

PRODUCT OVERVIEW

PRESSURE & TEMPERATURE





trafag
sensors + controls

STANDARD OR CUSTOMIZED?

Trafag puts great emphasis on solutions to best meet customers' requirements. Our experience of many years guarantees a successful project realization.

Standard products

Ideally suited for a variety of applications and requirements.

Adapted variants

Standard products for special requirements. Standard products that can easily be adapted to special requirements.

Customized products

Trafag develops and manufactures special customer-engineered products according to your specifications to meet your requirements.



TRANSMITTERS & SENSORS – HIGH PRECISION PRODUCTS

Trafag Pressure Transmitters are used for the sensing of pressure and the transmission of pressure proportional electrical signals.

Options

- ◆ various process and electrical connections
- ◆ absolute/relative measurement
- ◆ analogue/digital outputs
- ◆ CE, EX, Railway or Marine approvals

Sensor technologies

- ◆ thin film on steel
- ◆ thick film on ceramic

Customized products

- ◆ please contact us



PRESSURE SWITCHES – FOR MULTIPLE APPLICATIONS

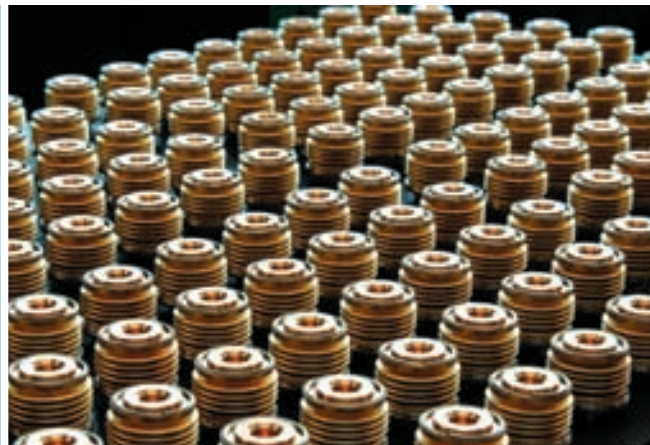
Trafag Pressure Switches are used to control pressures by means of an on/off electrical switch.

Options

- ◆ with/without display of switch point
- ◆ various switching capabilities
- ◆ CE, EX, Railway or Marine approvals

Sensing systems

- ◆ Metal bellows
- ◆ Membrane
- ◆ Piston



TRAFAG THERMOSTATS – EXPERIENCE OF MANY YEARS

Mechanical Trafag thermostats are used in applications where temperatures are controlled by means of a simple electrical on/off switching signal.

Options














- ◆ various switching capabilities
- ◆ instruments for inside or outside applications
- ◆ optional capillary tube breaking safety device
- ◆ one- or two-stage circuit
- ◆ CE, EX, Railway or Marine approvals

