HYDROGEN PRESSURE TRANSMITTER

Swiss based Trafag is a leading international supplier of high quality sensors and monitoring instruments for measurement of pressure and temperature. The NHT 8250 Hydrogen pressure transmitter features a thin-film-on-steel sensor based on a special hydrogen-compatible high-performance alloy for best-in-class signal stability. The robust mechanical design with fully welded housing is built to last in harsh environments.

Applications

- H_2 fuelling stations
- Hydrogen compressors
- Fuel cells
- Vehicles with H_2 drive
- Hydrogen tanks

Features

- EC79/2009 certified by the KBA Kraftfahrt-Bundesamt
- Wetted materials made of hydrogen-compatible steel
- Completely welded sensor system without additional seals
- Excellent long-term stability

06/2025
Data sheet H72338j
Subject to change

Technical Data			
Measuring principle	Thin-film-on-steel	Accuracy @ 25°C typ.	± 0.5 % FS typ. ± 0.3 % FS typ.
Measuring range	0 ... 1 to 0 ... 1050 bar 0 ... 15 to 0 ... 15000 psi	Media temperature	–40°C ... +85°C
Output signal	4 ... 20 mA, 0.5 ... 4.5 VDC, 0 ... 5 VDC, 1 ... 5 VDC, 1 ... 6 VDC, 0 ... 10 VDC, 0.1 ... 10.1 VDC, 0.5 ... 4.5 VDC ratiometric	Ambient temperature	max. -40°C ... + 125°C (UL-rated ambient temperature: -20°C ... +80°C) Details see section Electrical Connection
NLH @ 25°C (BSL) typ.	± 0.2 % FS typ.	Approval / conformity	EC79/2009: e1*79/2009*406/2010*00047*00 Ex zone 2 conformity acc. EN60079-0, EN60079-14, EN60079-7

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Ordering information/type code

8250 . XX XX XX XX XX XX

Measuring range [1]

Pressure measurement range [bar]	Over pressure [bar]	Burst pressure [bar]		Pressure measurement range [psi]	Over pressure [psi]	Burst pressure [psi]	
0 ... 1	2	25	**71**	0 ... 15	30	350	**G1**
0 ... 1.6	3.2	32	**73**	0 ... 30	60	700	**G5**
0 ... 2.5	5	50	**75**	0 ... 50	100	850	**G6**
0 ... 4	8	60	**76**	0 ... 100	200	1450	**G7**
0 ... 6	12	100	**77**	0 ... 150	300	2500	**G8**
0 ... 10	20	200	**78**	0 ... 200	400	2500	**GA**
0 ... 16	32	200	**79**	0 ... 250	500	2500	**G9**
0 ... 25	38	300	**80**	0 ... 300	600	4000	**HA**
0 ... 40	60	300	**81**	0 ... 400	600	4000	**H0**
0 ... 60	90	400	**82**	0 ... 500	750	4000	**H1**
0 ... 100	150	500	**83**	0 ... 1000	1500	5000	**H2**
0 ... 160	240	750	**85**	0 ... 1500	2250	7000	**H3**
0 ... 250	375	1000	**74**	0 ... 2000	3000	10000	**H5**
0 ... 400	600	1500	**84**	0 ... 3000	4500	14500	**G4**
0 ... 600	900	2000	**86**	0 ... 7500	11250	29000	**H6**
0 ... 700 [13]	1050	2200	**87**	0 ... 10000 [13]	19000	38000	**H8**
0 ... 1000 [13]	1300	2600	**88**				
0 ... 1050 [13]	1300	2600	**92**				

Sensor

Relative pressure, accuracy: 0.3 %	**33**
Relative pressure, accuracy: 0.5 %	**35**

