STAUFF Diagtronics

Devices for determining and monitoring the key parameters in hydraulics

Product Catalogue

Version
10/2025

B

Hydraulic Testers of the PPC Series

The STAUFF measuring and test equipment from the PPC Series is ideal for measuring all relevant parameters in fluid technology systems such as pressure, differential pressure, temperature, flow rate and power.

Depending on the type, they enable evaluation, storage and further processing in PCs or notebooks. They have been specially developed to meet the growing requirements for system monitoring, troubleshooting and measured value determination in hydraulic and pneumatic systems. All versions offer automatic sensor recognition, thus eliminating the need for tedious and often time-consuming parameterisation of sensors. The intuitive keypad or touch screen makes it easy to control the devices and change the measuring units via the menu.

There are many different areas of application:

- Industrial hydraulics
- Mobile, agricultural and forestry hydraulics
- Ship and offshore hydraulics
- Chemicals and petrochemicals
- Energy and air-conditioning systems
- Heating and sanitary systems

The PPC-04-plus hydraulic measuring and testing devices are characterised, among other things, by their uncomplicated operation. Even in difficult lighting conditions, it is possible to read the measured values quickly and reliably thanks to the multi-line, backlit LCD display. The hydraulic measuring device is available in two versions, either with 2 inputs for analogue STAUFF Sensors or with a CAN interface for connecting up to 3 STAUFF CAN Sensors. Both versions are equipped with an internal data memory and a USB port and are powered by an internal power supply (Lithium Ion battery). With the software supplied, it is possible to display the measured values not only as numerical values but also as diagrams on the PC.

Depending on the version, the PPC-PAD-light series measuring devices offer the option of connecting 4 analogue STAUFF Sensors or 6 STAUFF CAN Sensors.
Third-party sensors (e.g. 4-20 mA or 0-10 V) can also be operated with these devices without any problems. Both measuring devices have a large internal data memory and an integrated USB interface and can be operated for several hours on battery power. All measurement data can be easily visualised and settings made on the 4.3“ touch display.

The most powerful device in this family of measuring devices is the PPC-PAD-plus. This multifunctional device has been specially adapted to the increased requirements of fluid technology and users.

The measured values can be shown in various display modes on the large 7“ touch display, enabling effective, solution-oriented analyses. The device has a modular sensor input design. This means that the basic device can be expanded to include up to 6 analogue STAUFF Sensors and up to 48 STAUFF CAN Sensors by using additional input modules.

It also offers extensive options for saving countless and varied measurement tasks as ‘templates’ and calling them up immediately when required. This means that even complex, recurring measurement tasks can be started more or less immediately.

The hydraulic measuring and testing devices and the sensors of the PPC series are of course also available in a calibrated version and are supplied with a calibration certificate (factory calibration).
Subsequent calibration can be requested via a special order designation.

Hydraulic Testers of the PPC Series ▪ Product Overview

Hydraulic Testers					
Options	**PPC-04-plus**	**PPC-04-plus-CAN**	**PPC-PAD-light**	**PPC-PAD-light-CAN**	**PPC-PAD-plus**
Connection principle	Analogue sensors	CAN sensors	Analogue sensors	CAN sensors	Analogue sensors + CAN sensors
Battery mode	●	●	●	●	●
Number of sensor inputs	up to 2 analogue STAUFF Sensors	up to 3 STAUFF CAN Sensors	up to 4 analogue STAUFF Sensors	up to 6 STAUFF CAN Sensors	up to 6 analogue STAUFF Sensors and up to 48 STAUFF CAN Sensors
Option for adding sensor inputs	–	–	–	–	●
PC interface	Micro-USB	Micro-USB	USB-C	USB-C	USB / Ethernet / WLAN
Online function	●	●	●	●	●
Internal data memory	●	●	●	●	●
Programming of automatic test sequence	–	–	●	●	●
Trigger function	–	–	●	●	●
Touch screen	–	–	●	●	●
Illuminated display	●	●	●	●	●
Curve shown on the display	–	–	●	●	●
PC software kit	●	●	●	●	●
Pressure measurement	●	●	●	●	●
Temperature measurement	●	●	●	●	●
Flow rate measurement	●	●	●	●	●
Rotational speed measurement	●	–	●	–	●
Frequency measurement	with optional current/voltage/ frequency converter	with optional current/voltage/ frequency converter	with optional current/voltage/ frequency converter	with optional current/voltage/ frequency converter	integrated into the device
Third-party analogue sensors	with optional current/voltage/ frequency converter	with optional current/voltage/ frequency converter	integrated into the device	optional	integrated into the device
Third-party CAN sensors	–	–	–	–	an CAN-Y max. 5 third-party sensors

● = standard, – = not available

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Hydraulic Testers ▪ Type PPC-04-plus / PPC-04-plus-CAN

PPC-04-plus with 2 sensor inputs
for max. 2 analogue STAUFF Sensors

PPC-04-plus-CAN with CAN interface
for up to 3 STAUFF CAN Sensors
(max. 50 m / 164 ft cable length)

Product Description

The PPC-04-plus and PPC-04-plus-CAN Hydraulic Testers have been developed for the growing demands in mobile and industrial hydraulic systems. They are perfectly suited for the precise determination of pressure, temperature, volume flow and rotational speed.

- Multi-line, backlit LCD display
- Max. 2 analogue STAUFF Sensors can be connected at the same time
- With CAN interface, max. 3 CAN STAUFF Sensors can be connected at the same time
- Integrated data memory for 15000 data records (max. 24 hours)
- External storage by using a USB memory stick (1 GB included)
- Max. cable length: 50 m / 164 ft (CAN version)

The Hydraulic Testers are available in two versions. The PPC-04-plus, analogue version, comes with two inputs for connecting up to 2 analogue STAUFF Sensors at the same time. The PPC-04-plus-CAN comes with an CAN interface for connecting up to 3 CAN STAUFF Sensors at the same time. Both versions provide automatic sensor recognition, thus making the tedious and often time-consuming parameterization of sensors redundant.
The units can be easily operated via the keyboard and the individual device configurations can be viewed and managed.

Due to its extremely robust construction and oil-resistant rubber coating, the Hydraulic Testers can withstand impacts, vibrations, dust and moisture (protection class up to IP 67) and is designed for use in particularly harsh conditions.

The internal battery (Lithium Ion pack) can be charged via an micro USB connection, this connection can be also used to transfer the internally stored data to a PC or notebook. Furthermore, this connection is also provided for real-time presentation of the measured values on the PC.

The PPC-04-plus devices can store up to 15000 data records and 270000 measured values. The included PPC software is compatible with popular Windows® PC operating systems and permits various evaluation methods.

It is also possible to connect the Pressure Sensors under load, with the equipment switched on. The temperature and volume flow sensors are to be installed in the pipelines. The Rotational Speed Sensor is a non-contacting sensor and uses an optical mark on the rotating parts.
Measuring the differential pressure requires two Pressure Sensors with identical measuring ranges.

The units are also available as a complete set.
See pages 48 / 49 for further information.

Order Codes

PPC-04-plus - **CAN** - **CAL**
① ② ③

① Series and Type

Hydraulic Tester	**PPC-04-plus**

② Version

Analogue STAUFF Sensors	**(none)**
STAUFF CAN Sensors	**CAN**

③ Calibration

Without calibration certificate	**(none)**
With calibration certificate (factory calibration)	**CAL**

Note:
Calibration certificate is only available for the analogue Hydraulic Tester PPC-04-plus.

Technical Data

Materials
- Housing made of ABS in a rubber protective

Dimensions and Weight
- W x H x D: 96 x 172 x 54 mm / 3.78 x 6.77 x 2.13 in
- Weight: ca. 540 g / 1.19 lbs

Measurements / Display
- Pressure: in bar, PSI, mbar, kPa, MPa
- Temperature: in °C and °F
- Volume flow: in l/min and US GPM
- Rotational speed: in 1/min and RPM
- Display: FSTN-LCD, graphic, LED backlit
- Visible area: 62 x 62 mm / 2.44 x 2.44 in
- Resolution: 130 x 130 Pixel
- Internal measured value memory: 1 measurement, approx. 15000 data sets (270000 measured values ACT/MIN/MAX), max. 24 h per measurement

Power Supply
- External: Micro USB socket, type B +5V DC, max. 1000 mA
- Battery: Lithium Ion pack 3,7 V DC / 2250 mAh or 3,7 V DC / 4500 mAh CAN version
- Operating time with the rechargeable battery: approx. 8 hours

Sensor Inputs
- Push-in connection: 5-pol., push-pull or 5-pol., M12x1, connector (CAN version)
- Automatic sensor recognition
- Sampling rate: 1 ms
- Accuracy: < ±0,2 % FS* ±1 Digit

Permissible Temperatures
- Ambient: 0 °C ... +50 °C / +32 °F ... +122 °F
- Storage: -25 °C ... +60 °C / -13 °F ... +140 °F
- Relative humidity: < 80 %
- CE certified

Interfaces
- USB device: Online transmission between unit and PC via PPC-Soft-plus (software)
  Measured value transmission: ACT/MIN/MAX, min. 5 ms
  USB standard: 2.0, fullspeed
  Push-in connection:
  Micro USB socket, shielded, type B
- USB host: Connection for USB stick, max. 4 GB
  USB standard: 2.0, fullspeed, max. 100 mA
  Push-on connection:
  USB socket, shielded, type A

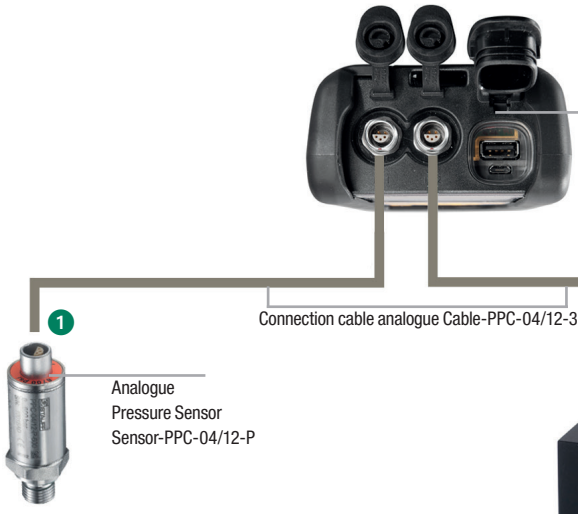
Protection Rating
- IP 54 protection rating: Dust protected and protected against splashing water
- (CAN version)
  IP 67 protection rating: Dust tight and protected against splashing water

Software

A PC set, consisting of a USB connection lead, length 1 m / 3.28 ft and the corresponding PC software, is included in the scope of delivery.
The measured data and curves can be easiliy transferred and processed by using PPC-Soft-plus software as well as exported to Microsoft Excel®.

Dimensional drawings: All dimensions in mm (in).

