

CANopen Miniature Pressure Transmitter

CANopen®



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.

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

CE EMC: 2014/30/EU

UK CA S.I. 2016 No. 1091

✓ RoHS/Reach compliant

CAN CANopen bus protocol DS301/DS404

UL  UL-listed version

Technical Data

Measuring principle	Thin-film-on-steel
Measuring range	0 ... 2.5 to 0 ... 700 bar 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 (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/_JLCgPJFK04

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					

	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			
	3/8"-24UNF-2A male, SAE J1926-2 (Heavy Duty) ³⁾			68			
	7/16"-20UNF female, SAE J512 with valve opener ⁴⁾			24			
	7/16"-20UNF female, SAE J512 without valve opener ⁴⁾			44			
	7/16"-20UNF male, DIN 3866 ⁴⁾			18			
	7/16"-20UNF-2A male, SAE J1926-2 (Heavy Duty) ³⁾			69			
	9/16"-18UNF-2A male, SAE J1926-2 (Heavy Duty) ³⁾			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⁾ Measuring range max. 630 bar (9137 psi) according to SAE J1926-2 (Heavy Duty)

⁰⁴⁾ max. allowable pressure range 60 bar (870 psi) at 180 bar (2610 psi) overpressure

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

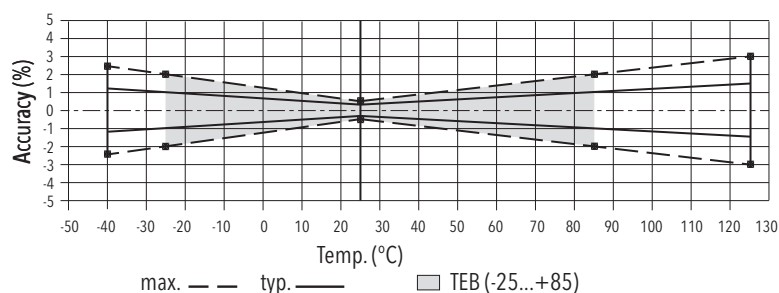
Compatibility matrix pressure connection and accessories

Code	Pressure connection	Damping		Seal		
		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	✓	✓			
68	3/8"-24UNF-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					
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	✓	✓	✓		

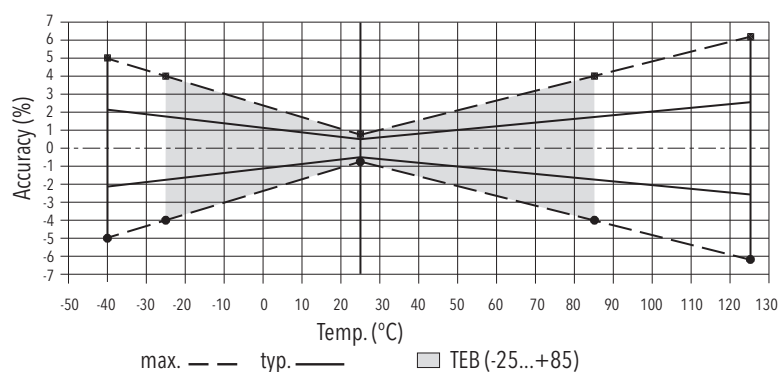
Accuracy

		Accuracy class 0.3 % Ordering code 23	Accuracy class 0.5 % 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 13 bit @ ≥ 8 ms	≥ 10 bit @ 1 ms 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 %