Pressure connection

G1/4" male, seal: DIN 3869 (accessories 61/63/83)	**17**
1/4" NPT male	**30**
1/8" NPT male	**43**
7/16"-20UNF-2A male, SAE J1926-2 (Heavy Duty), seal: accessory 61/63 [9]	**69**
9/16"-18UNF-2A male, SAE J1926-2 (Heavy Duty), seal: accessory 61 [9]	**67**
M12x1.5 male, DIN EN ISO 9974-2, seal: accessory 61 [14]	**49**

Electrical connection

Male electrical plug, industrial standard, contact distance 9.4 mm, Mat. PA	**01**
Male electrical plug M12x1, 4-pole, Mat. PA, IEC 61076-2-101	**32**
Male electrical plug M12x1, 5-pole, Mat. PA, IEC 61076-2-101	**35**
Male electrical connector MIL-C 26482, 6-pole, metal	**02**
Male electrical connector Deutsch DT04-3P, 3-pole	**D3**
Male electrical connector Deutsch DT04-4P, 4-pole	**D4**
Cable IP67, Mat. PVC [3]	**22**
Cable IP67, Mat. PUR [3]	**24**
Cable IP67, Mat. EPD Raychem FDR25 [3]	**08**
Compact design: Cable Mat. PVC, IP40, 2 x 2 x 0.14 mm², shielded, max. traction on cable: 2 N [10] [11]	**A1**
JST (or compatible) Board to Cable/Wire Disconnectable Crimp style connector, BM04B-SRSS-TB, IP20, 4-pole [11]	**J4**

Output signal

Signal output	Load resistance	I (supply)	U (supply)	
4 ... 20 mA	See graphic	(= signal output)	24 (9 ... 32) VDC	**19**
0.5 ... 4.5 VDC [6]	≥ 5.0 kΩ to Us-	≤ 20 mA	24 (9 ... 32) VDC	**20**
0 ... 5 VDC [6]	≥ 5.0 kΩ to Us-	≤ 20 mA	24 (9 ... 32) VDC	**14**
0.1 ... 4.1 VDC [6]	≥ 5.0 kΩ to Us-	≤ 20 mA	24 (9 ... 32) VDC	**28**
0.1 ... 5.1 VDC [6]	≥ 5.0 kΩ to Us-	≤ 20 mA	24 (9 ... 32) VDC	**29**
0.5 ... 5 VDC [6]	≥ 5.0 kΩ to Us-	≤ 20 mA	24 (9 ... 32) VDC	**22**
1 ... 5 VDC [6]	≥ 5.0 kΩ to Us-	≤ 20 mA	24 (9 ... 32) VDC	**25**
0.5 ... 5.5 VDC [6]	≥ 5.0 kΩ to Us-	≤ 20 mA	24 (9 ... 32) VDC	**24**
1 ... 6 VDC [6]	≥ 5.0 kΩ to Us-	≤ 20 mA	24 (9 ... 32) VDC	**16**
0 ... 10 VDC	≥ 5.0 kΩ to Us-	≤ 15 mA	24 (15 ... 32) VDC	**17**
1 ... 10 VDC	≥ 5.0 kΩ to Us-	≤ 15 mA	24 (15 ... 32) VDC	**26**
0.1 ... 10.1 VDC	≥ 5.0 kΩ to Us-	≤ 15 mA	24 (15 ... 32) VDC	**13**
0.5 ... 4.5 VDC ratiometric [6]	≥ 5.0 kΩ to Us-	≤ 10 mA	5 (4.75 ... 5.25) VDC	**23**

