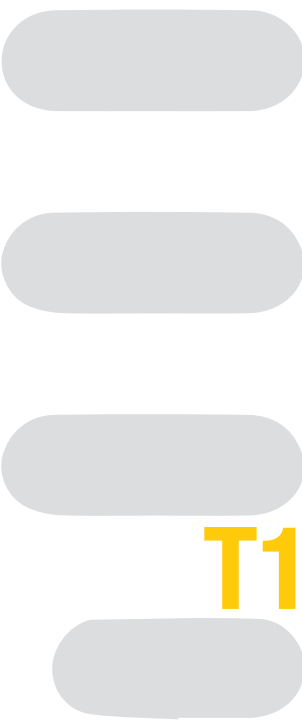




T120 / T121

TEMPERATURE TRANSMITTERS



Temperature Transmitters

T120 / T121

High precision temperature transmitters for head mounting, T120 and T121, are designed for universal application on machines, plants, installations and in process industry. They convert the input signals and retransmit them into a normalized signal in current through a 4-20 milliAmpère loop. Input signals can come from 2, 3, 4-wire RTD sensors such as Pt100 (EN 60751) and Ni100 (DIN 43760). The T121 model also acquires Pt500, Pt1000, and thermocouple signals from J, K, R, S, T, B, E, N type (EN 60584), voltage and resistance. T120 and T121 are characterized by compact size and spring clamps connections. All available operating parameters are configurable by EASY SETUP / EASY LP software.

HIGHLIGHTS

OPERATING TEMPERATURE

-40..+85°C



RESOLUTION UP TO 16 BIT



ACCURACY CLASS

0,1%



SPRING CLAMPS CONNECTION



UNIVERSAL INPUT

RTD, TC, MV, Ω



OUTPUT CURRENT LOOP / POWER SUPPLY

4..20 mA / 20..4 mA (2 wires); 5/7..30 Vdc



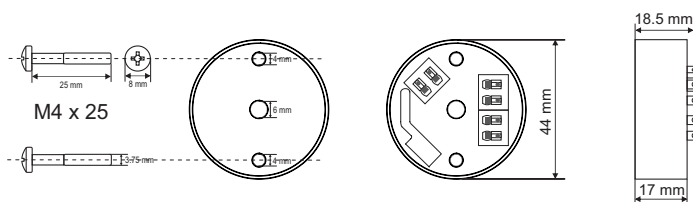
CONNECTOR FOR FAST PROGRAMMING



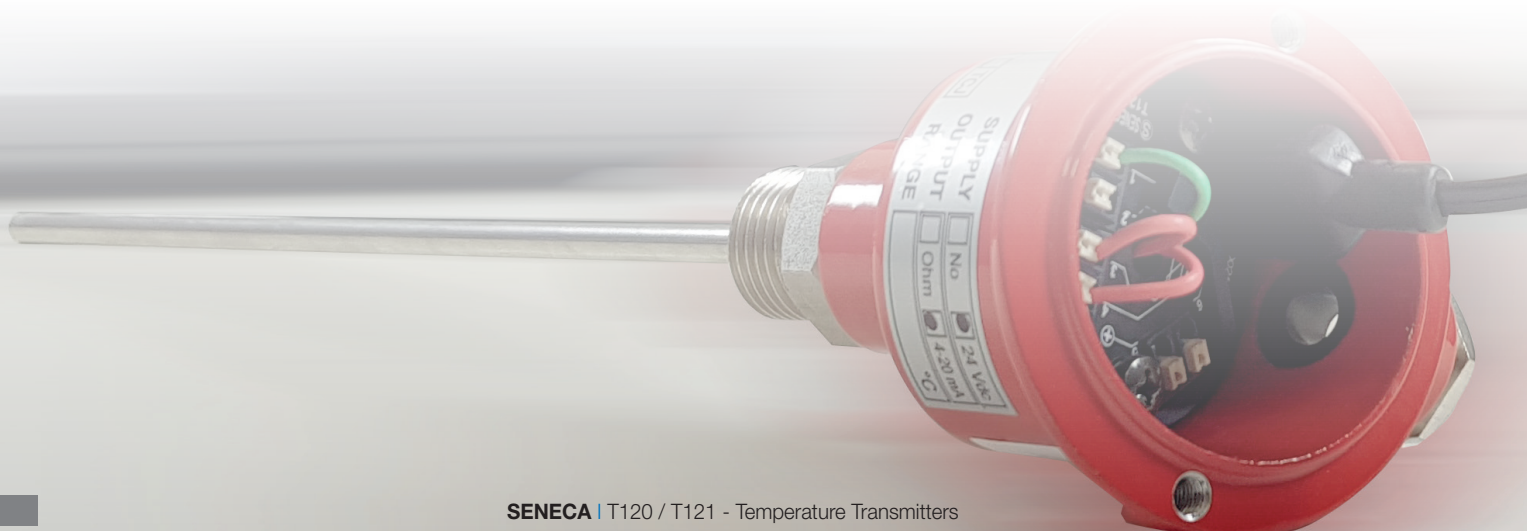
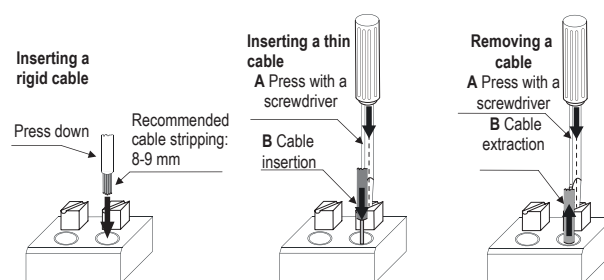
CALIBRATED VERSIONS



