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# JUMO CANtrans T RTD temperature probe with CANopen output

- For temperatures from -50 to +450 °C
- As single or double RTD temperature probe
- Vibration-resistant construction
- Limit value monitoring function
- Setting via standard CANopen software tools

RTD temperature probes are the preferred choice for temperature measurement in liquids and gases. An important factor for selecting this installation type is its ability to form a reliable seal in the event of underpressure and overpressure. Areas of application include, among others, medical technology, mechanical engineering, drive technology, commercial vehicles, and railroad systems.

The measuring insert is equipped with a Pt1000 temperature sensor according to DIN EN 60751:2009 / IEC 60751:2008, class B, as a standard feature. The measured temperature value is digitalized, linearized, and made available for further processing through the CANopen serial bus protocol (CAN slave). A large number of additional useful functions are achieved with the DS 404 device profile. All settings can be made using standard CANopen software tools.

For further transmitters with a CANopen output: see data sheets 402055 and 402056.



## Technical data

Connection	Round plug M12 × 1, 5-pole according to IEC 60947-5-2
Process connection	Thread, stainless steel 1.4571
Protection tube	Stainless steel 1.4571
Measuring insert	Pt1000 temperature sensor, DIN EN 60751:2009 / IEC 60751:2008, class B, two-wire circuit
Protection type	IP67, according to DIN EN 60529, with connection plug screwed on
Response time	$t_{0,9} = 12$ s, in water 0.2 m/s

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## CAN transmitter

Protocol	CiA DS 301, V4.02, CANopen Slave
Profile	CiA DS 404, V1.2 Measuring Devices and Closed-Loop Controllers
Baud rate	20 kBaud to 1 MBaud, setting via LSS or SDO
Module ID	1 to 127, setting via LSS or SDO
PDO	0 Rx, 1 Tx
SDO	1 Rx, 1 Tx
Emergency	Yes
Heart Beat	Yes
LSS	Yes
SYNC	Yes
Operation, project planning	All parameters are accessible via the CANopen object directory (EDS) and settings can be made via standard CANopen software tools.

## Input

Measurement input	Pt1000 DIN EN 60751:2009 / IEC 60751:2008, class B
Measuring range limits	-50 to +150 °C, -50 to +450 °C
Sampling rate	250 ms

## Output

Output signal	CANopen according to CiA DS 404 V1.2, in °C, can be switched to °F, K decimal point selectable 0, 1, 2
Transmission behavior	Temperature-linear
Electrical connection	Round plug M12 × 1, 5-pole according to IEC 60947-5-2

## Voltage supply

Voltage supply	DC 10 to 30 V
Current consumption	Max. approx. 45 mA

## Monitoring

	Measuring circuit • Underrange (freely selectable lower limit) • Overrange (freely selectable upper limit) Probe short circuit Probe break
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## Additional functions

	Min./max. measured value memory
	Fine adjustment
	Toggling between °C, °F, K
	Decimal places selectable 0, 1, 2

## Environmental influences

Operating temperature range	-20 to +85 °C	
Storage temperature range	-40 to +85 °C	
Temperature influence	≤ ±0.0025 % per K deviation from 22 °C of the measuring range span	
Accuracy	Class B according to DIN EN 60751:2009 / IEC 60751:2008 max. ±0.2 % of the measuring range span	
Electromagnetic compatibility	EN 61326	
Interference emission	Class B (the product is suitable for industrial use as well as for households and small businesses.)	
Interference immunity	Industrial requirement	
Mechanical shock	According to DIN IEC 68-2-27 (for basic type 902910/10)	EL 50 mm → 50 g for 3 ms; EL 100 mm → 30 g for 3 ms EL 200 mm → 15 g for 3 ms
Vibration	According to DIN IEC 68-2-6 (for basic type 902910/10)	EL 50 mm max. 10 g in the case of 10 to 2000 Hz EL 100 mm max. 5 g in the case of 10 to 300 Hz EL 200 mm max. 2 g in the case of 10 to 100 Hz
Protection type	IP67, according to EN 60529, with connection plug screwed on	

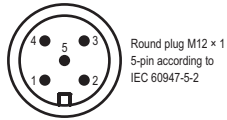
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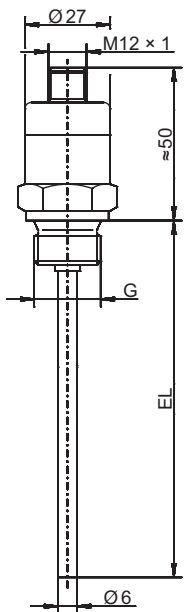


### Connection diagram

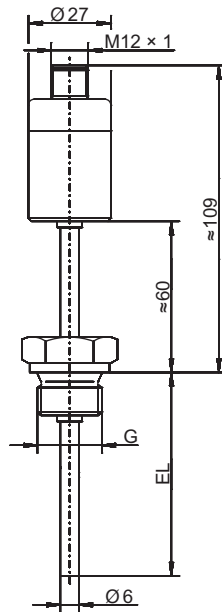


Connection		Connection assignment
Voltage supply DC 10 to 30 V	$\begin{matrix} + \\ \ominus \end{matrix}$	V+ V- 2 3
Output CANopen		Schielding CAN_H CAN_L 1 4 5

