

Ex Pressure Transmitter



Product description

The EX pressure transmitter EXNT is based on Trafag's own thin-film-on-steel sensor technology with excellent long-term stability and offers reliable and accurate pressure measurement over a wide temperature range. The intrinsic safety design is certified for applications in Ex-Zones 0, 1, 2 (gas), 20, 21, 22 (dust) and mining.

Applications

- Ex Zones 0, 1, 2 (gas); 20, 21, 22 (dust) and mining
- Hydrogen
- Shipbuilding

Features

- Pressure ranges from 0.4 to 2500 bar
- ATEX, IECEx, UKEX certified
- II 1G Ex ia IIC T4/T6 Ga
II 1D Ex ia IIIC T200/160°C Da
I M1 Ex ia I Ma
II 1/2G Ex ia IIC T4/T6 Ga/Gb
- Optionally with hydrogen-compatible sensor
- EC79/2009 certified by the KBA Kraftfahrt-Bundesamt

 EMC: 2014/30/EU

 S.I. 2016 No. 1091

 DNV, KRS, ATEX, IECE, UKEX, PESO, RMRS

 EX79/2009 certified

 RoHS/Reach compliant

Technical Data

Measuring principle	Thin-film-on-steel
Measuring range	0 ... 0.4 to 0 ... 2000 bar 0 ... 5 to 0 ... 30000 psi
Output signal	4 ... 20 mA
Media temperature	max. -40°C ... +120°C (See electrical connection)
Ambient temperature	max. -40°C ... +120°C (See electrical connection)

Additional information

Data sheet	www.trafag.com/H72329
Instructions	www.trafag.com/H73329
Accessories	www.trafag.com/H72258
Video	https://youtu.be/CCDbgXhvtrA

Ordering information/Type code

8292				XX	XX	XX	XX	XX	XX
Measuring range ¹⁾	Measuring range bar, see table: Measuring ranges in bar (page 5)								
	Measuring range psi, see table: Measuring ranges in psi (page 6)								
Sensor	Relative pressure, accuracy: 0.3% (> 1 bar)				23				
	Relative pressure, accuracy: 0.5% (> 1 bar)				25				
	Relative pressure, accuracy: 0.5% (≤ 1 bar)				26				
	Relative pressure, accuracy: 0.5 %, wetted parts hydrogen compatible ²⁾³⁾				35				
	Relative pressure, accuracy: 0.3 %, wetted parts hydrogen compatible ²⁾³⁾				33				
Pressure connection	G1/4" male ⁴⁾					17			
	G1/4" male (Manometer) EN 837 ³⁾⁴⁾					53			
	G1/4" female ³⁾⁴⁾					10			
	G1/2" male ³⁾⁴⁾					21			
	G1/2" male (Manometer) EN 837 ³⁾⁴⁾					11			
	R1/4" male ³⁾⁴⁾					19			
	1/4" NPT male ³⁾⁴⁾					30			
	M18x1.5 male (conical seal: 58°) ³⁾⁴⁾					29			
Electrical connection	Male electrical connector EN 175301-803-A, plastic						05		
	Male electrical connector M12x1, 5-pole, metal						35		
	Male electrical connector MIL-C 26482, 6-pole, metal ⁶⁾						02		
	Male electrical connector Binder 723, 5-pole, metal						14		
	Cable with shield, material FDR 25 (Raychem), 4 x 0.5mm ² ⁷⁾⁸⁾						78		
	Cable with shield, jacket material XVH (HEW), 3 x 0.75 mm ² ⁷⁾⁸⁾						79		
	Cable intrinsically safe with shield, material PVC, 2 x 0.75mm ² ⁷⁾⁸⁾						80		
Output signal	Output signal	Load resistance	U (supply)						
	4 ... 20 mA	(U _s -10 V) / 20 mA	10 ... 30 VDC					19	

