

Railway Pressure Transmitter



Product description

The pressure transmitter NAR 8258 with increased accuracy of 0.3 % was specifically designed for railway vehicles (EN 50155) and has a long-term stable thin-film-on-steel sensor cell. The wide temperature range from -40°C to +85°C and the triple overpressure protection make the NAR 8258 the ideal choice for railway vehicles in rough environmental conditions.

Applications

- Railways

Features

- Measuring accuracy 0.3 %
- Optional: Switching output 1 or 2 PNP
- Excellent long-term stability
- Meets EN 50155 (Railway)

 EMC: 2014/30/EU

 S.I. 2016 No. 1091

 RoHS/Reach compliant

 Conformity EN 50155

Technical Data

Measuring principle	Thin-film-on-steel
Measuring range	0 ... 6 to 0 ... 700 bar 0 ... 100 to 0 ... 10000 psi
Output signal	4 ... 20 mA, Switching output: 1 or 2 PNP
Media temperature	-40°C ... +85°C
Ambient temperature	-40°C ... +85°C (EN 50155: OT6)

Additional information

Data sheet www.trafag.com/H72307
 Instructions www.trafag.com/H73303
 Accessories www.trafag.com/H72258
 Video <https://youtu.be/wK2MrOGWJPg>

Ordering information/Type code

								8258	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 ... 6	18	100	77	0 ... 100	300	1450	G7						
	0 ... 10	30	200	78	0 ... 150	450	2500	G8						
	0 ... 16	48	200	79	0 ... 200	600	2500	GA						
	0 ... 25	75	300	80	0 ... 250	750	2500	G9						
	0 ... 40	120	300	81	0 ... 300	900	4000	HA						
	0 ... 60	180	400	82	0 ... 400	1200	4000	H0						
	0 ... 100	300	500	83	0 ... 1000	3000	5000	H2						
	0 ... 160	480	750	85	0 ... 1500	4500	7000	H3						
	0 ... 250	750	1000	74	0 ... 2000	6000	10000	H5						
	0 ... 400	1000	2000	84	0 ... 3000	9000	14500	G4						
	0 ... 600	1500	2500	86	0 ... 5000	12500	21750	H4						
	0 ... 700	1500	2500	87	0 ... 7500	18750	29000	H6						
					0 ... 10000	18750	29000	H7						
Sensor Relative pressure, accuracy: 0.3 %										23				
Pressure connection	G1/4" male, Seal: DIN 3869											17		
	G1/4" male, with integrated damping Ø 0.5 mm, Seal: DIN 3869											15		
	G1/4" male (Manometer) EN 837 ²⁾											53		
	G1/8" male DIN 3852-E ³⁾											54		
	1/4" NPT male											30		
	1/8" NPT male ⁴⁾											43		
	7/16"-20UNF-2A male, SAE J1926-2 (Heavy Duty) ⁵⁾											69		
	7/16"-20UNF female, SAE J512 with valve opener ⁶⁾											24		
	7/16"-20UNF female, SAE J512 without valve opener ⁶⁾											44		
	R1/4" male, DIN 2999 ²⁾											20		
	M10x1 male, DIN EN ISO 6149-2											32		
	M12x1 male ⁷⁾											64		
	M12x1.25 male ⁷⁾											65		
	M12x1.5 male, DIN EN ISO 9974-2 ²⁾											49		
Electrical connection	Male electrical connector, Industrial standard, Contact distance 9.4 mm, Material PA											01		
	Male electrical connector M12x1, 4-pole, Material PA, IEC 61076-2-101											32		
	Male electrical connector M12x1, 5-pole, Material PA, IEC 61076-2-101											35		
	3 Way M Delphi MetriPack 1.5 sealed connector, Material PA66 ⁸⁾											51		
	Cable material Radox Tenuis, IP67/IP68, 4 x 0.5 mm ²											88		
Output signal	Output signal	Load resistance		I (supply)		U (supply)								
	4 ... 20 mA	See graphic		(= signal output)		24 (9 ... 32) VDC								
	2 PNP transistors ⁹⁾			≤ 10 mA		24 (9 ... 32) VDC								
	1 PNP transistor ⁹⁾			≤ 10 mA		24 (9 ... 32) VDC								

