LUDWIG SCHNEIDER

HART SCREW-IN RESISTANCE TEMPERATURE SENSOR WTD 200

CHARACTERISTICS

INPUT	RTD Pt100 (maximum range –50 °C to +200 °C)
OUTPUT	4 to 20 mA current loop HART (2-wire)
VOLTAGE SUPPLY	current loop (12 to 40 VDC)
ACCURACY	see technical details
PROCESS CONNECTION	several options
ELECTRICAL CONNECTION	several built-in plugs
TEMPERATURE RANGE	–20 °C to +80 °C (ambient)
LIMIT VALUE CONTACTS	2 electronically (NPN / PNP)
ADJUSTMENT	keys / software
MATERIAL	stainless steel 1.4571 (medium contact)
PROTECTION	at least IP65

TECHNICAL DATA

INPUT			
Sensor RTD Pt100	–50 °C to +200 °C (minimum range: 50 °C), 4-wire		
OUTPUT			
Current signal	4 to 20 mA with superimposed communication signal (HART), 2-wire current loop		
Current range	3.8 to 20.5 mA		
Signal on error	3.6 mA (sensor short circuit, underflow) 21 mA (sensor break, sensor open circuit, overflow)		
PERFORMANCE			
RTD Pt100	Class A / Class B / Class AA (B1/3 DIN)		
Measuring amplifier	Accuracy	0.3% of range	
	Resolution	16 Bit	
	Filter setting	0 to 99 s	
	Transmission behaviour	temperature linear	
	Measuring rate	10 measurements/s	
	Configuration	Keys on display / via software (HART communication)	
	Turn-on delay time	‹5 s	
	Response time	20 ms	
Indicator / limit values	Resolution	–9,999 to +9,999 digit	
	Error of measurement	±0.2% of range, ±1 digit	
	Temperature drift	100 ppm/K	
	Features, Operation	according VDMA 24574-1 up to 24574-4	
PROGRAMMABLE FEATURES			
Measuring amplifier	Measuring range start (LRV)/Measuring range end (URV)/ Adjustment, simulation of output current/Filter function linear output signal/ HART address/2-point calibration		
Display	range of indication/time of indication/decimal point/units/stabilisation of zero point/ locking of programming/calibration points/TAG number		
Limit value contacts	limit value 1 and 2/hysteresis 1 and 2/delay times 1 and 2		

APPLICATIONS

For use in climating, ventilating and heating installations and the whole range of industrial application. With its two configurable limit value contacts, the integrated display and the numerous electrical connections, the temperature sensor is also suitable for sophisticated applications.

INDICATION

Display	7 segment, 8.5 mm, red, 4 digits, representation mirror-inverted 180° possible
Head of display	rotatable approx. 330°
Memory	minimum / maximum values
Indication	- measuring value - unit of measurement - control menu
Decimal point	automatically or manually, dependent on measuring range / unit
Representation	xxxx / xxx.x / xx.xx / x.xxx

LIMIT CONTACTS

Electronically	2x PNP or NPN (30 VDC, 200 mA), Option: 2x PNP or NPN (30 VDC, 1,000 mA)
Indication	1 LED red for each limit value
Voltage across	‹1 V
Settings	with 3 keys (TouchM-Technology)
Setting range	switch point and hysteresis: any value within measuring range
Switching delay	0.0 to 999.9 s
Failsafe function	adjustable
Galvanical insulation	switching outputs are separated from measuring amplifier

SUPPLY

Voltage	HART current loop: 12 to 40 VDC
Load	R = (UB-12 V) / 21 mA
Reverse battery protection	available (no function, no damage)

