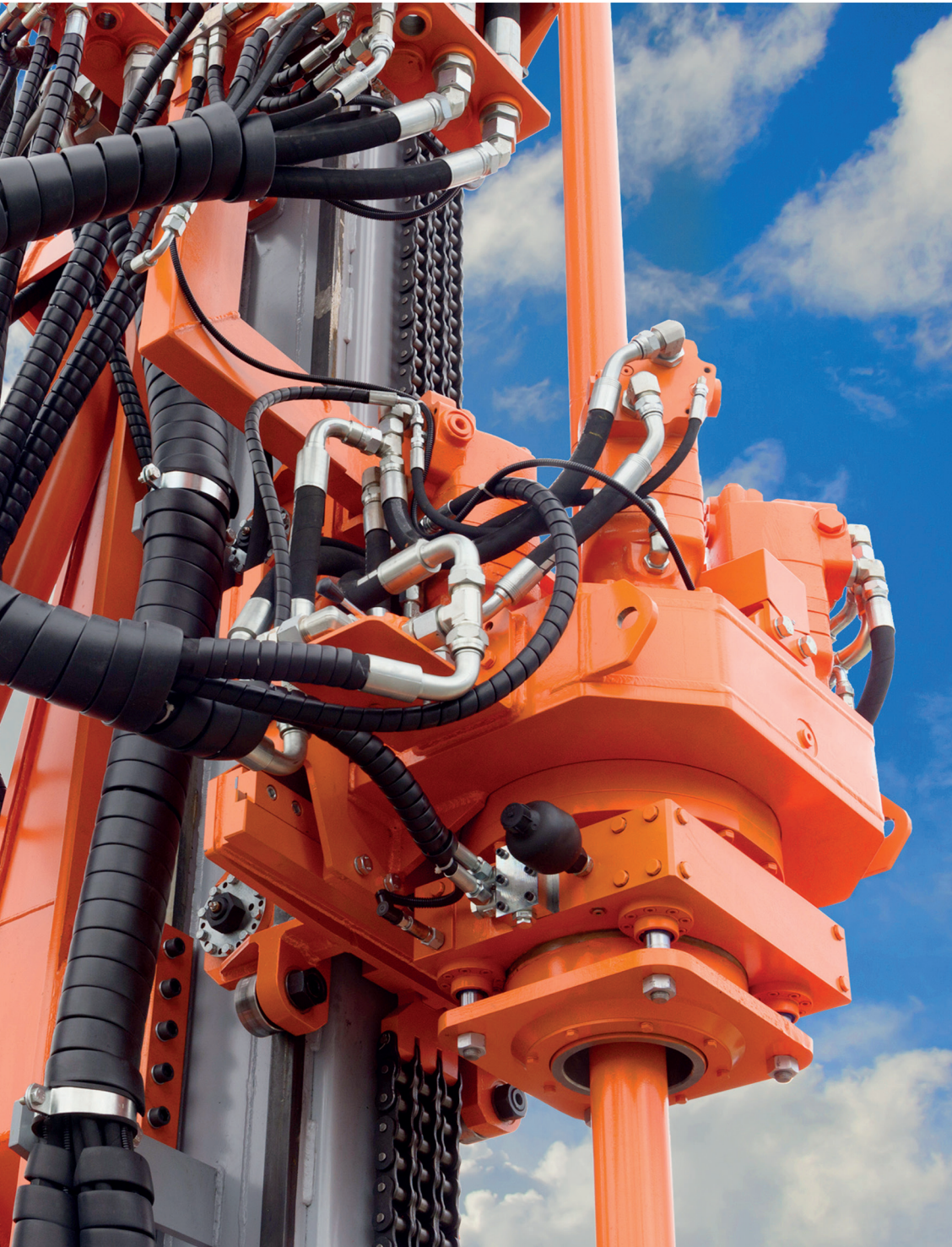


# Hydraulics

Pressure switches - Pressure transmitters - Thermostats



# Pressure and temperature monitoring for hydraulic applications

Applications in mobile and stationary hydraulics demand the highest robustness and reliability from sensors. Trafag pressure transmitters are used in applications from high-accuracy test benching to heavy construction and agricultural equipment. They are proven for long-term stability in extremely harsh environments: from the dusty heat of deserts to the icy cold of sub-arctic forests. The reliable pressure transmitters with exceptionally long-term stability are also highly praised in stationary hydraulics, helping to avoid costly production interruptions.

## Agricultural and forestry machines

Tractors, harvesting machines, transport machines

## Renewable energies

Rotor control in wind power plants, solar tracking in photovoltaic systems

## Construction machines

Excavators, mobile cranes, concrete pumps and mixers

## Communal and special vehicles

Garbage collection, heavy transporters, firefighting vehicles

## Test and inspection installations

Injection moulding machines, forming presses, stretch-blow machines

## Test and inspection installations

Chassis test benches, material inspection systems, inspection of hydraulic components

## Hydraulic components and subsystems

Valve block systems, power packs, tank monitoring





# Products overview

## Pressure transmitters



**NAT 8252** 8  
**Industrial Pressure Transmitter**  
Compact and robust all-rounder with many design variants and options. First choice for standard applications with M12x1 electric connections, Industrial Standard, or Deutsch DT04-3pole/-4pole.



**NAH 8254** 9  
**Pressure Transmitter with increased accuracy**  
For applications demanding increased precision or standard applications at elevated operating temperatures.



**NAI 8273** 9  
**IO-Link Pressure Transmitter and Switch**  
Measures pressure and temperature, accuracy class up to 0.3%. With IO-Link and PNP/NPN switching output.



**NAH 8253** 10  
**Precision Pressure Transmitter**  
For applications requiring high precision or absolute pressure together with high long-term stability. Optionally available with increased electric strength of 500 VAC.



