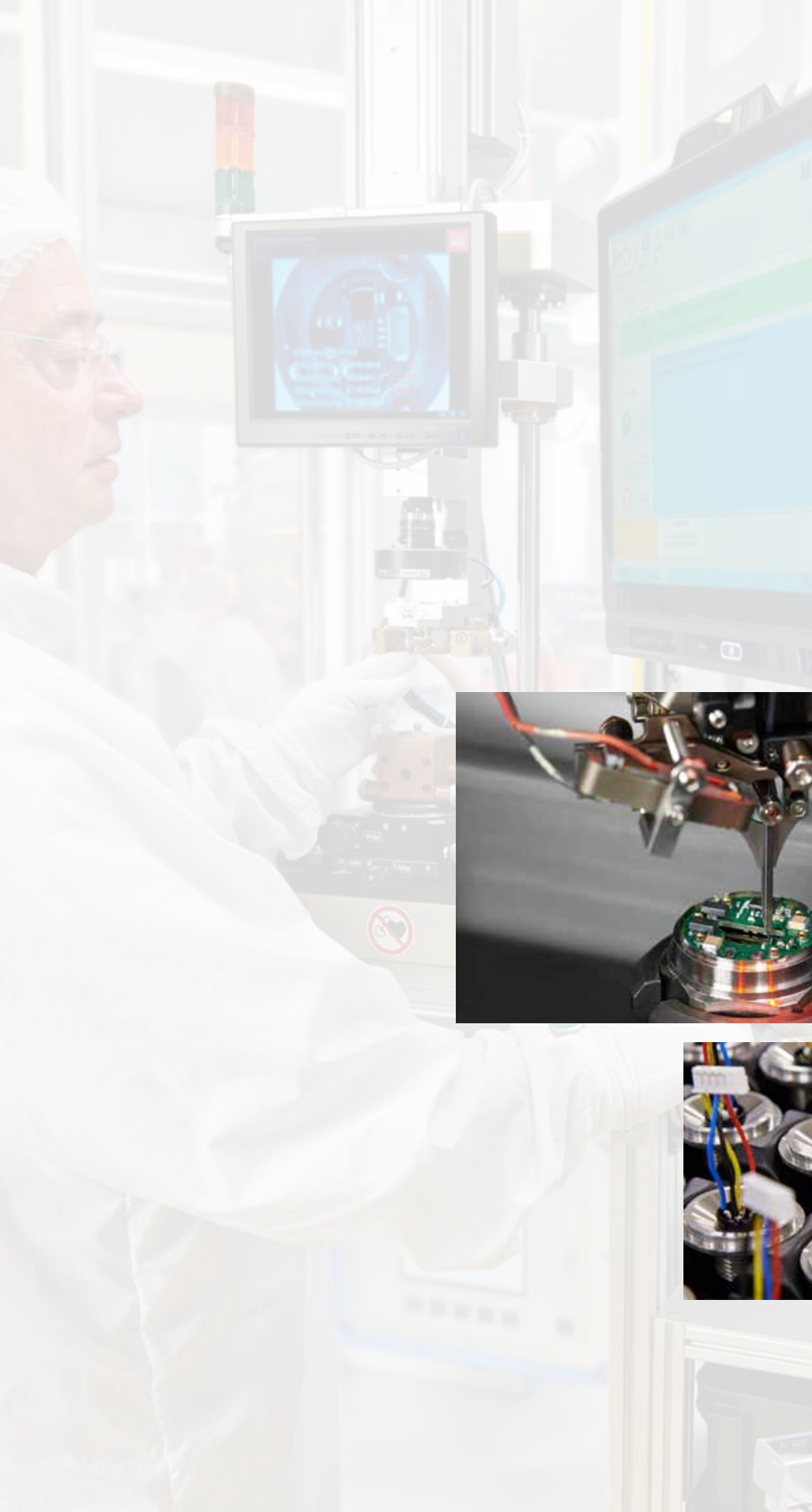


TRAFAG INSIGHT

Pressure and temperature
monitoring solutions





Trafag – Sensors and monitoring instruments for pressure and temperature

Trafag, a Swiss-based company founded in 1942, is supported by a broad sales and service network in over 40 countries across the world. This allows Trafag to offer customers personalised and competent advice and ensures the best possible service. High-performance development and production departments not only guarantee the fast and reliable delivery of our high-quality and high-precision products, but also ensure that customisations can be implemented in a short time.

Competent and customer-oriented

Technological competence, manufacturing expertise and customer-orientation form the three cornerstones of Trafag as a company. Trafag is a completely independent company with headquarters in Bubikon, Switzerland, and further manufacturing companies in Germany and the Czech Republic. A fifth of its employees in Switzerland are involved in the fields of research and development, production technology or applications engineering.

Application and solution-oriented

The direct availability of these resources enables Trafag to be extremely flexible in the areas of development and production as well as in its perception and implementation of customer requirements. Thanks to modular engineering, Trafag is able to efficiently adapt its standard products to the specific needs of customers and to develop special OEM solutions.

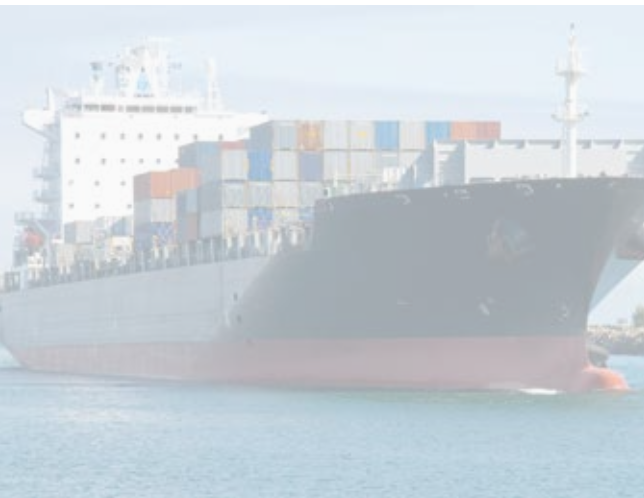
Market-oriented and always within reach

Trafag maintains an active presence in over 40 countries. A great number of customers in diverse industrial sectors such as mechanical engineering, hydraulics, engine manufacturing, shipbuilding, railway technology or high-voltage technology appreciate the cooperation offered by our technically competent customer advisory service.

Adaptable and efficient

The ability to develop and manufacture its strategically important components in-house means that Trafag can both mass-produce and manufacture on a small scale at short notice. Rigorous quality management in accordance with ISO 9001, state of the art production facilities under clean room conditions and stringently monitored production processes ensure that Trafag meets the highest quality demands.

Our products are at home where you are



Shipbuilding

- Propulsion
- Pumps
- Ballast water treatment
- Steering
- Separators
- Tank level



Hydraulics

- Construction machinery
- Agricultural machinery
- Injection molding machines
- Community vehicles
- Elevators



Engines

- Common rail injection
- Cooling water
- Oil pressure
- Fuel pressure
- Turbo charger





Railways

- Brake systems
- Pantograph
- Air compressors
- Control and safety systems
- Air-conditioning systems



Test & measurement

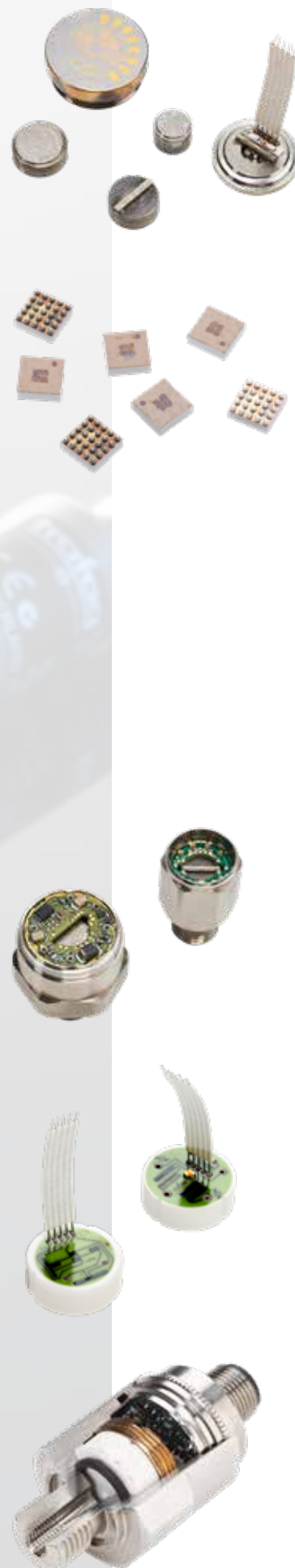
- Engine and transmission test benches
- Mobile vehicle testing
- Testing of hydraulic components
- Material testing
- Brake and chassis test benches



Various

- Water treatment
- Level monitoring
- Machine building industry
- HVAC
- Oil and gas
- Chemical industry, process technology





Pressure transmitters and electronic pressure switches

Trafag pressure transmitters and electronic pressure switches are used for measuring and evaluating pressure. Over the decades, they have proven themselves in a multitude of demanding applications in harsh environments. Superior technology and precise manufacturing ensure that the transmitters work perfectly, especially in areas where high requirements are placed on long-term stability, vibration resistance, electromagnetic compatibility, shock resistance or temperature insensitivity. Trafag pressure transmitters and electronic pressure switches are available in many different designs to suit pressure and electrical connections, measuring procedures, electrical output signals. They are available with Ex- and ship approvals as well as with railway conformity.