AMBIENT CONDITIONS

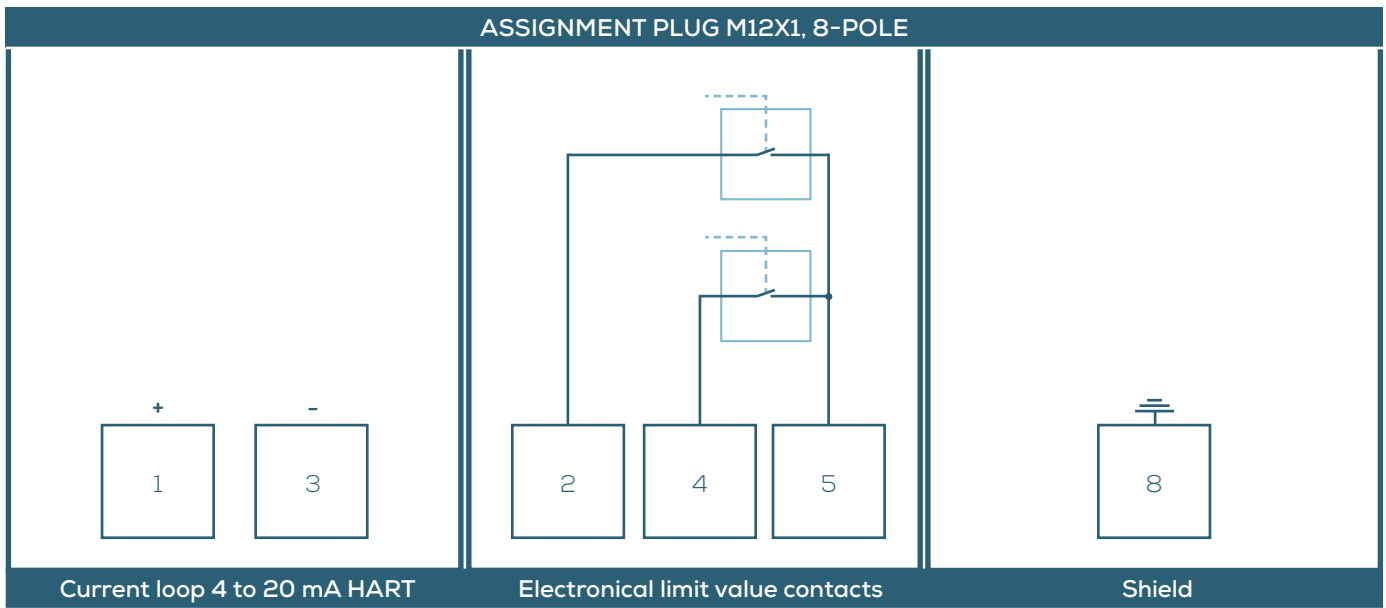|	
Temperature	Operating range: -20 °C to +80 °C **ATTENTION:** temperatures above +85 °C can destroy the electronics. Medium: -50 °C to +200 °C, Storing: -40°C to +100 °C
Condensation	uncritical

MECHANICS

Dimensions	see following page (top right)	
Process connection	1/4", 3/8", 1/2", 3/4", 1", 1/4" NPT, 3/8" NPT, 1/2" NPT	
Neck tube	100 mm (option)	
Electrical connection	See fold-in page	
Material	Protecting tube:	stainless steel 1.4571 (standard 6 x 0.5 mm)
	Neck tube:	stainless steel 1.4571
	Process connection:	stainless steel 1.4571
	Housing:	PBT GF30
	Head of display:	polycarbonate (makrolon)
Weight	approx. 150 g (70 mm, 1/2", M12)	
Fitting position	any	
System pressure	PN 25	
Protection of device	Ingress protection:	at least IP 65 (electronics)
	Circuit boards:	sealed

CONNECTION M12X1-PLUG (EXAMPLE)

ASSIGNMENT PLUG M12X1, 8-POLE		
+ 1 - 3	2 4 5	8
Current loop 4 to 20 mA HART	Electronical limit value contacts	Shield

ELECTRICAL CONNECTION

M12X1	SUPER SEAL	DEUTSCH	DEUTSCH	BAYONET	VALVE	MIL
4-, 5-, 8-pole	3-pole	3-pole	4-pole	4-pole	4-pole	6-pole

CONNECTION		M12 4-pole	M12 5-pole	M12 8-pole	Bayonet 4-pole	Deutsch 4-pole	Deutsch 8-pole	Super Seal 3-pole	Ventil 4-pole	MIL 6-pole
Limit value (LV)	1 electr. LV	x	x	x	x	x			x	x
	2 electr. LV		x	x						x

HART-COMMUNICATION

The HART-Tool is a graphical user interface for the ME series with menu-driven program for configuration. It can be used for putting into operation, configuration, analysis of signals, data backup and documentation of the device. Operating systems: Windows 2000, Windows XP, Windows 7, 8.1 and 10. Connection via HART interface (modem) with USB interface of a PC or hand-held HART communicator.

SETTINGS:
+ Adjustment of output current
+ Limits of measuring range
+ 2-point calibration
+ Simulation of output current
+ Linear output signal
+ Filter function
+ HART address

PLEASE NOTE: When using communication via a HART modem, a communication resistance of 250 Ω has to be taken into account.