**ESH 8845** 10  
**High-Accuracy Pressure Transmitter**  
Accuracy up to 0.05% for test and measurement applications. Optional: flush membrane version.



**EPI 8287** 12  
**Industrial Pressure Transmitter**  
Robust all-rounder with many design variants and options. First choice for standard applications with electric connection EN 175301-803-A or with AISI316L steel housings.



**EPN/EPNCR 8298** 12  
**Engine Pressure Transmitter**  
For high pressures up to 2500 bar.



**ECT 8472** 13  
**Industrial Pressure Transmitter**  
Where absolute pressure measurement is required or in contact with corrosive media. Housing options in various steel variants or titanium.



**ECT 8473** 13  
**Industrial Pressure Transmitter with increased accuracy**  
For low pressure applications, absolute pressure measurements with increased precision and in contact with corrosive media.



**CMP 8271** 15  
**CANopen Miniature Transmitter**  
Compact and robust all-rounder with many design variants and options. First choice for standard applications with CANopen.



**CMP 8270** 15  
**CANopen High-Accuracy Pressure Transmitter**  
High accuracy up to 0.1 %, absolute and relative pressure measurement, integrated media temperature measurement.

## Pressure transmitters



**NAH 8254 20 kHz** **11**  
**Pressure Transmitter**  
**for highly dynamic pressure curves**  
 For measuring highly dynamic pressure curves and short-term pressure peaks with a signal cut-off frequency up to 20 kHz.



**FPT 8236** **14**  
**Flush Membrane Transmitter**  
 For applications with viscous, corrosive or clogging media, with analogue output.

 **IO-Link**



**FPI 8237** **14**  
**Flush Membrane Transmitter with IO-Link**  
 For applications with viscous, corrosive, or clogging media, integrated media temperature measurement, with IO-Link output.

## Level measurement



**ECL 8439** **18**  
**Submersible Pressure Transmitter**  
 Level probe for hydrostatic measurement from 0.1 to 2 bar, measurement ranges configurable using smartphone app.



**NAL 8838** **19**  
**Submersible Pressure Transmitter**  
 Level probe for specific applications which require high accuracy or with corrosive media.



**DLF 8980** **19**  
**Level Switch with Display**  
 For liquid level up to 2000 mm, with display and NBT communication for parametrizing via smartphone app.



**TFC** **20**  
**Float Level Sensor**  
 Float sensor for measurement of levels up to 2000 mm.



**TFS** **20**  
**Float Level Switch**  
 Float level switch with up to 6 switchpoints and optional temperature measurement.



**TOS** **21**  
**Optical Level Switch**  
 Optical level switch for simple and cost-effective limit detection.

# Products overview

## Electronic pressure switches and pressure transmitters

 IO-Link



**NAI 8273**

**9**

### IO-Link Pressure Transmitter and Switch

Measures pressure and temperature, accuracy class up to 0.3%. With IO-Link and PNP/NPN switching output.

**DPS 8381**

**16**

### Pressure Switch with Display and steel sensor

First choice for pressure measurement with display. Continuous analogue signal as well as 1 to 2 switch outputs can be parametrised with app via NFC.



**DPC 8380**

**17**

### Pressure Switch with Display and ceramic sensor

For applications with absolute pressure measurement, low pressures or contact with corrosive media. Continuous analogue signal as well as 1 to 2 switch outputs can be parameterised with app via NFC.



## Mechanical pressure switches

**PICOSTAT 9B4**

**22**

### Pressure Switch with bellows sensor

For low pressure ranges and pulse-free pressure curves. Gas-tight variants available.



**PICOSTAT 9R5**

**22**

### Mechanical Pressure Switch

Electromechanical Pressure Switch with one microswitch in stainless steel housing.



**PICOSTAT 9K4**

**23**

### Pressure Switch with piston sensor

For high pressure ranges and pressure curves with pulsations.



**PICOSTAT 9M4**

**23**

### Pressure Switch with membrane sensor

For medium pressure ranges and pressure curves with pulsations.



## Temperature measurement and monitoring

**DTP 8180**

**24**

### Display Temperature Switch and Transmitter

Electronic temperature transmitter and switch with display. Continuous analogue signal as well as 1 to 2 switch outputs can be parametrised with app via NFC.



**ISP/ISPT 474**

**25**

### Compact Thermostat

Thermostat in block construction with switch output.



## Accessories



**SMI**

### Sensor Master Interface

For the configuration of the electronic pressure switches NAT 8252 and NAH 8254, and level sensor ECL 8439.

**26**



**SC**

### Sensor Communicator

For the configuration of the pressure transmitter NAH 8253, EPN/EPNCR 8298, CMP 8270, and electronic pressure switch EPN-S 8320.

**26**



**THP...**

### Hand Pump

For testing transmitter and switch pressures. With high accuracy electronic manometers.

**27**



**V6/V7**

### Stop Valve

Stop valve for exchanging pressure transmitters without process interruption.

