

DISPLAY PRESSURE SWITCH

Swiss based Trafag is a leading international supplier of high quality sensors and monitoring instruments for measurement of pressure and temperature. The DPC 8381 is the ideal combination of pressure switch and transmitter with a 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 DPS 8381 suitable for a wide range of demanding applications.

Applications

- Machine tools
- Hydraulics
- Process technology
- Industrial applications



Features

- Parametrisation also via NFC-smartphone App (Android)
- Display and electrical connection are independently rotatable 335°/343°
- Analogue output switchable mA or V
- Integrated datalogger
- Pressure range adjustable, 50 ... 100 % of the nominal range

Technical Data

| | | | |
|----------------------|--|---------------------------|--|
| Measuring principle | Thin film on steel | Media temperature | -25°C ... +85°C |
| Measuring range | 0 ... 2.5 to 0 ... 600 bar 0 ... 30 to 0 ... 7500 psi adjustable 50 ... 100 % FS | Ambient temperature | -25°C ... +85°C |
| Output signal | 4 ... 20 mA, 0 ... 5 VDC, 1 ... 6 VDC, 0 ... 10 VDC, switchable mA or V | Pressure unit for display | bar, psi, MPa, kPa, m WC, mm WC |
| Switching output | 2 transistors PNP | Logger | Ring buffer: 3518 data points Sampling time: 0.1 ... 999.9 s, Off (0) |
| Accuracy @ 25°C typ. | ± 0.5 % FS typ. | | |

04/2017

Data sheet H72321d

Subject to change

Ordering information/type code

| | | | | 8381 . 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 ... 2.5 | 7.5 | 50 | 75 | 0 ... 30 | 90 | 700 | G5 | | | |
| | 0 ... 4 | 12 | 60 | 76 | 0 ... 50 | 150 | 850 | G6 | | | | |
| | 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 ... 500 | 1500 | 4000 | H1 | | | | |
| | 0 ... 160 | 480 | 750 | 85 | 0 ... 1000 | 3000 | 5000 | H2 | | | | |
| | 0 ... 250 | 750 | 1000 | 74 | 0 ... 1500 | 4500 | 7000 | H3 | | | | |
| | 0 ... 400 | 1000 | 2000 | 84 | 0 ... 2000 | 6000 | 10000 | H5 | | | | |
| | 0 ... 600 | 1500 | 2500 | 86 | 0 ... 3000 | 9000 | 14500 | G4 | | | | |
| | | | | | 0 ... 5000 | 12500 | 21750 | H4 | | | | |
| | | | | | 0 ... 7500 | 18750 | 29000 | H6 | | | | |
| Sensor | Relative pressure, accuracy: 0.5 % | | | | | | | | | | | 25 |
| Pressure connection | G1/4" female ²⁾ | | 10 | | 1/2" NPT male ²⁾ | | | | | | 51 | |
| | G1/4" male (Seal) | | 17 | | M14x1.5 male DIN6149-2 ²⁾ | | | | | | 31 | |
| | R1/4" male, DIN3858 ²⁾ | | 19 | | 7/16"-20UNF male, DIN3866 ^{2) 4)} | | | | | | 18 | |
| | G1/2" male (Manometer) ²⁾ | | 11 | | 7/16"-20UNF male SAE4 (J1926) ^{2) 5)} | | | | | | 42 | |
| | 1/4" NPT male ²⁾ | | 30 | | 7/16"-20UNF female SAE J512 with valve opener ^{2) 4)} | | | | | | 24 | |
| Electrical connection | Male electrical plug M12x1, 4-pole, Mat. PA (Accessories P3, P4) | | | | | | | | | | | 32 |
| | Male electrical plug M12x1, 5-pole, Mat. PA (Accessories P1, P2) | | | | | | | | | | | |
| Output signal | Switching output PNP, current output 4 ... 20 mA; 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 | | | | | | | | | | | |
| Accessories | Pin configuration 5-pole.; 1: U+, 2: analogue, 3: U-, 4: SP1, 5: SP2 | | | | | | | | | | | P1 |
| | Pin configuration 5-pole.; 1: U+, 2: SP2, 3: U-, 4: SP1, 5: analogue | | | | | | | | | | | P2 |
| | Pin configuration 4-pole.; 1: U+, 2: analogue, 3: U-, 4: SP1 | | | | | | | | | | | P3 |
| | Pin configuration 4-pole.; 1: U+, 2: SP2, 3: U-, 4: SP1 | | | | | | | | | | | P4 |
| | Pressure peak damping element ø 1.0 mm (for pressure connections 17 and 30) | | | | | | | | | | | 40 |
| | Pressure peak damping element ø 0.4 mm (for pressure connections 17 and 30) | | | | | | | | | | | 44 |
| | Seal FPM, -18°C ... +125°C | | | | | | | | | | | 61 |
| | Seal EPDM, -40°C ... +125°C | | | | | | | | | | | 63 |
| | Seal NBR, -25°C ... +100°C | | | | | | | | | | | 83 |
| | Female electrical plug M12x1, 5-pole ³⁾ | | | | | | | | | | | 33 |
| | Parametrisation standard (see table Parameter) | | | | | | | | | | | ZS |
| | Parametrisation according to customer specifications (see table Parameter) | | | | | | | | | | | ZC |

