# CMP 8271

## CANopen Miniature Pressure Transmitter

## Applications

- Hydraulics
- Machine tools
- Engine manufacturing
- Process technology

## Features

- Small and rugged construction
- CANopen bus protocol DS301/DS404 supports CAN 2.0A/B
- LSS (DS 305 V2.0)
- Optional: 5-fold overpressure resistance

EMC: 2014/30/EU

S.I. 2016 No. 1091

RoHS/Reach compliant

CANopen bus protocol DS301/DS404

UL-listed version

## Product description

The CANopen miniature pressure transmitter CMP 8271 is designed for harsh environments in demanding applications like mobile hydraulics. The compact and well-proven design and the wide range of options makes it the preferred choice for cost-effective OEM solutions.

## Technical Data

| | |
|---|---|
| Measuring principle | Thin-film-on-steel |
| Measuring range | 0 ... 2.5 to 0 ... 700 bar<br>0 ... 30 to 0 ... 10000 psi |
| Output signal | Bus protocol CANopen DS404 |
| Media temperature | -40°C ... +125°C |
| Ambient temperature | max. -40°C ... +125°C<br>(UL-rated ambient temperature: -20°C ... +80°C) |

## Additional information

| | |
|---|---|
| Data sheet | www.trafag.com/H72619 |
| Instructions | www.trafag.com/H73619; H73620 |
| Accessories | www.trafag.com/H72258 |
| Video | https://youtu.be/_JLCgPJFKO4 |

# CMP 8271

## Ordering information/Type code

| | | | | | | | | 8271 | 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 ... 700 | 1500 | 2500 | **87** | 0 ... 5000 | 12500 | 21750 | **H4** | | | | | | |
| | 0 ... 1000 | 1500 | 2500 | **88** | 0 ... 7500 | 18750 | 29000 | **H6** | | | | | | |
| | Option 5P: | Fivefold overpressure | | | 0 ... 10000 | 18750 | 29000 | **H7** | | | | | | |
| | 0 ... 2.5 | 12.5 | 60 | **55** | | | | | | | | | | |
| | 0 ... 4 | 20 | 100 | **56** | | | | | | | | | | |
| | 0 ... 6 | 30 | 200 | **57** | | | | | | | | | | |
| | 0 ... 10 | 50 | 200 | **58** | | | | | | | | | | |
| | 0 ... 16 | 80 | 300 | **59** | | | | | | | | | | |
| | 0 ... 25 | 125 | 300 | **60** | | | | | | | | | | |
| | 0 ... 40 | 200 | 400 | **61** | | | | | | | | | | |
| | 0 ... 60 | 300 | 500 | **62** | | | | | | | | | | |
| | 0 ... 100 | 500 | 750 | **63** | | | | | | | | | | |
| | 0 ... 160 | 800 | 1000 | **65** | | | | | | | | | | |
| **Sensor** | Relative pressure, accuracy: 0.5 % | | | | | | | | **25** | | | | | |
| | Relative pressure, accuracy: 0.3 % | | | | | | | | **23** | | | | | |

