

SHIPBUILDING

Temperature and pressure monitoring solutions

- Pressure switches
- Pressure transmitters
- Thermostats



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.

Trafag - Swiss quality solutions to rely on

Trafag draws from decades of experience in the design, manufacture and application of pressure and temperature measuring instruments for the maritime industry. We continuously meet the rising expectations of the shipbuilding industry in respect of safety and reliability of our products. We combine the product requirements of the classification authorities with rigorous quality management in development and manufacturing. Docking times of ships are short and spare parts need to be available immediately. Trafag is able to provide this service on the spot worldwide, through its branch offices and distributors.

Pressure and temperature monitoring solutions for marine applications

Engines

Monitoring of pressure and temperature of lubricants, fuel, intake air, turbo charge, cooling water or common rail injection.

Hydraulics

Hydraulics on deck cranes, cylinders or line pressure.

Pumps

Monitoring of pump pressure of various media also for explosive areas.

Filling level

Level monitoring in ballast tanks or water ingress control systems.

Ballast water

Pressure monitoring in physical and chemical treatment units.

Transmissions

Pressure and temperature monitoring of lubricant.

Compressors

Monitoring of inlet and delivery pressure prior to and after compression.

Separators

Preparation of fuel oils and treatment of bilge water.

Steering

Pressure monitoring of hydraulic oil.



Approved worldwide



Product lines for pressure and temperature control

Trafag offers a wide range of products for pressure and temperature monitoring geared towards the special requirements of the marine and offshore industry.



Pressure transmitters

The electronic pressure transmitters are based on Trafag's own sensor technologies: thin-film-on-steel and thick-film-on-ceramic. In combination with inhouse developed ASIC electronics they offer excellent long-term stability and high accuracy even under harshest conditions. The wide range of versions allows a perfect fit for a wide range of applications.

Ex Ex- version available



Pressure switches

Trafag's mechanical pressure switches offer high vibration resistance and switchpoint accuracy in combination with an extraordinary rugged design for years of maintenance-free operation in rough conditions. Different sensors based on bellow, membrane and piston principle cover a wide range of pressure ranges, media and load cycle profiles.

Ex Ex- version available



Thermostats

Over 50 years of experience in successfully supplying thermostats to the shipbuilding industry, Trafag products have a long track record of proven reliability and accuracy. Different product lines with a variety of features and options offer a wide media temperature range and high switchpoint accuracy in a very robust design.

Ex Ex- version available

NAE 8256

Engine Pressure Transmitter



Features

- Measuring accuracy 0.3 %, 0.5 %
- Completely welded steel sensor system without additional seals
- Smallest design
- High resistance to over pressure
- Excellent long-term stability

Technical Data

Measuring principle	Thin film on steel
Measuring range	0 ... 10 to 0 ... 600 bar 0 ... 150 to 0 ... 7500 psi
Output signal	4 ... 20 mA
Accuracy @ 25°C typ.	0.5 %: ± 0.5 % FS typ. 0.3 %: ± 0.3 % FS typ.
Media temperature	-40°C ... +125°C
Ambient temperature	-40°C ... +125°C
Approval	ABS, BV, DNV, GL, KRS, NKK, RINA, RMRS



Data sheet

www.trafag.com/H72305

NSL 8257

Low Pressure Transmitter



Features

- Smallest design
- Relative or absolute pressure measurement
- Excellent temperature resistance
- Improved vibration resistance
- Completely welded steel sensor system without additional seals

Technical Data

Measuring principle	Thin film on steel
Measuring range	0 ... 0.2 to 0 ... 2.5 bar 0 ... 3 to 0 ... 30 psi
Output signal	4 ... 20 mA, 0 ... 5 VDC, 0 ... 10 VDC, 0.5 ... 4.5 VDC ratiometric
Accuracy @ 25°C typ.	0.15 ... 0.8 % FS typ.
Media temperature	-40°C ... +125°C
Ambient temperature	-40°C ... +125°C
Approval	GL, DNV, RINA



Data sheet

www.trafag.com/H72302

CMP 8270

CANopen Miniature Pressure Transmitter



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
Measuring range	0 ... 1 to 0 ... 600 bar
Output signal	Bus protocol CANopen DS404
Accuracy @ 25°C typ.	± 0.5 % FS typ. ± 0.15 % FS typ. ± 0.1 % FS typ.
Media temperature	-50°C ... +135°C
Ambient temperature	-40°C ... +125°C



Data sheet

www.trafag.com/H72614

NPN 8264

Picotrans



Features

- Compact design
- Flange connection (PICO family)
- High vibration resistance
- Good temperature resistance
- Completely welded steel sensor system without additional seals