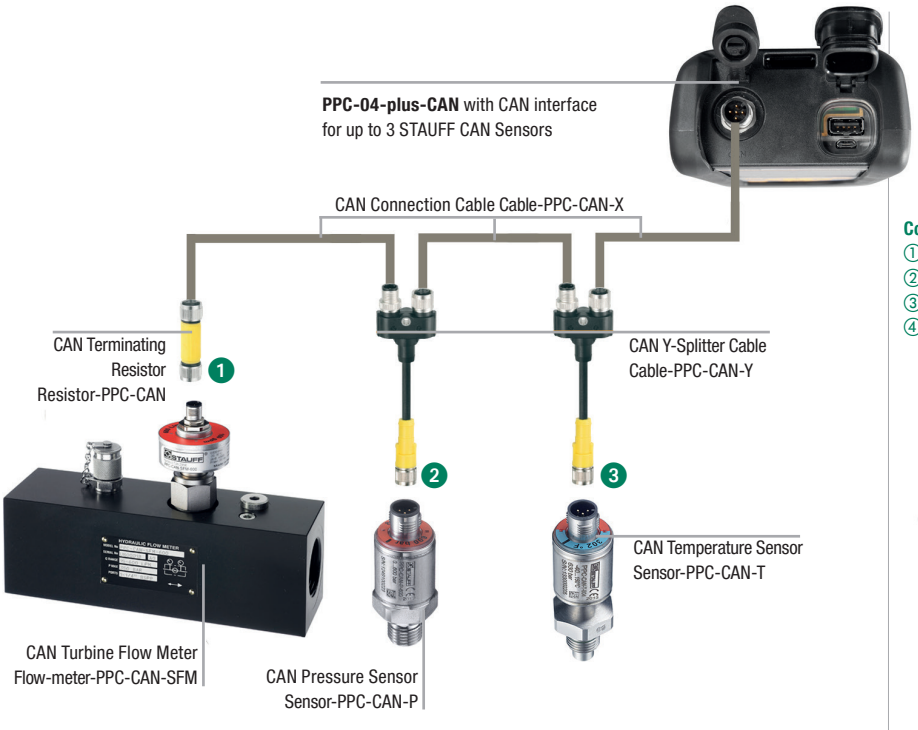
Connection example for analogue STAUFF Sensors ▪ Type PPC-04-plus



Connection options at point ❶ and ❷

① Pressure Sensor **Sensor-PPC-04/12-P**
② Temperature Sensor **Sensor-PPC-04/12-T**
Rod-Type Temperature Sensor **Sensor-PPC-04/12-TSH**
③ Pressure/Temperature Sensor **Sensor-PPC-04/12-PT**
④ Rotational Speed Sensor **Sensor-PPC-04/12-SDS-CAB** with integrated connection cable, either with Contact Adaptor **Adaptor-PPC-04/12-SKA-Contact** or Focusing Adaptor **Adaptor-PPC-04/12-SKA-Focus**
⑤ Turbine Flow Meter **Flow-meter-PPC-04/12-SFM** with integrated signal converter, with option for connecting pressure and temperature sensors

Connection example STAUFF CAN Sensors ▪ Type PPC-04-plus-CAN



Connection options at point ❶ to ❸

① CAN Pressure Sensor **Sensor-PPC-CAN-P**
② CAN Temperature Sensor **Sensor-PPC-CAN-T**
③ CAN Pressure/Temperature Sensor **Sensor-PPC-CAN-PT**
④ CAN Turbine Flow Meter **Flow-meter-PPC-CAN-SFM** with integrated signal converter, with option for connecting pressure and temperature sensors

B

Hydraulic Tester ▪ Type PPC-PAD-light / PPC-PAD-light-CAN

Product Description

The PPC-PAD-light measuring devices have been specially developed to meet the growing demands of system monitoring and troubleshooting in hydraulic and pneumatic systems.

The ergonomically designed housing and the LCD display that automatically adjusts to the appropriate line size allow problem-free use even under difficult environmental conditions. The 4.3" touchscreen enables easy programming of the device and convenient visualisation of the measurement data.

The PPC-PAD-light can be used to measure, save and process all relevant hydraulic parameters such as pressure, differential pressure, temperature, speed, flow rate and hydraulic power.

The PPC-PAD-light and PPC-PAD-light-CAN devices differ in the type of sensor connection. The PPC-PAD-light can process up to 4 analogue STAUFF Sensors and the PPC-PAD-CAN up to 6 STAUFF CAN Sensors with max. cable length: 50 m / 164 ft (CAN version) simultaneously.

In particular, the extensive programming options and the internal memory capacity enable a wide range of measurement and evaluation procedures such as long-term measurements, trigger functions or the recording of data from external sensors (e.g. 4-20 mA or 0-10 V).

Thanks to automatic sensor recognition, the measuring devices are easy to operate and can be customised to customer requirements without the need for extensive programming.

The devices can be used to record measured values with a resolution of up to 1 ms = 1000 measured values/s. The measured values can be transferred to a PC or notebook at any time via the USB interface or retrieved directly via the built-in USB stick. The PPC software included in the scope of delivery is compatible with standard Windows® PC operating systems and enables a wide range of analyses.

The devices are also available as a complete system.
Further information can be found on pages 48 / 49.

Product Features

- Automatic sensor recognition
- Curve display on screen
- Intuitive 4.3" touchscreen
- Large integrated data memory
- Long-term recording of MIN/MAX values possible
- Recurring measurement tasks can be programmed as templates
- Trigger function
- Online data transfer
- Integrated USB stick
- USB-C charging and data transfer

Function Description

① Automatic sensor recognition, simply plug in and measure
② USB interface to PC for online measurement or convenient evaluation and documentation via PPC Analyse software
③ Power supply via quick-charging USB-C power supply unit
④ Start/stop measurement with automatic data compression or manual setting of storage time and rate
⑤ Screenshots at the push of a button
⑥ Robust construction with oil-resistant rubber protection for use in harsh conditions
⑦ Additional tactile keypad for operation under difficult conditions
⑧ Measurement and display of up to 16 channels
⑨ 4.3" touch display and plain text navigation for easy operation, can also be operated with gloves
⑩ Curve diagram or numerical display
⑪ Pressure, temperature, flow rate, speed, frequency, etc. - everything is measured, stored, monitored and analysed

Hydraulic Tester ▪ Type PPC-PAD-light / PPC-PAD-light-CAN

Order Codes

PPC-PAD-light - CAN - AUX - CAL

① ② ③ ④

① Series and Type

Hydraulic Tester	**PPC-PAD-light**

② Version

Analogue STAUFF Sensors	**(none)**
STAUFF CAN Sensors	**CAN**

③ Third-party Sensor Input

without Third-party Sensor Input	**(ohne)**
with Third-party Sensor Input (e.g. 4-20mA or 0-10V)	**AUX**

④ Calibration

Without calibration certificate	**(none)**
With calibration certificate (factory calibration) (only PPC-PAD-light, PPC-PAD-light-CAN-AUX)	**CAL**

Delivery Includes

- Measuring device (according to the selection)
- USB stick 4GB
- Quick guide with link to software and complete instructions
- USB cable (type A to type C)
- Touch-Pen
- Power supply not included (please order separately)

Power supply

STAUFF relies on the new USB-C standard for the PPC-PAD-light. The measuring device can therefore be charged using different chargers. Fast charging as well as safe continuous operation can be achieved using the separately available fast-charging USB-C power supply unit.

Order code for quick charger:
Power-Supply-PPC-PAD-light-MULTI

Versions

The PPC-PAD-light is available in three different versions and therefore offers a wide range of options for different sensor types and configurations:

PPC-PAD-light for up to 4 analogue STAUFF Sensors with automatic sensor recognition and up to 2 analogue external sensors (e.g. 4-20 mA or 0-10 V).

PPC-PAD-light-CAN for up to 6 STAUFF CAN Sensors with automatic sensor recognition. (max. 50 m / 164 ft cable length)

PPC-PAD-light-CAN-AUX for up to 6 STAUFF CAN Sensors (max. 50 m / 164 ft cable length) with automatic sensor recognition and up to 2 external analogue sensors (e.g. 4-20 mA or 0-10 V).

Technical Data

Materials

- Housing: ABS/PC (thermoplastic)
- Protective housing cover: TPE (thermoplastic elastomer)

Dimensions and Weight

- W x H x D: 215 x 60 x 154 mm / 3.78 x 6.77 x 2.13 in
- Weight: ca. 810 g / 1.79 lbs
- VESA mount: 75 x 75 mm

Measurements / Display

- Pressure: in bar, PSI, mbar, kPa, MPa
- Temperature: in °C and °F
- Volume flow: in l/min and US GPM
- Rotational speed: in 1/min and RPM
- Display: 4.3“ Touchscreen, 800 × 480 Pixel
- Data output with connection option for notebook and PC
- Data storage on USB stick, under protective cap

Power Supply

- internal Lithium Ion pack 7,2 V / 3500mAh / 25,44 Wh
- USB-C charging -> in accordance with IEC 62680-1-3, USB PD 3.0, 5 V, 12 V, 20 V, current consumption max. 2.5 A at 5 V, 1.8 A at 12 V, 1.2 A at 20 V
- A USB-C compatible charger with at least 45 W is required for fast charging
- Alternatively via USB-A/C cable (included) 5 V max. 2 A
- For long-term measurements, the use of a fast charger is recommended

Sensor Inputs PPC-PAD-light

- for up to 4 analogue STAUFF Sensors with automatic sensor recognition
- Plug connection: 5 pin, push-pull, combination Built-in plug/socket
- Sampling rate: 1 ms = 1,000 measured values/sec.
- Accuracy: 0.1% FS

Sensor Inputs PPC-PAD-light-CAN

- for up to 6 STAUFF CAN Sensors with automatic sensor recognition
- Plug connection: 5-pin, M12x1 panel connector (male)
- Sampling rate: up to 4 sensors 1 ms, 5 or 6 sensors 2 ms

Third-party Sensor Inputs (PPC-PAD-light and PPC-PAD-light-CAN-AUX)

- 1 connection with 2 inputs (analogue) for measuring current and voltage
- Voltage measuring range: -10...+10 VDC
- Current measuring range: 0/4...20 mA
- Supply for external sensors: 24 VDC +/-5 %, max. 350 mA (for both inputs)
- Plug connection: M12x1, 5 pin socket
- Sampling rate: 1 ms = 1000 measured values/s FAST-MODE 0.1 ms = 10000 measured values/s

Data output

- Integrated USB port (USB 2.0)
- Online data transfer to the PC
- Individually selectable speed (5 ms ... 60 s)
- USB-A socket: USB 2.0, full speed, 12 Mbit/s Max. memory size 128 GB

Ambient Conditions

- Ambient temperature: -10...+50 °C
- Storage temperature: -20...+60 °C

- Relative humidity: max. 95% non-condensing
- CE approval
- Protection class IP 65 (EN 60529:1989 +A1:1999 + A2:2013), all screw connections must be fitted with sensors or protective caps

Software

- A PC set, consisting of a USB connection cable, length 1.5 m / 4.9 ft and the corresponding PC software, is supplied as standard with every PPC-PAD-light and PPC-PAD-light-CAN. The measured data and measurement curves can be transferred and processed via the PPC-Analyze software and exported to Microsoft Excel®.

