

Display Pressure Switch



Product description

The DPC 8380 is the ideal combination of pressure switch and transmitter with pressure display. The parameters are set on the device or in a timesaving way via an NFC - smartphone App. The settings in combination with a comprehensive set of options make the DPC 8380 suitable for a wide range of industrial applications.

Applications

- Machine tools
- HVAC
- Refrigeration
- Water treatment
- Process technology

Features

- Parameterization also via NFC-smartphone App (Android)
- Display and electrical connection are independently rotatable 335°/343°
- Analogue output switchable mA or V
- Integrated datalogger
- Measuring range adjustable

 EMC: 2014/30/EU

 S.I. 2016 No. 1091

 RoHS/Reach compliant

 UL-listed version

Technical Data

Measuring principle	Thick-film-on-ceramic
Measuring range	0 ... 0.2 to 0 ... 100 bar 0 ... 2.5 to 0 ... 1500 psi adjustable
Output signal	4 ... 20 mA, 0 ... 5 VDC, 1 ... 6 VDC, 0 ... 10 VDC, switchable mA or V
Media temperature	-25°C ... +85°C
Ambient temperature	max. -25°C ... +85°C (UL-rated ambient temperature: -20°C ... +80°C) Details see section Electrical Connection
Logger	Ring buffer: 3518 data points Sampling time: 0.1 ... 999.9 s, Off (0)

Additional information

Data sheet	www.trafag.com/H72320
Instructions	www.trafag.com/H73320
Accessories	www.trafag.com/en/H72258
Video	https://youtu.be/gZGu9cc1HUo

Ordering information/Type code

				8380	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 ... 0.2	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	1.2	2	70	0 ... 10	20	30	G0		
	0 ... 1	2	4.8	71	0 ... 15	45	70	G1		
	0 ... 1.6	3.2	4.8	73	0 ... 20	45	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	200	300	83	0 ... 1500	3000	4500	H3		
Sensor	Relative pressure, 1.4305, accuracy: 0.5 %							57		
	Relative pressure, 1.4404/1.4435, accuracy: 0.5 % ²⁾							59		
	Relative pressure, 1.4462, accuracy: 0.5 % ²⁾							52		
	Relative pressure, titanium grade 5, accuracy: 0.5 % ²⁾							53		
	Relative pressure, 1.4305, accuracy: 0.3 % ³⁾							54		
	Relative pressure, 1.4404/1.4435, accuracy: 0.3 % ²⁾³⁾							56		
	Relative pressure, 1.4462, accuracy: 0.3 % ²⁾³⁾							50		
	Relative pressure, titanium grade 5, accuracy: 0.3 % ²⁾³⁾							51		
	Absolute pressure, 1.4305, accuracy: 0.5 % ⁴⁾							87		
	Absolute pressure, 1.4404/1.4435, accuracy: 0.5 % ²⁾³⁾							89		
	Absolute pressure, 1.4462, accuracy: 0.5 % ²⁾³⁾							82		
	Absolute pressure, Titanium Grade 5, accuracy: 0.5 % ²⁾³⁾							83		
	Absolute pressure, 1.4305, accuracy: 0.3 % ³⁾							84		
	Absolute pressure, 1.4404/1.4435, accuracy: 0.3 % ²⁾³⁾							86		
	Absolute pressure, 1.4462, accuracy: 0.3 % ²⁾³⁾							80		
	Absolute pressure, titanium grade 5, accuracy: 0.3 % ²⁾³⁾							81		
Pressure connection	G1/4" female							10		
	G1/4" male							17		
	G1/2" male DIN3852-E ²⁾							41		
	1/4" NPT male ²⁾							30		
	R1/4" male, DIN3858 ²⁾							19		
	7/16"-20UNF male, DIN3866 ²⁾⁴⁾							18		
	7/16"-20UNF female, SAE J512 with valve opener ²⁾⁴⁾							24		
	7/16"-20UNF male, SAE4 (J1926) ²⁾							42		
	9/16"-18UNF male, SAE6 (J1926) ²⁾⁵⁾							61		
	G3/4" frontal membrane ²⁾⁶⁾							52		