Technical Data

Measuring principle	Thin film on steel
Measuring range	0 ... 2.5 to 0 ... 250 bar
Output signal	4 ... 20 mA
Accuracy @ 25°C typ.	± 0.5 % FS typ. ± 0.3 % FS typ.
Media temperature	-40°C ... +100°C
Ambient temperature	-40°C ... +100°C
Approval	ABS, BV, CCS, DNV, GL, KRS, LRS, NKK, RINA, RMRS



Data sheet

www.trafag.com/H72313

EPN/EPNCR 8298

Engine Pressure Transmitter



Features

- Nominal pressure up to 2500 bar (Common Rail) with high pressure threaded connection
- High vibration resistance
- Good temperature resistance
- Different accuracy classes
- Completely welded steel sensor system without additional seals

Technical Data

Measuring principle	Thin film on steel
Measuring range	0 ... 2.5 to 0 ... 2500 bar
Output signal	4 ... 20 mA 0.5 ... 4.5 VDC ratiometric
Accuracy @ 25°C typ.	± 0.5 % FS typ. ± 0.3 % FS typ.
Media temperature	-40°C ... +125°C
Ambient temperature	-40°C ... +125°C
Approval	ABS, BV, CCS, DNV, GL, KRS, LRS, NKK, RINA, RMRS



Data sheet

www.trafag.com/H72312

ECTN 8477

Marine Pressure Transmitter



Features

- Economical
- Good media compatibility
- Relative or absolute pressure measurement
- Titanium version optional

Technical Data

Measuring principle	Thick film on ceramic
Measuring range	0 ... 1 to 0 ... 400 bar 0 ... 15 to 0 ... 5000 psi
Output signal	4 ... 20 mA
Accuracy @ 25°C typ.	± 0.5 % FS typ.
Media temperature	-25°C ... +85°C 400 bar/5000 psi: -10°C ... +85°C
Ambient temperature	-25°C ... +85°C
Approval	DNV, GL, KRS, RINA



Data sheet

www.trafag.com/H72322

DCS 8864

Display Control Switch



Features

- Simple adjustment of switching points
- Back-lit LCD-Display
- Measurement and indication of pressure (incl. switch state) and sensor temperature in various units
- High resistance to pressure cycling
- Output signal 2 relays, electrically isolated

Technical Data

Measuring principle	Thin film on steel
Measuring range	0 ... 1 to 0 ... 600 bar
Output signal	4 ... 20 mA, 0 ... 10 VDC 2 Relays, electrically isolated 30W (max.1A), 36 VAC/ DC
Accuracy @ 25°C typ.	± 0.5 % FS typ.
Media temperature	-25°C ... +125°C
Ambient temperature	-25°C ... +80°C (LCD display active -10°C ... +70°C)
Approval	GL



Data sheet

www.trafag.com/H72605

EPN-S 8320

Electronic Pressure Switch



Features

- Rugged design for harsh environments
- Wide temperature range
- Excellent long-term stability
- Very compact design
- Switchpoint factory set or programmable on site with Trafag Sensor Communicator SC

Technical Data

Measuring principle	Thin film on steel
Measuring range	0 ... 2.5 to 0 ... 600 bar 0 ... 30 to 0 ... 7500 psi
Output signal	Transistor (open source)
Accuracy @ 25°C typ.	± 0.5 % FS typ. (Switchpoint)
Media temperature	-40°C ... +125°C
Ambient temperature	Standard: -25°C ... +85°C Option: -40°C ... +125°C
Approval	GL



Data sheet

www.trafag.com/H72333



Programming device Sensor Communicator SC
see page 14

ECL 8439

Submersible Pressure Transmitter



Features

- Suitable for thick and viscous media
- Different materials for optimum media compatibility
- Lightning protection integrated

Technical Data

Measuring principle	Thick film on ceramic
Measuring range	0 ... 0.1 to 0 ... 2.0 bar 0 ... 1.5 to 0 ... 30 psi
Output signal	4 ... 20 mA
Accuracy @ 25°C typ.	± 0.3 % FS typ. Range 0 ... 0.1 to 0 ... 0.2 bar: ± 0.5 % FS typ.
Media temperature	-10°C ... +70°C
Ambient temperature	-10°C ... +70°C



Data sheet

www.trafag.com/H72336

ECL 8438

Submersible Pressure Transmitter



Features

- Good media compatibility
- Economical
- Cable PUR/PE or FEP
- Lightning protection integrated

Technical Data

Measuring principle	Thick film on ceramic
Measuring range	0 ... 0.1 to 0 ... 10 bar
Output signal	4 ... 20 mA
Accuracy @ 25°C typ.	± 0.3 % FS typ. Range 0...0.1 to 0...0.4 bar: ± 0.5 % FS typ.
Media temperature	-25°C ... +80°C (+70°C)
Ambient temperature	-25°C ... +80°C (+70°C)
Approval	GL, KRS