Sensor technology

Key components of Trafag pressure transmitters are pressure sensors based on thin-film-on-steel technology (welded design without O-ring) or thick-film-on-ceramic technology. Both sensor technologies come from Trafag's own production and were developed in-house together with the ASIC (application-specific microchip). As a result, pressure sensors and electronics work in perfect partnership and achieve a unique level of long-term stability and reliability, even under the most adverse environmental conditions.

Thin-film-on-steel sensor technology

- Very good long term stability
- Resistant to high media temperatures
- Completely welded stainless steel sensor system without O-rings
- Resistant to very high over pressures and ideal for nominal pressures up to 3000 bar

Thick-film-on-ceramic sensor technology

- Resistant to aggressive media
- Ideal for low measuring ranges
- Relative and absolute pressure measurement



Mechanical pressure switches

Trafag's electromechanical pressure switches provide high vibration resistance and switch point precision in combination with an extremely robust and durable design. This results in switches that can be operated for decades without requiring maintenance, even under harsh conditions. Various designs with bellows, membrane and piston sensors cover a wide variety of pressure ranges, media and load profiles for many different applications. Pressostats are available with Ex- and ship approvals as well as with railway conformity.

Bellow sensor

- High switching point precision and repeatability
- Stainless steel, bronze and brass designs
- Optionally welded/soldered design for absolute impermeability
- Measure liquid, vaporous and gaseous media

Piston sensor

- Suitable for high pressure ranges
- Not sensitive to pressure surges
- Suitable for applications with many load cycles
- Ideal for hydraulic systems

Membrane sensor

- Resistant to high overpressures and not sensitive to pressure surges
- Suitable for applications with many load cycles
- Measure liquid, vaporous and gaseous media



Thermostats

For 70 years Trafag thermostats have proven their robustness in order to withstand the most adverse environmental conditions. Industry usage ranges from air conditioning applications to engine and ship manufacturing and even to offshore oil and gas platform production. The appeal of Trafag thermostats lies in their high switching point precision even after decades of operation under harsh conditions without maintenance. Trafag thermostats are available in various sensor and housing versions, with various Ex and ship approvals as well as in railway-compliant versions.

Measuring principle

A capillary tube filled with liquid reacts to a temperature change as a result of the principle of thermal expansion. This expansion is detected using a precision structure which switches one or multiple microswitches.

Design variations

- With internal or external temperature set-point adjustment
- Internal or external measuring scale
- With or without a manual reset switch
- With or without DT-switching differential adjustment
- Switch designs for inside or outside applications
- Optional capillary tube safeguard
- Single or double-step circuit
- CE, EX or ship certifications

Sensor systems and accessories

- Sensors that are fixed or can be mounted freely
- Copper (Cu), Cu nickel-plated or stainless steel sensor material
- Nickel-plated bronze or stainless steel protective sensor tube
- Additional capillary tube protection



Accessories

Trafag offers a wide range of original accessories which are ideally matched to our products. These include devices for monitoring or configuring transmitters such as hand pumps with precision pressure gauge or the Sensor Communicator, a handheld device which provides direct access to the calibration values of the transmitter in the Trafag ASIC. Trafag also offers a wide range of accessories that meet specific application requirements and make installation easier, such as diagnostic valve manifolds, snubbers and pressure peak damping elements. For thermostats various protective pipes are available.

Accessories for pressure measurement instruments

- SMI Sensor Master Interface
- SC Sensor Communicator
- CAN2USB CANopen Configuration Tool
- DVB Diagnostic valve block
- Hand pump with precision manometer
- Switch amplifier
- Venting box
- Cable hanger
- Pressure peak damping element
- Snubber
- Adapters for different pressure connections
- Stop valve

Accessories for thermostats

- Protection tubes for direct mounting and remote sensors
- Duct mounting bracket
- Capillary tube holder
- Mounting brackets
- Screwed cable glands, ship approved, for retrofit

Accessories for pressure measurement instruments



SMI

Sensor Master Interface

- Read out of sensor data
- Parameterization of switching points on NAX pressure switches
- Measuring range adjustment on submersible pressure transmitter ECL
- Fast and easy operation via Android App "Sensor Master Communicator SMC"

www.trafag.com/H72618



SC

Sensor Communicator

- Read out of sensor data
- Adjustment of set point or zero point and span
- Real time pressure measuring
- Software update and battery charge with USB-interface

www.trafag.com/H73699



DVB

Diagnostic Valve Block

- Function tests during operation (no interruption necessary) with stop valve and test connection

www.trafag.com/H72361



THP...

Hand pump

- For testing of pressure transmitters and pressure switches



V6/V7

Stop valve

- Allows replacement of instruments without interruption of process (max. 40 bar)

www.trafag.com/H72258



A../D..

Adapters with manometer pressure ports

- Pressure adapters with different thread combinations and materials for individual applications

www.trafag.com/H72258

Accessories for thermostats



83../84..

Protection tubes for remote sensors

- For liquid media
- Pressure proof up to 25 bar (types 83xx)
- Pressure proof up to 40 bar (types 84xx)

www.trafag.com/H72163



121.../141...

Protection tubes for direct mounting

- For thermostats type MST and ISPT/ISNT
- Lateral clamp mounting (type MST)
- Pressure proof up to 40 bar (types 141x)
- With captive nut (types 141x)

www.trafag.com/H72163



W.../K...

Thermostat sensor duct holder

- For HVAC
- For retrofitting of thermostats

www.trafag.com/H72106



CG

Screwed cable gland

- DIN 8280 for shipbuilding
- Retrofit for pressure transmitters, pressure switches and thermostats