	8258	XX	XX	XX	XX	XX	XX
Accessories	Female electrical plug M12x1, 5-pole ¹⁰⁾						33
	Female electrical plug industrial standard (for electrical connection 01), EN 175301-803C						34
	Pressure peak damping element ø 1.0 mm						40
	Pressure peak damping element ø 0.4 mm						44
	Seal FKM, -18°C ... +125°C						61
	Seal EPDM, -40°C ... +125°C						63
	Seal NBR, -25°C ... +100°C						83
	Cable length 0.5 m						EM
	Cable length 1.0 m						1M
	Cable length 2.0 m						2M
	Parameterization standard for output signal PS, T1 (see table: Parameters)						ZS
	Parameterization according to customer specification for output signal PS, T1 (see table: Parameters)						ZC
	Pin configuration, see table: Electrical connection						

⁰¹⁾ Customized pressure ranges, upon request

⁰²⁾ Upon request, whereas minimum order quantities may apply

⁰³⁾ max. allowable pressure range 160 bar (2320 psi) at 480 bar (6961 psi) overpressure

⁰⁴⁾ max. allowable pressure range 400 bar (5800 psi) at 600 bar (8700 psi) overpressure

⁰⁵⁾ Measuring range max. 630 bar according to SAE J1926-2 (Heavy Duty)

⁰⁶⁾ max. allowable pressure range 60 bar (870 psi) at 180 bar (2610 psi) overpressure

⁰⁷⁾ Without seal, use seal geometry according DIN EN ISO 6149-2

⁰⁸⁾ Not available with switching output signals (codes PS / T1)

⁰⁹⁾ Only with electrical connection 32

¹⁰⁾ For electrical connections 32 and 35

Compatibility matrix pressure connection and accessories

Code	Pressure connection	Damping		Seal		
		Ø 1.0 mm (Code 40)	Ø 0.4 mm (Code 44)	FKM (Code 61)	EPDM (Code 63)	NBR (Code 83)
17	G1/4" male, Seal: DIN 3869	✓	✓	✓	✓	✓
15	G1/4" male, with integrated damping Ø 0.5 mm, Seal: DIN 3869			✓	✓	✓
53	G1/4" male (Manometer) EN 837					
54	G1/8" male DIN3852-E	✓	✓	✓	✓	
30	1/4" NPT male	✓	✓			
43	1/8" NPT male	✓	✓			
69	7/16"-20UNF-2A male, SAE J1926-2 (Heavy Duty)	✓	✓	✓	✓	
24	7/16"-20UNF female, SAE J512 with valve opener					
44	7/16"-20UNF female, SAE J512 without valve opener					
20	R1/4" male, DIN 2999	✓	✓			
32	M10x1 male, DIN EN ISO 6149-2	✓	✓	✓		
64	M12x1 male	✓	✓			
65	M12x1.25 male	✓	✓			
49	M12x1.5 male, DIN EN ISO 9974-2	✓	✓	✓		

Parameters

Name	Standard setting (accessory ZS)	Value range	Short name	Customer adjustment (accessory ZC)
Switch point SP1 (hysteresis mode) Upper switch point FH1 (window mode)	75 % Measuring range	> RP1, FL1 (2 ... 99 %) Hysteresis ≥ 1 % FS	SP1	
Reset point RP1 (hysteresis mode) Lower switch point FL1 (window mode)	25 % Measuring range	< SP1, FH1 (1 ... 98 %) Hysteresis ≥ 1 % FS	RP1	
Switch point SP2 (hysteresis mode) Upper switch point FH2 (window mode)	75 % Measuring range	> RP2, FL2 (2 ... 99 %) Hysteresis ≥ 1 % FS	SP2	
Reset point RP2 (hysteresis mode) Lower switch point FL2 (window mode)	25 % Measuring range	< SP2, FH2 (1 ... 98 %) Hysteresis ≥ 1 % FS	RP2	
Switch point delay time SP1 / RP1 (hysteresis mode) Switch point delay time FH1 / FL1 (window mode)	0	approx. 2^x [ms], $x = 8, 9 \dots 16$	dS1	
Switch point delay time SP2 / RP2 (hysteresis mode) Switch point delay time FH2 / FL2 (window mode)	0	approx. 2^x [ms], $x = 8, 9 \dots 16$	dS2	
Functions switching output 1	Hysteresis, closer (Hno)	Hysteresis NO (Hno) Hysteresis NC (Hnc) Window NO (Fno) Window NC (Fnc)	ou1	
Functions switching output 2	Hysteresis, closer (Hno)	Hysteresis NO (Hno) Hysteresis NC (Hnc) Window NO (Fno) Window NC (Fnc) Device ready	ou2	