Accessories

- Pen: **Pen-PPC-PAD-light**
- Safety glass: **Protection-glas-PPC-PAD-light**
- Quick charger: **Power-Supply-PPC-PAD-light-MULTI**

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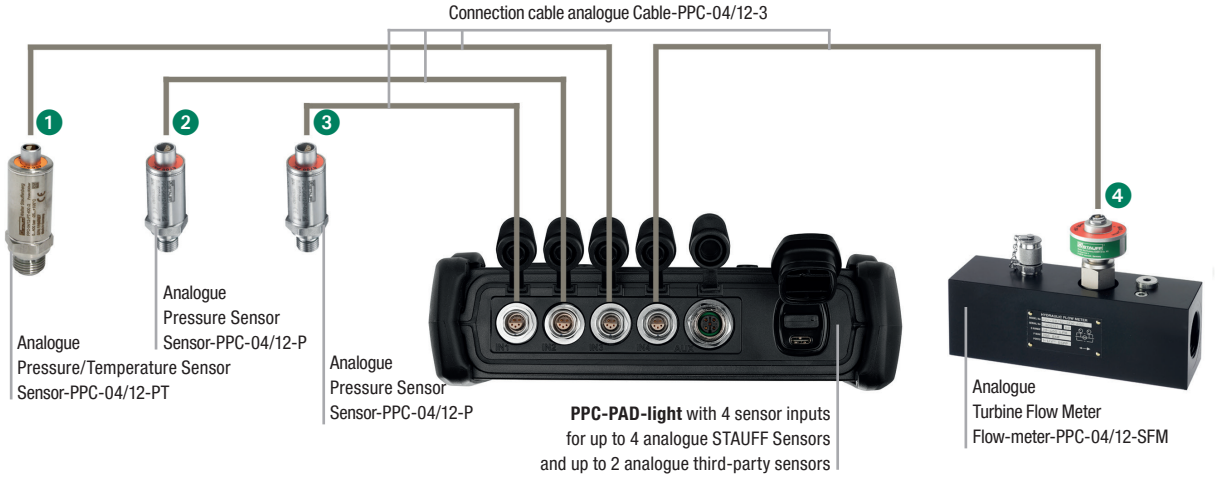
Connection example for analogue STAUFF Sensors ▪ Type PPC-PAD-light

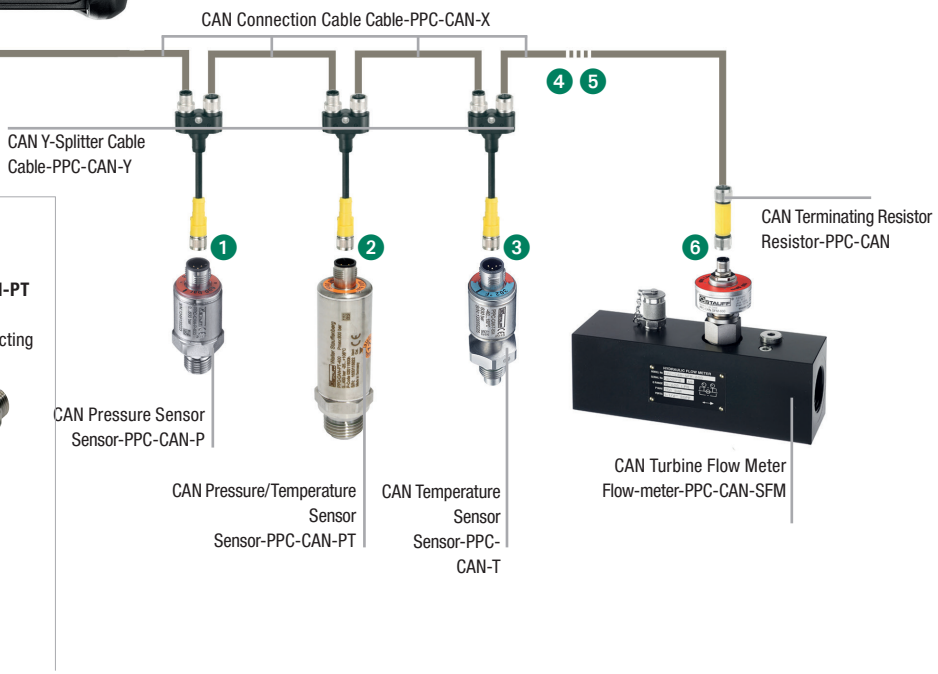


Connection options at point ❶ to ❹

① Pressure Sensor **Sensor-PPC-04/12-P**
② Pressure/Temperature Sensor **Sensor-PPC-04/12-PT**
③ Temperature Sensor **Sensor-PPC-04/12-T**
Rod-Type Temperature Senso **Sensor-PPC-04/12-TSH**
④ Rotational Speed Sensor **Sensor-PPC-04/12-SDS-CAB** with integrated connection cable, either with Contact Adaptor **Adaptor-PPC-04/12-SKA-Contact** or Focusing Adaptor **Adaptor-PPC-04/12-SKA-Focus**
⑤ Turbine Flow Meter **Flow-meter-PPC-04/12-SFM** with integrated signal converter, with option for connecting pressure and temperature sensors

Connection example STAUFF CAN Sensors ▪ Type PPC-PAD-light-CAN

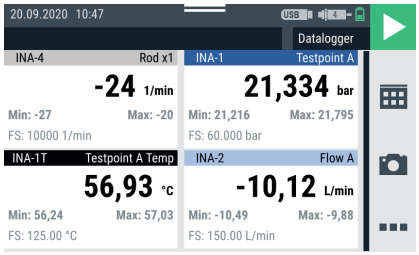
PPC-PAD-light-CAN-AUX for up to 6 STAUFF CAN Sensors and up to 2 analogue third-party sensors



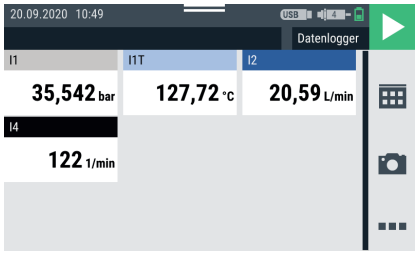
Connection options at point ❶ to ❻

① CAN Pressure Sensor **Sensor-PPC-CAN-P**
② CAN Temperature Sensor **Sensor-PPC-CAN-T**
③ CAN Pressure/Temperature Sensor **Sensor-PPC-CAN-PT**
④ CAN Turbine Flow Meter **Flow-meter-PPC-CAN-SFM** with integrated signal converter, with option for connecting pressure and temperature sensors

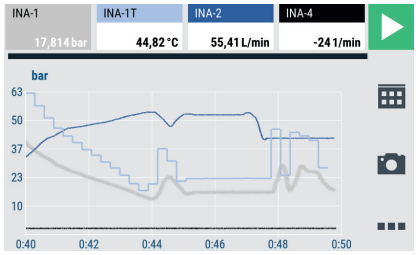
Hydraulic Tester ▪ PPC-PAD-light / PPC-PAD-light-CAN
Display



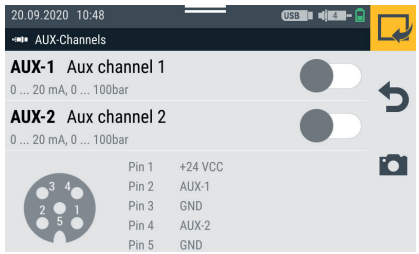
- Detailed overview of the channels including min/max and measuring range values



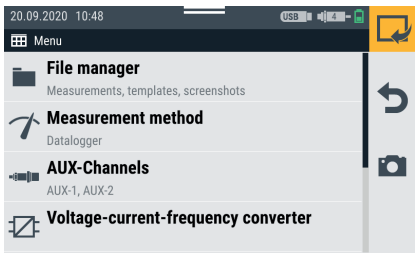
- Up to 9 channels in one display
- Colour assignment of the individual channels



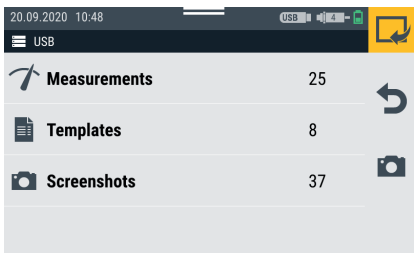
- Curve visualisation directly on the display
- Free scalability using the two-finger principle
- Cursors with measured value and delta display can be shown for analysis purposes



- Depending on the device type, up to 2 Third-party Sensors can be configured directly on the device
- Voltage measuring range: -10...+10 VDC or Current measuring range: 0/4...20 mA

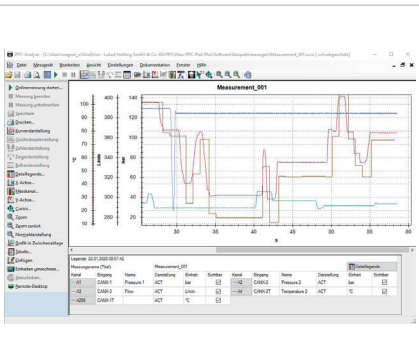


- Intuitive menu navigation

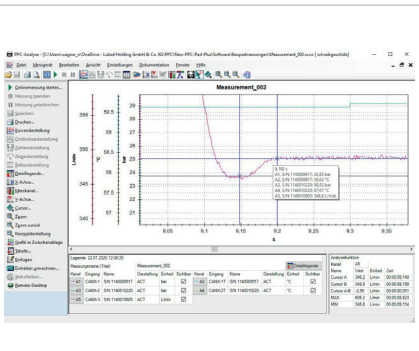


- Loading recorded measurement data directly on the device

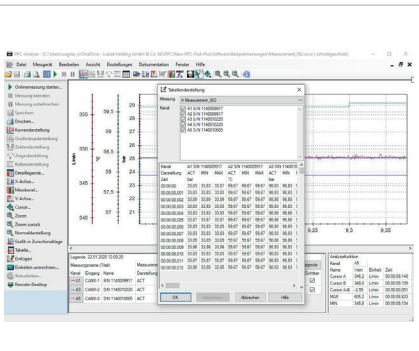
Hydraulic Tester ▪ PPC-PAD-light / PPC-PAD-light-CAN
PC-Software PPC-Analyze



The PPC-Analyze Software that is included with the tester can display, analyse and export the recorded curves.



In addition, measurements can be shown on the monitor in real time using USB.



B

Hydraulic Tester ▪ Type PPC-PAD-plus

Product Description

The application options for hydraulic technology have increased significantly in all areas of drive and control systems.

This trend is particularly evident in the fields of machinery, plant and automotive engineering. At the same time, hydraulics and electronics are becoming increasingly more interlinked.

The PPC-PAD-plus Multifunction Hand-Held Hydraulic Tester was developed especially for high demands and helps you to master these new challenges. It has never been so easy to track the complex processes in these industries through measurements, displays and analyses. Possible areas of application include preventive maintenance, commissioning, troubleshooting and machine optimisation. The increased requirements of these modern applications (e.g. more measuring points, longer cables and higher immunity to interference) have driven the further development of the CAN bus.

