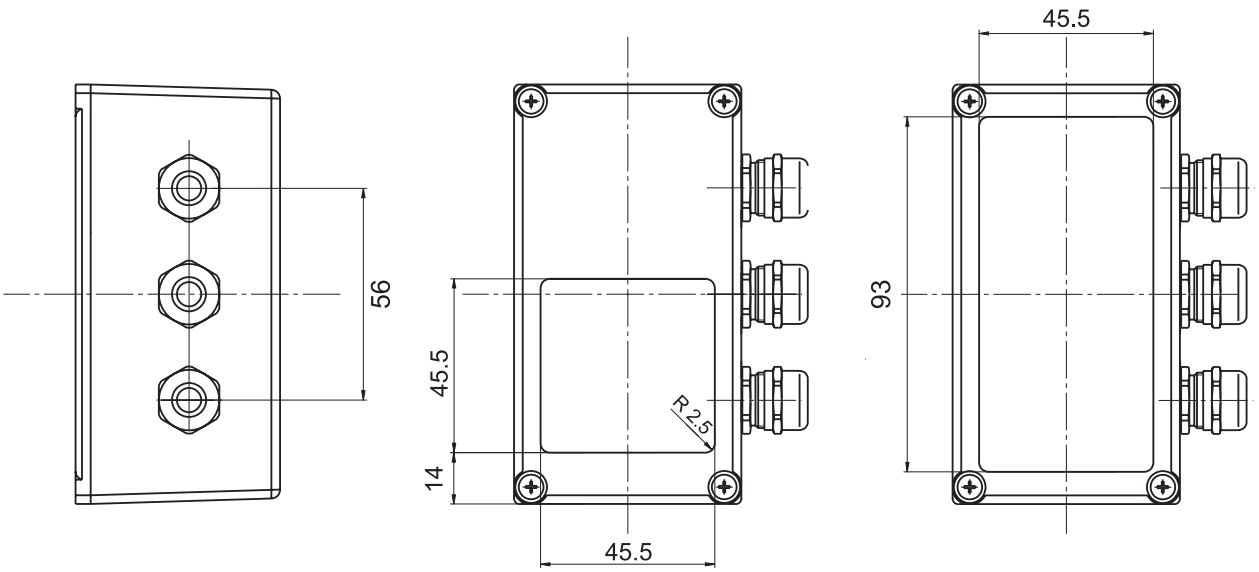
fax. +48 18 330 10 04
e-mail export@limathermsensor.com

Aluminium case **ZO-1214**

Technical description

Characteristic
– natural color (aluminium) – trapezoidal housing – dimension [mm]: 111x60x54 – wall mounting or as sensor head
Application
– ZO-1214/48: for controller LIM N1030 – ZO-1214/96: for controller LIM N1540
Operating conditions
– temperature: (0 ÷ 50) ºC – humidity: (0 ÷ 85) % RH without condensation



Housing ZO-1214/48

Housing ZO-1214/96

Ordering example

Aluminium case ZO-1214/48
Aluminium case ZO-1214/96

Limatherm Sensor Sp. z o.o.
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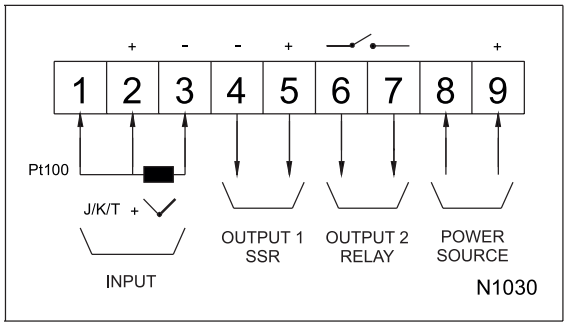
e-mail export@limathermsensor.com

Controller **LIM N1030**

Technical description

Characteristic
– control PID, ON/OFF mode – double 4-digit display – autotuning – adjustable offset for the sensor – control action: heating or cooling – programmable input – 2 programmable control/alarm outputs – 6 alarm functions – sensor damage detection – simple configuration menu – front panel protection: IP65 – minimum mounting depth: 35 mm – detachable terminal block
Input
– J: (-110 ÷ 950) °C – K: (-150÷1370) °C – T: (-160÷400) °C – Pt100: (-200÷850) °C
Accuracy
±0,25% of range, ±1 ºC dla: J, K, T ±0,2% of range for: Pt100
Output I
– SSR: 5 V DC/25 mA max.
Output II
– relay: NO 1,5 A/240 V AC
Power source
(100 ÷ 240) V AC/DC (±10%) (12 ÷ 24) V AC/DC 5 VA
Operating conditions
– temperature: (0 ÷ 50) ºC – humidity: (0 ÷ 85) % RH without condensation
Dimension [mm]
48x48x35; hole: 45,5x45,5

Wiring diagram



Ordering example

Controller LIM N1030 (standard power source (100 ÷ 240) V)
Controller LIM N1030–24 V (optional power source (12 ÷ 24) V)

Limatherm Sensor Sp. z o.o.
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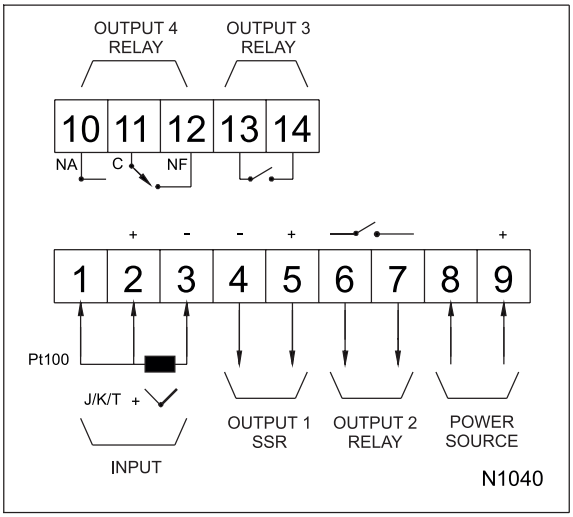
Controller **LIM N1040**

Technical description

Characteristic
– PID control; ON/OFF – double LED display 4-digits – autotuning – adjustable offset for the sensor – programmable input – 3 programmable control/alarm outputs – ramping, 6 alarm functions – sensor damage detection – simple configuration menu – front panel protection: IP65 – USB interface for configuration – detachable terminal block
Input
– J: (-110 ÷ 950) °C – K: (-150 ÷ 1370) °C – T: (-160 ÷ 400) °C – Pt100: (-200÷850) °C
Accuracy
±0,25% ± 1 ºC: for J, K, T ±0,2% of range: for Pt100
Output I
– SSR: 5 V DC/25 mA max.
Output II, III
– relay: NO 1,5 A/240 V AC
Output IV
– relay: SPDT 3 A/240 V AC
Power source
(100 ÷ 240) V AC/DC (±10%) (12 ÷ 24) V DC 6 VA
Operating conditions
– temperature: (0 ÷ 50) ºC – humidity: (0 ÷ 85) % RH without condensation
Dimension [mm]
48x48x80; hole: 45,5x45,5

Wiring diagram



Ordering code

Controller	**LIM N1040 – ... – ...**
Power:	
(100 ÷ 240) V AC/DC	**4**
(12 ÷ 24) V AC/DC	**5**
Output:	
1 relay (wy. 2) + SSR	**1**
2 relay (wy. 2, 3) + SSR	**2**
3 relay (wy. 2, 3, 4) + SSR	**3**

Ordering example

Controller LIM N1040–4–1

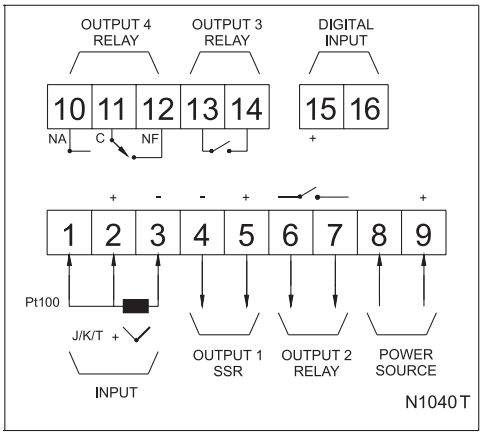
Limatherm Sensor Sp. z o.o.
Skrudlak Street 1, 34-600 Limanowa
www.limathermsensor.com
tel. +48 18 330 10 00
fax. +48 18 330 10 04
e-mail export@limathermsensor.com

Controller **LIM N1040T**

Technical description

Characteristic
– PID control; ON/OFF – double LED display 4-digits – autotuning – adjustable offset for the sensor – programmable input – 3 programmable control/alarm outputs – 2 counting timers (T1 i T2), controlling outputs – Adjustable break timing between 00:00 and 99:59 (hh:mm or mm:ss) – Timer enabling through digital input, Set Point, keypad or by enabling the temperature control – timer output can be switched when the time finishes – up/down counting – ramping, 6 alarm functions – sensor damage detection – 4 level access lock – simple configuration menu – front panel protection: IP65 – USB interface for configuration – detachable terminal block
Input
– J: (-110 ÷ 950) °C – K: (-150 ÷ 1370) °C – T: (-160 ÷ 400) °C – Pt100: (-200 ÷ 850) °C
Accuracy
±0,25% ± 1 ºC: for J, K, T ±0,2% of range: for Pt100
Output I
– SSR: 5 V DC/25 mA max.
Output II, III
– relay: NO 1,5 A/240 V AC
Output IV
– relay: SPDT 3 A/240 V AC
Power source
(100 ÷ 240) V AC/DC (±10%) (12 ÷ 24) V DC 6 VA
Operating conditions
– temperature: (0 ÷ 50) ºC – humidity: (0 ÷ 85) % RH without condensation
Dimension [mm]
48x48x80; hole: 45,5x45,5

Wiring diagram



Ordering example

Controller LIM N1040T (standard power source (100 ÷ 240) V)
Controller LIM N1040T–24 V (optional power source (12 ÷ 24) V)

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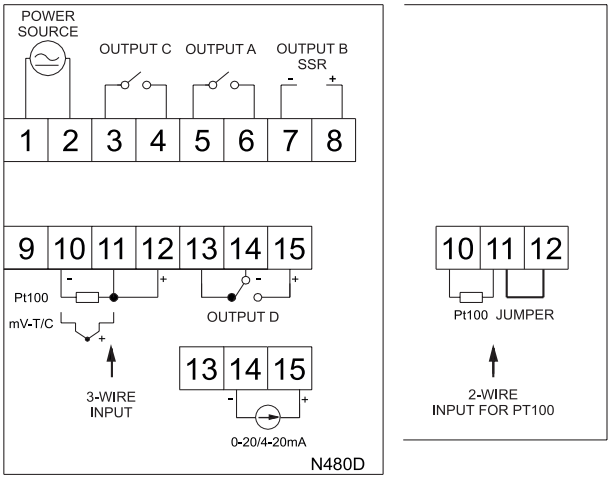
Controller **LIM N480D**

Technical description

Characteristic
– PID control; ON/OFF – double LED display 4-digits – autotuning – adjustable offset for the sensor – programmable outputs – 3 programmable control/alarm outputs – heating function - ramping: 1x9 segments – sensor damage detection – sampling rate: 5 measurements per second – simple configuration menu – front panel: IP65, Polycarbonate UL94 V-2 – USB interface for configuration – 15 bit analog-to-digital transmitter
Input
– TC: J, K, T, E, N, R, S, B – RTD: Pt100
Accuracy
±0,25% ±1 °C: for J, K, T, E ±0,25% ±3 °C: for N, R, S, B ±0,2% of range: for Pt100
Output I (A)
– relay: NO 1,5 A/240 V AC
Output II (B)
– SSR: 12 V/20 mA max.
Output III (C)
– relay: NO 1,5 A/240 V AC
Output IV (D)
– relay: SPDT 3 A/250 V AC – current: (0 ÷ 20) mA or (4 ÷ 20) mA, insulated
Power source
(100 ÷ 240) V AC/DC (±10%) (12 ÷ 24) V AC/DC 6 VA
Operating conditions
– temperature: (5 ÷ 50) °C – humidity: for T≥30 °C $RH_{max.}$ = 80% T<30 °C $RH_{max.}$ = [80 - (30-T)*3]%
Dimension [mm]
48x48x110; hole: 45,5x45,5
Additional functions
– control output: (0 ÷ 20) mA or (4 ÷ 20) mA

Wiring diagram



Ordering code

Controller	LIM N480D – ... – ...
Power source:	
(100 ÷ 240) V AC/DC	4
(12 ÷ 24) AC/DC	5
Output:	
2 relays - (wy: A, B, D) (standard)	2
3 relays - (wy: A, B, C, D) (optional)	3
output 0/(4 ÷ 20) mA - (wy: A, B, D) (optional)	4

Ordering example

Controller LIM N480D–4–2

Limatherm Sensor Sp. z o.o.
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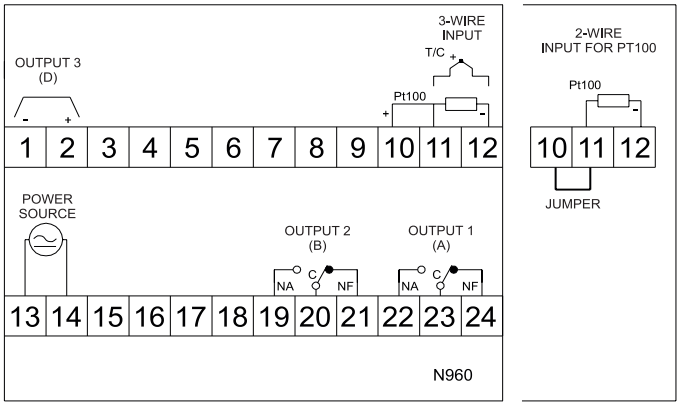
Controller **LIM N960**

Technical description

Characteristic
– PID control; ON/OFF – double LED display 4-digits – autotuning – adjustable offset for the sensor – 2 programmable control/alarm outputs – heating function - ramping: 1x9 segments – sensor damage detection – simple configuration menu – front panel: IP65, Polycarbonate UL94 V-2 – USB interface for configuration
Input
– TC: J, K, T, N, R, S, B, E – RTD: Pt100
Accuracy
±0,25% ±1 °C: for J, K, T, E ±0,25% ±3 °C: for N, R, S, B ±0,2% of range: for Pt100
Output I (A)
– relay: SPDT 3 A/240 V AC
Output II (B)
– relay: SPDT 3 A/240 V AC
Output III (D)
– SSR: 12 V/25 mA – (0 ÷ 20) mA or (4 ÷ 20) mA, insulated
Power source
(100 ÷ 240) V AC/DC (±10%) (12 ÷ 24) V AC/DC 6 VA
Operating conditions
– temperature: (5 ÷ 50) °C – humidity: for T≥30 °C $RH_{max.}$ = 80% T<30 °C $RH_{max.}$ = [80 - (30-T)*3]%
Dimension [mm]
96x96x90; hole: 93x93

Wiring diagram



Ordering example

Controller LIM N960 (standard power source (100 ÷ 240) V)
Controller LIM N960–24 V (optional power source (12 ÷ 24) V)

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Skrudlak Street 1, 34-600 Limanowa
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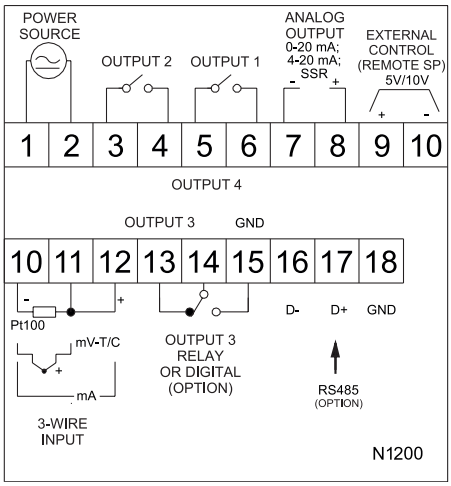
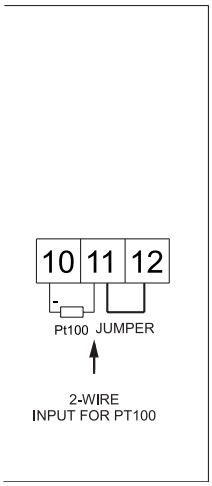
Universal process controller **LIM N1200**

Technical description

Characteristic
– PID control; ON/OFF – self-adaptive control – dedicated to very demanding application – heating function - ramping: 20x9 segments – HBD: heater break detect – sampling: up to 55 measurements/second – digital output with 5 operating functions – front panel: IP65 – USB interface for configuration
Input
– TC: J, K, T, N, R, S, B, E – RTD: Pt100 – analog: (0 ÷ 20) mA, (4 ÷ 20) mA, (0 ÷ 50) mV, (0 ÷ 5) V, (0 ÷ 10) V DC
Accuracy
±0,25% of range ±1 °C: for J, K, T, E ±0,25% of range ±3 °C: for N, R, S, B ±0,2% of range: for Pt100, (4 ÷ 20) mA, (0 ÷ 50) mV, (0 ÷ 5) V DC
Output I, II
– relay: NO 1,5 A/240 V AC
Output III, IV
– relay: SPDT 3 A/250 V AC – digital input/output: 5 V/20 mA – heater burnout control (HBD version)
Output V
– output analog/universal: (0 ÷ 20) mA, (4 ÷ 20) mA – SSR: 14 V/28 mA, digital
Power source
(100 ÷ 240) V AC/DC (±10%) (12 ÷ 24) V AC/DC 9 VA
Operating conditions
– temperature: (5 ÷ 50) °C – humidity for T≥30 °C $RH_{max.}$ = 80% T<30 °C $RH_{max.}$ = [80 - (30-T)*3]%
Dimension [mm]
48x48x110; hole: 45,5x45,5
Additional functions
– digital input/output – heater burnout control – RS485 interface

Wiring diagram





Ordering code

Universal process controller	LIM N1200 – ... – ... – ...
Power source:	
(100 ÷ 240) V AC/DC	4
(12 ÷ 24) V AC/DC	5
Output:	
2 relays- (outputs: 1, 2, 5) (standard)	2
3 relay - (outputs: 1, 2, 3, 5) (optional)	3
digital input/output - (outputs: 1, 2, 3, 4, 5) (optional)	5
HBD (optional)	6
Interface: none	0
RS485 interface (optional	1

Ordering example **Universal process controller LIM N1200–4–2–0**

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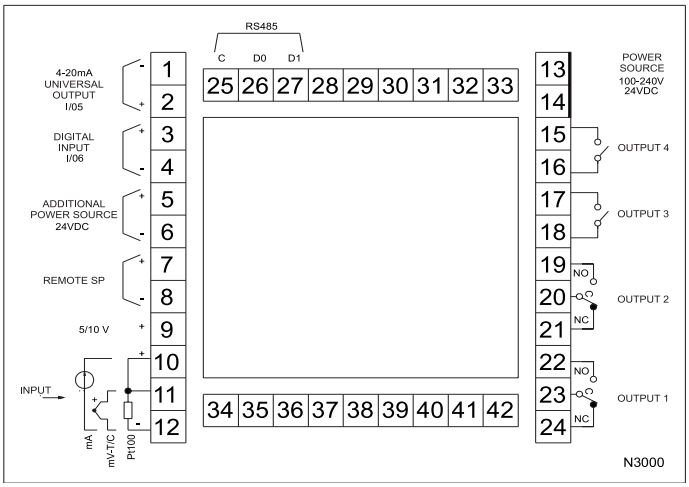
Universal process controller **LIM N3000**

Technical description

Characteristic
– PID control; ON/OFF – double LED display: red for PV (18 mm), green for SV (13 mm) – autotuning – adjustable offset for the sensor – programmable output – sampling rate: 4 measurements per second – one digital input for dry contact with 5 programmable functions – measured value resolution: 12,000 levels – heating function - ramping: 7x7 segments – programmable soft start up to 9999 seconds – remote setpoint input for 4-20 mAdc signal – retransmission PV/SV – sensor damage detection – front panel: IP65 – USB interface for configuration
Input
– TC: J, K, T, N, R, S – RTD: Pt100 – analog: (4 ÷ 20) mA, (0 ÷ 50) mV, (0 ÷ 5) V, (0 ÷ 10) V DC
Accuracy
±0,25% of range ±1 ºC: for J, K, T ±0,25% of range ±3 ºC: for N, R, S, B, E ±0,2% of range: for Pt100, (4 ÷ 20) mA, (0 ÷ 50) mV, (0 ÷ 5) V, (0 ÷ 10) V DC
Output I, II
– relay: SPDT 3 A/240 V
Output III, IV
– relay: NO 1,5 A/250 V
Output V
– output analog: (0 ÷ 20) mA, (4 ÷ 20) mA (550 Ω max.) – SSR: 10 V/20 mA, digital I/O
Output VI
– digital output – SSR 5 V/20 mA
Additional power source
24 V DC/25 mA (±10%)
Power source
(100 ÷ 240) V AC/DC (±10%) (12 ÷ 24) V AC/DC 9 VA
Operating conditions
– temperatura: (5 ÷ 50) ºC – humidity for T≥30 ºC $RH_{max.}$ = 80% T<30 ºC $RH_{max.}$ = [80 - (30-T)*3]%
Dimension [mm]
96x96x92; hole: 93x93
Additional functions
– RS485 interface with Modbus RTU protocol (optional)

Wiring diagram



Ordering code

Universal process controller	**LIM N3000 – ... – ...**
Power source:	
(100 ÷ 240) V AC/DC	**4**
(12 ÷ 24) V AC/DC	**5**
Interface: none	**0**
RS485 interface (optional)	**1**

Ordering example **Universal process controller LIM N3000–4–0**

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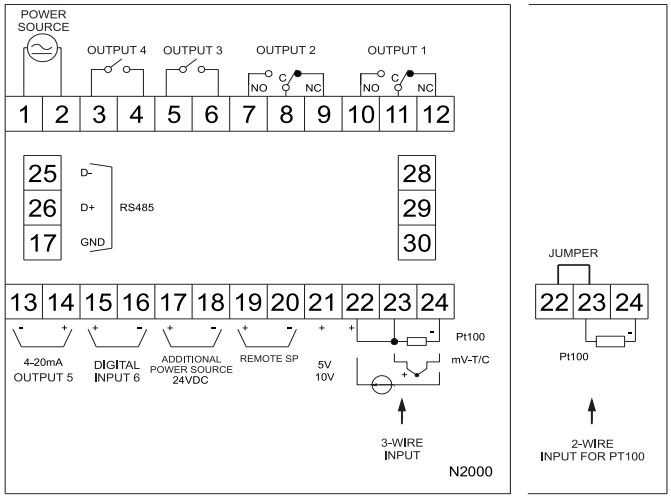
Universal process controller **LIM N2000**

Technical description

Characteristic
– PID control; ON/OFF – double LED display: red for PV and green for SV – autotuning – adjustable offset for the sensor – programmable universal input – 5 control/alarm programmable outputs – heating function - ramping: 7x7 segments – programmable soft start up to 9999 seconds – remote setpoint input for 4-20 mAdc signal (N2000) – retransmission PV/SV – sensor damage detection – front panel: IP65 – USB interface for configuration
Input
– TC: J, K, T, N, R, S, B, E – RTD: Pt100 – analog: (4 ÷ 20) mA, (0 ÷ 50) mV, (0 ÷ 5) V, (0 ÷ 10) V DC
Accuracy
±0,25% of range ±1 ºC: for J, K, T ±0,25% of range ±3 ºC: for N, R, S, B, E ±0,2% of range: for Pt100, (4 ÷ 20) mA, (0 ÷ 50) mV, (0 ÷ 5) V, (0 ÷ 10) V DC
Output I, II
– przekaźnik: SPDT 3 A/240 V
Output III, IV
– relay: NO 1,5 A/250 V
Output V
– analog/universal output (0 ÷ 20) mA, (4 ÷ 20) mA (550 Ω max.) – SSR: 10 V/20 mA, digital input/output
Output VI
– digital output – SSR 5 V/20 mA
Additional power source
24 V DC/25 mA (±10%)
Power source
(100 ÷ 240) V AC/DC (±10%) (12 ÷ 24) V AC/DC 9 VA
Operating conditions
– temperature: (5 ÷ 50) ºC – humidity for T≥30 ºC $RH_{max.}$ = 80% T<30 ºC $RH_{max.}$ = [80 - (30-T)*3]%
Dimension [mm]
48x96x92; hole: 45,5x92,5
Additional functions
– RS485 interface with Modbus RTU protocol (optional)

Wiring diagram



Ordering code

Universal process controller	LIM N2000 – ... – ...
Power source:	
(100 ÷ 240) V AC/DC	4
(12 ÷ 24) V AC/DC	5
Interface: none	0
RS485 interface (optional)	1