8292 XX XX XX XX XX XX

Accessories	Female electrical plug EN 175301-803-A (DIN 43650-A)/NBR, -40°C ... +90°C For cable diameter 4 ... 9 mm, flammability standard UL94-V0	46
	Female electrical plug EN 175301-803-A (DIN 43650-A)/silicone, -40°C ... +125°C For cable diameter 4 ... 9 mm, flammability standard UL94-V0	56
	Female electrical plug EN 175301-803-A (DIN 43650-A)/NBR, -40°C ... +90°C For cable diameter 4 ... 9.5 mm, flammability standard UL94-V2 ⁹⁾	58
	Female electrical plug M12x1, 5-pole, plastic (not for zones 0 (gas)	33
	Female electrical plug M12x1, 5-pole, metal	35
	Female electrical plug MIL-C 26482, 6-pole, metal	32
	Female electrical plug Binder 723, 5-pole, metal	37
	Seal FKM, -18°C ... +125°C ¹⁰⁾	61
	Seal EPDM, -40°C ... +125°C ¹⁰⁾	63
	Pressure peak damping element Ø 0.4 mm	44
	Pressure peak damping element Ø 1.0 mm	40
	Cable length 1.5 m ¹¹⁾	1M
	Cable length 3.0 m ¹¹⁾	3M
	Cable length 5.0 m ¹¹⁾	5M
	Special electrical connection: Pin 1 +, Pin 2 - (Only for output signal 4 ... 20 mA and male electrical connector EN 175301-803-A / DIN 43650-A)	92
	Type label e1 (EC79) ¹²⁾	HC
	Zener barrier ATEX/IECEX 28V/93mA; R ≈ 300Ω: Ordering code ZEN28VDC	
	Damping elements and snubber: see data sheet H72258	

⁰¹⁾ Extended overpressure as well as customized pressure ranges upon request

⁰²⁾ Pressure ranges 0 ... 1 to 0 ... 1000 bar, max. ambient and media temperature +85°C

⁰³⁾ Upon request, whereas minimum order quantities may apply

⁰⁴⁾ For pressure ranges ≤ 600 bar

⁰⁵⁾ For pressure ranges > 600 bar

⁰⁶⁾ For pressure ranges < 40 bar upon request

⁰⁷⁾ Cable length max. 20 m

⁰⁸⁾ Without ship approvals

⁰⁹⁾ Without ship approval DNV

¹⁰⁾ Only for pressure connections 17 and 21

¹¹⁾ Other cable lengths upon request

¹²⁾ Only for process connections 17 (max. 350 bar) and 30

Compatibility matrix pressure connection and accessories

Code	Pressure connection	Damping		Seal	
		Ø 0.4 mm (Code 44)	Ø 1.0 mm (Code 40)	FKM	EPDM
17	G1/4" male	✓	✓	✓	✓
53	G1/4" male (Manometer) EN 837				
10	G1/4" female				
21	G1/2" male	✓	✓	✓	✓
11	G1/2" male (Manometer) EN 837				
19	R1/4" male	✓	✓		
30	1/4" NPT male	✓	✓		
29	M18x1.5 male (conical seal: 58°)				

Standard products (extra short lead time)

Product No.	Type Code	Pressure range [bar]	Overpressure max. [bar]	Supply [VDC]	Accuracy @ 25°C typ. [%]
EXNT0.4A	8292 69 2617 05 0000 0000 19 46 61 92	0 ... 0.4	1.2	10 ... 30	± 0.5
EXNT0.6A	8292 70 2617 05 0000 0000 19 46 61 92	0 ... 0.6	1.5	10 ... 30	± 0.5
EXNT1.0A	8292 71 2617 05 0000 0000 19 46 61 92	0 ... 1	2	10 ... 30	± 0.5
EXNT2.5A	8292 75 2517 05 0000 0000 19 46 61 92	0 ... 2.5	5	10 ... 30	± 0.5
EXNT4.0A	8292 76 2517 05 0000 0000 19 46 61 92	0 ... 4	8	10 ... 30	± 0.5
EXNT6.0A	8292 77 2517 05 0000 0000 19 46 61 92	0 ... 6	12	10 ... 30	± 0.5
EXNT10.0A	8292 78 2517 05 0000 0000 19 46 61 92	0 ... 10	20	10 ... 30	± 0.5
EXNT16.0A	8292 79 2517 05 0000 0000 19 46 61 92	0 ... 16	32	10 ... 30	± 0.5
EXNT25.0A	8292 80 2517 05 0000 0000 19 46 61 92	0 ... 25	50	10 ... 30	± 0.5
EXNT40.0A	8292 81 2517 05 0000 0000 19 46 61 92	0 ... 40	80	10 ... 30	± 0.5
EXNT100.0A	8292 83 2517 05 0000 0000 19 46 61 92	0 ... 100	200	10 ... 30	± 0.5
EXNT250.0A	8292 74 2517 05 0000 0000 19 46 61 92	0 ... 250	500	10 ... 30	± 0.5