Specifications ¹⁾

Electrical data	Output / supply voltage	4 ... 20 mA: 24 VDC (EN 50155) 1 or 2 PNP transistors: 24 VDC (EN 50155)
	Power-on delay time pressure transmitters	100 ms
	Power-on delay time pressure switches	50 ms + switching delay time
	Inverse-polarity protection, short-circuit strength @ 25°C during 5 min.	4 ... 20 mA: to $U_s = 32$ VDC 1 or 2 PNP transistors: to $U_s = 32$ VDC
	Current limiting output signal	4 ... 20 mA: 24 mA (Overload)
Environmental conditions	Media temperature	-40°C ... +85°C
	Ambient temperature	-40°C ... +85°C (EN 50155: OT6)
	Storage temperature	-20°C ... +40°C
	Protection ²⁾	IP65, IP67, IP68
	Humidity	max. 95 % relative
	Vibration	14.4 g RMS (10 ... 500 Hz) (EN 60068-2-64) 15 g RMS (20 ... 2000 Hz) (EN 60068-2-64) 25 g sin (80 ... 2000 Hz), 1 oct./min, (1x @ 25°C) (EN 60068-2-6)
	Shock	100 g/6 ms Male electrical plug M12x1 (EN 60068-2-27) ³⁾
EMC protection	Emission	EN 50121-3-2
	Immunity	EN 50121-3-2 ⁴⁾
Mechanical data	Sensor (wetted parts)	1.4542 (AISI 630)
	Pressure connection (wetted parts)	1.4542 (AISI 630)
	Housing	1.4301 (AISI 304)
	Sealing	FPM, EPDM, NBR
	Male electrical connector	See ordering information
	Weight	~ 50 g
	Mounting torque	25 Nm

¹⁾ Details see table: Details railway specifications

²⁾ See table: Electrical connection

³⁾ For electrical connections 32 and 35

⁴⁾ With power supply according to EN IEC 61326-1:2021 table (2), footnote (e). Surge test conducted on shield, i.a.w. EN 61000-4-5:2014, 7.6. Device to be galvanically isolated and to be used in signal area protected against EMC interference (area C i.a.w. EN 50155:2021, fig.5).

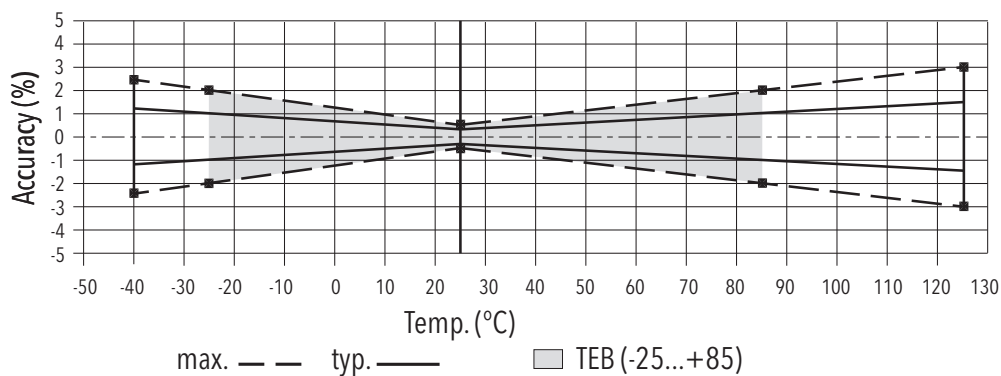
Analogue output

			$\geq 0 \text{ bar}$ $\leq 700 \text{ bar}$
Accuracy	TEB @ -25 ... +85°C	[% FS typ.]	± 1.0
	Accuracy @ +25°C	[% FS typ.]	± 0.3
	Measurement deviation during EMC (verified with 100 ms integration time)	[% FS max.]	± 1.0
	NLH @ +25°C (BSL)	[% FS typ.]	± 0.2
	TC zero point and span	[% FS/K typ.]	± 0.01
	Long term stability 1 year @ +25°C	[% FS typ.]	± 0.1
Rise time	typ. 1 ms / 10 ... 90 % nominal pressure		