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

²⁾ Upon request

³⁾ For electrical connections 32 and 35

⁴⁾ Max. allowable pressure range 60 bar at 120 bar overpressure

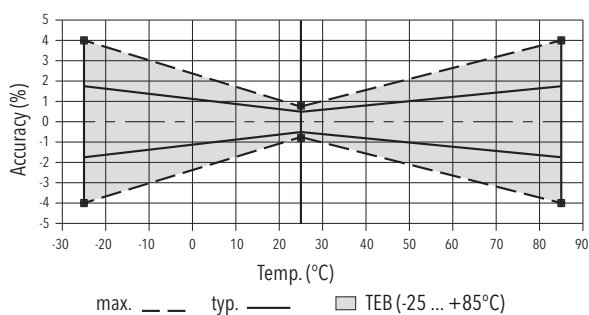
⁵⁾ According to norm J1926, max. 35 MPa

| Parameter | | | | |
|--|---------------------------------|---|------------|------------------------------------|
| 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, m WC | uni | |
| Measuring range adjustment | 100 % Nominal pressure | 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 pressure 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 |
| | Switch-on-delay | Typ. 200 ms |
| | Inverse-polarity protection, short-circuit strength @ 25°C during 5 min. | integrated |
| | Current consumption | ≤ 30 mA |
| Environmental conditions | Media temperature | -25°C ... +85°C |
| | Ambient temperature | -25°C ... +85°C |
| | Protection ¹⁾ | IP65 |
| | 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) | 1.4542 (AISI630) |
| | Pressure connection (wetted parts) | 1.4542 (AISI630) |
| | Housing | Steel, die cast metal galvanised display housing plastic |
| | Sealing | FPM, NBR, EPDM |
| | Male electrical plug | See ordering information |
| | Weight | ~ 189 g |
| | Mounting torque | 15 ... 20 Nm |
| | Housing alignment | Display 335° rotatable, max. 2.5 Nm Electrical connection 343° rotatable, max. 5 Nm |

¹⁾ See electrical connection

Measuring accuracy 0.5 %



Analogue output

| | | | |
|--------------------------------|--|---------------|--------|
| Output signal | Switchable 4 ... 20 mA or voltage | | |
| Accuracy | TEB @ -25 ... +85°C | [% FS typ.] | ± 1.75 |
| | Accuracy @ +25°C | [% FS typ.] | ± 0.5 |
| | NLH @ +25°C (BSL) | [% FS typ.] | ± 0.2 |
| | TC zero point and span | [% FS/K typ.] | ± 0.03 |
| | Long term stability 1 year | [% FS typ.] | ± 0.1 |
| 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 | | |

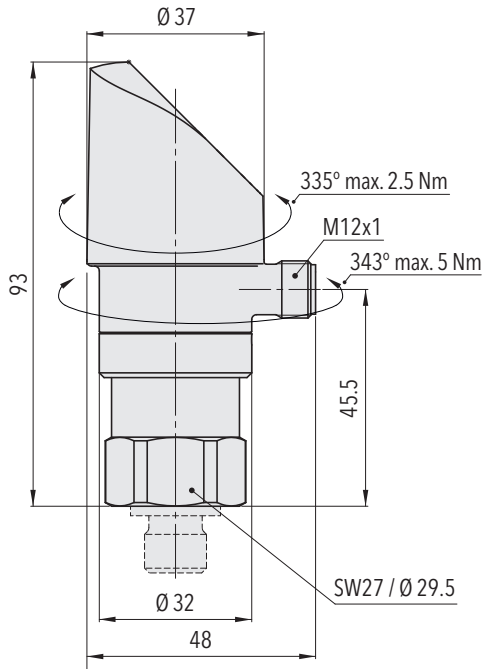
Switching output

| | | | |
|----------------------------------|--|-------------|---------|
| Accuracy | Accuracy @ +25°C | [% FS typ.] | ± 0.5 |
| | TEB @ -25 ... +85°C | [% FS typ.] | ± 1.0 |
| | Long term stability 1 year | [% FS typ.] | ≤ ± 0.3 |
| Adjustment 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 | | |
| Switching frequency | max. 200 Hz | | |
| Delay time | 0 ... 99.99 s | | |

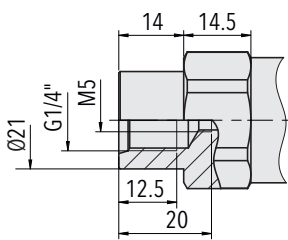
Display

| | |
|-----------------------------|--|
| 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 Parameter |