Data sheet

www.trafag.com/H72328

NAL 8838

Submersible Pressure Transmitter



Features

- Pressure ranges from 100 mbar
- No media contacting O-rings
- PUR or Teflon cables
- Option: Chemical resistant material, e.g. titanium
- Option: Lightning protection (IEC 61000-4-5)

Technical Data

Measuring principle	Piezoresistive
Measuring range	0 ... 0.1 to 0 ... 25 bar
Output signal	4 ... 20 mA 0 ... 10 VDC
Media temperature	-5°C ... +50°C
Ambient temperature	-5°C ... +50°C
Approval	GL, KRS



Data sheet

www.trafag.com/H72228

EXNT 8292

Ex Pressure Transmitter



Features

- - II 1G Ex ia IIC T4/T6 Ga
 - II 1 D Ex ia IIIC IP6x T130° Da
 - I M1 Ex ia I Ma
 - II 1/2G Ex ia IIC T4/T6 Ga/Gb (with plastic-type connector)
- Pressure ranges from 0.4 to 2000 bar
- Completely welded sensor system
- High stability by DMS-technology
- ATEX and IECEx

Technical Data

Measuring principle	Thin film on steel
Measuring range	0 ... 0.4 to 0 ... 2000 bar
Output signal	4 ... 20 mA
Accuracy @ 25°C typ.	± 0.5 % FS typ. ± 0.3 % FS typ.
Media temperature	Max. -40°C ... +120°C
Ambient temperature	Max. -40°C ... +120°C
Approval	GL, KRS ATEX / IECEx, according to the norm EN/IEC 60079-0/EN 60079-11/ EN 60079-26/ EN 50303



Data sheet

www.trafag.com/H72329

PST4B 9B4

Picostat Pressure Switch



Features

- Improved vibration resistance
- Compact design
- Rugged housing
- Protection IP65
- Any mounting position possible

Technical Data

Measuring principle	Bellow
Measuring range	-0.6 ... 3.4 to 4 ... 40 bar -8 ... 45 to 60 ... 500 psi
Output signal	Floating change-over contact (SPDT)
Switching differential	Not adjustable
Repeatability	± 0.5 % FS typ.
Media temperature	Standard: -25°C ... +125°C with sensor 789/790/791: -40°C ... +125°C
Approval	ABS, BV, CCS, DNV, GL, KRS, LRS, NKK, RINA, RMRS, EN60730-1/ EN60730-2-6: Typ 2.B.H



Data sheet

www.trafag.com/H72367

PSTD 9D0

Differential Pressure Picostat



Features

- Compact design
- Rugged housing
- High repeatability
- Protection IP65 (with plug connector)
- Any mounting position possible

Technical Data

Measuring principle	Bellow
Measuring range	-1 ... 6 and -1 ... 8 bar
Differential pressure	0 ... 4 and 0 ... 6 bar
Output signal	1 Floating change-over contact (SPDT)
Switching differential	Not adjustable
Repeatability	± 1.0 % FS typ.
Media temperature	-25°C ... +120°C
Ambient temperature	-25°C ... +85°C
Approval	GL EN60730-1/ EN60730-2-6: Typ 2.B.H



Data sheet

www.trafag.com/H72273

P/PS 900/904/912

Pressostat



Features

- Rugged aluminium housing
- Protection IP65
- Any mounting position possible

Technical Data

Measuring principle	Bellow
Measuring range	-0.9 ... 1.5 to 10 ... 100 bar 5 ... 50 to 125 ... 1500 psi
Output signal	1 Floating change-over contact (SPDT)
Switching differential	Not adjustable
Repeatability	± 1.0 % FS typ.
Media temperature	-40°C ... +150°C
Ambient temperature	-25°C ... +70°C
Approval	ABS, BV, CCS, DNV, GL, KRS, LRS, RINA EN60730-1/ EN60730-2-6: Typ 2.B.H



Data sheet

www.trafag.com/H72252

EXP 900/904/912

Ex Pressostat



Features

- Rugged aluminium housing, option: housing stainless steel
- Protection IP66
- Any mounting position possible
- Ex d e IIC T6 Gb
- Ex tb IIIC T80°C Db

Technical Data

Measuring principle	Bellow
Measuring range	-0.9 ... 1.5 to 4 ... 40 bar
Output signal	1 Floating change-over contact (SPDT)
Switching differential	Not adjustable
Repeatability	± 1.0 % FS typ.
Media temperature	-40°C ... +150°C
Approval	SEV 15 ATEX 0157 X
Type of protection	Areas with gaz explosion hazards: II 2 G Ex d e IIC T6 Gb Areas with dust explosion hazards: II 2 D Ex tb IIIC T80°C Db