Switchpoint accuracy

Accuracy	TEB @ -25 ... +85°C	[% FS typ.]	± 1.0
	Accuracy @ +25°C	[% FS typ.]	± 0.3
	Measurement deviation during EMC (verified with 100 ms integration time)	[% FS max.]	± 1.0
	Long term stability 1 year @ +25°C	[% FS typ.]	± 0.1
	Setting range of switchpoints	1 ... 99 % FS	
Distance switch point	$\geq 1.0 \text{ % FS}$		
Switch point > reset point	Switchpoint > reset point		
Switching resistance	$\leq 3 \Omega$		
Output function	Hysteresis, Window; normally closed (NC), normally open (NO)		
Switching current	Ambient and media temperature -40°C ... +85°C: $\leq 400 \text{ mA}$, total of both switching outputs		
Current limiting	Integrated		
Life time	$> 100 \times 10^6 \text{ cycles}$		
Delay time	approx. $2^x [\text{ms}]$, $x = 8, 9 \dots 16$		
Switching frequency	max. 60 Hz (at switching delay time = 0)		

Measuring accuracy

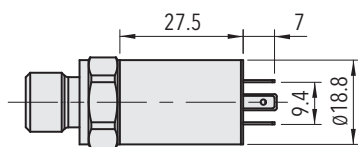


Detail railway specifications

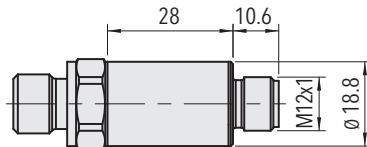
Electrical data	Interruptions of the voltage supply	EN 50155	Class S1
	Switching between two supply voltages	EN 50155	Class C1
Environmental conditions	Cold	EN 60068-2-1	Ab: -40°C, 2 h (not in operation) Ae: -40°C, 1 h (in operation)
	Dry heat	EN 60068-2-2	Be: 85°C, 6 h (in operation)
	Damp heat, cyclic	EN 60068-2-30	Db: 55°C, Variant 1, 2 cycles (2 x 24 h)
	Class of altitude	EN 50125-1	AX (max. 2000 m ASL)
	Class of air temperature	EN 50125-1	Refer to the specified ambient temperature in table Specification
	Switch-on extended operating temperature	EN 50155	Class ST0
	Rapid temperature variations	EN 50155	Class H1
	Salt mist	EN 60068-2-11	Ka: 480 h
	Vibration and shock	EN 61373	Vibration: category 3 Shock: category 3
	Dielectric strength	EN 50155	750 VDC
	Resistance of insulation	EN 50155	> 100 MΩ, 500 VDC
	Behavior in case of fire (Electrical connections 01, 32, 35)	EN 45545-2	HL1, HL2, HL3
	Life class	EN 50155	L4