K80140

Capillary tube holder

- For Froststats F/F...R

Pressure transmitters

	NAT 8252	NAH 8253	NAH 8254	NAE 8256	
					
Measuring principle	Thin-film-on-steel	Thin-film-on-steel	Thin-film-on-steel	Thin-film-on-steel	
Measuring range	0 ... 2.5 to 0 ... 600 bar 0 ... 30 to 0 ... 7500 psi	0 ... 2.5 to 0 ... 600 bar 0 ... 30 to 0 ... 7500 psi	0 ... 0.2 to 0 ... 600 bar 0 ... 3 to 0 ... 7500 psi	0 ... 6 to 0 ... 600 bar 0 ... 100 to 0 ... 7500 psi	
Output signal	4 ... 20 mA, 0.5 ... 4.5 VDC, 0 ... 5 VDC, 0.5 ... 5 VDC, 1 ... 5 VDC, 0.5 ... 5.5 VDC, 1 ... 6 VDC, 0 ... 10 VDC, 1 ... 10 VDC, 0.1 ... 10.1 VDC, 0.5 ... 4.5 VDC ratiometric, Switching output: 1 or 2 PNP transistors	4 ... 20 mA, 0 ... 5 VDC, 1 ... 6 VDC, 0 ... 10 VDC, 0.5 ... 4.5 VDC ratiometric	4 ... 20 mA, 0.5 ... 4.5 VDC, 0 ... 5 VDC, 0.5 ... 5 VDC, 1 ... 5 VDC, 0.5 ... 5.5 VDC, 1 ... 6 VDC, 0 ... 10 VDC, 1 ... 10 VDC, 0.1 ... 10.1 VDC, 0.5 ... 4.5 VDC ratiometric, Switching output: 1 or 2 PNP transistors	4 ... 20 mA	
Accuracy @ 25°C typ.	± 0.5 % FS typ.	± 0.3 % FS typ. ± 0.15 % FS typ. ± 0.1 % FS typ.	± 0.3 % FS typ.	0.5 %: ± 0.5 % FS typ. 0.3 %: ± 0.3 % FS typ.	
Ambient temperature	-40°C ... +125°C	-40°C ... +125°C	-40°C ... +125°C	-40°C ... +125°C	
Media temperature	-40°C ... +125°C	-40°C ... +125°C	-40°C ... +125°C	-40°C ... +125°C	
Protection	IP65, IP67, IP68	Min. IP65	IP65, IP67, IP68	IP65, IP67	
Sensor (wetted parts)	1.4542 (AISI630)	1.4542 (AISI630)	1.4542 (AISI630)	1.4542 (AISI630)	
Pressure connection (wetted parts)	1.4542 (AISI630)	1.4542 (AISI630) 1.4301 (AISI304)	1.4542 (AISI630)	1.4542 (AISI630)	
Housing	1.4301 (AISI304)	1.4301 (AISI304)	1.4301 (AISI304)	1.4301 (AISI304)	
Pressure connections	G1/4" m; G1/4" m (Manometer); G1/8" m, DIN3852-E; 1/4" NPT m; 1/4" NPT f; 1/8" NPT m; 7/16"-20UNF f, SAE J512; 7/16"-20UNF m, SAE4 (J1926); 7/16"-20UNF m, DIN3866; 9/16"-18UNF m, SAE6 (J1926); R1/4" m, DIN3858; R1/4" m, DIN2999; R1/8" m, DIN3858; M10x1 m, DIN EN ISO 6149-2; M12x1.5 m, DIN EN ISO 9974-2; M14x1.5 m, DIN EN ISO 6149-2	G1/4" m; 1/4" NPT m; 1/4" NPT f; 7/16"-20UNF m; 7/16"-20UNF f, DIN3866, valve opener; 7/16"-20UNF m, SAE4 (J1926); 3/8"-24UNF m, SAE6 (J514); R1/4" m, DIN2999; M14x1.5 m, DIN EN ISO 6149-2	G1/4" m; G1/4" m (Manometer); G1/8" m, DIN3852-E; 1/4" NPT m; 1/4" NPT f; 1/8" NPT m; 7/16"-20UNF f, SAE J512; 7/16"-20UNF m, SAE4 (J1926); 7/16"-20UNF m, DIN3866; 9/16"-18UNF m, SAE6 (J1926); R1/4" m, DIN3858; R1/4" m, DIN2999; R1/8" m, DIN3858; M10x1 m, DIN EN ISO 6149-2; M12x1.5 m, DIN EN ISO 9974-2; M14x1.5 m, DIN EN ISO 6149-2	G1/4" m; G1/4" m (Manometer EN 837); 1/4" NPT m; M10x1 m	
Electrical connections	Industrial standard, contact distance 9.4 mm; M12x1; MIL-C 26482; Deutsch DT04-3P/4P; cable	Industrial standard, contact distance 9.4 mm; M12x1; MIL-C 26482; cable IP67	Industrial standard, contact distance 9.4 mm; M12x1; MIL-C 26482; Deutsch DT04-3P/4P; cable	Industrial standard, contact distance 9.4 mm; M12x1	
Applications	Machine tools Hydraulics HVAC Refrigeration Process technology Water treatment	Test benches Railways Machine tools Hydraulics Process technology	Machine tools Hydraulics Process technology Measuring and test bench technology	Shipbuilding Engine manufacturing Hydraulics	
Approval / conformity				ABS, BV, DNV-GL, KRS, LRS, NKK, RINA, RMRS	
Data sheet	www.trafag.com/H72303	www.trafag.com/H72300	www.trafag.com/H72304	www.trafag.com/H72305	
Instructions	www.trafag.com/H73303	www.trafag.com/H73250	www.trafag.com/H73303	www.trafag.com/H73303	

	NSL 8257	NAR 8258		CMP 8270	CAN2USB
					
	Thin-film-on-steel	Thin-film-on-steel		Thin-film-on-steel	CANopen Configuration Tool
	0 ... 0.2 to 0 ... 2.5 bar 0 ... 3 to 0 ... 30 psi	0 ... 6 to 0 ... 600 bar 0 ... 100 to 0 ... 7500 psi		0 ... 0.2 to 0 ... 600 bar 0 ... 3 to 0 ... 7500 psi	
	4 ... 20 mA, 0 ... 5 VDC, 0 ... 10 VDC, 0.5 ... 4.5 VDC ratiometric	4 ... 20 mA, Switching output: 1 or 2 PNP transistors		Bus protocol CANopen DS404	
	0.15 ... 0.8 % FS typ.	± 0.3 % FS typ.		± 0.5 % FS typ. ± 0.3 % FS typ. ± 0.15 % FS typ. ± 0.1 % FS typ.	
	-40°C ... +125°C	EN 50155: OT6 (-40°C ... +85°C)		-40°C ... +125°C	
	-40°C ... +125°C	-40°C ... +85°C		-50°C ... +135°C	
	Min. IP65	IP65, IP67, IP68		Min. IP67	
	1.4542 (AISI630)	1.4542 (AISI630)		1.4542 (AISI630)	
	1.4542 (AISI630)	1.4542 (AISI630)		1.4542 (AISI630) 1.4301 (AISI304)	
	1.4301 (AISI304)	1.4301 (AISI304)		1.4301 (AISI304)	
	G1/4" m; 1/4"NPT m	G1/4" m; G1/4" m (Manometer); 1/4"NPT m; 7/16"-20UNF m, SAE4 (J1926); R1/4" m, DIN2999; M10x1 m, DIN EN ISO 6149-2; M12x1.5 m, DIN EN ISO 9974-2		G1/4" m; 1/4"NPT m; 7/16"-20UNF m; 7/16"-20UNF f, DIN3866, valve opener; 7/16"-20UNF m, SAE4 (J1926); M10x1 m, DIN EN ISO 6149-2	
	Industrial standard, contact distance 9.4 mm; M12x1; MIL-C 26482	Industrial standard, contact distance 9.4 mm; M12x1; cable IP67, IP68		M12x1	
	Shipbuilding Engine manufacturing Machine tools Process technology Water treatment Test benches	Railways		Engine manufacturing Railways Machine tools Hydraulics Process technology Test benches	Configuration of the CANopen pressure transmitter CMP 8270
	DNV-GL	EN 50155 (Railway) EN 45545-2 (Fire protection) EN 61373 (Shock, vibration) EN 50121-3-2 (EMC)			
	www.trafag.com/H72302	www.trafag.com/H72307		www.trafag.com/H72614	www.trafag.com/H70696
	www.trafag.com/H73250	www.trafag.com/H73303		www.trafag.com/H73614	www.trafag.com/H73617

Pressure transmitters

	FPT 8235	EPR 8283	EPI 8287	EPN 8288	
		 		 	
Measuring principle	Thin-film-on-steel	Thin-film-on-steel	Thin-film-on-steel	Thin-film-on-steel	
Measuring range	0 ... 1 to 0 ... 100 bar 0 ... 15 to 0 ... 1500 psi	0 ... 2.5 to 0 ... 600 bar	0 ... 0.2 to 0 ... 600 bar 0 ... 3 to 0 ... 7500 psi	0 ... 2.5 to 0 ... 600 bar 0 ... 30 to 0 ... 7500 psi	
Output signal	4 ... 20 mA, 0 ... 5 VDC, 1 ... 6 VDC, 0 ... 10 VDC	4 ... 20 mA	4 ... 20 mA, 0 ... 5 VDC, 1 ... 6 VDC, 0 ... 10 VDC, 0.5 ... 4.5 VDC ratiometric	4 ... 20 mA, 0 ... 10 VDC	
Accuracy @ 25°C typ.	± 0.4 % FS	± 0.5 % FS typ. ± 0.3 % FS typ.	± 0.5 % FS typ. ± 0.3 % FS typ.	± 0.5 % FS typ. ± 0.3 % FS typ.	
Ambient temperature	-40°C ... +85°C	-40°C ... +125°C	-40°C ... +125°C	-40°C ... +125°C	
Media temperature	-40°C ... +125°C	-40°C ... +125°C	-40°C ... +125°C	-40°C ... +125°C	
Protection	IP65, IP67, IP68	IP65, IP67, IP68	IP65, IP67, IP68	IP65	
Sensor (wetted parts)	1.4542 (AISI630)	1.4542 (AISI630)	1.4542 (AISI630)	1.4542 (AISI630)	
Pressure connection (wetted parts)	1.4542 (AISI630)	1.4542 (AISI630)	1.4542 (AISI630) or 1.4404 (AISI316L)	1.4542 (AISI630) or 1.4404 (AISI316L)	
Housing	1.4301 (AISI304)	1.4542 (AISI630)	1.4542 (AISI630) or 1.4404 (AISI316L)	1.4542 (AISI630) or 1.4404 (AISI316L)	
Pressure connections	G1/2" m, flush membrane	G1/4" f; G1/4" m Seal; G1/4" m (Manometer) EN 837; G1/2" m (Manometer) EN 837; 1/4"NPT m; 1/4"-18 NPT f; 1/2"NPT m; R1/4" m, DIN3858; M14x1.5 m, DIN6149-2; 7/16"-20UNF m, DIN3866; 7/16"-20UNF m, SAE4 (J1926.3); 7/16"-20UNF f, SAE J512, valve opener	G1/4" f; G1/4" m Seal; G1/4" m (Manometer) EN 837; G1/2" m (Manometer) EN 837; 1/4"NPT m; 1/4"-18 NPT f; 1/2"NPT m; R1/4" m, DIN3858; M14x1.5 m, DIN6149-2; 7/16"-20UNF m, DIN3866; 7/16"-20UNF m, SAE4 (J1926); 7/16"-20UNF f, SAE J512, valve opener; 9/16"-18UNF m, SAE6 (J1926)	G1/4" m Seal; G1/2" m (Manometer) EN 837; 1/4" NPT m; 1/2" NPT m; R1/4" m, DIN3858; M14x1.5 m, DIN6149-2	
Electrical connections	EN175301-803-A (DIN43650-A); M12x1; Industrial standard, contact distance 9.4 mm; Packard Metri Pack; Cable	EN175301-803-A (DIN43650-A); M12x1; MIL-C 26482; cable	EN175301-803-A (DIN43650-A); M12x1; Industrial standard, contact distance 9.4 mm; Packard Metri Pack; MIL-C 26482; DIN72585; cable	EN175301-803-A (DIN43650-A)	
Applications	Engine manufacturing Machine tools Hydraulics Process technology Water treatment Food Industry Chemical and pharmaceutical industry	Railways	Machine tools Hydraulics Industrial applications	Shipbuilding Engine manufacturing Machine tools Hydraulics	
Approval / conformity		EN 50155 (Railway) EN 45545-2 (Fire protection)		DNV-GL EU RO Mutual Recognition Type Approval Certificate	
Data sheet	www.trafag.com/H72316	www.trafag.com/H72319	www.trafag.com/H72317	www.trafag.com/H72318	
Instructions	www.trafag.com/H73316	www.trafag.com/H73317	www.trafag.com/H73317	www.trafag.com/H73317	