Ordering example **Universal process controller LIM N2000–4–0**

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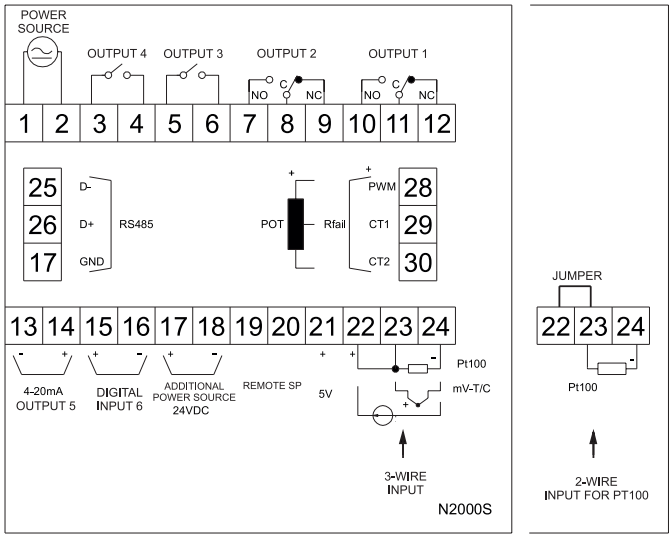
Universal process controller **LIM N2000S**

Technical description

Characteristic
– PID control; ON/OFF – double LED display: red for PV and green for SV – autotuning – adjustable sensor – three-position control for valves (servo) – connecting a potentiometer to display % of valve opening – 5 control/alarm programmable outputs – heating function - ramping: 7x7 segments – programmable soft start – remote setpoint input – retransmission PV/SV – sensor damage detection – front panel: IP65 – USB interface for configuration
Input
– TC: J, K, T, N, R, S, B, E – RTD: Pt100 – analog: (4 ÷ 20) mA, (0 ÷ 50) mV, (0 ÷ 5) V, (0 ÷ 10) V DC
Accuracy
±0,25% of range ±1 ºC: for J, K, T ±0,25% of range ±3 ºC: for N, R, S, B, E ±0,2% of range: for Pt100, (4 ÷ 20) mA, (0 ÷ 50) mV, (0 ÷ 5) V, (0 ÷ 10) V DC
Output I, II
– relay: SPDT 3 A/240 V
Output III, IV
– relay: NO 1,5 A/250 V
Output V
– analog/universal output (0 ÷ 20) mA, (4 ÷ 20) mA (550 Ω max.) – SSR: 10 V/20 mA, digital input/output
Output VI
– digital output
Additional power source
24 V DC/20 mA (±10%)
Power source
(100 ÷ 240) V AC/DC (±10%) (12 ÷ 24) V AC/DC 9 VA
Operating conditions
– temperature: (5 ÷ 50) ºC – humidity for T≥30 ºC $RH_{max.}$ = 80% T<30 ºC $RH_{max.}$ = [80 - (30-T)*3]%
Dimension [mm]
48x96x92; hole: 45,5x92,5
Additional functions
– RS485 comm with Modbus RTU protocol (optional)

Wiring diagram



TEMPERATURE CONTROLLERS

I

Ordering code

Universal process controller	LIM N2000S – ... – ...
Power source: (100 ÷ 240) V AC/DC (12 ÷ 24) V AC/DC	 4 5
Interface: none RS485 interface (optional)	0 1

Ordering example **Universal process controller LIM N2000S–4–0**

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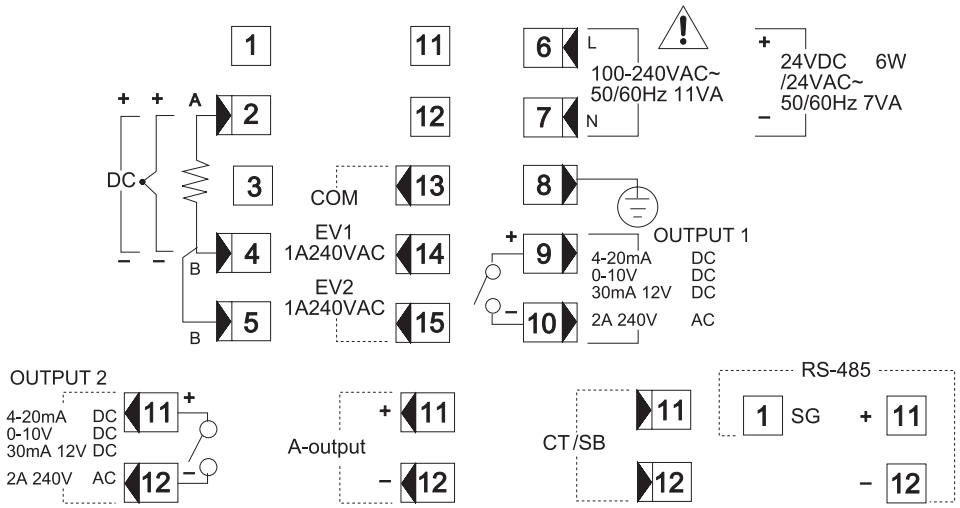
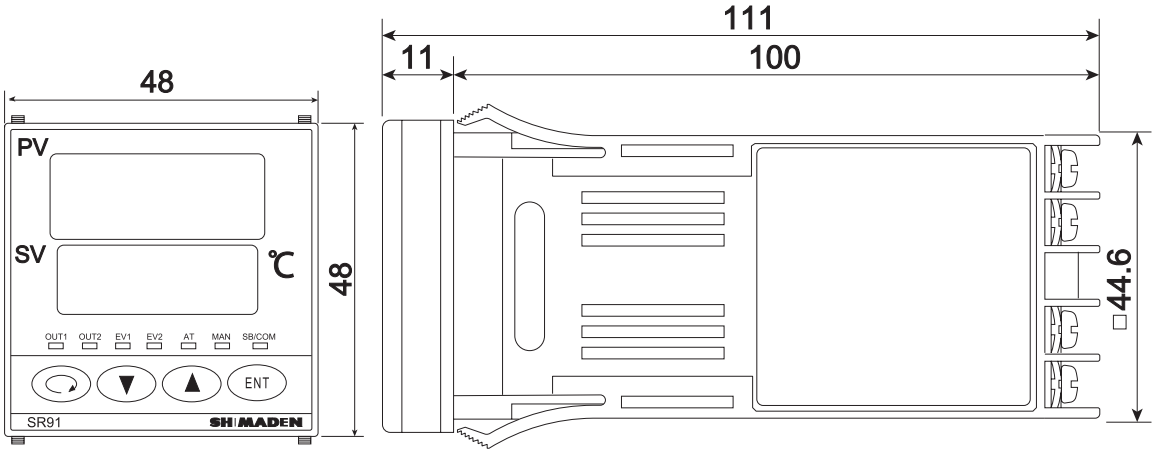
Controller **SR91**

Technical description

Characteristic
– extended functions – RS232 or RS485 interface – IP66 front panel
Input
– multi input: Pt, TC, mV, voltage [V], current [mA]
Output
– control output (acc. to ordering code) – alarm output (acc. to ordering code)
Power source
(100 ÷ 240) V AC 24 V AC/DC
Dimension [mm]
48x48x111; hole: 45x45
Additional functions
– RS485 interface

Wiring diagram





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e-mail export@limathermsensor.com

Ordering code

Controller	SR91 – ... – ... – ... – ... – ... – ... – ... – ... – ... – ...
Input: TC: (B, R, S, K, E, J, T, N, PL, II, Wre5-26 {U, L (DIN 43710)} RTD: Pt100 / JPt100 voltage: (-10 ÷ 10); (0 ÷ 10); (0 ÷ 20); (0 ÷ 50); (10 ÷ 50); (0 ÷ 100) mV current: (0 ÷ 20); (4 ÷ 20) mA voltage: (-1 ÷ 1); (0 ÷ 1); (0 ÷ 2); (0 ÷ 5); (1 ÷ 5); (0 ÷ 10) V	8 4 6
Output1: relay (1a): 240 V AC / 2A / resistive load analog current: (4 ÷ 20) mA SSR voltage: 12 V ±1,5 V analog voltage: (0 ÷ 10) V	Y I P V
Power source: (100 ÷ 240) V AC ±10%, 50/60 Hz 24V AC/DC ±10 %, 50/60 Hz	90 08
Alarm output (optional): none relau output (2a): AL1, AL2: 240 V AC/1A (resistive load)	0 1
Output 2 (optional): none relay (1a): 240 V AC / 2 A / resistive load analog current: (4 ÷ 20) mA SSR voltage: 12 V ±1,5 V analog voltage: (0÷10) V	no sign Y I P V
Heater burnout alarm (optional): (0,1 ÷ 30) A (0,1 ÷ 50) A	1 2
Analog output (optional): analog voltage: (0 ÷ 10) mV analog current: (4 ÷ 20) mA analog voltage: (0 ÷ 10) V	3 4 6
Interface (optional): RS485 interface	5
Work point shift (optional): 1-point (-1999 ÷ 5000)	8

Ordering example

Controller SR91–4–I–90–0

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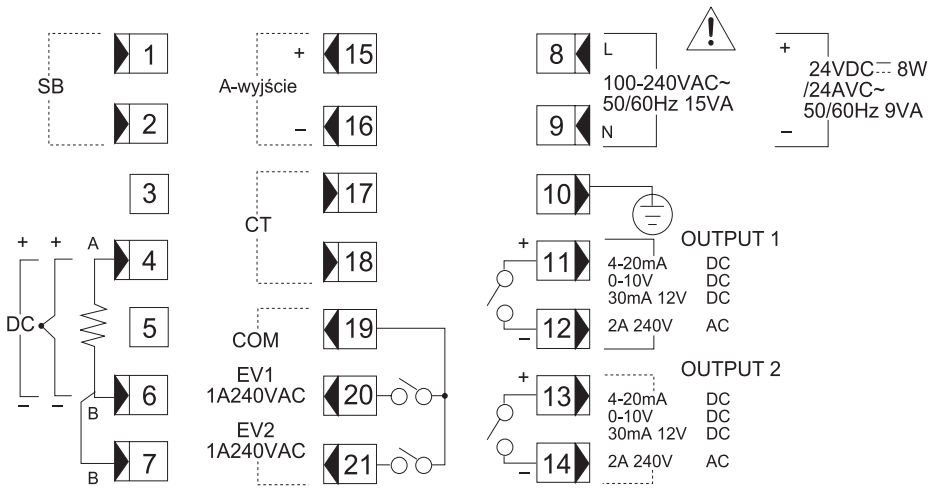
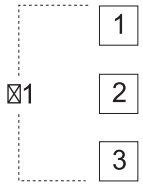
Conroller **SR92**

Technical description

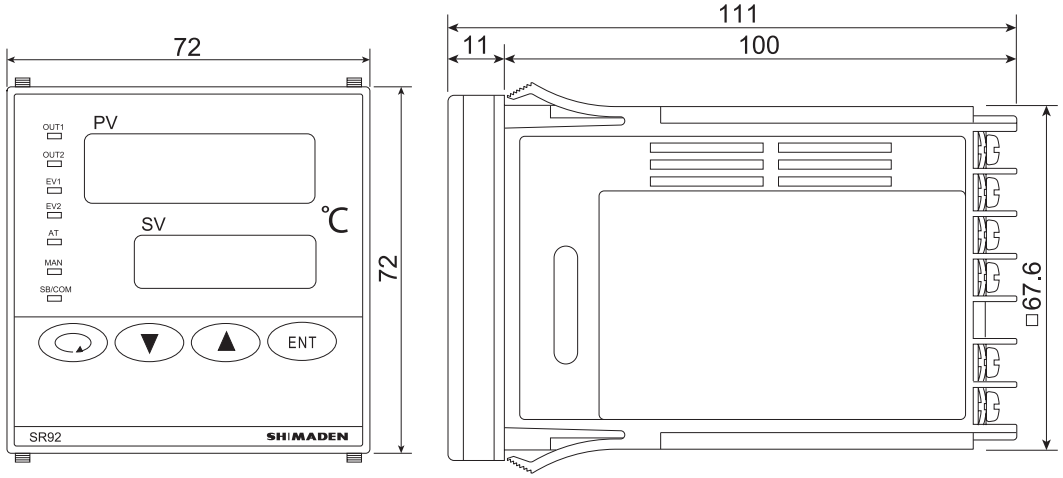
Characteristic
– two independent control outputs (heating and cooling) – extended functions – RS232 or RS485 interface – IP66 front panel
Input
– multi-input: Pt, TC, mV, voltage [V], current [mA]
Output
– control output (acc. to ordering code) – alarm output (acc. to ordering code)
Power source
(100 ÷ 240) V AC 24 V AC/DC
Dimension [mm]
72x72x111; hole: 68x68
Additional functions
– RS485 interface

Wiring diagram





⊠1	TERMINAL		
SPECIFICATION	1	2	3
RS-232C	SG	SD	RD
RS-485	SG	+	–



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Ordering code

Controller	SR92 – ...	– ...	– ...	– ...	– ...	– ...	– ...
Input: TC: (B, R, S, K, E, J, T, N, PL, II, Wre5-26 {U, L (DIN 43710)} RTD: Pt100 / JPt100 voltege: (-10 ÷ 10); (0 ÷ 10); (0 ÷ 20); (0 ÷ 50); (10 ÷ 50); (0 ÷ 100) mV current: (0 ÷ 20); (4 ÷ 20) mA voltage: (-1 ÷ 1); (0 ÷ 1); (0 ÷ 2); (0 ÷ 5); (1 ÷ 5); (0 ÷ 10) V	**8** **4** **6**						
Output 1: relay: 240 V AC / 2A / resistive load analog current: (4 ÷ 20) mA SSR voltage: 12 V ±1,5 V analog voltage: (0 ÷ 10) V		**Y** **I** **P** **V**					
Output 2: none relay: 240 V AC / 2 A / resistive load analog current: (4 ÷ 20) mA SSR voltage: 12 V ±1,5 V analog voltage: (0 ÷ 10) V		**no sign** **Y** **I** **P** **V**					
Power source: (100 ÷ 240) V AC ±10 %, 50/60 Hz 24 V AC/DC ±10 %, 50/60 Hz			**90** **08**				
Alarm output: none relay output (2a): AL1, AL2: 240 V AC/1A AL1 alarm output + burnout alarm AL1 alarm output + burnout alarm				**0** **1** **2** **3**			
Analog output: none analog voltage: (0 ÷ 10) mV analog current: (4 ÷ 20) mA analog voltage: (0 ÷ 10) V					**0** **3** **4** **6**		
Work point shift or interface: none RS485 interface RS232 interface 1-point (-1999÷5000)						**0** **5** **7** **8**	

Ordering example

Controller SR92–8–Y–Y–08–1–4–5

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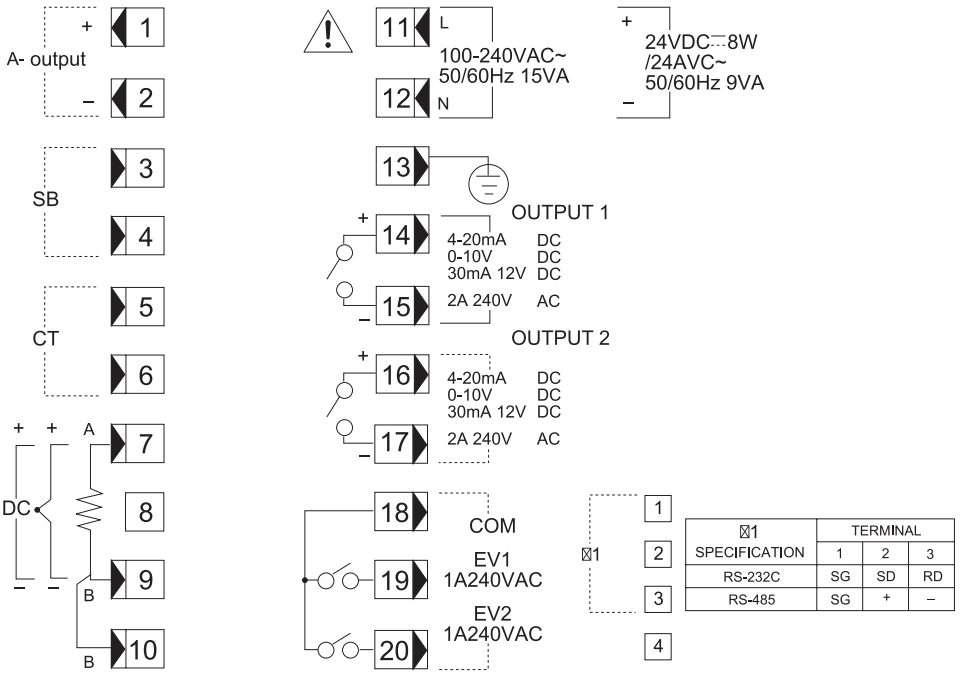
Controller **SR93, SR94**

Technical description

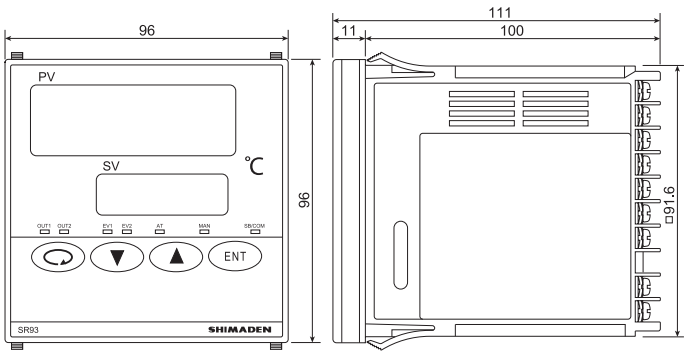
Characteristic
– two independent control outputs (heating and cooling) – extended functions – RS232 or RS485 interface – IP66 front panel
Input
– multi-input: Pt, TC, mV, voltage [V], current [mA]
Output
– control output (acc. to ordering code) – alarm output (acc. to ordering code)
Power source
(100 ÷ 240) V AC 24 V AC/DC
Dimension [mm]
SR93: 96x96x111; hole: 92x92 SR94: 96x48x111; hole: 92x45
Additional functions
– RS485 interface

Wiring diagram

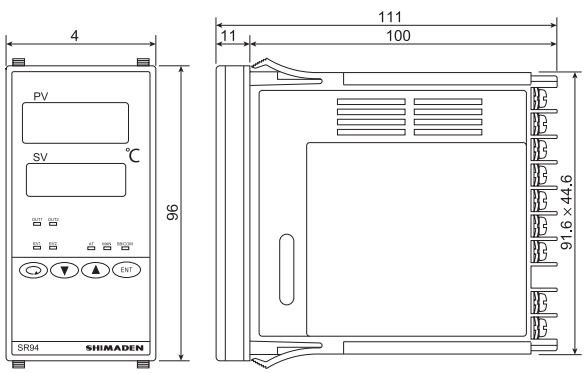


⊠1 SPECIFICATION	TERMINAL 1	2	3
RS-232C	SG	SD	RD
RS-485	SG	+	–

SR93



SR94



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Ordering code

Controller	...	– ...	– ...	– ...	– ...	– ...	– ...	– ...	– ...	– ...
Model:										
SR93	SR93									
SR94	SR94									
Input:										
TC: (B, R, S, K, E, J, T, N, PL, II, Wre5-26 {U, L (DIN 43710)} RTD: Pt100 / JPt100		8								
voltage: (-10 ÷ 10); (0 ÷ 10); (0 ÷ 20); (0 ÷ 50); (10 ÷ 50); (0 ÷ 100) mV		4								
current: (0 ÷ 20); (4 ÷ 20) mA		6								
voltage: (-1 ÷ 1); (0 ÷ 1); (0 ÷ 2); (0 ÷ 5); (1 ÷ 5); (0 ÷ 10) V										
Output 1:										
relay: 240 V AC / 2 A / resistive load			Y							
analog current: (4 ÷ 20) mA			I							
SSR voltage: 12 V ±1,5 V			P							
analog voltage: (0 ÷ 10) V			V							
Output 2:										
none			no sign							
relay: 240 V AC / 2 A / resistive load			Y							
analog current: (4 ÷ 20) mA			I							
SSR voltage: 12 V ±1,5 V			P							
analog voltage: (0 ÷ 10) V			V							
Power source:										
(100 ÷ 240) V AC ±10 %, 50/60 Hz				0						
24 V AC/DC ±10 %, 50/60 Hz				1						
Alarm output:										
noen					0					
relay output (2a): AL1, AL2: 240V AC/1A					1					
AL1 alarm output + burnout alarm					2					
AL1 alarm output + burnout alarm					3					
Analog output:										
none						0				
analog voltage: (0 ÷ 10) mV						30				
analog current: (4 ÷ 20) mA						40				
analog voltage: (0 ÷ 10) V						60				
Work point shift or interface:										
none							0			
RS485 interface							05			
RS232 interface							07			
1-point (-1999 ÷ 5000)							08			
Analog output + SV:										
voltage: (0 ÷ 10) mV										38
current: (4 ÷ 20) mA										48
voltage: (0 ÷ 10) V										68

Ordering example **Controller SR93–8–Y–Y–0–0–0–08–68**

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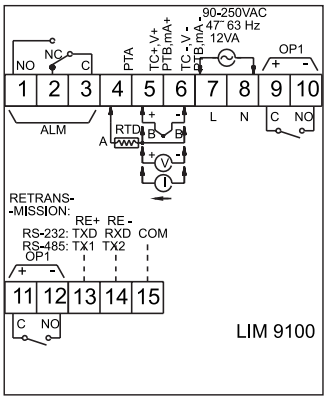
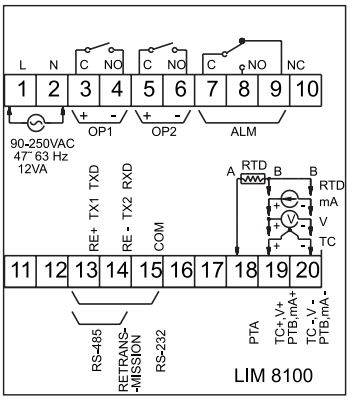
Controller **LIM 8100, 9100**

Technical description

Characteristic
– PID and Fuzzy Logic control – PID control parameters auto-tuning – ramping and heating function – two control outputs, one alarm output – internal timer, manual control – sampling 5 times / s – RS232 or RS485 interface – service port for quick calibration – panel or rail mounting (DIN-LIM 9100)
Output
– TC: J, K, T, E, B, R, S, N, L – RTD: Pt100 – current: (4 ÷ 20) mA, (0 ÷ 20) mA – voltage: (0 ÷ 5) V, (1 ÷ 5) V, (0 ÷ 10) V
Accuracy
2 ºC: for thermocouple type: J, K, T, E, B, R, S, N, L 0,4 ºC: for Pt100 0,05% of range: for voltage input
Output I, II
– relay: 2 A/240 V AC – current: (4 ÷ 20) mA, (0 ÷ 20) mA – voltage: (0 ÷ 5) V; (1 ÷ 5) V; (0 ÷ 10) V SSR 5 V/30 mA, 14 V/40 mA – triac: 1 A/ 240 V AC – power supply: 20 V/25 mA; 12 V/40 mA; 5 V/80 mA
Power source
(90 ÷ 250) V AC (11 ÷ 26) V AC/DC
Operating conditions
– temperature: (-10 ÷ 50) ºC – humidity: ≤90% RH without condensation
Dimension [mm]
48x48x116; hole: 45x45 - LIM 9100 48x96x80; hole: 45x92 - LIM 8100
Additional functions
– alarm output, transmitter power source

Wiring diagram





TEMPERATURE CONTROLLERS

I

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Ordering code

Controller	LIM 8100, 9100 –...	– ...	– ...	– ...	– ...	– ...	– ...
Power source:							
(90 ÷ 250) V AC	4						
(11 ÷ 26) V AC/DC	5						
Multi-input:		1					
(0 ÷ 60) mV		2					
(0 ÷ 1) V		3					
(0 ÷ 5) V		4					
(1 ÷ 5) V		5					
(4 ÷ 20) mA		6					
(0 ÷ 20) mA		7					
(0 ÷ 10) V		8					
Output I: none			0				
relay: 2 A/240 V AC			1				
SSR: 5 V/30 mA			2				
current: (0 ÷ 20)/(4 ÷ 20) mA			3				
voltage: (0 ÷ 5)/(1 ÷ 5) V			4				
voltage: (0 ÷ 10) V			5				
TRIAK: 1 A/240 V AC			6				
SSR: 14 V/40 mA			C				
Output II: none				0			
relay: 2 A/240 V AC				1			
SSR: 5 V/30 mA				2			
current: (0 ÷ 20)/(4 ÷ 20) mA				3			
voltage: (0 ÷ 5)/(1 ÷ 5) V				4			
voltage: (0 ÷ 10) V				5			
TRIAK: 1 A/240 V AC				6			
transmitter power source: 20 V/25 mA				7			
transmitter power source: 12 V/40 mA				8			
transmitter power source: 5 V/80 mA				9			
SSR: 14 V/40 mA				C			
Alarm output: none					0		
relay: 2 A/240 V					1		
Interface: none						0	
RS485 interface						1	
RS232 interface						2	
(4 ÷ 20) mA						3	
(0 ÷ 5)/(1 ÷ 5) V						4	
(0 ÷ 10) V						5	
Additional options: none							0
panel mounting, IP65							1
DIN rail, IP50 (for LIM 9100)							2
DIN rail, IP65 (for LIM 9100)							3

Ordering example

Controller LIM 9100–4–1–1–0–0–0–0

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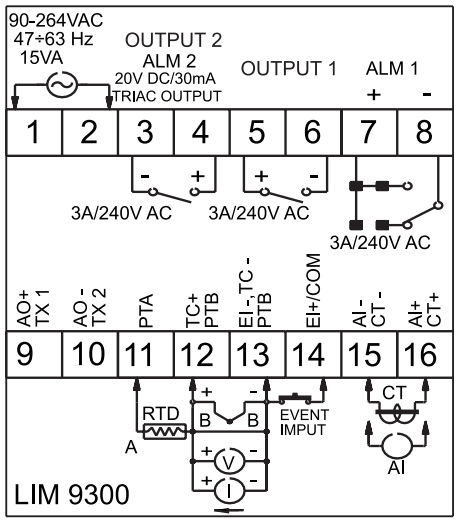
Controller **LIM 9300**