Data sheet

www.trafag.com/H72263

ISP/ISPT 474

Picotherm



Features

- Compact design
- Rugged housing
- High repeatability
- Protection IP65
- Any mounting position possible

Technical Data

Designation of application	Compact thermostat for shipbuilding
Measuring range	+5°C ... +95°C to +20°C ... +150°C
Output signal	Floating change-over contact
Switching differential	Not adjustable
Repeatability	± 1 % FS typ.
Approval	ABS, BV, CCS, DNV, GL, KRS, LRS, NKK, RINA, RMRS EN60730-1/ EN60730-2-9: Typ 2.B.H



Data sheet

www.trafag.com/H72113

ISN/ISNT 471/472

Navistat



Features

- Compact design
- Rugged housing
- High repeatability
- Protection IP65
- Any mounting position possible

Technical Data

Designation of application	Thermostat for shipbuilding
Measuring range	+20°C ... +110°C to +40°C ... +300°C
Output signal	Floating change-over contact
Switching differential	Not adjustable
Repeatability	± 0.5 % FS typ.
Approval	ABS, BV, CCS, DNV, GL, KRS, LRS, RINA, RMRS EN60730-1/ EN60730-2-9: Typ 2.B.H



Data sheet

www.trafag.com/H72111

DVB

Diagnostic Valve Block



Features

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

Technical Data

Pressure	-0.8 ... 100 bar
Ambient temperature	-20°C ... +120°C



Data sheet

www.trafag.com/H72361

SC

Sensor Communicator



Features

- 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

Technical Data

- Identification of device data: Model, signal output, type plate, manufacturing date
- Setting of switchpoint (8320 EPN-S)
- CANopen: Setting of Node-ID and baudrate
- Reset to factory settings

Content of delivery:

1 pce SC incl. batteries,
1 pce USB-cable,
1 pce Measuring bridge cable
Option: Adapter cable (see table)



Instruction

www.trafag.com/H73699 en/H73698 de

Stop valve

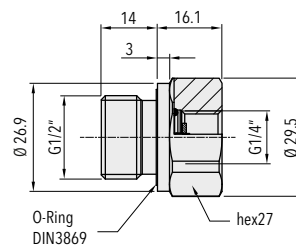


Features

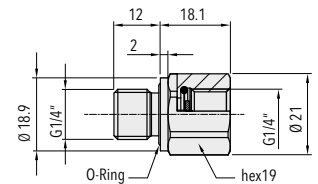
- Allows replacement of instruments without interruption of process (max. 40 bar)

Technical Data

Material	1.4305 / FKM
Pressure	max. 600 bar
Media temperature	-25°C ... +125 °C



V6



V7



Data sheet

www.trafag.com/H72258

A../D..

Adapters with manometer pressure ports

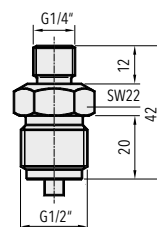


Features

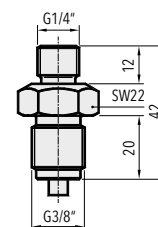
- Pressure adapters with different thread combinations and materials for individual applications

Technical Data

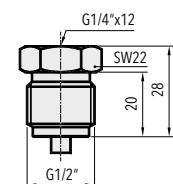
Material	1.4435 (AISI316L) / Brass
Connection	G1/4"m - G1/2"m, G1/4"m - G3/8"m, G1/4"f - G1/2"m



A2/D2



A1/D1



D4



Data sheet

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Reliable quality

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Russia
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Sweden
Taiwan
Thailand
Turkey
Ukraine
United Arab Emirates
Vietnam



References

ABB | AIT | AKG | Alstom | Areva T&D | Atos | AVL | Benninghoven | Bharat Heavy Electrical | Blohm & Voss | Bombardier | Bosch Rexroth | BMW Rolls-Royce
Bühler | Caterpillar | Charmilles | Dalian Marine Diesel Ltd. | Detroit Diesel | Deutsche Bahn AG | Doosan Group | Dräger | Electrolux | Elektrobudowa S.A.
Faiveley | Fincantieri | Flender | Goninan | Greenfield | G&W | Hermetic Pumpen | Roche | Hudong Heavy Machinery | Hyundai Heavy Industries | IAV
Ingersoll Rand | Iveco | KOMA | MAN B&W | Melag | Mitsubishi | MTU | Noske-Kaeser | Oilon | Ormat Turbines | Parker | PESA | Philips | PKN Orlen S.A.
PMC | Polarteknik | Promeco | Queensland Rail | Reintjes | Renk | Rolls-Royce | Schindler | Schneider Electric | Schottel | Sciteq-Hammel | Siemens | SNCF
STX Heavy Industries | Thermax Limited | Toshiba | Trumpf | Verolme Shipyard | Vesta | Viessmann | Voith | Wärtsilä | Westfalia Separator | W&H
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