	8380	XX	XX	XX	XX	XX	XX
Electrical connection	Male electrical connector M12x1, 4-pole, Mat. PA (Accessories P3, P4)					32	
	Male electrical connector M12x1, 5-pole, Mat. PA (Accessories P1, P2)					35	
Output signal	Switching output PNP, current output 4 ... 20 mA, switchable to 0 ... 10 VDC; output detail see accessories P1, P2, P3						PA
	Switching output PNP, voltage output 1 ... 6 VDC; output detail see accessories P1, P2, P3						PU
	Switching output PNP, voltage output 0 ... 10 VDC; output detail see accessories P1, P2, P3						PV
	Switching output PNP, voltage output 0 ... 5 VDC; output detail see accessories P1, P2, P3						PW
	Switching output PNP; output detail see accessory P4						PS
Accessories	Pin configuration, see table: Electrical connection						
	Pressure peak damping element ø 1.0 mm, material 1.4305 (sensors 54, 57, 84, 87), titanium (sensors 51, 53, 83, 81)						40
	Pressure peak damping element ø 0.4 mm, material 1.4305 (sensors 54, 57, 84, 87), 1.4404 (sensors 56, 59, 86, 89), titanium (sensors 51, 53, 83, 81)						44
	Seal FPM, -18°C ... +125°C						61
	Seal EPDM, -40°C ... +125°C						63
	Female electrical plug M12x1, 5-pole ⁷⁾						33
	Parameterization standard for output signal PS, see table: Parameters						ZS
	Parameterization according to customer specification, see table: Parameters						ZC
	Function package 1: Zero set / Measuring range zero point adjustment						Z1
	Function package 2: User scale unit / analogue output adjustment						Z2
	Protective cap, 1 pc. F89051, package of 5 pcs. F89052, package of 25 pcs. F89075						
	Adapter with flange connection, 1 pc. F82054						
	UL-listed, see table: Possible combinations for UL-listed variants						UL

¹⁾ Extended overpressure as well as customized pressure ranges upon request

²⁾ Upon request

³⁾ Only for pressure ranges > 600 mbar or 10 psi

⁴⁾ max. 40 bar or 500 psi

⁵⁾ Only for sensors 59 and 89

⁶⁾ Only with sensors 56, 50, 86, 80 (accuracy 0.3 %) and for pressure ranges ≤ 25 bar or 400 psi

⁷⁾ For electrical connections 32 and 35

Compatibility matrix pressure connector / damping / sealing

Code	Pressure connection	Ø 1.0mm (Code 40)	Ø 0.44mm (Code 44)	Seal FKM (Code 61)	Seal EPDM (Code 63)
10	G1/4" female				
17	G1/4" male	✓	✓	✓	✓
41	G1/2" male DIN3852-E	✓	✓	✓	
30	1/4" NPT male	✓	✓		
19	R1/4" male, DIN3858	✓	✓		
18	7/16"-20UNF male, DIN3866				
24	7/16"-20UNF female, SAE J512 with valve opener				
42	7/16"-20UNF male, SAE4 (J1926)	✓	✓	✓	
61	9/16"-18UNF male, SAE6 (J1926)	✓	✓	✓	
52	G3/4" frontal membrane			✓	✓