The new PPC-PAD-plus has a 7" touch screen which makes operation very simple, even for complex tasks.

The modular design also ensures best possible adaptation to a variety of different measuring tasks. Different input modules are offered for connecting additional sensors. These modules can easily be replaced by the user. There is an option of running the basic device with max. two additional modules in the device.

The CAN Bus Sensors from STAUFF use the automatic sensor detection of the bus to allow an easy-to-install plug-and-play solution (max. CAN bus length 100 m/328 ft).

One great advantage is the option to generate a variety of different templates for recurring measuring tasks and saving these in so-called containers. Calling up these templates for recurring measuring tasks ensures interpretation and comparability of the results at all times. This can even go so far as executing these templates automatically at the press of a button.

The newly integrated WIFI function also allows the device to be controlled via remote access, which means that executing measuring tasks and calling up the recorded data from a different location are no longer a challenge.

The PPC-Analyze PC Software offers additional methods for analysis, control and remote service using LAN and USB connections. In combination with this software, the PPC-PAD-plus is a very user-friendly hydraulic tester that is suitable for all types of diagnostic applications.

Product Features (for basic device)

- Portable multifunction hand-held tester
- Measuring, monitoring and analysis of pressure, temperature, volumetric flow rate and mass flow rate
- Measurement recording with a resolution of up to 1 ms
- Measurement and display of over 50 channels
- Sensor inputs can be expanded with additional input modules
- 2 frequency inputs for connecting third-party sensors or digital inputs/outputs
- 7" touch display, suitable for operation with gloves, robust 3 mm glass, resolution 800 x 480 pixels
- Connection of third-party CAN open sensors possible
- Analogue input module with galvanic isolation available
- Display of measured values: numerical, bar graph, pressure gauge, points, curve diagram
- Saving and loading project templates
- Defining of quick values possible (green, yellow, red)
- Memory for up to 1 billion measured values
- The measured data can be recorded (automatically), saved and analysed with the PPC-Analyze PC Software over a LAN, WIFI or USB connection.
- Max. CAN bus length: 100 m/328 ft

Technical Data (for basic device)

Inputs/Outputs

- CAN sensor inputs:
  2 CAN bus networks, each with 24 STAUFF CAN bus channels. Alternatively on CAN Y with up to 5 third-party CAN open sensors. Baud rate adjustable for third-party CAN.
  24 V DC power supply/max. 250 mA.
  Mixed operation of STAUFF CAN and third-party CAN within one CAN bus line not possible.
  Internal terminating resistor 120 Ω.
  Supports CAN 2.0 A/CAN 2.0 B
- Sampling rate: 1 ms = 1000 measured values/s
- Plug-in connection: M12x1; 5-pin with, integrated connector
- Digital input/output and frequency input:
  Dual assignment input that can be used either as DIGITAL-IN and DIGITAL-OUT, or two frequency inputs are provided through switchover. Also possible as detection of direction of rotation.
- Connection: M12x1 female (5-pin)
- Input: Galvanically isolated
- Power supply: 24 V DC, 80 mA
- Input signals: Frequency (0 Hz…20 kHz)
- Level/threshold: Active low: 0...1.4 V, Active high: 3...30 V
- Accuracy: ≤ ±0.1%
- Input module slots: Flexible addition of up to 2 modules

Touch Display

- Size/resolution: 7", 800 x 480 pixels
- Brightness: 450 cd.
- Can be operated with gloves

Calculation Channels

- Number: 4
- Functions: /, *, +, -, f´(t), Integral, sin, cos, tan, x^2, SQRT, xy
- Maximum number of calculation from channels/calc channel: 3

Interfaces

- USB device: Data transfer between device and PC
- USB host 1+2: USB 2.0, connection of external memory media
- Internal memory: 12 GB
- LAN: Connection of network cables
- Wireless communication:
  PPC-PAD-plus-W: WIFI

Ambient Conditions

- Ambient temperature: -10...+50 °C
- Storage temperature: -20...+60 °C
- Rel. humidity: < 80%
- Environmental testing: 1 m drop test (EN 60721-3-7)
- Vibrations: EN 60721-3-7, 7M3
- Protection rating: IP 65 (EN/IEC 60529:2014)
- External power supply:
  110/240 V AC - 24 V DC/3.5 A
- Connection: 3-pin

Rechargeable Battery

- Lithium-ion pack, 14.4 V/3350 mAh

Materials

- Housing: ABS/PC (thermoplastic)
- Protective housing cover: TPE (thermoplastic elastomer)
- Flammability rating: UE94V0
- Dimensions (w x h x d): 282 x 195 x 85 mm
- Weight: 1880 g (without input module)
- VESA connection: 100 x 100 mm / M4 metric

Hydraulic Tester ▪ Type PPC-PAD-plus

Order Codes for Basic Device

PPC-PAD-plus - W - CAL

① ② ③

① Series and Type

Hydraulic Tester	**PPC-PAD-plus**

② Version

Without WIFI	**(none)**
With WIFI*	**W**

③ Calibration

Without calibration certificate	**(none)**
With calibration certificate (factory calibration)	**CAL**

Delivery Includes

- PPC-PAD-plus Hydraulic Tester
  Connection for 2 CAN bus networks
  (optional modules, see below)
- Power Supply Unit 110 V/240 V – 24 V DC/2.5 A
  incl. country-specific adaptor
  (EN, US, UK, AUS)
- USB 2.0 cable (2 m/6.56 ft)
- Quick guide with link to software and complete instructions
- PC Software

* Only approved for Europe

B

Expansion Modules (Input Modules) for the PPC-PAD-plus

The PPC-PAD-plus is equipped with two input module slots for individually adapting the device to the application. The input modules are available in various versions and can easily be retrofitted or replaced by the user. The analogue input modules are also available with a calibration certificate.

Product Characteristics / Technical Data

(for input modules)

Analogue Input Module

The analogue input module is equipped with three analogue connections IN 1 – 3 for sensors with automatic sensor detection (STAUFF ANALOGUE) and an analogue connection IN 4/5 for up to two third-party sensors without automatic sensor detection (e.g. standard industrial sensors).

- 3 sensor inputs with sensor detection (p/t/Q/n) for PPC sensors
- Plug-in connection: 5-pin, push-pull, combination integrated male/female connector
- Sampling rate: 1 ms = 1000 measured values/s
- Operating temperature range: -10 °C...+50 °C
- Rel. humidity: < 80%
- Storage temperature range: -20 °C...+60 °C
- Weight: 152 g
- Input for third-party sensors:
  2 sensor inputs (analogue),
  for measuring current and voltage
  Sampling rate: 1 ms = 1000 measured values/s
  Voltage measuring range: -10...+10 V DC
  Current measuring range: 0/4...20 mA
  Supply for ext. sensors: +24 V DC/max. 100 mA
  Plug connection: M12x1; 5-pin female connector

Analogue Input Module with Galvanically Isolated Sensor Inputs

This input module offers the same options as the analogue input module, but with the connections galvanically isolated from the PPC-PAD.

- As the “analogue input module”, but with sensors inputs galvanically isolated from the PPC-PAD-plus.

CAN Input Module

The CAN Input Module is equipped with two passive CAN bus connections for third-party sensors without automatic sensor detection (third-party CAN).

In addition, this slot offers the option of connecting the PPC-PAD to an existing CAN BUS network using the SAE J1939 protocol for the purpose of reading messages from other CAN bus nodes. This can be the bus of a vehicle or machine, for example. The CAN module is passive and cannot be detected by other CAN masters.

Both connections are galvanically isolated from each other and from the device.

- 2 x M12x1 5-pin connector input for connecting to CAN systems such as CANopen, CAN generic and SAE-J1939
- Plug-in connection:
  2 x M12 5-pin female, CAN1xx, CAN2xx,
  each galvanically isolated
- Number of CAN1xx channels: 24
- Number of CAN2xx channels: 24
- Standards CAN 2.0 A, CAN 2.0 B
- Supported protocols:
  CANopen, SAEJ1939 and CAN generic,
  mixed operation of several CAN protocols possible
- Terminating Resistor: Can be activated or deactivated
- Supply for signal connection:
  Passive, no external supply
- Operating temperature range: -10 °C...+50 °C
- Storage temperature range: -20 °C...+60 °C
- Weight: 127 g

Order Codes for Input Modules

INPUT-MODUL - ANALOG - PPC-PAD-plus - GALV - CAL

① ② ③ ④ ⑤

① Type

Input Module	**INPUT-MODUL**

② Version

Analogue STAUFF Sensors	**ANALOG**
STAUFF CAN Sensors	**CAN**

③ Series

PPC-PAD-plus	**PPC-PAD-plus**

④ Galvanically Isolated

Not galvanically isolated	**(none)**
Galvanically isolated (only for Analogue Verison)	**GALV**

⑤ Calibration

Without calibration certificate	**(none)**
With calibration certificate (factory calibration)	**CAL**