# CMP 8271

| | | 8271 | XX | XX | XX | XX | XX | XX |
|---|---|---|---|---|---|---|---|---|
| **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 | | | | 53 | | | |
| | G1/8" male DIN 3852-E [2] | | | | 54 | | | |
| | 1/4" NPT male | | | | 30 | | | |
| | 1/8" NPT male [2] | | | | 43 | | | |
| | 7/16"-20UNF female, SAE J512 with valve opener [3] | | | | 24 | | | |
| | 7/16"-20UNF female, SAE J512 without valve opener [3] | | | | 44 | | | |
| | 7/16"-20UNF male, DIN 3866 [3] | | | | 18 | | | |
| | 7/16"-20UNF-2A male, SAE J1926-2 (Heavy Duty) [4] | | | | 69 | | | |
| | 9/16"-18UNF-2A male, SAE J1926-2 (Heavy Duty) [4] | | | | 67 | | | |
| | R1/4" male, DIN 3858 | | | | 19 | | | |
| | R1/4" male, DIN 2999 [5] | | | | 20 | | | |
| | R1/8" male, DIN 3858 [2] | | | | 16 | | | |
| | M10x1 male, DIN EN ISO 6149-2 [6] | | | | 32 | | | |
| | M12x1 male [7] | | | | 64 | | | |
| | M12x1.25 male [7] | | | | 65 | | | |
| | M12x1.5 male, DIN EN ISO 9974-2 | | | | 49 | | | |
| | M14x1.5 male DIN EN ISO 6149-2 [5] | | | | 31 | | | |
| **Electrical connection** | Male electrical connector M12x1, 5-pole, Mat. PA, IEC 61076-2-101 | | | | | 35 | | |
| **Output signal** | CANopen bus protocol | | | | | | 51 | |
| **Accessories** | Female electrical plug M12x1, 5-pole | | | | | | | 33 |
| | 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 |
| | Parametrisation standard with baudrate 20kbit/s and Node-ID 1 [8] | | | | | | | ZS |
| | Parametrisation standard with auto baudrate detection and Node-ID 1 [8] | | | | | | | ZA |
| | Parameterization according to customer specification [8] | | | | | | | ZC |
| | Multiple packaging [9] | | | | | | | VM |
| | Enhanced condensation protection [10] | | | | | | | CP |

[01] Extended overpressure as well as customized pressure ranges upon request
[02] max. allowable pressure range 160 bar (2320 psi) at 480 bar (6961 psi) overpressure
[03] max. allowable pressure range 60 bar (870 psi) at 180 bar (2610 psi) overpressure
[04] Measuring range max. 630 bar (9137 psi) according to SAE J1926-2 (Heavy Duty)
[05] Upon request, whereas minimum order quantities may apply
[06] max. allowable pressure range 250 bar (3626 psi) at 750 bar (10878 psi) overpressure
[07] Without seal, use seal geometry according DIN EN ISO 6149-2
[08] One parameterization option must be selected
[09] The order quantity must be a multiple of 50
[10] Only in combination with accuracy of 0.3% (Sensor 23)

## Ordering information: Possible type code combinations for UL-listed versions

| | 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 on datasheet |
| Accessories | All codes except GA, GS and GU |

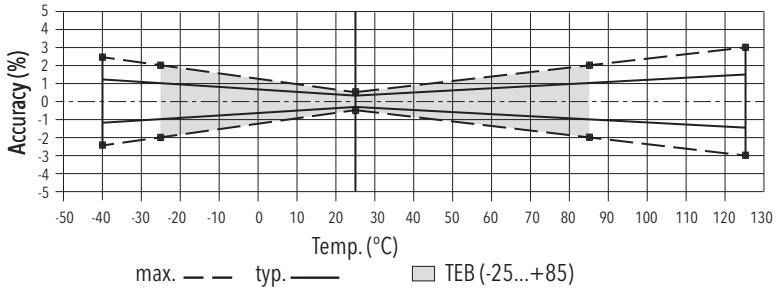
## Compatibility matrix pressure connection and accessories

| | | 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 DIN 3852-E | ✓ | ✓ | ✓ | ✓ | |
| 30 | 1/4″ NPT male | ✓ | ✓ | | | |
| 43 | 1/8″ NPT male | ✓ | ✓ | | | |
| 24 | 7/16″-20UNF female, SAE J512 with valve opener | | | | | |
| 44 | 7/16″-20UNF female, SAE J512 without valve opener | | | | | |
| 18 | 7/16″-20UNF male, DIN 3866 | | | | | |
| 69 | 7/16″-20UNF-2A male, SAE J1926-2 (Heavy Duty) | ✓ | ✓ | ✓ | ✓ | |
| 67 | 9/16″-18UNF-2A male, SAE J1926-2 (Heavy Duty) | ✓ | ✓ | ✓ | ✓ | |
| 19 | R1/4″ male, DIN 3858 | ✓ | ✓ | | | |
| 20 | R1/4″ male, DIN 2999 | ✓ | ✓ | | | |
| 16 | R1/8″ male, DIN 3858 | ✓ | ✓ | | | |
| 32 | M10x1 male, DIN EN ISO 6149-2 | ✓ | ✓ | ✓ | | |
| 64 | M12x1 male | ✓ | ✓ | | | |
| 65 | M12x1.25 male | ✓ | ✓ | | | |
| 49 | M12x1.5 male, DIN EN ISO 9974-2 | ✓ | ✓ | ✓ | | |
| 31 | M14x1.5 male DIN EN ISO 6149-2 | ✓ | ✓ | ✓ | | |