Standard configurations

Product No.	Type Code	Pressure range [bar]	Overpressure max. [bar]	Supply [VDC]	Accuracy @ 25°C typ. [%]
DPC0.2PAP1	8380 68 5717 35 0000 0000 PA P1 44 61 ZS Z1 Z2	0 ... 0.2	1.2	15 ... 30	± 0.5
DPC0.4PAP1	8380 69 5717 35 0000 0000 PA P1 44 61 ZS Z1 Z2	0 ... 0.4	1.2	15 ... 30	± 0.5
DPC0.6PAP1	8380 70 5717 35 0000 0000 PA P1 44 61 ZS Z1 Z2	0 ... 0.6	1.2	15 ... 30	± 0.5
DPC1.0PAP1	8380 71 5717 35 0000 0000 PA P1 44 61 ZS Z1 Z2	0 ... 1	2	15 ... 30	± 0.5
DPC1.6PAP1	8380 73 5717 35 0000 0000 PA P1 44 61 ZS Z1 Z2	0 ... 1.6	3.2	15 ... 30	± 0.5
DPC2.5PAP1	8380 75 5717 35 0000 0000 PA P1 44 61 ZS Z1 Z2	0 ... 2.5	5	15 ... 30	± 0.5
DPC4.0PAP1	8380 76 5717 35 0000 0000 PA P1 44 61 ZS Z1 Z2	0 ... 4	8	15 ... 30	± 0.5
DPC6.0PAP1	8380 77 5717 35 0000 0000 PA P1 44 61 ZS Z1 Z2	0 ... 6	12	15 ... 30	± 0.5
DPC10.0PAP1	8380 78 5717 35 0000 0000 PA P1 44 61 ZS Z1 Z2	0 ... 10	20	15 ... 30	± 0.5
DPC16.0PAP1	8380 79 5717 35 0000 0000 PA P1 44 61 ZS Z1 Z2	0 ... 16	32	15 ... 30	± 0.5
DPC25.0PAP1	8380 80 5717 35 0000 0000 PA P1 44 61 ZS Z1 Z2	0 ... 25	50	15 ... 30	± 0.5
DPC40.0PAP1	8380 81 5717 35 0000 0000 PA P1 44 61 ZS Z1 Z2	0 ... 40	80	15 ... 30	± 0.5
DPC60.0PAP1	8380 82 5717 35 0000 0000 PA P1 44 61 ZS Z1 Z2	0 ... 60	120	15 ... 30	± 0.5
DPC100.0PAP1	8380 83 5717 35 0000 0000 PA P1 44 61 ZS Z1 Z2	0 ... 100	200	15 ... 30	± 0.5

Ordering-no. for process connections

	Combination with UL
Measuring range	All ranges on datasheet
Sensor	All codes on datasheet
Pressure connection	All codes on datasheet
Electrical connection	All codes on datasheet
Output signal	All codes except PS and T1
Accessories	All codes except GA, GS and GU

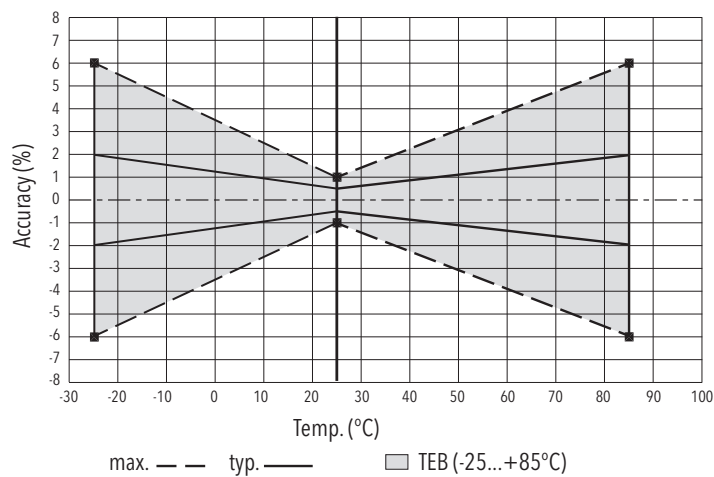
Parameters

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	SP1 > RP1 FH1 > FL1 Hysteresis ≥ 1 % FS	SP1	
Reset point RP1 (hysteresis mode) Lower switch point FL1 (window mode)	25 % Measuring range	RP1 < SP1 FL1 < FH1 Hysteresis ≥ 1 % FS	RP1	
Switch point SP2 (hysteresis mode) Upper switch point FH2 (window mode)	75 % Measuring range	SP2 > RP2 FH2 > FL2 Hysteresis ≥ 1 % FS	SP2	
Reset point RP2 (hysteresis mode) Lower switch point FL2 (window mode)	25 % Measuring range	RP2 < SP2 FL2 < FH2 Hysteresis ≥ 1 % FS	RP2	
Switch point delay time SP1 (hysteresis mode) Switch point delay time FH1 (window mode)	0	0 ... 99.99 s	dS1	
Switch point delay time RP1 (hysteresis mode) Switch point delay time FL1 (window mode)	0	0 ... 99.99 s	dR1	
Switch point delay time SP2 (hysteresis mode) Switch point delay time FH2 (window mode)	0	0 ... 99.99 s	dS2	
Switch point delay time RP2 (hysteresis mode) Switch point delay time FL2 (window mode)	0	0 ... 99.99 s	dR2	
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)	ou2	
Pressure units	bar	bar, psi, MPa, kPa, mWC, inchWC	uni	
Measuring range adjustment	100 % Nominal temperature	50 ... 100 % Nominal	P_EP	
Damping (analogue output)	0.01 s	0.01 ... 3.00 s (Time constant)	dAA	
Display rotation	no	no, yes (180°)	disr	
Display mode	Current measuring value	Pressure value: current, highest, lowest, display off Current value: decimal places selectable (max. 3)	dis	
Display actualisation	2	1, 2, 5, 20 Hz	duPd	