EMC compatibility: refer to table: Specifications

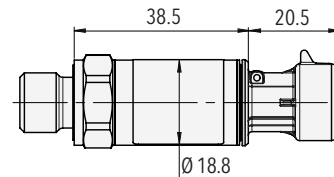
Dimensions



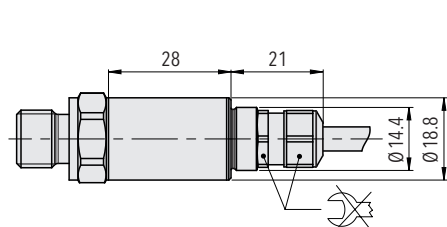
8258.XX.XXXX.01.XX.XX



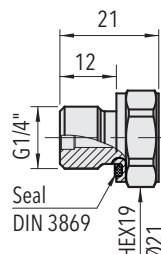
8258.XX.XXXX.32/35.XX.XX



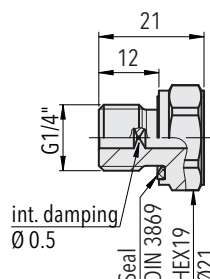
8258.XX.XX.51.XX.XX.XX



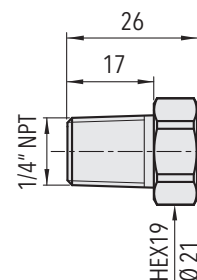
8258.XX.XX.88.XX.XX.XX



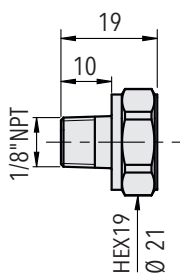
8258.XX.XX17.XX.XX.XX



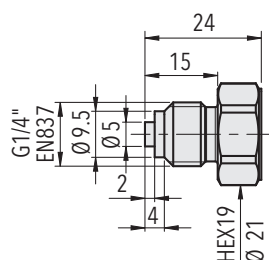
8258.XX.XX15.XX.XX.XX



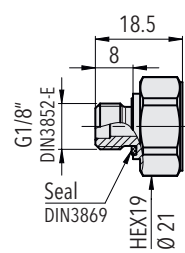
8258.XX.XX30.XX.XX.XX



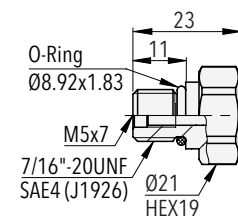
8258.XX.XX43.XX.XX.XX



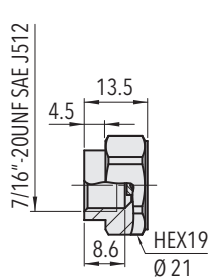
8258.XX.XX53.XX.XX.XX



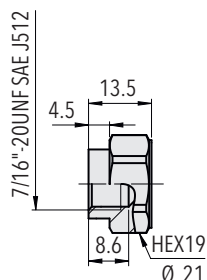
8258.XX.XX54.XX.XX.XX



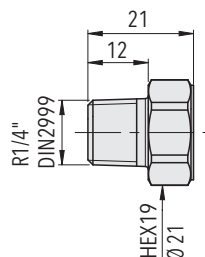
8258.XX.XX69.XX.XX.XX



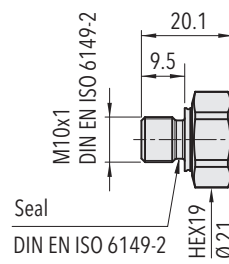
8258.XX.XX24.XX.XX.XX



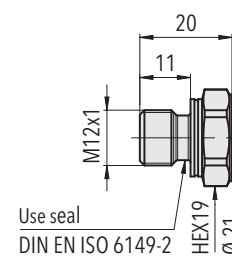
8258.XX.XXXX.44.XX.XX



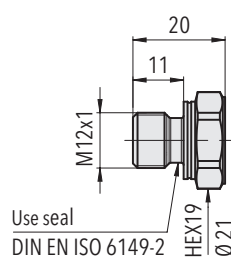
8258.XX.XX20.XX.XX.XX



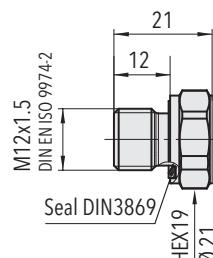
8258.XX.XX32.XX.XX.XX



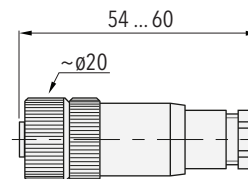
8258.XX.XX64.XX.XX.XX



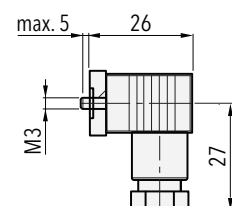
8258.XX.XX65.XX.XX.XX



8258.XX.XX49.XX.XX.XX

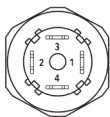
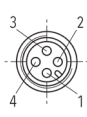
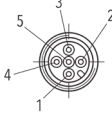
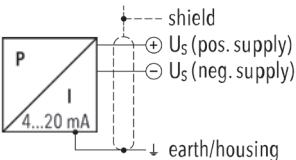
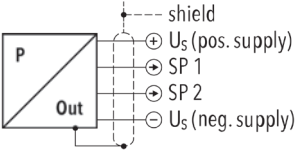