	EPR 8293	EPN/EPNCR 8298	NAP 8842/8843	ESH 8845
				
	Thin-film-on-steel	Thin-film-on-steel	Piezoresistive	Piezoresistive
	0 ... 2.5 to 0 ... 600 bar	0 ... 2.5 to 0 ... 2500 bar	0 ... 0.1 to 0 ... 1000 bar	0 ... 0.1 to 0 ... 100 bar
	4 ... 20 mA	4 ... 20 mA 0.5 ... 4.5 VDC ratiometric	4 ... 20 mA 0 ... 10 VDC	4 ... 20 mA, 0 ... 5 VDC, 0 ... 10 VDC
	± 0.5 % FS typ. ± 0.3 % FS typ.	± 0.5 % FS typ. ± 0.3 % FS typ.		
	-40°C ... +125°C	-40°C ... +125°C	0°C ... +70°C (opt. -25 ... +85°C)	-40°C ... +125°C
	-40°C ... +125°C	-40°C ... +125°C	0°C ... +80°C (opt. -25 ... +100°C/-25 ... +150°C)	-40°C ... +125°C
	IP65, IP67	IP65, IP67, IP69K	Min. IP65	Min. IP40
	1.4542 (AISI630)	1.4542 (AISI630)	1.4435 (AISI316L)	1.4435 (AISI316L)
	1.4542 (AISI630) 1.4301 (AISI304)	1.4542 (AISI630)	1.4435 (AISI316L)	1.4435 (AISI316L)
	1.4301 (AISI304) 1.4542 (AISI630)	1.4301 (AISI304) 1.4542 (AISI630)	1.4435 (AISI316L)	1.4435 (AISI316L)
	G1/4" m Seal; R1/4" m; 1/4"NPT m; 1/2"NPT m	G1/4" m Seal; R1/4" m DIN3858; G1/2" m (Manometer) EN 837; 1/4"NPT m; 1/2"NPT m; M14x1.5 m; M18x1.5 m	G1/4" f; G1/4" m; G1/4" m (Manometer); G1/2" m; G1/2" m, frontal membrane; G1/2" m, flush membrane; G1/2" m (Manometer)	1/4"NPT m; 1/2"NPT m; G1/4" f; G1/4" m; G1/2" m; G1/2" m, frontal membrane; G1/2" m, flush membrane
	EN175301-803-A (DIN43650-A); MIL-C 26482	EN175301-803-A (DIN43650-A); MIL-C 26482; DIN72585; Cable	Cable; DIN43650-A; Binder 723; MIL-C 26482	EN175301-803-A; M12x1; MIL-C 26482; Binder 723
	Railways	Shipbuilding Engine manufacturing Machine tools Hydraulics	Shipbuilding Machine tools Hydraulics HVAC Process technology Water treatment Food Industry	Test benches Test equipment
	EN 50155 (Railways)	ABS, BV, CCS, DNV-GL, KRS, LRS, NKK, RINA, RMRS	GL, KRS	
	www.trafag.com/H72311	www.trafag.com/H72312	www.trafag.com/H72230	www.trafag.com/H72354
	www.trafag.com/H73311	www.trafag.com/H73311	www.trafag.com/H73208	www.trafag.com/H73227

Pressure transmitters

	ECT 8472	ECT 8473	ECTN 8477	ECR 8478	
			 	 	
Measuring principle	Thick-film-on-ceramic	Thick-film-on-ceramic	Thick-film-on-ceramic	Thick-film-on-ceramic	
Measuring range	0 ... 1 to 0 ... 400 bar 0 ... 15 to 0 ... 5000 psi	0 ... 0.1 to 0 ... 40 bar 0 ... 1.5 to 0 ... 500 psi	0 ... 0.1 to 0 ... 250 bar 0 ... 1.5 to 0 ... 3000 psi	0 ... 0.1 to 0 ... 60 bar 0 ... 1.5 to 0 ... 1000 psi	
Output signal	4 ... 20 mA, 0 ... 5 VDC, 1 ... 6 VDC, 0 ... 10 VDC, 0.5 ... 4.5 VDC ratiom.	4 ... 20 mA, 0 ... 5 VDC, 1 ... 6 VDC, 0 ... 10 VDC, 0.5 ... 4.5 VDC ratiom.	4 ... 20 mA	4 ... 20 mA	
Accuracy @ 25°C typ.	± 0.5 % FS typ.	± 0.3 % FS typ. (± 0.5 % FS typ., ± 1 % FS typ.)	± 0.3 % FS typ. (± 0.5 % FS typ., ± 1 % FS typ.)	± 0.3 % FS typ. (± 0.5 % FS typ., ± 1 % FS typ.)	
Ambient temperature	-25°C ... +125°C	-25°C ... +125°C	-25°C ... +125°C	-25°C ... +125°C	
Media temperature	-25°C ... +125°C -10°C ... +125°C	-25°C ... +125°C	-25°C ... +125°C	-25°C ... +125°C	
Protection	IP65, IP67, IP68	IP65, IP67, IP68	IP65, IP67, IP68	IP65, IP67	
Sensor (wetted parts)	Ceramic, Al ₂ O ₃ (96 %)	Ceramic, Al ₂ O ₃ (96 %)	Ceramic, Al ₂ O ₃ (96 %)	Ceramic, Al ₂ O ₃ (96 %)	
Pressure connection (wetted parts)	1.4305 (AISI303) 1.4404/1.4435 (AISI316L) 1.4462 (AISI318LN) Titanium Grade 5	1.4305 (AISI303) 1.4404/1.4435 (AISI316L) 1.4462 (AISI318LN) Titanium Grade 5	1.4404/1.4435 (AISI316L) 1.4462 (AISI318LN) Titanium Grade 5	1.4404 (AISI316L)	
Housing	1.4305 (AISI303) 1.4404/1.4435 (AISI316L) 1.4462 (AISI318LN) Titanium Grade 5	1.4305 (AISI303) 1.4404/1.4435 (AISI316L) 1.4462 (AISI318LN) Titanium Grade 5	1.4404/1.4435 (AISI316L) 1.4462 (AISI318LN) Titanium Grade 5	1.4404/1.4435 (AISI316L)	
Pressure connections	G1/4" f; G1/4" m; G1/2" m, DIN3852-A; G1/2" m, DIN3852-E; G1/2" m, DIN3852-E, with inner cone; 1/4"NPT m, ANSI B1.20.1; 1/8"NPT m, ANSI B1.20.1; 7/16"-20UNF m, SAE4 (J1926); 7/16"-20UNF m, DIN3866; 7/16"-20UNF f, SAE J512, valve opener; R1/4" m, DIN3858; G3/4" frontal membrane	G1/4" f; G1/4" m; G1/2" m, DIN3852-A; G1/2" m, DIN3852-E; G1/2" m, DIN3852-E, with inner cone; 1/4"NPT m, ANSI B1.20.1; 1/8"NPT m, ANSI B1.20.1; 7/16"-20UNF m, SAE4 (J1926); 7/16"-20UNF m, DIN3866; 7/16"-20UNF f, SAE J512, valve opener; R1/4" m, DIN3858; G3/4" frontal membrane	G1/4" f; G1/4" m; G1/2" m, DIN3852-A; G1/2" m, DIN3852-E; G1/2" m, DIN3852-E; 1/4"NPT m; 7/16"-20UNF m, SAE4 (J1926); R1/4" m, DIN3858; G3/4" frontal membrane	G1/4" m; G3/4" frontal membrane	
Electrical connections	EN175301-803-A (DIN43650-A); M12x1; Industrial standard, contact distance 9.4 mm; Packard Metri Pack; Cable	EN175301-803-A (DIN43650-A); M12x1; Industrial standard, contact distance 9.4 mm; Packard Metri Pack; Cable	EN175301-803-A (DIN43650-A); M12x1; Cable	EN175301-803-A (DIN43650-A); M12x1; Packard Metri Pack	
Applications	Machine tools Hydraulics Water treatment	Machine tools Hydraulics Water treatment	Shipbuilding Engine manufacturing	Railways	
Approval / conformity			DNV-GL EU RO Mutual Recognition Type Approval Certificate	EN 50155 (Railway) EN 45545-2 (Fire protection)	
Data sheet	www.trafag.com/H72324	www.trafag.com/H72326	www.trafag.com/H72322	www.trafag.com/H72337	
Instructions	www.trafag.com/H73324	www.trafag.com/H73324	www.trafag.com/H73324	www.trafag.com/H73324	