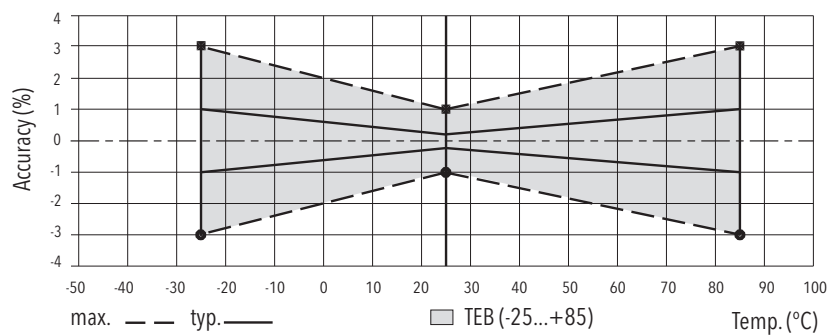
Specifications

Electrical data	Output / supply voltage	4 ... 20 mA: 24 (15 ... 30) VDC 0 ... 5 VDC: 24 (15 ... 30) VDC 1 ... 6 VDC: 24 (15 ... 30) VDC 0 ... 10 VDC: 24 (15 ... 30) VDC
	Power-on delay time	typ. 200 ms
	Inverse-polarity protection, short-circuit strength @ 25°C during 5 min.	Integrated
	Current consumption / power consumption	≤ 30 mA
	Resistance of insulation	> 10 MΩ, 100 VDC
	Dielectric strength	100 VAC, 50 Hz
	Current limiting output signal	4 ... 20mA: appr. 25 mA max.
Environmental conditions	Media temperature	-25°C ... +85°C
	Ambient temperature	max. -25°C ... +85°C (UL-rated ambient temperature: -20°C ... +80°C) Details see section Electrical Connection
	Storage temperature	-20°C ... +40°C
	Protection	IP67 details see section Electrical Connection
	Humidity	max. 95 % relative
	Vibration	10 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)	57/87: 1.4305 (AISI303) 59/89: 1.4404/1.4435 (AISI316L) 52/82: 1.4462 (AISI318LN) 53/83: Titanium Grade 5
	Housing	Zinc based die-casting alloy nickel plated, display housing plastic
	Sealing	FKM, EPDM
	Weight	~ 189 g
	Mounting torque	15 ... 20 Nm
	Housing alignment	Display 335° rotatable, max. 2.5 Nm Electrical connection 343° rotatable, max. 5 Nm

Measuring accuracy 0.5%



Measuring accuracy 0.3%



Analogue output

			Measuring accuracy 0.5 %	Measuring accuracy 0.3 %
Output signal	Switchable 4 ... 20 mA or voltage			
Accuracy	TEB @ -25 ... +85°C	[% FS typ.]	± 2.0	± 1.0
	Accuracy @ +25°C	[% FS typ.]	± 0.5	± 0.3
	NLH @ +25°C (BSL)	[% FS typ.]	± 0.2	± 0.2
	TC zero point and span	[% FS/K typ.]	± 0.03	± 0.02
	Long term stability 1 year @ +25°C	[% FS typ.]	± 0.3	± 0.2
Current limiting output signal	4 ... 20 mA: 25 mA (overload)			
	0 ... 10 VDC: < 40 mA (short-circuit)			
Damping (rise time)	0.01 ... 3.00 s / 10 ... 90 % Nominal pressure			
Zero set; ¹⁾ Offset correction of analogue output and display indication	± 0.2 % FS			
Measuring range zero point adjustment (P_nP) ¹⁾	0 ... 50 % FS ²⁾			
Measuring range end point adjustment (P_EP)	50 ... 100 % FS ²⁾			
Zero point adjustment analogue output (o_nP) ¹⁾	Voltage output: 0 ... 2 VDC Current output: 3.9 ... o_EP - 8 mA			
End point adjustment analogue output (o_EP) ¹⁾	Voltage output: o_nP + 4 ... 10.5 VDC Current output: o_nP + 8 ... 20.1 mA			