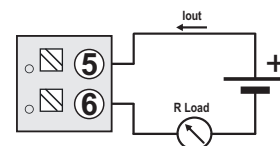
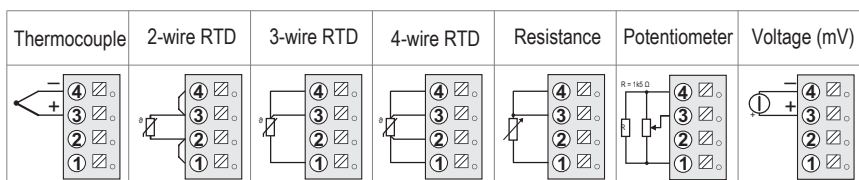
DIMENSION



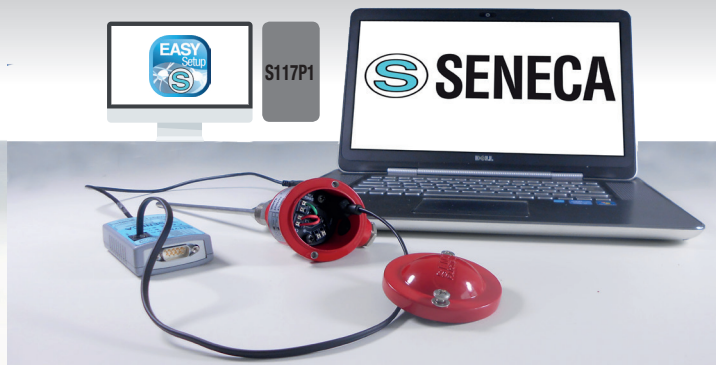
PUSH-WIRE CLAMPS CONNECTION



2 / 3 / 4 WIRES CONNECTION



PROGRAMMING



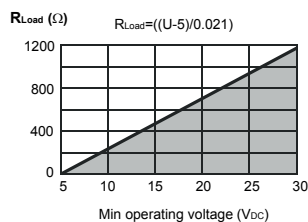
The configuration of T120 and T121 transmitters can be done through EASY USB device, which converts the USB serial signal from the PC into a serial UART TTL signal and vice versa, and EASY LP software. The transmitters can be configured even if not powered by 4..20 mA loop, taking power supply from the programming connector.

T120 and T121 transmitters can be configured via S117P1, USB - RS232 / TTL converter and EASY LP software. The transmitters can be configured even if not powered by 4..20 mA loop, taking power supply from the programming connector.