8258.XX.XXXX.XX.XX.33



8258.XX.XXXX.XX.XX.34

Electrical connection

	Industrial standard, contact distance 9.4 mm		M12x1, 4-pole		M12x1, 5-pole	
						
Electrical connection type code	01		32		35	
IP protection	IP65 ^{1) 2)}		IP67 ^{1) 2)}		IP67 ^{1) 2)}	
Ambient temperature	-40°C ... +85°C ⁴⁾		-40°C ... +85°C ⁴⁾		-40°C ... +85°C ⁴⁾	
Pin assignment type code		90	92		F5	E1
Output signal 8258.xx.xxxx.xx.19 						
		2 1 4	2 4 3	1 2 4	1 3 4	1 2 4
Pin assignment type code			PS		T1	
Output signal 8258.xx.xxxx.xx.PS/T1 						
			1 4 2 3		1 4 - 3	

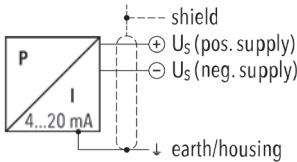
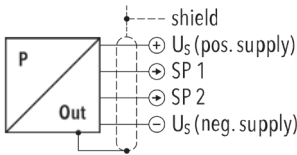
¹⁾ Provided female electrical plug is mounted according to instructions

²⁾ Ventilation via male electric plug/cable end

⁴⁾ (EN 50155: OT6)

 Empty 'Pin Assignment Type Code' field: Default pinout

Electrical connection

	3 Way M MetriPack 1.5 sealed connector		Cable	
				
Electrical connection type code	51		88	
IP protection	IP67 ¹⁾		IP67, IP68 ^{2) 3)}	
Ambient temperature	-40°C ... +85°C ⁴⁾		-40°C ... +85°C ⁴⁾	
Pin assignment type code		E4		
Output signal 8258.xx.xxxx.xx.19		1 2	1 3	Brown Black Yellow/Green
Pin assignment type code			PS	T1
Output signal 8258.xx.xxxx.xx.PS/T1				Brown Blue Yellow/Green Black Brown Blue - Black

¹⁾ Provided female electrical plug is mounted according to instructions

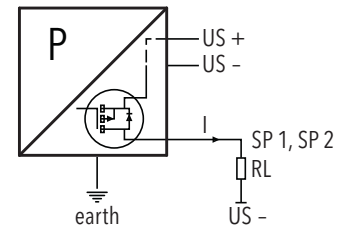
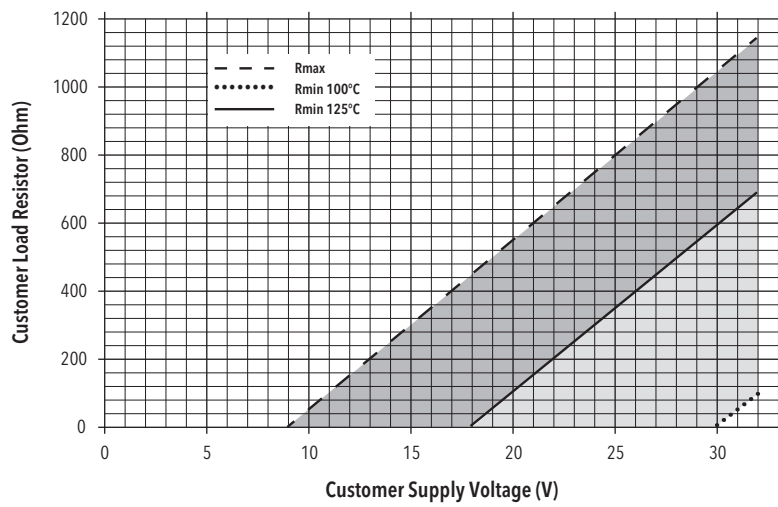
²⁾ Ventilation via male electric plug/cable end

³⁾ IP68, 20 bar, 30 min.

⁴⁾ (EN 50155: OT6)

 Empty 'Pin Assignment Type Code' field: Default pinout

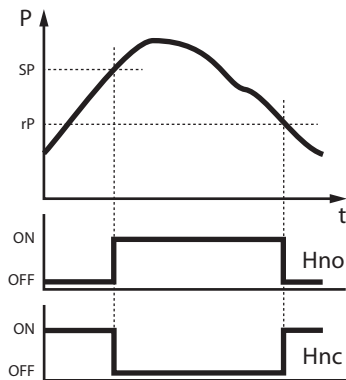
4...20mA: min./max resistor vs. supply voltage @ Pmax = 100%