Measuring ranges in bar

		Sensors 23, 25, 26		Sensors 33, 35	
Measuring range [bar]	Code	Over pressure [bar]	Burst pressure [bar]	Over pressure [bar]	Burst pressure [bar]
0 ... 0.4	69	1.2	25	-	-
0 ... 0.6	70	1.5	25	-	-
0 ... 1.0	71	2	25	2	25
0 ... 1.6	73	3.5	80	3.2	32
0 ... 2.5	75	5	100	5	50
0 ... 4	76	8	100	8	60
0 ... 6	77	12	100	12	100
0 ... 10	78	20	200	20	200
0 ... 16	79	32	200	32	200
0 ... 25	80	50	300	38	300
0 ... 40	81	80	300	60	300
0 ... 60	82	120	500	90	400
0 ... 100	83	200	500	150	500
0 ... 160	85	320	1000		
0 ... 250	74	500	1000		
0 ... 400	84	800	1500		
0 ... 600	86	1000	2000		
0 ... 700	87	-	-		
0 ... 1000	88	1600	3000		
0 ... 1050	92	-	-		
0 ... 1600	89	3000	4000		
0 ... 2000	90	3000	4000		

Measuring ranges in psi

		Sensors 23, 25, 26		Sensors 33, 35	
Measuring range [psi]	Code	Over pressure [psi]	Burst pressure [psi]	Over pressure [psi]	Burst pressure [psi]
0 ... 5	F9	18	350	-	-
0 ... 10	G0	25	350	-	-
0 ... 15	G1	30	350	30	350
0 ... 25	G3	50	1200	-	-
0 ... 30	G5	60	1200	60	700
0 ... 50	G6	120	1450	100	850
0 ... 100	G7	200	1450	200	1400
0 ... 150	G8	300	2900	400	2500
0 ... 250	G9	500	2900	500	2500
0 ... 300	HA	-	-	600	4000
0 ... 400	H0	800	4350	600	4000
0 ... 500	H1	1100	4350	750	4000
0 ... 1000	H2	1800	5800	1500	5000
0 ... 1500	H3	2900	7250		
0 ... 2000	H5	4640	10850		
0 ... 3000	G4	7250	14500		
0 ... 5000	H4	11600	21750		
0 ... 7500	H6	14500	2900		
0 ... 10000	H7	-	-		
0 ... 15000	H8	25000	45000		
0 ... 25000	H9	45000	60000		
0 ... 30000	J0	45000	60000		

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 and Class 2 ¹⁾
Pressure codes	71 ... 88
Process connection	Code 17: Up to NWP 35 Mpa Code 30: 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.

Marking for Ex zones

Ex zones	Marking
0, 1, 2	Ex
20, 21, 22	II 1G Ex ia IIC T4/T6 Ga
M1, M2	II 1D Ex ia IIIC T ₂₀₀ 160°C Da I M1 Ex ia I Ma
1, 2	Ex
20, 21, 22	II 2G Ex ia IIC T4/T6 Gb (Version with plastic type connector) II 1D Ex ia IIIC T ₂₀₀ 160°C Da

Accuracy

		Accuracy class 0.5 %	Accuracy class 0.3 %	Accuracy class 0.5 %
		Ordering code 25/35 (> 1 bar)	Ordering code 23/33 (> 1 bar)	Ordering code 26 (≤ 1 bar)
TEB @ -25 ... +85°C	[% FS typ.]	± 2.0	± 0.5	± 1.0
Accuracy @ +25°C	[% FS typ.]	± 0.5	± 0.3	± 0.5
NLH @ +25°C (BSL)	[% FS typ.]	± 0.2	± 0.1	± 0.1
TC zero point and span	[% FS/K typ.]	± 0.03	± 0.005	± 0.01
Long term stability 1 year @ +25°C	[% FS typ.]	25: ± 0.2 35: ± 0.75	23: ± 0.2 33: ± 0.75	± 0.2
Mounting dependency with 180° rotation (Vibration and shock: multiply this value with number of g)	[% FS typ.]			0 ... 1 bar: 0.05 0 ... 0.6 bar: 0.09 0 ... 0.4 bar: 0.13

