ECTN 8477

Marine Pressure Transmitter

Applications

- Shipbuilding
- Engine manufacturing

Features

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

CE EMC: 2014/30/EU

UKCA S.I. 2016 No. 1091

RoHS/Reach compliant

DNV EU RO Mutual Recognition

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 of features and options makes the ECTN 8477 pressure transmitter a versatile solution suitable for marine applications.

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/jAeXRlAzZUE

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Ordering information/Type code

								8477	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 ... 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**

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		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	Load resistance	U (supply)	
Output signal	4 ... 20 mA	(U_s – 9 V) / 20 mA	9 ... 30 VDC	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

		Damping		Seal	
Code	Pressure connection	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			✓	✓

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

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)

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

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

Specifications

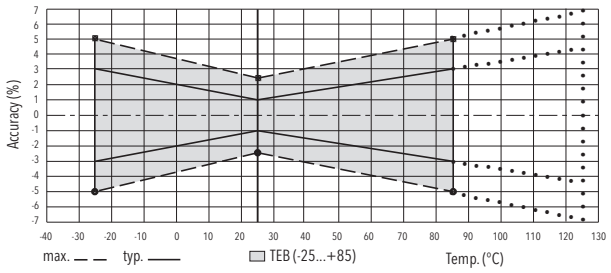
Electrical data	Output / supply voltage	4 ... 20 mA: 24 (9 ... 30) VDC
	Power-on delay time	100 ms
	Rise time of supply voltage	typ. 1 ms, 10 ... 90 % nominal pressure
	Inverse-polarity protection, short-circuit strength @ 25°C during 5 min.	4 ... 20 mA: to U_s = 30 VDC
	Resistance of insulation	> 10 MΩ, 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_2O_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

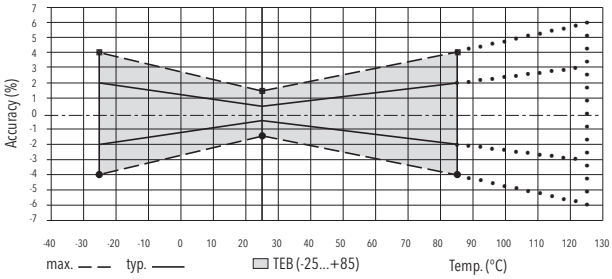
Accuracy

		Sensors 59/89/52/82/53/83	Sensors 56/86/50/80/51/81		
Pressure measuring range	[bar]	≥ 0 ... 1	≥ 0 ... 0.3	≥ 0 ... 0.2 < 0 ... 0.3	≥0 ... 0.1 < 0 ... 0.2
	[psi]	≥ 0 ... 15	≥ 0 ... 5	≥ 0 ... 2.5 < 0 ... 5	≥0 ... 1.5 < 0 ... 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

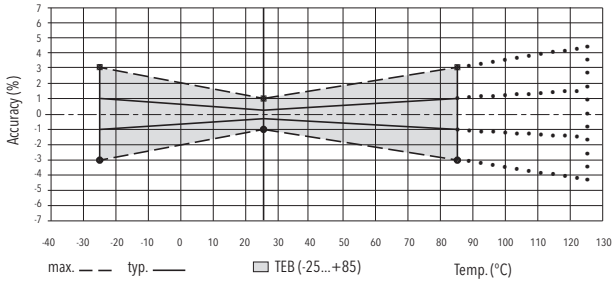
Sensors 56/86/50/80/51/81
0 ... 0.1 to 0 ... 0.16 bar



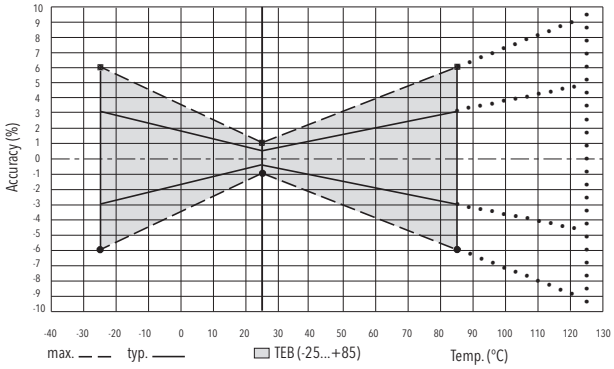
Sensors 56/86/50/80/51/81
0 ... 0.2 to 0 ... 0.4 bar