### Dimensions

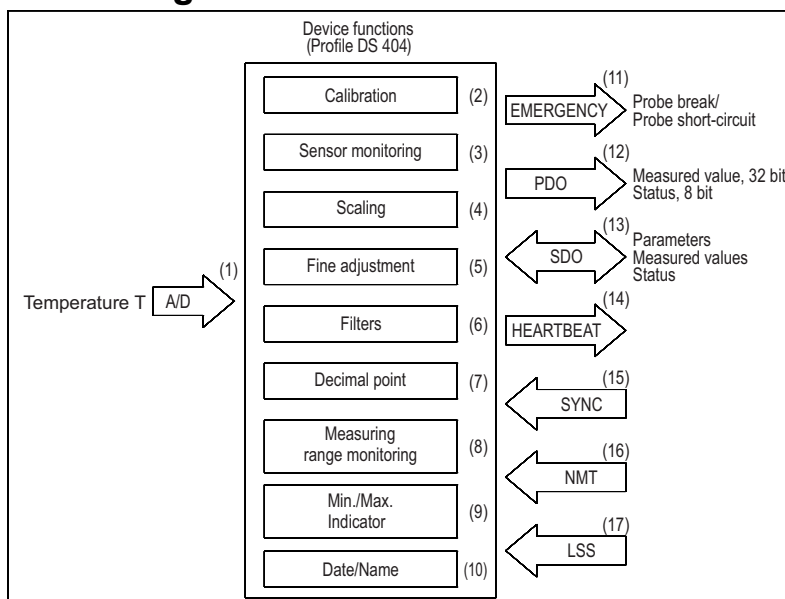


Basic type 902910/10



Basic type 902910/12

### Block diagram



### Function

- (1) The measured temperature value is digitized.
- (2) The temperature signal is adjusted digitally per default.
- (3) The sensor monitoring continuously checks the correct function of the sensor signal and triggers high-priority emergency telegrams in the event of an error.
- (4) The measured temperature value can be scaled to any measuring units (or in % of the measuring range).
- (5) The fine adjustment features a freely adjustable characteristic line offset.
- (6) Undesired signal fluctuations can be suppressed using the adjustable filter constant.
- (7) The measured value is output with a freely selectable decimal place.
- (8) The measuring range monitoring has freely selectable upper and lower limits. The result is output as a status byte along with the measured value in the PDO telegram.
- (9) The drag indicator function saves the minimum and maximum measured temperature value.
- (10) The date and name of the last maintenance operation can be saved.
- (11) The emergency telegram is triggered in the event of a sensor fault.
- (12) The PDO telegram contains the 32-bit measured value and the 8-bit status. The measured value output can be controlled through various trigger conditions.
- (13) SDO telegrams can be used to set parameters and to request measured values and statuses.
- (14) The heartbeat signal can be used to additionally monitor the function of the transmitter.
- (15) The sync command can also be used to control the transfer of the measured values.
- (16) The NMT telegrams are for the purpose of controlling the operating status of the transmitter.
- (17) The CAN module ID and the CAN baud rate are set either with LSS or SDO.

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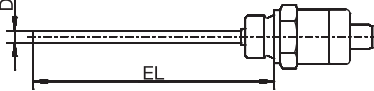
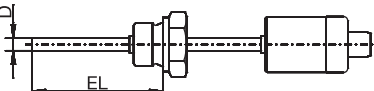
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## Order details

### (1) Basic type

	902910/10	RTD temperature probe with CANopen output	
	902910/12	RTD temperature probe with CANopen output, extension tube for higher temperatures	
	<b>(2) Operating temperature in °C</b>		
x	370	-50 to +150 °C	
x	404	-50 to +450 °C	
	<b>(3) Measuring insert</b>		
x x	1005	1× Pt1000 in two-wire circuit	
x x	2005	2× Pt1000 in two-wire circuit	
	<b>(4) Tolerance class according to DIN EN 60751:2009 / IEC 60751:2008</b>		
x x	1	Class B (standard)	
x x	2	Class A	
	<b>(5) Protection tube diameter D in mm</b>		
x x	6	Ø 6 mm	
	<b>(6) Insertion length EL in mm (50 to 500 mm)</b>		
x x	50	50 mm	
x x	100	100 mm	
x x	150	150 mm	
x x	200	200 mm	
x x	250	250 mm	
x x	...	Specifications in plain text (increments of 50 mm)	
	<b>(7) Process connection</b>		
x x	102	Screw connection G 1/4	
x x	103	Screw connection G 3/8	
x x	104	Screw connection G 1/2	
x x	121	Screw connection M14 × 1.5	
x x	126	Screw connection M18 × 1.5	
x x	128	Screw connection M20 × 1.5	
x x	144	Screw connection 1/2-14 NPT	
	<b>(8) Extra codes</b>		
x x	000	None	
x x	100	Customer-specific configuration (specifications in plain text)	
x x	310	Protection tube stepped down	

Order code: (1) - (2) - (3) - (4) - (5) - (6) - (7) / (8), ...<sup>a</sup>  
 Order example: 902910/10 - 370 - 1005 - 1 - 6 - 50 - 102 / 000

<sup>a</sup> List extra codes in sequence and separate using commas.

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**Accessories**

Designation	Part no.
PC CAN interface for USB interface (incl. configuration software)	00449941
Terminating resistor for CAN-Bus/digiLine, M12 × 1	00461591
Contact box, straight, 5-pole, M12 × 1, with fixed gated connecting cable, length 5 m	00337625
Contact box, angled, 5-pole, M12 × 1, with fixed gated connecting cable, length 2 m	00375164
Contact box, straight, 5-pole, M12 × 1, without connecting cable, for self-assembly	00419130
Contact box, angled, 5-pole, M12 × 1, without connecting cable, for self-assembly	00419133
Extension cable, length 2 m, 5-pole, with connector and socket M12 × 1	00461589
T connection element, 5-pole, M12 × 1	00419129

EDS file	Via download
Operating manual	Via download