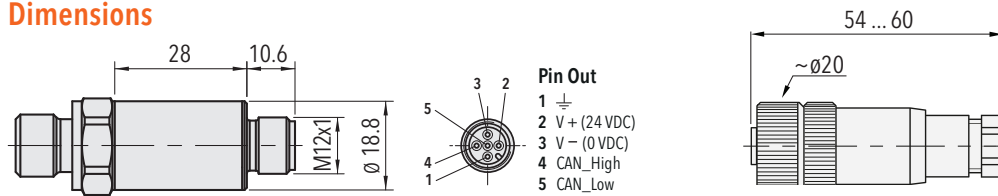
Standard configurations

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

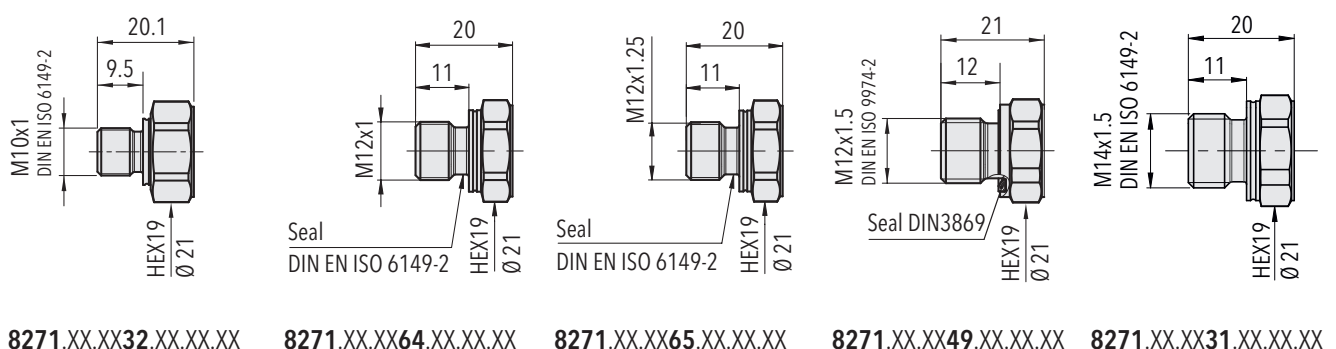
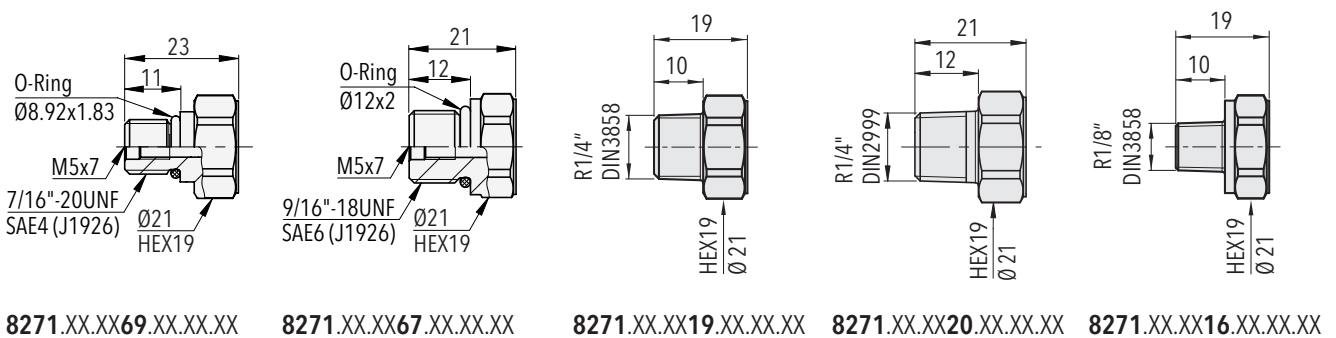
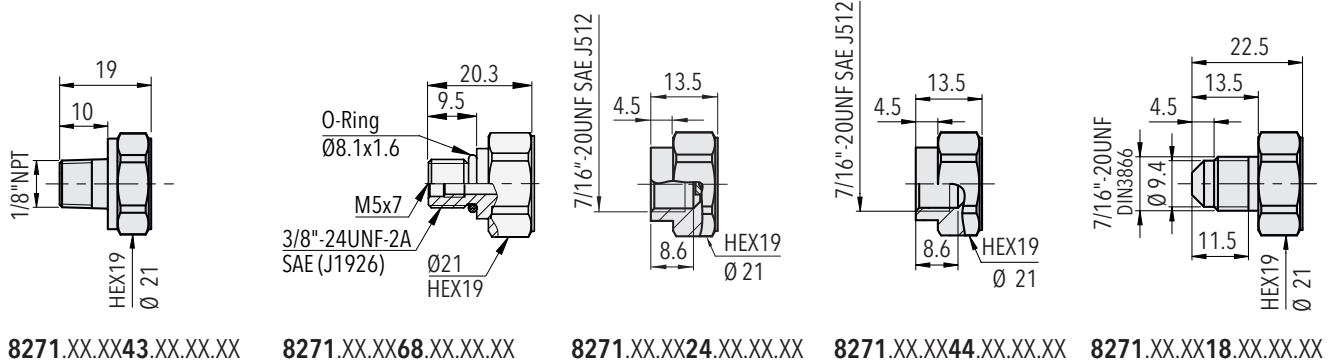
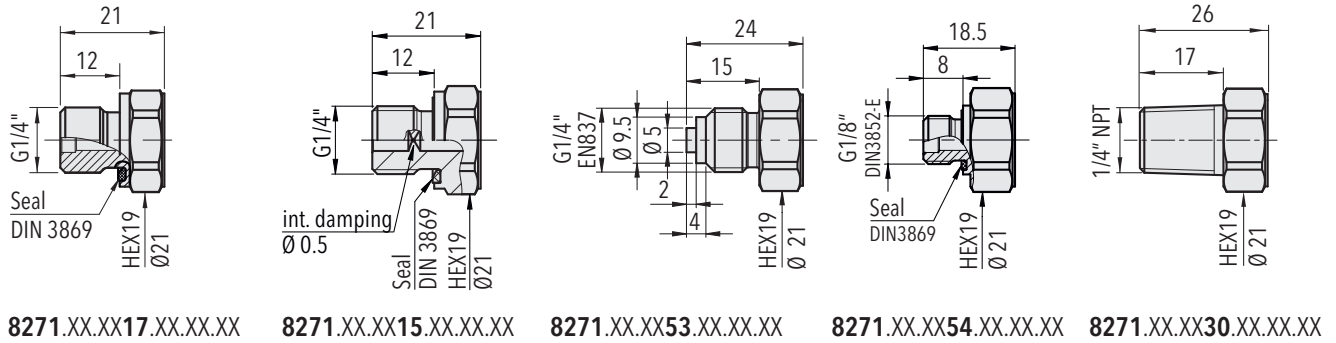
- CiA conformance tested
- Output signal: CAN BUS (ISO 11898-2)
- CANopen: DS301
- Device profile: DS404-1
- CiA bus speeds: 10kbit/s ... 1Mbit/s
- Autobaud / Baudrate detection
- Supports 11 bit identifiers: CAN 2.0 A/B
- SDO-Server: 1
- TX-PDOs: 2
- PDO modes: time-triggered, sync (cyclic)
- PDO mapping: 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

