


## ● Characteristics

1 - NiCr-Ni - MODULAR - ECONOMIC

	- Input:	thermocouple type K (-50...+200 °C)
	- Output:	4...20 mA current loop HART (2-wire)
	- Voltage supply:	out of current loop (12...40 VDC)
	- Accuracy:	see technical details
	- Process connection:	several options
	- Electrical connection:	several plugs
	- Temperature range:	-20...+80 °C (ambient)
	- Limit value contacts:	2 electronically (NPN / PNP)
	- Adjustment:	keys / software
	- Material:	stainless steel 1.5471 (medium contact)
- Protection:	at least IP65	

## ● Technical Data

### Input

Thermocouple: type K, NiCr-Ni (-50...200 °C, minimum range: 50°C)

### Output

Current signal: 4...20 mA with superimposed communication signal (HART), 2-wire current loop

Current range: 3,8...20,5 mA

Signal on error: 3,6 mA (sensor short circuit, underflow)  
21 mA (sensor break, sensor open circuit, overflow)

### Performance

Sensor:	Type K:	±1,5°C (according DIN EN 60584-2 class 1)
Measuring amplifier:	Accuracy:	0,3% of range
	Resolution:	16 Bit
	Filter setting:	0...99 s
	Measuring rate:	10 measurements/s
	Configuration:	Keys on display / via software (HART communication)
	Transmission behaviour:	temperature linear
	Turn-on delay time:	<5 s
Reponse time:		20 ms
	Indicator / limit values:	Resolution: -9999...9999 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 / measuring range end /  
 Display: range of indication / time of indication / decimal point / units / stabilisation of zero point /  
 locking of programming / calibration points / TAG number  
 Limit 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 it's two configurable limit value contacts, the integrated display and the numerous electrical connections, the temperature sensor is also suitable for applications with higher requirements.



## ● Technical Data (Continued)

### 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, 1000 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...999,9 s
Failsafe function:	adjustable
Galvanical insulation:	switching outputs are separated from measuring amplifier

### Supply

Voltage:	HART current loop: 12...40 VDC VDC
Load:	$R = (U_B - 12 \text{ V}) / 22 \text{ mA}$
Reverse battery protection:	available (no function, no damage)

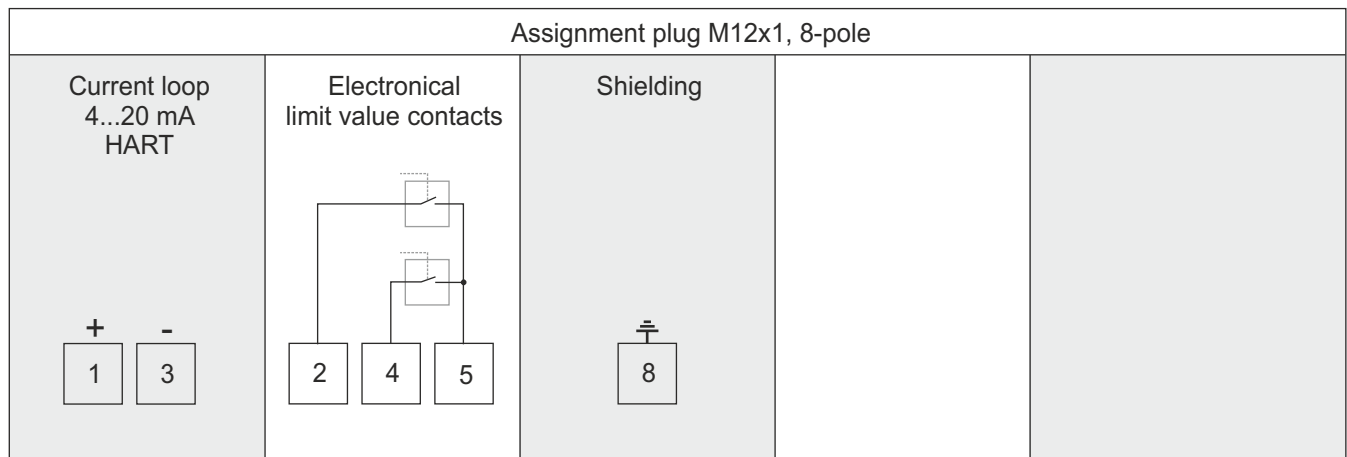
### Environmental Conditions

Temperature:	Operating range: -20...+80 °C
	Medium: -50...+200 °C
	Storing: -40...+100 °C
Condensation:	uncritical








### Mechanics

Dimensions:	see page 3	
Process connection:	1/4" / 3/8" / 1/2" / 3/4" / 1" / 1/4NPT / 3/8NPT / 1/2NPT	
Extension:	100 mm (Option)	
Electrical connection:	see page 3	
Material:	Protecting tube:	stainless steel 1.4571 (standard 6x0,5 mm)
	Extension:	stainless steel 1.4571
	Process connection:	stainless steel 1.4571
	Body:	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)
	PCB:	potted

