

ENGINE PRESSURE TRANSMITTER

Swiss based Trafag is a leading international supplier of high quality sensors and monitoring instruments for measurement of pressure and temperature. The EPN pressure transmitter offers reliable and accurate pressure measurement over a wide temperature range. Its excellent long-term stability is based on the leading thin-film-on-steel sensor technology from Trafag. Its robust design makes the EPN the perfect choice for demanding applications such as marine and rail industries.



Applications

- Shipbuilding
- Engine manufacturing
- Machine tools
- Hydraulics



Features

- Nominal pressure up to 2500 bar (Common Rail) with high pressure threaded connection
- High vibration resistance
- Good temperature resistance
- Different accuracy classes
- Completely welded steel sensor system without additional seals

Technical Data

Measuring principle	Thin film on steel	Accuracy @ 25°C typ.	± 0.5 % FS typ ± 0.3 % FS typ
Measuring range	0 ... 2.5 to 0 ... 2500 bar	Media temperature	-40°C ... 125°C
Output signal	4 ... 20 mA 0.5 ... 4.5 VDC ratiometric	Approval	ABS, BV, CCS, DNV, GL, KRS, LRS, NKK, RINA, RMRS

05/2014

Data sheet H72312I

Subject to change

Ordering information/type code

				8298 . XX . XX . XX . XX . XX
Measuring range ¹⁾	Pressure measurement range [bar]	Over pressure [bar]	Burst pressure [bar]	
	0 ... 2.5	5	100	75
	0 ... 4	8	100	76
	0 ... 6	12	100	77
	0 ... 10	20	200	78
	0 ... 16	32	200	79
	0 ... 25	50	300	80
	0 ... 40	80	300	81
	0 ... 60	120	500	82
	0 ... 100	200	500	83
	0 ... 160	320	1000	85
	0 ... 250	500	1000	74
	0 ... 400	800	1500	84
	0 ... 600	1000	2000	86
	0 ... 1600	3000	4000	89
	0 ... 2000	3000	4000	90
0 ... 2500	3000	4000	91	
Sensor	Relative pressure, accuracy: 0.3%			23
	Relative pressure, accuracy: 0.5%			25
Pressure connection	G1/4" male (O-Ring) ²⁾			17
	R1/4" male ^{2) 4)}			19
	G1/2" male (Manometer) ²⁾			11
	1/4"NPT male ^{2) 5)}			30
	1/2"NPT male ^{2) 5)}			51
	M14x1.5 male (Conical seal: 58°) ³⁾			28
	M18x1.5 male (Conical seal: 58°) ³⁾			29
Electrical connection	Male electrical plug EN 175301-803-A (DIN43650-A), Mat. PA, normal vibration resistance ≤ 600 bar			04
	Male electrical plug EN 175301-803-A (DIN43650-A), Mat. PA, extended vibration resistance			05
	Male electrical plug: DIN72585 Code 1, Mat.: PBT (Contacts Mat.: Zn)			25
	Cable with shield: Material: FDR 25 (Raychem) 4 x 0.5mm ² ⁶⁾			78
Output	Output	Load resistance	I (supply)	U (supply)
	4 ... 20mA	(U _{supply} -9V) / 20mA		9 ... 32 VDC
	0.5 ... 4.5 VDC ⁷⁾	≥ 15.0 kΩ	≤ 12 mA	5 VDC ± 0.25 VDC ratiometric
Accessories	Pressure peak damping element ø 1.0 mm			40
	Pressure peak damping element ø 0.3 mm			43
	Pressure peak damping element ø 0.5 mm			45
	Female electrical connector EN 175301-803-A (DIN43650-A)/NBR, -40...90°C			58
	Special electrical connection: Pin 1 +, Pin 2 - (Only for output 4...20mA and male electrical plug EN175301-803-A / DIN43650-A)			92
	Cable length 1.5 m			1M
	Cable length 3.0 m			3M
	Cable length 5.0 m			5M

¹⁾ Extended overpressure as well as customized pressure ranges upon request

²⁾ For Ranges ≤ 600 bar

³⁾ For ranges > 600 bar

⁴⁾ Only with electrical connection 04

⁵⁾ Please ask us

⁶⁾ Cable length see accessories

⁷⁾ Only with electrical connections 25 and 78

Standard products (extra short lead time)