Pressure transmitters

EXNT 8292	EXNA 8852/8853	EXNA 8854		ZEN...
				
Thin-film-on-steel	Piezoresistive	Piezoresistive		Switch amplifier
0 ... 0.4 to 0 ... 2000 bar 0 ... 5 to 0 ... 30000 psi	0 ... 0.1 to 0 ... 1000 bar	0 ... 0.1 to 0 ... 1000 bar		
4 ... 20 mA	4 ... 20 mA	4 ... 20 mA		Signal, Relais
± 0.5 % FS typ. ± 0.3 % FS typ.				
Max. -40°C ... +120°C	T3/T4: -25°C ... +85°C T6: -25°C ... +55°C	T3: -40°C ... +125°C T4: -40°C ... +85°C T6: -40°C ... +50°C		-20°C ... +60°C
Max. -40°C ... +120°C	T3: -25°C ... +150°C T4: -25°C ... +100°C T6: -25°C ... +55°C	T3: -40°C ... +150°C T4: -40°C ... +100°C T6: -40°C ... +50°C		
IP65, IP67	Min. IP65	Min. IP65		IP20
1.4542 (AISI630), optional hydrogen-compatible steel	1.4435 (AISI316L)	1.4435 (AISI316L) or titanium		
1.4542 (AISI630) 1.4301 (AISI304) Optional hydrogen-compatible steel	1.4435 (AISI316L)	1.4435 (AISI316L) or titanium		
1.4301 (AISI304)	1.4435 (AISI316L)	1.4435 (AISI316L) or titanium		
G1/4" m; G1/4" m (Manometer) EN 837; G1/4" f; G1/2" m; G1/2" m (Manometer) EN 837; R1/4" m; 1/4"NPT m; M18x1.5 m	G1/4" f; G1/4" m; G1/4" m (Manometer); G1/2" m; G1/2" m, frontal membrane; G1/2" m, flush membrane; G1/2" m (Manometer)	1/4"NPT m; 1/2"NPT m; G1/4" f; G1/4" m; G1/2" m; G1/2" m, frontal membrane; G1/2" m, flush membrane		
EN175301-803-A; M12x1; MIL-C 26482; Binder 723; Cable	EN175301-803-A (DIN43650-A); M12x1; MIL-C 26482; Binder 723; Cable	EN175301-803-A; M12x1; MIL-C 26482; Binder 723; Cable		
Shipbuilding Ex Zones 0, 1, 2 (gas); 20, 21, 22 (dust) and mining Hydrogen	Ex Zone 0, 1, 2 / Gas Ex Zone 20, 21, 22 / Dust	Ex Zone 0, 1, 2 / Gas Ex Zone 20, 21, 22 / Dust		
DNV-GL, KRS, RMRS ATEX / IECEx, according to the norm EN/IEC 60079-0/EN 60079-11/ EN 60079-26/ EN 50303	GL, KRS	DNV-GL Ex according to standards, IEC/EN 60079-0 /-11/-26, EN 50303		
www.trafag.com/H72329	www.trafag.com/H72227	www.trafag.com/H72334		
www.trafag.com/H73329	www.trafag.com/H73227	www.trafag.com/H73227		

Pressure transmitters

	N 8202	ND 8204	NPN 8264
			
Measuring principle	Thin-film-on-steel	Thin-film-on-steel	Thin-film-on-steel
Measuring range	0 ... 1.0 to 0 ... 600 bar	0 ... 1 to 0 ... 16 bar	0 ... 2.5 to 0 ... 250 bar
Output signal	4 ... 20 mA	4 ... 20 mA (P1-P2)	4 ... 20 mA
Accuracy @ 25°C typ.	± 0.5 % FS typ.	± 0.8 % FS typ.	± 0.5 % FS typ. ± 0.3 % FS typ.
Ambient temperature	-25°C ... +85°C	-25°C ... +85°C	-40°C ... +100°C
Media temperature	-25°C ... +125°C	-25°C ... +125°C	-40°C ... +100°C
Protection	Min. IP65	Min. IP65	IP65, IP69K
Sensor (wetted parts)	1.4542 (AISI630)	1.4542 (AISI630)	1.4542 (AISI630)
Pressure connection (wetted parts)	1.4542 (AISI630)	1.4542 (AISI630)	1.4542 (AISI630)
Housing	AlSi10Mg/ Epoxy coated	AlSi10Mg/ Epoxy coated	1.4301 (AISI304)
Pressure connections	G1/4" f; G1/2" m	G1/4" f	G1/4" f; M10x1 f; G1/8" f
Electrical connections	Terminal screw 0.75 ... 2.5 mm ²	Terminal screw 0.75 ... 2.5 mm ²	EN175301-803-A (DIN43650-A); Cable
Applications	Shipbuilding Engine manufacturing	Shipbuilding Engine manufacturing	Shipbuilding Engine manufacturing Railways Machine tools Hydraulics
Approval / conformity	ABS, BV, CCS, DNV-GL, KRS, LRS	BV	ABS, BV, CCS, DNV-GL, KRS, LRS, NKK, RINA, RMRS
Data sheet	www.trafag.com/H72206	www.trafag.com/H72218	www.trafag.com/H72313
Instructions	www.trafag.com/H70722	www.trafag.com/H73218	www.trafag.com/H73313

