NAR 8258

Railway Pressure Transmitter

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

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.

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
Flyer	www.trafag.com/H70697
Instructions	www.trafag.com/H73303
Accessories	www.trafag.com/H72258
Video	https://youtu.be/wK2MrOGWJPg

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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 [2]	75	300	**80**	0 ... 250	750	2500	**G9**						
	0 ... 40 [2]	120	300	**81**	0 ... 300 [2]	900	4000	**HA**						
	0 ... 60 [2]	180	400	**82**	0 ... 400 [2]	1200	4000	**H0**						
	0 ... 100 [2]	300	500	**83**	0 ... 1000 [2]	3000	5000	**H2**						
	0 ... 160 [2]	480	750	**85**	0 ... 1500 [2]	4500	7000	**H3**						
	0 ... 250	750	1000	**74**	0 ... 2000 [2]	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, Mat. PA										**01**			
	Male electrical connector M12x1, 4-pole, Mat. PA, IEC 61076-2-101										**32**			
	Male electrical connector M12x1, 5-pole, Mat. PA, IEC 61076-2-101										**35**			
	3 Way male Delphi MetriPack 1.5 sealed connector, Material PA66 [8]										**51**			
	Cable Mat. 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	**19**
	2 PNP transistors [9]		≤ 10 mA	24 (9 ... 32) VDC	**PS**
	1 PNP transistor [9]		≤ 10 mA	24 (9 ... 32) VDC	**T1**

		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

		Damping		Seal		
Code	**Pressure connection**	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	0; approx. 2^x [ms], x = 3, 4 ... 16	dS1	
Switch point delay time SP2 / RP2 (hysteresis mode) Switch point delay time FH2 / FL2 (window mode)	0	0; approx. 2^x [ms], x = 3, 4 ... 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	

Parameterisation of switching points

The switching points, delay times and output functions can be parameterised quickly and easily with the Sensor Master Communicator (SMC) application, which is available for Windows (PC) and Android smartphone.
The Android app is available in the Google Play Store and the Windows app is available in the Microsoft Store. The apps are free of charge.

- Data sheet SMI Sensor Master Interface: www.trafag.com/H72618
- Instruction for the Sensor Master Communicator App (SMC) and the Sensor Master Interface (SMI): www.trafag.com/H73618

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/IEC 61000-6-3 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)] Surge voltage on shield, shield connected on both sides

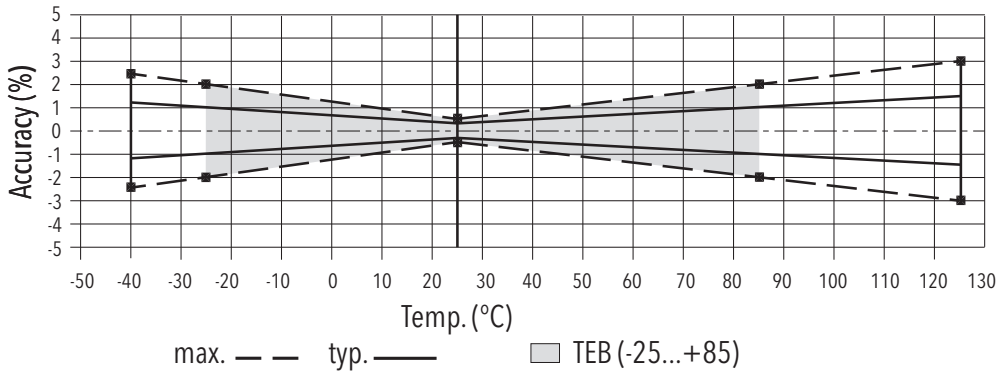
Analogue output

			≥ 0 bar ≤ 700 bar
Accuracy	TEB @ -25 ... +85°C	[% FS typ.]	± 1.0
	Accuracy @ +25°C	[% FS typ.]	± 0.3
	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
	Long term stability 1 year @ +25°C	[% FS typ.]	± 0.1
Setting range of switchpoints	1 ... 99 % FS		
Distance switch point Switch point > reset point	≥ 1.0 % FS Switchpoint > reset point		
Switching resistance	≤ 3 Ω		
Output function	Hysteresis, Window; normally closed (NO), normally open (NC)		
Switching current	Ambient and media temperature -40°C … + 85°C: ≤ 400 mA, total of both switching outputs		
Current limiting	Integrated		
Life time	> 100 x 10^6 cycles		
Delay time	0; approx. 2^x [ms], x = 3, 4 ... 16		
Switching frequency	max. 60 Hz (at switching delay time = 0)		
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