Sensing system

- ◆ with liquid filled capillary tube

ELECTRONIC PRESSURE TRANSMITTERS

STANDARD TYPE () = not available as standard type	NAT...A NAT...V	NAH...A NAE...A	CMP...M	EPN...A	NPN...A4 NPN...AF4	(EPNCR)	ECOS...A ECOS...VC ECO...A ECON...A	ECOSR...A ECORV...A	NSL...A	NAP...A EXNA...A	(Submersible) NAL...A EXNAL...A	(EPS)	DCS...AR	DGP2...A	N...	ND...
DATA SHEET www.trafag.com/productfinder	H72250	H72300 H72301 ^{NAE}	H72614	H72312	H72313	H72312	H72212 H72239 ^{ECON}	H72213	H72302	H72230 H72227 ^{EX}	H72228 H72231 ^{EX}	H72241	H72605	H72602	H72206	H72218
SENSOR TECHNOLOGY	Thin film on steel	Thin film on steel	Thin film on steel	Thin film on steel	Thin film on steel	Thin film on steel	Thick film on ceramic	Thick film on ceramic	Thin film on steel	Piezoresistive	Piezoresistive	Thin film on steel	Thin film on steel	Thin film on steel	Thin film on steel	Thin film on steel
MATERIAL SENSOR	DIN 1.4542 (AISI 630)	DIN 1.4542 (AISI 630)	DIN 1.4542 (AISI 630)	DIN 1.4548 (AISI 630)	DIN 1.4548 (AISI 630)	DIN 1.4548 (AISI 630)	Ceramic (Al ₂ O ₃) O-Ring: FKM	Ceramic (Al ₂ O ₃) O-Ring: CR	DIN 1.4542 (AISI 630)	DIN 1.4435 (AISI 316 L)	DIN 1.4435 (AISI 316 L)	DIN 1.4542 (AISI 630)	DIN 1.4542 (AISI 630)	DIN 1.4542 (AISI 630)	DIN 1.4542 (AISI 630)	DIN 1.4542 (AISI 630)
MEASURING RANGE [psi] () = Option: absolute or relative pressure measurement	min. 0 ... 36 max. 0 ... 8700 relative, (absolute)	min. 0 ... 36 max. 0 ... 8700 relative, (absolute)	min. 0 ... 50 max. 0 ... 8700 relative	min. 0 ... 36 max. 0 ... 29000 relative	min. 0 ... 36 max. 0 ... 5800 relative	min. 0 ... 36 max. 0 ... 29000 relative	min. 0 ... 15 max. 0 ... 3600 relative, (absolute)	min. -15 ... 130 max. 0 ... 580 relative, (absolute)	min. 0 ... 3 max. 0 ... 36 relative, (absolute)	min. 0 ... 1.5 max. 0 ... 14500 relative, (absolute)	min. 0 ... 1.5 max. 0 ... 580 relative	min. 0 ... 36 max. 0 ... 9000 relative	min. 0 ... 36 max. 0 ... 29000 relative	min. 0 ... 6 max. 0 ... 8700 relative, (absolute)	min. 0 ... 15 max. 0 ... 8700 relative, (absolute)	min. -15 ... 20 max. 0 ... 230 relative
OUTPUT () = Options, see data sheet	4...20 mA, 0...10 VDC (0...5, 1...6 VDC)	4...20 mA (0...10, 0...5 VDC 1...6, 0.5...4.5 VDC)	Bus protocol CANopen	4...20 mA 0.5 ... 4.5 VDC	4...20 mA	4...20 mA 0.5 ... 4.5 VDC	4...20 mA 0...10 VDC, (0...5, 1...6, 0.5...4.5 VDC)	4...20 mA 0...10 VDC, (0...5, 1...6, 0.5...4.5 VDC)	4...20 mA (0...10, 0...5 VDC 0.5...4.5 VDC)	4...20 mA	4...20 mA	Transistors	4...20 mA Relays (0...10 VDC)	Relays, 4...20 mA (0...10 VDC, RS485)	4...20 mA	4...20 mA
SUPPLY VOLTAGE [VDC] () = Options, see data sheet	24	24	12/24	24	24	24	24 VAC 24 VDC	24	24	24	24	24	24	24	24	24
ACCURACY typ. (at 77°F) - Electronic Pressure Transmitters: NLH (BSI) % FS - Mechanical Pressure Switches: Switching differential [psi]	± 0.2	± 0.1	± 0.2 (Option: ± 0.1)	± 0.2 (Option: ± 0.1)	± 0.2 (Option: ± 0.1)	± 0.2 (Option: ± 0.1)	≤ 2300 psi: ± 0.3 ≥ 2300 psi: ± 0.5	± 0.3	± 0.1	± 0.5	± 0.5	± 0.5% FS typ. Switchpoint at 77°F	± 0.2	± 0.1	± 0.2	± 0.5