## ● Connection M12-Plug (Example)



**● 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 3-pole	Super Seal 3-pole	Valve 4-pole	MIL 6-pole	
Limit value (LV)										
1 electronical LV	X	X	X	X	X			X	X	
2 electronical LV		X	X						X	

**● HART Communication and configuration**

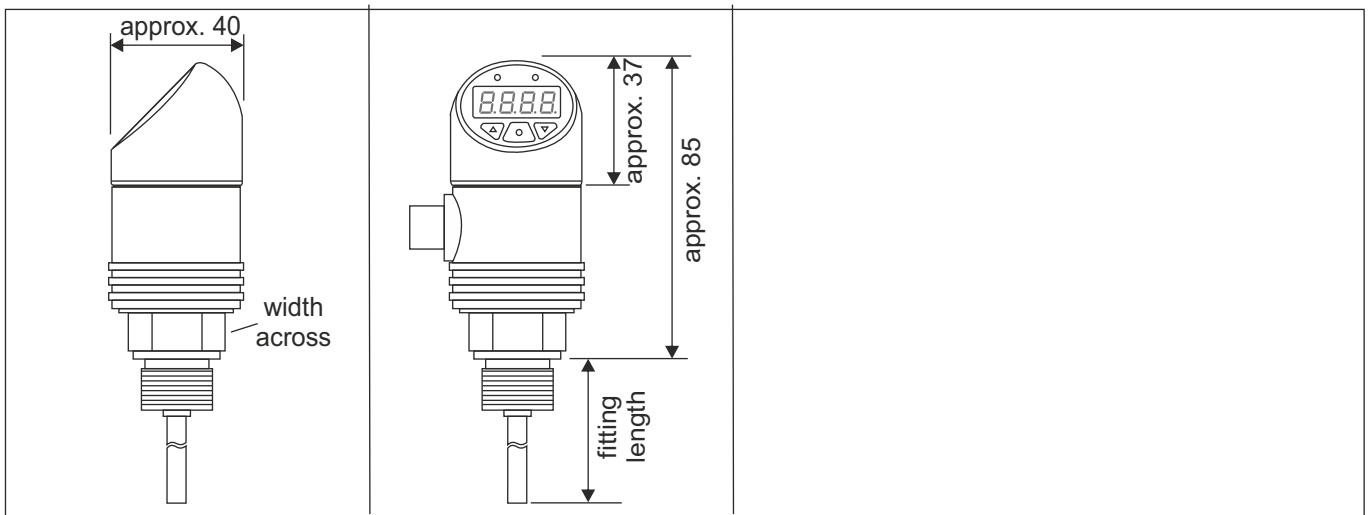
The HART-Tool is a graphical user interface for the ME series with menu-driven program for configuration. It can be used for putting into operation, configuration, analysis of signals, data backup and documentation of the device. Operating systems: Windows 2000, Windows XP, 7, 8.1 and 10.

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
  - HART TAG number
  - 6-point calibration (linearization)
  - Simulation of output current
  - Linear output signal
  - 2-point calibration
  - Filter function
  - HART address

**Please note:** When using communication via a HART modem, please take the communication resistance of 250 Ω into account.

**● Dimensions (in mm)**



● **Ordering Code**

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<b>Input:</b>	Thermocouple type K	0
<b>Sensor type:</b>	±1,5°C (according DIN EN 60584-2 class 1)	0
<b>Thermowell:</b>	Ø6x0,5 mm	0
	Other well (please specify)	1
	Ø6x0,5 mm with extension 100 mm	2
	Other well with extension 100 mm (please specify)	3
<b>Fitting length:</b>	50 mm	0
	100 mm	1
	200 mm	2
	250 mm	3
	400 mm	4
	600 mm	5
	1000 mm	6
	Other length (please specify)	7
<b>Process connection:</b>	1/4"	0
	3/8"	1
	1/2"	2
	3/4"	3
	1"	4
	1/4NPT	5
	3/8" NPT	6
	1/2" NPT	7
<b>Limit value contacts:</b>	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, 1000 mA	5
	1x PNP, 30 VDC, 1000 mA	6
	2x NPN, 30 VDC, 1000 mA	7
	1x NPN, 30 VDC, 1000 mA	8
<b>Electrical connection:</b>	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
<b>Configuration:</b>	Factory setting <sup>1)</sup>	0
	Customized (please specify) <sup>2)</sup>	1
<b>Other:</b>	Special model	0

1) Measuring range: indicating range                      Limit values: 40% / 80%

2) All settings possible according to Technical Data can be selected. For values not selected factory settings will be chosen.

**Accessories:**

Interface HART, USB, software

Order No.: 01310-00220