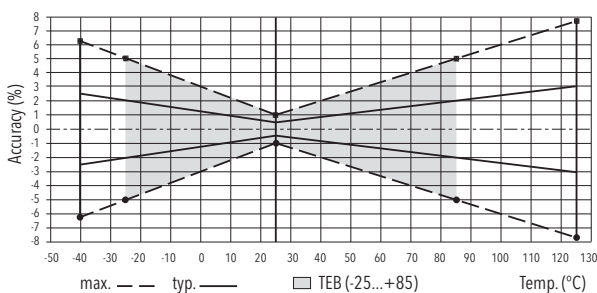
Product No.	Type Code	Pressure range [bar]	Over pressure max. [bar]	Supply [VDC]	NLH @ 25°C (BSL) FS typ. [%]
EPN4.0A	8298 76 2517 04 0000 0000 19 43 58	0...4	8	9...32	±0.2
EPN6.0A	8298 77 2517 04 0000 0000 19 43 58	0...6	12	9...32	±0.2
EPN10.0A	8298 78 2517 04 0000 0000 19 43 58	0...10	20	9...32	±0.2
EPN16.0A	8298 79 2517 04 0000 0000 19 43 58	0...16	32	9...32	±0.2
EPN25.0A	8298 80 2517 04 0000 0000 19 43 58	0...25	50	9...32	±0.2
EPN40.0A	8298 81 2517 04 0000 0000 19 43 58	0...40	80	9...32	±0.2
EPN60.0A	8298 82 2517 04 0000 0000 19 43 58	0...60	120	9...32	±0.2
EPN100.0A	8298 83 2517 04 0000 0000 19 43 58	0...100	200	9...32	±0.2
EPN250.0A	8298 74 2517 04 0000 0000 19 43 58	0...250	500	9...32	±0.2
EPN400.0A	8298 84 2517 04 0000 0000 19 43 58	0...400	800	9...32	±0.2

Specifications		
Electrical Data	Output / supply voltage	4...20 mA: 24 (9...32) VDC 0.5...4.5 VDC: 5 VDC ratiom.
	Rise time	typ. 1 ms/10...90% nominal pressure
	Environmental Conditions	
	Media temperature	-40°C ... 125°C
	Ambient temperature	-40°C ... 125°C
	Protection ¹⁾	Electrical connection 04/05: IP65 Electrical connection 25/78: IP69K
	Humidity	Max. 95% relative
	Vibration	Electrical connection 04: 10g (50...2000 Hz) Electrical connection 05: 15g (50...2000 Hz) Electrical connection 25: 15g rms Electrical connection 78: 20g rms
	Shock	50g/ 3 ms
EMC Protection	Emission	EN/IEC 61000-6-4
	Immunity	EN/IEC 61000-6-2
Mechanical Data	Sensor	1.4542 (AISI630)
	Housing / Pressure connection	1.4542 (AISI630)/1.4301 (AISI304)
	Sealing	FKM 70 Sh
	Male electrical plug	See ordering information
	Weight	~ 80...110 g
	Mounting torque	Pressure connection 28/29: 30 Nm others: 25 Nm

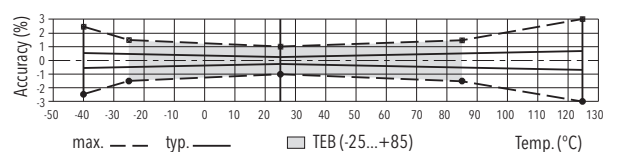
¹⁾ Electrical connection 04/05/25: Provided female connector is mounted according to instructions

Accuracy			
		Measuring accuracy 0.5%	Measuring accuracy 0.3%
		Ordering No. 25	Ordering No. 23
TEB @ -25...+85°C	[% FS typ.]	± 2.0	± 0.5
Accuracy @ +25°C	[% FS typ.]	± 0.5	± 0.3
NLH @ +25°C (BSL)	[% FS typ.]	± 0.2	± 0.1
TC zero point and span	[% FS/K typ.]	± 0.03	± 0.005
Long term stability 1 year @ +25°C	[% FS typ.]	± 0.2	± 0.2