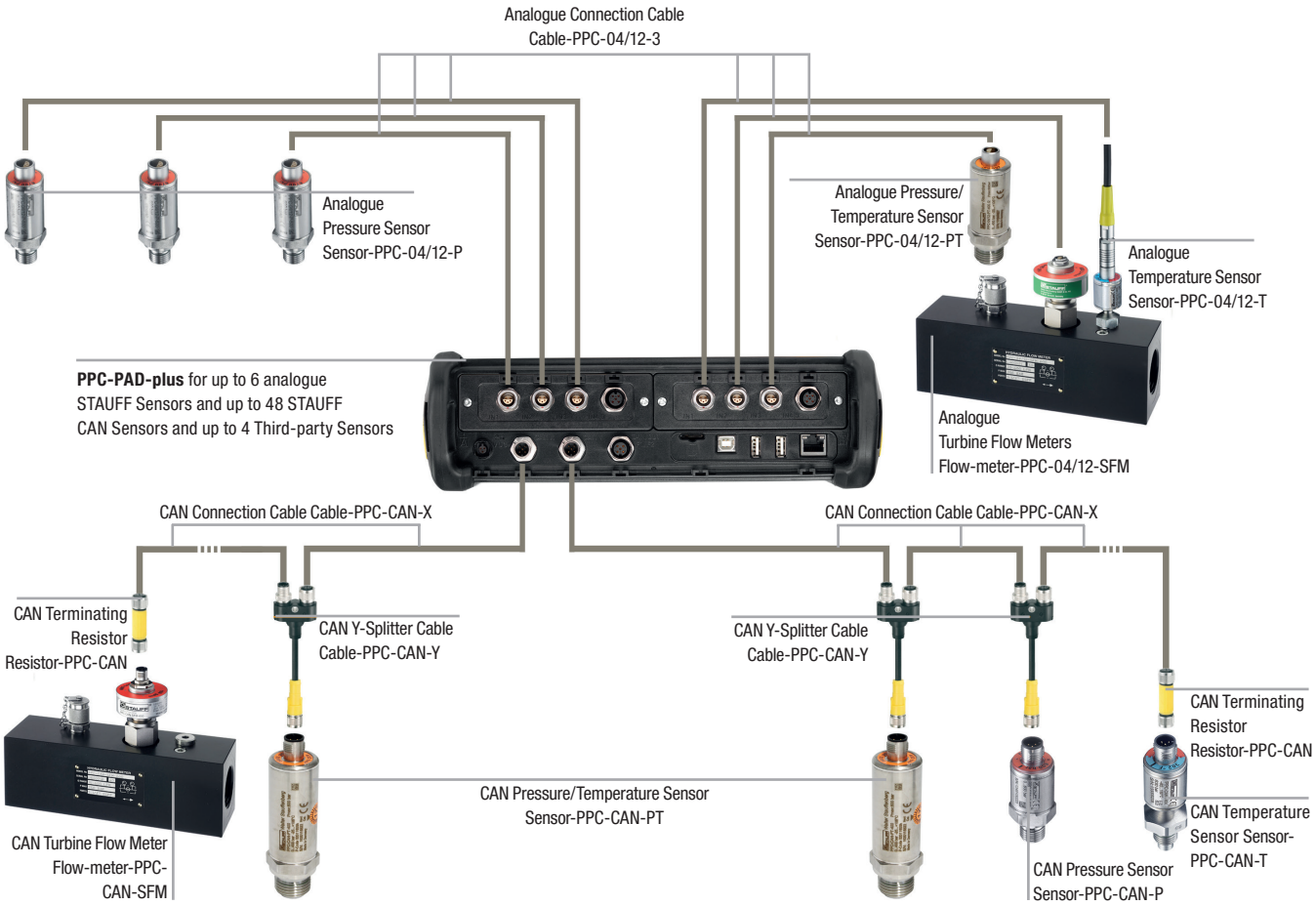
B

Hydraulic Tester ▪ Type PPC-PAD-plus

Function Description

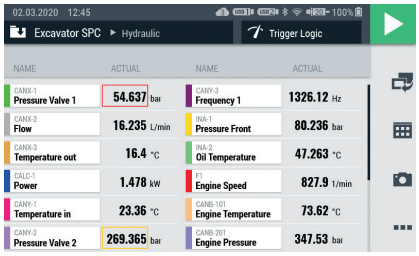
① Illuminated, glare-free colour display for good readability in all situations, 7" size for a clear overview of comprehensive information
② Suitable for operation with gloves, robust 3 mm glass, resolution 800 x 480 pixels
③ High protection against moisture and dirt, protection rating IP 65
④ Intuitive operation with clear icons and function-related buttons and apps
⑤ Integrated mount for carrying strap
⑥ Robust, oil-resistant housing protection for use in rough environments and for absorbing impacts
⑦ Additional large tactile keyboard for reliable operation even in difficult conditions
⑧ Optional CAN Module for monitoring CAN systems or connecting third-party CAN sensors
⑨ Optional analogue input module for connecting STAUFF Sensors with sensor detection
⑩ USB host interface for connecting USB mass storage devices
⑪ Analogue third-party sensors – also with high speed functionality
⑫ Power supply unit with universal country-specific adaptors, strong battery power and fast charging times, energy saving options for extended operating periods
⑬ 2 x CAN bus networks, each with up to 24 channels
⑭ 2 frequency inputs or D-IN/D-OUT
⑮ USB device interface for connecting to a PC, laptop, etc.
⑯ LAN interface for remote monitoring, measured value transfer or remote control

Connection Example for Analogue Sensors / CAN Sensors

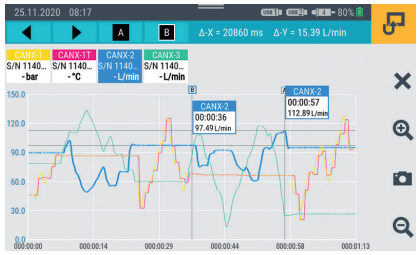


Connector for third-party sensor inputs M12 5-pin	**PLUG-PPC-PAD-plus-AUX-M12A/5**

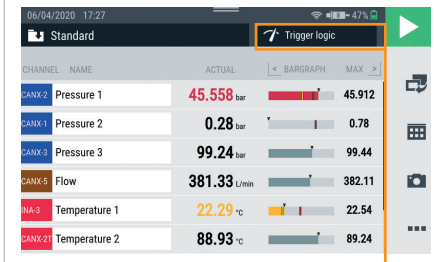
Hydraulic Tester ▪ PPC-PAD-plus
Display



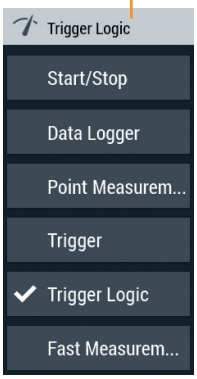
- Up to 12 channels in one display
- Colour assignment for the individual channels
- Display can be changed between ACT, MIN and MAX values

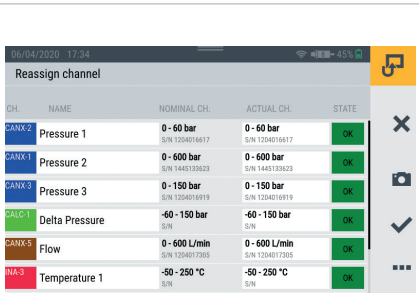


- Up to 8 freely selectable channels simultaneously in one curve display
- Choose between ACT and MIN/MAX value display
- Freely scalable
- For analysis, up to two cursors with measured value and delta value can be shown

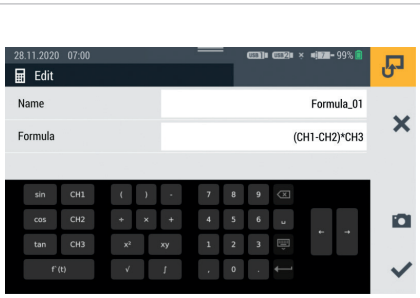


- Numerical display of 6 channels with bar chart
- Display of the measuring range, freely definable warning and alarm values (red, yellow, green) and min/max values



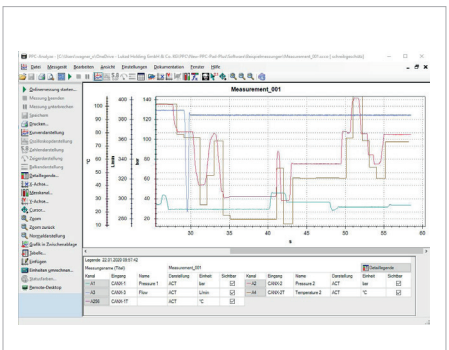


- Repeating measuring tasks can be conveniently saved as a template
- A comparison of the preset measuring setup is also carried out when a template is selected
- Use of a template ensures comparability of the measurements
- An existing template can be duplicated and modified as required

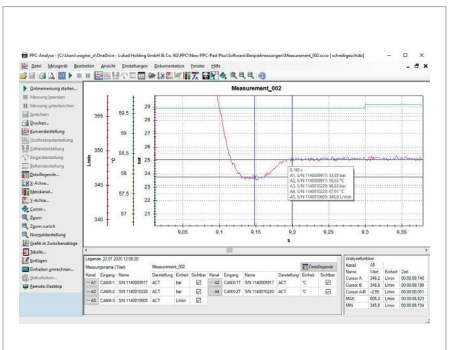


- Up to four measuring channels can be created
- In addition to the predefined standard functions such as delta values or hydraulic output, it is also possible to enter custom formulas

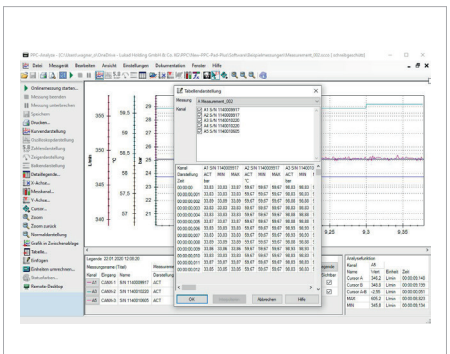
Hydraulic Tester ▪ PPC-PAD-plus
PC Software PPC-Analyze



The PPC-Analyze Software that is included with the tester can display, analyse and export the recorded curves.

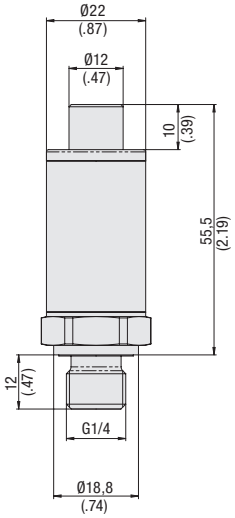


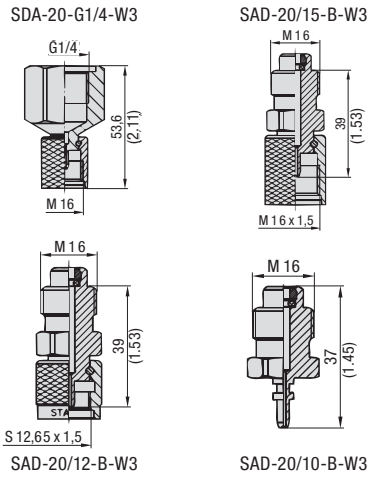
In addition, measurements can be shown on the monitor in real time using WIFI, Ethernet or USB.



B

Pressure Sensor ▪ Type Sensor-PPC-04/12-P





Product Description

The Pressure Sensor-PPC-04/12-P can be used with all analogue Hydraulic Testers of the PPC series, due to their 5-pin connection. Due to their sturdy Stainless Steel design, the quick response times (< 1 ms) and the high accuracy (±0,25% FS* typ.) with automatic sensor recognition, the Pressure Sensors are a reliable and flexible solution for the Hydraulic Testers of the PPC series.

Note: A Connection Cable-PPC-04/12-3 (3 m / 9.84 ft) is needed to connect the Pressure Sensor-PPC-04/12-P to the current Hydraulic Testers. An Extension Cable-PPC-04/12-5-EXT (5 m / 16.40 ft) is also available as an option.
See page 46 for further information.