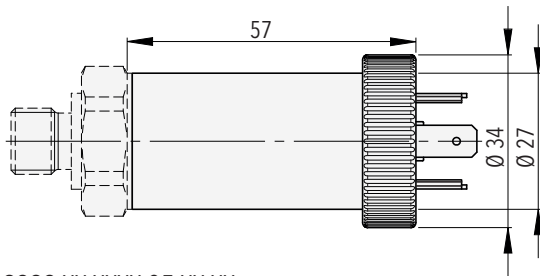
Specifications

Electrical data	Output / supply voltage	4 ... 20 mA: 24 (10 ... 30) VDC
	Power-on delay time	max. 1.5 s
	Rise time of supply voltage	typ. 1 ms, 10 ... 90 % nominal pressure
	Resistance of insulation	> 10 MΩ, 500 VDC
	Dielectric strength	500 VAC, 50 Hz
	Current limiting output signal	4 ... 20 mA: ca. 24 mA (Overload)
	Internal inductance (Li)	< 10 μH
	Internal capacity (Ci)	≤ 23 nF
Environmental conditions	Media temperature	max. -40°C ... +120°C (See electrical connection)
	Ambient temperature	max. -40°C ... +120°C (See electrical connection)
	Storage temperature	-20°C ... +40°C
	Protection ¹⁾	min. IP65 Electrical connection cable: IP67 Electrical connection 02: IP67
	Humidity	max. 95 % relative
	Vibration	10 g (50 ... 2000 Hz)
	Shock	50 g/3 ms
EMC protection	Emission	IEC 61000-6-4
	Immunity	IEC 61000-6-2
Mechanical data	Sensor (wetted parts)	1.4542 (AISI630), optional hydrogen-compatible steel
	Pressure connection (wetted parts)	Pressure ranges ≤ 16 bar: 1.4542 Pressure ranges > 16 bar: 1.4404 Optional hydrogen-compatible steel
	Housing	1.4301 (AISI304)
	Sealing	FKM, EPDM
	Male electrical connector	See ordering information
	Mounting torque	25 Nm Pressure connection 29: 30 Nm

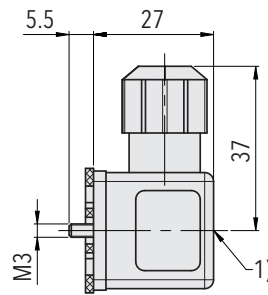
¹⁾ See electrical connection

EXNT 8292

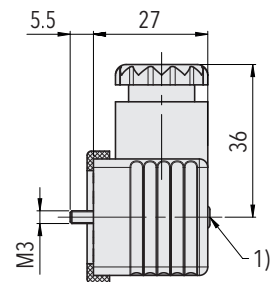
Dimensions



8292.XX.XXXX.05.XX.XX

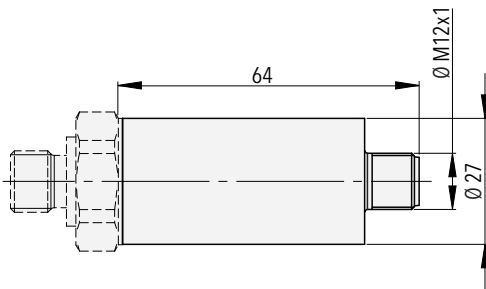


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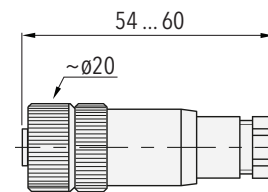


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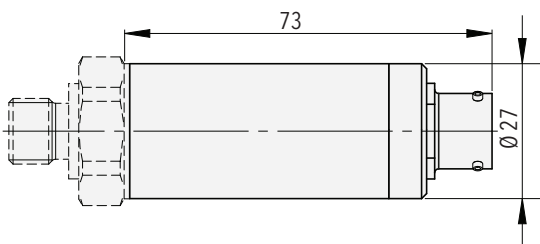
1) Tightening torque 50 ... 60 Ncm