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Accessories	Female electrical plug M12x1, 5-pole [2]	33
	Female electrical plug industrial standard (for electrical connection 01)	34
	Female electrical plug M12x1, 5-pole, metallic housing [2]	35
	Seal FKM, -18°C ... +125°C	61
	Seal EPDM, -40°C ... +125°C	63
	Seal NBR, -25°C ... +100°C	83
	Special electrical connection: Pin 2 +, Pin 3 Ground, Pin 4 - (only for output signal 19 and male electrical connector 01, industrial standard)	90
	Special electrical connection: Pin 1 Out, Pin 2 +, Pin 3 Ground, Pin 4 - (only for output signals 13, 14, 16, 17, 20, 22, 23, 24, 25, 26 and male electrical connector 01, industrial standard)	91
	Special electrical connection: Pin 1 + , Pin 2 Ground, Pin 3 Out, Pin 4 - (only for output signals 13, 14, 16, 17, 20, 22, 23, 24, 25, 26, 28, 29 and male electrical connector 32, M12x1, 4-pole)	95
	Special electrical connection: Pin 1 + , Pin 2 Ground, Pin 3 -, Pin 4 Out (only for output signals 13, 14, 16, 17, 20, 22, 23, 24, 25, 26 and male electrical connector 32, M12x1, 4-pole)	96
	Special electrical connection: Pin 1 +, Pin 3 -, Pin 4 Out (only for output signals 13, 14, 16, 17, 20, 22, 23, 24, 25, 26, 28, 29 and male electrical connector 32, M12x1, 4-pole)	G1
	Special electrical connection: Pin 1 +, Pin 2 -, Pin 4 Ground (only for output signal 19 and male electrical connector 01, industrial standard)	92
	Special electrical connection: Pin 1 +, Pin 2 -, Pin 4 Ground (only for output signal 19 and male electrical connector 32, M12x1, 4-pole)	E1
	Special electrical connection: Pin 1 +, Pin 2 -, Pin 3 Out, Pin 4 Ground (only for output signals 13, 14, 16, 17, 20, 22, 23, 24, 25, 26 and male electrical connector 32, M12x1, 4-pole)	E2
	Special electrical connection: Pin 1 Out , Pin 2 -, Pin 3 +, Pin 4 Ground (only for output signals 13, 14, 16, 17, 20, 22, 23, 24, 25, 26, 28, 29 and male electrical connector 01, industrial standard)	E3
	Special electrical connection: Pin 1 +, Pin 2 -, Pin 3 Out, Pin 4 Ground (only for output signals 13, 14, 16, 17, 20, 22, 23, 24, 25, 26, 28, 29 and male electrical connector 01, industrial standard)	E9
	Special electrical connection: Pin 1 + , Pin 2 Ground, Pin 4 - (only for output signal 19 and male electrical connector 32, M12x1, 4-pole)	E6
	Special electrical connection: Pin A +, Pin C - (only for output signal 19 and male electrical connector Deutsch DT04-3P, 3-pole)	F0
	Special electrical connection: Pin A +, Pin B Out, Pin C - (only for output signals 13, 14, 16, 17, 20, 22, 23, 24, 25, 26, 28, 29 and male electrical connector Deutsch DT04-3P, 3-pole)	F1
	Special electrical connection: Pin 2 +, Pin 3 - (only for output signals 19 and male electrical connector Deutsch DT04-4P, 4-pole)	G3
	Special electrical connection: Pin 1 Out, Pin 2 +, Pin 3 - (only for output signals 13, 14, 16, 17, 20, 22, 23, 24, 25, 26, 28, 29 and male electrical connector Deutsch DT04-4P, 4-pole)	G4
	Special electrical connection: Pin A +, Pin C Out, Pin B/D -, Pin E Ground (Pin B and D are connected) (only for output signals 13, 14, 16, 17, 20, 22, 23, 24, 25, 26, 28, 29 and male electrical connector 02, MIL-C 26482)	F3
	Special electrical connection: Pin 1 +, Pin 2 - (only for output signal 19 and male electrical connector 32, M12x1, 4-pole)	F4
	Special electrical connection: Pin 1 +, Pin 3 - (only for output signal 19 and male electrical connector 32, M12x1, 4-pole)	F5
	Special electrical connection: Pin 1 +, Pin 2 -, Pin 3 -, Pin 4 Ground (only for output signals 19 and male electrical connector 32, M12x1, 4-pole)	G2
	Special electrical connection: Pin 1 +, Pin 4 - (only for output signals 19 and male electrical connector 32, M12x1, 4-pole)	G5
	Special electrical connection: Pin 2 -, Pin 3 +, Pin 4 Ground (only for output signals 19 and male electrical connector 32, M12x1, 4-pole)	G8
	Special electrical connection: Pin 1 +, Pin 2 Out, Pin 3 Ground, Pin 4 - (only for output signals 13, 14, 16, 17, 20, 22, 23, 24, 25, 26, 28, 29 and male electrical connector 32, M12x1, 4-pole)	F6
	Special electrical connection: Pin 1 +, Pin 2 Out, Pin 3 - (only for output signals 13, 14, 16, 17, 20, 22, 23, 24, 25, 26, 28, 29 and male electrical connector 32, M12x1, 4-pole)	F7
	Cable length 0.5 m	EM
	Cable length 1.0 m	1M
	Cable length 2.0 m	2M
	Multiple packaging [5]	VM
	Type label e1 (EC79) [7]	HC
	UL-listed version [4]	UL
	Enhanced condensation protection	CP