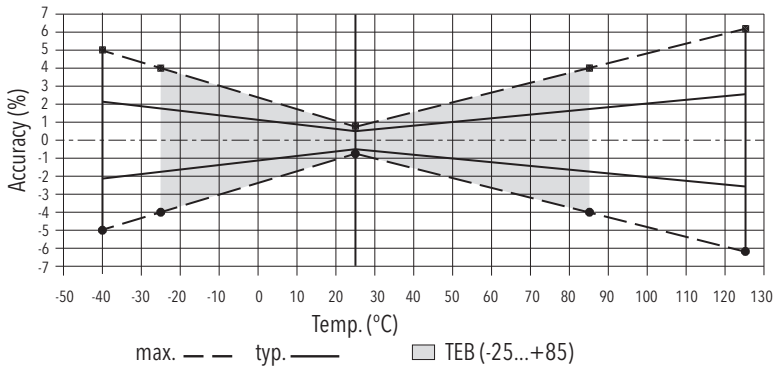
## Accuracy

| | | Accuracy class 0.3 %<br>Ordering code 23 | Accuracy class 0.5 %<br>Ordering code 25 |
|---|---|---|---|
| TEB @ -25 ... +85°C | [% FS typ.] | ± 1.0 | ± 1.75 |
| Accuracy @ +25°C | [% FS typ.] | ± 0.3 | ± 0.5 |
| NLH @ +25°C (BSL) | [% FS typ.] | ± 0.2 | ± 0.2 |
| TC zero point and span | [% FS/K typ.] | ± 0.01 | ± 0.03 |
| Long term stability 1 year @ +25°C | [% FS typ.] | ± 0.1 | ± 0.1 |
| Signal of pressure sensor | Resolution | ≥ 10 bit @ 1 ms<br>13 bit @ ≥ 8 ms | ≥ 10 bit @ 1 ms<br>13 bit @ ≥ 8 ms |
| | Sampling rate (fix) | 1ms (1 kHz) | 1ms (1 kHz) |
| | Measuring filter | Repeating average and moving average acc. DS-404 | Repeating average and moving average acc. DS-404 |

## Accuracy class 0.3 %




## Accuracy class 0.5 %



## Standard configurations

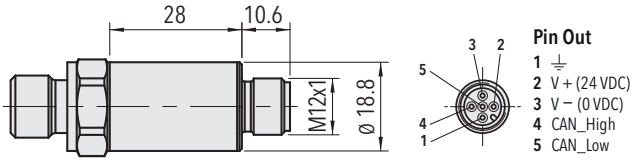
| Product No. | Type Code | Pressure range [bar] | Overpressure max. [bar] | Supply [VDC] | Accuracy @ 25°C typ. [%] |
|---|---|---|---|---|---|
| CMP2.5M | 8271 75 2517 35 0000 0000 51 44 | 0 ... 2.5 | 7.5 | 9 ... 32 | ± 0.5 |
| CMP4.0M | 8271 76 2517 35 0000 0000 51 44 | 0 ... 4 | 12 | 9 ... 32 | ± 0.5 |
| CMP6.0M | 8271 77 2517 35 0000 0000 51 44 | 0 ... 6 | 18 | 9 ... 32 | ± 0.5 |
| CMP10.0M | 8271 78 2517 35 0000 0000 51 44 | 0 ... 10 | 30 | 9 ... 32 | ± 0.5 |
| CMP16.0M | 8271 79 2517 35 0000 0000 51 44 | 0 ... 16 | 48 | 9 ... 32 | ± 0.5 |
| CMP25.0M | 8271 80 2517 35 0000 0000 51 44 | 0 ... 25 | 75 | 9 ... 32 | ± 0.5 |
| CMP40.0M | 8271 81 2517 35 0000 0000 51 44 | 0 ... 40 | 120 | 9 ... 32 | ± 0.5 |
| CMP100.0M | 8271 83 2517 35 0000 0000 51 44 | 0 ... 100 | 300 | 9 ... 32 | ± 0.5 |
| CMP250.0M | 8271 74 2517 35 0000 0000 51 44 | 0 ... 250 | 750 | 9 ... 32 | ± 0.5 |
| CMP400.0M | 8271 84 2517 35 0000 0000 51 44 | 0 ... 400 | 1000 | 9 ... 32 | ± 0.5 |

