

CANOPEN MINIATURE PRESSURE TRANSMITTER

Swiss based Trafag is a leading international supplier of high quality sensors and monitoring instruments for measurement of pressure and temperature. The CANopen miniature pressure transmitter CMP is based on Trafag's own thin-film-on-steel technology which offers high accuracy and longterm stability even in harsh environments. The most compact design and the proven high-performance electronics with CiA-certified, comprehensive CANopen-functionality makes the CMP 8270 best-in-class pressure transmitter.



Applications

- Engine manufacturing
- Railways
- Machine tools
- Hydraulics
- Process technology
- Test benches

Features

- Small and rugged construction
- Different accuracy classes
- Measurement of pressure and temperature
- CANopen bus protocol DS301/DS404 supports CAN 2.0A/B
- LSS (DS 305 V2.0)

Technical Data			
Measuring principle	Thin-film-on-steel	Accuracy @ 25°C typ.	± 0.5 % FS typ. ± 0.15 % FS typ. ± 0.1 % FS typ.
Measuring range	0 ... 0.2 to 0 ... 600 bar 0 ... 3 to 0 ... 7500 psi	Media temperature	-50°C ... +135°C
Output signal	Bus protocol CANopen DS404	Ambient temperature	-40°C ... +125°C

02/2019

Data sheet H72614p

Subject to change

Ordering information/type code

Measuring range ¹⁾	Pressure measurement range [bar]	Over pressure [bar]	Burst pressure [bar]		Pressure measurement range [psi]	Over pressure [psi]	Burst pressure [psi]		8270 . XX	XX	XX	XX	XX	XX
	0 ... 0.2 ^{2) 3) 5)}	1.2	25	68	0 ... 3 ^{2) 3) 5)}	18	350	F8						
	0 ... 0.4 ^{2) 5)}	1.2	25	69	0 ... 5 ^{2) 5)}		350	F9						
	0 ... 0.6 ^{2) 5)}	1.5	25	70	0 ... 10 ^{2) 5)}	25	350	G0						
	0 ... 1 ²⁾	2	25	71	0 ... 15 ²⁾	30	350	G1						
	0 ... 1.6 ²⁾	3.5	50	73	0 ... 25 ²⁾	50	700	G3						
	0 ... 2.5 ²⁾	5	50	75	0 ... 30 ²⁾	60	700	G5						
	0 ... 4	12	100	76	0 ... 50	100	850	G6						
	0 ... 6	12	100	77	0 ... 100	200	1450	G7						
	0 ... 10	20	200	78	0 ... 150	300	2500	G8						
	0 ... 16	32	200	79	0 ... 200	400	2500	GA						
	0 ... 25	50	300	80	0 ... 250	500	2500	G9						
	0 ... 40	80	300	81	0 ... 300	600	4000	HA						
	0 ... 60	120	400	82	0 ... 400	800	4000	H0						
	0 ... 100	200	500	83	0 ... 500	1000	4000	H1						
	0 ... 160	320	750	85	0 ... 1000	2000	5000	H2						
	0 ... 250	500	1000	74	0 ... 1500	3000	7000	H3						
	0 ... 400	800	1500	84	0 ... 2000	4000	10000	H5						
	0 ... 600	1200	2000	86	0 ... 3000	6000	14500	G4						
					0 ... 5000	10000	21750	H4						
					0 ... 7500	15000	29000	H6						
Sensor	Relative pressure, accuracy: 0.5 %			25	Absolute pressure, accuracy: 0.5 % ⁴⁾			45						
	Relative pressure, accuracy: 0.15 %			21	Absolute pressure, accuracy: 0.15 % ⁴⁾			41						
	Relative pressure, accuracy: 0.1 %			24	Absolute pressure, accuracy: 0.1 % ⁴⁾			44						
Pressure connection	G1/4" male (Seal)													17
	1/4" NPT male													30
	7/16"-20UNF male ^{3) 4)}													18
	7/16"-20UNF female, DIN3866 (valve opener) ^{3) 4)}													24
	M10x1 male, DIN EN ISO 6149-2													32
Electrical connection	Male electrical plug M12x1, 5-pole, Mat. PA													35
Output signal	CANopen bus protocol with pre-adjustment Node-ID = 1, baudrate = 20 kbps													52
	CANopen bus protocol with pre-adjustment, Node-ID: 1, automatic baudrate detection													53
Accessories	Female electrical plug M12x1, 5-pole													33
	Pressure peak damping element ø 1.0 mm													40
	Pressure peak damping element ø 0.3 mm													43
	Pressure peak damping element ø 0.5 mm													45