¹⁾ Available with optional function package, see Accessories

²⁾ P_EP - T_nP ≥ 50 % FS

Switching output

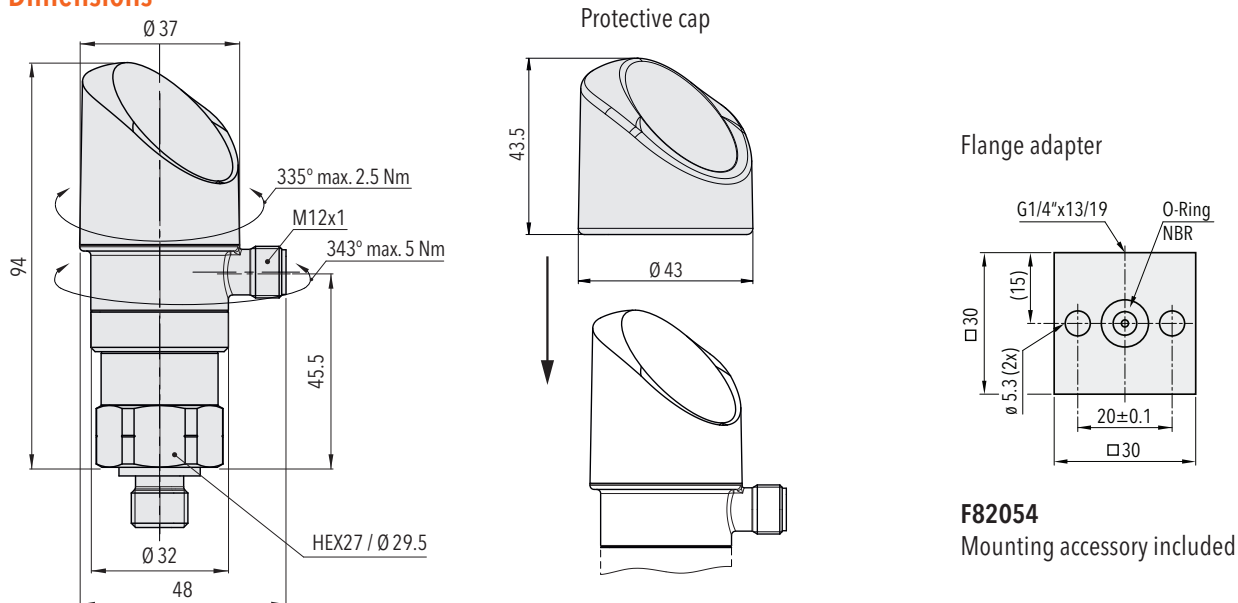
			Measuring accuracy 0.5 %	Measuring accuracy 0.3 %
Accuracy	Accuracy @ +25°C	[% FS typ.]	± 0.5	± 0.3
	TEB @ -25 ... +85°C	[% FS typ.]	± 2.0	± 1.0
	Long term stability 1 year @ +25°C	[% FS typ.]	≤ ± 0.3	± 0.2
Setting range of switchpoints	0 ... 100 % FS			
Switching hysteresis	≥ 1 % FS			
	Switchpoint > reset point			
Switching resistance	≤ 3 Ω			
Output function	Hysteresis, Window; normally closed (NO), normally open (NC)			
Switching current	≤ 0.5 A each switching output			
Current limiting	≤ 2 A each switching output			
Life time	> 100 x 10 ⁶ cycles			
Switching frequency	max. 200 Hz			
Delay time	0 ... 99.99 s			