### CANopen Features

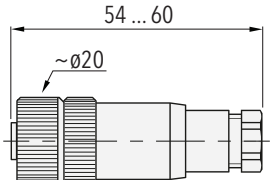
- CiA conformance tested
- Output signal: CAN BUS (ISO 11898-2)
- CANopen: DS301
- Device profile: DS404-1
- CiA bus speeds: 10kbit/s … 1Mbit/s
- Autobaud / Baudrate detection
- Supports 11 bit identifiers: CAN 2.0 A/B
- SDO-Server: 1
- TX-PDOs: 2
- PDO modes: time-triggered, sync (cyclic)
- PDO mapping: yes
- All standardized data types for PDO's: Floating point, integer with 32, 16 bits
- Frequency of measurement and transmission: Up to 1kHz
- Measuring filter: Repeating average and moving average acc. DS-404-1
- Eligible, prefix adjustable units for pressure: bar, Pa, psi, mmHg, atm, at; temperature: °C, °F, K
- Auto-zero function
- Auto-Start-Mode for operation without master
- LSS (DS305) implemented
- Error control with Heartbeat
- Emergency message
- Separate storage of parameters for communication and application
- Flash-Update

# CMP 8271

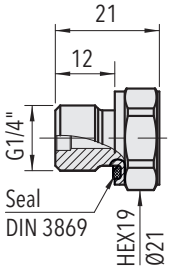
## Dimensions



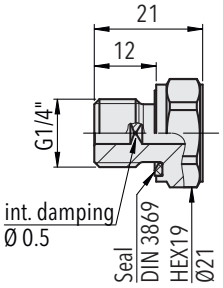

**8271**.XX.XXXX.**35**.XX.XX



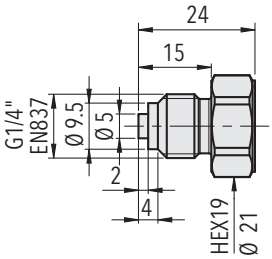

**8271**.XX.XXXX.XX.XX.**33**



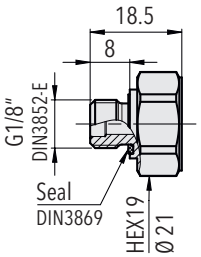

**8271**.XX.XX**17**.XX.XX.XX



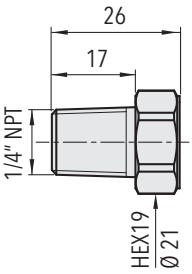