OPERATING TEMPERATURE [°F]	-15 ... 185	-40 ... 260	-40 ... 260	-40 ... 260	-40 ... 210	-40 ... 260	-15 ... 185	-15 ... 185	-40 ... 260	30 ... 160	30 ... 160	-40 ... 185	-15 ... 185	-15 ... 185	-15 ... 185	-15 ... 185
MEDIA TEMPERATURE [°F]	-15 ... 260	-40 ... 260	-60 ... 280	-40 ... 260	-40 ... 210	-40 ... 260	≤ 870 psi: -15...185 ≥ 870 psi: 14...185	-15 ... 185	-40 ... 260	30 ... 175	30 ... 175	-40 ... 260	-15 ... 260	-15 ... 260	-15 ... 260	-15 ... 260
INGRESS PROTECTION* * tested according IEC 60595 () = Options, see data sheet	IP65, (67) corresponds to NEMA 4 (6)	IP67, (65) corresponds to NEMA 6 (4)	IP67 corresponds to NEMA 6	IP65 corresponds to NEMA 4	IP65 corresponds to NEMA 4	IP65 corresponds to NEMA 4	IP65, (67) corresponds to NEMA 4 (6)	IP65, (67) corresponds to NEMA 4 (6)	IP67, (65) corresponds to NEMA 6 (4)	IP65, (67) corresponds to NEMA 4 (6)	IP68 corresponds to NEMA 6P	IP65, 67, 69K corresponds to NEMA 4, 6, 6P	IP65 corresponds to NEMA 4	IP54 corresponds to NEMA 3	IP65 corresponds to NEMA 4	IP65 corresponds to NEMA 4
ELECTRICAL CONNECTION () = Options, see data sheet	Industrial Standard (M12x1)	M12x1 (Industrial Standard)	M12x1	DIN 43650 (DIN 72585, cable)	DIN 43650	DIN 43650 DIN 72585 cable	DIN 43650 (M12, cable)	DIN 43650 (M12, cable)	M12x1 (Industrial Standard)	DIN 43650	Cable	DIN 43650 DIN 72585 M12x1, cable,	M12x1	Terminal screw	Terminal screw	Terminal screw
PRESSURE CONNECTION () = Options, see data sheet	G1/4" male (1/4" NPT male, 7/16"-20 UNF)	G1/4" male (1/4" NPT male, 7/16"-20 UNF)	G1/4" male 1/4" NPT male	G1/4" male (male: R1/4", M14x1.5, M18x1.5)	G1/4" female flange connection (G1/8" or M10 female)	M14x1.5 male M18x1.5 male	G1/4" male (G1/4" female, NPT1/4" male)	7/16"-20UNF male 7/16"-20UNF female (NPT 1/4" male)	G1/4" male (1/4"NPTmale)	G1/4" male (G1/4" female, G1/2" male, ...)	with 4 inlets (G1/4" male)	G1/4" male	G1/4" male (G1/4" female, G1/2" male)	G1/4" female	G1/4" female (G1/2" female)	2x G1/4" female
MATERIAL PRESSURE CONNECTION	DIN 1.4542 (AISI 630)	DIN 1.4542 (AISI 630)	DIN 1.4542 (AISI 630)	DIN 1.4548 (AISI 630)	DIN 1.4548 (AISI 630)	DIN 1.4548 (AISI 630)	DIN 1.4435 (AISI 316 L)	DIN 1.4435 (AISI 316 L)	DIN 1.4542 (AISI 630)	DIN 1.4435 (AISI 316 L)	DIN 1.4435 (AISI 316 L)	DIN 1.4542 (AISI 630)	DIN 1.4435 (AISI 316 L)	DIN 1.4435 (AISI 316 L)	DIN 1.4435 (AISI 316 L)	DIN 1.4542 (AISI 17-4 PH)
APPLICATIONS																
Shipbuilding	◇	◆NAE	◇	◆	◆	◆	◆ECON	◇	◇	◇	◆	◇	◆	◇	◆	◆
Engine	◇	◆NAE	◆	◆	◆	◆	◆ECON	◇	◆	◇	◇	◆	◇	◇	◆	◆
Railway	◇	◇	◆	◇	◆	◇	◇	◇	◇	◇	◇	◆	◇	◇	◇	◇
Machine tools	◆	◆	◆	◆	◆	◇	◆	◇	◆	◇	◇	◆	◆	◆	◇	◇
Hydraulics	◆	◆	◆	◆	◆	◆	◆	◇	◇	◇	◇	◆	◆	◆	◇	◇
HVAC	◆	◇	◇	◇	◇	◇	◆	◆	◇	◇	◇	◆	◇	◇	◇	◇
Refrigeration	◆	◇	◇	◇	◇	◇	◆	◆	◇	◇	◇	◇	◇	◇	◇	◇
Process Technology	◆	◆	◆	◇	◇	◇	◆	◇	◆	◆	◆	◇	◆	◆	◇	◇
Water treatment	◆	◆	◇	◇	◇	◇	◆	◇	◆	◆	◆	◇	◇	◇	◇	◇
Automotive	◇	◇	◇	◇	◇	◇	◆	◇	◇	◇	◇	◆	◇	◇	◇	◇
Test benches	◇	◆	◆	◇	◇	◇	◇	◇	◆	◇	◇	◇	◇	◆	◇	◇
Ex	◇	◇	◇	◇	◇	◇	◇	◇	◇	◆	◆	◇	◇	◇	◇	◇