Technical description

Characteristic
– PID and Fuzzy Logic control – autotuning – ramping function – 2 control outputs, 1 alarm output or 1 control output 2 alarm outputs – internal timer, manual control – protection against breaking the sensor circuit – cold junction compensation 0,1 °C – direct heating, reverse cooling
Input
– TC: J, K, T, E, B, R, S, N, L – RTD: Pt100 – current: (4 ÷ 20) mA, (0 ÷ 20) mA – voltage: (1 ÷ 5) V, (0 ÷ 5) V, (1 ÷ 5) V, (0 ÷ 10) V
Accuracy
2 °C for: J, K, T, E, B, R, S, N 0,2 °C for: Pt100 0,05% for: line input
Output
– relay: 2 A/240 V AC – current: (4 ÷ 20) mA, (0 ÷ 20) mA, – voltage: (0 ÷ 1) V; (0 ÷ 5) V; (1 ÷ 5) V; (0 ÷ 10) V SSR 5 V/30 mA, 14 V/40 mA – triac: 1 A/240 V AC
Power source
(90 ÷ 260) V AC
Operating conditions
– temperature: (0 ÷ 50) ºC – humidity: ≤90% RH without condensation
Dimension [mm]
48x48x94; hole: 45,5x45,5
Additional functions
– RS485, retransmission current and voltage output – alarm output

Wiring diagram



Ordering code

Controller	LIM 9300 – ... – ... – ... – ... – ... – ...
Power source: (90 ÷ 264) V AC (11 ÷ 26) V AC/DC	 4 5
Multi-input	1
Output I:	0 - brak 1 - relay: 2 A/240 V AC 2 - SSR: 5 V/30 mA 3 - current: (0 ÷ 20)/(4 ÷ 20) mA 4 - voltage: (0 ÷ 5)/(1 ÷ 5) V 5 - voltage: (0 ÷ 10) V 6 - TRIAC: 1 A/240 V AC
Output II:	0 - brak 1 - relay: 2 A/240 V AC 2 - SSR: 5 V/30 mA 3 - current: (0 ÷ 20)/(4 ÷ 20) mA 4 - voltage: (0 ÷ 5)/(1 ÷ 5) V 5 - voltage: (0 ÷ 10) V 6 - TRIAC: 1 A/240 V AC 7 - transmitter power src: 20 V/25 mA 8 - transmitter power src: 12 V/40 mA 9 - transmitter power src: 5 V/80 mA
Alarm output: none relay 2 A/240 V relay 2 A/240 V	0 1 2
Interface:	0 - brak 1 - RS485 2 - RS232 3 - (4 ÷ 20) mA 4 - (0 ÷ 5)/(1 ÷ 5) V 5 - (0 ÷ 10) V

Ordering example **Controller LIM 9300–4–1–1–0–0–0**

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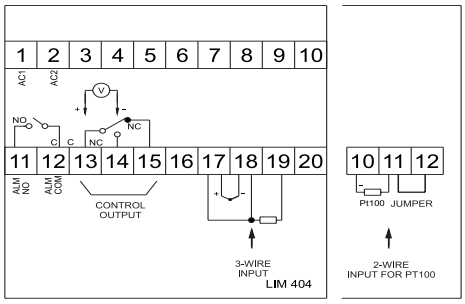
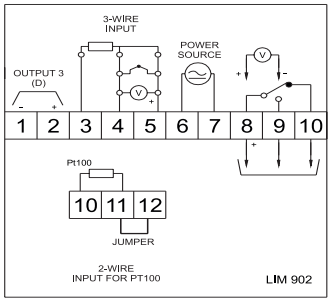
Controller **LIM 404, 902**

Technical description

Characteristic
– controllers with analogue settings – thermocouple and resistance inputs – relay control output 10 A and alarm output 2 A (optional) – easy to use – display for LIM 404
Input
– TC: J, K – RTD: Pt100
Accuracy
2% of range for LIM 902 1% of range for LIM 404
Output
– relay: 10 A/240 V AC (LIM 404) – relay: 5 A/240 V AC (LIM 902) – current: (4 ÷ 20) mA, (0 ÷ 20) mA, R_{obc} = 500 Ω – SSR: 24 V DC/20 mA – voltage: (0 ÷ 10) V DC/2 mA
Power source
(200 ÷ 240) V AC for LIM 902 (90 ÷ 264) V AC for LIM 404 (16 ÷ 48) V DC, (12 ÷ 36) V AC for LIM 404
Operating conditions
– temperature: (0 ÷ 50) °C – humidity: ≤90% RH without condensation
Dimension [mm]
48x48x80; hole: 45x45 for LIM 902 96x96x53; hole: 92x92 for LIM 404
Additional functions
– alarm (10% setting) 2 A/240 V AC for LIM 404 (optional) – analog output

Wiring diagram





Ordering code

Controller	**LIM 404, 902 –** ...	– ...	– ...	– ...	– ...	– ...
Power source: (200 ÷ 240) V AC (LIM 902) (90 ÷ 264) V AC (LIM 404) (16 ÷ 48) V DC, (12 ÷ 36) V AC (LIM 404)	**2** **4** **5**					
Output: J K Pt100		**1** **2** **3**				
Temperature range: (0 ÷ 100) °C (0 ÷ 200) °C (0 ÷ 300) °C (0 ÷ 400) °C (0 ÷ 600) °C (0 ÷ 800) °C (0 ÷ 1200) °C			**2** **3** **4** **5** **6** **7** **8**			
Working mode: ON/OFF P - proportional				**1** **2**		
Output I: relay (always for LIM 902) voltage: SSR current: (4 ÷ 20) mA current: (0 ÷ 20) mA voltage: (0 ÷ 10) V					**1** **2** **3** **4** **5**	
Alarm output: none (always for LIM 902) relay (only for LIM 404)						**0** **1**

Ordering example

Controller LIM 404–4–3–5–1–1–0
Controller LIM 902–2–3–5–1–1–0

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Single phase relays **SSR SO...**

Technical description

Characteristic
– controling (3 ÷ 32) V DC
– input overvoltage protection
– used for resistive loads
– output switched at sine wave
– mounting on brackets or heatsinks
– screw terminals for connecting wires
– LED operation indicator

	SSR	SO942460	SO965460	SO967460	SO868070	SO869070
Input	Control voltage	(3,5 ÷ 32) V DC			(3,5 ÷ 32) V DC	
	Control current	(7 ÷ 15) mA		(3 ÷ 30) mA		
Output	Max. current of load	25 A	60 A	75 A	95 A	125 A
Voltage		(12 ÷ 280) V AC / 600 V peak		(24 ÷ 510) V AC / 1200 V peak		
Input / output isolation		4000 V				

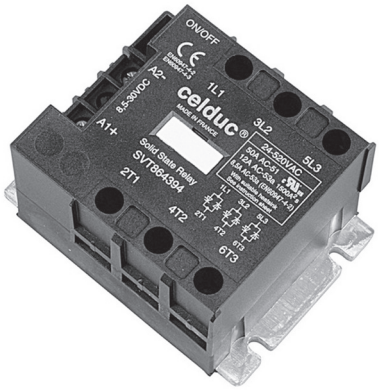
	SSR	SO865970	SO869970
Input	Control voltage	(90 ÷ 240) V AC	
	Control current	–	
Output	Max. current of load	60 A	125 A
Voltage		(24 ÷ 520) V AC	

Ordering example **Single phase relay SO965460**

Triple phase relays **SSR SVT...**

Dane techniczne

Characteristic
– controling (8,5 ÷ 30) V DC
– input overvoltage protection
– used for resistive loads
– output switched at sine wave
– mounting on brackets or heatsinks
– screw terminals for connecting wires
– LED operation indicator



	SSR	SVT861394	SVT864394	SVT867394	SVT868394	SVT869394
Input	Control voltage	(8,5 ÷ 30) V DC				
	Control current	9,2 mA for 10 V DC - 32 mA for 24 V DC				
Output	Max. current of load	12 A	50 A	75 A	95 A	125 A
Voltage		(24 ÷ 520) V AC				
Input / output isolation		4000 V				

Ordering example **Triple phase relay SVT861394**

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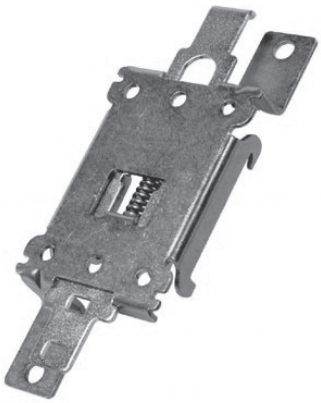
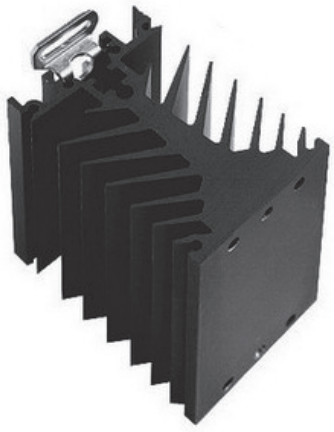
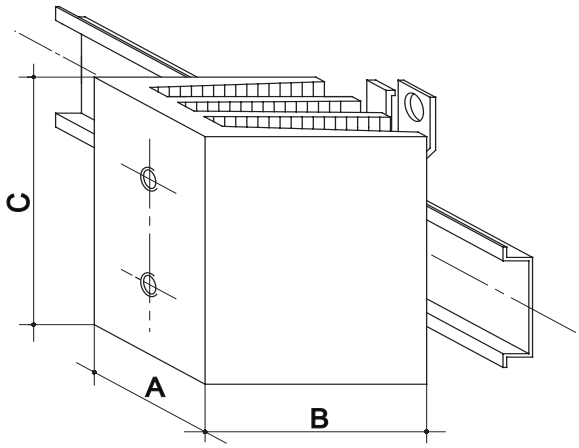
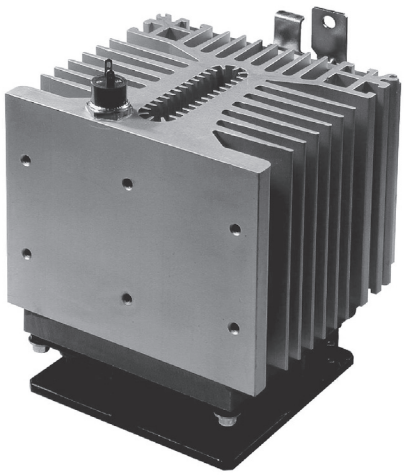
Heatsinks for relays **SSR**





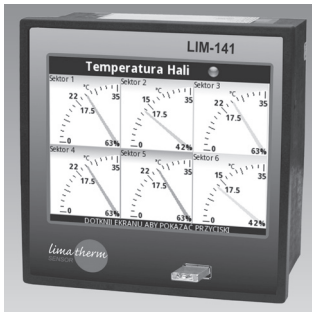




Type	Heat dispersion coefficient	Mounting method	For relay	Dimension (AxBxC)
WF151200	2,2 k/W	handle to rail	SC/SO	45x73,5x98
WF262100	2,2 k/W	handle to rail	SC/CV8/SO	48x60x72
WF121000	1,2 k/W	handle to rail	SC/CV8/SVT/SV9/SG/SO	100x40x100
WF131100	1,1 k/W	handle to rail	SC/CV8/SO	83x90x90
WF115100	0,95 k/W	handle to rail	SC/CV8/SVT/SV9/SG/SO	100x100x90
WF070000	0,75 k/W	handle to rail	SC/CV8/SVT/SV9/SG/SO	100x100x100
WF050000	0,55 k/W	handle to rail	SC/CV8/SVT/SV9/SG/SO	110x145x100
WF031100	0,3 k/W	fan and handle to rail	SC/CV8/SVT/SV9/SG/SO	110x145x100
1LD12020	6 k/W	mounting handle for DIN rail	SC/SO	–
PA1	0,3 k/W	fan, thermostat and handle for DIN rail	SC/CV8/SVT/SV9/SG/SO	126x150x100
PA2	1,2 k/W	handle to rail	SC/CV8/SVT/SV9/SG/SO	104x35x100

Ordering example **Heatsink for relays SSR - WF151200**

J



recorders

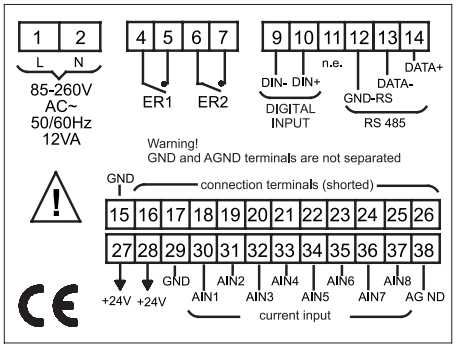
Limatherm Sensor Sp. z o.o.
Skrudlak Street 1, 34-600 Limanowa
www.limathermsensor.com
tel. +48 18 330 10 00
fax. +48 18 330 10 04
e-mail export@limathermsensor.com

Videographic recorder **LIM-99**

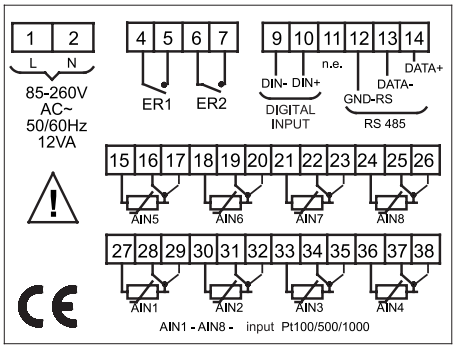
Technical description

Characteristic
– various physical values recorder – 24 V DC built-in transmitters power supply – 2 relay outputs with alarm functions – RS485 MODBUS RTU – USB interface for measurement values downloading
Output
– measurement: 1, 4, 8 channels (4 ÷ 20) mA or Pt100/500/1000 – digital: one 24 V, transport – communication: RS485
Measuring range
±9999
Accuracy
±0,25% ±1 digit
Number of channels
1, 4, 8 current input (4 ÷ 20) mA or Pt100/500/1000
Pamięć
2 MB (up to 500,000 measurements), 2 GB Flash storage (USB option)
Visualisation
– backlight LCD graphic display (128x64)
Power source
(85 ÷ 260) V AC (24 ÷ 48) V DC
Operating conditions
– temperature: (0 ÷ 50) ºC – humidity: <90% RH without condensation
Dimensions [mm]
96x96x92; hole: 90,5x90,5
Additional functions
– RS485/USB converter – USB Host port for Flash storage - PenDrive – PC software included with the recorder: for recorder configuration, for transferring, visualizing, reporting, archiving and printing registration measurements

Wiring diagram



version with current inputs



version with Pt inputs

Ordering code

Videographic recorder	LIM-99 – ...	– ...	– 28	– 1	– ...	– ...
Number of channels:						
one	1					
four	4					
eight	8					
Types of input:						
(0 ÷ 20) mA/(4 ÷ 20) mA		1				
RTD (Pt100, Pt500, Pt1000)		3				
Power source:						
24 V AC/DC					3	
(85 ÷ 260) V AC/DC					4	
USB Host (USB on the front panel)						0B

Ordering example **Videographic recorder LIM-99–4–3–28–1–4–0B**

Limatherm Sensor Sp. z o.o.
Skrudlak Street 1, 34-600 Limanowa
www.limathermsensor.com
tel. +48 18 330 10 00
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Videographic recorder **LIM-141**

Technical description

Characteristic

– videographic recorder
– LCD 5,7” touchscreen
– I/O wide range of modules
– up to 72 analog / digital inputs
– up to 90 virtual channels
– sampling frequency from 0,1 s
– IP65 protection degree
– 1,5 GB internal storage
– interfaces: Ethernet, USB Host, RS485 (MultiModbus)
– keyboard and mouse support
– PID, profiles/timers
– mathematical functions: derivative, integral, pulse counter, flip-flop, medium
– DAQ Manager software

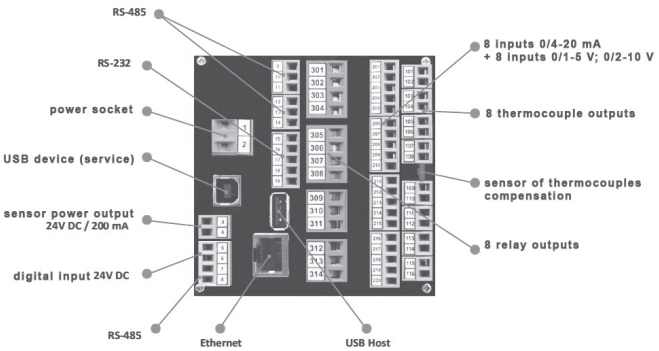
Input modules

– max. 72 analog inputs:
(0 ÷ 20) mA, (4 ÷ 20) mA,
(0 ÷ 5) V, (1 ÷ 5) V, (0 ÷ 10) V, (2 ÷ 10) V
– max. 72 digital inputs
– max. 36 TC inputs:
J, K, S, T, N, R, B, E (PN-EN), L (GOST),
±25 mV, ±100 mV, (-10 ÷ 25) mV, (-10 ÷ 100) mV
– max. 18 RTD inputs (2-, 3- and 4- wires):
Pt100, Pt500, Pt1000 (PN-EN),
Pt'50, Pt'100, Pt'500 (GOST),
Ni100, Ni500, Ni1000 (PN-EN),
Cu50, Cu100 (PN-83M-53852),
Cu'50, Cu'100 (PN-83M-53852),
resistive (0 ÷ 300) Ω, resistive (0 ÷ 3) kΩ,
– max. 12 counting/flow meter/tachometer inputs:
(0 ÷ 20) (1/s), (0 ÷ 20) (1/min.), (0 ÷ 20) (1/hour.),
(4 ÷ 20) (1/s), (4 ÷ 20) (1/min.), (4 ÷ 20) (1/hour.),
– max. 15 universal inputs:
(0 ÷ 20) mA, (4 ÷ 20) mA,
(0 ÷ 5) V, (1 ÷ 5) V, (0 ÷ 10) V, (2 ÷ 10) V
thermocouples: J, K, S, T, N, R, B, E (PN-EN), L (GOST),
(-10 ÷ 25) mV, (-10 ÷ 100) mV, (0 ÷ 600) mV,
Pt100, Pt500, Pt1000 (PN-EN),
Pt'50, Pt'100, Pt'500 (GOST),
Ni100, Ni500, Ni1000 (PN-EN),
Cu50, Cu100 (PN-83M-53852),
Cu'50, Cu'100 (PN-83M-53852),
resistive (0 ÷ 300) Ω, resistive (0 ÷ 3) kΩ,
– mixed inputs: NTC analog-to-temperature
max. 24x (0 ÷ 20) mA, (4 ÷ 20) mA and
max. 24x (0 ÷ 5) V, (1 ÷ 5) V, (0 ÷ 10) V, (2 ÷ 10) V and
max. 24x NTC,
– mixed inputs: analog-to-digital
max. 24x (0 ÷ 20) mA, (4 ÷ 20) mA and
max. 24x (0 ÷ 5) V, (1 ÷ 5) V, (0 ÷ 10) V, (2 ÷ 10) V and
max. 24x digital,
– 1 digital input 24 V DC with optoisolation (integrated with power module)

Output modules

– max. 24 analog:
(4 ÷ 20) mA (hardware limitation (3 ÷ 22) mA)
– 36 relays 1 A/250 V
– 18 relays5 A/250 V
– 72 SSR
– sensor power output: 24 V DC ±5% (max. 200 mA for current inputs)

LIM-141 recorder configuration example
rear view:



Communication modules

– Ethernet
– RS485 (multi Modbus)
– USB Host

Power source

(85 ÷ 260) V AC/DC
(19 ÷ 50) V DC, (16 ÷ 35) V AC

Power consumption

typically 25 VA, max. 35 VA

Operating conditions

(0 ÷ 50) °C (standard)
(-20 ÷ 50) °C (optional)

Dimensions [mm]

144x144x100
mounting hole dimensions: 137x137
mounting depth: min. 102

Type	Specification
0	without I / O module in the given slot
UN3	3 universal inputs U/I/RTD/TC/mV, isolated
UN5	5 universal inputs U/I/RTD/TC/mV, isolated
I16	16 current inputs
I24	24 current inputs
IS6	6 current inputs, isolated
U16	16 voltage inputs
U24	24 voltage inputs
UI4	4 voltage inputs + 4 current inputs
UI8	8 voltage inputs + 8 current inputs
UI12	12 voltage inputs + 12 current inputs
UI4N8	4 voltage inputs + 4 current inputs + 8 NTC inputs
UI4D8	4 voltage inputs + 4 current inputs + 8 digital inputs
UI8N8	8 voltage inputs + 8 current inputs + 8 NTC inputs
UI8D8	8 voltage inputs + 8 current inputs + 8 digital inputs
CP2	2 pulse inputs, universal counters, isolated
CP4	4 pulse inputs, universal counters, isolated
HM2	2 time counter inputs, isolated
HM4	4 time counter inputs, isolated
FT2	2 pulse tachometer / flowmeter inputs, isolated + 2 standard current inputs
FT4	4 pulse tachometer / flowmeter inputs, isolated + 4 standard current inputs
FI2	2 analog tachometer / flowmeter inputs + 2 standard current inputs
FI4	4 analog tachometer / flowmeter inputs + 4 standard current inputs

Type	Specification
RT4	4 RTD inputs
RT6	6 RTD inputs
TC4	4 thermocouple inputs
TC8	8 thermocouple inputs
TC12	12 thermocouple inputs
D8	8 digital inputs, isolated
D16	16 digital inputs, isolated
D24	24 digital inputs, isolated
R81	8 relay outputs 1A
R121	12 relay outputs 1A
R45	4 relay outputs 5A
R65	6 relay outputs 5A
S8	8 SSR outputs
S16	16 SSR outputs
S24	24 SSR outputs
IO2	2 outputs (4 ÷ 20) mA, isolated
IO4	4 outputs (4 ÷ 20) mA, isolated
IO6	6 outputs (4 ÷ 20) mA, isolated
IO8	8 outputs (4 ÷ 20) mA, isolated

Ordering code

Videographic recorder	LIM-141 – ... – ... – ... – ... – ... – ...
Power source: (85 ÷ 260) V AC/DC (19 ÷ 50) V DC, (16 ÷ 35) V AC	 **4** **5**
Interface: standard (1x USB on the front / rear panel) extended (1x USB, 1x Ethernet) extended (1x USB, 1x Ethernet 1x RS485, 1x RS232)	 **1** **2** **3**
C slot: I/O modules	**acc. to table**
B slot: I/O modules	**acc. to table**
A slot: I/O modules	**acc. to table**
Options: none IP65 frame operating temperature: (-20 ÷ 50) °C USB Host on the front panel (IP40) IP65 + operating temp.: (-20 ÷ 50) °C	**00** **01** **08** **0B** **0P**

Ordering example

Videographic recorder LIM-141–4–1–UN5–UN5–0–0B

Limatherm Sensor Sp. z o.o.
Skrudlak Street 1, 34-600 Limanowa
www.limathermsensor.com
tel. +48 18 330 10 00
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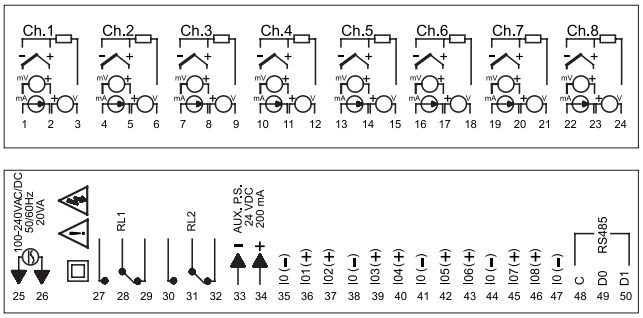
Videographic recorder **FIELD LOGGER USB**

Technical description

Characteristic
– 24 bit A/D conversion resolution (reading and logging rates of up to 1000/second) – adjustable sampling time 1 ms - 24 hours – 8 universal analog input channels – 8 digital I/Os (individually configured as input or output) – up to 128 virtual channels - basic mathematical functions to be applied on other channels: sum, subtraction, multiplication, division, logic (AND, OR and exclusive OR), square root and power – 2 relay outputs (NO, NC and common) – up to 32 configurable alarms or sending e-mail alert – 512 kB internal storage + SD card slot up to 16 GB – 2 USB slots for data transfered and PC configuration – additional power source 24 V DC 200 mA – mounting on the DIN TS-35 rail
Input
– thermocouple: J, K, T, E, N, R, S, B (IEC-584) – Pt100, Pt1000 (IEC-751) – (0 ÷ 20) mA, (4 ÷ 20) mA, (0 ÷ 20) mV, (0 ÷ 50) mV, (0 ÷ 60) mV, (-20 ÷ 20) mV, (0 ÷ 5) V, (0 ÷ 10) V
Accuracy
– thermocouple: J, K, T, E, N 0,2% of range ±1 °C – thermocouple: R, S, B 0,2% of range ±3 °C – Pt100, Pt1000 0,15% max. of range – (0 ÷ 20) mA, (4 ÷ 20) mA 0,15% max. of range – (0 ÷ 20) mV, (0 ÷ 50) mV, (0 ÷ 60) mV, (-20 ÷ 20)mV 0,15% max. of range – (0 ÷ 5) V, (0 ÷ 10) V 0,15% max. of range
Communication interfaces
– USB - data transferring, PC configuration – slot SD - writing a data on SD card – RS485 - Modus RTU (Master/Slave) – Ethernet - TCP/IP, DHCP, HTTP, SMTP, SNMP, Modbus RTU, Modbus TCP, FTP server-client
Visualisation
– FieldChart-SCADA: registration and visualization of measurements, export data – FieldLoggerConfig: diagnostics , configuration, data reading
Power source
(100 ÷ 240) V
Operating conditions
– temperature: (0 ÷ 55) ºC IP20 – humidity: <80% RH without condensation
Dimensions [mm]
165x117x70
Weigth[g]
400
Additional functions
– RS485/USB converter – QVGA 2,4” color display (96x48 mm) – FieldChart 8C, 64C software

