

Marine Pressure Transmitter



Product description

The economic pressure transmitter ECTN 8477 is based on the tried and true ECT line of transmitters. The wide media temperature range from -25 to 125°C in combination with a comprehensive set of features and options makes the ECTN 8477 pressure transmitter a versatile solution suitable for marine applications.

Applications

- Shipbuilding
- Engine manufacturing

Features

- Measuring ranges from 100 mbar
- Excellent media compatibility
- Relative or absolute pressure measurement
- Titanium version optional
- Frontal membrane optional

 EMC: 2014/30/EU

 S.I. 2016 No. 1091

 RoHS/Reach compliant

 DNV EU RO Mutual Recognition

Technical Data

Measuring principle	Thick-film-on-ceramic
Measuring range	0 ... 0.1 to 0 ... 250 bar 0 ... 1.5 to 0 ... 3000 psi
Output signal	4 ... 20 mA
Media temperature	-25°C ... +125°C
Ambient temperature	-25°C ... +125°C

Additional information

Data sheet	www.trafag.com/H72322
Instructions	www.trafag.com/H73324
Accessories	www.trafag.com/H72258
Video	https://youtu.be/jAeXRIAzZUE

Ordering information/Type code

Measuring range ¹⁾	Pressure measurement range [bar]	Over pressure [bar]	Burst pressure [bar]	Pressure-measurement-range [psi]	Over pressure [psi]	Burst pressure [psi]	8477	XX	XX	XX	XX	XX
0 ... 0.1	1.2	2	66	0 ... 1.5	15	30	F6					
0 ... 0.16	1.2	2	67	0 ... 2	15	30	F7					
0 ... 0.2	1.2	2	68	0 ... 2.5	15	30	F8					
0 ... 0.4	1.2	2	69	0 ... 5	15	30	F9					
0 ... 0.6	2	3	70	0 ... 10	20	45	G0					
0 ... 1.0	2	3	71	0 ... 15	30	45	G1					
0 ... 1.6	3.2	4.8	73	0 ... 20	40	70	G3					
0 ... 2.5	5	7.5	75	0 ... 30	60	90	G5					
0 ... 4	8	12	76	0 ... 50	100	150	G6					
0 ... 6	12	15	77	0 ... 100	200	250	G7					
0 ... 10	20	25	78	0 ... 150	300	375	G8					
0 ... 16	32	40	79	0 ... 250	500	625	G9					
0 ... 25	50	75	80	0 ... 400	800	1200	H0					
0 ... 40	80	100	81	0 ... 500	1000	1250	H1					
0 ... 60	120	180	82	0 ... 1000	2000	3000	H2					
0 ... 100 ²⁾	200	300	83	0 ... 1500 ²⁾	3000	4500	H3					
0 ... 160 ²⁾	320	480	85	0 ... 2000 ²⁾	4000	6000	H5					
0 ... 250 ²⁾	500	750	74	0 ... 3000 ²⁾	6000	9000	G4					
Option 5P: Fivefold overpressure												
0 ... 2.5	12.5	18	55									
0 ... 4	20	30	56									
0 ... 6	30	48	57									
0 ... 10	50	75	58									
0 ... 16	80	120	59									
0 ... 25 ³⁾	125	180	60									
0 ... 40 ³⁾	200	300	61									
0 ... 60 ³⁾	300	480	62									

Sensor

With temperature compensation

Relative pressure, Material pressure connection and housing: 1.4404/1.4435 (AISI316L)	56
Relative pressure, Material pressure connection and housing: 1.4462 (AISI318LN) ²⁾	50
Relative pressure, Material pressure connection and housing: titanium grade 5 ²⁾	51
Absolute pressure, Material pressure connection and housing: 1.4404/1.4435 (AISI316L) ⁴⁾	86
Absolute pressure, Material pressure connection and housing: 1.4462 (AISI318LN) ^{3) 4)}	80
Absolute pressure, Material pressure connection and housing: titanium grade 5 ^{3) 4)}	81