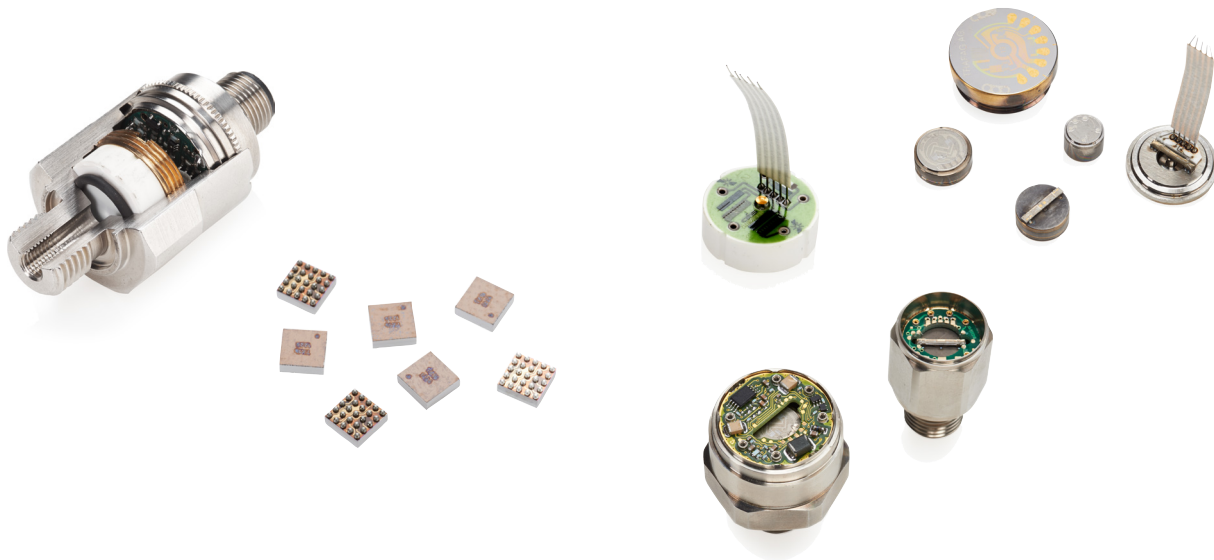
**27**



# Sensor technology

Key components of Trafag's 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 as well as with the ASIC application-specific microchip.

As a result, pressure sensors and electronics work in perfect unison and achieve a unique level of long-term stability and reliability, even under the most adverse environmental conditions.



## NAT 8252

### Industrial Pressure Transmitter



- Smallest design
- Completely welded steel sensor system without additional seals
- Excellent long-term stability
- Optional: 5-fold overpressure resistance
- Optional: Switching output 1 or 2 PNP

#### 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	4 ... 20 mA, 0 ... 5 VDC, 1 ... 5 VDC, 1 ... 6 VDC, 0 ... 10 VDC and more, 0.5 ... 4.5 VDC ratiometric
Accuracy @ 25°C typ.	± 0.5 % FS typ.
Media temperature	-40°C ... +125°C
Ambient temperature	-40°C ... +125°C

#### Setting the switching points



#### Sensor Master Interface (SMI)

More information on page 26

#### Sensor Master Communicator (SMC)



Fast and easy operation via Android or Windows App „Sensor Master Communicator“ (SMC)

Data sheet

[www.trafag.com/H72303](http://www.trafag.com/H72303)

## NAH 8254

### Pressure Transmitter with increased accuracy



- Measuring accuracy 0.3 %
- Completely welded steel sensor system without additional seals
- Excellent long-term stability
- Optional: 5-fold overpressure resistance

#### Technical Data

Measuring principle	Thin-film-on-steel
Measuring range	0 ... 0.2 to 0 ... 700 bar 0 ... 3 to 0 ... 10000 psi
Output signal	4 ... 20 mA, 0 ... 5 VDC, 1 ... 5 VDC, 1 ... 6 VDC, 0 ... 10 VDC and more, 0.5 ... 4.5 VDC ratiometric
Accuracy @ 25°C typ.	± 0.3 % FS typ.
Media temperature	-40°C ... +125°C
Ambient temperature	-40°C ... +125°C

Data sheet

[www.trafag.com/H72304](http://www.trafag.com/H72304)

## NAI 8273

### IO-Link Pressure Transmitter and Switch



 IO-Link

- Pressure measuring accuracy 0.3 %, 0.5 %
- Media and device temperature measurement
- Excellent long-term stability
- 2 Switching outputs PNP/NPN configurable
- Optional: 5-fold overpressure resistance

#### Technical Data

Measuring principle	Thin-film-on-steel
Measuring range	-0.2 ... 0.2 to 0 ... 700 bar
Output signal	IO-Link 1.1, COM3, min. process cycle time 1 ms, Smart Sensor Profile ED2 2 Switching outputs PNP/NPN
Accuracy @ 25°C typ.	± 0.5 % FS typ. ± 0.3 % FS typ.
Media temperature	-40°C ... +125°C
Ambient temperature	-40°C ... +105°C

Data sheet

[www.trafag.com/H72621](http://www.trafag.com/H72621)

# NAH 8253

## Precision Pressure Transmitter



Parametrisation via  
Sensor Communicator (SC)  
More information on page 26

- Smallest design
- Accuracy classes 0.1 %, 0.15 %, 0.3 %
- Excellent temperature resistance
- Relative and absolute pressure measurement
- Optional: Dielectric strength 500 VAC, meets EN 50155 (Railways)

### 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	4 ... 20 mA, 0 ... 5 VDC, 1 ... 6 VDC, 0 ... 10 VDC, 0.5 ... 4.5 VDC ratiometric
Accuracy @ 25°C typ.	± 0.3 % FS typ. ± 0.15 % FS typ. ± 0.1 % FS typ.
Media temperature	-40°C ... +125°C
Ambient temperature	-40°C ... +125°C

Data sheet [www.trafag.com/H72300](http://www.trafag.com/H72300)

# ESH 8845

## High-Accuracy Pressure Transmitter



- Accuracy up to 0.05 % FS
- Versions with frontal or with flush diaphragm
- Media temperature to 125°C
- EMC protection, IEC 61000

### Technical Data

Measuring principle	Piezoresistive
Measuring range	0 ... 0.1 to 0 ... 100 bar
Output signal	4 ... 20 mA, 0 ... 5 VDC, 0 ... 10 VDC
Accuracy @ 25°C typ.	0.5 % FS
Media temperature	-40°C ... +125°C
Ambient temperature	-40°C ... +125°C