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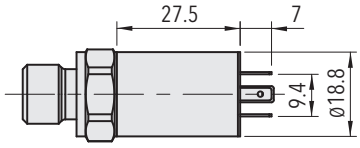
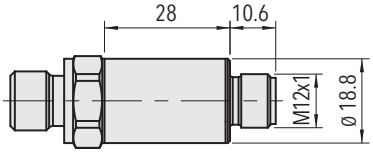
Dimensions



8258.XX.XXXX.**01**.XX.XX



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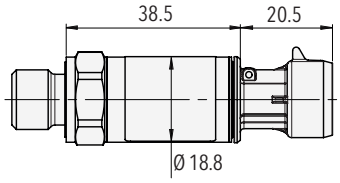

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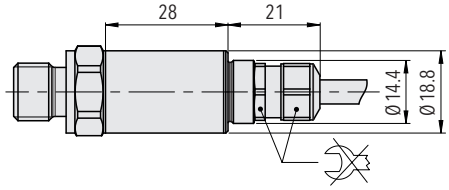

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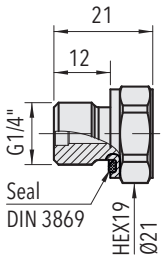

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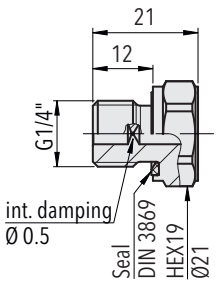

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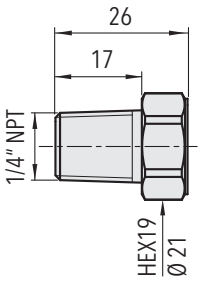

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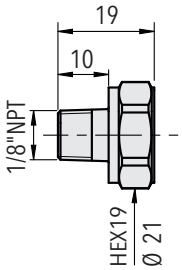

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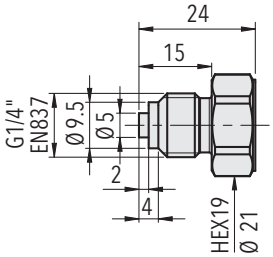

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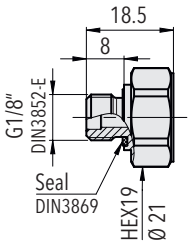

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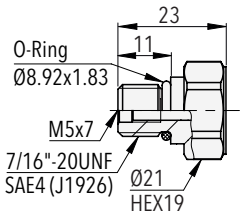

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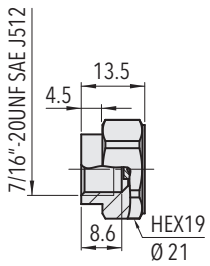

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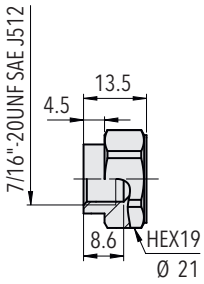

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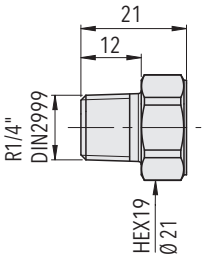

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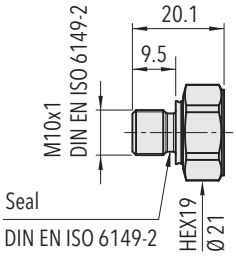
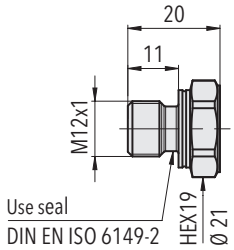
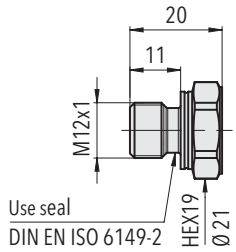