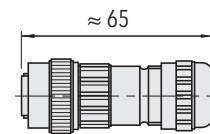
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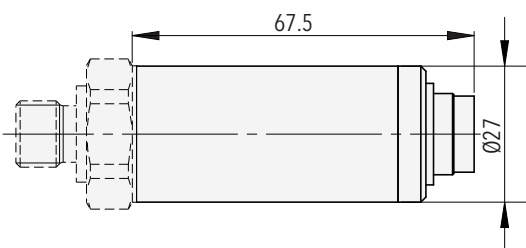
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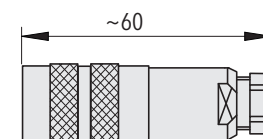
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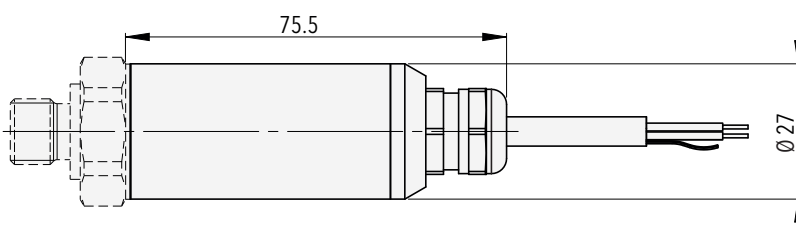
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8292.XX.XXXX.14.XX.XX

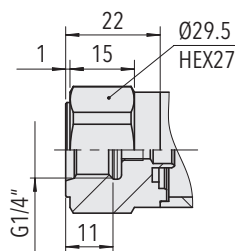


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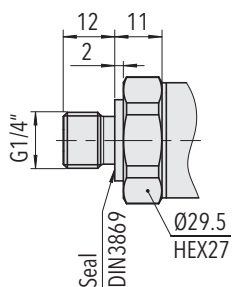


8292.XX.XXXX.78/79/80.XX.XX

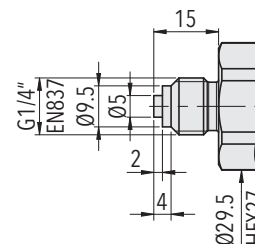
Dimensions



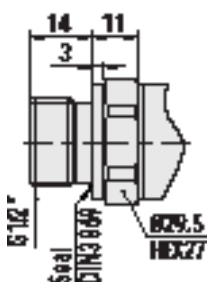
8292.XX.XX10.XX.XX.XX
(≤ 600 bar)



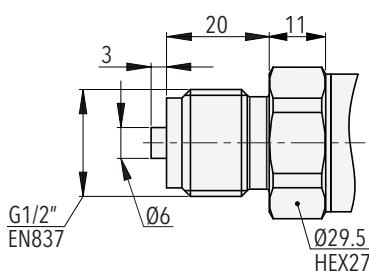
8292.XX.XX17.XX.XX.XX
(≤ 600 bar)



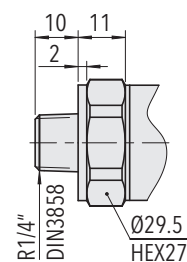
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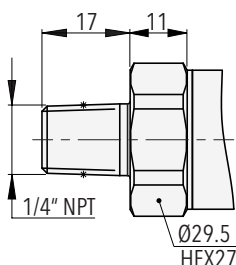
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(≤ 600 bar)



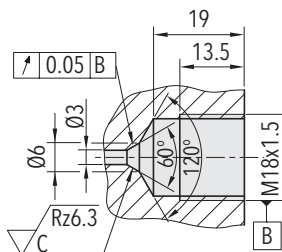
8292.XX.XX11.XX.XX.XX
(≤ 600 bar)



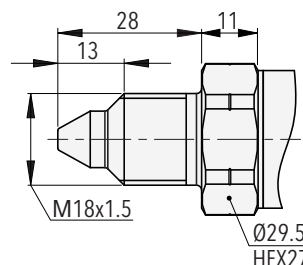
8292.XX.XX19.XX.XX.XX
(≤ 600 bar)