Wiring diagram



Ordering example

Videographic recorder FIELD LOGGER USB (without display)
Videographic recorder FIELD LOGGER USB–LCD (with LCD display)

Limatherm Sensor Sp. z o.o.
Skrudlak Street 1, 34-600 Limanowa
www.limathermsensor.com
tel. +48 18 330 10 00
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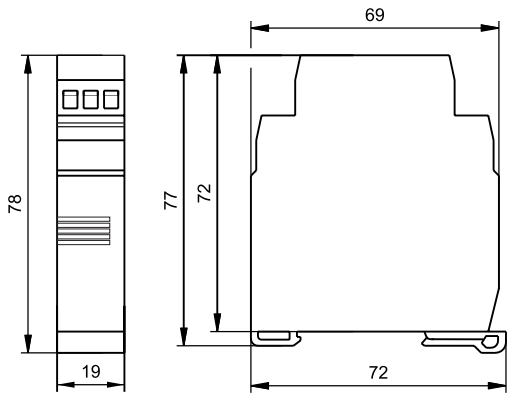
e-mail export@limathermsensor.com

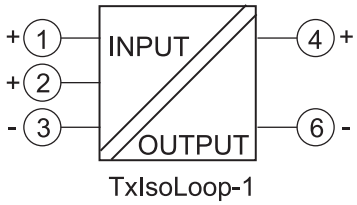
Separator **TxIsoLoop**

Technical description

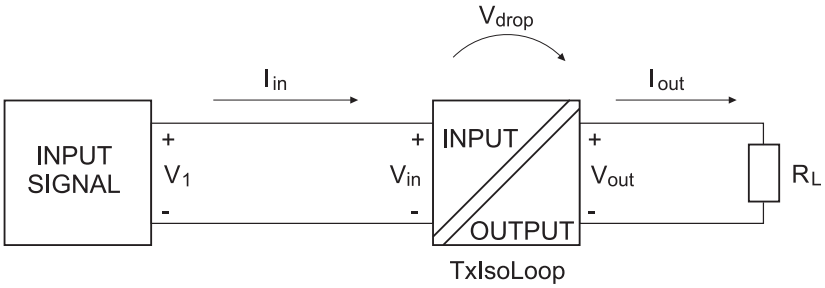
Characteristic
– 3 kV I/O galvanic isolation – 1 or 2 channels model – high accuracy processing – without external power supply – IP40 protect degree
Input
– (0 ÷ 20) mA, (4 ÷ 20) mA – input voltage without separation: V_{drop} < 3 V – min. input voltage with separation: V_{drop} < 5 V – max. input voltage: 32 V DC
Output
– (0 ÷ 20) mA, (4 ÷ 20) mA – max. load: R_L=1450 Ω – isolation: 3000 V AC / 10 s, 240 V AC constantly – overload: <40 mA, < 32 V DC
Accuracy
– 0,2% of range: (0 ÷ 60) °C; R_L=250 Ω – 0,3% of range: (-20 ÷ 75) °C; R_L=250 Ω
Response time
2 ms, R_L=250 Ω
Operating conditions
– temperature: (-20 ÷ 75) °C – humidity: (20 ÷ 90) % RH without condensation



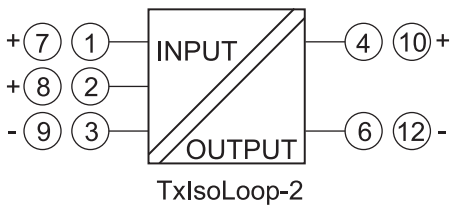
Wiring diagram



TxIsoLoop-1



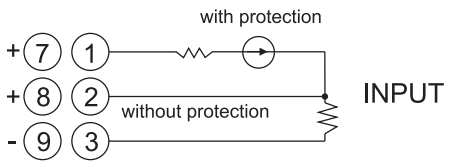
TxIsoLoop



TxIsoLoop-2

$$V_1 = V_{in}$$

$$V_{in} = V_{drop} + (I_{out(max)} \times R_L)$$
$$I_{in} = I_{out}$$



Ordering example%tope

Separator TxIsoLoop-1 (1 kanałowy)
Separator TxIsoLoop-2 (2 kanałowy)

RECORDERS
J

Limatherm Sensor Sp. z o.o.
Skrudlak Street 1, 34-600 Limanowa
www.limathermsensor.com
tel. +48 18 330 10 00
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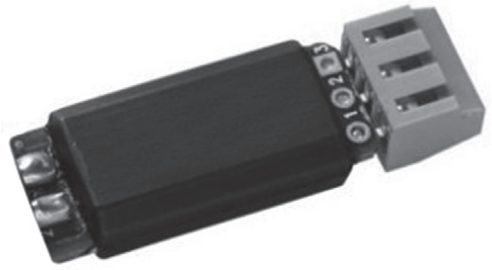
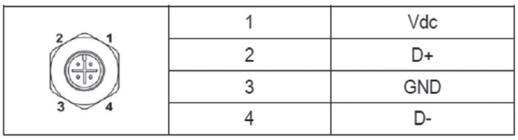
e-mail export@limathermsensor.com

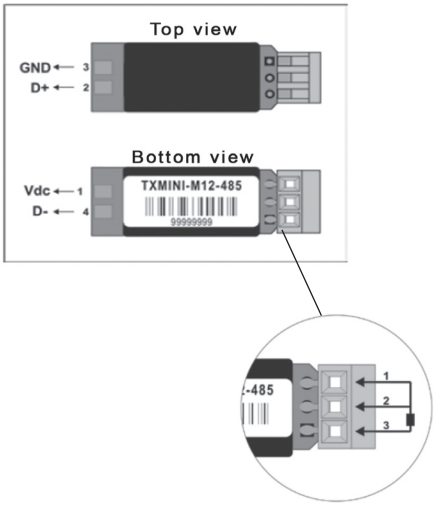
Temperature transmitter **TxMini-RS485**

Technical description

Characteristic
– built-in protection against reverse polarity of the power supply – Digi Config software included – possibility M12 connector soldering (not included) – no galvanic isolation between input and output – configuration via RS485 interface and Digi Config software – default settings according to the table below
Input
– Pt100, 3-wire screw connection
Measuring range
(-200 ÷ 600) °C; min. input range 40 °C
Measuring current Pt100
0,8 mA (α=0.00385)
Max. resistance of connecting wires Pt100
25 Ω
Accuracy
– typical 0,1% of range (max. 0,2% of range)
Response time
2 s
Power source
(7 ÷ 40) V DC, power consumption < 10 mA
Operating conditions
– temperature: (-40 ÷ 85) °C – humidity: (0 ÷ 90) % RH
Additional functions
– M12 connector – FieldChart software

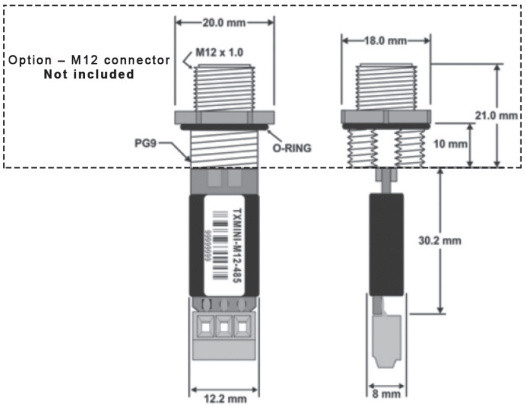






Default settings

Parameter	Value
Error value	0
Offset	0 ºC
Unit	ºC
Digital filter	0
Time setting	60 s
Data transfer	1200
Date frame	8
Odd	Par
Stop bits	1
Adress	247



Ordering example **Temperature transmitter TxMini-RS485**

Limatherm Sensor Sp. z o.o.
Skrudlak Street 1, 34-600 Limanowa
www.limathermsensor.com
tel. +48 18 330 10 00
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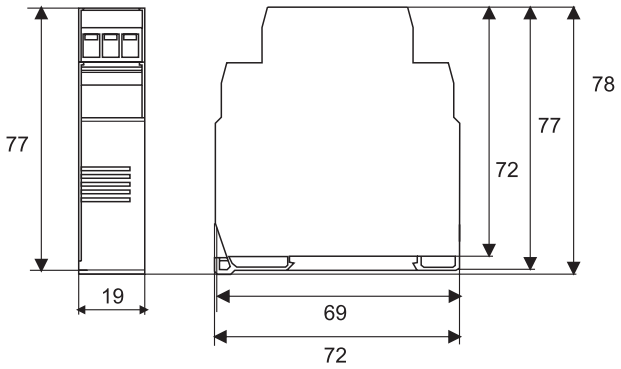
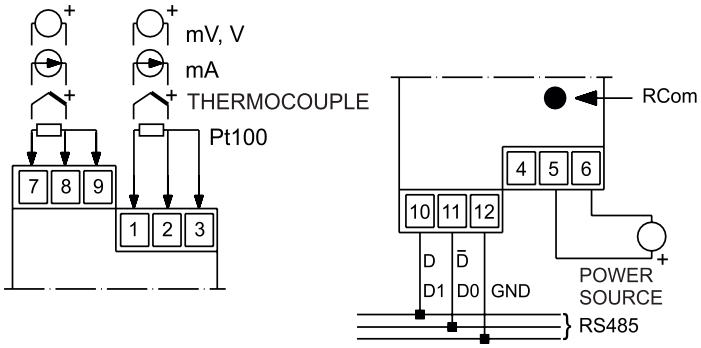
Analog-to-digital transmitter **DigiRail-2A**

Technical description

Characteristic
– 2 programmable analog inputs – RS485 interface - MODBUS RTU – mounting on the 35 mm rail – registration / printing data possibility (Field Chart) – RS485 (Rcom) button for restore default configuration – 1000 V galvanic isolation – sampling frequency: 2,5-10 samples/s
Input
– TC: J, K, T, E, N, R, S, B – RTD: Pt100 – analog: (4 ÷ 20) mA, (0 ÷ 20) mA, (0 ÷ 10) V*, (0 ÷ 5) V*, (0 ÷ 50) mV, (-10 ÷ 20) mV, (0 ÷ 20) mV
Accuracy
±0,25% ±1 ºC: for J, K, S, T, E, N, R, B; (±0,15% for others)
Power source
(10 ÷ 35) V DC – power consumption 50 mA max.
Operating conditions
– temperature: (0 ÷ 70) ºC – humidity: (0 ÷ 90) % RH without condensation
Additional functions
– RS485/USB converter – FieldChart software



Wiring diagram



Ordering example **Analog-to-digital transmitter DigiRail-2A**

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Skrudlak Street 1, 34-600 Limanowa
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tel. +48 18 330 10 00
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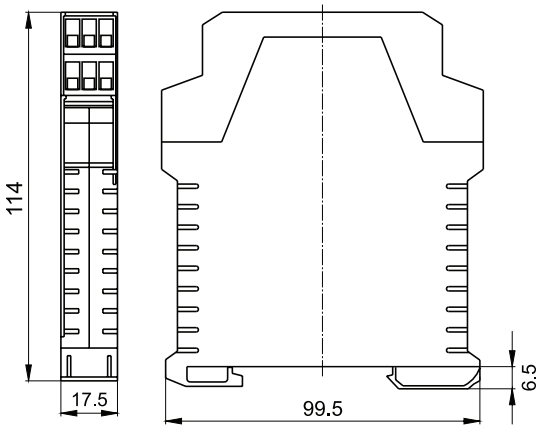
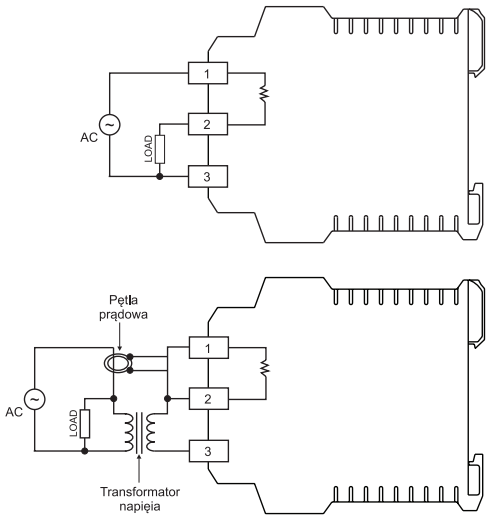
Electrical parameters transmitter **DigiRail-VA**

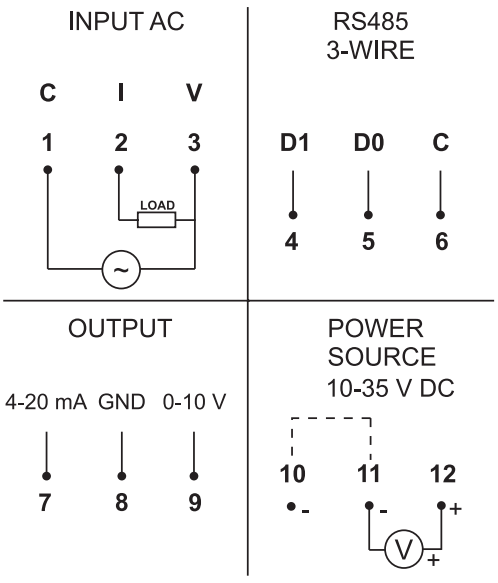
Technical description

Characteristic
– 2 current and voltage analog inputs – 3 outputs: (4 ÷ 20) mA, (0 ÷ 10) V, RS485 – signal retransmission (standard 10:1) – current, voltage and frequency measurement – active, reactive and apparent power measurement – power factor measurement – isolated measuring inputs 2500 V AC – USB interface for configuration – mounting on the DIN 35mm rail
Input
– current: (0 ÷ 5) A AC – voltage: (0 ÷ 300) V AC – frequency: (45 ÷ 65) Hz
Accuracy
– RMS value of voltage, current, active, reactive and apparent power: a) reading via RS485: 0,25% of range b) reading via (4 ÷ 20) mA, (0 ÷ 10) V: 0,5% of range – value of power factor and frequency: a) reading via RS485: 0,5% of range b) reading via (4 ÷ 20) mA, (0 ÷ 10) V: 1% of range
Power source
(10 ÷ 40) V DC typical 24 V DC - power consumption 50 mA
Operating conditions
– temperature: (0 ÷ 60) ºC; – humidity: (0 ÷ 90) % RH without condensation
Dimension [mm]
99,5x114x17,5
Weight [g]
96





Wiring diagram



Ordering example **Electrical parameter transmitter DigiRail-VA**

Limatherm Sensor Sp. z o.o.
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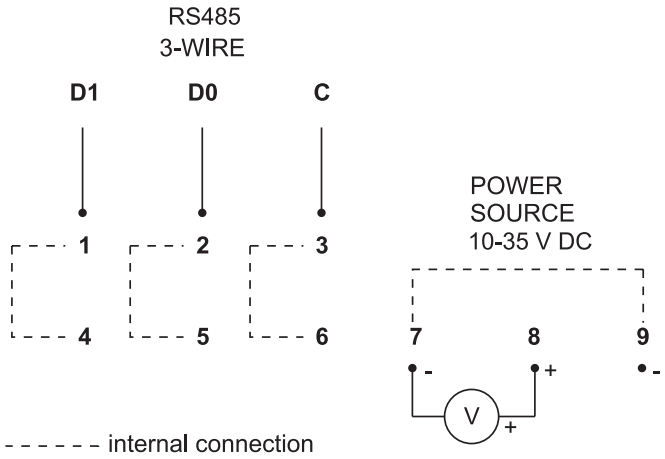
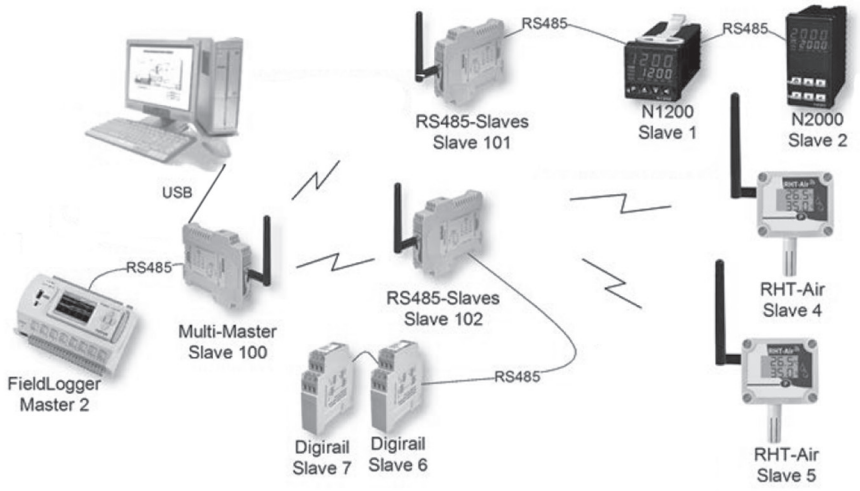
Electrical remote interface RS485 **AirGate-Modbus**

Technical description

Characteristic
– support for up 16 devices – range uo to 1000 m – data transfer up to 250 Kbps – ISM 2,4 GHz (IEEE 802.15.4) – AES-CBC-128 encrypted communication – star topology – mounting on the DIN TS-35 rail – IP20 housing – power consumption: 70 mA – 2 dBi antenna – USB interface for configuration
Working mode
– RS485-Master – RS485-Slave – USB-Master – Multi-Master
Power source
(10 ÷ 35) V DC
Dimension [mm]
114x99,5x17,5
Operating conditions
– ambient temperature: (0 ÷ 70) ºC – humidity: (30 ÷ 80) % RH without condensation

Wiring diagram





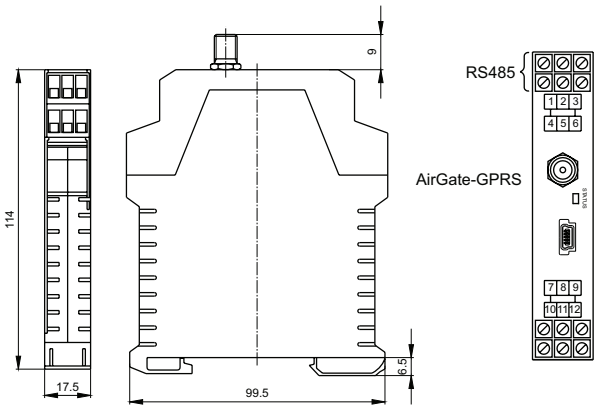
Ordering example **Electrical remote interface RS485 AirGate-Modbus**

Limatherm Sensor Sp. z o.o.
Skrudlak Street 1, 34-600 Limanowa
www.limathermsensor.com
tel. +48 18 330 10 00
fax. +48 18 330 10 04
e-mail export@limathermsensor.com

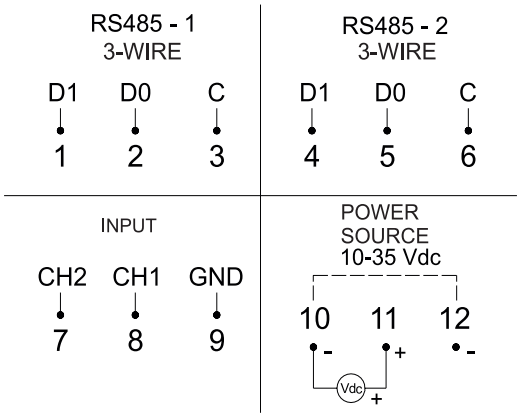
RS485 Network interface **AirGate-GPRS**

Technical description

Characteristic
– connects to a cloud based gateway through its GSM/GPRS interface – fully compatilbe with NOVUS M2M Gateway for monitoring and storage – USB port allows PC connection as a virtual COM port – Isolated USB interface: 2 kV – two configurable RS485 interfaces (baud rate, parity and stop bits) – worldwide GSM compatibility: quadri band – authentication to the remote gateway to increase security – sends SMS as alarm or event notification – free configuration software – two inputs, configurable as analog (4-20 mA or 0-10 V) or digital – includes an antenna with magnetic base and 3m cable – ABS enclosure for DIN rail mounting – enclosure protection index: IP40 – certification: CE, ANATEL
Input/Output
– linear (4 ÷ 20) mA - impedance 150 Ω - accuracy 1% – linear (0 ÷ 10) V - impedance 670 kΩ - accuracy 1% – digital - logic „0” - from (0 ÷ 0,8) V, logic „1” - from (2 ÷ 6) V – GSM/GPRS - support for 4 ranges (850 MHz, 900 MHz, 1800 MHz and 1900 MHz) – an antenna GSM - SMP plug, impedance 50 Ω
Dimensions [mm]
114x99,5x17,5
Weight [g]
– without an antenna: 114 – with an antenna: 174
Power source
(10 ÷ 35) V DC / 150 mA max. power consumption 24 V DC power source
Operating conditions
– temperature: (-10 ÷ 50) °C – humidity: ≤80% RH without condensation



Wiring diagram



Ordering example **RS485 Network source AirGateGPRS**

Limatherm Sensor Sp. z o.o.
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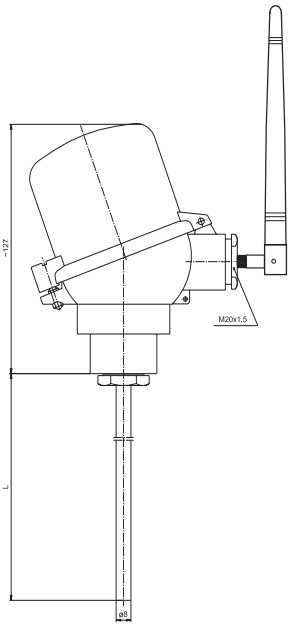
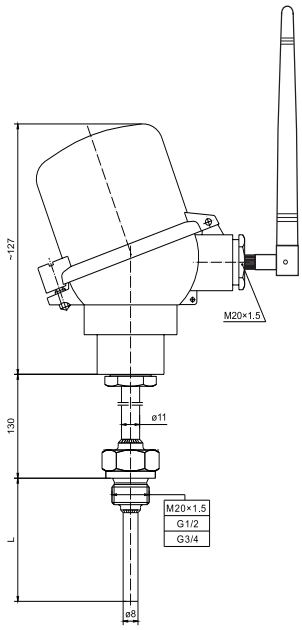
e-mail export@limathermsensor.com

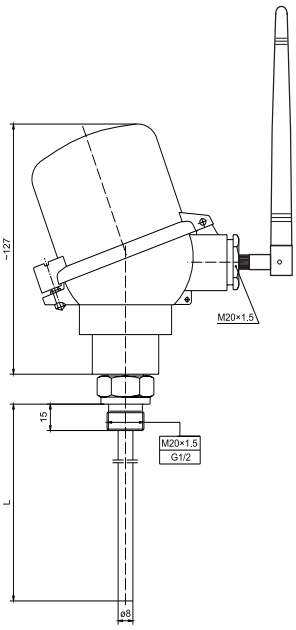
Remote temperature sensor **LIM-TR401**

Technical description

Characteristic
– temperature sensor with DANAW, equipped with 2,4 GHz transmitter (LIM-TR401), antenna and battery – measuring range: (-200 ÷ 550) °C for Pt100; (-40 ÷ 1200) °C for "K" and "PI" – 8 analog outputs (4 ÷ 20) mA of the LIM-RE410 receiver – operating range up to 3,5 km (on the outside) – min. sampling time: 1 s – high measuring accuracy: ±0,1 °C for RTD; ±0,1 °C for TC
Sheath
– diameter [mm]: ø3, ø6, ø8, ø9, ø11 – material: stal 1.4541
Head
– DAAW1, IP65, (-40 ÷ 100) °C







Ordering code

Remote temperature sensor	LIM-TR401 – ... – ... – ... – ... – ... – ... – ... – ...
Construction:	
straight	I
straight, mineral insulated ø3, ø6 mm	PI
with thread	GB
with thread and distance	GN
Sheath length:	160, 250, 400
Sheath diameter:	3, 6, 8, 9, 11
Thread dimension:	M20x1,5; G½; G¼
Pt resistor	Pt100
Thermocouple Fe-CuNi	J
Thermocouple NiCr-NiAl	K
Thermocouple NiCrSi-NiSi	N
Resistor class	A, B
Thermocouple class	1, 2
Measuring circuit for RTD	2, 3, 4

Ordering example **Remote temperature sensor LIM-TR401–GB–250–11–M20x1,5–Pt100–A–3**

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www.limathermsensor.com
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Transmitter and receiver **LIM-TR868 / LIM-RE868**

Technical description

LIM-TR868 transmitter characteristic
– connection up to 5 km in the outdoor, 868 MHz, 27 dBm (0,5 W) – radio transmission: (0 ÷ 27) dBm – radio receiver sensitivity: (-97 ÷ -110) dBm – frequency band: (868,050 ÷ 869,575) MHz – transmitter transfer rate: (1,2 ÷ 76,8) kb/s – encryption method: AES 128 (Advanced Encryption Standard) – material: ABS UL94HB – protection degree: IP67
LIM-RE868 receiver characteristic
– automatic wireless connection – automatic data transfer – free simple software for configuration – RS485 interface with MODBUS RTU protocol
LIM-REP868 repeater characteristic
– increases the range of between the LIM-TR868 transmitter and the LIM-RE868 receiver – free simple software for configuration – 12 V DC external power supply, 500 mA current consumption – RS485 interface
Wireless parameters
– max. number of transmitters for one receiver: 55 – time response: 1 up to 43200 s (configurable)
External probe temperature measurement
– measuring range: (-40 ÷ 100) ºC – resolution: 0,1 ºC – accuracy: typical: ±0,25 ºC / max.: ±0,5 ºC – temperature sensor type: I2C digital sensor – time response: 1 s – connector: M8 female socket, 4 pins
Internal probe temperature measurement
– measuring range: (-40 ÷ 80) ºC – resolution: 0,1 ºC – accuracy: typical: ±0,25 ºC / max.: ±0,5 ºC – temperature sensor type: I2C digital sensor – time response: 1 s
Transmitter power source
– 3x AA lithium battery (PN EVE ER14505M) – battery life: about 3 years – external power source: 12 V DC ±5% – 500 mA max. power consumption – voltage measurement accuracy of the power supply: ±1 V DC
Dimensions [mm] / Waga [g]
162x88,5x25 / 100 g
Operating conditions
– operating temperature: (-40 ÷ 80) °C – humidity: 95% RH (without condensation)

LIM-TR868

LIM-RE868

LIM-REP868

Ordering example: **Transmitter and receiver LIM-TR868 / LIM-RE868**

Limatherm Sensor Sp. z o.o.
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Software **Field Chart**

Technical description

Characteristic

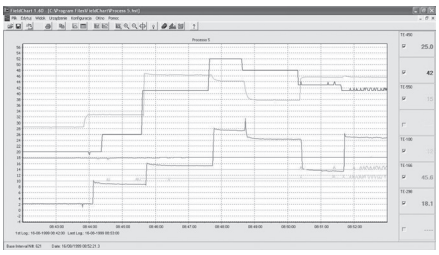
– simple and configurable
– registration of up to 64 analog channels using RS485
– cooperation with N series regulators, DigiRail transducers, Field Logger recorders
– presentation of measurement data on the chart
– zoom closeup
– possible to combine or overlay charts
– saving data on a computer disk
– data export to: TXT, XLS, PDF
– upper and lower alarm for each monitored variable with audible and visual warning

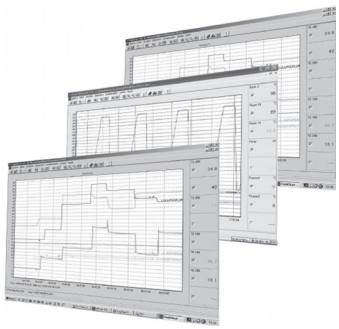
Application

The Filed Chart is simply and configurable software for recording and visualizing measurement data measured using the DigiRail transmitters or the Field Logger recorders and the RS485 interface. It transfers the measurement data to a PC and saves it to disk. It allows you to present results in a table or graph with the zoom option. The software allows you to record data on up to 64 analog channels in which you can freely assign upper and lower alarms for each of the channels. The alarms can generate the visual and audible warnings.