Without temperature compensation

Relative pressure, Material pressure connection and housing: 1.4404/1.4435 (AISI316L) ⁵⁾	59
Relative pressure, Material pressure connection and housing: 1.4462 (AISI318LN) ^{4) 5)}	52
Relative pressure, Material pressure connection and housing: titanium grade 5 ^{4) 5)}	53
Absolute pressure, Material pressure connection and housing: 1.4404/1.4435 (AISI316L) ^{3) 5)}	89
Absolute pressure, Material pressure connection and housing: 1.4462 (AISI318LN) ^{3) 4) 5)}	82
Absolute pressure, Material pressure connection and housing: titanium grade 5 ^{3) 4) 5)}	83

		8477	XX	XX	XX	XX	XX	XX	
Pressure connection	G1/4" female ²⁾							10	
	G1/4" male							17	
	G1/2" male DIN 3852-A ²⁾							21	
	G1/2" male DIN 3852-E ²⁾⁶⁾							41	
	1/4" NPT male ²⁾							30	
	7/16"-20UNF-2A male, SAE J1926-3 (Light Duty) ²⁾							42	
	R1/4" male, DIN 3858							19	
	G3/4" frontal membrane ⁴⁾⁶⁾							52	
Electrical connection	Male electrical connector EN 175301-803-A, Material PA, -25°C ... +90°C							05	
	Male electrical connector M12x1, 5-pole, Material PBT							35	
	Cable Raychem, cable gland PA 6-3, -20°C ... +100°C ⁸⁾⁹⁾¹⁰⁾							08	
Output signal	Output signal	Load resistance			U (supply)				
	4 ... 20 mA	(U _s - 9 V) 20 mA			9 ... 30 VDC 19		19		
Accessories	Seal FKM (-20°C ... +125°C)							61	
	Seal EPDM (-25°C ... +125°C)							63	
	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								58
	Female electrical plug M12x1, 5-pole								33
	Pressure peak damping element ø 0.4 mm, Material 1.4404 ¹¹⁾								44
	Pressure peak damping element ø 1.0 mm, Material 1.4305 ¹¹⁾								40
	Cable length 1.5 m								1M
	Cable length 3.0 m								2M
	Cable length 5.0 m								3M
	Housing nut for electrical connection EN175301-803-A (DIN 43650-A) secured with Loctite (max. 85°C)								L9
	Multiple packaging ¹²⁾								VM
	Pin configuration, see table: Electrical connection								

⁰¹⁾ Extended overpressure as well as customized pressure ranges upon request, see table: Customised measuring ranges

⁰²⁾ Upon request, whereas minimum order quantities may apply

⁰³⁾ Only for sensors without temperature compensation

⁰⁴⁾ Absolute ranges max. 40 bar

⁰⁵⁾ ≥ 1 bar

⁰⁶⁾ Measuring range max. 350 bar according to SAE J1926-3 (Light Duty)

⁰⁷⁾ Only with sensors 56, 50, 51, 86, 80, 81 (with temperature compensation) and for pressure ranges ≤ 25 bar or 400 psi

⁰⁸⁾ Cable length see accessories (max. length 50 m, in 5-meter sections)

⁰⁹⁾ IP68, max. 3 m, Media +10°C ... +35°C

¹⁰⁾ Cable length max. 3 m for pressure ranges ≤ 16 bar

¹¹⁾ Not for pressure connections 10, 52

¹²⁾ The order quantity must be a multiple of 50

Compatibility matrix pressure connection and accessories

Code	Pressure connection	Damping		Seal	
		Ø 0.4 mm (Code 44)	Ø 1.0 mm (Code 40)	FKM (Code 61)	EPDM (Code 63)
10	G1/4" female				
17	G1/4" male	✓	✓	✓	✓
21	G1/2" male DIN 3852-A	✓	✓	✓	✓
41	G1/2" male DIN 3852-E	✓	✓	✓	✓
30	1/4" NPT male	✓	✓		
42	7/16"-20UNF-2A male, SAE J1926-3 (Light Duty)	✓	✓	✓	
19	R1/4" male, DIN 3858	✓	✓		
52	G3/4" frontal membrane			✓	✓

i Vacuum measuring ranges: Measuring ranges below 0 bar (e.g. -1 bar ... 0 bar) are available as special pressure ranges.

i Reversed calibration: A reversed calibration is also possible for measuring ranges below 0 bar, with the signals 4 ... 20 mA (code 19), 1 ... 6 VDC (code 16) and 0 ... 10 VDC (code 17). The signal zero point is at 0 bar, the signal end point at -1 bar. Additional configurations on request.