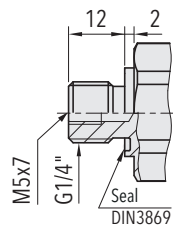
Dimensions



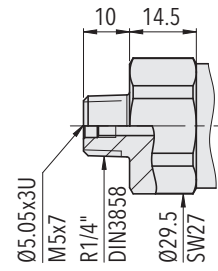
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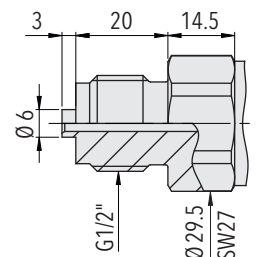
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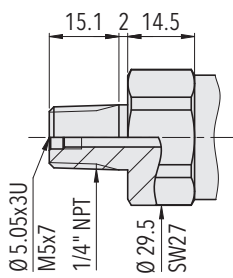
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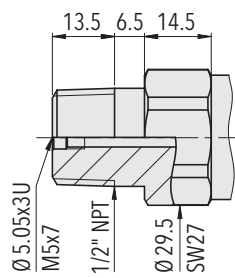
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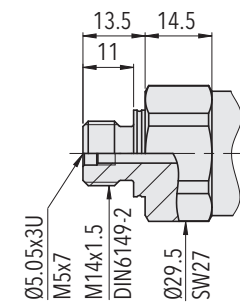
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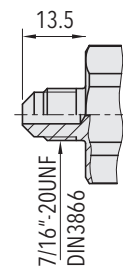
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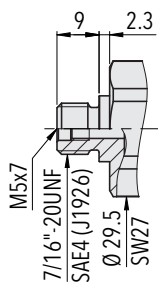
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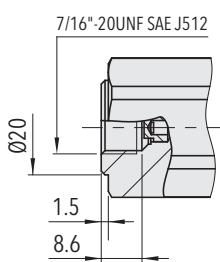
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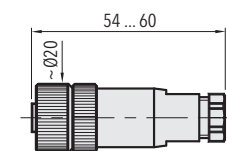
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8381.XX.XX24.XX.XX.XX



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Electrical connection

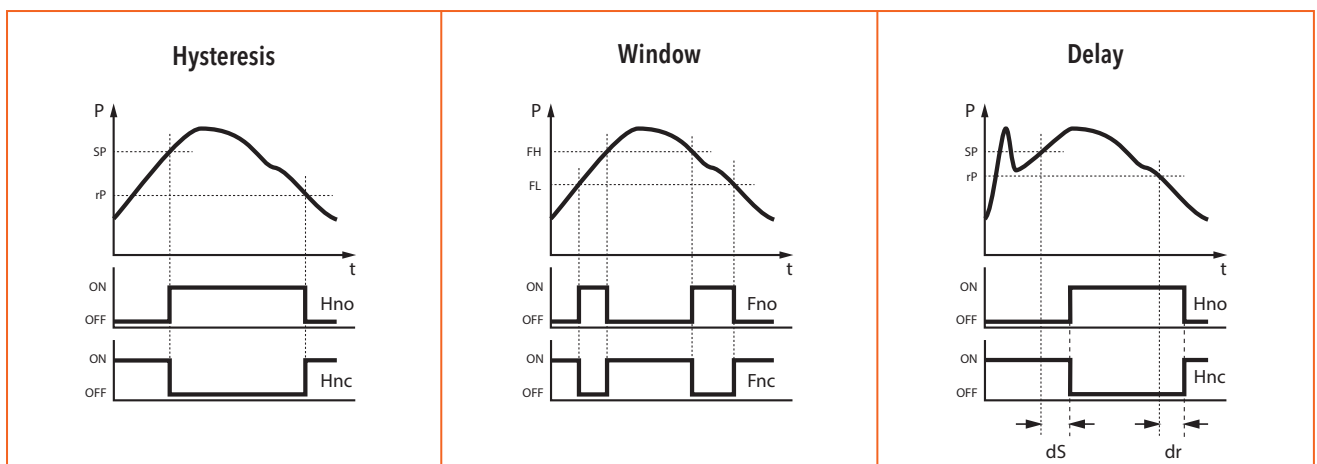
| | | Protection / electrical connection | | | |
|-------------------|--|---|---|--|---|
| | | IP65*) | | | |
| | | M12x1 | | | |
| | | 5-pole 35 | | 4-pole 32 | |
| | | | | | |
| Output signal | | P1 | P2 | P3 | P4 |
| | PA | ✓ | ✓ | ✓ | |
| | PU | ✓ | ✓ | ✓ | |
| | PV | ✓ | ✓ | ✓ | |
| | PW | ✓ | ✓ | ✓ | |
| | PS | | | | ✓ |
| Pin Configuration | | P1 | P2 | P3 | P4 |
| | U _S + U _S - Out analogue SP1 SP2 Shield *** 8381..XX.XXXX.XX.PA/PU/PV/PW/PS | 1 3 2 4 5 Shield *** Shield *** Shield *** | 1 3 5 4 2 Shield *** Shield *** | 1 3 2 4 Shield *** Shield *** | 1 3 - 4 2 Shield *** Shield *** |

Connection of loads to switching output

*) Provided female connector is mounted according to instructions

***) The use of a shielded cable is recommended

Functions switching output



| Additional information | | |
|------------------------|--------------|--|
| Documents | Data sheet | www.trafag.com/H72321 |
| | Instructions | www.trafag.com/H73320 |
| | Flyer | www.trafag.com/H70694 |