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

²⁾ Only with pressure connection 17 (G1/4") or 30 (1/4"NPT)

³⁾ Only for relative pressure

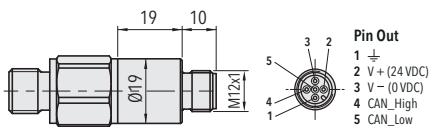
⁴⁾ Max. allowable pressure range 40 bar/600 psi

⁵⁾ Only for sensors 0.5 % accuracy (Ordering no. 25 and 45)

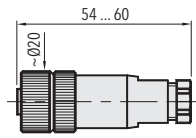
Standard products (extra short lead time)

Product No.	Type Code	Pressure range [bar]	Over pressure max. [bar]	Supply [VDC]	Accuracy @ 25°C typ. [%]
CMP4.0M	8270 76 2517 35 0000 0000 52 43	0 ... 4	12	8 ... 32	± 0.5
CMP6.0M	8270 77 2517 35 0000 0000 52 43	0 ... 6	12	8 ... 32	± 0.5
CMP10.0M	8270 78 2517 35 0000 0000 52 43	0 ... 10	20	8 ... 32	± 0.5
CMP16.0M	8270 79 2517 35 0000 0000 52 43	0 ... 16	32	8 ... 32	± 0.5
CMP25.0M	8270 80 2517 35 0000 0000 52 43	0 ... 25	50	8 ... 32	± 0.5
CMP40.0M	8270 81 2517 35 0000 0000 52 43	0 ... 40	80	8 ... 32	± 0.5
CMP100.0M	8270 83 2517 35 0000 0000 52 43	0 ... 100	200	8 ... 32	± 0.5
CMP250.0M	8270 74 2517 35 0000 0000 52 43	0 ... 250	500	8 ... 32	± 0.5
CMP400.0M	8270 84 2517 35 0000 0000 52 43	0 ... 400	800	8 ... 32	± 0.5

Dimensions



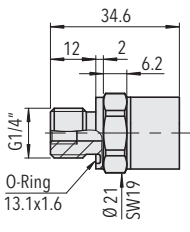
Pin Out
 1 \downarrow
 2 V+ (24 VDC)
 3 V- (0 VDC)
 4 CAN_High
 5 CAN_Low