Display

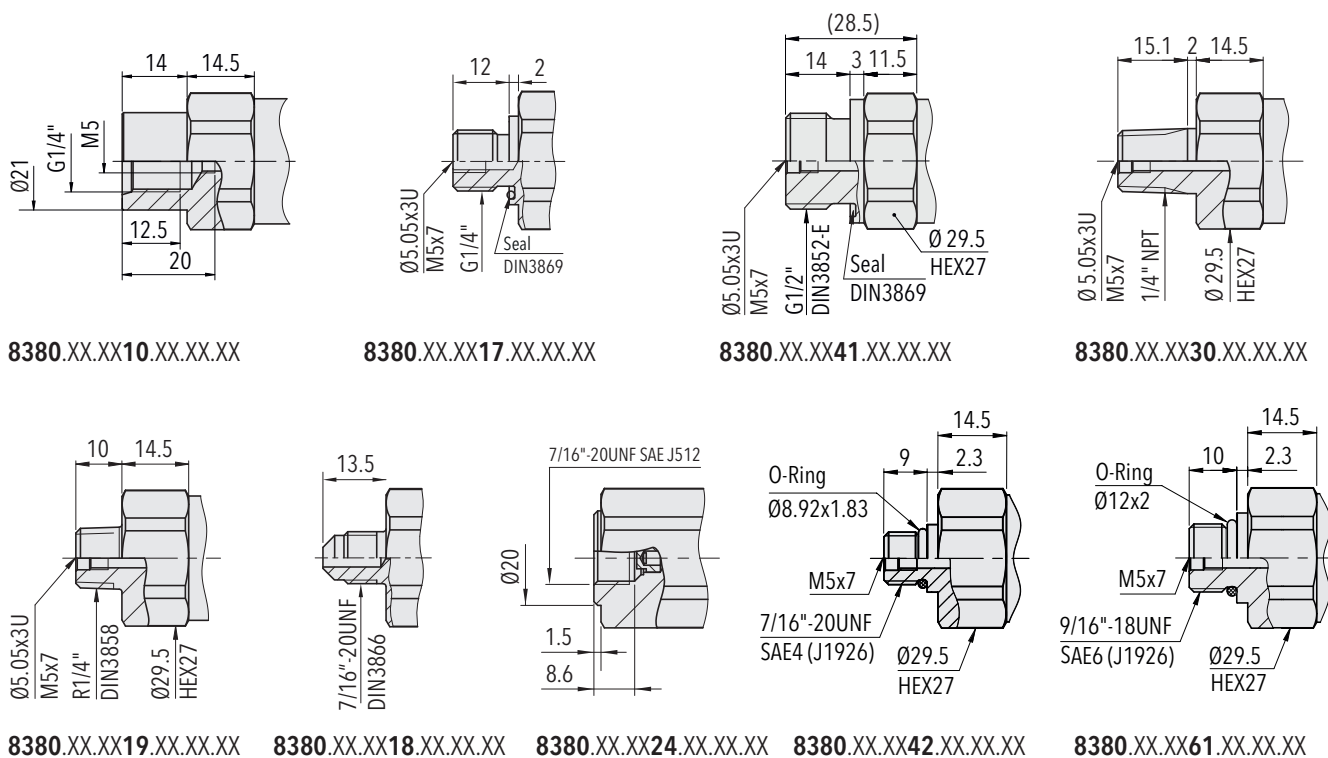
Display	4-digit 7-segment display 180° flippable with disable function Standard decimal places: ≤ 9: 3 decimal places 10 ... 99: 2 decimal places 100 ... 999: 1 decimal place
Switching status indication	2 LED, red
Operation	With 3 buttons and menu navigation according to VDMA 24574-1
Display resolution	0.1 % FS
Display range	-3 ... 103 % FS
Setting parameters	See table Parameters
User scale unit; User defined values for display indication zero point and end point ¹⁾	Display zero point: -999 ... 9998 Display end point: -998 ... 9999

