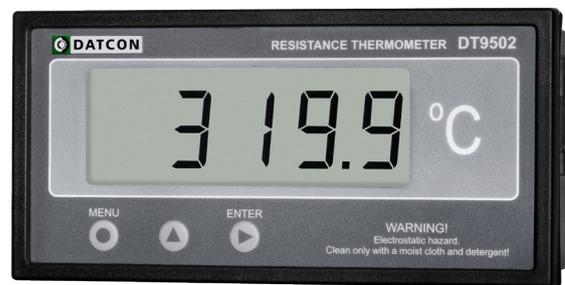# Intrinsically Safe Resistance Thermometer / Transmitter

Product features

- Pt100 input, 3 / 4 wire measurement
- -200 - +600 °C measuring range
- 0.3 °C accuracy
- 4-20 mA loop powered
- Easy on-site configuration
- Calibrated sensor curve fitting
- 2 isolated limit outputs
- Min. / Max. values detection
- 4 1/2 digit LCD, 20.5 mm character height
- Intrinsically safe (zone 1, 2)
- DT9500:   IP 65
  DT9502:   IP 65 front
  IP 30 rear

The **DT 9500, DT 9502 Intrinsically Safe Resistance Thermometer / Transmitter** enable process temperature to be displayed in even the most hazardous plant areas (zone 1, zone 2). The Pt100 temperature sensor can be connected to the input of the instrument either with 3 or 4 wire. The DT9500 / DT9502 are 4-20 mA loop powered two wire transmitters, the current range can be assigned to any temperature range. Both of the instruments have two optically isolated transistor outputs for limit signalling or for simple control purposes.

The DT9500 is housed in a moulded polycarbonate case which is dust-tight and houseproof to IP 65 to allow for installation in the field or on the control panel. The DT9502 is housed in a DIN standard 144 × 72 mm ABS case with IP 65 protection from the front and IP 30 protection from the back side, for installation on the control panel.

Large 4 1/2 digit, 20.5 mm height liquid crystal display make process temperature easily visible at a distance.

Easy on-site configuration through the front panel membrane keypad is a major advantage of the microcontroller-based technology. The configuration parameters: output scaling, 3 / 4 wire mode, signal filtering, display refresh rate, limit modes, limit values, etc. are stored in EEPROM. The DT9500 able to calculate with three sensor calibration points to fit the real sensor curve to the instrument.

A two level password protects the settings from unauthorised changes.

Safety data:

The connection terminals of the supply voltages are isolated from each other, the isolation is in compliance with the standard EN 61010-1, taking into consideration the following:

Pollution level:	2
Measurement category:	II

Intrinsical safety data:	
Certification:	BKI 15 ATEX 0028 X
Protection marking:	⟨Ex⟩ II 1G Ex ia IIC T4 Ga (-20 °C < Ta < +60 °C)
Input safety data (Pt 100):	Uo=6.6 V, Io=9 mA, Po=15 mW, Co=2 uF, Lo=10 mH
Input safety data (4-20 mA):	Ui=30 V, Ii=100 mA, Pi=0.75 W, Ci=48 nF, Li~0
Limit outputs safety data:	Ui=10 V, Ii=16 mA, Pi=40 mW, Ci~0, Li~0, Uo=6.6 V, Io=0.2 mA, Po=0.2 mW

Input parameters:	
Input signal:	resistance of Pt100 sensor
Connection:	3 / 4 wire
Measurement range:	-200 °C - +600 °C
Measurement current:	800 uA
Sampling:	15 measurement / sec.
Number of averaged samples:	1; 2; 4; 8; 16; 32 (selectable)
Accuracy (refer to the nominal resistance):	< 0.3 °C @ -200°C < Tp < +400 °C
	< 0.4 °C @ 400°C < Tp < 600 °C

Output parameters:	
Analog output:	
Output:	DC current
Range:	4-20 mA
Overrange:	21 mA
Accuracy:	0.02% @ Ta = 23 °C ±2 °C 0.15% @ -20 °C < Ta < +60 °C

Limit outputs:	
Output:	2 limit outputs
Output type:	optically isolated passive switching transistor
Leakage Current:	I < 0.1 mA @ 9 V
Voltage drop:	U < 1 V @ 10 mA
Load rating:	10 V, 16 mA max. (Ex safety data)
Refreshing time:	same as the display refreshing time
Hysteresis:	0 - ±99.9

Display:	
Display:	4 1/2 digit, 7 segments, decimal point and negative sign
Display unit:	LCD, 20.5 mm character height
Display refreshing time:	0.1; 0.3; 0.5; 1.0; 2.0 sec. (selectable)

Manual controls:	
Manual controls:	3 membrane push-buttons on the front cover

Power supply:	
Power supply:	12-30 V; protection against reverse polarity

Ambient conditions:	
Operating temperature range:	-20 - +60 °C
Relative humidity:	90% (max., non-condensing)
Place of installation:	potentially explosive area, zone 1, zone 2, safe area

Electromagnetic compatibility (EMC) accordance with the standard EN 61326-1	
Immunity:	industrial area
Noise emission:	Group 1, Class B

Data in general:		
Housing:	DT9500: moulded polycarbo-nate case, installable as a field or panel-instrument	DT9502: DIN standard ABS case, installable as a panel instrument
Connection:	DT9500: IP 65 cable gland, push-in direct connection	DT9502: push-in direct connection
Connection cable:	0.25-1.5 mm² (max.)	0.25-1.5 mm² (max.)
Dimensions:	DT9500: 167 × 87 × 90 mm (width × height × depth)	DT9502: 144 × 72 × 75 mm (width × height × depth)
Weight:	0.8 kg	0.4 kg
Protection:	IP 65	IP 65 (front), IP 30 (rear)

Detailed information see in operating instructions. The Manufacturer maintains the right to change the technical data!