System requirements

– PC with Windows XP or higher
– Processor: 500 MHz or faster
– min. space on the disk: 100 MB
– RAM: 128 MB (recommended 256 MB)
– USB or serial interface





Ordering example

Field Chart 8C software (8 channels)
Field Chart 64C software (64 channels)

Limatherm Sensor Sp. z o.o.
Skrudlak Street 1, 34-600 Limanowa
www.limathermsensor.com
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e-mail export@limathermsensor.com

Software **Superview**

Technical description

Characteristic

– simply graphic interface
– a different password for each user
– encrypted data registration with function of counterfeiting detection
– export data to the formats: XLS, PDF, RTF, XML, HTML, DBF, TXT, CSV
– visual objects available to create supervision forms
– alarms supervision with visual, sound and e-mail notifications
– generating reports
– mathematical formulas
– task scheduler triggered by conditional or date/time
– allows data download from NOVUS FieldLogger
– easy configuration of Modbus communication parameters for NOVUS products
– Modbus RTU and Modbus TCP protocols
– operations mode Client and Server: within a corporative network, it is possible to distribute the supervision among multiple computers connected to a TCP/IP network. A SuperView station can be executed as Client, Server or both modes
– remote activation for historic, tasks and formulas with a SuperView Client
– complies with technical requirements of FDA 21 CFR Part 11 and ANVISA

Application

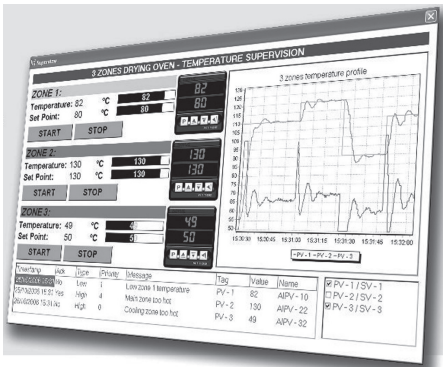
SuperView is a Supervisory Control and Data Acquisition software (SCADA) that brings to the user a visual development model to create applications. Besides communication with Modbus RTU and Modbus TCP devices, also is posible to use SuperView stations operating in Client or Server modes allowing distributed supervision of a process or system.

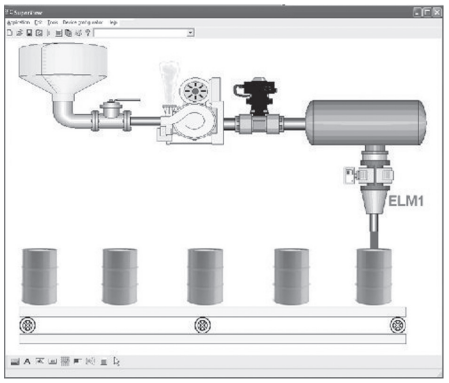
System requirements

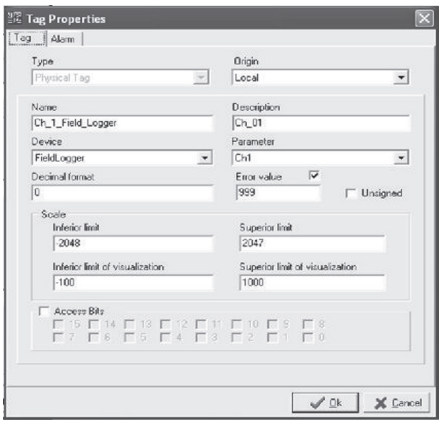
– PC with Windows XP or higher
– processor: 1 GHz or faster
– min. space on the disk: 100 MB
– RAM: 256 MB (recommended 512 MB)
– USB or RS232 interface
– Network adapter for operating in Client/Server mode

Additional functions

– analog-to-digital transmitters - page 133
– RS232/RS485 or USB/RS485 converters- page 139
– one device from N series with RS485 interface for software license registration (serial number assigned to the device)







Ordering example **Software SuperView**

Limatherm Sensor Sp. z o.o.
Skrudlak Street 1, 34-600 Limanowa
www.limathermsensor.com
tel. +48 18 330 10 00
fax. +48 18 330 10 04
e-mail export@limathermsensor.com

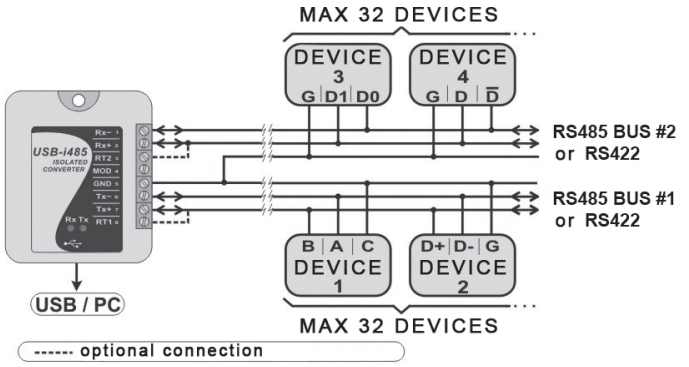
Converter **USB/RS485**

Technical description

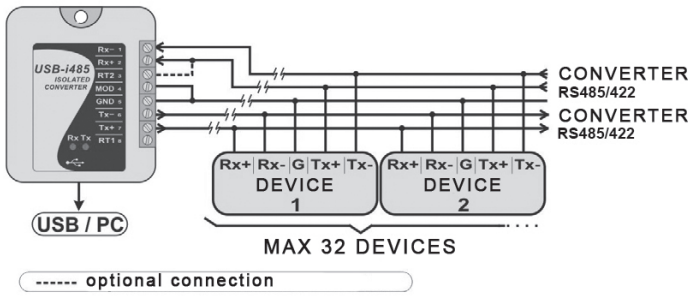
Characteristic
– support for one or two independently isolated RS485 or RS422 networks – USB interface to connect with PC – 1500V DC galvanic isolation – 1.5 m USB cable included – power consumption <100 mA – LED communication signal – transmission speed up to 250 kbps
Input
– RS485/RS422 – Half Duplex: 2x 32 devices – Full Duplex: 32 devices
Power source
– USB interface
Operating conditions
– temperature: (0 ÷ 50) °C – humidity: (10 ÷ 90) % RH without condensation
Dimensions [mm]
70x60x18

Wiring diagram

HALF-DUPLEX RS485 Connection



FULL-DUPLEX RS485 Connection



Ordering example **Converter USB/RS485**

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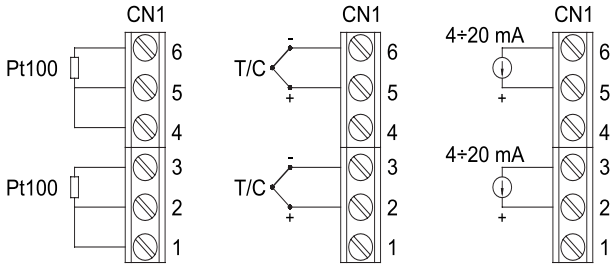
www.limathermsensor.com
tel. +48 18 330 10 00
fax. +48 18 330 10 04
e-mail export@limathermsensor.com

Temperature recorder **LOGBOX AA**

Technical description

Characteristic
– remote connection with IR-Link 3 interface – START/STOP button – programmable recording interval (1 s -18 h) – IP65 housing – LogChart II software for online configuration and monitoring
Input
– Pt100, K, J, R, S, T, N, E, B – (0 ÷ 10) V, (0 ÷ 50) mV, (4 ÷ 20) mA, (0 ÷ 20) mA
Accuracy
0,2% of range for Pt100 0,25% for (4 ÷ 20) mA, (0 ÷ 10) V
Number of channel
2
Memory
64 000 records
Power source
– battery (1x ½ AA 3,6 V)
Operating conditions
– temperature: (-20 ÷ 70) ºC
Dimensions [mm]
70x60x35

Wiring diagram



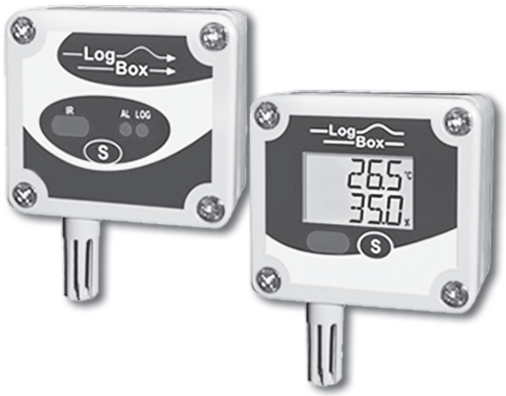
Ordering example

Temperature recorder LOGBOX AA
Interface IR-Link 3-USB

Temperature and humidity recorder **LOGBOX RHT, RHT/LCD**

Dane techniczne

Characteristic
– remote connection with IR-Link 3 interface – two lines LCD display (humidity, temperature) – programmable recording interval (1 s - 18 h) – IP65 housing, IP40 sensor – LogChart II software for configuration and online monitoring
Accuracy
– temperature 0,1 ºC, humidity 0,1% RH
Number of channels
2 (1x temperature, 1x humidity)
Memory
32 000 records
Power source
– battery (1x ½ AA 3,6 V)
Operating conditions
– temperature: (-20 ÷ 70) ºC – humidity: (0 ÷ 100) % RH
Dimensions [mm]
70x60x35



Ordering example

Temperature and humidity recorder LOGBOX–RHT
Interface IR-LINK 3-USB

Limatherm Sensor Sp. z o.o.
Skrudlak Street 1, 34-600 Limanowa
www.limathermsensor.com
tel. +48 18 330 10 00
fax. +48 18 330 10 04
e-mail export@limathermsensor.com

Temperature recorder **TAGTEMP**

Technical description

Characteristic
– USB interface – START/STOP button (TagTemp STICK) – built-in real time clock – programmable recording interval (5 s - 18 h) – IP67 housing – LogChart II software for configuration
Measuring range
– temperature: (-20 ÷ 70) °C
Accuracy
12 bit ±0,5 °C (25 °C), max 1 °C
Resolution
0,1 °C
Number of channels
1 (temperature)
Memory
32000 (32 k) records
Power source
– TagTemp STICK: battery 1x CR2032 non-replaceable – TagTemp USB: battery 1x CR2032 replaceable
Dimensions [mm]
– TagTemp STICK: 78x23x10 – TagTemp USB: 55x37,5x15
Software
– free LogChart II software, compatible with Win XP, 7, 8

TAGTEMP STICK

TAGTEMP USB

Ordering example

Temperature recorder TAGTEMP STICK
Temperature recorder TAGTEMP USB

Limatherm Sensor Sp. z o.o.
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www.limathermsensor.com
tel. +48 18 330 10 00
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e-mail export@limathermsensor.com

Temperature recorder **SMART BUTTON**

Technical description

Characteristic
– built-in lithium battery – configuration using a PC in terms of sampling time, registration delays, data saving methods and alarm threshold settings – connection with computer via USB interface (option) – dedicated to measurements: food industry, isometric cars, warehouses – free PC software included
Measuring range
– temperature: (-40 ÷ 85) ºC
Accuracy
0,5 ºC
Number of channels
1 (internal thermistor sensor)
Memory
2048 records
Power source
lithium battery (estimated operating time: 3-10 years)
Dimensions [mm]
17x4 (interface cable length: 1,25 m)
Weigth [g]
4

Ordering example

Temperature recorder SMART BUTTON
Interface SMART BUTTON USB

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Skrudlak Street 1, 34-600 Limanowa
www.limathermsensor.com
tel. +48 18 330 10 00
fax. +48 18 330 10 04
e-mail export@limathermsensor.com

Temperature and humidity recorder **LOG 32 USB**

Technical description

Characteristic
– temperature and humidity data recorder – configurable alarm with LED signal – USB interface – free software
Measuring range
– temperature: (-40 ÷ 70) °C – humidity: (0 ÷ 99) % RH
Accuracy
±1,0°C (-20 ÷ 50) °C, ±3%
Number of channels
2 (1x temperature, 1x humidity)
Memory
32000 records
Power source
– battery (1x ½AA 3,6 V)
Dimensions [mm]
130x30x25

Ordering example **Temperature and humidity recorder LOG 32 USB**

Temperature recorder **MICROLITE 32K USB**

Dane techniczne

Characteristic
– temperature recorder – waterproof (IP68) – USB interface – free software
Measuring range
– temperature: (-40 ÷ 80) °C
Accuracy
±0,3 °C
Memory
32000 records
Power source
– 1x CR2032 replaceable battery
Dimensions [mm]
110x39x26
Weight [g]
45,5

Ordering example **Temperature recorder MICROLITE 32K USB**

Limatherm Sensor Sp. z o.o.
Skrudlak Street 1, 34-600 Limanowa
www.limathermsensor.com
tel. +48 18 330 10 00
fax. +48 18 330 10 04
e-mail export@limathermsensor.com

Temperature and humidity data logger **DT-171**

Technical description

Characteristic
– temperature and humidity recorder – dew point temperature – multi-functional registration modes – user-selectable alarm – solid mounting bracket – programmable sampling time (2s-24h) – 32 k internal storage – long battery life – USB interface – analysis software
Measuring range
– temperature: (-40 ÷ 70) °C – humidity: (0 ÷ 100) % RH
Accuracy
– temperature: ±1°C – humidity: ±3,5%
Memory
32000 records (16000 temperature and 16,000 humidity readings)
Power source
– lithium battery (3,6 V ½ AA)
Dimensions [mm] / weight [g]
101x25x23 / 172
Accessories
– software – mounting bracket – 3,6 V ½ AA lithium battery

Ordering example: **Temperature and humidity data logger DT-171**

Limatherm Sensor Sp. z o.o.
Skrudlak Street 1, 34-600 Limanowa
www.limathermsensor.com
tel. +48 18 330 10 00
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e-mail export@limathermsensor.com

Temperature and humidity data logger **DT-171T**

Technical description

Characteristic
– temperature recorder with pearl probe included – uses K type thermocouple to measure temperature – multi-functional registration modes – Alarm Display if user-defined maximum / minimum values are exceeded – solid mounting bracket – programmable sampling time (2s-24h) – records 32000 Data Points – battery life: about 3 years – USB interface – software compatible to WINDOWS 7, 8, 98, 2000, XP, VISTA 7
Measuring range
– temperature: (-200 ÷ 1370) °C
Accuracy
– temperature: ±1°C
Memory
32000 records
Power source
– lithium battery (3,6 V ½ AA)
Dimensions [mm] / weight [g]
101x24x21,5 / 172
Accessories
– software – mounting bracket – 3,6 V ½ AA lithium battery

Ordering example: **Temperature and humidity data logger DT-171T**

Limatherm Sensor Sp. z o.o.
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tel. +48 18 330 10 00
fax. +48 18 330 10 04
e-mail export@limathermsensor.com

Temperature and humidity data logger **DT-172**

Technical description

Characteristic
– temperature and humidity recorder – large LCD display – displaying current indications such as date, time and battery charge status – displaying of value - max./min. – LED information about current alarms (ALM) and recording (REC) – strong mounting handle with combination lock – programmable time sampling (1 s - 24 h) – internal storage 32 k – life time: around 3 years – mini USB interface – free software compatible with Windows 98/2000/XP/Vista/7
Measuring range
– temperature: (-40 ÷ 70) °C – humidity: (0 ÷ 100) % RH
Accuracy
– temperature: ±1 °C – humidity: ±3,0%
Memory
32000 records
Power source
– lithium battery (1x ½AA 3,6 V)
Dimensions [mm]
94x48x33
Accessories
– software – instrument lock – mini USB cale – lithium battery (1x ½AA 3,6 V)

Ordering example

Temperature and humidity data logger DT-172

Limatherm Sensor Sp. z o.o.
Skrudlak Street 1, 34-600 Limanowa
www.limathermsensor.com
tel. +48 18 330 10 00
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e-mail export@limathermsensor.com

Temperature recorder **PROVA 800**

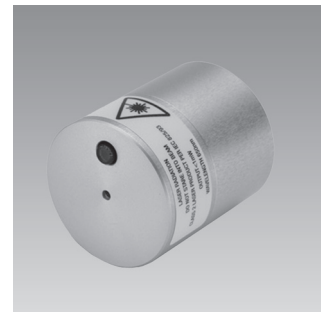
Technical description

Characteristic
– graphic display of overall trend for each input – easy operation by plugging in mini connector – sampling rate 8 inputs / 1 second – programmable Hi-Lo alarm for each input with timer to record duration – display of max and min values for each input – standard 2G SD memory card – built-in calendar clock – integrate analog output from instruments (e.g. sound level, humidity meter, 4-20mA transmitter) – selection of 11 types of thermocouple (K, J, E, T, R, S, N,…)
Input
– K, J, E, T, R, S, N, L, U, B, C, mV
Measuring range
(-200 ÷ 1370) °C for K (-200 ÷ 1000) °C for J (-150 ÷ 760) °C for E (-200 ÷ 400) °C for T (0 ÷ 1600) °C for R, S (0 ÷ 1300) °C for N (0 ÷ 600) °C for U (600 ÷ 1820) °C for B (0 ÷ 2310) °C for C (-50 ÷ 50) °C for mV
Accuracy
0,05% ±1 °C for K
Number of channels
8
Memory
The Prova 800 recorder is standard equipped with a 2 GB SD memory card that allows storing measurement data from 3 years. Optionally, the recorder may have an 8 GB SDHC memory card.
Visualisation
– graphic LCD display with backlight
Power source
– battery (8x AA 1,5 V) – 12 V DC power supply
Operating conditions
– temperature: (0 ÷ 50) °C – humidity: <85% RH without condensation
Dimensions [mm]
257x155x57
Additional functions
– memory card: SD 8 GB

Ordering example

Temperature recorder PROVA 800

K



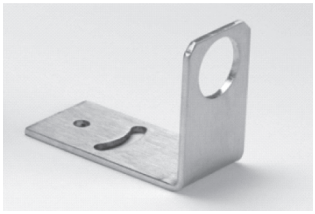
pyrometers

Limatherm Sensor Sp. z o.o.
Skrudlak Street 1, 34-600 Limanowa
www.limathermsensor.com
tel. +48 18 330 10 00
fax. +48 18 330 10 04
e-mail export@limathermsensor.com

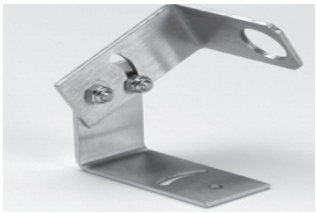
Stationary pyrometer **PC**

Technical description

Characteristic
– non-contact temperature measurement – analog output: 2-wire (4 ÷ 20) mA; 4-wire, voltage/thermocouple – stainless steel housing (IP65) – quick and easy assembly – cable length: 1 m
Measuring range
(-20 ÷ 500) °C
Accuracy
±1% of range or ±1 °C
Recurrence
±0,5% of range or ±0,5 °C
Response time t_{09}
240 ms
Emissivity factor
– entered value: 0,95
Optics
2:1; 15:1; 30:1
Power source
24 V DC (28 V DC max.)
Min. power source voltage
6 V DC
Output impedance
56 Ω (voltage output and thermocouple output)
Operating conditions
– temperature: (0 ÷ 70) °C – humidity: <95% RH without condensation
Dimension of the head / electric module [mm]
ø18/103
Thread dimension
M16x1
Measuring spectrum
(8 ÷ 14) µm

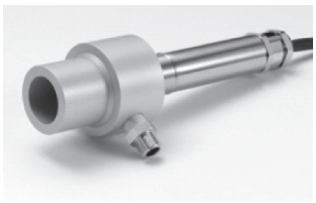


FBS- mounting bracket



ABS- mounting bracket

WJ- cooling cover
air / water



APSW/APSN- system
lens cleaner

Measuring range / Optics	(-20 ÷ 100) °C	(0 ÷ 250) °C	(0 ÷ 500) °C
2:1	PC21 LT-X	PC21 MT-X	–
15:1	PC151 LT-X	PC151 MT-X	PC151 HT-X
30:1	PC301 LT-X	PC301 MT-X	PC301 HT-X

Output	Model - X
(4 ÷ 20) mA	0
(0 ÷ 50) mV	1
T thermocouple	2
J thermocouple	3
K thermocouple	4

Ordering example **Stationary pyrometer PC21LT–0 additional equipment**

Limatherm Sensor Sp. z o.o.
Skrudlak Street 1, 34-600 Limanowa
www.limathermsensor.com
tel. +48 18 330 10 00
fax. +48 18 330 10 04
e-mail export@limathermsensor.com

Stationary pyrometer **PyroEpsilon**

Technical description

Characteristic
– non-contact temperature measurement – cable length [m]: 1 – LCD display – IP65 protection degree – construction: made of stainless steel – analog output: (4 ÷ 20) mA
Measuring range
(-20 ÷ 500) °C acc. to the table
Accuracy
±1% of range or ±1 ºC
Recurrence
±0,5% of range or ±0,5 ºC
Response time t_{09}
240 ms
Emissivity factor
(0,2 ÷ 1,0) adjustable with an additional line (4 ÷ 20) mA
Optics
2:1; 15:1; 30:1
Power source
24 V DC (28 V DC max.)
Min. power source voltage
6 V DC
Output impedance
50 Ω
Operating conditions
– temperature: (0 ÷ 70) ºC – humidity: <95% RH without condensation
Thread dimension
M16x1
Dimensions [mm]
18x103
Measuring spectrum
(8 ÷ 14) µm
Additional functions
– PyroTUNE controller (emissivity adjustment)

Measuring range / Optics	(-20 ÷ 100) °C	(0 ÷ 250) °C	(0 ÷ 500) °C
2:1	PE21 LT	PE21 MT	–
15:1	PE151 LT	PE151 MT	PE151 HT
30:1	PE301 LT	PE301 MT	PE301 HT