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



Sensors 59/89/52/82/53/83
≥ 0 ... 1 bar



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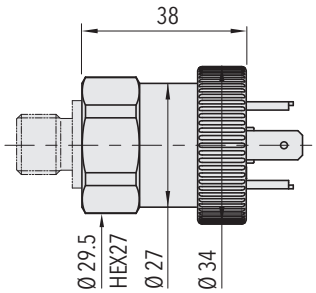
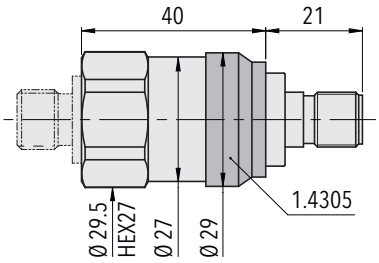
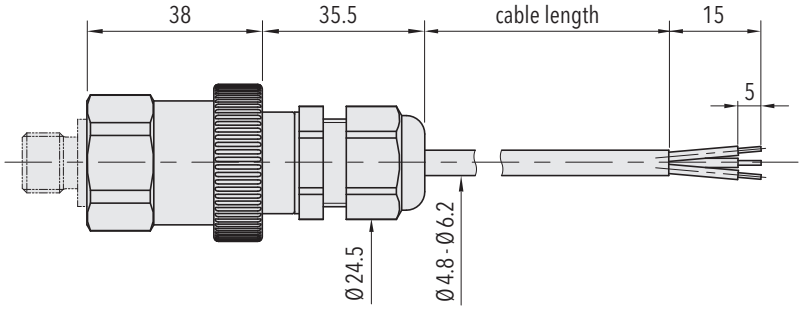
Dimensions