Standard products (extra short lead time)

Product No.	Type Code	Pressure range [bar]	Overpressure max. [bar]	Supply [VDC]	Signal output
ECTN1.0A	8477 71 5917 05 0000 0000 19 58 61	0 ... 1	2	9 ... 30	4 ... 20 mA
ECTN2.5A	8477 75 5917 05 0000 0000 19 58 61	0 ... 2.5	5	9 ... 30	4 ... 20 mA
ECTN4.0A	8477 76 5917 05 0000 0000 19 58 61	0 ... 4	8	9 ... 30	4 ... 20 mA
ECTN6.0A	8477 77 5917 05 0000 0000 19 58 61	0 ... 6	12	9 ... 30	4 ... 20 mA
ECTN10.0A	8477 78 5917 05 0000 0000 19 58 61	0 ... 10	20	9 ... 30	4 ... 20 mA
ECTN16.0A	8477 79 5917 05 0000 0000 19 58 61	0 ... 16	32	9 ... 30	4 ... 20 mA
ECTN25.0A	8477 80 5917 05 0000 0000 19 58 61	0 ... 25	50	9 ... 30	4 ... 20 mA
ECTN40.0A	8477 81 5917 05 0000 0000 19 58 61	0 ... 40	80	9 ... 30	4 ... 20 mA

Customised measuring ranges for sensors without temperature compensation

min. pressure [bar] ¹⁾	max. pressure [bar] ²⁾	min. span [bar]	max. span [bar]	Overpressure [bar]	Code
-1	1	≥ 0.5	≤ 1.2	2	21
-1	2	≥ 0.8	< 2	3.2	22
-1	4	≥ 2	≤ 4.5	8	24
-1	6	> 4.5	≤ 7	12	25
-1	10	> 7	≤ 11	20	26
-1	16	> 11	≤ 17	32	27
-1	25	> 17	≤ 26	50	28
-1	40	> 26	≤ 41	80	29
-1	60	> 41	≤ 61	120	30
-1	100	> 61	≤ 101	200	31
-1	160	> 101	≤ 161	320	35
-1	250	> 161	≤ 251	500	32
-1	400	> 251	≤ 401	800	34

¹⁾ Minimum pressure = Lowest zero point, start of measuring range (relative)

²⁾ Maximum pressure = Highest pressure, end of measuring range (relative)

Customised measuring ranges for sensors with temperature compensation

min. pressure [bar] ¹⁾	max. pressure [bar] ²⁾	min. span [bar]	max. span [bar]	Overpressure [bar]	Accuracy	Code
-0.4	0.6	≥ 0.1	< 0.2	1.2	1.0 %	21
-0.4	0.6	≥ 0.2	< 0.5	1.2	0.5 %	21
-1	1	≥ 0.5	≤ 1.2	2	0.3 %	21
-1	2	≥ 1.2	< 2	3.2	0.3 %	22
-1	4	≥ 2	≤ 4.5	8	0.3 %	24
-1	6	> 4.5	≤ 7	12	0.3 %	25
-1	10	> 7	≤ 11	20	0.3 %	26
-1	16	> 11	≤ 17	32	0.3 %	27
-1	25	> 17	≤ 26	50	0.3 %	28
-1	40	> 26	≤ 41	80	0.3 %	29

¹⁾ Minimum pressure = Lowest zero point, start of measuring range (relative)

²⁾ Maximum pressure = Highest pressure, end of measuring range (relative)

i For absolute pressure sensors, the measuring range must include the point 1000 mbar (absolute)

i For relative pressure sensors, measuring range must include the point 0 bar (relative)