Ordering example **Stationary pyrometer PE151LT**

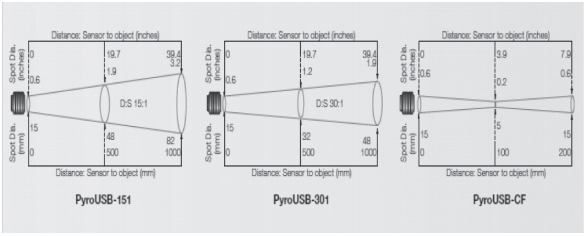
Limatherm Sensor Sp. z o.o.
Skrudlak Street 1, 34-600 Limanowa
www.limathermsensor.com
tel. +48 18 330 10 00
fax. +48 18 330 10 04
e-mail export@limathermsensor.com

Stationary pyrometer **PyroUSB**

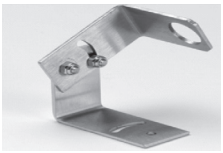
Technical description

Characteristic
– non-contact temperature measurement – analog output: (4 ÷ 20) mA – CalexSoft software for parameter configuration – ability to visualize temperature measurements – stainless steel housing (IP65) – quick and easy mounting – cable length [m]: 1
Measuring range
(-40 ÷ 1000) °C
Accuracy
±1% of range or ±1 °C
Recurrence
±0,5% of range or ±0,5 °C
Response time t_{09}
240 ms
Emissivity factor
(0,1 ÷ 1,0)
Optics
15:1; 30:1; CLOSE FOCUS
Power source
24 V DC (28 V DC max.)
Min. power source voltage
6 V DC
Output impedance
56 Ω (voltage output and thermocouple output)
Operating conditions
– temperature: (0 ÷ 70) °C – humidity: <95% RH without condensation
Dimensions [mm]
– diameter: ø25 – length: 106,5
Thread dimension
M20x1
Measuring spectrum
(8 ÷ 14) µm

Optics type



FBS - mounting brackets



ABS - adjustable mounting brackets

WJ - air/water cooled housing

Ordering code

Stationary pyrometer	PU – ... – ...
Optics: 151 Close Focus (CF) Optics: 301	**15:1** **ø5mm@10mm** **30:1**
Additional accessories: mounting brackets adjustable mounting brackets air/water cooled housing air purge	 **FBS** **ABS** **WJ** **APL**

Ordering example

Stationary pyrometer PU–30:1–FBS

Limatherm Sensor Sp. z o.o.
Skrudlak Street 1, 34-600 Limanowa
www.limathermsensor.com
tel. +48 18 330 10 00
fax. +48 18 330 10 04
e-mail export@limathermsensor.com

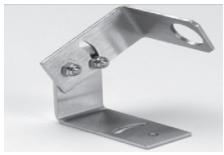
Stationary pyrometer **PyroUSB 2.2**

Technical description

Characteristic
– non-contact temperature measurement – metallic surface measurement – analog output (4 ÷ 20) mA and USB interface – configuration of pyrometer parameters and visualization of measurements using CalexSoft software – steel stainless housing (IP65) – quick and easy assembly – cable length: 1 m (USB interface and analog output)
Measuring range
(-45 ÷ 2000) °C (acc. to the type) LT: (45 ÷ 300) ºC (only the PU151LT2.2) MT: (250 ÷ 1000) ºC HT: (450 ÷ 2000) ºC
Accuracy*
±1% of range or ±1 °C
Recurrence*
±0,5% of range or ±0,5°C
Response time t_{09}
240 ms
Emissivity factor
(0,1 ÷ 1,0)
Optics
15:1; 25:1; 75:1; CF (ø7,5 mm@500 mm)
Power source
24 V DC (min. 8 V DC)
Output impedance
56 Ω (voltage output and thermocouple output)
Operating conditions
– temperature: (0 ÷ 70) °C – humidity: <95% RH without condensation
Dimensions [mm]
– diameter: ø25 – length: 106,5
Thread dimension
M20x1
Measuring spectrum
(2 ÷ 2,4) µm

* for emissivity = 1, object temp. > pyrometer temp. 20 ºC

FBL - mounting bracket



ABL - adjustable mounting bracket

WJ - cooling cover air / water

APL - cleaning system lenses

Ordering code

Stationary pyrometer	... – ...
Type:	
PU151LT2.2 (45 ÷ 300) ºC	**PU151LT2.2**
PU251MT2.2 (250 ÷ 1000) ºC	**PU251MT2.2**
PU251HT2.2 (450 ÷ 2000) ºC	**PU251HT2.2**
PU751MT2.2 (250 ÷ 1000) ºC	**PU751MT2.2**
PU751MT2.2 (450 ÷ 2000) ºC	**PU751MT2.2**
PUCFMT2.2 (250 ÷ 1000) ºC	**PUCFMT2.2**
PUCFHT2.2 (450 ÷ 2000) ºC	**PUCFHT2.2**
Additional accessories:	
mounting bracket	**FBL**
adjustable mounting bracket	**ABL**
cooling cover air / water	**WJ**
cleaning system lenses	**APL**

Ordering example **Stationary pyrometer PU151LT2.2–FBL**

Limatherm Sensor Sp. z o.o.
Skrudlak Street 1, 34-600 Limanowa
www.limathermsensor.com
tel. +48 18 330 10 00
fax. +48 18 330 10 04
e-mail export@limathermsensor.com

Stationary pyrometer with display **PyroMini**

Technical description

Characteristic
– non-contact temperature measurement – touchscreen (optional) – stainless steel housing (316) – cable length: 1 m – regulated emissivity – MicroSD card: max. 32 GB (option)
Measuring range
(-20 ÷ 1000) °C
Accuracy
±1% of range or ±1°C
Recurrence
±0,5% of range or ±0,5°C
Response time t_{09}
240 ms
Emissivity factor
(0,20 ÷ 1,00)
Optics
2:1, 15:1, 20:1, 30:1
Power source
24 V DC ±5%
Maximum current draw
100 mA
Operating conditions
– temperature: (0 ÷ 60) °C – humidity: <95% RH without condensation
Head dimensions [mm]
ø18
Thread dimension
M16x1
Measuring spectrum
(8 ÷ 14) µm

APSN - air purge collar

LSTS - laser sighting tool

Ordering code

Stationary pyrometer	PyroMini – ... – ... – ... – ...
Ambient temperature:	
(0 ÷ 60) °C	MA
(0 ÷ 120) °C (for optics 20:1)	JA
(0 ÷ 180) °C (for optics 20:1)	TA
Optics:	
2:1	21
15:1	151
20:1	201
30:1	301
CF	CF
Measuring range:	
(-20 ÷ 100) °C	LT
(0 ÷ 250) °C	MT
(0 ÷ 500) °C	HT
(0 ÷ 1000) °C	XT
configurable range for CR, BB, CRT: (-20 ÷ 1000) °C	CT
Output with interface:	
(4 ÷ 20) mA, with touchscreen	CB
(4 ÷ 20) mA, two alarm relay outputs,	CRT
RS485 Modbus, with touchscreen	BB
RS485 Modbus, two alarm relay outputs with touchscreen	BRT

Ordering example **Stationary pyrometer PyroMini–MA–21–LT–CB**

Limatherm Sensor Sp. z o.o.
Skrudlak Street 1, 34-600 Limanowa
www.limathermsensor.com
tel. +48 18 330 10 00
fax. +48 18 330 10 04
e-mail export@limathermsensor.com

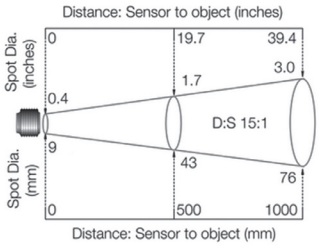
Stationary pyrometer **Pyro NFC**

Technical description

Characteristic
– non-contact temperature measurement – small size – voltage and alarm line output – ability to configuration of pyrometer parameters using smartphone – response time: 125 ms
Measuring range
(0 ÷ 1000) °C
Output
– voltage (0 ÷ 5)/(0 ÷ 10) V (selected using the nfc application from a smartphone or tablet) alarm, open collector (0 ÷ 24) V DC, 50 mA – type-K thermocouple
Accuracy
±1,5% of range or ±1,5 °C (you should choose a larger value)
Recurrence
±0,5% of range or ±0,5 °C (you should choose a larger value)
Response time t_{09}
125 ms (adjustable value via the NFC application from a smartphone or tablet)
Emissivity factor
(0,2 ÷ 1,0)
Optics
15:1
Power source
max. power source voltage 28 V DC min. power source voltage 12 V DC (for output (0 ÷ 10) V) min. power source voltage 6 V DC (for output (0 ÷ 5) V)
Operating conditions
– temperature: (0 ÷ 80) °C – humidity: <95% RH without condensation
Head dimension [mm]
– diameter: ø31 – length: 29
Measuring spectrum
(8 ÷ 14) µm

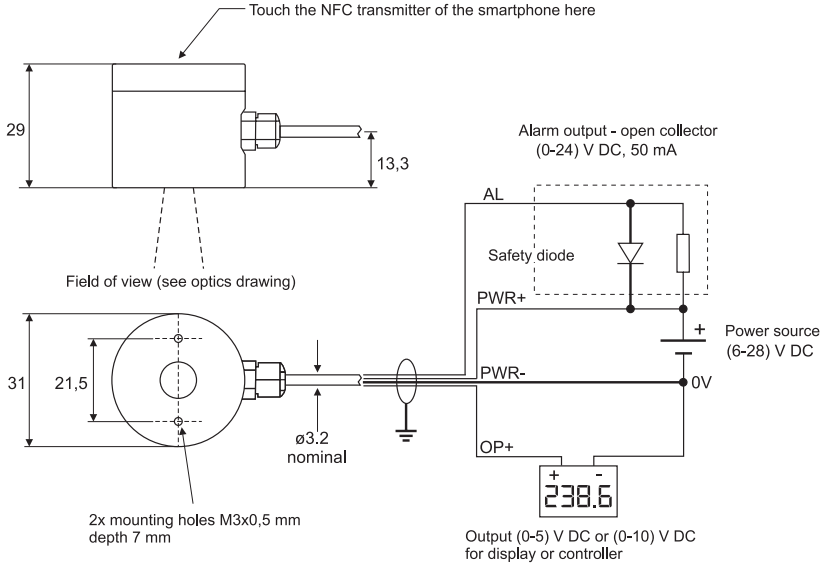
APN – air purge collar

FBN – fixed mounting bracket



Optics: 15:1

Dimensions and wiring diagram



Ordering example

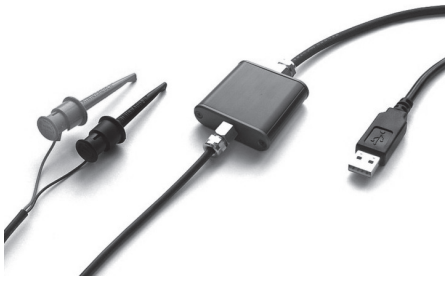
Stationary pyrometer PN151 - voltage output
Stationary pyrometer PN151-K - type-K thermocouple output

Limatherm Sensor Sp. z o.o.
Skrudlak Street 1, 34-600 Limanowa
www.limathermsensor.com
tel. +48 18 330 10 00
fax. +48 18 330 10 04
e-mail export@limathermsensor.com

Stationary pyrometer **ExTemp**

Technical description

Characteristic
– non-contact temperature measurement – for hazardous area (Ex) – ability of making with 25m cable – IP65 degree of tightness
Measuring range
(-20 ÷ 1000) °C
Accuracy
±1% of range or ±1 °C
Recurrence
±0,5% of range or ±0,5 °C
Response time t_{09}
240 ms
Emissivity factor
(0,20 ÷ 1,00)
Optics
2:1, 15:1, 30:1, CF
Power source
(12 ÷ 24) V DC ±5%
Maximum current draw
100 mA
ATEX classification
– Ex II 1GD – Ex ia IIC T4 Ga (for gases) – Ex ia IIIC T135 ° C IP65 Da (for dusts)
Operating conditions
– temperature: (0 ÷ 70) °C – humidity: <95% RH without condensation
Head dimension [mm]
– diameter: ø20
Thread dimension
M20x1,5
Measuring spectrum
(8 ÷ 14) µm



Ordering code

Stationary pyrometer	ExTemp – ... – ... – ... – ...
Optics:	
2:1	**21**
15:1	**151**
30:1	**301**
CF	**CF**
Temperature range:	
(-20 ÷ 100) °C	**LT**
(0 ÷ 250) °C	**MT**
(0 ÷ 500) °C	**HT**
(0 ÷ 1000) °C	**XT**
range configuration via USB interface: (-20 ÷ 1000) °C	**ST**
USB adapter for configuration (optional)	**C**
Cable length:	
5 m	**5**
10 m	**10**
25 m	**25**

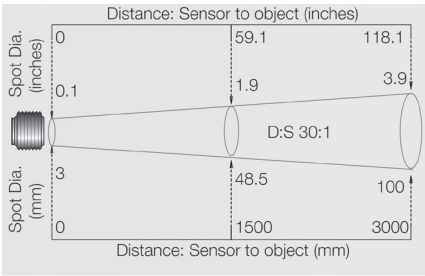
Ordering example **Stationary pyrometer ExTemp–301–HT–C–5**

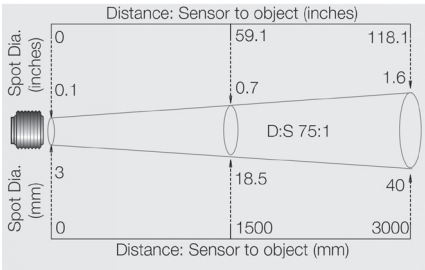
Limatherm Sensor Sp. z o.o.
Skrudlak Street 1, 34-600 Limanowa
www.limathermsensor.com
tel. +48 18 330 10 00
fax. +48 18 330 10 04
e-mail export@limathermsensor.com

Stationary pyrometer **FibreMini**

Technical description

Characteristic
– non-contact temperature measurement – analog outputs (4 ÷ 20) mA or MODBUS RTU, two alarm relays – miniature sensing head withstands 200°C ambient temperature – no electronics in the sensing head - ideal for use near induction heaters and strong electromagnetic fields – ability to recording of measurement values on an SD card
Measuring range
– MT model: (250 ÷ 1000) °C – HT model: (450 ÷ 2000) °C
Accuracy
±1% of range or ±1 °C
Recurrence
±0,5% of range or ±0,5 °C
Response time t_{09}
240 ms
Emissivity factor
(0,10 ÷ 1,00)
Optics
30:1, 75:1
Power source
(12 ÷ 24) V DC ±5%
Operatig conditions
– temperature: (0 ÷ 70) °C – humidity: <95% RH without condensation
Head dimension [mm]
ø12X48
Thread dimension
M12x1,5
Measuring spectrum
(2 ÷ 2,6) µm





Optics: 30:1, 75:1

Ordering code

Stationary pyrometer	FM2.2 – ... – ... – ... – ...
Optics: 30:1 75:1	 **301** **751**
Temperature range: (250 ÷ 1000) °C (450 ÷ 2000) °C	 **MT** **HT**
Output with an interface: (4 ÷ 20) mA, two alarm relay outputs, with touchscreen RS485 Modbus, two alarm relay outputs, with touchscreen	 **CRT** **BRT**
Cable length: 3 m 5 m 10 m	 **3M** **5M** **10M**

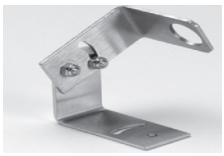
Ordering example **Stationary pyrometer FM2.2–301–HT–CRT–5M**

Limatherm Sensor Sp. z o.o.
Skrudlak Street 1, 34-600 Limanowa
www.limathermsensor.com
tel. +48 18 330 10 00
fax. +48 18 330 10 04
e-mail export@limathermsensor.com

Stationary pyrometer **PyroBus**

Technical description

Characteristic
– non-contact temperature measurement – RS485 digital output (MODBUS RTU) – ability to measurement visualisation and parameters configuration with using PM180 module – stainless steel housing (IP65) – quick and easy assembly – cable length: 1m
Measuring range
(-20 ÷ 500) °C
Accuracy
±1 % of range or ±1 °C
Response time t_{09}
240 ms
Emissivity factor
(0,2 ÷ 1,0)
Optics
2:1; 15:1; 30:1; CLOSE FOCUS
Power source
12 V DC (max. 13V DC)
Min. power source
6 V DC
Operatig conditions
– temperature: (0 ÷ 70) °C – humidity: <95% RH without condensation
Thread dimension
M16x1
Dimensions [mm]
diameter 18 x length 103
Weight [g]
72
Measuring spectrum
(8 ÷ 14) µm



ABS - adjustable mounting bracket

LSTS - laser sighting tool

WJ - air or water cooled jacket with air purge collar

Ordering example: **Stationary pyrometer PyroBus**

Limatherm Sensor Sp. z o.o.
Skrudlak Street 1, 34-600 Limanowa
www.limathermsensor.com
tel. +48 18 330 10 00
fax. +48 18 330 10 04
e-mail export@limathermsensor.com

Portable pyrometer **ST680**

Technical description

Characteristic
– non-contact temperature measurement – Input for type K thermocouple (ST689) – built-in laser pointer to improve aim – adjustable emissivity – adjustable high and low alarms – 4 digits LCD display with backlight – °C/°F switchable – automatic switch off after 6 s – USB data output (ST689)
Measuring range
(-50 ÷ 1000) °C
Accuracy
±3°C: (-50 ÷ -20) °C ±2°C: (-20 ÷ 100) °C ±2% >100 °C
Recurrence
±1 °C
Resolution
0,1 °C (0,1 °F)
Response time
500 ms
Optics
50:1
Power source
– 9 V battery
Operating conditions
– temperature: (0 ÷ 50) °C – humidity: (10 ÷ 90) % RH without condensation
Dimensions [mm]
200x127x47
Weight [g]
330

Functions	ST688	ST689
Emissivity factor	0,1 up to 1,0	0,1 up to 1,0
Type-K thermocouple input	No	Yes
USB output for data transfer	No	Yes
10 records in storage	Yes	Yes
Audible alarm	Yes	Yes
Units °C/°F	Yes	Yes
Backlight	Yes	Yes
Turning on the laser	Yes	Yes
Max./Min./Avg/ΔT	Yes	Yes
Case	Yes	Yes

Ordering example **Portable pyrometer ST680**

Limatherm Sensor Sp. z o.o.
Skrudlak Street 1, 34-600 Limanowa
www.limathermsensor.com
tel. +48 18 330 10 00
fax. +48 18 330 10 04
e-mail export@limathermsensor.com

Portable pyrometer **SCANTEMP**

Technical description

Type	ScanTemp 410	ScanTemp 440	ScanTemp 450	ScanTemp 485	ScanTemp 490
Measuring range	(-33 ÷ 500) °C	(-33 ÷ 500) °C	(-60 ÷ 500) °C	(-50 ÷ 800) °C	(-60 ÷ 1000) °C
Accuracy	±2% or 2 °C	±2% or 2 °C thermocouple output ±1% or 1 °C)	±2% or 2 °C thermocouple output ±1% or 1 °C)	±2% or 2 °C	±2% or 2 °C thermocouple output ±1% or 1 °C)
Sensor input	–	type-K thermocouple (-64 ÷ 1400) °C	type-K thermocouple (-64 ÷ 1400) °C	–	type-K thermocouple (-64 ÷ 1400) °C
Recurrence	±1% or 1 °C	±1% or 1 °C	±1% or 1 °C	±1% or 1 °C	±1% or 1 °C
Resolution	0,1 °C	0,1°C (above 200 °C)	0,1 °C	0,1 °C	0,1 °C (above 200 °C)
Response time	up to 1 s	up to 1 s	up to 1 s	up to 1 s	up to 1 s
Operating conditions	(0 ÷ 50) °C	(0 ÷ 50) °C	(0 ÷ 50) °C	(0 ÷ 50) °C	(0 ÷ 50) °C
Pointer	point laser	point laser	multi-point laser	2-point laser	2-point laser
Emissivity factor	0,95 stała	(0,10 ÷ 1,00)	(0,1 ÷ 1,0)	(0,01 ÷ 1,00)	(0,10 ÷ 1,00)
Optics	11:1	11:1	11:1	20:1	50:1
Power battery	2x1,5V AAA	2x1,5V AAA	2x1,5V AAA	1x6F22 9 V	2x AAA 1,5V
Dimensions [mm]	175x39x80	175,2x39x7,9	175x39x7,9	146x104x43	215x45x145
Weight	180 g	180g	180g	300 g	380 g
Functions	HOLD - measure ment continuous MAX. - max. stored measurement value MAX. - measurement MAX./MIN. - stored value	HOLD - measure ment continuous MAX. - max. stored measurement value MAX. - measurement MIN. - stored value MIN. - measurement DIF - temperature difference AVG - average value temperature LOCK - blockade – °C/°F units – LCD backlight display – case	HOLD - measure ment continuous MAX.- max. stored measurement value MIN.- min. stored measurement value DIF- temperature difference AVG - average value temperature	MAX/MIN/HOLD/ LOCK Hi-Low visual and optical alarm – °C/°F units – LCD backlight display – case	MAX/MIN/HOLD/ DIF/AVG Hi-Low visual and optical alarm – °C/°F units – LCD backlight display

Ordering example **Portable pyrometer SCANTEMP 440**

Limatherm Sensor Sp. z o.o.
Skrudlak Street 1, 34-600 Limanowa
www.limathermsensor.com
tel. +48 18 330 10 00
fax. +48 18 330 10 04
e-mail export@limathermsensor.com

Portable pyrometer **DT-8862**

Technical description

Characteristic
– double laser targeting – high and low alarm – adjustable emissivity – trigger lock for continuous use – white LCD backlight – automatic shutdown – MAX, MIN, DIF, AVG
Measuring range
(-50 ÷ 500) °C
Accuracy
±2,5% of the pyrometer reading in the range (-50 ÷ 20) °C ±1% of the pyrometer reading in the range (20 ÷ 300) °C ±1,5% of the pyrometer reading in the range (300 ÷ 550) °C
Resolution
0,1°C
Response time
150 ms
Emissivity factor
0,1 up to 1,0
Optics
12:1
Power source
– battery 9 V
Operating conditions
– temperature: (0 ÷ 50)°C – humidity: below 90% RH without condensation
Dimensions [mm]
146x104x43
Weight [g]
163

Ordering example: **Portable pyrometer DT-8861**

Limatherm Sensor Sp. z o.o.
Skrudlak Street 1, 34-600 Limanowa
www.limathermsensor.com
tel. +48 18 330 10 00
fax. +48 18 330 10 04
e-mail export@limathermsensor.com

Portable pyrometer **DT-8869**

Technical description

Characteristic
– dual laser targeting – high and low alarm – adjustable emissivity – automatic Data Hold – automatic shutdown – white LCD backlight – overrange indication – User selectable ºC or ºF – Max, Min, DIF, AVG record – type-K input (-50 do 1370°C) – USB interface
Measuring range
(-50 ÷ 1600) °C
Accuracy
±1% ±1% of the pyrometer reading value ±1,5% of type-K input value
Response time
150 ms
Emissivity factor
0,1 up to 1,0
Optics
50:1
Power source
– battery 9 V
Memory
99 records
Dimensions [mm]
204x155x52
Weight [g]
320

Ordering example: **Pyrometer DT-8869**

Limatherm Sensor Sp. z o.o.
Skrudlak Street 1, 34-600 Limanowa
www.limathermsensor.com
tel. +48 18 330 10 00
fax. +48 18 330 10 04
e-mail export@limathermsensor.com

Portable video pyrometer **DT-9860S**

Technical description

Characteristic
– 2.2” Color TFT LCD – resolution: 320x240 – camera 640x480 – formats: JPEG, 3GP – memory card: Micro SD (8 GB) – dual laser targeting – DIF, AVG, MAX, MIN, high and low alarm – humidity and temperature measurement – dew point temperature – optics: 50:1 – type-K input – USB interface for charging and data downloading from a SD card
Measuring range
(-10 ÷ 1000) °C
Accuracy (IR)
±1% of reading
Emissivity factor
(0,10 ÷ 1,00)
Operating conditions
– temperature: (0 ÷ 50) °C – humidity: <95% RH without condensation
Power source
– 3.7V Li battery
Dimensions [mm]
125x58x205
Weight [g]
494
Accessories
– type-K temperature sensor – USB cable – 3.7V Li battery – case

Ordering example **Portable video pyrometer DT9860S**

Limatherm Sensor Sp. z o.o.
Skrudlak Street 1, 34-600 Limanowa
www.limathermsensor.com
tel. +48 18 330 10 00
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e-mail export@limathermsensor.com

Portable video pyrometer **DT-9868**

Technical description

Characteristic
– 2.2” Color TFT LCD – resolution: 320x240 – camera: 32x32 – type-K input – image capture frequency 9Hz – formats: BMP – memory card: Micro SD 6GB – USB interface for charging and data downloading from a Micro SD card
(-20 ÷ 300) °C
Accuracy
±2 % or ±2 °C (at 25°C)
Emissivity factor
0,1 do 1,0
Operating conditions
– temperature: (0 ÷ 50) °C – humidity: above 95% RH without condensation
Power source
– Li-ion rechargeable battery
Dimension [mm]
125x58x205
Weight [g]
494
Accessories
– type-K temperature sensor – USB cable – 3.7V Li battery – case

Ordering example: **Pyrometer DT-9868**

Video borescope **BS-280**

Dane techniczne

Characteristic
– 3.5" color TFT LCD – display resolution: 320x240 – flexible gooseneck imager head with waterproof and easily perform visual inspections in hard to reach areas – zoom 2x – viewing distance: 5~15 cm – viewing angle: 68° – max number of frames: 30/fps – camera diameter: 17 mm – supporting formats: JPEG, MP4, AVI – menu with multinational language – SD card: max 32 GB – system TV: PAL/NTSC – Li Battery 3.7V/1800mA – charging current: ~550 mA

Ordering example: **Video borescope BS-280**

Limatherm Sensor Sp. z o.o.
Skrudlak Street 1, 34-600 Limanowa
www.limathermsensor.com
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fax. +48 18 330 10 04
e-mail export@limathermsensor.com

Infrared camera **FLIR E8**

Technical description

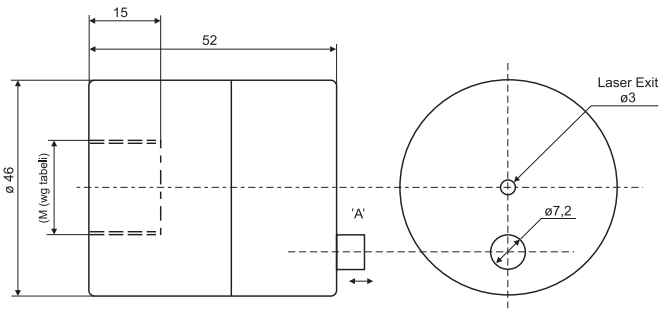
Characteristic
– easy for using – color LCD 3,0" display – display resolution: 320x240 – color palettes: black, black & white, gray, iron and rainbow – min. focus distance: 0,5 m – WiFi, USB Micro: data transfer to and from PC and Mac device
Measuring range
(-20 ÷ 250) °C
Accuracy
±2 % or ±2 °C
Resolution
76800 pixels
Image frequency
9 Hz
Operating conditions
– temperature: from (-15 ÷ 50) °C – humidity: 95 % RH relative humidity
Power source
– 3.7V Li battery
Dimensions [mm]
244x95x140
Weight [g]
575 with battery

Ordering example **Infrared camera FLIR E8**

Laser sight **LST**

Dane techniczne

Device operation
1. Screw the laser sight into the front of the pyrometer. 2. Switch on the laser sight using the "A" button. 3. Set the pyrometer for measuring appropirate field. 4. Switch off the laser sight using the "A" button. 5. Unscrew the laser sight from the front of the pyrometer. 6. Support for pyrometer types: PC, PyroUSB, PyroUSB 2.2. **ATTENTION!** Avoid direct eye contact with the laser beam or indirect contact by reflecting the laser beam off the surface.
Battery change
1. Unscrew the two halves of LST. 2. Take out of the battery. 3. Replace the batery with AA; 3,6 V. 4. Install LST.