Electronic pressure switches

EPN-S 8320	DPC 8380	DPS 8381	NAT 8252	NAR 8258
				
Thin-film-on-steel	Thick-film-on-ceramic	Thin-film-on-steel	Thin-film-on-steel	Thin-film-on-steel
0 ... 2.5 to 0 ... 600 bar 0 ... 30 to 0 ... 7500 psi	0 ... 0.2 to 0 ... 100 bar 0 ... 2.5 to 0 ... 1500 psi adjustable	0 ... 2.5 to 0 ... 600 bar 0 ... 30 to 0 ... 7500 psi adjustable	0 ... 2.5 to 0 ... 600 bar 0 ... 30 to 0 ... 7500 psi	0 ... 6 to 0 ... 600 bar 0 ... 100 to 0 ... 7500 psi
Transistor (open source)	4 ... 20 mA, 0 ... 5 VDC, 1 ... 6 VDC, 0 ... 10 VDC, switchable mA or V	4 ... 20 mA, 0 ... 5 VDC, 1 ... 6 VDC, 0 ... 10 VDC, switchable mA or V	Switching output: 1 or 2 PNP transistors	Switching output: 1 or 2 PNP transistors
± 0.5 % FS typ. (Switchpoint)	± 0.5 % FS typ.	± 0.5 % FS typ.	NAT: ± 0.5 % FS typ. NAH: ± 0.3 % FS typ.	± 0.3 % FS typ.
-25°C ... +85°C -40°C ... +125°C	-25°C ... +85°C	-25°C ... +85°C	-40°C ... +125°C	EN 50155: OT6 (-40°C ... +85°C)
-40°C ... +125°C	-25°C ... +85°C	-25°C ... +85°C	-40°C ... +125°C	-40°C ... +85°C
IP65 (IP67), IP69K	IP67	IP67	IP67, IP68	IP67, IP68
1.4542 (AISI630)	Ceramic, Al ₂ O ₃ (96 %)	1.4542 (AISI630)	1.4542 (AISI630)	1.4542 (AISI630)
1.4542 (AISI630) 1.4301 (AISI304)	1.4305 (AISI303) 1.4404/1.4435 (AISI316L) 1.4462 (AISI318LN) Titanium Grade 5	1.4542 (AISI630)	1.4542 (AISI630)	1.4542 (AISI630)
1.4301 (AISI304)	Zinc based die-casting alloy, nickel plated display housing plastic	Zinc based die-casting alloy, nickel plated display housing plastic	1.4301 (AISI304)	1.4301 (AISI304)
G1/4" m (Seal); 1/4" NPT m; G1/2" m, DIN3852-A; M14x1.5 m, DIN3852-A; 1/2" NPT m	G1/4" f; G1/4" m; G1/2" m, DIN3852-E; 1/4" NPT m; R1/4" m, DIN3858; 7/16"-20UNF m, DIN3866; 7/16"-20UNF m, SAE4 (J1926); 7/16"-20UNF f, SAE J512, valve opener; G3/4" frontal membrane	G1/4" f; G1/4" m Seal; G1/4" m (Manometer) EN 837; G1/2" m (Manometer) EN 837; 1/4" NPT m; 1/2" NPT m; R1/4" m, DIN3858; M14x1.5 m, DIN6149-2; 7/16"-20UNF m, DIN3866; 7/16" -20UNF m, SAE4 (J1926); 7/16"-20UNF f, SAE J512, valve opener	G1/4" m; G1/4" m (Manometer); G1/8" m, DIN3852-E; 1/4" NPT m; 1/4" NPT f; 1/8" NPT m; 7/16"-20UNF f, SAE J512; 7/16"-20UNF m, SAE4 (J1926); 7/16"-20UNF m, DIN3866; 9/16"-18UNF m, SAE6 (J1926); R1/4" m, DIN3858; R1/4" m, DIN2999; R1/8" m, DIN3858; M10x1 m, DIN EN ISO 6149-2; M12x1.5 m, DIN EN ISO 9974-2; M14x1.5 m, DIN EN ISO 6149-2	G1/4" m; G1/4" m (Manometer); 1/4" NPT m; 7/16"-20UNF m, SAE4 (J1926); R1/4" m, DIN2999; M10x1 m, DIN EN ISO 6149-2; M12x1.5 m, DIN EN ISO 9974-2
EN175301-803-A (DIN43650-A); Cable	Male electrical plug M12x1, 5-pole Male electrical plug M12x1, 4-pole	Male electrical plug M12x1, 5-pole Male electrical plug M12x1, 4-pole	M12x1; Cable IP67 (IP68)	M12x1
Shipbuilding Engine manufacturing Railways Machine tools Hydraulics HVAC	Machine tools HVAC Refrigeration Water treatment Process technology	Machine tools Hydraulics Process technology Industrial applications	Machine tools Hydraulics HVAC Refrigeration Process technology Water treatment	Railways
DNV-GL, RMRS EN 50155 (Railways) EN 45545-2 (Fire protection, railways)				EN 50155 (Railway) EN 45545-2 (Fire protection) EN 61373 (Shock, vibration) EN 50121-3-2 (EMC)
www.trafag.com/H72333	www.trafag.com/H72320	www.trafag.com/H72321	NAT: www.trafag.com/H72303 NAH: www.trafag.com/H72304	www.trafag.com/H72307
www.trafag.com/H73333	www.trafag.com/H73320	www.trafag.com/H73320	www.trafag.com/H73303	www.trafag.com/H73303

Fill level transmitter

	ECL 8439	ECL 8438	NAL 8838	EXL 8432	8858
					
Measuring principle	Thick-film-on-ceramic	Thick-film-on-ceramic	Piezoresistive	Thick-film-on-ceramic	Piezoresistive
Measuring range	0 ... 0.1 to 0 ... 2.0 bar 0 ... 1.5 to 0 ... 30 psi	0 ... 0.1 to 0 ... 10 bar	0 ... 0.1 to 0 ... 25 bar	0 ... 0.2 to 0 ... 10 bar	0 ... 0.1 to 0 ... 25 bar
Output signal	4 ... 20 mA	4 ... 20 mA	4 ... 20 mA 0 ... 10 VDC	4 ... 20 mA	4 ... 20 mA
Accuracy @ 25°C typ.	± 0.3 % FS typ. ± 0.5 % FS typ.	± 0.3 % FS typ. ± 0.5 % FS typ.		± 0.3 % FS typ. ± 0.5 % FS typ.	
Ambient temperature	max. -25°C ... +70°C	-25°C ... +80°C (+70°C)	-5°C ... +50°C	T4: -20°C ... +70°C T6: -20°C ... +65°C	T4/T6: -5°C ... +50°C
Media temperature	max. -25°C ... +70°C	-25°C ... +80°C (+70°C)	-5°C ... +50°C	T4: -20°C ... +70°C T6: -20°C ... +65°C	T4/T6: -5°C ... +50°C
Protection	IP68 (2.0 bar/20 m)	IP68 (25 bar; 250m)	Min. IP68	IP68 (25 bar; 250m)	Min. IP68
Sensor (wetted parts)	Ceramic, Al ₂ O ₃ (96%)	Ceramic, Al ₂ O ₃ (96 %)	1.4435 (AISI316L) or titanium	Ceramic, Al ₂ O ₃ (96 %)	1.4435 (AISI316L)
Pressure connection (wetted parts)	1.4404 (AISI316L) or 1.4462 (AISI318LN)	1.4404/1.4435 (AISI316L)	1.4435 (AISI316L) or titanium	1.4404/1.4435 (AISI316L)	1.4435 (AISI316L) or titanium
Housing	1.4404 (AISI316L) or 1.4462 (AISI318LN) OEM-version: Screwed cable gland brass nickel plated	1.4404/1.4435 (AISI316L)	1.4435 (AISI316L) or titanium	1.4404/1.4435 (AISI316L)	1.4404 (AISI316L) or titanium
Pressure connections		Type 1 f, M 10x1; Type 2 m, M 22x1	Open; Closed; G1/4" m	Type 1 f, M 10x1; Type 2 m, M 22x1	Open; Closed; G1/4" m
Electrical connections	Cable PUR/Radox/PE	Cable PUR/FEP/PE	Cable PUR/Teflon/PE	Cable PUR/FEP/PE	Cable PUR or FEP
Applications	Shipbuilding Process technology Water treatment (wastewater, grey-water, drinking water) Seawater Level of oils and fuels	Shipbuilding Process technology Water treatment	Shipbuilding Process technology Water treatment	Ex Zone 0, 1, 2 / Gas Ex Underground Mining	Shipbuilding Ex SEV 11 ATEX 0145 X
Approval / conformity	DNV-GL EU RO Mutual Recognition Type Approval Certificate	GL, KRS	GL, KRS	GL, KRS Ex ATEX/IECEx, EN 60079-0/ EN 60079-11/EN 60079-26/ EN 50303	GL, KRS
Data sheet	www.trafag.com/H72336	www.trafag.com/H72328	www.trafag.com/H72228	www.trafag.com/H72330	www.trafag.com/H72231
Instructions	www.trafag.com/H73336	www.trafag.com/H73328	www.trafag.com/H73227	www.trafag.com/H73329	www.trafag.com/H73227

Temperature transmitter

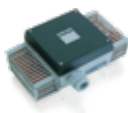
	DTP 8180	T 8100
		
Measuring principle	PT 1000, DIN EN 60751 class A, 2 conductors	PT100 (with/without)
Measuring range	-50°C ... +150°C / -58°F ... 302°F adjustable 50 ... 100 % FS	-50°C to +200°C
Output signal	4 ... 20 mA, 0 ... 5 VDC, 1 ... 6 VDC, 0 ... 10 VDC, switchable mA or V	4 ... 20 mA
Accuracy @ 25°C typ.	± 0.5 % FS typ.+ temperature sensor error	
Ambient temperature	-25°C ... +85°C	-40°C ... +85°C
Media temperature		-50°C ... +200°C
Protection	IP67	Min. IP65
Sensor (wetted parts)	1.4404/1.4435 (AISI316L)	1.4435 (AISI316L)
Pressure connection (wetted parts)		
Housing	Steel, die cast metal galvanised display housing plastic	AlSi10Mg / Epoxy coated
Process connections	G1/8" m; G1/4" m; G1/2" m; 1/4" NPT m; 1/2" NPT m; Tri-Clamp DIN32676; Sanitary fitting DIN11851	
Electrical connections	Male electrical plug M12x1, 5-pole Male electrical plug M12x1, 4-pole	Spring terminal 0.1...2.5 mm²
Applications	Machine tools Hydraulic power units Cooling and lubrication systems HVAC Process technology	Shipbuilding Railways HVAC Refrigeration
Approval / conformity		ABS
Data sheet	www.trafag.com/H72352	www.trafag.com/H72102
Instructions	www.trafag.com/H73352	www.trafag.com/H73102