Specifications

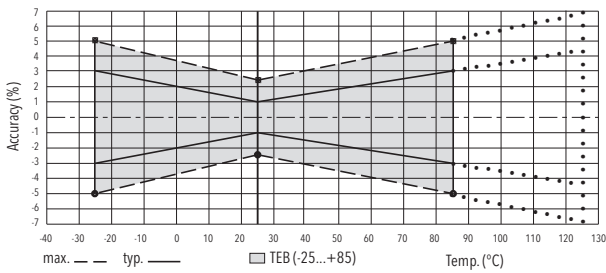
Electrical data	Output / supply voltage	4 ... 20 mA: 24 (9 ... 30) VDC
	Power-on delay time	100 ms
	Rise time of supply voltage	typ. 1 ms, 10 ... 90 % nominal pressure
	Inverse-polarity protection, short-circuit strength @ 25°C during 5 min.	4 ... 20 mA: to $U_s = 30$ VDC
	Resistance of insulation	> 10 M Ω , 50 VDC
	Dielectric strength	50 VAC, 50 Hz
	Current limiting output signal	4 ... 20mA: appr. 25 mA max.
Environmental conditions	Media temperature	-25°C ... +125°C
	Ambient temperature	-25°C ... +125°C
	Storage temperature	-20°C ... +40°C
	Protection ¹⁾	IP65, IP67, IP68
	Humidity	IEC 60068-2-30 (Damp heat, cyclic, 100 % RH @ +55°C)
	Vibration	20 g (10 ... 2000 Hz)
	Shock	50 g/3 ms
EMC protection	Emission	EN/IEC 61000-6-3
	Immunity	EN/IEC 61000-6-2
Mechanical data	Sensor (wetted parts)	Ceramic, Al ₂ O ₃ (96 %)
	Pressure connection (wetted parts)	59/89: 1.4404/1.4435 (AISI316L) 52/82: 1.4462 (AISI318LN) 53/83: Titanium Grade 5
	Housing	59/89: 1.4404/1.4435 (AISI316L) 52/82: 1.4462 (AISI318LN) 53/83: Titanium Grade 5
	Sealing	FKM 70 Sh, EPDM
	Mounting torque	15 ... 20 Nm

¹⁾ See electrical connection

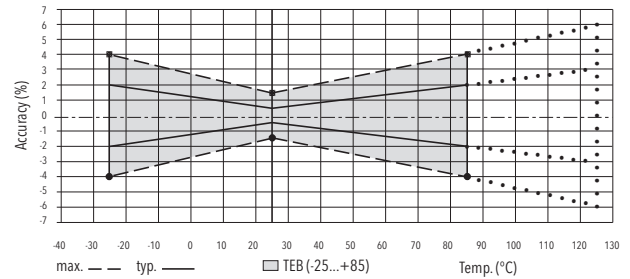
Accuracy

		Sensors 59/89/52/82/53/83	Sensors 56/86/50/80/51/81	Sensors 56/86/50/80/51/81	Sensors 56/86/50/80/51/81
Pressure measuring range	[bar]	$\geq 0 \dots 1$	$\geq 0 \dots 0.3$	$\geq 0 \dots 0.2$ $< 0 \dots 0.3$	$\geq 0 \dots 0.1$ $< 0 \dots 0.2$
	[psi]	$\geq 0 \dots 15$	$\geq 0 \dots 5$	$\geq 0 \dots 2.5$ $< 0 \dots 5$	$\geq 0 \dots 1.5$ $< 0 \dots 2.5$
				Option 5P	
TEB @ -25 ... +85°C	[% FS typ.]	± 3.0	± 1.0	± 2.0	± 3.0
Accuracy @ +25°C	[% FS typ.]	± 0.5	± 0.3	± 0.5	± 1.0
NLH @ +25°C (BSL)	[% FS typ.]	± 0.2	± 0.2	± 0.3	± 0.3
TC zero point and span	[% FS/K typ.]	± 0.03	± 0.02	± 0.02	± 0.02
Long term stability 1 year @ +25°C	[% FS typ.]	± 0.3	± 0.2	± 0.2	± 0.2

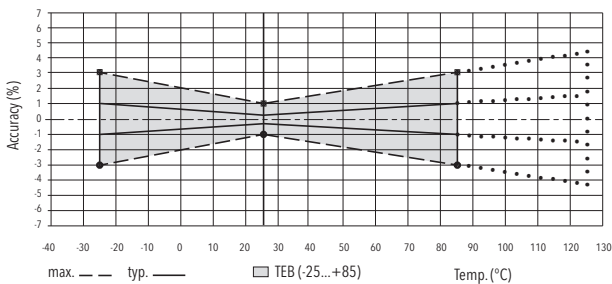
Sensors 56/86/50/80/51/81
0 ... 0.1 to 0 ... 0.16 bar