Model	Thread dimension
LSTS	M16x1
LSTL	M20x1

Ordering example **Laser sight LSTS**

L

calibrators

Multifunction temperature calibrator **PTC-8010**

Technical description

Characteristic
– one calibrator for calibration of the thermoelectric and resistance sensors – setpoint entered from the keyboard – test values set by the user, 9 settings can be saved for each type of output – high accuracy ±0,4 ºC for TC and 0,3 ºC for resistance sensors – enables measurement / simulation 10 types of thermoelectric sensors or 8 types of resistance sensors – resistance sensor simulation compatible with all of transmitter types – TC plug connector – RS-232 serial interface – AC Charger/Adapter Option

Ordering example **Multifunction temperature calibrator PTC-8010**

Thermocouple calibrator **TC-100**

Dane techniczne

Characteristic
– high accuracy: ±0,3 °C (for type-J sensor) – resolution: 0,01 °C – enables measurement/simulation of 10 thermocouple sensor types and the voltage – crimp and plug connection – simple decade control of outpu – MIN/MAX recall in measure mode – battery power supply

Ordering example **Thermocouple calibrator TC-100**

Loop Calibrator **LC-100**

Dane techniczne

Characteristic
– accuracy: ± 0.015% of indication – resolution: 0,001 mA/0,001 V – % Error Function eliminates manual error calculation – Extended Adjustment Range – built-in 250 Ohm Register facilitates calibration of HART devices – five push button preset outputs (4,8,12,16,20 mA) – Loop Power measurements – fuseless input protection up to 250V AC – battery power supply

Ordering example **Loop Calibrator LC-100**

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Multifunction calibrator **DMC-1410**

Technical description

Characteristic

– accuracy: od ±0,015% indication
– TC banana and plug connector
– two separate channels with high accuracy for measurement and simulation
– power supply of the current loop
– option to set check criteria
– memory of 21 results / device for 50 devices (labels)
– free software
– the option of connecting pressure modules necessary for calibrating pressure gauges and transducers
– reports can be printed using a portable printer
– battery power supply
– additional pressure modules do not require calibration with DMC-1410
– case, cables, DVD manual, USB cable

Application

The DMC-1410 is portable, universal and high accuracy multifunction calibrator used to electrical signal, temperature and pressure measuring with ability to store measuring documentation on a computer or print on a portable printer. It has two isolated channels(the In/Out or the In/In at the same time), large graphic display with backlight and has ability to connection with external modules of pressure via BBPA-100 adapter. The calibrator allows for measurement / simulation of: 13 thermocouple types, 13 resistance sensors type, resistance, current, voltage, frequency and pressure.

	DC voltage measurement top display	DC voltage measurement bottom display	Voltage simulation bottom display	DC current top display	Current measurement bottom display	DC current simulation bottom display
Range	(0 ÷ 30) V	(0 ÷ 20) V	(0 ÷ 20) V	(0 ÷ 24) mA	(0 ÷ 24) mA	(0 ÷ 24) mA
Accuracy	0,01% ±2 mV	0,01% ±2 mV	0,01% ±2 mV	0,01% ±2 uA	0,01% ±2 uA	0,01% ±2 uA

Frequency measurement/simulation						
	Frequency measurement	Frequency simulation	Frequency measurement	Frequency simulation	Frequency measurement	Frequency simulation
Range	(2 ÷ 600) CPM	(2 ÷ 600) CPM	(1 ÷ 1000) Hz	(1 ÷ 1000) Hz	(1 ÷ 10) kHz	(1 ÷ 10) kHz
Accuracy	0,05% ±0,1 CPM	0,05%	0,05% ±0,1 Hz	0,05%	0,05% ±0,1 Hz	0,05%

Resistance simulation				
	(0,1 ÷ 0,5) mA	(0,5 ÷ 3) mA	(0,05 ÷ 0,8) mA	(0,05 ÷ 0,4)mA
Range	(5 ÷ 400) Ω	(5 ÷ 400) Ω	(401 ÷ 1500) Ω	(1500 ÷ 4000) Ω
Accuracy	0,015% ±0,1 Ω	0,015% ±0,03 Ω	0,015% ±0,3 Ω	0,015% ±0,3 Ω

Resistance measurement		
	Low resistance Ω	High resistance Ω
Range	(0,00 ÷ 400,0)	(401,0 ÷ 4000,0)
Accuracy	0,015% ±0,03	0,015% ±0,3

Measurement mV		
	Measurement mV	Simulation mV
Range	(-10,000 ÷ 75,000)	(-10,000 ÷ 75,000)
Accuracy	0,015% ±10 uV	0,015% ±10 uV

TC measurement/simulation			
Type	Range °C	Accuracy °C CJC OFF	Accuracy °C CJC ON
J	(-210 ÷ 1200)	(0,4 ÷ 0,3)	(0,6 ÷ 0,5)
K	(-200 ÷ 1372)	(0,6 ÷ 0,5)	(0,8 ÷ 0,7)
T	(-250 ÷ 400)	(0,6 ÷ 0,2)	(0,8 ÷ 0,4)
E	(-250 ÷ 1000)	(0,6 ÷ 0,2)	(0,8 ÷ 0,4)
R	(0 ÷ 1767)	1,2	1,4
S	(0 ÷ 1767)	1,2	1,4
B	(600 ÷ 1820)	(1,2 ÷ 1,6)	(1 ÷ 1,7)
C	(0 ÷ 2316)	(0,6 ÷ 2,3)	(0,8 ÷ 2,5)
XK	(-200 ÷ 800)	0,2	0,4
BP	(0 ÷ 2500)	(0,9 ÷ 2,3)	(1,1 ÷ 2,5)
L	(-200 ÷ 900)	(0,2 ÷ 0,3)	(0,4 ÷ 0,5)
U	(-200 ÷ 0)	0,3	0,7
N	(0 ÷ 1300)	(0,3 ÷ 0,4)	(0,5 ÷ 0,6)

RTD measurement/simulation		
Type	Range °C	Accuracy °C
PT385, 10 Ω	(-200 ÷ 800)	(0,76 ÷ 1,16)
PT385, 50 Ω	(-200 ÷ 800)	(0,76 ÷ 1,16)
PT385, 100 Ω	(-200 ÷ 800)	(0,76 ÷ 1,16)
PT3926, 100 Ω	(-200 ÷ 630)	(0,76 ÷ 1,16)
PT3916, 100 Ω	(-200 ÷ 630)	(0,76 ÷ 1,16)
PT385, 200 Ω	(-200 ÷ 630)	(0,76 ÷ 1,16)
PT385, 500 Ω	(-200 ÷ 630)	(0,76 ÷ 1,16)
PT385, 1000 Ω	(-200 ÷ 630)	(0,76 ÷ 1,16)
NI120	(-80 ÷ 260)	(0,76 ÷ 1,16)
Cu10	(-100 ÷ 260)	(0,76 ÷ 1,16)
Cu50	(-180 ÷ 260)	(0,76 ÷ 1,16)
Cu100	(-180 ÷ 260)	(0,76 ÷ 1,16)
YSI400	(15 ÷ 50)	(0,76 ÷ 1,16)

Ordering example **Multifunction calibrator DMC-1410**

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Multifunction calibrator **MC-1210**

Technical description

Characteristic
– accuracy from ±0,015% indication – allow for measurement / simulation of: 13 thermocouple types, 13 resistance sensors type, resistance, current, voltage, frequency and pressure – fuseless protection to 250 V AC – two high accuracy channels – dual display – current loop power supply – option of connecting pressure modules necessary for calibrating pressure gauges and transducers – AC charger/adapter option

	DC voltage measurement top display	DC voltage measurement bottom display	Voltage simulation bottom display	DC current top display	Current measurement bottom display	DC current simulation bottom display
Range	(0 ÷ 30) V	(0 ÷ 20) V	(0 ÷ 20) V	(0 ÷ 24) mA	(0 ÷ 24) mA	(0 ÷ 24) mA
Accuracy	0,015% ±2 mV	0,015% ±2 mV	0,015% ±2 mV	0,015% ±2 uA	0,015% ±2 uA	0,015% ±2 uA

Frequency of the measurement/simulation						
	Frequency measurement	Frequency simulation	Frequency measurement	Frequency simulation	Frequency measurement	Frequency simulation
Range	(2 ÷ 600) CPM	(2 ÷ 600) CPM	(1 ÷ 1000) Hz	(1 ÷ 1000) Hz	(1 ÷ 10) kHz	(1 ÷ 10) kHz
Accuracy	0,05% ±0,1 CPM	0,05%	0,05% ±0,1 Hz	0,05%	0,05% ±0,1 Hz	0,05%

Resistance measurement		
	Low resistance Ω	High resistance Ω
Range	(0,00 ÷ 400,0)Ω	(401,0 ÷ 4000,0) Ω
Accuracy	0,025% ±0,05 Ω	0,025% ±0,5 Ω

mV measuremet		
	mV measurement	mV simulation
Range	(-10,000 ÷ 75,000) mV	(-10,000 ÷ 75,000) mV
Accuracy	0,02% ±10 uV	0,02% ±10 uV

Resistance simulation				
	(0,1 ÷ 0,5) mA	**(0,5 ÷ 3) mA**	**(0,05 ÷ 0,8) mA**	**(0,05 ÷ 0,4) mA**
Range	(5 ÷ 400) Ω	(5 ÷ 400) Ω	(401 ÷ 1500) Ω	(1500 ÷ 4000) Ω
Accuracy	0,025% ±0,1 Ω	0,015% ±0,05 Ω	0,025% ±0,5 Ω	0,025% ±0,5 Ω

TC measurement/simulation			
Type	**Range °C**	**Accuracy °C CJC OFF**	**Accuracy °C CJC ON**
J	(-210 ÷ 1200)	(0,4 ÷ 0,3)	(0,6 ÷ 0,5)
K	(-200 ÷ 1372)	(0,6 ÷ 0,5)	(0,8 ÷ 0,7)
T	(-250 ÷ 400)	(0,6 ÷ 0,2)	(0,8 ÷ 0,4)
E	(-250 ÷ 1000)	(0,6 ÷ 0,2)	(0,8 ÷ 0,4)
R	(0 ÷ 1767)	1,2	1,4
S	(0 ÷ 1767)	1,2	1,4
B	(600 ÷ 1820)	(1,2 ÷ 1,6)	(1 ÷ 1,7)
C	(0 ÷ 2316)	(0,6 ÷ 2,3)	(0,8 ÷ 2,5)
XK	(-200 ÷ 800)	0,2	0,4
BP	(0 ÷ 2500)	(0,9 ÷ 2,3)	(1,1 ÷ 2,5)
L	(-200 ÷ 900)	(0,3 ÷ 0,2)	(0,5 ÷ 0,4)
U	(-200 ÷ 0)	0,3	0,7
N	(0 ÷ 1300)	(0,3 ÷ 0,4)	(0,5 ÷ 0,6)

RTD measurement/simulation		
Type	**Range °C**	**Accuracy °C**
PT385, 10 Ω	(-200 ÷ 800)	(1,3 ÷ 1,9)
PT385, 50 Ω	(-200 ÷ 800)	(0,3 ÷ 0,6)
PT385, 100 Ω	(-200 ÷ 800)	(0,1 ÷ 0,4)
PT3926, 100 Ω	(-200 ÷ 630)	(0,1 ÷ 0,3)
PT3916, 100 Ω	(-200 ÷ 630)	(0,1 ÷ 0,3)
PT385, 200 Ω	(-200 ÷ 630)	(0,6 ÷ 0,9)
PT385, 500 Ω	(-200 ÷ 630)	(0,2 ÷ 0,5)
PT385, 1000 Ω	(-200 ÷ 630)	(0,2 ÷ 0,4)
NI120	(-80 ÷ 260)	0,1
Cu10	(-100 ÷ 260)	1,3
Cu50	(-180 ÷ 200)	0,3
Cu100	(-180 ÷ 200)	0,1
YSI400	(15 ÷ 50)	0,1

Ordering example **Multifunction calibrator DMC-1410**

Multifunction calibrator **MC-1010**

Technical description

Characteristic
– accuracy ±0,4 ºC for thermocouple sensors, ±0,3 ºC for resistance sensors
– accuracy ±0,015% indication for electrical signals
– allow for measurement / simulation of: 10 thermocouple types, 8 resistance sensors type, resistance, current, voltage, frequency and pressure
– TC banana and plug connector
– current loop power supply
– option of connecting pressure modules necessary for calibrating pressure gauges and transducers
– AC charger/adapter Option

Ordering example **Multifunction calibrator MC-1010**

Pressure module **BetaPort-P**

Dane techniczne

Characteristic
– pressure measuring ranges selected acc. to the type series
– accuracy from ±0,025% of range
– ability to working with multifunction calibrators via the BPPA-100 adapter or directly via the BetaGage II
– no device calibration required after connection
– supplied with a calibration certificate
– ⅛NPT thread

Measuring ranges

Relative pressure		Absolute pressure		Non-isolated system measuring	
(0 ÷ 1) bar	910331-015	(0 ÷ 1) bar	910332-015	(-25 ÷ 25) mbar	910331-003
(0 ÷ 2) bar	910331-030	(0 ÷ 2) bar	910332-030	(-70 ÷ 70) mbar	910331-001
(0 ÷ 34) bar	910326-500	(0 ÷ 3,5) bar	910332-050	(-350 ÷ 350) mbar	910333-005
(0 ÷ 70) bar	910326-301	(0 ÷ 7) bar	910332-100	(-500 ÷ 500) mbar	910333-007
(0 ÷ 100) bar	910326-315	(0 ÷ 20) bar	910332-300	(-700 ÷ 700) mbar	910333-010
(0 ÷ 200) bar	910326-303	–		(-1 ÷ 1) bar	910333-015
(0 ÷ 330) bar	910326-305	–		(-1 ÷ 2) bar	910333-030
(0 ÷ 700) bar	910331-10K	–		–	

Insulated measuring system		Differential pressure	
(-0,8 ÷ 3,5) bar	910331-050	(0 ÷ 350) mbar	910329-005
(-0,8 ÷ 7) bar	910331-100	(0 ÷ 2) mbar	910329-030
(-0,8 ÷ 10) bar	910331-150	(0 ÷ 3,5) mbar	910329-050
(-0,8 ÷ 20) bar	910326-300	–	

Ordering example **Pressure module BetaPort-P–910329-005**

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fax. +48 18 330 10 04
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Multifunction calibrator **M-3001**

Technical description

Characteristic
– superior calibration accuracy to 0.0025% of reading – TC banana and plug connector – source/read thermocouple (13), RTD (9), voltage, current, pressure (read only) – measurement/simulation of current and voltage – pressure measurement using an external module – RS232, USB and IEEE-488 remote control – cooperation with HART devices – current loop power supply – direct keyboard entry or cursor entry with decade control
Application
The M-3001 is a high accuracy stationary device, a universal calibrator for electrical signals, temperature and pressure with the ability to document checks using a computer. It has two fully isolated channels (one for temperature sensors, second for current / voltage signals) and LCD display with backlight. It is possible to connect external pressure modules via the BPPA-100 adapter.

Voltage output	
Range	**Resolution**
(0 ÷ 100) mV (0 ÷ 1) V (0 ÷ 10) V (0 ÷ 100) V	1 µV 10 µV 100 µV 1 mV
Accuracy (% of indication)	
(0 ÷ 100) mV (0 ÷ 1) V (0 ÷ 10) V (0 ÷ 100) V	±0,003% (30 ppm) ±3,0 µV ±0,003% (30 ppm) ±10,0 µV ±0,003% (30 ppm) ±100,0 µV ±0,003% (30 ppm) ±1,0 mV
Max. load (output impedance 1 Ω)	
(0 ÷ 100) mV (0 ÷ 1) V (0 ÷ 10) V (0 ÷ 100) V	10 mA 10 mA 10 mA 1 mA
Current output	
– range: (0 ÷ 100) mA – resolution: 1 µA – accuracy: ±0,005%, of indication ±1 µA – max. load: 10 V	
Thermocouples (input/output)	
– type: J, K, T, E, R, S, N, B, L, U, C, BP, XK – range: mV – resolution: 1 °C – accuracy: ±0,14 °C	
RTD (output)	
– type: Pt385, Pt392, Pt3916, Ni120, Cu10, YSI400 – resolution: 0,01 °C – accuracy: ±0,05 °C	
RTD (4-wire input)	
– type: Pt385, Pt392, Pt3916, Ni120, Cu10, YSI400, 25 Ω – resolution: 0,001 °C – accuracy: ±0,02 °C	
Ω (output)	
– range: (5 ÷ 400) Ω; (5 ÷ 4000) Ω – resolution: 0,001 Ω; 0,01 – accuracy: ±0,5 Ω; ±0,01 Ω	

Ω (4-wire input)	
– range: (0 ÷ 400) Ω; (0 ÷ 4000) Ω – resolution: 0,001 Ω; 0,01 – accuracy: ±0,002 Ω; ±0,02 Ω	
Pressure	
– compatibility with: all of BetaPort-P modules using with BPPA adapter and all of the Fluke 700/Mensor 6100 devices	
Isolated measuring channel	
Range	**Accuracy**
(0 ÷ 10) V (0 ÷ 100) V (0 ÷ 52) V current loop HART resistor max. loop	±0,005% ±0,2 mV ±0,005% ±0,2 mV ±0,01% ±0,1 µA 24 V ±10% 250 Ω ±3% 24 mA
Voltage output	
– temperature: (0 ÷ 50) °C – humidity: <80%	

Ordering example **Multifunction calibrator M-3001**

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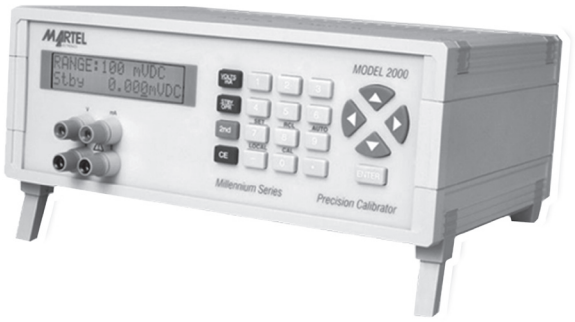
e-mail export@limathermsensor.com

Multifunction bench calibrator **M-2000A**

Technical description

Characteristic
– accuracy: ±0,01% ±2 µA – banana connector – current simulation in the range: (0 ÷ 100) mA voltage simulation in the range: (0 ÷ 100) V – easy menu operation – resolution: 1 µA – possibility to communication with the PC via IEEE-488 and RS232 ports – works with Fluke Met / Cal® software – the ability to control using HyperTerminal or Visual Basic (ASCII) – automatic standby function protects device under test – working temperature: (0 ÷ 50) °C – power source: 240 V AC – large LCD display (2x16 digits) – dimensions (mm) / : 292,1x118,3x220 – weight (kg): 2,27



Voltage output	
Range	**Resolution**
(0 ÷ 100) mV	1 µV
(0 ÷ 1) V	10 µV
(0 ÷ 10) V	100 µV
(0 ÷ 100) V	1 mV
Accuracy (% of indication)	
(0 ÷ 100) mV	±0,003% (30 ppm) ±3,0 µV
(0 ÷ 1) V	±0,003% (30 ppm) ±20,0 µV
(0 ÷ 10) V	±0,003% (30 ppm) ±200,0 µV
(0 ÷ 100) V	±0,003% (30 ppm) ±2,0 mV
Max. load (output impedance 1 Ω)	
(0 ÷ 100) mV	10 mA
(0 ÷ 1) V	10 mA
(0 ÷ 10) V	10 mA
(0 ÷ 100) V	1 mA
Current output	
– range: (0 ÷ 100) mA – resolution: 1 µA – accuracy: ±0,01%, of indication ±2 µA – max. load: 10 V	

Ordering example **Multifunction bench calibrator M-2000A**

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limatherm SENSOR

Pressure calibrator **BetaGauge 311/321**

Technical description

Characteristic
– two insulated stainless steel pressure sensors – accuracy from ±0,025% of range – built-in ambient temperature compensation – possibility to connect external BetaPort-P modules via BPA-100 adapter – measuring: current (4 ÷ 20) mA, voltage up to 30 V with current loop power supply – RTD input channel (measuring accuracy up to 0,1 ºC) – large LCD display with backlight – up to five frequently used setups can be stored – small, rugged compact design operates on four (4) standard AA batteries – enhanced stability – pressure units: psi, bar, mbar, kPa, kgcm^2, cmH_2O, mH_2O, inH_2O, mmHg, inHg, ftH_2O

Ordering example **Pressure calibrator BetaGauge 311/321**

Intrinsically safe pressure calibrator **BetaGauge 311A-EX/321A-EX**

Dane techniczne

Characteristic
– ideal for gas flow calibration (custody transfer) applications – single or dual pressure sensors with up to ±0.025% F.S. accuracy – temperature-compensation ensures accuracy in the field applications – measure 4-20 mA input – Pt100 RTD input for temperature measurement, accurate to 0.1°C (0.2°F) – large LCD display with backlight – up to five frequently used setups can be stored – power source: 4xAA battery – pulsation suppression – pressure units: psi, bar, mbar, kPa, kgcm^2, cmH_2O, mH_2O, inH_2O, mmHg, inHg, ftH_2O
Approvals
Ex ia IIB T3 Gb (Ta = (-10 ÷ 45)°C) KEMA 10 ATEX 0168X 0344 Ex ia IIB T3 Gb (Ta = (-10 ÷ 45) °C), II 2 G Atest CSA 10,0013X

Ordering example **Calibrator BetaGauge 311A-EX**

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Pressure calibrator **BetaGauge 330**

Technical description

Characteristic

– integrated internal electrically operated pneumatic pump: (-0,8 ÷ 20) bar
– accuracy: ±0,025% of range
– measuring: current (4 ÷ 20) mA, voltage up to 30 V
– power source: 8 AA alkaline batteries
– battery life: 300 pumping cycles up to a pressure of 150 PSI; 1000 pumping cycles up to 30 PSI pressure
– external pressure module interface supports all BetaPort-P pressure modules (requires optional BPPA-100 module adapter)
– Pt100 inpiut for temperature measurement with the accuracy 0,1 °C (0,2 °F)
– 24 V loop power to power device under test
– ability to write and read up to 5 sets of configuration parameters
– large backlit LCD display allows simultaneous reading of three values
– ideal for applications related to gas flow
– pressure units: psi, bar, mbar, kPa, kgcm^2, cmH_2O, mH_2O, inH_2O, mmHg, inHg, ftH_2O
– IP51 rated
– connections: pressure: ⅛NPT,
electrical: standard banana plugs,
RTD: LEMO 4-pin,
external module: LEMO 6-pin
– dimensions [mm]: 200x100x60
– weight [kg]: 1,2
– additional accessories: NIST calibration certificate, batteries, user manual, case