Sensor-PPC-04/12-P	
Pressure Measurement	yes
Temperature Measurement	no
Process Connection	G1/4
Type	analogue 5-pin connection

Technical Data

- Sturdy Stainless Steel housing (1.4301)
- FKM (Viton®) gasket
- Weight: 85 g / .19 lbs
- Suitable for gases and liquids (in the case of aggressive media, please contact STAUFF)
- 5-pin connection
- Pressure connection G1/4 (without adaptor)

Ambient Conditions

- Media temperature: -25 °C ... +105 °C /-13 °F ... +221 °F
- Ambient temperature: -25 °C ... +85 °C / -13 °F ... +185 °F
- Rel. humidity: < 80%
- Storage temperature: -25 °C ... +85 °C / -13 °F ... +185 °F
- Load cycles (10^6): 100

Electrical Data

- Input voltage: 9 ... 36 V DC
- Output signal: 0 ... 3 V DC
- Response time: 1 ms
- Long-term stability: < 0,2 % FS* /a
- Vibration loading: acc. to IEC 60068-2-6 (20 g)
- Shock loading: acc. to IEC 60068-2-27 (50 g)

Protection Rating

- IP 54 protection rating: Dust protected and protected against splashing water

Order Codes

Sensor-PPC-04/12-P - **015** - **CAL**

① ② ③

① Series and Type

Pressure Sensor	**Sensor-PPC-04/12-P**

② Version

See table

③ Calibration

Without calibration certificate	**(none)**
With calibration certificate (factory calibration)	**CAL**

Pressure Range and Accuracies

Version	Pressure Range and Accuracies					
Sensor-PPC-04/12-P-	Pressure Measuring Range ($^{bar}/_{PSI}$)	Type of Measurement	Maximum Pressure ($^{bar}/_{PSI}$)	Burst Pressure ($^{bar}/_{PSI}$)	Accuracy (±% FS*) typ.	Accuracy (±% FS*) max.
015	-1 ... 15	Relative pressure	30	150	0,25	0,5
	-14.5 ... 217		435	2175		
060	0 ... 60	Absolute pressure	120	500	0,25	0,5
	0 ... 870		1740	7251		
150	0 ... 150	Absolute pressure	300	900	0,25	0,5
	0 ... 2175		4351	13053		
400	0 ... 400	Absolute pressure	800	1200	0,25	0,5
	0 ... 5801		11603	17404		
600	0 ... 600	Absolute pressure	1200	1800	0,25	0,5
	0 ... 8702		17404	26106		
601	0 ... 600 **	Absolute pressure	1200	2500	0,25	0,5
	0 ... 8702		17404	36259		

* FS = Full Scale

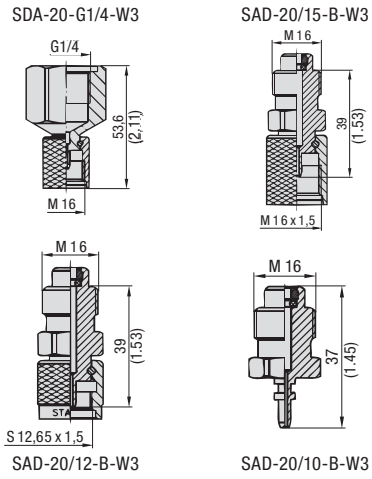
** Pressure peaks up to 1000 bar / 14503 PSI

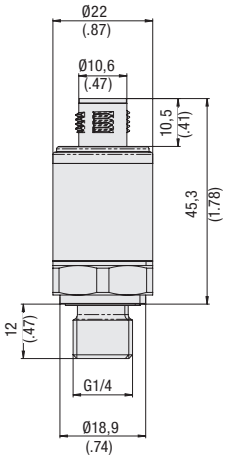
Connection Adaptors for PPC Sensors

In addition to the Pressure Sensors, different adaptors and adaptor sets are available that not only connect to the STAUFF Test 20 (SDA-20-G1/4-W3), but also to the Test Couplings of the STAUFF Test 15/12/10 series (SAD-20/15-B-W3, SAD-20/12-B-W3, SAD-20/10-B-W3).
For further information please see Catalogue 7 - STAUFF Test.

Dimensional drawings: All dimensions in mm (in).

CAN Pressure Sensor ▪ Type Sensor-PPC-CAN-P





Order Codes

Sensor-PPC-CAN-P - 016 - CAL

① ② ③

① Series and Type

CAN Pressure Sensor	**Sensor-PPC-CAN-P**

② Version

See table

③ Calibration

Without calibration certificate	**(none)**
With calibration certificate (factory calibration)	**CAL**

Pressure Range and Accuracies

Version	Pressure Range and Accuracies					
Sensor-PPC-CAN-P-	Pressure Measuring Range (bar/PSI)	Type of Measurement	Maximum Pressure (bar/PSI)	Burst Pressure (bar/PSI)	Accuracy (±% FS*) typ.	Accuracy (±% FS*) max.
016	-1 ... 16	Relative pressure	32	150	0,25	0,5
	-14.5 ... 232		464	2175		
060	0 ... 60	Absolute pressure	120	500	0,25	0,5
	0 ... 870		1740	7251		
160	0 ... 160	Absolute pressure	320	900	0,25	0,5
	0 ... 2320		4641	13053		
400	0 ... 400	Absolute pressure	800	1200	0,25	0,5
	0 ... 5801		11603	17404		
600	0 ... 600	Absolute pressure	1200	1800	0,25	0,5
	0 ... 8702		17404	26106		
601	0 ... 600 **	Absolute pressure	1200	2500	0,25	0,5
	0 ... 8702		17404	36259		

* FS = Full Scale

**Pressure peaks up to 1000 bar / 14503 PSI

Connection Adaptors for PPC Sensors

In addition to the CAN Pressure Sensors, different adaptors and adaptor sets are available that not only connect to the STAUFF Test 20 (SDA-20-G1/4-W3), but also to the Test Couplings of the STAUFF Test 15/12/10 series (SAD-20/15-B-W3, SAD-20/12-B-W3, SAD-20/10-B-W3). For further information please see Catalogue 7 - STAUFF Test.

Product Description

The CAN Pressure Sensor-PPC-CAN-P are specially designed for use with the CAN Hydraulic Testers. These sensors are using the CANopen protocol to transfer the measurement values to the CAN Hydraulic Testers. Most technical details are the same as with the Pressure Sensors.
Due to their sturdy Stainless Steel design, the quick response times (< 1 ms) and the high accuracy (±0,25% FS* typ.) with automatic sensor recognition, the CAN Pressure Sensors are a reliable and flexible solution for the CAN Hydraulic Tester.
The status of the sensor is indicated via LED.

Connecting the CAN Pressure Sensor to the CAN Hydraulic Tester a CAN Connection Cable and a CAN Terminating Resistor is needed. See page 47 for further information.

Sensor-PPC-CAN-P	
Pressure Measurement	yes
Temperature Measurement	no
Process Connection	G1/4
Type	CAN connection 5-pin, M12x1

Technical Data

- Sturdy Stainless Steel housing (1.4301)
- FKM (Viton®) gasket)
- Sensor identification LED
- Weight: 85 g / .19 lbs
- Suitable for gases and liquids (in the case of aggressive media, please contact STAUFF)
- 5-pin connection plug
- Pressure connection G1/4 (without adaptor)

Ambient Conditions

- Media temperature: -25 °C ... +105 °C /-13 °F ... +221 °F
- Ambient temperature: -25 °C ... +85 °C / -13 °F ... +185 °F
- Rel. humidity: < 80%
- Storage temperature: -25 °C ... +85 °C / -13 °F ... +185 °F
- Load cycles (10^6): 100

CANopen Interface

- CANopen protocol profile DS406 v3.2 with manufacturer-specific additions
- LSS service DS305 v2.0

Electrical Data

- Response time: 1 ms
- Long-term stability: < 0,2 % FS* /a
- Vibration loading: acc. to IEC 60068-2-6 (20 g)
- Shock loading: acc. to IEC 60068-2-27 (50 g)

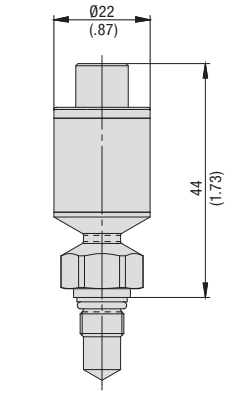
Protection Rating

- IP 67 protection rating: Dust tight and protected against splashing water

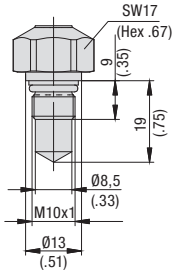
Dimensional drawings: All dimensions in mm (in).

B

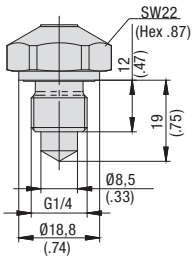
Temperature Sensor ▪ Type Sensor-PPC-04/12-T



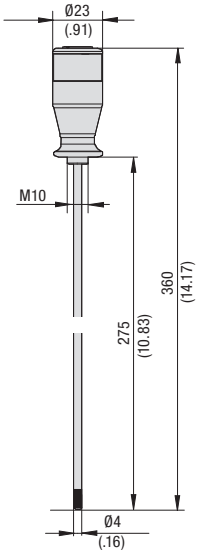
Screw-in Temperature Sensor (T)



Process Connection M10x1



Process Connection G1/4



Rod-type Temperature Sensor (TSH)

Product Description

The Screw-in Temperature Sensor-PPC-04/12-T measure current temperature directly in the pipeline and are compatible with the Flow Turbine Flow-meter-PPC-04/12-SFM and the Straight Threaded Joint SGV-16S-G-W3 (only process connection M10x1, see figure below).
See product information of Flow Turbine on page 42.

The Rod-type Temperature Sensor-PPC-04/12-TSH is especially designed to determine the media temperatures in tanks and containers.

Note: A Connection Cable-PPC-04/12-3 (3 m / 9.84 ft) is needed to connect the Temperature Sensor-PPC-04/12-T or -TSH to the current Hydraulic Testers. An Extension Cable-PPC-04/12-5-EXT (5 m / 16.40 ft) is also available as an option. See page 46 for further information.

Sensor-PPC-04/12-T	
Pressure Measurement	no
Temperature Measurement	yes
Process Connection	M10x1 or G1/4
Type	analogue 5-pin connection

Sensor-PPC-04/12-T-M02 with SGV-16S-G-W3

For further information please see Catalogue 7 - STAUFF Test.