¹⁾ Available with optional function package, see Accessories

Dimensions



8380.XX.XXXX.35/32.XX.XX



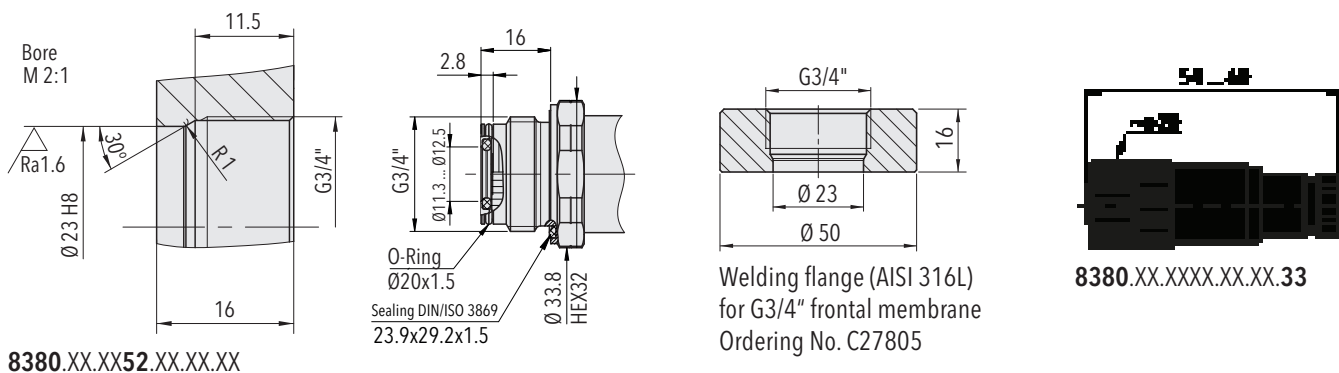
8380.XX.XX19.XX.XX.XX

8380.XX.XX18.XX.XX.XX

8380.XX.XX24.XX.XX.XX

8380.XX.XX42.XX.XX.XX

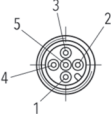
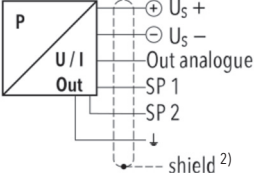
8380.XX.XX61.XX.XX.XX



8380.XX.XX52.XX.XX.XX

8380.XX.XXXX.XX.XX.33

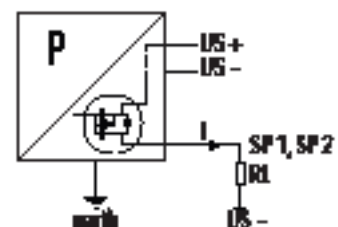
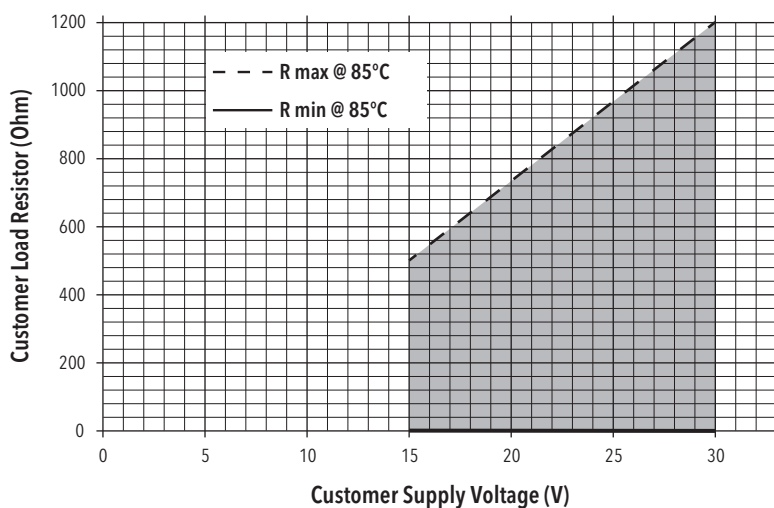
Electrical connection

	M12x1, 5-pole		M12x1, 4-pole	
				
Electrical connection type code	35		32	
IP protection	IP67 ¹⁾		IP67 ¹⁾	
Ambient temperature	-25°C ... +85°C		-25°C ... +85°C	
UL-rated ambient temperature	-20°C ... +80°C		-20°C ... +80°C	
Pin assignment type code	P1	P2	P3	P4
PA	✓	✓	✓	
PU	✓	✓	✓	
PV	✓	✓	✓	
PW	✓	✓	✓	
PS				✓
Pin assignment type code	P1	P2	P3	P4
Output signal 8380.xx.xxxx.xx.PA/PU/PV/PW/PS				
	1 3 2 4 5 Shield ²⁾	1 3 5 4 2 Shield ²⁾	1 3 2 4 Shield ²⁾	1 3 - 4 2 Shield ²⁾

¹⁾ Provided female electrical plug is mounted according to instructions

²⁾ The use of a shielded cable is recommended

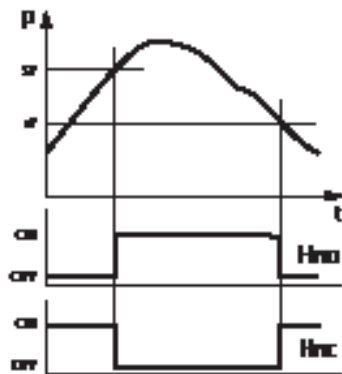
4...20mA: min./max resistor vs. supply voltage @ Pmax = 100%