Input / output type	Range	Accuracy
Electric signals		
V	(0 ÷ 30,000) V DC	±0,015% of indication ±2 mV
mA	(0 ÷ 24) mA	±0,015% of indication ±2 µA
Pressure modules		
version with electric pressure pump	(-0,8 ÷ 10) bar	±0,025% of range
version with manual pressure pump	(-0,8 ÷ 20) bar	±0,025% of range
all modules	(20 ÷ 700) bar	±0,035% of range
Resistive sensors		
Pt100	(-50 ÷ 150) °C	±0,1 °C (±0,2 °C)

Ordering code

Pressure calibrator	BETA GAUGE-330 – ... – ...
Pressure range: (-0,8 ÷ 10) bar (-0,8 ÷ 20) bar	**150** **300**
Additional accessories	

Ordering example

Pressure calibrator BetaGauge 330–300

Limatherm Sensor Sp. z o.o.
Skrudlak Street 1, 34-600 Limanowa
www.limathermsensor.com
tel. +48 18 330 10 00
fax. +48 18 330 10 04
e-mail export@limathermsensor.com

Voltage and current calibrator **DC80L**

Technical description

Characteristic
– measures and simulates electrical voltage from 0 to 110 mV and from 0 to 15 V
– measures and simulates electrical current from 0 to 24 mA
– accuracy: ± 0.05 % F.S. + 5 counts to V and mV
– accuracy: ± 0.03 % F.S. + 5 counts to mA
– 24 Vdc supply for loop power
– rated input impedance: 2 MΩ, < 100 pF
– maximum output current in voltage mode: 1 mA
– temperature resolution: 0.1 °C
– resistance resolution: 0.1 Ω
– maximum allowed voltage between terminals or terminals and ground: 30 V
– temperature unit selection from °C and °F
– low battery indication
– operating temperature: 0° C ~ 50 °C
– storage temperature: -40 °C ~ 60 °C
– temperature effect on measurement/simulation: 0.005 % / °C from -10 °C ~ 18 °C and 28°C ~ 55 °C
– operating relative humidity: 95 % up to 30 °C, 75 % up to 40 °C and 45% up to 50 °C
– operating altitude: 3000 meters
– power: 6 type AAAbatteries 1.5 V
– dimensions: 205 x 98 x 46 mm
– weight: 475 g with batteries included
– additional accessories:
- 6 size AAA batteries
- one pair of flying probes
- one pair of alligator clips
- operation manual and
- case
– optional external power adaptor

Type	Range	Resolution	Accuracy
measurement V/mV	(0 ÷ 110) mV	0,01 mV	±(0,02% + 0,01 mV / 0,003 V)
	(0 ÷ 15) V	0,001 V	
simulation V/mV	(0 ÷ 100) mV	0,01 mV	
	(0 ÷ 15) V	0,001 V	

Type	Resolution	Accuracy
(0 ÷ 24) mA measurement and simulation	0,001 mA	0,015% +0,003 mA

Ordering example **Voltage and current calibrator DC80L**

Limatherm Sensor Sp. z o.o.
Skrudlak Street 1, 34-600 Limanowa
www.limathermsensor.com
tel. +48 18 330 10 00
fax. +48 18 330 10 04
e-mail export@limathermsensor.com

RTD Calibrator / Indicator **DC80R**

Technical description

Characteristic

– measures and simulates SEVEN types of RTDs: Pt10, Pt50, Pt100 (385), Pt100 (392), Pt200, Pt500 and Pt1000
– generates and measures resistance values from 0 Ω to 3200 Ω
– accuracy of ± 0.2 °C for temperature
– accuracy of 0.1 Ω for resistance
– temperature resolution: 0.1 °C
– resistance resolution: 0.1 Ω
– maximum allowed voltage between terminals or terminals and ground: 30 V
– temperature unit selection from °C and °F
– low battery indication
– operating temperature: 0° C ~ 50 °C
– storage temperature: -40 °C ~ 60 °C
– temperature effect on measurement/simulation: 0.01 % / °C from 0 °C ~ 18 °C and 28°C ~ 50 °C
– operating relative humidity: 95 % up to 30 °C, 75 % up to 40 °C e 45% up to 50 °C
– operating altitude: 3000 meters
– power: 6 type AAAbatteries 1.5 V
– dimensions: 205 x 98 x 46 mm
– weight: 475 g with batteries included
– accessories included:
  - 6 size AAA batteries,
  - one pair of test lead extension,
  - one pair of stackable cable extension,
  - one pair of heavy duty alligator clips,
  - operation manual
  - case

Ordering example **RTD Calibrator / Indicator DC80R**

Limatherm Sensor Sp. z o.o.
Skrudlak Street 1, 34-600 Limanowa
www.limathermsensor.com
tel. +48 18 330 10 00
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e-mail export@limathermsensor.com

Thermocouple Calibrator / Simulator **DC80T**

Technical description

Characteristic

– measurement and simulation of 8 TC sensor types: J, K, T, E, R, S, B i N
– generates and measures electrical voltage (mV) in the -10 mV to +75 mV range
– accuracy:
  ± 0.3 °C for temperature
  0.025 % for mV
– temperature resolution: 0.1 °C
– voltage resolution: 0.01 mV
– automatic cold junctions compensation (Cjc)
– maximum error for cold junction compensation: ± 0.3 °C
– maximum voltage allowed between terminals or terminals and ground: 30 V
– temperature unit selection from °C and °F
– low battery indication
– working temperature: (0 ÷ 50) °C
– storage temperature: (-40 ÷ 60) °C
– temperature effect on measurement/simulation: 0,02%/°C from (0 ÷ 18) °C and (28 ÷ 50) °C
– operating relative humidity: 95% up to 30 °C, 75% from 40 °C, 45% up to 50 °C
– power source: 6x AAA 1,5V
– dimensions [mm]: 205x98x46
– weight [g]: 475 (with batteries)
– additional accesories:
  - 6 type AAAbatteries 1.5 V
  - two mini thermocouple connectors
  - one bead thermocouple sensor with mini connector
  - operation manual
  - case

Type	Range	Resolution	Accuracy	Max. CJC error
J	(-200 ÷ 1200) °C	0,1 °C	±(0,3 °C + 10 µV)	±0,3 °C
K	(-200 ÷ 1370) °C	0,1 °C	±(0,3 °C + 10 µV)	±0,3 °C
T	(-200 ÷ 400) °C	0,1 °C	±(0,3 °C + 10 µV)	±0,3 °C
E	(-200 ÷ 950) °C	0,1 °C	±(0,3 °C + 10 µV)	±0,3 °C
R	(-20 ÷ 1750) °C	1 °C	±(1 °C + 10 µV)	±0,3 °C
S	(-20 ÷ 1750) °C	1 °C	±(1 °C + 10 µV)	±0,3 °C
B	(-600 ÷ 1800) °C	1 °C	±(1 °C + 10 µV)	±0,3 °C
N	(-250 ÷ 1300) °C	1 °C	±(0,3 °C + 10 µV)	±0,3 °C
mV	(-10 ÷ 75) mV	0,01 mV	±(0,025% + 0,02 MV)	

Ordering example

Thermocouple Calibrator/ Simulator DC80T

Limatherm Sensor Sp. z o.o.
Skrudlak Street 1, 34-600 Limanowa
www.limathermsensor.com
tel. +48 18 330 10 00
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Digital pressure gauge **BAP**

Technical description

Characteristic
– accuracy class: 0,08% of range (for range ≥25 kPa) 0,1% of range (for range ≥25 kPa) 0,25% of range 0,4% of range – 8-digits alphanumeric display – stainless steel housing – interface: RS232, RS485 – process connection: M20x1,5; G½ or other – elements in contact with the medium: copper, brass – operating temperature: (-20 ÷ 60) °C – power source: 3xAAA batteries, for the Ex variant, only approved types of alkaline batteries: Energizer or VARTA HIGH ENERGY – power supply (not for the Ex version) – comunication: Bluetooth, XBee – the possibility of manufacturing the Ex-type sensor
Measuring range
(0 ÷ 60) MPa

Ordering example **Digital pressure gauge BAP**

Digital pressure gauge **PM 111**

Dane techniczne

Characteristic
– accuracy class: 0,08% of range (for range ≥25 kPa) 0,1% of range (for range ≥25 kPa) 0,25% of range 0,4% of range – 8-digits alphanumeric display – stainless steel housing – output: (4 ÷ 20) mA, (0 ÷ 20) mA, (0 ÷ 10) V, relay – interface: RS232, RS485 – process connection: M20x1,5; G½ – elements in contact with the medium: copper, brass – operating temperature: (-20 ÷ 60) °C – the possibility of manufacturing the Ex-type sensor
Measuring range
(0 ÷ 60) MPa

Ordering example **Digital pressure gauge PM 111**

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Pressure calibrator / digital pressure gauge **BetaGauge PI**

Technical description

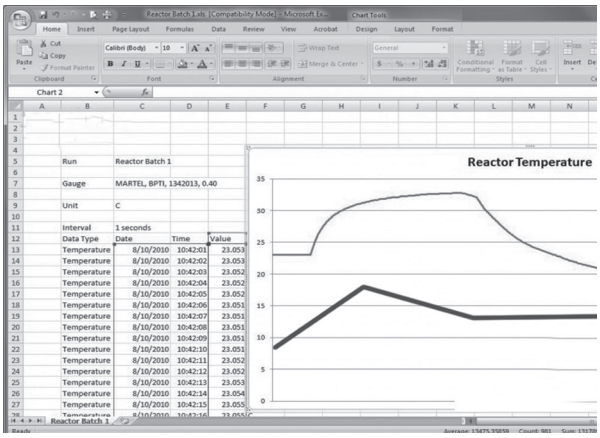
Characteristic
– high accuracy: ±0,05% of range – built-in temperature compensation: (0 ÷ 5) °C – display in 18 standards or own unit – large display with backlight, 5½ digits with a 20-element bargraph – displaying ambient temperature – steel stainless housing – calibration from the panel protected by a password – reading the min./max. value – tare – adjustable sample rate – configurable pulsation suppression – auto switchoff – available with an external power option 24 V – available with rear connection option for panel mounting – available in reference version with an accuracy of 0.04% of the indication

Ordering example **Pressure calibrator / digital pressure gauge BetaGauge PI**

Data Logging Software **BetaLOG**

Dane techniczne

Characteristic
The BetaLOC software is supplied on a CD with RS232 (connection cable, USB serial adapter for a notebook that does not support a standard serial port) and a user manual. RS232 allows data to be downloaded to BetaLOG and stored on a computer in various file formats: – plain ASCII text (.txt) – Comma delimited test (.csv) – Microsoft™ Excel Spreadsheet (requires Excel 2002 or later) – Microsoft™ Excel templates come with the BetaLOG application or you can create your own
Application
– hydrostatic pressure tests – detection of system leaks – detection of pressure fluctuations – log ambient temperature along with pressure for leak testing applications
Wymagania systemowe
– Pentium CPU, 1 GHz – 512 MB RAM – 5 MB disk storage plus additional storage for logged data – Windows XP PRO, Vista Business or Ultimate, Window 7 – optional Microsoft™ Excel spreadsheet software (for data analysis in spreadsheet format) – BetaGauge PI or PIR with firmware version 3.00 or higher



Ordering example **Data Logging Software BetaLOG**

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Low pressure pneumatic hand pump **MECP100**

Technical description

Characteristic
– reange (-0,9 ÷ 7) bar
– built-in drain valve
– small size
– available complete with service kit and pressure hoses
– ⅛NPT thread

Ordering example **Low pressure pneumatic hand pump MECP100**

Pneumatic hand pump **MECP500**

Dane techniczne

Characteristic
– reange (-0,9 ÷ 36) bar
– built-in drain valve
– available complete with service kit and pressure hoses
– ¼NPT thread

Ordering example **Pneumatic hand pump MECP500**

Portable high pressure pneumatic hand pump **MECP2000**

Dane techniczne

Characteristic
– reange (-0,9 ÷ 140) bar
– built-in drain valve
– available complete with service kit and pressure hoses
– two sockets with internal ¼NPT thread

Ordering example **Portable high pressure pneumatic hand pump MECP2000**

Hydraulic hand pump **MECP10K**

Dane techniczne

Characteristic
– reange (0 ÷ 200) bar
– built-in drain valve
– available complete with service kit and pressure hoses
– ¼NPT thread

Ordering example **Hydraulic hand pump MECP10K**

M

furnaces
calibration

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limatherm SENSOR

Portable temperature calibrator **P-300**

Technical description

Characteristic
– portable and easy to use temperature calibrator with a dedicated measuring block
– diameters of sensor covers that can be placed in the measuring block: A [mm]: ø1,5; 2; 3; 4; 4,5; 6 B [mm]: ø3; 4,5; 6; 9 C [mm]: ø1,5; 3; 4; 4,5; 6; 8 D [mm]: ø4,5; 12
– draft immersion depth [mm]: 89÷100
– measuring range: (33 ÷ 300) °C
– accuracy: (33 ÷ 100) °C; ±0,5 °C (100 ÷ 300) °C; ±1 °C holes larger than 6 mm; ±2 °C
– stability: ±0,3 °C
– heating time: ~10 min. (33 ÷ 300) °C
– cooling time: ~15 min. (300 ÷ 100) °C
– stabilization: ok 5 min.
– power: 230 V AC, 175 W
– manufacturer's calibration certificate at temperatures (50 °C; 100 °C; 150 °C; 200 °C; 250 °C; 300 °C)
– dimensions [mm]: 55x114x146
– weight [kg]: 1,3

Ordering example **Portable temperature calibrator P-300A**

Calibration bath **FLUID 100/200**

Dane techniczne

Characteristic
– temperature range: Fluid 100: (-10 ÷ 125) °C Fluid 200: from ambient temperature to 200 ° C
– stability: ± 0.02 ° C at 150 ° C
– radial / linear irregularity: ±0,03/±0,03 °C
– indication accuracy: ±0,15 °C
– resolution: 0,1/0,01 °C
– pit depth [mm]: 150
– measuring hole [mm]: ø50
– heating time: 10 °C/min.
– cooling time: 3 °C/min.
– RS232 interface
– manufacturer's calibration certificate
– power source: 230 V AC 500 VA
– thermostat filling: water to temperature 90 °C; above 200 ° C silicone oil (delivered with bath tub)
– dimension [mm]: 330x340x160
– weight [kg]: 8
Additional functions
– recalibration certificate
– additional socket for external Pt100 3, 4-wire sensor and thermocouples J, K, N, R, S
– calibrating software
– case

Ordering example **Calibration bath FLUID 100/200**

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Portable temperature calibrator **QUARTZ-35**

Technical description

Characteristic
– temperature range: from -50 °C to 150 °C – stability: ±0,03 °C – radial / linear irregularity: ±0,1/±0,2 °C – indication accuracy: ±0,15 °C (at 100 °C) – stabilization time: ok 6 min. – resolution: 0,1/0,01 °C – pit depth [mm]: 135 – measuring block with holes [mm]: ø3,5; 4,5; 5,5; 8,5; 10,5 – heating time: 20 °C/min. – cooling time: 25 °C/min. – internal cryostat: Peltier module – RS232 interface – manufacturer's calibration certificate – power source: 230 V AC 300 VA – dimensions [mm]: 300x370x140 – weight [kg]: 10
Additional functions
– recalibration certificate – additional socket for external Pt100 3, 4-wire sensor and thermocouples J, K, N, R, S – AQ2SP calibration software – case – replaceable measuring block with or without other holes

Ordering example **Portable temperature calibrator QUARTZ-35**

Limatherm Sensor Sp. z o.o.
Skrudlak Street 1, 34-600 Limanowa
www.limathermsensor.com
tel. +48 18 330 10 00
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e-mail export@limathermsensor.com

Portable temperature calibrator **PULSAR-35Cu**

Technical description

Characteristic
– temperature range: from ambient temperature to 600 ° C – indication accuracy: ±0,3 °C – resolution: 0,01/0,1 °C – stability: ±0,05 °C at 450 °C – unevenness at 450 ° C: - radial: ±0,15 °C - axial: ±0,35 °C – average heating time: 20 ° C / min. – average cooling time: 25 °C / min. – 35mm of the measuring block diameter – reference probe: Pt 100 (3-wire) – RAMP function: min. 0,1 °C / min. – standard holes [mm]: ø3,5; 4,5; 6,5; 8,5; 12,5 – RS232 interface – manufacturer's calibration certificate – power source: 230 V AC/115 V AC switching – power consumption: 800 VA – housing: metal – dimensions [mm]: 160x340x330 – weight [kg]: 10,1
Additional functions
– recalibration certificate – dditional socket for external Pt100 3, 4-wire sensor and thermocouples J, K, N, R, S - PULSAR-35Cu-2L version – oAQ2SP calibration software – case – replaceable measuring block with or without other holes

Ordering example **Portable temperature calibrator PULSAR-35Cu**

Portable temperature calibrator **PULSAR-80Cu**

Technical description

Characteristic
– temperature range: from ambient temperature to 550 ° C – indication accuracy: ±0,3 °C at 450 °C – resolution: 0,01/0,1 °C – stability: ±0,05 °C at 450 °C – average heating time: 9 ° C / min. – average cooling time: 1.6 ° C / min. – 60mm of the measuring block diameter – reference probe: Pt 100 measuring resistor (3-wire) – RAMP function: min. 0.1 ° C / min. – standard holes [mm]: ø4,5; 6,5; 9,5; 12,5 – RS232 interface – manufacturer's calibration certificate – power source: 230 V AC/115 V AC switching – power consumption: 1700 VA – housing material: metal – dimensions [mm]: 160x340x330 – weight [kg]: 23
Additional functions
– recalibration certificate – additional socket for external Pt100 3, 4-wire sensor and thermocouples J, K, N, R, S - PULSAR-80Cu-2L version – AQ2sp calibration software – case – replaceable measuring block with or without other holes

Ordering example **Portable temperature calibrator PULSAR-80Cu**

Portable temperature calibrator **PYROS BASIC 650**

Dane techniczne

Characteristic
– temperature range: from ambient temperature to 650 °C – indication accuracy: ±1 °C – resolution: 1 °C – stability: ±0,3 °C at 500 °C – uniformity at 500 °C: radial ±0,22 °C, axial ±0,8 °C – average heating time: 18 °C / min. – average cooling time: 9 °C / min. – standard: 4 hole [mm] (3,2/5,0/7,0/10,5) – power source: 230 V AC/115 V AC, switching – power consumption: 600 VA – measuring inserts / stove order code: - 3,2+5,0+6,5+9,5 mm: PYROS-INS-4 *) - 6,5+12,7 mm: PYROS-INS-2 – RS232 interface – manufacturer's calibration certificate – housing material: metal – dimensions [mm]: 130x260x280 – weight [kg]: 6
Additional functions
– recalibration certificate – electric cable – fuse set

Ordering example **Portable temperature calibrator PYROS BASIC 650**

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Portable temperature calibrator **PYROS-375**

Technical description

Characteristic

– temperature range: (30 ÷ 375) °C
– stability: ±0,15 °C
– linear irregularity:
  - at a depth of 40 mm
    ±0,1 °C at 50 °C
    ±0,2 °C at 150 °C
    ±0,3 °C at 375 °C
    ±0,02 °C at 50 °C
    ±0,05 °C at 150 °C
    ±0,15 °C at 375 °C
  - at a depth of 60 mm
    ±0,2 °C at 50 °C
    ±0,3 °C at 150 °C
    ±0,9 °C at 375 °C
    ±0,03 °C at 50 °C
    ±0,08 °C at 150 °C
    ±0,25 °C at 375 °C
– radial irregularity:
  - at a depth of 40 mm
    ±0,1 °C at 50 °C
    ±0,15 °C at 150 °C
    ±0,2 °C at 375 °C
– indication accuracy: ±0,25 °C at 150 °C; ±0,5 °C at 375 °C
– resolution: 0,1 °C
– chamber depth: 150 mm
– chamber diameter 26 mm
– measuring inserts / stove order code:
  3,2+4,8+6,4+11,1 mm/PYROS-375-INS-4 *)
  6,4+12,7 mm/PYROS-375-INS-2
– heating time: (30 ÷ 375) °C: 20 min
– cooling time: (375 ÷ -100) °C: 40 min
– manufacturer's calibration certificate
– power source: 230 V AC 600 W
– dimensions [mm]: 130x260x280
– weight [kg]: 5,4

Additional functions

– recalibration certificate
– case
– PYROS-375 with a special measuring block

Ordering example **Portable temperature calibrator PYROS-375**

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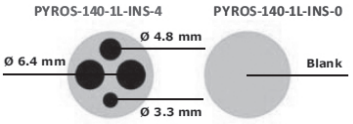
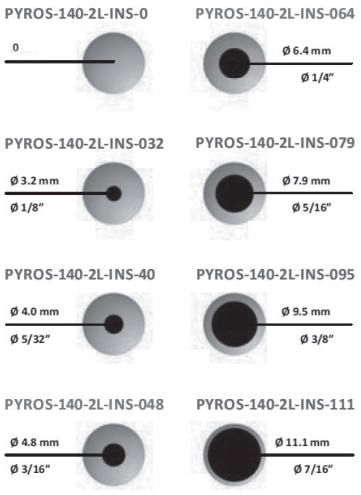
www.limathermsensor.com
tel. +48 18 330 10 00
fax. +48 18 330 10 04
e-mail export@limathermsensor.com

Portable temperature calibrator **PYROS-140-1L, PYROS-140-2L**

Technical description

Characteristic
– temperature range: (-24 ÷ 140) °C – stability: ±0,05 °C – linear irregularity: - at a depth of 40 mm ±0,05°C at -20 °C ±0,04 °C at 0 °C ±0,1 °C at 100 °C – radial irregularity: - at a depth of 40 mm ±0,02 °C at -20 °C ±0,02 °C at 0 °C ±0,05 °C at 100 °C – indication accuracy: ±0,25 °C – resolution: 0,1 °C – chamber depth: 104 mm – measuring inserts / stove order code: - 3,2 mm/PYROS-140-INS-32 - 4 mm/PYROS-140-2L-INS-40 - 4,8 mm/PYROS-140-2L-INS-48 - 6,4 mm/PYROS-140-2L-INS-64 - 7,9 mm/PYROS-140-2L-INS-79 - 9,5 mm/PYROS-140-2L-INS-95 - 11,1 mm/PYROS-140-2L-INS-111 – heating time: (20 ÷ 120) °C: 20 min – cooling time: (20 ÷ -20) °C: 17 min – RS232 interface – manufacturer's calibration certificate – power source: 230 V AC, 80 W – dimensions [mm]: 130x260x280 – weight [kg]: 4,9
Additional functions
– recalibration certificate – transport case





Ordering example **Portable temperature calibrator PYROS-140-2L-INS-40**

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Portable temperature calibrator **SOLAR**

Technical description

Characteristic
– temperature range: (200 ÷1100) °C – stability: ±0,3 °C at 1000 °C – radial/linear irregularity: ±0,4/±0,4 °C – indication accuracy: ±3 °C – resolution: 0,1/0,01°C – chamber depth [mm]: 155 – measuring block with ø44 mm hole and replaceable insert with holes [mm]: ø7; 9; 11; 13,5 – heating time / cooling time: 17 °C/min. / 6 °C/min. – stabilization time: about 20 min. – RS232 interface – manufacturer's calibration certificate – power source: 230 V AC 850 VA – dimensions [mm]: 170x330x450; weight [kg]: 12
Additional functions
– dditional socket for external Pt100 3, 4-wire sensor and thermocouples J, K, N, R, S – AQ2Sp calibration software – case – recalibration certificate – exchangeable measuring insert with other holes

Ordering example **Portable temperature calibrator SOLAR**

Portable temperature calibrator **BX 150**

Dane techniczne

Characteristic
– portable and easy to use calibration controller – measuring block with holes[mm]: ø3; ø3,5; ø3,7; ø4,2; ø5; ø6; ø8 – immersion depth of the sensor cover: 100 mm – measuring range: (33 ÷ 300) °C – accuracy: ±0,5 °C (33 ÷ 199°C) i ±1°C (200 ÷ 300) °C – stability: ±0,3 °C – heating time / cooling time: ±10 min. – stabilization: ok 5 min. – power source: 230 V – dimensions [mm]:180×114×233; weight [kg]: 2,2 – calibration certificate

Ordering example **Portable temperature calibrator BX-150**

Portable temperature calibrator **BB 500**

Dane techniczne

Characteristic
Universal and portable calibration furnace used for checking pyrometers. – black body dimensions [mm]: ø57 – emissivity factor: 0,95 – temperature range: (30 ÷ 500) ºC – resolution: 0,1 ºC – stability: ±0,1; (50 ÷100) ºC ±0,2; (101 ÷ 350) ºC ±0,4; (351 ÷ 500) ºC – operating temperature: (0 ÷ 40) ºC – power source: 230 V AC – dimensions [mm]: 180x114x233; weight [kg]: 2,7

Ordering example **Portable temperature calibrator BB500**