	MECHANICAL PRESSURE SWITCHES											MECHANICAL THERMOSTATS								ELECTRONIC THERMOSTATS	
STANDARD TYPE () = not available as standard type	PSTK...4	PST...4 PST3...4 PST...S4 ^(stainless)	PSTM...4	PSTD...	PK... EXPK... ^(E)	PV...	P... EXP... ^(E)	PD... EXPD... ^(E)	987...		STANDARD TYPE	ISP... ISPT...	ISN... ISN...	IA... IAS... EXAS... ^(E)	A... AS...	M... MS... MST...	L...	F...	T...	EM4...	
DATA SHEET www.trafag.com/productfinder	H72202	H72202 H72209 ^(ST3)	H72202	H72273	H72259 H72270 ^(E)	H72257	H72252 H72263 ^(E)	H72253 H72256 ^(E)	H72272		DATA SHEET www.trafag.com/productfinder	H72113	H72111	H72116 H72128 ^(E)	H72170	H72172 H72174 ^(MST)	H72122	H72123	H72102	H72161	
																					
SENSOR TECHNOLOGY	Piston	Bellows	Membrane	Bellows (Different. pressure)	Piston	Bellows	Bellows	Bellows (Different. pressure)	Bellows		SENSOR TECHNOLOGY	Capillary tube	Capillary tube	Capillary tube	Capillary tube	Capillary tube	Capillary tube	Capillary tube	PT100 (with/without)	PT100 (max. 2 pcs)	
MATERIAL SENSOR	DIN 1.4435 (AISI 316 L) PTFE-Sealing	Bronze CuZn6 DIN1.4404(AISI316L)	FKM	Bronze CuZn6	DIN 1.4435 (AISI 316 L)	Bronze CuSn6	Bronze CuSn6	Bronze CuSn6	Bronze CuSn6		MATERIAL SENSOR	Cu	Cu	Cu	Cu	Cu	Cu	Cu	DIN 1.4435 (AISI 316 L)	DIN 1.4435 (AISI 316 L)	
MEASURING RANGE [psi] () = Option: absolute or relative pressure measurement	min. 15 ... 145 max. 580 ... 5800	min. -9 ... 50 max. 58 ... 580	min. 15 ... 145 max. 145 ... 1450	min. -15 ... 90 max. -15 ... 115	min. 15 ... 145 max. 870 ... 8700	min. -13 ... 20 max. 58 ... 580	min. -13 ... 20 max. 58 ... 1450	min. -9 ... 50 max. 15 ... 230	min. -4.5 ... 18 max. 15 ... 145		MEASURING RANGE [°F]	min. 40 ... 200 max. 100 ... 570	min. 70 ... 230 max. 100 ... 570	min. -20 ... 85 max. 30 ... 140	min. -50 ... 60 max. 30 ... 140	min. -20 ... 100 max. 160 ... 660	min. -20 ... 100 max. 160 ... 660	25 ... 60	min. -60 ... 120 max. 30 ... 1020	min. -60 ... 120 max. 30 ... 1020	
OUTPUT () = Options, see data sheet	microswitch (on/off)	microswitch (on/off)	microswitch (on/off)	microswitch (on/off)	microswitch (on/off)	microswitch (on/off)	microswitch (on/off)	microswitch (on/off)	microswitch (on/off)		OUTPUT	microswitch (on/off)	microswitch (on/off)	microswitch (on/off)	microswitch (on/off)	microswitch (on/off)	microswitch (on/off)	microswitch (on/off)	4 ... 20 mA	1-5 microswitch (on/off)	
SUPPLY VOLTAGE [VDC] () = Options, see data sheet	-	-	-	-	-	-	-	-	-		SUPPLY VOLTAGE [VDC]	-	-	-	-	-	-	-	-	-	
ACCURACY typ. (at 77°F) - Electronic Pressure Transmitters: NLH (BSL) % FS - Mechanical Pressure Switches: Switching differential [psi]	min. 12 ... 35 max. 220 ... 720	min. 5 max. 23	min. 6 ... 25 max. 60 ... 230	min. 3 max. 4.5	min. 6 ... 13 max. 110 ... 460	min. 1.5 ... 18 max. 43 ... 260 (adjustable)	min. 0.4 max. 20	min. 2.5 max. 6	min. 1.5 max. 8		ACCURACY typ. (at 77°F) - Mechanical Thermostats: Switching differential [°F] - Electronic Thermostats: Temperature [°F]	min. 40 max. 50	min. 36 max. 45	33 ... 43 (adjustable)	33 ... 43 (adjustable)	min. 33 ... 50 max. 39 ... 100 (adjustable)	min. 33 ... 50 max. 39 ... 105 (adjustable)	35	NLH (BSL through 0): ± 0.05% FS typ.	min. ± 33 max. ± 37	