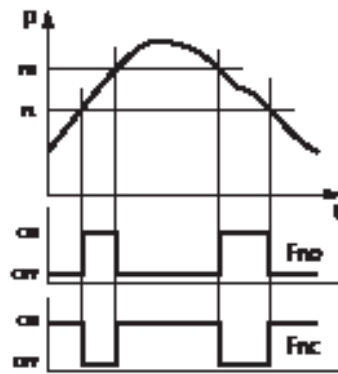
Connection of loads to switching output

Functions switching output

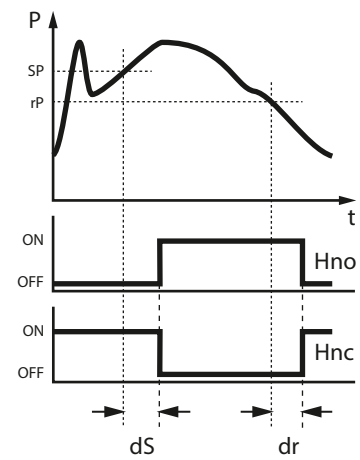
Hysteresis



Window



Delay



Reliable quality

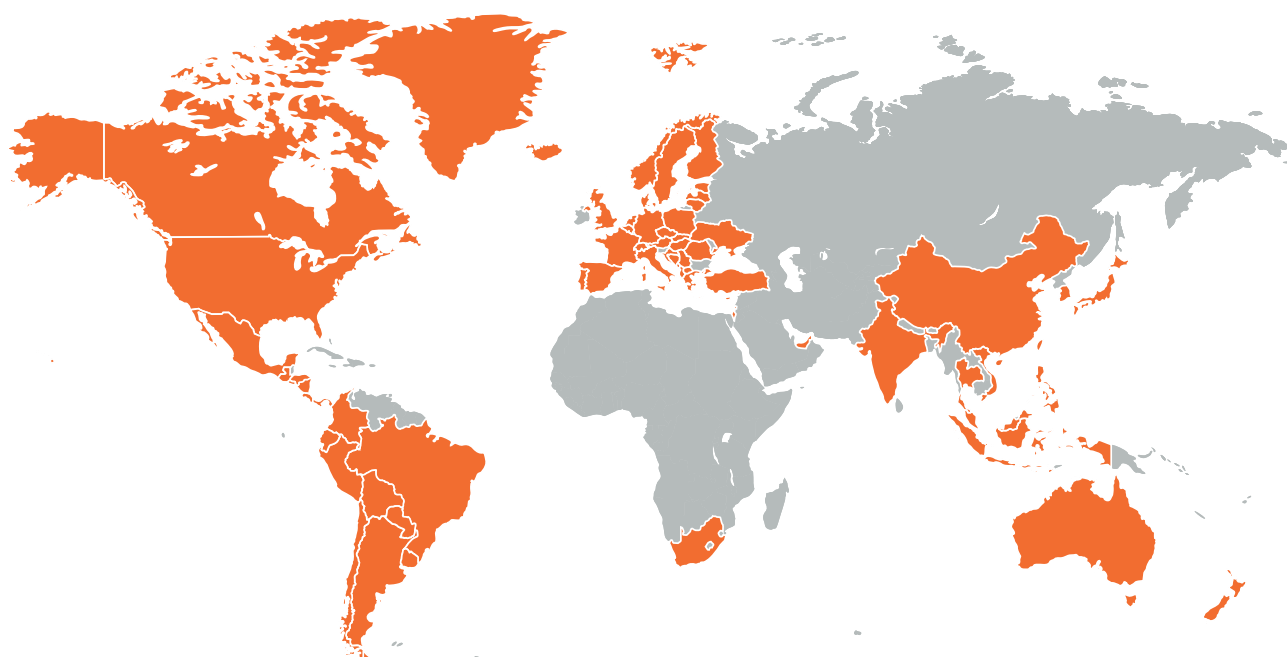
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Trafag develops, produces and distributes robust, reliable and precise instruments for monitoring pressure, temperature and gas density.

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.

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Pressure transmitters



Electronic pressure switches



Mechanical pressure switches



Pressure gauge



Thermostats



Temperature transmitters



Gas density