Dimensions



8271.XX.XXXX.35.XX.XX

8271.XX.XXXX.XX.XX.33



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 (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) 25 g sin (80 ... 2000 Hz), 1 oct./min, (1x @ 25°C) (EN 60068-2-6)
	Shock	50 g/8 ms 100 g/6 ms Male electrical plug M12x1 (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

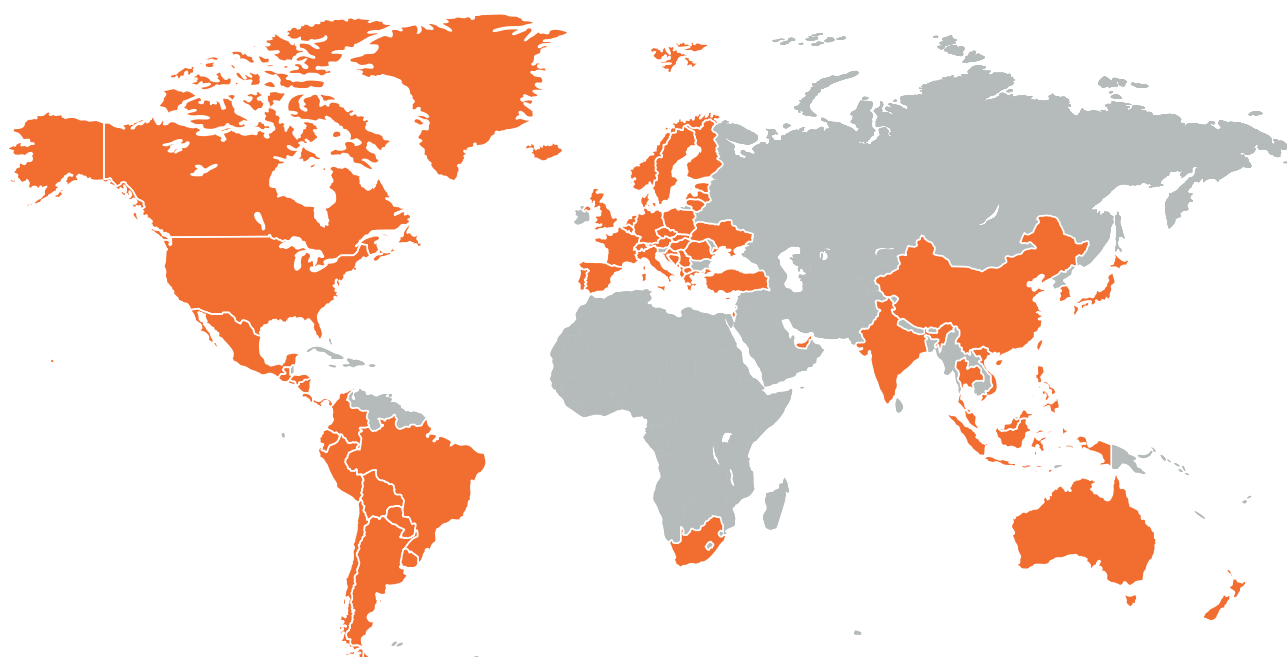
Worldwide represented, globally trusted, Swiss based

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