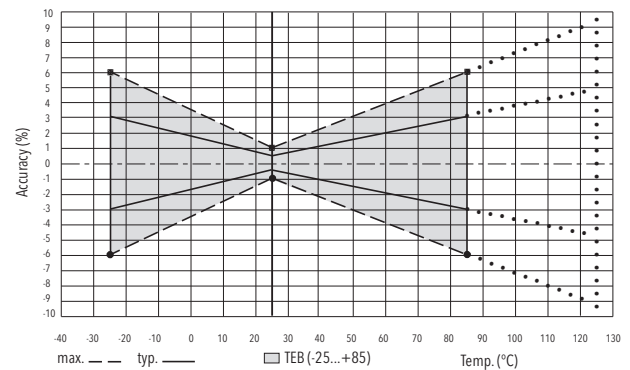
Sensors 56/86/50/80/51/81
0 ... 0.2 to 0 ... 0.4 bar



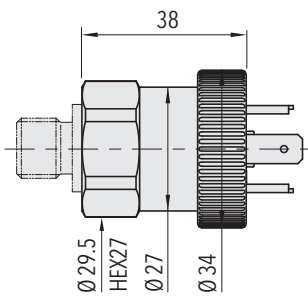
Sensors 56/86/50/80/51/81
> 0 ... 0.4 bar



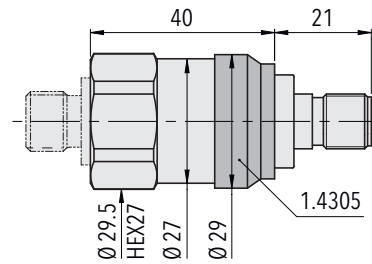
Sensors 59/89/52/82/53/83
 $\geq 0 \dots 1$ bar



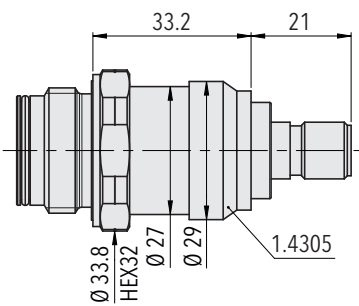
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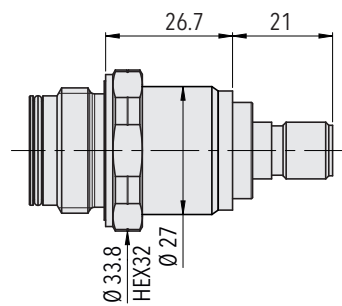
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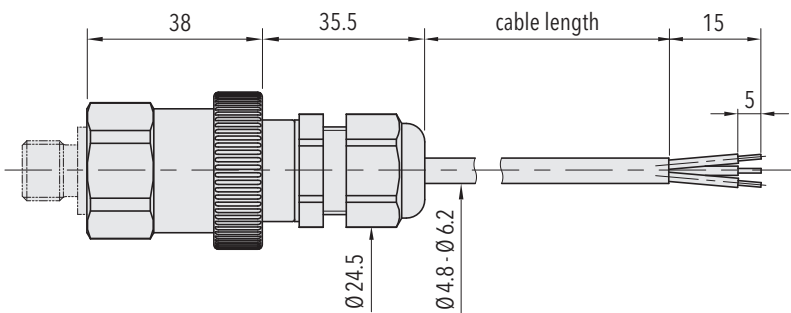
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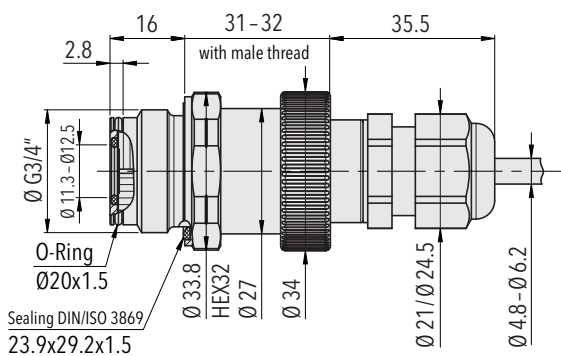
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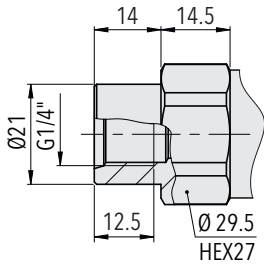
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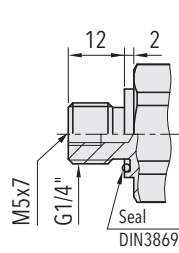
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ECTN 8477