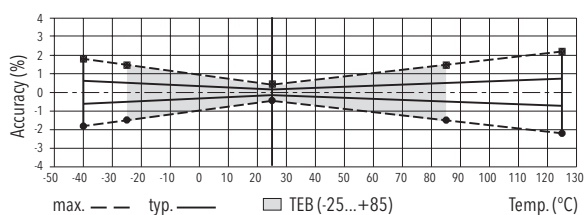
8292.XX.XX30.XX.XX.XX
(≤ 1000 bar)



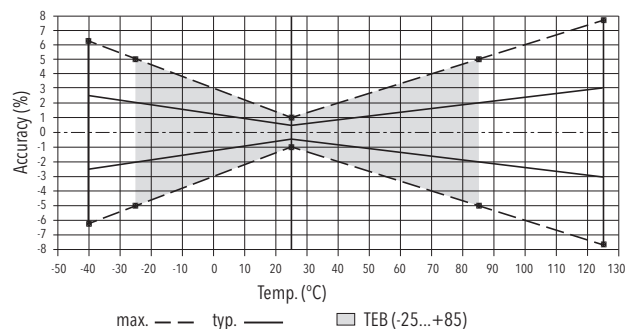
8292.XX.XX29.XX.XX.XX
(> 600 bar)



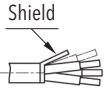
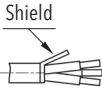
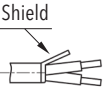
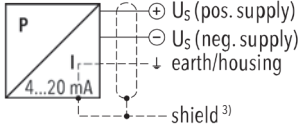
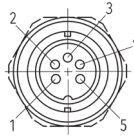
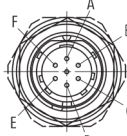
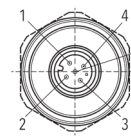
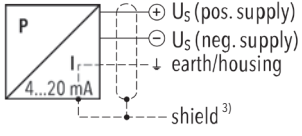
Accuracy class 0.3 %



Accuracy class 0.5 %



Electrical connection

	Industrial standard EN175301-803A	Cable ²⁾ (4 x 0.5 mm ²)	Cable ²⁾ (3 x 0.75 mm ²)	Cable ²⁾ (2 x 0.75 mm ²)																				
																								
	05	78	79	80																				
	IP65 ¹⁾	IP67	IP67	IP67																				
Ambient and media temperature	T4: -40 ... +120°C ⁴⁾	T4: -40 ... +120°C ⁴⁾	T4: -40 ... +120°C ⁵⁾	T4: -40°C ... +80°C																				
Ambient and media temperature	T6: -40 ... +65°C	T6: -40 ... +65°C	T6: -40 ... +65°C	T6: -40 ... +65°C																				
Pin assignment type code	92																							
Output signal 8292 .xx.xxxx.xx.19	 <table><tr><td>2</td><td>1</td><td>Brown</td><td>Brown</td><td>1 (Black)</td></tr><tr><td>1</td><td>2</td><td>Black</td><td>Black</td><td>2 (Black)</td></tr><tr><td>Earth</td><td>Earth</td><td>Yellow/Green</td><td>Blue</td><td>-</td></tr><tr><td colspan="5">(blue = not connected)</td></tr></table>				2	1	Brown	Brown	1 (Black)	1	2	Black	Black	2 (Black)	Earth	Earth	Yellow/Green	Blue	-	(blue = not connected)				
2	1	Brown	Brown	1 (Black)																				
1	2	Black	Black	2 (Black)																				
Earth	Earth	Yellow/Green	Blue	-																				
(blue = not connected)																								
	Binder 723	MIL-C 26482	M12x1, 5-pole																					
																								
	14	02	35																					
	IP65 ¹⁾	IP67 ¹⁾	IP65 ¹⁾																					
Ambient and media temperature	T4: -30 ... +95°C ⁴⁾	T4: -40 ... +120°C ⁴⁾	T4: -40 ... +120°C ⁴⁾																					
Ambient and media temperature	T6: -30 ... +65°C	T6: -40 ... +65°C	T6: -40 ... +65°C																					
Pin assignment type code																								
Output signal 8292 .xx.xxxx.xx.19	 <table><tr><td>3</td><td>A</td><td>4</td></tr><tr><td>1</td><td>C</td><td>1</td></tr><tr><td>5</td><td>F</td><td>5</td></tr></table>				3	A	4	1	C	1	5	F	5											
3	A	4																						
1	C	1																						
5	F	5																						

¹⁾ Provided female electrical plug is mounted according to instructions

²⁾ Ventilation via cable end

³⁾ Only cable versions or female electrical plug with shield connection

⁴⁾ With sensors 33 and 35: max. +85°C

⁵⁾ DNV marine approval max. 105°C

Cable 78, 79, 80: Additional measure against static charges are required for Zone 0 to 20 for these cables (laid with earthed metal braid, metal hose or metal pipe).