Data sheet [www.trafag.com/H72354](http://www.trafag.com/H72354)

# NAH 8254

## Pressure Transmitter for highly dynamic pressure curves

Based on the proven industrial and mobile NAH 8254 hydraulics transmitter in the miniature HEX19 size, Trafag offers special versions allowing the desired cut-off frequency to be selected from various levels over 20 kHz (corresponding to 18  $\mu$ s rise time, 10...90 % nominal pressure) for highly dynamic pressure measurements, down to 11 Hz for maximum signal smoothing. The fast electronics based on Trafag's own mixed-signal chip can reproduce even

high-frequency pressure gradients without distortion, regardless of sampling rates. Both the thin-film-on-steel sensor element and basic design of the transmitter have been proven under extreme conditions (vibration, shock, temperature change, high pressure peaks, etc) in the harsh construction and forestry machinery environments and guarantee unsurpassed robustness and reliability in the measurement and testing field.



For more information about measuring highly dynamic pressure curves, see our whitepaper [www.trafag.com/H70350](http://www.trafag.com/H70350)

- Cut-off frequency 20 kHz
- For highly dynamic pressure curves
- Analogue signal processing
- Measuring accuracy 0.3 %
- Excellent long-term stability

### Technical Data

Measuring principle	Thin-film-on-steel
Measuring range	0 ... 0.2 to 0 ... 700 bar 0 ... 3 to 0 ... 10000 psi
Output signal	4 ... 20 mA, 0.5 ... 4.5 VDC ratiometric
Accuracy @ 25°C typ.	$\pm 0.3$ % FS typ.
Media temperature	-40°C ... +125°C
Ambient temperature	-40°C ... +125°C

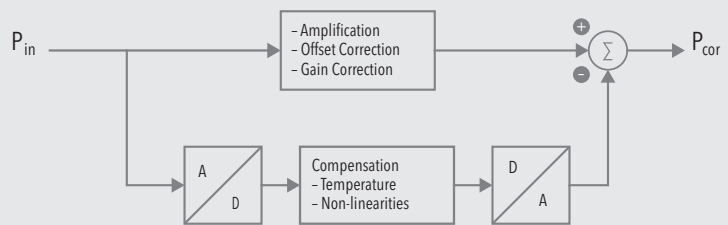
Data sheet

[www.trafag.com/H72304](http://www.trafag.com/H72304)

Non-Trafag conventional single path signal chain



Trafag Mixed Signal ASIC signal chain comprising separate paths for amplification and compensation



### Schematic design of Trafag ASIC TX

The conventional (non Trafag) design with fully digital signal processing is limited by the speed of the A/D or D/A converter. The Trafag design consists of two signal components. The main path (about 98 % of the signal) experiences purely analogue amplification with zero-point and span correction and therefore very fast. Only the correction signals (temperature and non-linearities) are

digitally processed and comparatively slow. This is not time-sensitive since temperature changes also exhibit response times in the minute range. Only the non-linearities correction is time relevant, which in the case of Trafag sensors makes up only about 1 % of the signal. Therefore, only about 1 % of the signal depends on the speed of the A/D or D/A converter.

# EPI 8287

## Industrial Pressure Transmitter



- Excellent long-term stability
- Completely welded steel sensor system without additional seals
- Accuracy classes 0.3%, 0.5%
- Optional: 5-fold overpressure resistance
- Optionally with housing material AISI316L

### 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	4 ... 20 mA, 0 ... 5 VDC, 0.5 ... 5 VDC, 1 ... 6 VDC, 0 ... 10 VDC, 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

Data sheet

[www.trafag.com/H72317](http://www.trafag.com/H72317)

# EPN/EPNCR 8298

## Engine Pressure Transmitter



- Nominal pressure up to 2500 bar
- High vibration 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

Data sheet

[www.trafag.com/H72312](http://www.trafag.com/H72312)

Parametrisation via  
Sensor Communicator (SC)  
More information on page 26

## ECT 8472

### Industrial Pressure Transmitter



- Excellent media compatibility
- Relative or absolute pressure measurement
- Titanium version optional
- Wide temperature range

#### 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, 0 ... 5 VDC, 1 ... 6 VDC, 0 ... 10 VDC, 0.5 ... 4.5 VDC ratiom.
Accuracy @ 25°C typ.	± 0.5 % FS typ.
Media temperature	-25°C ... +125°C
Ambient temperature	-25°C ... +125°C

Data sheet

[www.trafag.com/H72324](http://www.trafag.com/H72324)

## ECT 8473

### Industrial Pressure Transmitter with increased accuracy



- Measuring ranges from 100 mbar
- Excellent media compatibility
- Relative or absolute pressure measurement
- Titanium version optional
- Frontal membrane optional

#### Technical Data

Measuring principle	Thick-film-on-ceramic
Measuring range	0 ... 0.1 to 0 ... 40 bar 0 ... 1.5 to 0 ... 500 psi
Output signal	4 ... 20 mA, 0 ... 5 VDC, 1 ... 6 VDC, 0 ... 10 VDC, 0.5 ... 4.5 VDC ratiom.
Accuracy @ 25°C typ.	± 0.3 % FS typ.
Media temperature	-25°C ... +125°C
Ambient temperature	-25°C ... +125°C

Data sheet

[www.trafag.com/H72326](http://www.trafag.com/H72326)

## FPT 8236

### Flush Membrane Transmitter



- Flush membrane with smooth and plain surface
- Membrane in Duplex steel 1.4462
- Completely welded sensor system
- Excellent long-term stability