**8271**.XX.XX**15**.XX.XX.XX



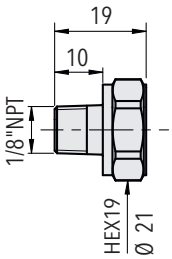

**8271**.XX.XX**53**.XX.XX.XX



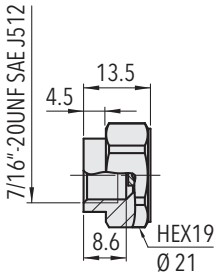

**8271**.XX.XX**54**.XX.XX.XX



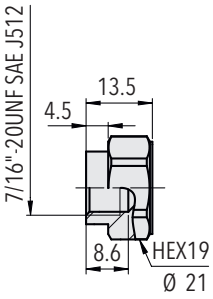

**8271**.XX.XX**30**.XX.XX.XX



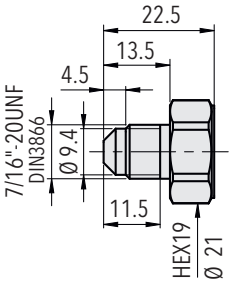

**8271**.XX.XX**43**.XX.XX.XX



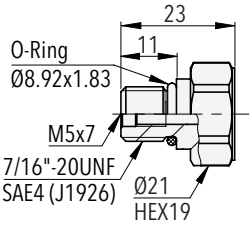

**8271**.XX.XX**24**.XX.XX.XX



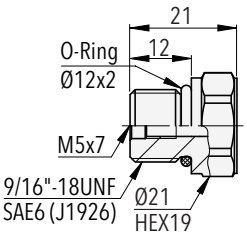

**8271**.XX.XX**44**.XX.XX.XX



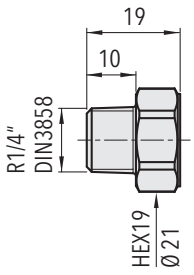

**8271**.XX.XX**18**.XX.XX.XX



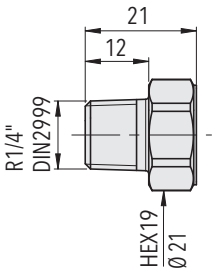

**8271**.XX.XX**69**.XX.XX.XX



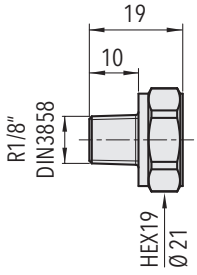

**8271**.XX.XX**67**.XX.XX.XX



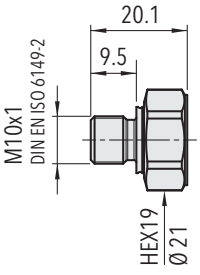

**8271**.XX.XX**19**.XX.XX.XX



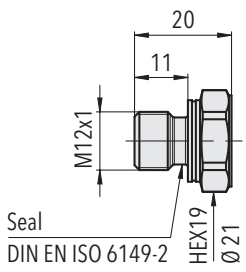

**8271**.XX.XX**20**.XX.XX.XX



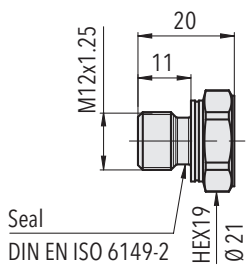

**8271**.XX.XX**16**.XX.XX.XX



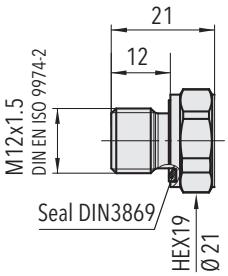

**8271**.XX.XX**32**.XX.XX.XX



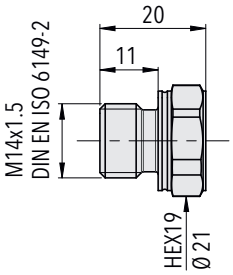

**8271**.XX.XX**64**.XX.XX.XX




**8271**.XX.XX**65**.XX.XX.XX




**8271**.XX.XX**49**.XX.XX.XX




**8271**.XX.XX**31**.XX.XX.XX

# CMP 8271

## Specifications

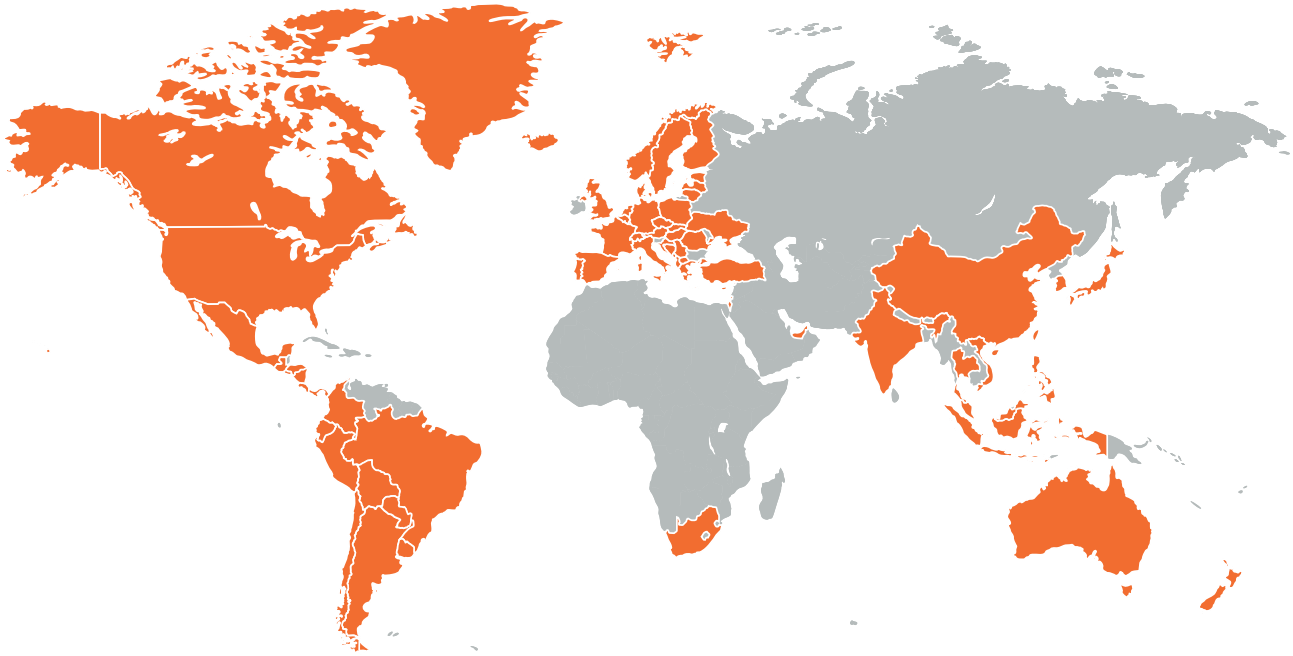
| | | |
|---|---|---|