Order Codes

Sensor-PPC-04/12 - **T** - **M02** - **CAL**

① ② ③ ④

① Series and Type

Temperature Sensor	**Sensor-PPC-04/12**

② Version

Screw-in	**T**
Rod-type	**TSH**

③ Process Connection (only for Version T)

M10x1	**M02**
G1/4	**B04**

④ Calibration

Without calibration certificate	**(none)**
With calibration certificate (factory calibration)	**CAL**

Technical Data

- Suitable for liquids (in the case of aggressive media please contact STAUFF)
- 5-pin connection

Materials

- Housing (T): Stainless Steel
- Gaskets (T): FKM (Viton®)
- Rod (TSH): Stainless Steel 1.4304
- Handle (TSH): Delrin

Weight

- Screw-in (T)
  M02 (M10x1): 70 g / .15 lbs
  B04 (G1/4): 55 g / .12 lbs
- Rod-type (TSH): 120 g / .26 lbs

Connection

- STAUFF Test connection SGV-16S-G-W3 in the pipeline (only M10x1)
- Screw-in thread (T): M10x1 or G1/4 (see figure)
- Screw-in thread (TSH): M10

Ambient Conditions (Screw-in Temperature Sensor)

- Media temperature: -40 °C ...+150 °C / -40 °F ... +302 °F
- Ambient temperature: -40 °C ... +85 °C / -40 °F ... +185 °F
- Storage temperature: -40 °C ... +85 °C / -40 °F ... +185 °F

Ambient Conditions (Rod-type Temperature Sensor)

- Media temperature: -25 °C ... +125 °C / -13 °F ... +257 °F
- Ambient temperature: -25 °C ... +70 °C / -13 °F ... +158 °F
- Storage temperature: -25 °C ... +80 °C / -13 °F ... +176 °F
- Rel. humidity: < 80%

Measuring Range

- Measuring range (T): -40 °C ...+150 °C / -40 °F ... +302 °F
- Measuring range (TSH): -25 °C ... +125 °C / -13 °F ... +257 °F
- Operating pressure (T): 630 bar / 9137 PSI
- Maximum pressure (T): 800 bar / 11603 PSI
- Burst pressure (T): 2150 bar / 31183 PSI
- Accuracy: ±1 % FS

Electrical Data

- Input signal: 7 ...12 V DC
- Output signal: 0 ...3 V DC
- Response time (T)
  M02 (M10x1): $T_{50} \leq 4$ s, $T_{90} \leq 14$ s
  B04 (G1/4): $T_{50} \leq 4$ s, $T_{90} \leq 12$ s
- Response time (TSH): $T_{90} \leq 9{,}1$ s
- Vibration loading: acc. to IEC 60068-2-6 (20 g)
- Shock loading: acc. to IEC 60068-2-27 (50 g)

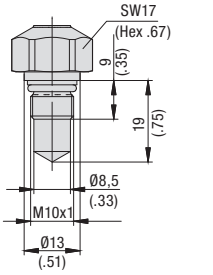
Protection Rating

- IP 54 protection rating: Dust protected and protected against splashing water

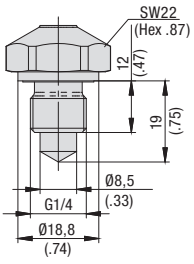
* FS = Full Scale

Dimensional drawings: All dimensions in mm (in).

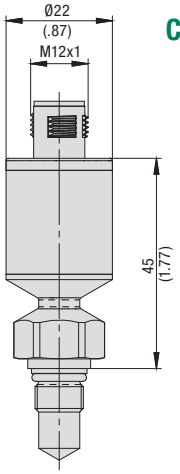
CAN Temperature Sensor ▪ Type Sensor-PPC-CAN-T



Process Connection M10x1



Process Connection G1/4



Order Codes

Sensor-PPC-CAN - T - M02 - CAL

① ② ③ ④

① Series and Type

CAN Temperature Sensor	**Sensor-PPC-CAN**

② Version

Screw-in	**T**

③ Process Connection (only for Version T)

M10x1	**M02**
G1/4	**B04**

④ Calibration

Without calibration certificate	**(none)**
With calibration certificate (factory calibration)	**CAL**

Product Description

The CAN Temperature Sensor-PPC-CAN-T are specially designed for use with the CAN Hydraulic Testers. This sensor is using the CANopen protocol to transfer the measurement values to the CAN Hydraulic Testers. The Sensor-PPC-CAN-T is compatible with the CAN Flow Turbine Flow-meter-PPC-CAN-SFM and the Straight Threaded Joint SGV-16S-G-W3 (only process connection M10x1, see figure below). See product information of CAN Flow Turbine on page 43.
Most technical details are the same as with the Temperature Sensor-PPC-04/12-T.
Due to their sturdy Stainless Steel design with automatic sensor recognition, the CAN Temperature Sensor is a reliable and flexible solution for the CAN Hydraulic Tester. The status of the sensor is indicated via LED.

Connecting the CAN Temperature Sensor to the CAN Hydraulic Tester a CAN Connection Cable and a CAN Terminating Resistor is needed. See page 47 for further information.

Sensor-PPC-CAN-T	
Pressure Measurement	no
Temperature Measurement	yes
Process Connection	M10x1 or G1/4
Type	CAN connection 5-Pin, M12x1

Technical Data

- Suitable for liquids
  (in the case of aggressive media please contact STAUFF)
- 5-pin connection plug
- Sensor identification LED

Materials

- Housing: Stainless Steel
- Gaskets: FKM (Viton®)

Weight

- M02 (M10x1): 70 g / .15 lbs
- B04 (G1/4): 55 g / .12 lbs

Ambient Conditions

- Media temperature: -40 °C ...+150 °C / -40 °F ... +302 °F
- Ambient temperature: -40 °C ... +85 °C / -40 °F ... +185 °F
- Storage temperature: -40 °C ... +85 °C / -40 °F ... +185 °F
- Rel. humidity: < 80%

Measuring Range

- Measuring range: -40 °C ...+150 °C / -40 °F ... +302 °F
- Operating pressure: 630 bar / 9137 PSI
- Maximum pressure: 800 bar / 11603 PSI
- Burst pressure: 2150 bar / 31183 PSI
- Accuracy: ±0,66 % FS

CANopen Interface

- CANopen protocol profile DS301, Typ 2.0A
  with manufacturer-specific additions
- LSS service DS305 v2.0

Electrical Data

- Output signal: CAN bus
- Response time
  M02 (M10x1): $T_{50} \leq 4$ s, $T_{90} \leq 12$ s
  B04 (G1/4): $T_{50} \leq 4$ s, $T_{90} \leq 14$ s
- Vibration loading: acc. to IEC 60068-2-6 (20 g)
- Shock loading: acc. to IEC 60068-2-27 (50 g)

Protection Rating

- IP 67 protection rating: Dust tight and protected against splashing water

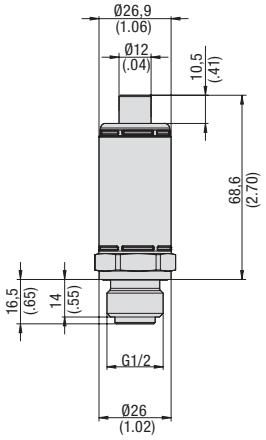
Sensor-PPC-CAN-T-M02 with SGV-16S-G-W3

For further information please see Catalogue 7 - STAUFF Test.

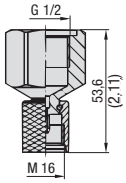
* FS = Full Scale
Dimensional drawings: All dimensions in mm (in).

B

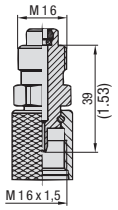
Pressure / Temperature Sensor ▪ Type Sensor-PPC-04/12-PT

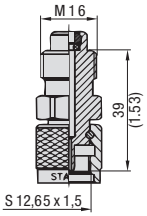


SDA-20-G1/2-W3

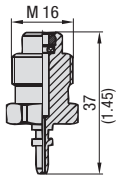


SAD-20/15-B-W3





SAD-20/12-B-W3



SAD-20/10-B-W3

Product Description

The Pressure / Temperature Sensor-PPC-04/12-PT can be used with all Hydraulic Testers of the PPC series, due to the 5-pin connection. This sensor is able to measure and display temperatures on the Hydraulic Testers.

Due to their sturdy Stainless Steel design, the quick response time (< 1 ms) and the high accuracy (±0,25% FS* typ.) with automatic sensor recognition, the Pressure / Temperature Sensor is a reliable and flexible solution for the Hydraulic Testers of the PPC series.

Note: A Connection Cable-PPC-04/12-3 (3 m / 9.84 ft) is needed to connect the Pressure / Temperature Sensor to the current Hydraulic Testers. An Extension Cable-PPC-04/12-5-EXT (5 m / 16.40 ft) is also available as an option.
See page 46 for further information.

Sensor-PPC-04/12-PT-	
Pressure Measurement	yes
Temperature Measurement	yes
Process Connection	G1/2
Type	analogue 5-pin connection

Technical Data

- Sturdy Stainless Steel housing (1.4301)
- FKM (Viton®) gasket
- Weight: 200 g / .44 lbs
- Suitable for gases and liquids (in the case of aggressive media, please contact STAUFF)
- 5-Pin connection
- Pressure connection G1/2 (without adaptor)

Ambient Conditions

- Media temperature: -25 °C ... +105 °C /-13 °F ... +221 °F
- Ambient temperature: -25 °C ... +85 °C / -13 °F ... +185 °F
- Rel. humidity: < 80%
- Storage temperature: -25 °C ... +85 °C / -13 °F ... +185 °F
- Compensated range: 0 °C ... +85 °C / +32 °F ... +285 °F
- Load cycles (10^6): 100

Electrical Data

- Input voltage: 7 ... 12 V DC
- Output signal: 0 ... 3 V DC
- Response time: 1 ms
- Long-term stability: < 0,2 % FS* /a
- Vibration loading: acc. to IEC 60068-2-6 (20g)
- Shock loading: acc. to IEC 60068-2-27 (50g)

Protection Rating

- IP 54 protection rating: Dust protected and protected against splashing water

Order Codes

Sensor-PPC-04/12-PT - **015/2** - **CAL**

① ② ③

① Series and Type

Pressure / Temperature Sensor **Sensor-PPC-04/12-PT**

② Version

See table

③ Calibration

Without calibration certificate	**(none)**
With calibration certificate (factory calibration)	**CAL**

Pressure Range and Accuracies

Version	Pressure Range and Accuracies							
Sensor-PPC-04/12-PT-	Pressure Measuring Range ($^{bar}/_{PSI}$)	Type of Measure-ment	Maximum Pressure ($^{bar}/_{PSI}$)	Burst Pressure ($^{bar}/_{PSI}$)	Accuracy (±% FS*) typ.	Accuracy (±% FS*) max.	Temperature Measuring Range (°C/°F)	Accuracy (±% FS*)
015/2	-1 ... 15 -14.5 ... 217	Relative pressure	30 435	150 2175	0,25	0,5	-25 ... 105 -13 ... 221	1,5
060/2	0 ... 60 0 ... 870	Absolute pressure	120 1740	500 7251	0,25	0,5	-25 ... 105 -13 ... 221	1,5
150/2	0 ... 150 0 ... 2175	Absolute pressure	300 4351	900 13053	0,25	0,5	-25 ... 105 -13 ... 221	1,5
400/2	0 ... 400 0 ... 5801	Absolute pressure	800 11603	1200 17404	0,25	0,5	-25 ... 105 -13 ... 221	1,5
600/2	0 ... 600 0 ... 8702	Absolute pressure	1200 17404	1800 26106	0,25	0,5	-25 ... 105 -13 ... 221	1,5
601/2	0 ... 600 ** 0 ... 8702	Absolute pressure	1200 17404	2500 36259	0,25	0,5	-25 ... 105 -13 ... 221	1,5

* FS = Full Scale

** Pressure peaks up to 1000 bar / 14503 PSI

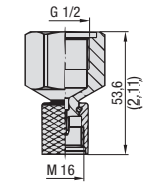
Connection Adaptors for PPC Sensors

In addition to the Pressure / Temperature Sensors, different adaptors and adaptor sets are available that not only connect to the STAUFF Test 20 (SDA-20-G1/2-W3), but also to the Test Couplings of the STAUFF Test 15/12/10 series (SAD-20/15-B-W3, SAD-20/12-B-W3, SAD-20/10-B-W3). For further information please see Catalogue 7 - STAUFF Test.

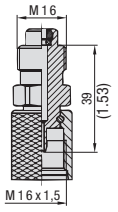
Dimensional drawings: All dimensions in mm (in).