OPERATING TEMPERATURE [°F]	-15 ... 185	-15 ... 185	30 ... 175	0 ... 185	0 ... 160	0 ... 160	0 ... 160	0 ... 160	-15 ... 160		OPERATING TEMPERATURE [°F]	-20 ... 160	-20 ... 160	min. -20 ... 100 max. -20 ... 160	min. -50 ... 85 max. -20 ... 160	≤ 110°F: -20...120 ≤ 110°F: -20...120 ≤ 110°F: -20...185 ≤ 110°F: -20...185		5... 160	-40 ... 185	-15 ... 160	
MEDIA TEMPERATURE [°F]	-15 ... 250	-15 ... 250	30 ... 175	0 ... 250	-20 ... 210	-40 ... 300	-40 ... 300	-40 ... 300	-15 ... 175		MEDIA TEMPERATURE [°F]	see „Measuring range“	see „Measuring range“	see „Measuring range“	see „Measuring range“	see „Measuring range“	see „Measuring range“	max. 285	-	-	
INGRESS PROTECTION* * tested according IEC 60595 () = Options, see data sheet	IP65 corresponds to NEMA 4	IP65 corresponds to NEMA 4	IP65 corresponds to NEMA 4	IP65 corresponds to NEMA 4	IP65 corresponds to NEMA 4	IP65 corresponds to NEMA 4	IP65 corresponds to NEMA 4	IP65 corresponds to NEMA 4	IP40 corresponds to NEMA 1		IP PROTECTION	IP65 corresponds to NEMA 4	IP65 corresponds to NEMA 4	IP65 corresponds to NEMA 4	IP54 corresponds to NEMA 3	IP54 corresponds to NEMA 3	-	IP42 corresponds to NEMA 2	IP65	IP65 corresponds to NEMA 4	
ELECTRICAL CONNECTION () = Options, see data sheet	DIN 43650	DIN 43650	DIN 43650	DIN 43650	Terminal screw	Terminal screw	Terminal screw	Terminal screw	Flat plugs		ELECTRICAL CONNECTION	Terminal screw	Terminal screw	Terminal screw	Terminal screw	Terminal screw	Terminal screw	Terminal screw	Spring terminal	Terminal screw	
PRESSURE CONNECTION () = Options, see data sheet	G1/4" female flange connection (G1/8" or M10 female)	G1/4" female flange connection (G1/8" or M10 female)	G1/4" female flange connection (G1/8" or M10 female)	2xG1/4" female	G1/4" female	G1/4" female	G1/4" female	2x G1/8" female	G1/4" male		CAPILLARY TUBE LENGTH [m]	ISP: 3 ISPT: Sensor on housing	ISN: 3 ISNT: Sensor on housing	-	-	M, MS: 2 MST: Sensor on housing	2	6 or 3	-	1.5	
MATERIAL PRESSURE CONNECTION	DIN 1.4404 (AISI 316 L)	Brass, CuZn39Pb DIN1.4404(AISI316L)	Brass CuZn39Pb	Brass CuZn39Pb	DIN 1.4435 (AISI 316 L)	Brass CuZn39Pb	Brass CuZn39Pb	Brass CuZn39Pb	Brass CuZn39Pb		SUPPLY VOLTAGE [VDC]	-	-	-	-	-	-	-	24	24	
APPLICATIONS											APPLICATIONS										
Shipbuilding	◆	◆	◆	◆	◆	◆	◆	◆	◇		Shipbuilding	◆	◆	◇	◇	◇	◇	◇	◆	◇	
Engine	◆	◆	◆	◆	◆	◆	◆	◆	◇		Engine	◆	◆	◇	◇	◇	◇	◇	◇	◇	
Railway	◆	◆	◆	◇	◆	◆	◆	◆	◇		Railway	◆	◆	◇	◇	◆	◇	◇	◆	◆	
Machine tools	◆	◆	◆	◆	◆	◆	◆	◆	◆		Machine tools	◇	◇	◇	◇	◆	◆	◇	◇	◆	
Hydraulics	◆	◆	◆	◆	◆	◆	◆	◆	◇		Hydraulics	◆	◇	◇	◇	◇	◇	◇	◇	◇	
HVAC	◇	◇	◇	◇	◇	◇	◇	◇	◇		HVAC	◆	◇	◆	◆	◆	◇	◆	◆	◆	
Refrigeration	◇	◇	◇	◇	◇	◇	◇	◇	◇		Refrigeration	◇	◇	◇	◆	◆	◇	◆	◆	◇	
Process Technology	◇	◇	◇	◇	◇	◇	◇	◇	◇		Process Technology	◇	◇	◇	◇	◆	◇	◇	◇	◆	
Water treatment	◇	◇	◇	◇	◇	◇	◇	◇	◇		Water treatment	◇	◇	◇	◇	◆MST	◇	◇	◇	◇	
Automotive	◇	◇	◇	◇	◇	◇	◇	◇	◇		Automotive	◇	◇	◇	◇	◇	◇	◇	◇	◇	
Test benches	◇	◇	◇	◇	◇	◇	◇	◇	◇		Test benches	◇	◇	◇	◇	◇	◇	◇	◇	◇	
Ex	◇	◇	◇	◇	◆	◇	◆	◆	◇		Ex	◇	◇	◆	◇	◇	◇	◇	◇	◇	