[1] Customized pressure ranges upon request
[2] For electrical connections 32 and 35
[3] Cable length see accessories
[4] Possible type code combinations for UL-listed versions see separate table
[5] The order quantity must be a multiple of 50
[6] Only measuring ranges > 16 bar
[7] Pressure connection 17 only measuring ranges ≤ 350 bar
[9] Measuring range max. 630 bar according to SAE J1926-2 (Heavy Duty)
[10] Cable length 2m only, with accessory 2M
[11] Upon request
[13] See separate table with maximum allowed load cycles
[14] Only for measurement ranges ≤16 bar (Codes 71, 73, 75, 76, 77, 78, 79)

Specifications

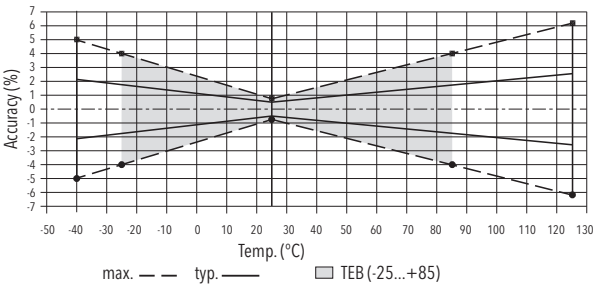
Electrical data	Output / supply voltage	4 ... 20 mA: 24 (9...32) VDC 0.5 ... 4.5 VDC: 24 (9...32) VDC 0 ... 5 VDC: 24 (9...32) VDC 1 ... 5 VDC: 24 (9...32) VDC 1 ... 6 VDC: 24 (9...32) VDC 0 ... 10 VDC: 24 (15...32) VDC 0.1 ... 10.1 VDC: 24 (15...32) VDC 0.5 ... 4.5 VDC ratiom., 10 ... 90% U_{supply}: 5 ± 0.25 VDC
	Rise time	Typ. 1 ms / 10 ... 90 % nominal pressure
	Power-on delay time pressure transmitters	100 ms
	Inverse-polarity protection, short-circuit strength @ 25°C during 5 min.	4...20 mA: to U_s = 32 VDC 0.5...4.5 VDC, 0...5 VDC, 1...5 VDC, 1...6 VDC, 0...10 VDC, 0.1...10.1 VDC: to U_s = 28 VDC 0.5...4.5 VDC ratiometric: to U_s = 14 VDC
Environmental conditions	Media temperature	–40°C ... +85°C
	Ambient temperature	max. -40°C ... + 125°C (UL-rated ambient temperature: -20°C ... +80°C) details see section Electrical Connection
	Protection	IP20, IP40, IP65, IP67, IP68 details see section Electrical Connection
	Humidity	Max. 95 % relative
	Vibration	15 g RMS (20...2000 Hz) (EN60068-2-64) 25 g sin (80...2000 Hz), 1 oct./min, (1x @ 25°C) (EN60068-2-6)
	Shock	50 g / 11 ms 100 g / 6 ms Male electrical plug M12x1 (EN60068-2-27) [1]
EMC protection [2]	Emission	EN/IEC 61000-6-3
	Immunity	EN/IEC 61000-6-2
Mechanical data	Sensor (wetted parts)	Nitrogen-strengthened austenitic steel, hydrogen compatible
	Pressure connection (wetted parts)	1.4404 (AISI316L)
	Housing	1.4301 (AISI304)
	Sealing	FPM/EPDM/NBR
	Male electrical connector	See ordering information
	Weight	appr. 50 g
	Mounting torque	25 Nm