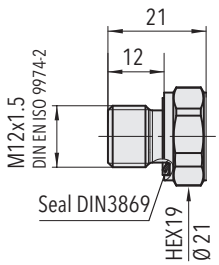
8258.XX.XX**32**.XX.XX.XX



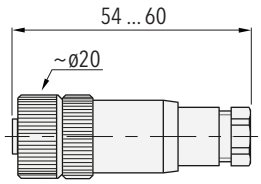
8258.XX.XX**64**.XX.XX.XX



8258.XX.XX**65**.XX.XX.XX



8258.XX.XX**49**.XX.XX.XX



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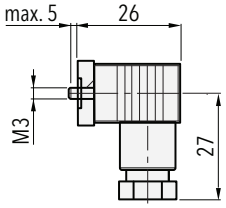

8258.XX.XXXX.XX.XX.**34**

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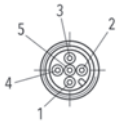
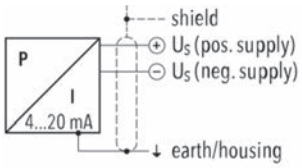
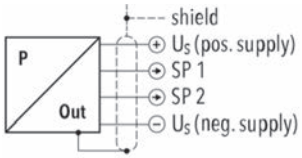
Electrical connection

	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 3 	1 2 4	4 1 5
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

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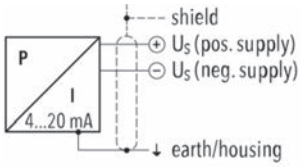
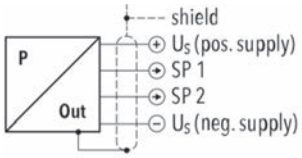
Electrical connection

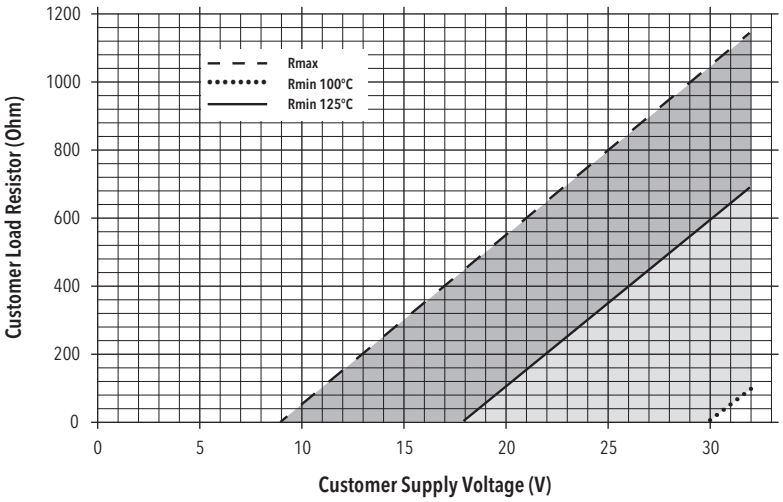
	Packard Metri Pack 3-pole		Cable	
				
Electrical connection type code	51		88	
IP protection	IP67 [1]		IP67, IP68 [2] [3]	
Ambient temperature	-40°C ... +85°C [4]		-40°C ... +85°C [4]	
Pin assignment type code		E4		
Output signal **8258.xx.xxxx.xx.19** 	1 2	1 3	Brown Black Yellow/Green	

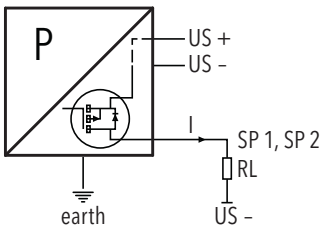
Pin assignment type code		PS	T1
Output signal **8258.xx.xxxx.xx.PS/T1** 		Brown Blue Yellow/Green Black	Brown Blue – Black