SC: SENSOR COMMUNICATOR



The SC is a handheld device (PDA like) with access to sensor data and calibration. Compatible with devices containing the Trafag-ASIC.

Independently battery operated (including power supply of pressure sensor).
for device types: NAT, NAH, NAE, EPN, NPN, CMP, ...

FLYER NO: H70185
www.trafag.com/productfinder (Product Name: "SC")

COMPETENT AND CUSTOMER-ORIENTED

Technological and manufacturing expertise, coupled with customer-orientation, has formed the cornerstone of the fully independent Trafag Company. With corporate headquarters situated near Zürich (Switzerland), Trafag has more than 200 employees worldwide. Approximately one fifth of the Swiss based group are involved in the fields of research & development, production technology and applications engineering.

MARKET-ORIENTED AND ALWAYS WITHIN REACH

Trafag proudly maintains an active presence in over 30 countries. Customers are spread through a wide range of industrial sectors such as mechanical engineering, hydraulics, engine manufacturing, shipbuilding, railway technology and high-voltage technology. Trafag customers appreciate the cooperation and support offered by a technically competent customer advisory service.

APPLICATION AND SOLUTION-ORIENTED

Trafag's on - sight availability of resources allows for great flexibility from core development stages through final production. Understanding and implementation of specific customer requirements is Trafag's strength, thanks to a modular engineering system. This system allows Trafag's standard product line to be efficiently adapted to meet individual customer needs and to provide unique solutions for OEM applications.

ADAPTABLE AND EFFICIENT

In order to please highly demanding markets, Trafag's modern facilities are built to perform. Here immediate manufacturing of specialty components enable production and expediting at short notice.

SWISS BASED QUALITY – WORLDWIDE REPRESENTED

REFERENCES

ABB	Electrolux	Rolls-Royce
AIT	G&W	Schindler
Alstom	Husco International	Schneider Electric
Areva T&D	Hyundai Heavy Industries	Schottel
AVL	Ingersoll Rand	Siemens
Bombardier	Liebherr	Sulzer
Bosch Rexroth	MAN	Toshiba
BMW Rolls-Royce	Mitsubishi	Volvo
Caterpillar	MTU	Wärtsilä
Cummins Inc.	Parker	Westfalia Separator
Detroit Diesel	Philips	York
Dräger	Renk	ZF Marine



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