| **Electrical data** | Output / supply voltage | Bus protocol CANopen/12/24 (9 ... 32) VDC |
| | Current consumption / power consumption | < 0.5 W |
| | Resistance of insulation | > 10 MΩ, 50 VDC |
| | Dielectric strength | 50 VAC, 50 Hz |
| **Environmental conditions** | Media temperature | -40°C ... +125°C |
| | Ambient temperature | max. -40°C ... +125°C<br>(UL-rated ambient temperature: -20°C ... +80°C) |
| | Storage temperature | -20°C ... +40°C |
| | Protection [1] | min. IP67 |
| | Vibration | 16 g RMS (10 ... 2000 Hz) (EN 60068-2-64)<br>25 g sin (80 ... 2000 Hz), 1 oct./min,<br>(1x @ 25°C) (EN 60068-2-6) |
| | Shock | 50 g/8 ms<br>100 g/6 ms Male electrical plug M12x1<br>(EN 60068-2-27) |
| **EMC protection** | Emission | EN/IEC 61000-6-3 |
| | Immunity [2] | EN/IEC 61000-6-2 |
| **Mechanical data** | Sensor (wetted parts) | 1.4542 (AISI 630) |
| | Pressure connection (wetted parts) | 1.4542 (AISI 630) |
| | Housing | 1.4301 (AISI 304) |
| | Sealing | See ordering information |
| | Male electrical connector | See ordering information |
| | Weight | ~ 60 g |
| | Mounting torque | 25 Nm |

[1] Provided female electrical plug is mounted according to instructions
[2] Tests carried out with shielded cable

# 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