[1] For electrical connections 32 and 35

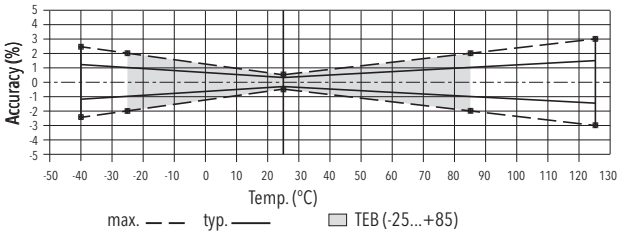
[2] Electrical connection J4 not EMC tested

Analogue output				
			Sensor 35 accuracy 0.5 %	**Sensor 33 accuracy 0.3 %**
Accuracy	TEB @ -25 ... +85°C	[% FS typ.]	± 1.75	± 1.0
	Accuracy @ +25°C	[% FS typ.]	± 0.5	± 0.3
	NLH @ +25°C (BSL)	[% FS typ.]	± 0.2	± 0.2
	TC zero point and span	[% FS/K typ.]	± 0.03	± 0.01
	Long term stability 1 year @ +25°C	[% FS typ.]	± 0.75	± 0.75
Rise time	Typ. 1 ms / 10 ... 90 % nominal pressure			

Measuring accuracy 0.5 %



Measuring accuracy 0.3 %



EC79/2009 Certificate	
Nominal working pressure (NWP) @15°C	0.08 … 70 MPa
Maximum allowable working pressure	0.1 … 100 MPa
Classification	Class 0, Class 1 und Class 2*
Pressure codes	71 … 88
Process connection	Code 17: Up to NWP 35 MPa
	Codes 30, 42, 43, 68: Up to NWP 70 MPa
Seal	Codes 61 and 63

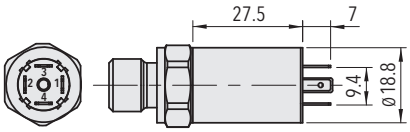
* The transmitters of class 0 were tested. Because the most highly loaded case was tested the results can be applied to the whole product family with pressure ranges from 0.8bar to 700bar.

Maximum load cycles	
Maximum allowed load cycles for measuring ranges ≥ 700 bar	
Amplitude for duty, ≤ 5 Hz	**Maximum load cycles**
0% ... 100%	1 000 000
0% ... 110%	100 000
0% ... 130%	10 000

Ordering information: Possible type code combinations for UL-listed versions	
	Combination with UL
Measuring range	all ranges ≤ 700 bar
Sensor	all codes on datasheet
Pressure connection	all codes on datasheet
Electrical connection	all codes except A1 and J4
Output signal	all codes on datasheet
Accessories	all codes except HC

Additional information		
Documents	Data sheet	www.trafag.com/H72338
	Instructions	www.trafag.com/H73303
	Flyer	www.trafag.com/H70606

Dimensions



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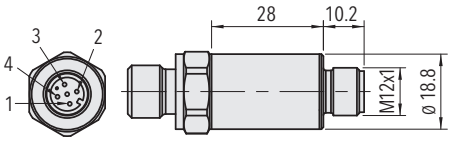

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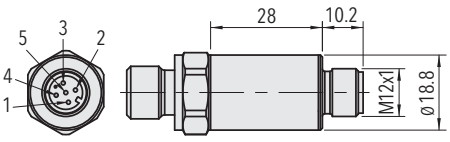