#### Technical Data

Measuring principle	Thin-film-on-steel
Measuring range	0 ... 1 to 0 ... 100 bar 0 ... 15 to 0 ... 1500 psi
Output signal	4 ... 20 mA, 0 ... 5 VDC, 1 ... 6 VDC, 0 ... 10 VDC, 0.5 ... 4.5 VDC ratiometric
Accuracy @ 25°C typ.	± 0.5 % FS typ.
Media temperature	-10°C ... +125°C
Ambient temperature	-10°C ... +125°C

Data sheet [www.trafag.com/H72343](http://www.trafag.com/H72343)

## FPI 8237

### IO-Link Pressure Transmitter and Switch



- Flush membrane with smooth and plain surface, Duplex steel 1.4462
- Media temperature measurement
- Completely welded sensor system
- Excellent long-term stability

#### Technical Data

Measuring principle	Thin-film-on-steel
Measuring range	-0.5 ... 0.5 to 0 ... 100 bar correlating with -14.5 ... 14.5 to 0 ... 1450 psi
Output signal	4 ... 20 mA, 0 ... 5 VDC, 1 ... 6 VDC, 0 ... 10 VDC, 0.5 ... 4.5 VDC ratiometric
Accuracy @ 25°C typ.	± 0.5 % FS typ.
Media temperature	-10°C ... +125°C
Ambient temperature	-10°C ... +125°C

Data sheet [www.trafag.com/H72622](http://www.trafag.com/H72622)

## CMP 8271

### CANopen Miniature Transmitter



CANopen

- Small and rugged construction
- CANopen bus protocol DS301/DS404 supports CAN 2.0A/B
- LSS (DS 305 V2.0)
- Optional: 5-fold overpressure resistance

#### 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
Accuracy @ 25°C typ.	± 0.5 % FS typ. ± 0.3 % FS typ.
Media temperature	-40°C ... +125°C
Ambient temperature	-40°C ... +125°C

Data sheet

[www.trafag.com/H72619](http://www.trafag.com/H72619)

## CMP 8270

### CANopen High-Accuracy Pressure Transmitter



CANopen

- 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, piezoresistive
Measuring range	0 ... 0.2 to 0 ... 600 bar 0 ... 3 to 0 ... 7500 psi
Output signal	Bus protocol CANopen DS404
Accuracy @ 25°C typ.	± 0.5 % FS typ. ± 0.3 % 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](http://www.trafag.com/H72614)

# DPS 8381

## Pressure Switch with Display and steel sensor



More information see below

- Parametrisation also via NFC-smartphone App (Android)
- Display and electrical connection are independently rotatable 335°/343°
- Analogue output switchable mA or V
- Integrated data logger
- Measuring range adjustable

### Technical Data

Measuring principle	Thin-film-on-steel
Measuring range	0 ... 2.5 to 0 ... 600 bar 0 ... 30 to 0 ... 7500 psi adjustable
Output signal	4 ... 20 mA, 0 ... 5 VDC, 1 ... 6 VDC, 0 ... 10 VDC, switchable mA or V
Switching output	2 PNP
Accuracy @ 25°C typ.	± 0.5 % FS typ.
Media temperature	-25°C ... +85°C
Pressure unit for display	bar, psi, MPa, kPa, mWC, mmWC, inchWC, %, user scale
Logger	Ring buffer: 3518 data points Sampling time: 0.1 ... 999.9 s, Off (0)

Data sheet

[www.trafig.com/H72321](http://www.trafig.com/H72321)

## Parametrisation with the Trafig-App „Sensor Master“

With the free Android app „Sensor Master“, available in the Google Play Store, the parameters of the Trafig display pressure switches DPS 8381, DPC 8380 and the display temperature switch DTP 8180 and display level switch DLF 8980 can be set very simply through a smartphone. In addition to a variety of parameters for the switchpoints,

the measurement range can be scaled. Communication is conducted via the NFC interface on the display. Via this interface, the measured values of the internal data logger can be read out via smartphone, analysed and exported for further processing.

# DPC 8380

## Pressure Switch with Display and ceramic sensor



Fast and easy parametrisation  
via Android App



NFC

More information on page 16

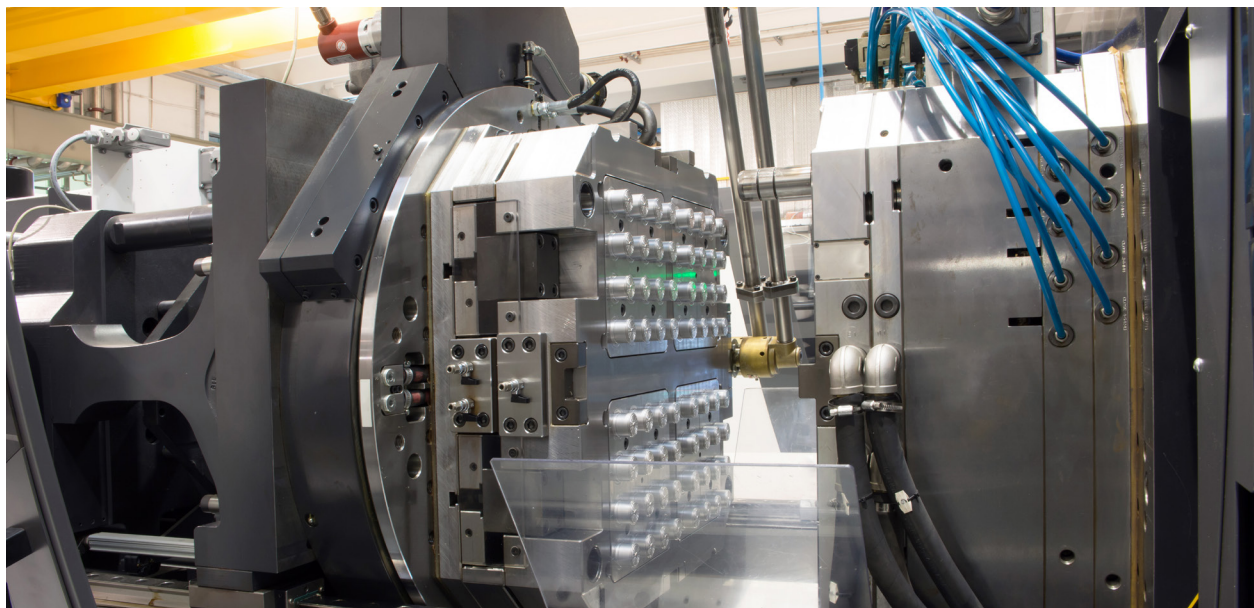
- Parametrisation also via NFC-smartphone App (Android)
- Display and electrical connection are independently rotatable 335°/343°
- Analogue output switchable mA or V
- Integrated data logger
- Pressure range adjustable