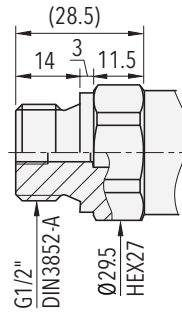
Dimensions



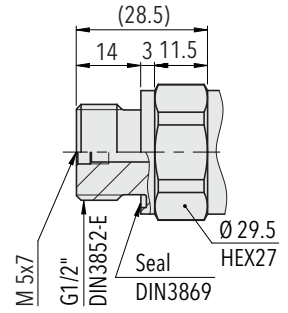
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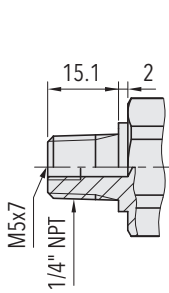
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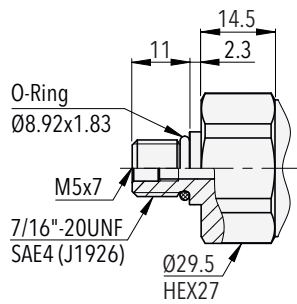
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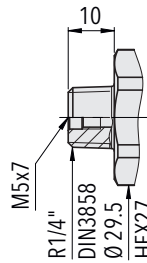
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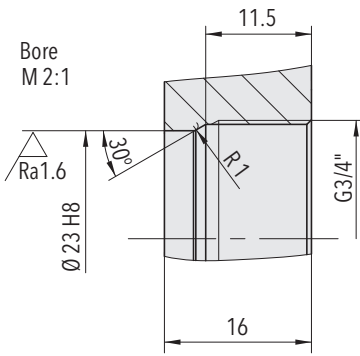
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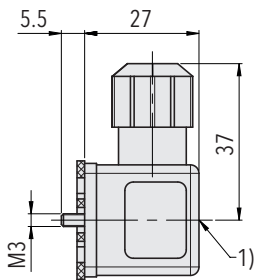
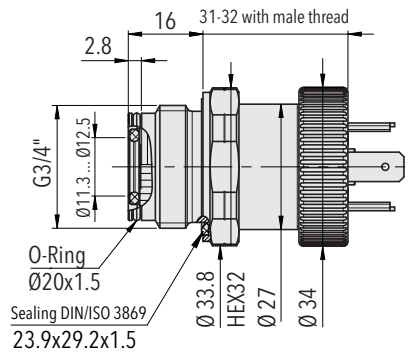
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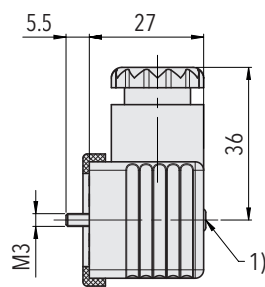


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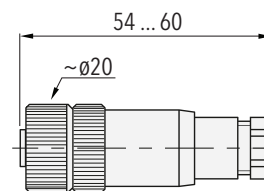


¹⁾ Tightening torque 50 ... 60 Ncm

8477.XX.XXXX.XX.XX.46/56



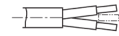
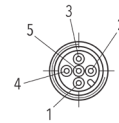
8477.XX.XXXX.XX.XX.58



8477.XX.XXXX.XX.XX.33

Electrical connection

Industrial standard EN175301-803A ²⁾	M12x1, 5-pole	Cable ²⁾
----------------------------------------------------	---------------	---------------------