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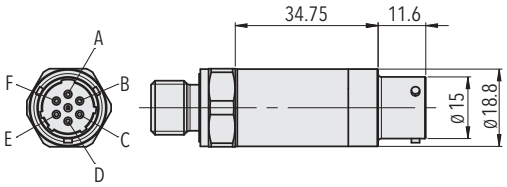

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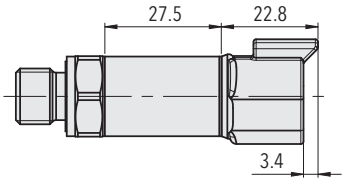

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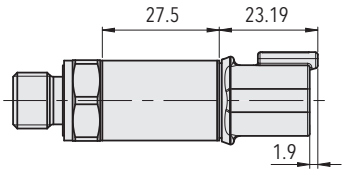

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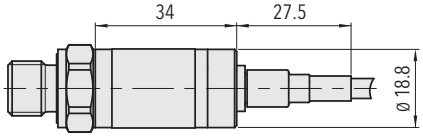

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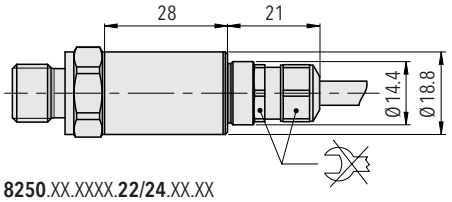

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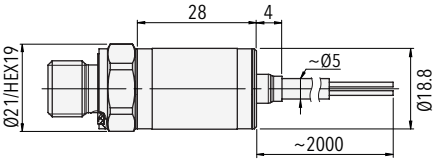

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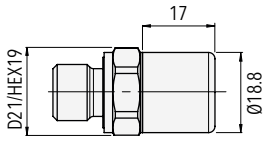

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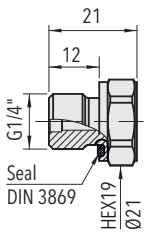

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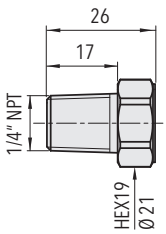

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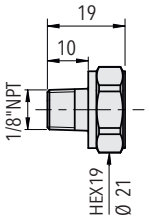

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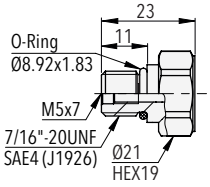

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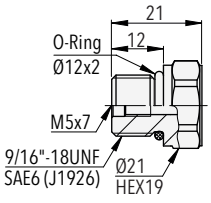

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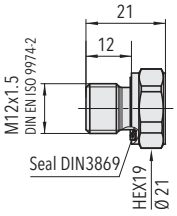

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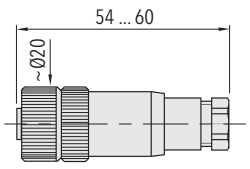

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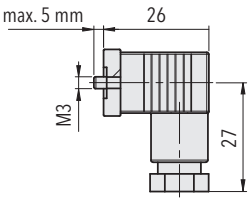
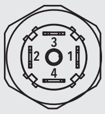
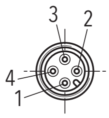
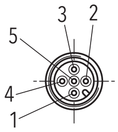
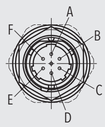
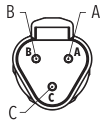
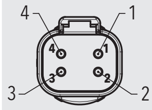
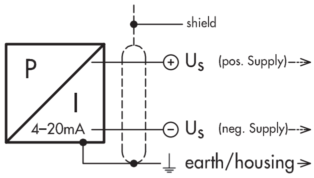