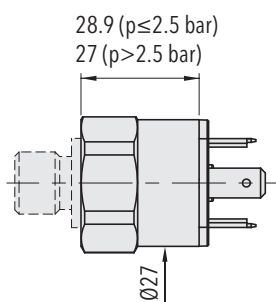
Measuring accuracy 0.5%



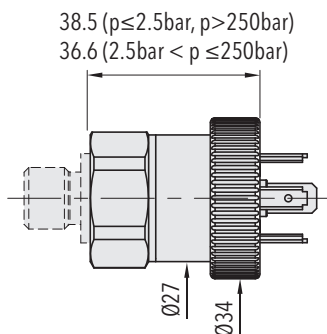
Measuring accuracy 0.3%



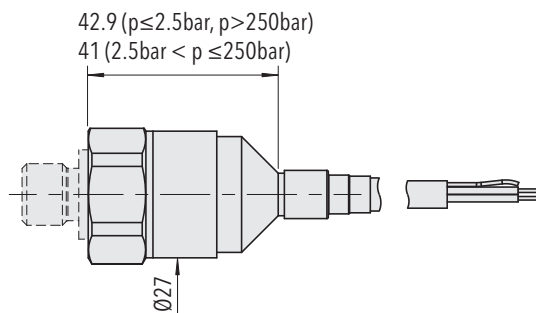
Dimensions



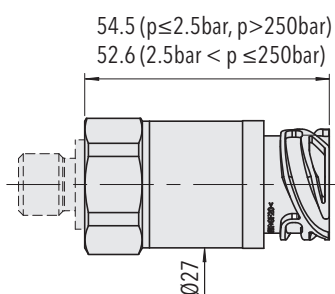
8298.XX.XXXX.04.XX.XX



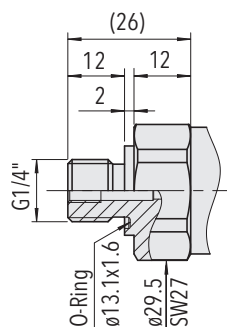
8298.XX.XXXX.05.XX.XX



8298.XX.XXXX.78.XX.XX

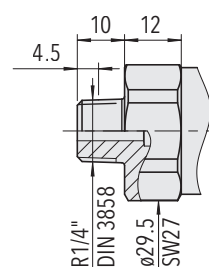


8298.XX.XXXX.25.XX.XX



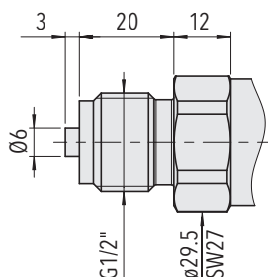
8298.XX.XX17.XX.XX.XX

Pressure ranges: $\leq 600 \text{ bar}$



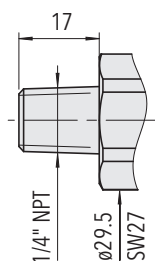
8298.XX.XX19.XX.XX.XX

Pressure ranges: $\leq 600 \text{ bar}$

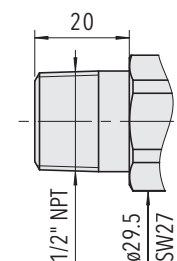


8298.XX.XX11.XX.XX.XX

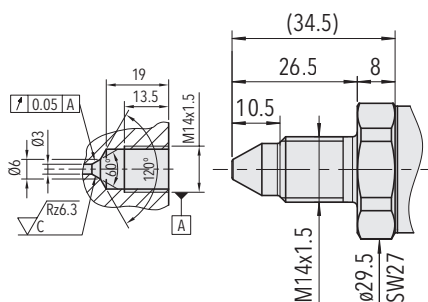
Pressure ranges: $\leq 600 \text{ bar}$



8298.XX.XX30.XX.XX.XX

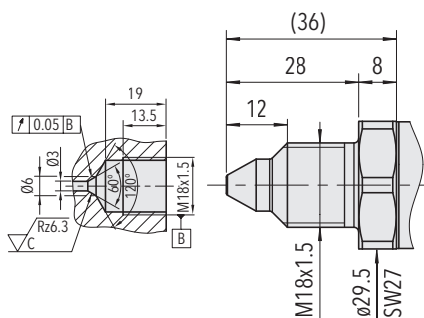


8298.XX.XX51.XX.XX.XX



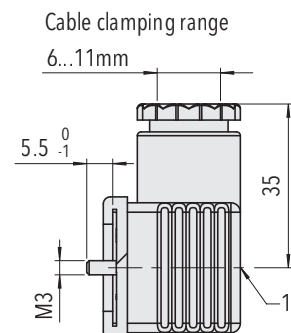
8298.XX.XX28.XX.XX.XX

Pressure ranges: $\leq 2500 \text{ bar}$



8298.XX.XX29.XX.XX.XX

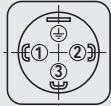
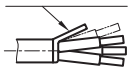
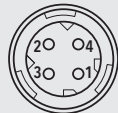
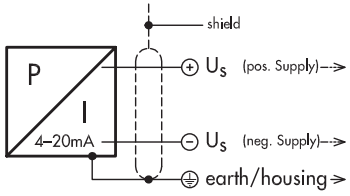
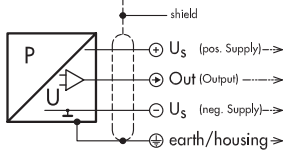
Pressure ranges: $\leq 2500 \text{ bar}$



8298.XX.XXXX.XX.XX.58

1) Torque moment 50...60 Ncm

Electrical Connection

		Protection / electrical connection			
		IP65*	IP69K	IP69K*	
		Industrial standard EN175301-803A 04/05 	Cable **) 78 Shield 	DIN 72585**) Code 1 25 	
Output signal	 <p>8298.xx.xxxx.xx.19</p>	Standard	with accessory 92		
	 <p>8298.xx.xxxx.xx.23</p>				