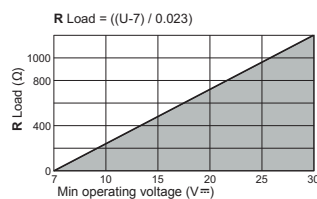
EASY SETUP / EASY LP software allows to configure T121 transmitter to linearise custom sensors within a certain working range. The curves of some additional sensors (eg Ni1000) are already included in the software. There is also a tool to correctly configure the S311A indicator connected to the T121 transmitter.

LOAD DIAGRAMS

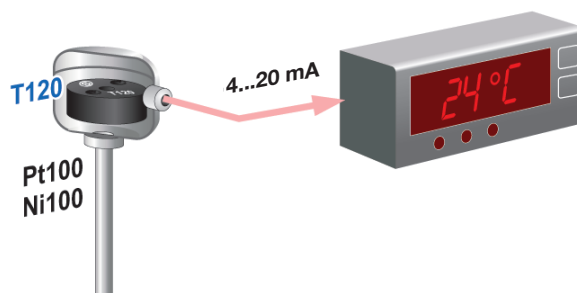
T120



T121

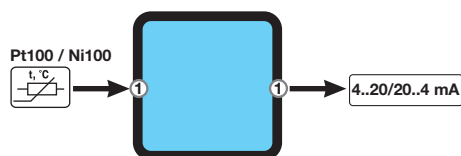


APPLICATION EXAMPLES

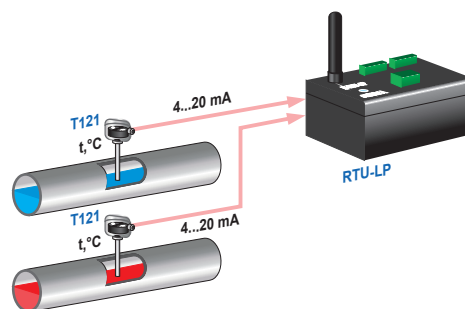
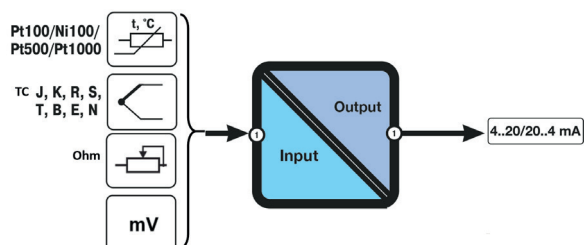


ISOLATION / SIGNALS DIAGRAMS

T120



T121



Temperature Transmitters

T120



2 wire loop powered transmitter for Pt100 and Ni100 probes

T121



Isolated loop powered temperature transmitter

GENERAL DATA

Power supply	5..30 Vdc (loop powered)	7..30 Vdc (loop powered)
Isolation	-	1,5 kVac
Protection degree	IP20	IP20
Sampling period	100 ms (300 ms con reiezione 50/60 Hz)	300 ms
Frequency rejection	50 / 60 Hz (selectable)	>60 dB a 50 e 60 Hz
Response time	<220 ms (<620 ms with 50-60 Hz rejection)	< 620 ms
Accuracy class	0,1%	0,1% (min 0,1°C per RTD e 1°C per TC)
Thermal drift	< 100 ppm (30 ppm typical)	< 100 ppm (30 ppm typical)
Measurement conversion	16 bit	16 bit
Transmission error	Max between 0,1% full scale or 0,1°C	Max between 0,1% full scale or 0,1°C
EMI error	<0,5%	<0,5%
Operating temperaure	-40..+85°C	-40..+85°C
Connection	6 spring terminals for 0.2 to 2.5 mm2 conductor section, suggested wire stripping 8 mm, 1 serial programming connector TTL with 4 pin.	6 spring terminals for 0.2 to 2.5 mm2 conductor section, suggested wire stripping 8 mm, 1 serial programming connector TTL with 4 pin.
Case	PA6 reinforced with glass-fibre, black color	PA6 reinforced with glass-fibre, black color
Dimension	Ø 43,7 x 20 mm	Ø 43,7 x 20 mm
Weight	35 g	35 g