Electrical connection type code	05	35	08															
IP protection	IP65 ¹⁾	IP67 ¹⁾	IP68, max. 3m															
Ambient temperature	-25°C ... +125°C	-25°C ... +125°C	-25°C ... +125°C															
Pin assignment type code	92	G9	H1															
Output signal 8477.xx.xxxx.xx.19		<table border="1"> <tr> <td>2</td> <td>1</td> <td>4</td> <td>1</td> <td>1</td> <td rowspan="3">Red Black Green</td> </tr> <tr> <td>1</td> <td>2</td> <td>1</td> <td>3</td> <td>2</td> </tr> <tr> <td>Earth</td> <td>Earth</td> <td>5</td> <td>4</td> <td>5</td> </tr> </table>	2	1	4	1	1	Red Black Green	1	2	1	3	2	Earth	Earth	5	4	5
2	1	4	1	1	Red Black Green													
1	2	1	3	2														
Earth	Earth	5	4	5														

¹⁾ Provided female electrical plug is mounted according to instructions

²⁾ Ventilation via male electric plug/cable end

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

i Empty 'Pin Assignment Type Code' field: Default pinout

Reliable quality

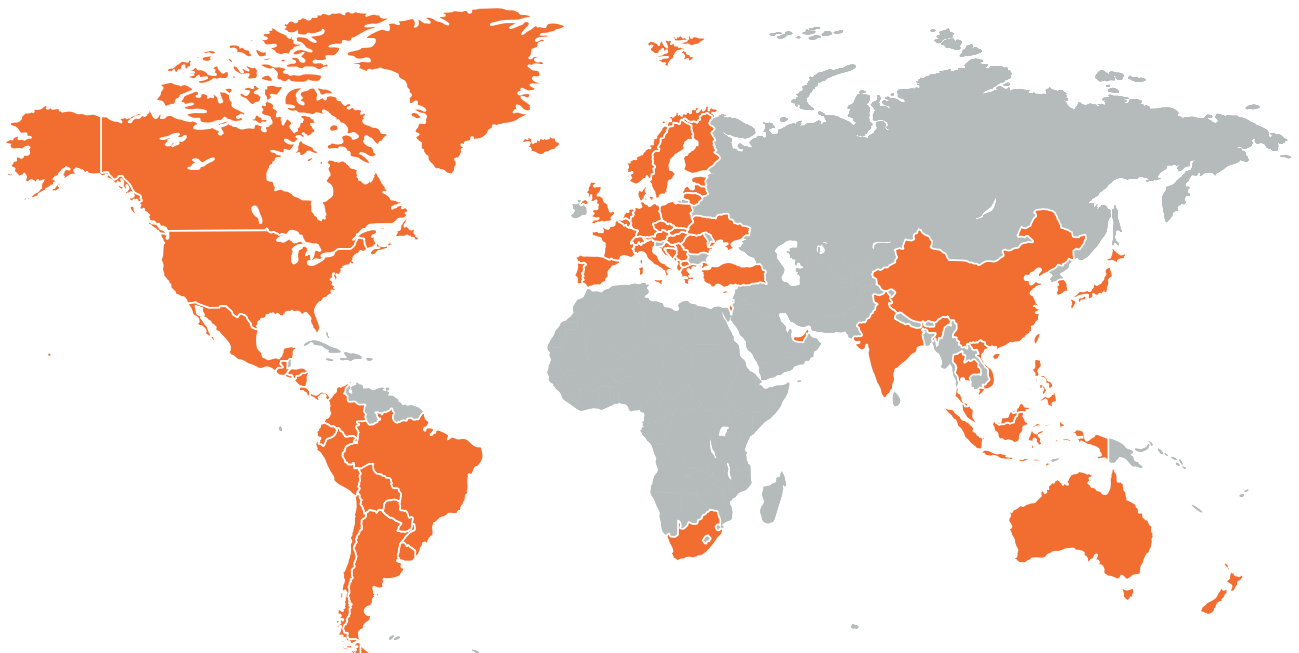
Worldwide represented, globally trusted, Swiss based

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

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Pressure transmitters



Electronic pressure switches



Mechanical pressure switches



Pressure gauge



Thermostats



Temperature transmitters



Gas density