Mechanical pressure switches

	PST4B 9B4	PST4K 9K4	PST4M 9M4	PSTD 9D0	P/PS 900/904/912	PV/PVF 903/907/915/940/941/942	
							
Measuring principle	Bellow	Piston	Membrane	Bellow	Bellow	Bellow	
Measuring range	-0.6 ... 3.4 to 4 ... 40 bar -8 ... 45 to 60 ... 500 psi	1 ... 10 to 40 ... 400 bar 14 ... 150 to 580 ... 5800 psi	1 ... 10 to 10 ... 100 bar 14 ... 150 to 150 ... 1500 psi	-1 ... 6 and -1 ... 8 bar	-0.9 ... 1.5 to 10 ... 100 bar 5 ... 50 to 125 ... 1500 psi	-0.9 ... 1.5 to 4 ... 40 bar 5 ... 50 to 50 ... 500 psi	
Output signal	1 Floating change-over contact (SPDT)	1 Floating change-over contact (SPDT)	1 Floating change-over contact (SPDT)	1 Floating change-over contact (SPDT)	1 Floating change-over contact (SPDT)	1 Floating change-over contact (SPDT)	
Pressure connections	G1/8" f, G1/4" f, M10x1.0 f, G1/4" m	G1/8" f, G1/4" f, M10x1.0 f	G1/8" f, G1/4" f, M10x1.0 f	G1/4" f	G1/4" f, G1/2" m, 1/4" NPT f	G1/4" f, G1/2" m, 1/4" NPT f	
Electrical connections	EN175301-803-A (DIN43650-A)	EN175301-803-A (DIN43650-A)	EN175301-803-A (DIN43650-A)	EN175301-803-A (DIN43650-A)	Screw terminal	Screw terminal	
Switching differential	Not adjustable	Not adjustable	Not adjustable	Not adjustable	Not adjustable	Adjustable	
Media temperature	Standard: -25°C ... +125°C	-25°C ... +125°C	0°C ... +80°C	-25°C ... +120°C	-40°C ... +150°C	-40°C ... +150°C	
Ambient temperature	Standard: -25°C ... +85°C	-25°C ... +85°C	0°C ... +80°C	-25°C ... +85°C	-25°C ... +70°C	-25°C ... +70°C	
Protection	IP65	IP65	IP65	IP65	IP65	IP65	
Housing / pressure connection	Aluminium EN AW-6026 AlMgSiPb0.4 anodized	Aluminium EN AW-6026 AlMgSiPb0.4 anodized	Aluminium EN AW-6082 AlMgSi1 anodized	Brass CuZn39Pb3	AlSi10Mg/ Epoxy coated	AlSi10Mg/ Epoxy coated	
Sealing	HNBR 75 Sh, FPM, EPDM	PTFE	FKM	-	NBR	NBR	
Applications	Shipbuilding Engine manufacturing Railways Machine tools	Shipbuilding Engine manufacturing Railways Machine tools Hydraulics	Shipbuilding Engine manufacturing Railways Machine tools Hydraulics	Shipbuilding Engine manufacturing Machine tools Hydraulics	Shipbuilding Engine manufacturing Railways Machine tools Hydraulics	Shipbuilding Engine manufacturing Railways Machine tools Hydraulics	
Approval / conformity	ABS, BV, CCS, DNV-GL, KRS, LR, NKK, RINA, RMRS EN60730-1/ EN60730-2-6: Type 2.B.H	ABS, BV, CCS, DNV-GL, KRS, LRS, RINA, EN60730-1/ EN60730-2-6: Type 2.B.H	ABS, BV, CCS, DNV-GL, KRS, LRS, RINA, EN60730-1/ EN60730-2-6: Type 2.B.H	DNV-GL EN60730-1/ EN60730-2-6: Type 2.B.H	ABS, BV, CCS, DNV-GL, KRS, LRS, RINA EN60730-1/ EN60730-2-6: Type 2.B.H	ABS, BV, CCS, DNV-GL, KRS, LRS, RINA EN60730-1/ EN60730-2-6: Type 2.B.H	
Type of protection							
Data sheet	www.trafag.com/H72367	www.trafag.com/H72369	www.trafag.com/H72368	www.trafag.com/H72273	www.trafag.com/H72252	www.trafag.com/H72257	
Instructions	www.trafag.com/H73367	www.trafag.com/H73367	www.trafag.com/H73367	www.trafag.com/H73273	www.trafag.com/H71261	www.trafag.com/H71261	

	PK 944/947	PD 920/924/932	901/902/905/906	987/988	EXP 900/904/912	EXPK 944/947/953	EXPD 920/924/932
							
	Piston	Bellow	Membrane	Bellow	Bellow	Piston	Bellow
	1 ... 10 to 60 ... 600 bar	-1 ... 6 to -1 ... 18 bar	30 ... 600 and 50 ... 1000 mbar	-0.3 ... 1.3 to 1 ... 10 bar	-0.9 ... 1.5 to 4 ... 40 bar	1 ... 10 to 60 ... 600 bar	-1 ... 6 to -1 ... 18 bar
	1 Floating change-over contact (SPDT)	1 Floating change-over contact (SPDT)	1 Floating change-over contact (SPDT)	1 or 2 floating change-over contacts (SPDT)	1 Floating change-over contact (SPDT)	1 Floating change-over contact (SPDT)	1 Floating change-over contact (SPDT)
	G1/4" f, G1/2" m	G1/4" f, G1/8" f, G1/2" m	G1/4" f, G1/2" m	G1/4" m	G1/4" f, G1/2" m	G1/4" f, G1/2" m	G1/4" f, G1/8" f, G1/2" m
	Screw terminal	Screw terminal	Screw terminal	Blade connector	Screw terminal	Screw terminal	Screw terminal
	Not adjustable	Not adjustable	Not adjustable	Not adjustable	Not adjustable	Not adjustable	Not adjustable
	NBR: -30°C ... +100°C FKM: -15°C ... +150°C	-40°C ... +150°C	-40°C ... +150°C	-25°C ... +80°C	-40°C ... +150°C	NBR: -30°C ... +100°C FKM: -15°C ... +150°C	-50°C ... +150°C
	-20°C ... +70°C	-25°C ... +70°C	-25°C ... +70°C	-25°C ... +70°C	-50°C ... +65°C	-50°C ... +65°C	-50°C ... +65°C
	IP65	IP65	IP65	IP40 (Microswitch IP67)	IP66	IP66	IP66
	AlSi10Mg/ Epoxy coated	AlSi10Mg/ Epoxy coated	AlSi10Mg/ Epoxy coated	PBTP, Crastin	AlSi10Mg/ Epoxy coated Accessory 06: 1.4301 (AISI 304)	AlSi10Mg/ Epoxy coated Accessory 06: 1.4301 (AISI 304)	AlSi10Mg/ Epoxy coated
	NBR/FKM	NBR	NBR	-	NBR	NBR / FKM	NBR
	Shipbuilding Engine manufacturing Railways Machine tools Hydraulics	Shipbuilding Engine manufacturing Railways Machine tools Hydraulics	Machine tools HVAC	Machine tools Medium voltage switchgear	⊕ II 2G / D	⊕ II 2G / D	⊕ II 2G / D
	ABS, BV, CCS, DNV-GL, KRS, LRS, RINA EN60730-1/ EN60730-2-6: Type 2.B.H	ABS, BV, CCS, DNV-GL, KRS, LRS, RINA EN60730-1/ EN60730-2-6: Type 2.B.H	EN60730-1/ EN60730-2-6: Type 2.B.H	EN60730-1/ EN60730-2-6: Type 2.B.H	SEV 15 ATEX 0157 X IECEx SEV 17.0013X	SEV 15 ATEX 0157 X IECEx SEV 17.0013X	SEV 15 ATEX 0157 X IECEx SEV 17.0013X
					Areas with gaz explosion hazards: II 2G Ex db eb IIC T6 Gb Areas with dust explosion hazards: II 2D Ex tb IIIC T80°C Db	Areas with gas explosion hazards: II 2G Ex db eb IIC T6 Gb; Areas with dust explosion hazards: II 2D Ex tb IIIC T80°C Db	Areas with gas explosion hazards: II 2G Ex db eb IIC T6 Gb; Areas with dust explosion hazards: II 2D Ex tb IIIC T80°C Db
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Temperature monitoring