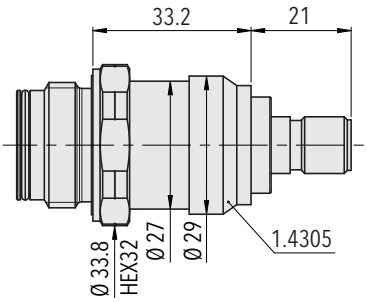
8477.XX.XXXX.**05**.XX.XX



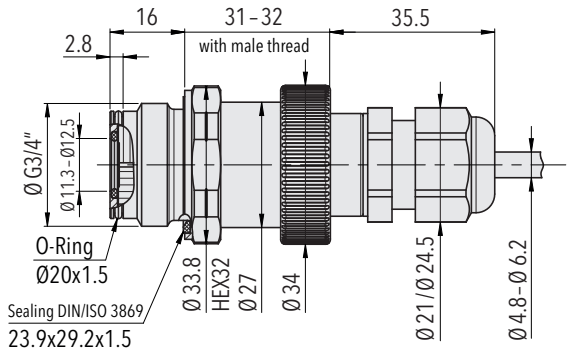
8477.XX.XXXX.**35**.XX.XX



8477.XX.XX**08**.XX.XX.XX



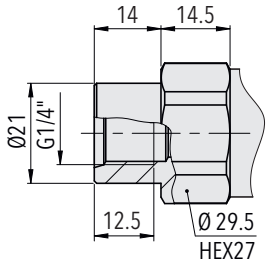
8477.XX.XX**52**.**35**.XX.XX



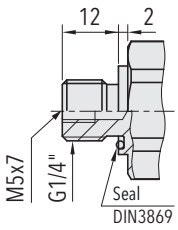
8477.XX.XX**52**.**08**XX.XX.XX

ECTN 8477

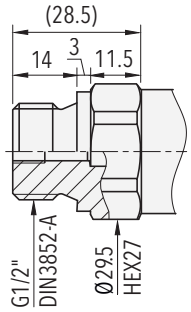
Dimensions



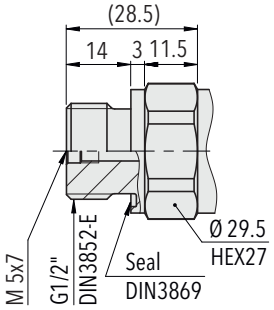
8477.XX.XX**10**.XX.XX.XX



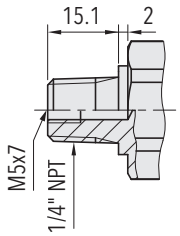
8477.XX.XX**17**.XX.XX.XX



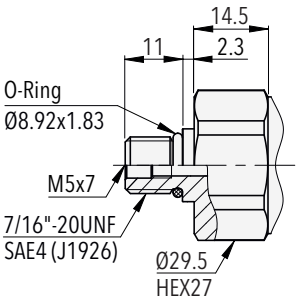
8477.XX.XX**21**.XX.XX.XX



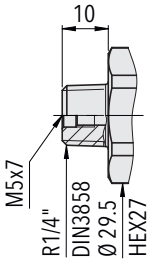
8477.XX.XX**41**.XX.XX.XX



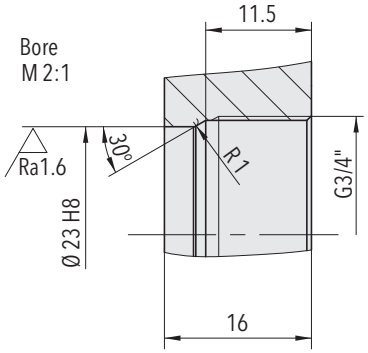
8477.XX.XX**30**.XX.XX.XX

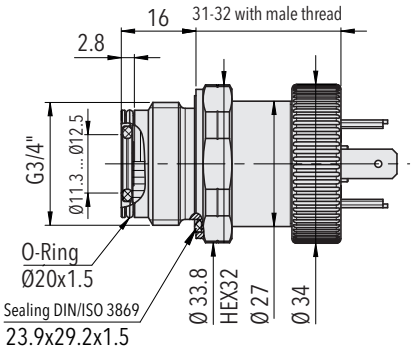


8477.XX.XX**42**.XX.XX

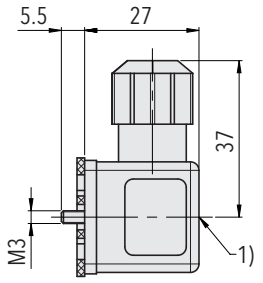


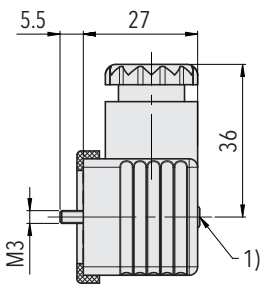
8477.XX.XX**19**.XX.XX.XX

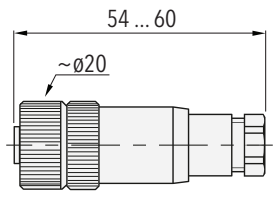




8477.XX.XX**52.05**.XX.XX







[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**

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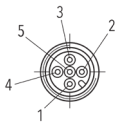
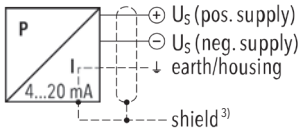
Electrical connection

	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**  	2 1 Earth	1 2 Earth	4 1 5	1 3 4	1 2 5	Red Black Green

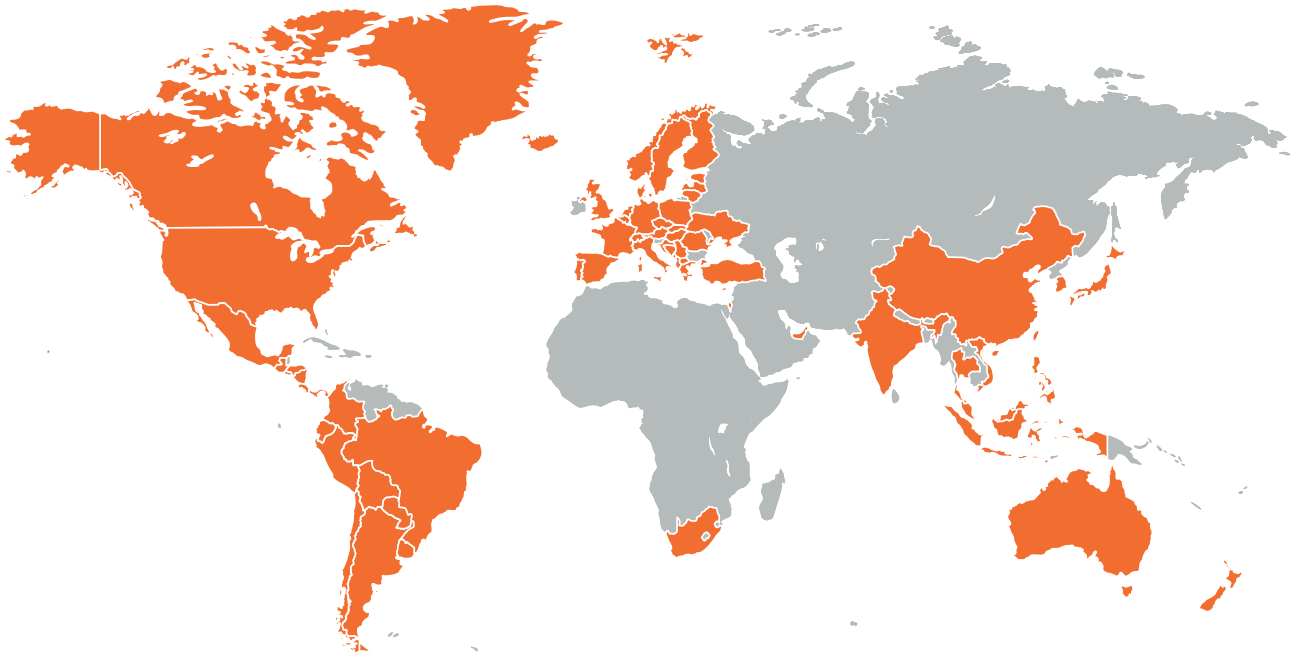
[1] Provided female electrical plug is mounted according to instructions
[2] Ventilation via male electric plug/cable end
[3] Only cable versions or female electrical plug with shield connection

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