8250.XX.XXXX.XX.XX.**34**

Electrical connection

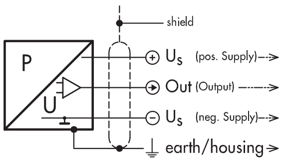
	Protection / electrical connection					
	IP65 1) 2)	IP67 1) 2)		IP67 1) 2)	IP67, IP68 1) 3)	IP67, IP68 1) 3)
	Industrial standard Contact distance 9.4 mm	M12x1 4-pole	M12x1 5-pole	MIL-C 26482	DT04-3P 3-pole	DT04-4P 4-pole
	01	**32**	**35**	**02**	**D3**	**D4**
						
Ambient temperature	-40°C ... +80°C	-40°C ... +125°C	-40°C ... +125°C			
UL-rated ambient temperature	-20°C ... +80°C	-20°C ... +80°C	-20°C ... +80°C			

Output signal



8250.xx.xxxx.xx.**19**

Connection	01	01 (90)	01 (92)	32	32 (E1)	32 (E6)	32 (F4)	32 (F5)	32 (G2)	32 (G5)	32 (G8)	35	02	D3	D3 (F0)	D4	D4 (G3)
⊕ U_S (pos. Supply)	2	2	1	1	1	1	1	1	1	1	3	4	A	A	A	2	2
⊖ U_S (neg. Supply)	1	4	2	3	2	4	2	3	2/3	4	2	1	B	B	C	1	3
earth/housing	4	3	4	4	4	2			4		4	5	E			3	

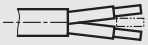
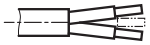
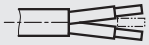
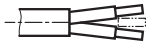
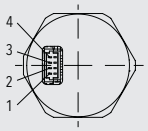
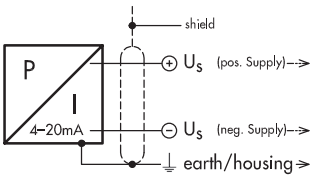
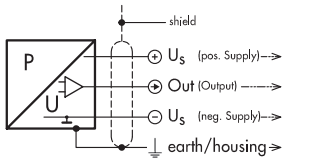


8250.xx.xxxx.xx.**13/14/16/17/20/22/23/24/25/26/28/29**

Connection	01	01 (91)	01 (E3)	01 (E9)	32	32 (95)	32 (96)	32 (E2)	32 (F6)	32 (F7)	32 (G1)	35	02	02 (F3)	D3	D3 (F1)	D4	D4 (G4)
⊕ U_S (pos. Supply)	1	2	3	1	1	1	1	1	1	1	1	2	A	A	A	A	2	2
⊕ Out (Output)	2	1	1	3	2	3	4	3	2	2	4	4	B	C	C	B	4	1
⊖ U_S (neg. Supply)	3	4	2	2	3	4	3	2	4	3	3	3	C/D	B/D	B	C	1	3
earth/housing	4	3	4	4	4	2	2	4	3			5	E	E			3	

1) Provided female electrical plug is mounted according to instructions
2) Ventilation via male electric plug/cable end
3) IP68, 100 mbar, 4h

Electrical connection

		Protection / electrical connection				
		IP67, IP68 [1) 2)]	IP67, IP68 [1) 2)]	IP67 [1)]	IP40	IP20
		Cable **22**	Cable **24**	Cable **08**	Cable **A1**	JST SH series **J4**
						
	Ambient temperature	-30°C ... +80°C	-40°C ...+70°C	-40°C ... +125°C	-30°C ... +80°C	-40°C ... +125°C
	UL-rated ambient temperature	-20°C ... +80°C	-20°C ...+70°C	-20°C ... +80°C	-20°C ... +80°C	-20°C ... +80°C
Output signal	 **8250**.xx.xxxx.xx.**19**	white brown yellow	white brown yellow	red black green	brown white yellow	1 2 4
	 **8250**.xx.xxxx.xx.**13/14/16/17/20/22/ 23/24/25/26/28/29**	white green brown yellow	white green brown yellow	red white black green	brown green white yellow	1 3 2 4

[1)] Ventilation via male electric plug/cable end
[2)] IP68, 20 bar, 30 min.

4...20mA: min./max resistor vs. supply voltage @ Pmax = 100%