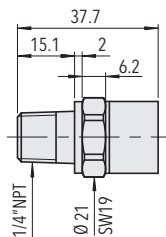
8270.XX.XXXX.35.XX.XX

8270.XX.XXXX.XX.XX.33

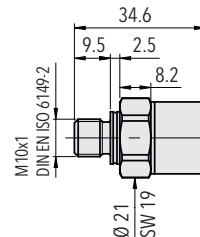
≤ 0 ... 2.5 bar



8270.XX.XX17.XX.XX.XX

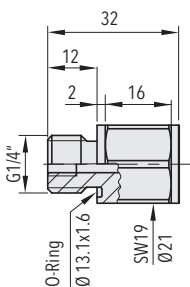


8270.XX.XX30.XX.XX.XX

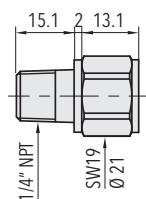


8270.XX.XX30.XX.XX.XX

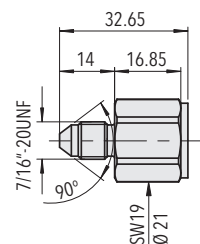
> 0 ... 2.5 bar



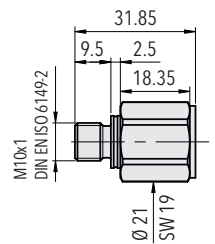
8270.XX.XX17.XX.XX.XX



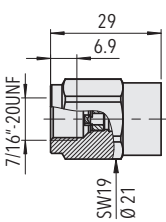
8270.XX.XX30.XX.XX.XX



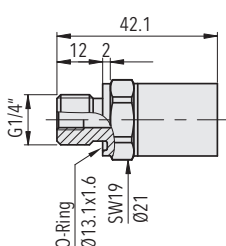
8270.XX.XX18.XX.XX.XX



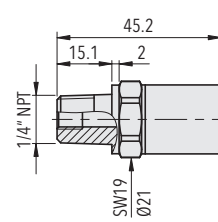
8270.XX.XX30.XX.XX.XX



8270.XX.XX24.XX.XX.XX



8270.XX.4417.XX.XX.XX



8270.XX.4430.XX.XX.XX

Specifications		
Electrical Data	Output / supply voltage	Bus protocol CANopen / 12/24 (8...32)VDC
	Rise time	Typ. 1 ms / 10 ... 90 % nominal pressure
	Current consumption	ca. 20 mA
Environmental conditions	Media temperature	-50°C ... +135°C
	Ambient temperature	-40°C ... +125°C
	Protection ¹⁾	Min. IP67
	Humidity	Max. 95 % relative
	Vibration	40 g (20 ... 2000 Hz)
	Shock	100 g / 11 ms
EMC Protection	Emission	EN/IEC 61000-6-4
	Immunity	EN/IEC 61000-6-2
Mechanical Data	Sensor (wetted parts)	1.4542 (AISI630)
	Pressure connection (wetted parts)	Pressure ranges ≤ 250 bar: 1.4542 (AISI630) Pressure ranges > 250 bar: 1.4301 (AISI304)
	Housing	1.4301 (AISI304)
	Sealing	FKM 70 Sh
	Male electrical plug	See ordering information
	Weight	~ 60 g
	Mounting torque	25 Nm

¹⁾ Provided female connector is mounted according to instructions

Accuracy				
		Measuring accuracy 0.5 % Ordering No. 25/45	Measuring accuracy 0.15 % Ordering No. 21/41	Measuring accuracy 0.1 % Ordering No. 24/44
TEB @ -25 ... +85°C	[% FS typ.]	± 2.0	± 0.2	± 0.1
Accuracy @ +25°C	[% FS typ.]	± 0.5	± 0.15	± 0.1
NLH @ +25°C (BSL)	[% FS typ.]	± 0.3	± 0.15	± 0.1
TC zero point and span	[% FS/K typ.]	± 0.03	± 0.002	± 0.002
Long term stability 1 year @ +25°C	[% FS typ.]	< ± 0.2	± 0.1	< ± 0.1
Signal of pressure sensor				
Resolution		≥ 10 bit @ 1 ms 13 bit @ ≥ 5 ms	≥ 10 bit @ 1 ms 13 bit @ ≥ 5 ms	≥ 10 bit @ 1 ms 13 bit @ ≥ 5 ms
Sampling rate (fix)		1ms (1 kHz)	1ms (1 kHz)	1ms (1 kHz)
Measuring filter (moving average)	[ms]	1 ... 65'000	1 ... 65'000	1 ... 65'000
Signal of temperature sensor				
Total error @ -25 ... +85°C	[°C typ.]	not calibrated	± 1	± 1
Sampling rate (fix)			10x100 ms (1 Hz)	10x100 ms (1 Hz)
Measuring filter (moving average)	[s]		0.1 ... 6500	0.1 ... 6500

CANopen Features

- CiA conformance tested
- All CiA bus speeds: 10kbit/s...1Mbit/s
- Autobaud
- Supports 11/29 bit identifiers: CAN 2.0 A/B
- Frequency of measurement and transmission upto 1kHz
- Moving average filter: 1ms...65s (pressure)
- Additional PDO mode: delta and limit triggered
- All standardised data types for PDO's Floating point, integer with 32, 24, 16 bits
- Eligible, prefix adjustable units pressure: bar, Pa, psi, mmHg, mmWg, atm, at; temperature: °C, °F, K
- Auto-zero function
- Auto-Start-Mode for operation without master
- 4 Pressure - and 4 temperature thresholds with 8 free definable CAN messages
- Separate storage of parameters for communication and application
- Flash-Update
- Baudrate detection

CANopen- Bus Protocol

- Output signal: CAN BUS (ISO 118982)
- CANopen: DS301 V4.0
- Device profile: DS404 V1.2
- Baudrate (Autobaude): 10kbit/s...1Mbit/s
- Error control: Nodeguarding, Heartbeat
- Node ID: LSS (DSP 305 V2.0) fully implemented, proprietary
- No. of PDO's: 4 TX
- PDO modes: event-/time-triggered, remotely requested, sync (cyclic/acyclic)
- PDO linking: yes
- PDO mapping: yes
- No. of SDO's: 1 server
- Emergency message: yes

Additional information

Documents		
	Data sheet	www.trafag.com/H72614
	Instructions	www.trafag.com/H73614
	Flyer	www.trafag.com/H70653