### Technical Data

Measuring principle	Thick-film-on-ceramic
Measuring range	0 ... 0.2 to 0 ... 100 bar 0 ... 2.5 to 0 ... 1500 psi adjustable
Output signal	4 ... 20 mA, 0 ... 5 VDC, 1 ... 6 VDC, 0 ... 10 VDC, switchable mA or V
Switching output	2 PNP
Accuracy @ 25°C typ.	± 0.5 % FS typ. ± 0.3 % FS typ.
Media temperature	-25°C ... +85°C
Pressure unit for display	bar, psi, MPa, kPa, mWC, mmWC, inchWC, %, user scale
Logger	Ring buffer: 3518 data points Sampling time: 0.1 ... 999.9 s, Off (0)

Data sheet

[www.trafag.com/H72320](http://www.trafag.com/H72320)



# ECL 8439

## Submersible Pressure Transmitter



- Also suitable for thick and viscous media
- Different materials for optimum media compatibility
- Configurable measuring ranges
- Optional: Enhanced lightning protection

### Technical Data

Measuring principle	Thick-film-on-ceramic
Measuring range	0 ... 0.1 to 0 ... 6.0 bar 0 ... 1.5 to 0 ... 100 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	max. -25°C ... +70°C
Ambient temperature	max. -25°C ... +70°C

Data sheet

[www.trafag.com/H72336](http://www.trafag.com/H72336)

### Configuration of measurement ranges



### Sensor Master Interface (SMI)

More information see below

## Configuration of measuring range

### Sensor Master Interface (SMI)



More information on page 26

### Sensor Master Communicator (SMC)



Fast and easy operation via Android or Windows App „Sensor Master Communicator“ (SMC)

Pressure device connec...	
trafag sensors controls	
Device type	Pressure switch >
Last readout: 31.05.2018 10:25:32	
Type code	8252.84.2517
Serial number	642774-002
Measuring range	0...400 bar - G
Output signal	Digital
Calibration date	10.08.2017
Modification date	31.05.2018
DISCONNECT READOUT	

Pressure range settings	
trafag sensors controls	
Description measuring range adjustment	
Analog output	
Zero-point analog value O_EP	4 mA
End-point analog value O_nP	20 mA
Measuring range	
Measuring range zero-point P_nP	0 bar
Measuring range end-point P_EP minimal	0.4 bar
READOUT WRITE	

## NAL 8838

### Submersible Pressure Transmitter



- Pressure ranges from 100 mbar
- Cable PUR or FEP
- Option: Chemical resistant material, in 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
Accuracy @ 25°C typ.	0.5 %, 0.25 %, 0.1 %
Media temperature	-5°C ... +50°C
Ambient temperature	-5°C ... +50°C

Data sheet

[www.trafag.com/H72228](http://www.trafag.com/H72228)

## DLF 8980

### Level Switch with Display



- Parametrisation also via NFC-smartphone App (Android)
- Display and electrical connection are independently rotatable 335°/343°
- Analogue output switchable mA or V
- Integrated data logger
- Measuring resolution 5, 10, 20 mm

#### Technical Data

Measuring principle	Magnetic float with reed contacts
Measuring range	Max. level 2000 mm, Resolution of 5, 10 or 20 mm
Output signal	4 ... 20 mA, 0 ... 5 VDC, 1 ... 6 VDC, 0 ... 10 VDC, switchable mA or V
Switching output	2 PNP
Media temperature	max. -30°C ... +105°C -30°C ... +90°C PP floats -30°C ... +60°C PVC floats
Ambient temperature	-30°C ... +85°C
Pressure unit for display	mm, inch, user scale, % FS

Data sheet

[www.trafag.com/H72450](http://www.trafag.com/H72450)



Fast and easy parametrisation  
via Android App



More information on page 16

## TFC

### Float Level Sensor



- Measuring resolution 5, 10, 20 mm
- Various float and stem material available
- Optional : Temperature sensor PT1000
- Protection IP65

#### Technical Data

Measuring principle	Magnetic float with reed contacts
Measuring range	Max. level 2000 mm, Resolution 5, 10 or 20 mm
Output signal	4 ... 20 mA, 0 ... 5 VDC, 0 ... 10 VDC
Media temperature	Up to 150°C

Data sheet [www.trafag.com/H20040](http://www.trafag.com/H20040)

## TFS

### Float Level Switch



- Protection IP65
- Optional: Temperature sensor PT1000 or thermostat
- Potted electrical contacts