*) Provided female connector is mounted according to instructions

**) Ventilation via cable end

Additional information

Documents

Data sheet	www.trafag.com/H72312
Instructions	www.trafag.com/H73311
Flyer	www.trafag.com/H70669

Additional specifications		
Electrical Data	Resistance of insulation	> 10 MΩ, 250 VDC
	Dielectric strength	250 VAC, 50 Hz
	Output signal	4 ... 20 mA: appr. 24 mA (Overload) 0.5 ... 4.5 VDC: 5 VDC ratiometric
Environmental Conditions	Storage temperature	-40°C ... 125°C
EMC Protection	ESD	EN/IEC 61000-4-2, Level 3
	RFI	EN/IEC 61000-4-3, Level 3
	Burst	EN/IEC 61000-4-4, Level 3
	Surge	EN/IEC 61000-4-5, Level 3
	Conducted Immunity	EN/IEC 61000-4-6, Level 3

Accuracy			
		Measuring accuracy 0.5%	Measuring accuracy 0.3%
		Ordering No. 25	Ordering No. 23
TEB @ -25...+85°C	[% FS max.]	± 5.0	± 1.5
Accuracy @ +25°C	[% FS max.]	± 1.0	± 1.0
NLH @ +25°C (BSL)	[% FS max.]	± 0.35	± 0.15
NLH @ +25°C (BSL through 0)	[% FS typ.]	± 0.3	± 0.1
NLH @ +25°C (BSL through 0)	[% FS max.]	± 0.5	± 0.15
Repeatability	[% FS typ.]	± 0.05	± 0.05
TC zero point and span	[% FS/K max.]	± 0.05	± 0.015
Long term stability 1000h @ 85°C	[% FS typ.]	± 0.1	± 0.1
Temperature hysteresis	[% FS typ.]	± 0.2	± 0.2
	[% FS max.]	± 0.35	± 0.35
Deviation of zero signal and final value @ 25°C	[% FS typ.]	± 0.2	± 0.2
	[% FS max.]	± 0.5	± 0.5

Modifications

Index	Date	Description
1	02/2006	New data sheet
2	03/2006	Page 3: changed weight Page 5: changed Deviation of zero signal and final value (on ordering no. 23)
a	03/2006	Page 1: removed „provisional“-status
b	05/2006	Page 3: changed housing and sensor material
c	04/2007	Added: Output: 23/ Pressure connection: 28/29 / Execution: 25/08
d	04/2008	Page 2: Pressure connection differentiated into ≤ 600 bar and > 600 bar Page 2: Male electrical plug for higher vibration resistance (Code 05) and cable material Raychem FDR25 (Code 78) added Page 2: Female electrical connector 56 removed Page 2: Cable length added 1M, 3M, 5M Page 3: Environmental conditions: Vibration amended: execution 04: 10g(20...2000), others: 15g(20...2000Hz) Page 4: Dimensions: added Code 05; cable material 08 (Radox) changed to 78 (FDR25)
	07/2008	Page 5: Electrical connection diagram adapted Page 2: Execution 05 deleted/ male electric plug relating to output 23; electrical connection diagram readapted
e	09/2008	Page 2: Ship symbols removed Page 3: Media temperature adapted to -40...+135°C; Protection: all executions specified (04/25/78); Vibration: all executions specified (04/25/78) Page 4: Dimensions: Pressure ranges added below ordering code Page 5: Electrical connection: execution 04: ratiometric output removed Page 5 additional specifications: Measuring accuracy 0.3% long term stability 1000h@85°C: changed from 0.35% FS max. to 0.1% FS typ.
f	04/2009	Page 2: Output: Load resistance changed from 5 to 15 kOhm
g	02/2010	Page 1: Chinese Ship Approval CCS added
h	05/2010	Page 1: Main Characteristics: Operating temperature text added Page 2: New Pressure connection G1/2" male Manometer with Code 11 Page 2: New Execution Male electrical plug 05 with extended vibration resistance Page 3: IP Protection adapted for execution 05 Page 3: Environmental conditions: „Vibration“: New execution 05 with extended vibration resistance added Page 4: New dimensions for male electrical plug 05 and new dimensions for pressure connection 11 Page 5: Electrical connection adapted and new remark: *Ventilation via cable end
	06/2010	Page 3/5: Footnote: ²⁾ Execution 05/25: provided female connector is mounted according to instructions
i	01/2013	Page 2 & 4: Pressure connection 1/4"NPT male (Code 30) and pressure connection 1/2"NPT male (Code 51) added
k	11/2013	Page 4: Dimensions corrected, executions 04, 05, 25 and 78
l	05/2014	New layout NLH @ 25°C (BSL) as main specification and NLH @ 25°C (BSL through 0) as additional specification