	A/AS/ASE 645/650	ADS 319	A2/A2S 198/199	IA/IAS 409/419	MSK 624/634	MP/MSP 663/664	
							
Designation of application	Room thermostat	Double room thermostat	Multistage room thermostat	Industrial room thermostat	Duct thermostat	Pipe mounting thermostat	
Measuring range	-45°C ... +15°C to 0°C ... +60°C	-30°C ... +30°C to 0°C ... +60°C	-45°C ... +15°C to 0°C ... +60°C	-30°C ... +30°C to 0°C ... +60°C	-30°C ... +40°C to +20°C ... +110°C	-10°C ... +35°C to +20°C ... +110°C	
Output signal	Floating change-over contact	Floating change-over contact	Floating change-over contact	Floating change-over contact	Floating change-over contact	Floating change-over contact	
Switching differential	Adjustable / not adjustable	Adjustable / not adjustable	Not adjustable	Adjustable / not adjustable	Adjustable / not adjustable	Adjustable / not adjustable	
Ambient temperature	-30°C ... +70°C	-30°C ... +70°C	-30°C ... +70°C	-30°C ... +70°C	-30°C ... +70°C	-30°C ... +70°C	
Protection	IP54	IP54	IP54	IP65	IP54	IP54	
Applications	HVAC Refrigeration	HVAC Refrigeration	HVAC Refrigeration	HVAC	HVAC	Process technology Water treatment	
Approval / conformity	EN60730-1/ EN60730-2-9: Type 2.B.H	EN60730-1/ EN60730-2-9: Type 2.B.H	EN60730-1/ EN60730-2-9: Type 2.B.H	EN60730-1/ EN60730-2-9: Type 2.B.H	EN60730-1/ EN60730-2-9: Type 2.B.H	EN60730-1/ EN60730-2-9: Type 2.B.H	
Type of protection							
Data sheet	www.trafag.com/H72170	www.trafag.com/H72146	www.trafag.com/H72137	www.trafag.com/H72116	www.trafag.com/H72177	www.trafag.com/H72175	
Instructions	www.trafag.com/H73624	www.trafag.com/H73170	www.trafag.com/H70311	www.trafag.com/H73111	www.trafag.com/H73624	www.trafag.com/H73663	

	MST 624/634	M/MS 624/634	MS...R 630/632	F/F...R 990/991/992/993	GS 657/658	D...R 302	M2S 104/114
							
	Direct mounting thermostat	Remote sensing thermostat	Remote sensing thermostat with limiter	Frost protection thermostat	Remote sensing thermostat	Double thermostat with remote sensor and limiter	Multistage thermostat with remote sensor
	-30°C ... +40°C to +70°C ... +350°C	-30°C ... +40°C to +70°C ... +350°C	-30°C ... +40°C to +70°C ... +350°C	-5°C ... +15°C	+5°C ... +95°C and +20°C ... +150°C	-30°C ... +40°C to +70°C ... +350°C	-30°C ... +40°C to +70°C ... +350°C
	Floating change-over contact	Floating change-over contact	Floating change-over contact	Floating change-over contact	Floating change-over contact	Floating change-over contact	Floating change-over contact
	Adjustable / not adjustable	Adjustable / not adjustable	Not adjustable	Not adjustable	Not adjustable	Adjustable / not adjustable	Not adjustable
	-30°C ... +70°C	-30°C ... +70°C	-30°C ... +70°C	Max. operating temperature: +70°C Min. operating temperature: switch point + 2°C	-30°C ... +70°C	-30°C ... +70°C	-30°C ... +70°C
	IP54	IP54	IP54	IP 54	IP54	IP54	IP54
	Machine tools HVAC Process technology Water treatment	Railways Machine tools HVAC Refrigeration Process technology	Railways Machine tools HVAC Refrigeration Process technology	HVAC Refrigeration	Process technology	HVAC Refrigeration	Machine tools HVAC Refrigeration Process technology
	EN60730-1/ EN60730-2-9: Type 2.B.H	EN60730-1/ EN60730-2-9: Type 2.B.H	EN60730-1/ EN60730-2-9: Type 2.B.H	EN60730-1/ EN60730-2-9: Type 2.B.H	EN60730-1/ EN60730-2-9: Type 2.B.H	EN60730-1/ EN60730-2-9: Type 2.B.H	EN60730-1/ EN60730-2-9: Type 2.B.H
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	www.trafag.com/H73624	www.trafag.com/H73624	www.trafag.com/H73624	www.trafag.com/H70821	www.trafag.com/H73624	www.trafag.com/H73170	www.trafag.com/H70311

Temperature monitoring

	L/LF 736/754	L...R 755	I/IS 404/414	IS...R 410/412	ISN/ISNT 471/472	ISP/ISPT 474	
							
Designation of application	Remote sensing thermostat, skeleton type	Remote sensing thermostat with limiter, skeleton type	Industrial thermostat with remote sensor	Industrial thermostat with remote sensor and limiter	Thermostat for shipbuilding	Compact thermostat for shipbuilding	
Measuring range	-30°C ... +40°C to +70°C ... +350°C	-30°C ... +40°C to +70°C ... +350°C	-30°C ... +40°C to +70°C ... +350°C	-30°C ... +40°C to +70°C ... +350°C	-10°C ... +80°C to +40°C ... +300°C	+5°C ... +95°C to +20°C ... +150°C	
Output signal	Floating change-over contact	Floating change-over contact	Floating change-over contact	Floating change-over contact	Floating change-over contact	Floating change-over contact	
Switching differential	Adjustable / not adjustable	Not adjustable	Adjustable / not adjustable	Not adjustable	Not adjustable	Not adjustable	
Ambient temperature	-30°C ... +70°C	-30°C ... +70°C	-30°C ... +70°C	-30°C ... +70°C	-30°C ... +70°C	-30°C ... +70°C	
Protection	IP00	IP00	IP65	IP65	IP65	IP65	
Applications	Machine tools	Machine tools	Railways Machine tools	Machine tools Process technology	Shipbuilding Engine manufacturing Railways	Shipbuilding Engine manufacturing Railways Hydraulics HVAC	
Approval / conformity	EN60730-1/ EN60730-2-9: Type 2.B.H	EN60730-1/ EN60730-2-9: Type 2.B.H	EN60730-1/ EN60730-2-9: Type 2.B.H	EN60730-1/ EN60730-2-9: Type 2.B.H	ABS, BV, CCS, DNV-GL, KRS, LRS, RINA, RMRS EN60730-1/ EN60730-2-9: Type 2.B.H	ABS, BV, CCS, DNV-GL, KRS, LRS, NKK, RINA, RMRS EN60730-1/ EN60730-2-9: Type 2.B.H	
Type of protection							
Data sheet	www.trafag.com/H72122	www.trafag.com/H72124	www.trafag.com/H72110	www.trafag.com/H72138	www.trafag.com/H72111	www.trafag.com/H72113	
Instructions	www.trafag.com/H70211	www.trafag.com/H70211	www.trafag.com/H73111	www.trafag.com/H73111	www.trafag.com/H73111	www.trafag.com/H73113	

	EXS 404/414	EXAS 409/419	«Simple Apparatus» conformity to ATEX 414	«Simple Apparatus» conformity to ATEX 419
				
	Ex Industrial thermostat with remote sensor	Ex Industrial room thermostat	Industrial room thermostat with remote sensor	Industrial room thermostat
	-30°C ... +40°C to +70°C ... +350°C	-30°C ... +30°C to 0°C ... +60°C	-30°C ... +40°C to +70°C ... +350°C	-30°C ... +30°C to 0°C ... +60°C
	Floating change-over contact	Floating change-over contact	Floating change-over contact	Floating change-over contact
	Not adjustable	Not adjustable	Not adjustable	Not adjustable
	-30°C ... +70°C	-30°C ... +60°C	-30°C ... +70°C	-30°C ... max. +65°C
	IP65	IP65	IP65	IP65
	Ex II 2G / D	Ex II 2G / D	Potentially hazardous areas	Potentially hazardous areas
	SEV 15 ATEX 0156 X IECEx SEV 17.0010X	SEV 15 ATEX 0156 X IECEx SEV 17.0010X	EN60730-1/ EN60730-2-9: Typ 2.B.H EN60079-0, EN60079-11 Zone 1 and 2, 21 and 22	EN60730-1/ EN60730-2-9: Typ 2.B.H EN60079-0, EN60079-11 Zone 1 and 2, 21 and 22
	Areas with gas explosion hazards: II 2G Ex db eb IIC T6 Gb; Areas with dust explosion hazards: II 2D Ex tb IIIC T80°C Db	Areas with gas explosion hazards: II 2G Ex db eb IIC T6 Gb; Areas with dust explosion hazards: II 2D Ex tb IIIC T80°C Db		
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