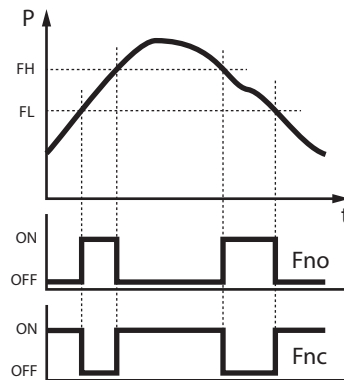
Connection of loads to switching contacts

Functions switching output

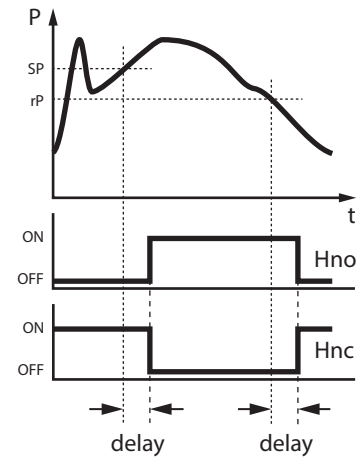
Hysteresis



Window



Delay



Reliable quality

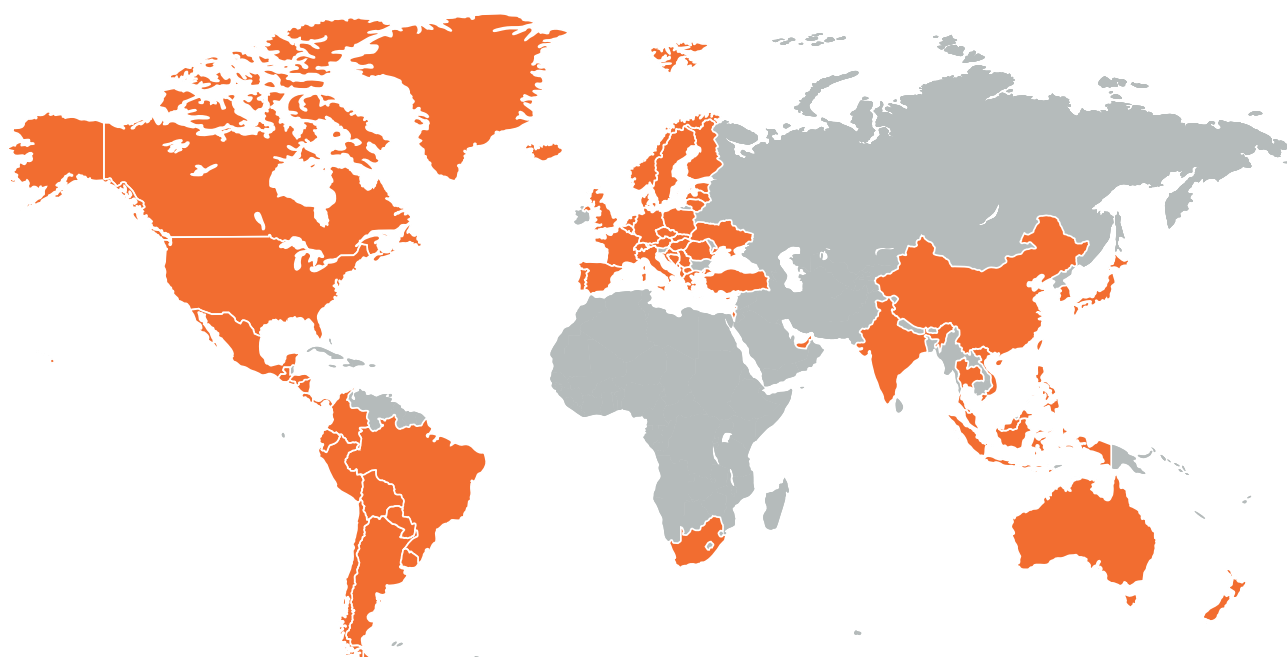
Worldwide represented, globally trusted, Swiss based

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.



Headquarters Switzerland

Trafag AG
Industriestrasse 11
8608 Bubikon (Switzerland)
+41 44 922 32 32
trafag@trafag.com
www.trafag.com

Coordinates of representatives can be found at www.trafag.com/trafag-worldwide



Pressure transmitters



Electronic pressure switches



Mechanical pressure switches



Pressure gauge



Thermostats



Temperature transmitters



Gas density