 Empty 'Pin Assignment Type Code' field: Default pinout

Reliable quality

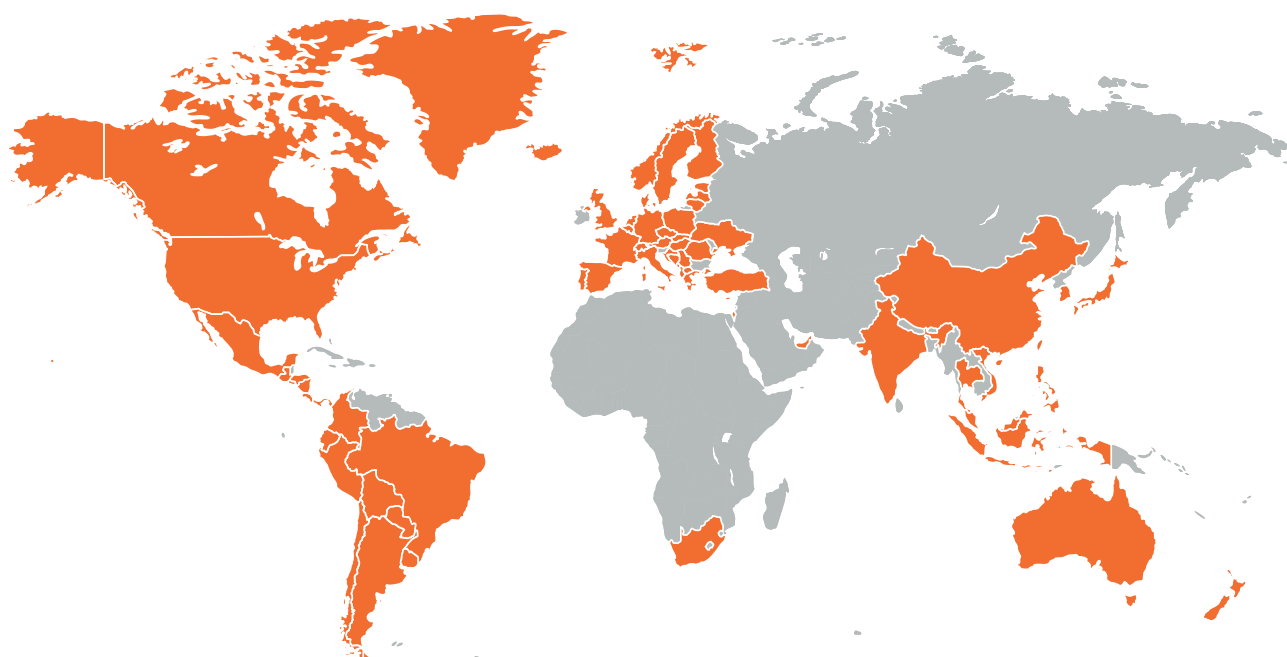
Worldwide represented, globally trusted, Swiss based

Trafag develops, produces and distributes robust, reliable and precise instruments for monitoring pressure, temperature and gas density.

The broad portfolio of pressure and temperature measuring instruments is tailored for use in test benches through to applications in harsh environments. The research and development departments in Switzerland and Germany develop all important components from the sensor to the application-specific microchip, which are

then manufactured in the production facilities in Switzerland, Germany, the Czech Republic, and India. Strict quality management according to ISO 9001 and ISO 14001 ensures that Trafag products meet the required quality and sustainability standards.

Trafag is headquartered in Switzerland, was founded in 1942 and has an extensive sales and service network in more than 40 countries worldwide.



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Pressure transmitters



Electronic pressure switches



Mechanical pressure switches



Pressure gauge



Thermostats



Temperature transmitters



Gas density