INPUT DATA

Number of channels	1	1
Type	- Pt100 - Standard: EN 60751/A2 (ITS-90) - Measurement range: -200..+650°C - Minimum span: 20°C - Connection: 2,3,4 wires - Ni100 - Measurement range: -60..+650°C - Minimum span: 20°C - Connection: 2,3,4 fili	- Pt100 (EN 60751/A2, -200..+650°C, min span 20°C) - Ni100 (-60..+250°C, min span 20°C) - Pt500 2,3,4 fili (-200..650°C) - Pt1000 2,3,4 fili (-200..+200°C) - TC J, K, R, S, T, B, E, N; input impedance 10 MΩ - Potentiometer: 500 Ω..100 kΩ - Voltage: -150..+150 mV; input impedance 10 MΩ - Resistance: 0..+400 (1.760) Ω
Resolution	Approx 6 mΩ	Approx 6 mΩ

OUTPUT DATA

Number of channels	1	1
Type	Current (mA) 4..20, 20..4 mA (2wires)	Current (mA) 4..20, 20..4 mA (2 fili)
Resolution	1μA (>14bit)	2μA (>13bit)
Current output protection	Approx 30 mA	Approx 30 mA

PROGRAMMING

EASY SETUP / EASY LP - PC software	Configuring start / full measurement scale, RTD connection and type, rejection, measurement filter, cable resistance, fault output / over-range	Configuring start / full measurement scale, RTD connection and type, rejection, measurement filter, cable resistance, fault output / over-range
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STANDARD

Approvals	CE	CE
Norms	EN 61000-6-4, EN 61000-6-2	EN 61000-6-4, EN 61000-6-2, EN 61010-1

ORDER CODES

Code	Description
T120	2 wire loop powered transmitter for Pt100 and Ni100 probes
T120-C	2 wire loop powered transmitter for Pt100 and Ni100 probes, calibrated version
T121	Isolated loop powered temperature transmitter
T121-C	Isolated loop powered temperature transmitter, calibrated version

SOFTWARE

EASY LP	Plug&Play software suite for loop powered devices (K120RTD, K121, T120, T121)
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ACCESSORIES

FLEX-DIN	DIN rail adapter for T120 and T121
EASY-USB	USB - UART TTL converter
S117P1	RS232/USB, TTL/USB, RS485/USB asynchronous serial converter

PT100

POZZ-100	Weld-in thermowell, lenght 100 mm
POZZ-150	Weld-in thermowell, lenght 150 mm
POZZ-200	Weld-in thermowell, lenght 200 mm
POZZ-250	Weld-in thermowell, lenght 100 mm
POZZ-300	Weld-in thermowell, lenght 100 mm
POZZ-50	Weld-in thermowell, lenght 100 mm

ORDER CODES

Code	Description
PT100	
PT-150-3-M12	PT100 class B, d=3 mm, L= 150 mm, M12 connector
PT-250-2-M12	PT100 classe B, d=2 mm, L= 250 mm, M12 connector
PT-150-3R-M12	PT100 classe B, d=3 mm, L= 150 mm, tapered terminal, M12 connector
PT100-100	Pt100 std length 100 mm
PT100-100-MA	Pt100 std length 100 mm, 4-20 mA output
PT100-150	Pt100 std length 150 mm
PT100-150-MA	Pt100 std length 150 mm, 4-20 mA output
PT100-200	Pt100 std length 200 mm
PT100-200-MA	Pt100 std length 200 mm, 4-20 mA output
PT100-250	Pt100 std length 250 mm
PT100-250-MA	Pt100 std length 250 mm, 4-20 mA output
PT100-300	Pt100 std length 300 mm
PT100-300-MA	Pt100 std length 300 mm, 4-20 mA output
PT100-50	Pt100 std length 50 mm
PT100-50-MA	Pt100 std length 50 mm, 4-20 mA output
PT100-A	Atmosphere PT100
PT100-A-MA	Atmosphere PT100, 4-20 mA output
PT100-SOLAR	Single element 3 wires Pt100 for photovoltaic modules
PT100-SOLAR-MA	Single element 3 wires Pt100 for photovoltaic modules, 4-20 mA output