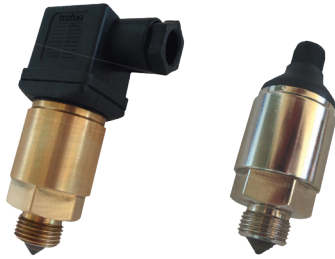
#### Technical Data

Measuring principle	Magnetic float with reed contacts
Measuring range	Max. level 2000 mm
Output signal	Up to 6 switching contacts
Media temperature	Up to 180°C

Data sheet [www.trafag.com/H20041](http://www.trafag.com/H20041)

# TOS

## Optical Level Switch



- No moving parts
- Hermetic construction, sealed electronics
- Minimum degree of protection IP65

### Technical Data

Measuring principle	Infrared transceiver
Measuring range	Working pressure max. 260 bar
Output signal	PNP or NPN transistor
Media temperature	-40 ... +85°C

Data sheet

[www.trafag.com/H20042](http://www.trafag.com/H20042)



# PICOSTAT 9B4

## Pressure Switch with bellows sensor



- Improved vibration resistance
- For low pressure ranges
- High repeatability

### Technical Data

Measuring principle	Bellows
Measuring range	-0.6 ... 3.4 to 4 ... 40 bar -8 ... 45 to 60 ... 500 psi
Output signal	1 Floating change-over contact (SPDT)
Switching differential	Not adjustable
Repeatability	± 0.5 % FS typ.
Media temperature	-40°C ... +125°C

Data sheet [www.trafag.com/H72367](http://www.trafag.com/H72367)

# PICOSTAT 9R5

## Pressure Switch with stainless steel bellows sensor



- Stainless steel housing
- Stainless steel bellows sensor, welded
- High repeatability
- Rugged housing
- Meets EN 50155 (Railway)

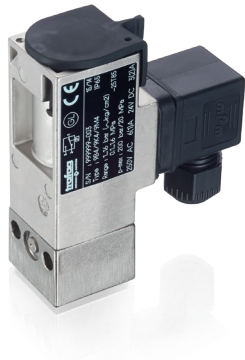
### Technical Data

Measuring principle	Steel bellows welded
Output signal	1 Floating change-over contact (SPDT)
Switching differential	Not adjustable
Media temperature	-40°C ... +85°C

Data sheet [www.trafag.com/H72370](http://www.trafag.com/H72370)

# PICOSTAT 9K4

## Pressure Switch with piston sensor



- High pressure ranges
- Robust even with pulsating pressure curves

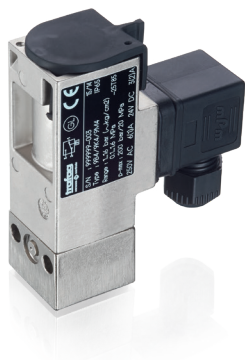
### Technical Data

Measuring principle	Piston
Measuring range	1 ... 10 to 40 ... 400 bar 14 ... 150 to 580 ... 5800 psi
Output signal	1 Floating change-over contact (SPDT)
Switching differential	Not adjustable
Repeatability	± 1.0 % FS typ.
Media temperature	-25°C ... +125°C

Data sheet [www.trafag.com/H72369](http://www.trafag.com/H72369)

# PICOSTAT 9M4

## Pressure Switch with membrane sensor



- For medium pressure ranges
- Robust even with pulsating pressure curves

### Technical Data

Measuring principle	Membrane
Measuring range	1 ... 10 to 10 ... 100 bar 14 ... 150 to 150 ... 1500 psi
Output signal	1 Floating change-over contact (SPDT)
Switching differential	Not adjustable
Repeatability	± 2.0 % FS typ.
Media temperature	0°C ... +80°C

Data sheet [www.trafag.com/H72368](http://www.trafag.com/H72368)

# DTP 8180

## Display Temperature Switch and Transmitter



Fast and easy parametrisation  
via Android App



NFC

More information on page 16

- Parametrisation also via NFC-smartphone App (Android)
- Display and electrical connection are independently rotatable 335°/343°
- Analogue output switchable mA or V
- Integrated data logger
- Temperature range adjustable

### Technical Data

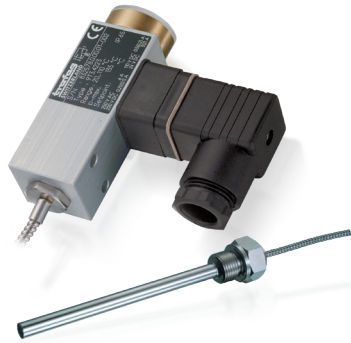
Measuring principle	PT 1000, DIN EN 60751 class A, 2 conductors
Measuring range	-50°C ... +150°C / -58°F ... 302°F adjustable 50 ... 100 % FS
Output signal	4 ... 20 mA, 0 ... 5 VDC, 1 ... 6 VDC, 0 ... 10 VDC, switchable mA or V
Switching output	2 PNP
Accuracy @ 25°C typ.	± 0.5 % FS typ. + temperature sensor error
Temperature unit for display	°C, °F, K, user scale
Logger	Ring buffer: 3518 data points Sampling time: 0.1 ... 999.9 s, Off (0)

Data sheet

[www.trafag.com/H72352](http://www.trafag.com/H72352)

# ISP/ISPT 474

## Picostat Thermostat



- Compact design
- Rugged housing
- High repeatability
- Protection IP65

---

### Technical Data

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.