[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%

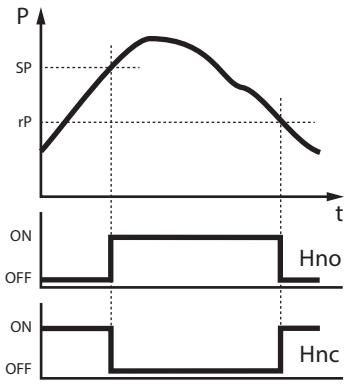




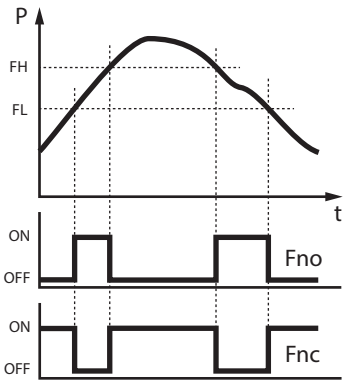
Connection of loads to switching contacts

Functions switching output

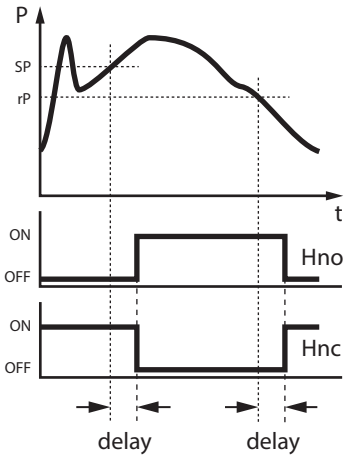
Hysteresis



Window



Delay



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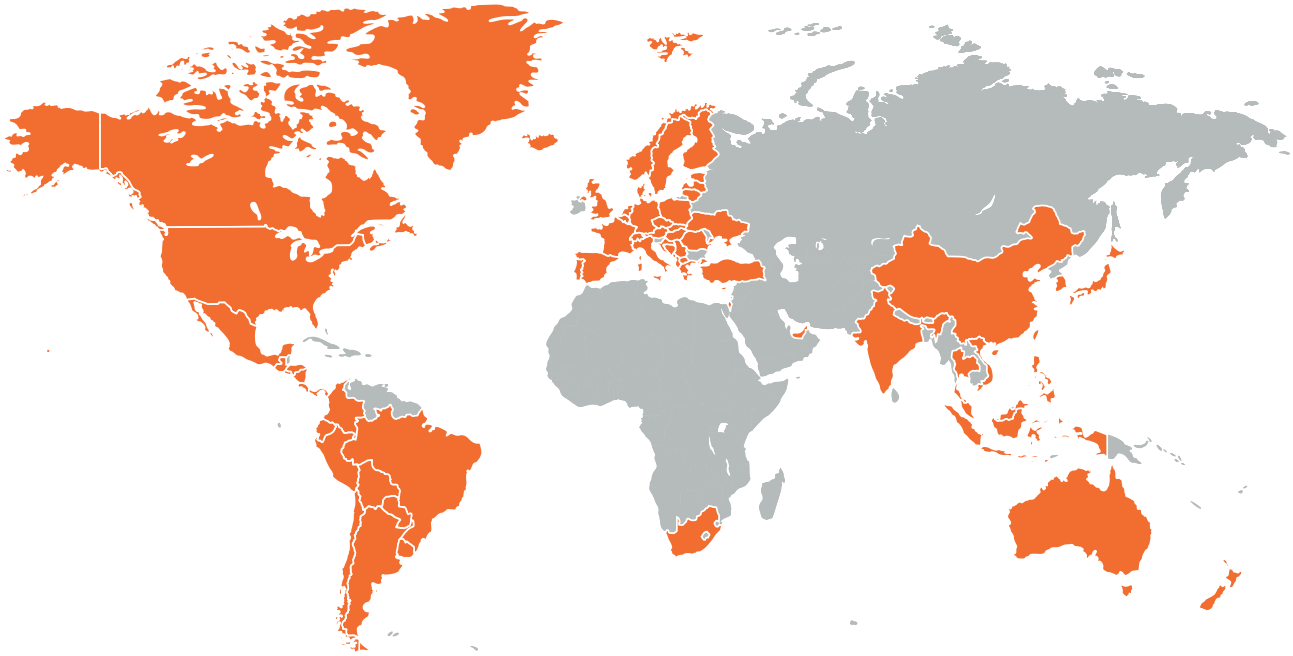

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