DIMENSIONS (IN MM)
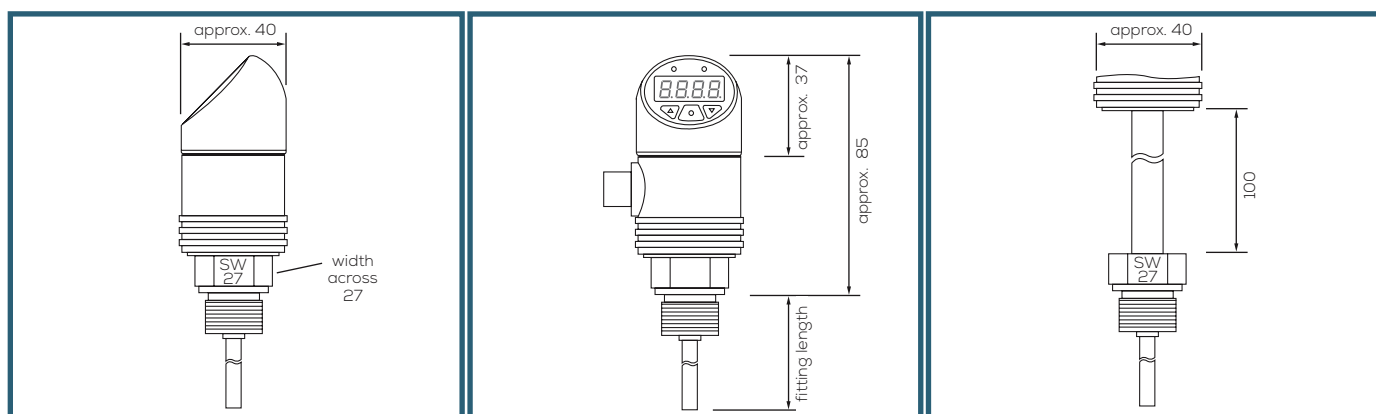
ORDERING CODE

The order number of our WTD 200 consists of 9 positions. Each position stands for a particular product feature. Select your desired configuration and enter the product feature of your choice into the corresponding field.

WTD – **0** [Pos. 1] [Pos. 2] [Pos. 3] [Pos. 4] [Pos. 5] [Pos. 6] – [Pos. 7] [Pos. 8] **0**

Pos. 1 – INPUT	
Pt100, 4-wire	0

Pos. 2 – SENSOR TYPE	
Class A	0
Class B	1
Class AA (1/3 B)	3

Pos. 3 – PROTECTING TUBE	
ø 6 x 0.5 mm	0
Other protecting tube (to specify)	1
ø 6 x 0.5 mm with neck tube 100 mm	2
Other protecting tube with neck tube 100 mm (to specify)	3

Pos. 4 – FITTING LENGTH			
50 mm	0	400 mm	4
100 mm	1	600 mm	5
200 mm	2	1,000 mm	6
250 mm	3	Other length (to specify)	7

Pos. 5 – PROCESS CONNECTION			
1/4"	0	1"	4
3/8"	1	1/4" NPT	5
1/2"	2	3/8" NPT	6
3/4"	3	1/2" NPT	7

ACCESSORIES
Interface HART, USB, software

Pos. 6 – LIMIT VALUE CONTACTS	
2x PNP, 30 VDC, 200 mA (standard)	0
1x PNP, 30 VDC, 200 mA	1
Without	2
2x NPN, 30 VDC, 200 mA	3
1x NPN, 30 VDC, 200 mA	4
2x PNP, 30 VDC, 1,000 mA	5
1x PNP, 30 VDC, 1,000 mA	6
2x NPN, 30 VDC, 1,000 mA	7
1x NPN, 30 VDC, 1,000 mA	8

Pos. 7 – ELECTRICAL CONNECTION	
M12, 4-pole	0
M12, 5-pole	1
M12, 8-pole	2
Deutsch DT04, 3-pole	3
Deutsch DT04, 4-pole	4
Super Seal 1.5, 3-pole	5
Bayonet (DIN), 4-pole	6
Valve plug, 4-pole	7
MIL, 6-pole	9

Pos. 8 – CONFIGURATION	
Factory setting (Measuring range: –50 °C to 200 °C (LRV...URV) / Damping: 0 s RTD Pt100, 4-wire	0
Customized (to specify)*	1

OTHER
Special model on request

*   All settings, which are possible according the technical data, can be selected. For not given values the details of factory-set are used.

LUDWIG SCHNEIDER

PRODUCT SUMMARY

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