---

Data sheet

[www.trafag.com/H72113](http://www.trafag.com/H72113)



# SMI

## Sensor Master Interface



Fast and easy operation via  
Android or Windows App



- Read out of sensor data
- Parametrisation of switching points on NAX pressure switches
- Measurement range adjustment on Submersible Pressure Transmitter ECL 8439
- Fast and easy operation via Android App „Sensor Master Communicator SMC“
- Reset pressure measurement instruments to factory settings

### Technical Data

Ambient temperature	0°C ... +40°C
Supply voltage	5 VDC, $\pm 0.25$ , 1 A (Supply via USB interface)
Protection	IP20
Storage temperature	-10°C ... +50°C
Dimensions	LxWxH: 120x76x27 mm
Communication SMC/SMI	Via Bluetooth LE (Android) or LAN/RJ45 (Windows)
Operation Interface	Via Android or Windows App „Sensor Master Communicator SMC“

Data sheet [www.trafag.com/H72618](http://www.trafag.com/H72618)

# SC

## Sensor Communicator



- Read out sensor data
- Adjustment of 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

Instruction [www.trafag.com/H73699](http://www.trafag.com/H73699)

## THP...

### Hand Pump



- For testing pressure transmitters and pressure switches

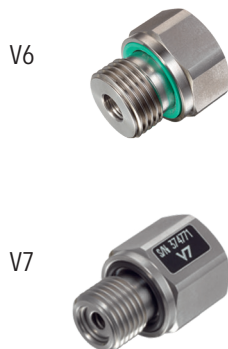
#### Technical Data

Connection	G1/4" female
------------	--------------

Product No.	Range [bar]
THP30	-0.85 ... +25
THP700	0 ... 700, Resolution 0.2 bar

## V6/V7

### Stop Valve



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

#### Technical Data

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

Data sheet	<a href="http://www.trafag.com/H72258">www.trafag.com/H72258</a>
------------	--

Product No.	Connection
<b>V6</b> For water, air, light-crude, heavy oil	G1/2" male G1/4" female
<b>V7</b> For water, air, light-crude, heavy oil	G1/4" male G1/4" female

# Reliable quality

Worldwide represented, globally trusted, Swiss based



## Subsidiaries

Germany  
France  
Great Britain  
India  
Italy  
Japan  
Austria  
Poland (Joint Venture)  
Russia (Joint Venture)  
Switzerland (Headquarters)  
Spain  
Czech Republic  
USA

## Representatives

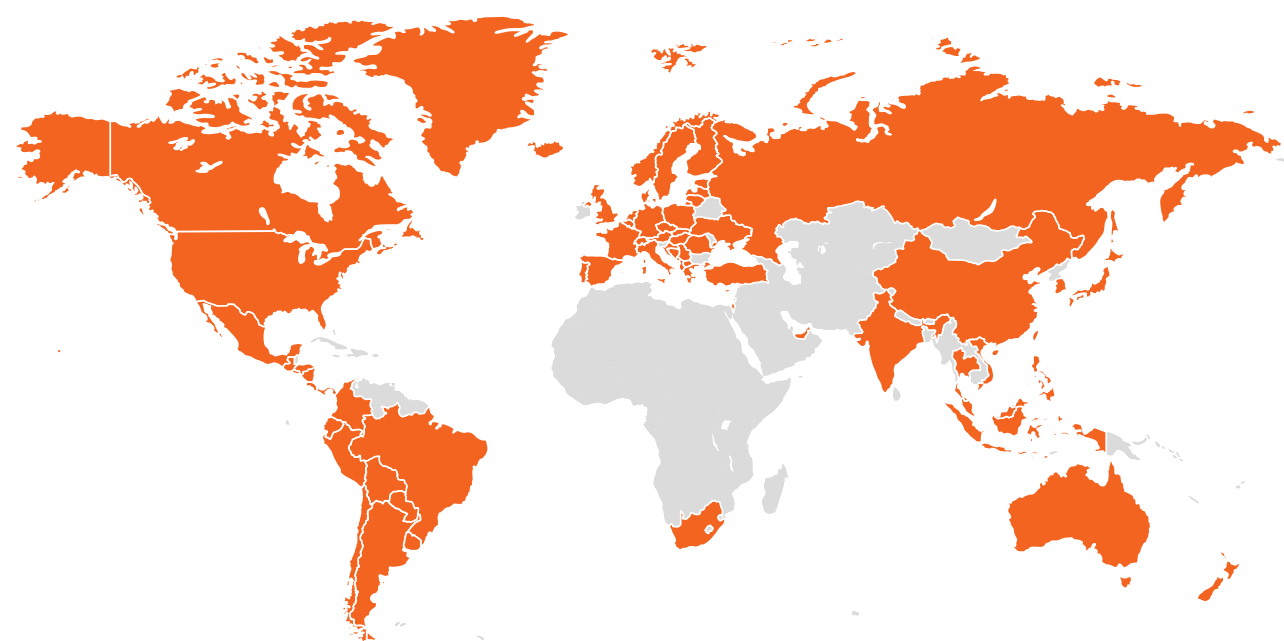
Albania  
Argentine Republic  
Australia  
Belgium  
Bolivia  
Bosnia  
Brazil  
Canada  
Chile  
China  
Colombia  
Costa Rica  
Croatia  
Cyprus

Denmark  
Ecuador  
El Salvador  
Estonia  
Finland  
Greece  
Guatemala  
Honduras  
Hungary  
Iceland  
Indonesia  
Israel  
Korea  
Latvia

Lithuania  
Macedonia  
Malaysia  
Mexico  
Montenegro  
Netherlands  
New Zealand  
Nicaragua  
Norway  
Panama  
Paraguay  
Peru  
Philippines  
Portugal

Romania  
Serbia  
Singapore  
Slovakia  
South Africa  
Sweden  
Taiwan  
Thailand  
Turkey  
Ukraine  
United Arab Emirates  
Uruguay  
Vietnam

Subject to change 09/2022 H70187d



The coordinates to the representatives can be found at [www.trafag.com/trafag-worldwide](http://www.trafag.com/trafag-worldwide)