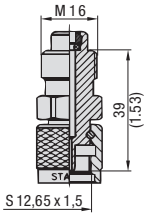
CAN Pressure / Temperature Sensor ▪ Type Sensor-PPC-CAN-PT

SDA-20-G1/2-W3

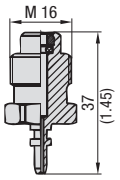


SAD-20/15-B-W3

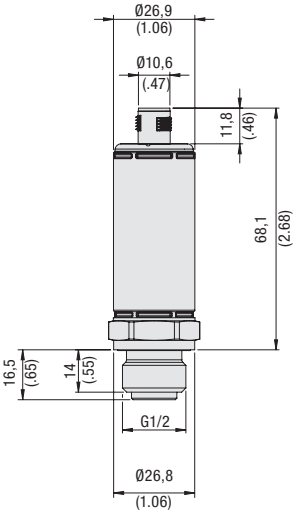




SAD-20/12-B-W3



SAD-20/10-B-W3



Order Codes

Sensor-PPC-CAN-PT - 016 - CAL

① ② ③

① Series and Type

CAN Pressure / Temperature Sensor **Sensor-PPC-CAN-PT**

② Version

See table

③ Calibration

Without calibration certificate	**(none)**
With calibration certificate (factory calibration)	**CAL**

Pressure Range and Accuracies

Version	Pressure Range and Accuracies							
Sensor-PPC-CAN-PT-	Pressure Measuring Range (bar/PSI)	Type of Measure-ment	Maximum Pressure (bar/PSI)	Burst Pressure (bar/PSI)	Accuracy (±% FS*) typ.	Accuracy (±% FS*) max.	Temperature Measuring Range (°C/°F)	Accuracy (±% FS*)
016	-1 ... 16	Relative pressure	32	150	0,25	0,5	-25 ... 105	±2K typ./ ±3K max.
	-14.5 ... 232		464	2175			-13 ... 221	
060	0 ... 60	Absolute pressure	120	500	0,25	0,5	-25 ... 105	±2K typ./ ±3K max.
	0 ... 870		1740	7251			-13 ... 221	
160	0 ... 160	Absolute pressure	320	900	0,25	0,5	-25 ... 105	±2K typ./ ±3K max.
	0 ... 2320		4641	13053			-13 ... 221	
400	0 ... 400	Absolute pressure	800	1200	0,25	0,5	-25 ... 105	±2K typ./ ±3K max.
	0 ... 5801		11603	17404			-13 ... 221	
600	0 ... 600	Absolute pressure	1200	1800	0,25	0,5	-25 ... 105	±2K typ./ ±3K max.
	0 ... 8702		17404	26106			-13 ... 221	
601	0 ... 600 **	Absolute pressure	1200	2500	0,25	0,5	-25 ... 105	±2K typ./ ±3K max.
	0 ... 8702		17404	36259			-13 ... 221	

* FS = Full Scale

** Pressure peaks up to 1000 bar / 14503 PSI

Connection Adaptors for PPC Sensors

In addition to the CAN Pressure / Temperature Sensors, different adaptors and adaptor sets are available that not only connect to the STAUFF Test 20 (SDA-20-G1/2-W3), but also to the Test Couplings of the STAUFF Test 15/12/10 series (SAD-20/15-B-W3, SAD-20/12-B-W3, SAD-20/10-B-W3). For further information please see Catalogue 7 - STAUFF Test.

Dimensional drawings: All dimensions in mm (in).

Product Description

The CAN Pressure / Temperature Sensor-PPC-CAN-PT are specially designed for use with the CAN Hydraulic Testers. This sensor is using the CANopen protocol to transfer the measurement values to the CAN Hydraulic Testers. Most technical details are the same as with the Pressure / Temperature Sensor-PPC-04/12-PT. The CAN sensor is able to measure and display temperatures on the CAN Hydraulic Testers.

Due to their sturdy Stainless Steel design, the quick response time (< 1 ms) and the high accuracy (±0,25% FS* typ.) with automatic sensor recognition, the pressure / temperature sensor is a reliable and flexible solution for the CAN Hydraulic Tester. The status of the sensor is indicated via LED.

Connecting the CAN Pressure / Temperature Sensor to the CAN Hydraulic Tester a CAN Connection Cable and a CAN Terminating Resistor is needed. See page 47 for further information.

PPC-CAN-PT	
Pressure Measurement	yes
Temperature Measurement	yes
Process Connection	G1/2
Type	CAN connection 5-pin, M12x1

Technical Data

- Sturdy Stainless Steel housing (1.4301)
- FKM (Viton®) gasket
- Sensor identification LED
- Weight: 200 g / .44 lbs
- Suitable for gases and liquids (in the case of aggressive media, please contact STAUFF)
- 5-pin connection plug
- Pressure connection G1/2 (without adaptor)

Ambient Conditions

- Media temperature: -25 °C ... +105 °C /-13 °F ... +221 °F
- Ambient temperature: -25 °C ... +85 °C / -13 °F ... +185 °F
- Rel. humidity: < 80%
- Storage temperature: -25 °C ... +85 °C / -13 °F ... +185 °F
- Compensated range: 0 °C ... +85 °C / +32 °F ... +185 °F
- Load cycles (10^6): 100

CANopen Interfaces

- CANopen protocol profile DS406 v3.2 with manufacturer-specific additions
- LSS service DS305 v2.0

Electrical Data

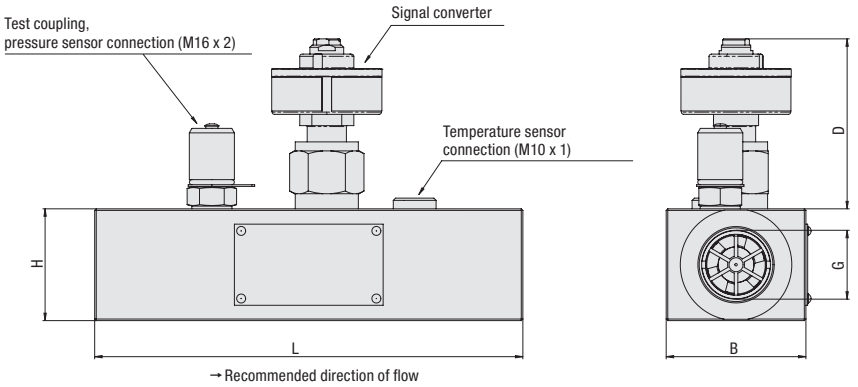
- Response time: 1 ms
- Vibration loading: acc. to IEC 60068-2-6 (20g)
- Shock loading: acc. to IEC 60068-2-27 (50g)

Protection Rating

- IP 67 protection rating: Dust tight and protected against splashing water

B

Flow Turbine ▪ Type Flow-meter-PPC-04/12-SFM



Product Description

The Flow-meter-PPC-04/12-SFM Flow Turbine is permanently installed in the pipeline. The oil flow rotates the internal axial turnine. The frequencies generated are processed by digital electronics (a signal converter). Interferences caused by flow effects are compensated by this process.
The signal converter is now directly integrated into the Flow Turbine. This allows even simpler operation and supports permanent coupling of the turbine and signal converter components that are matched to one another.

The Flow Turbine also improves the response time (from previously 400 ms to 50 ms) and increases the measuring accuray.

The Flow-meter-PPC-04/12-SFM is available in five versions for various flow speeds. A Pressure Sensor-PPC-04/12-P (see page 36) can be connected in parallel to the Flow Turbine by way of the integrated test coupling. In addition, the oil temperature can also be measured using the connection of the Temperature Sensor-PPC-04/12-T (see page 38).

In general, the Flow Turbine can handle flows in either direction. The specified technical data and the calibration (available as an option) apply only when the flow through the Flow Turbine matches the recommended flow direction. A double-headed arrow is shown on the nameplate of the Flow-meter-PPC-04/12-SFM. The thicker end of the double-headed arrow specifies the recommended direction of flow.

Note: A Connection Cable-PPC-04/12-3 (3 m / 9.84 ft) is needed to connect the Flow Turbine to the current Hydraulic Testers. An Extension Cable-PPC-04/12-5-EXT (5 m / 16.40 ft) is also available as an option.
See page 46 for further information.

Order Codes

Flow-meter-PPC-04/12 - **SFM-015** - **CAL**
① ② ③

① Series and Type

Flow Turbine	**Flow-meter-PPC-04/12**

② Version

1 ... 15 l/min / .27 ... 3.90 US GPM	**SFM-015**
3 ... 60 l/min / .79 ... 15.90 US GPM	**SFM-060**
5 ... 150 l/min / 1.32 ... 39.60 US GPM	**SFM-150**
8 ... 300 l/min / 2.11 ... 79.00 US GPM	**SFM-300**
15 ... 600 l/min / 3.96 ... 158.00 US GPM	**SFM-600**

③ Calibration

Without calibration certificate	**(none)**
With calibration certificate (factory calibration)	**CAL**

UNF version available on request.

Technical Data

Materials

- Housing: Aluminium (black anodised)
- Gaskets: FKM (Viton®)
- 5-pin connection
- Pressure measurement connection: SMK-20 (M16 x 2)
- Temperature measurement connection: M10 x 1 (standard screw plug)

Ambient Conditions

- Media temperature: -20 °C ... +90 °C / -4 °F ... +194 °F
- Ambient temperature: -10 °C ... +50 °C / +14 °F ... +122 °F
- Storage temperature: -20 °C ... +80 °C / -4 °F ... +176 °F
- Rel. humidity: < 80%
- Permissible particle size: <10 Micron for SFM-015, <25 Micron for others
- Viscosity range: 10 ... 100 cSt

Electrical Data

- Response time: 50 ms

Process Connection

- Please see table below

Protection Rating

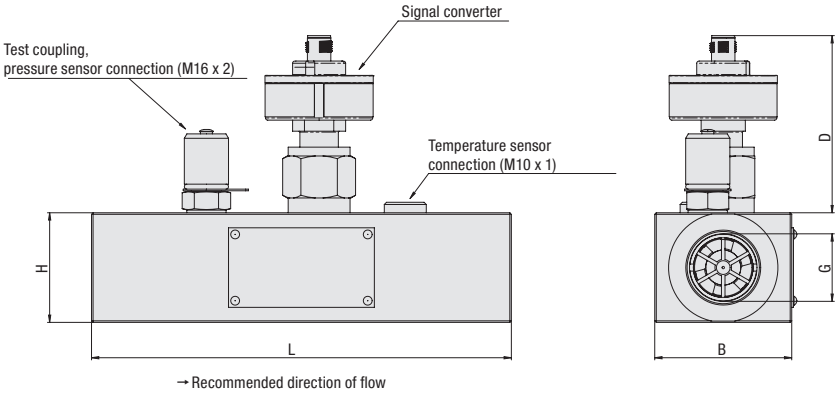
- IP 54 protection rating: Dust protected and protected against splashing water

Dimensions and Measuring Range

Version	Measuring Range						Dimensions (mm/in)						
Flow-meter-PPC-04/12-	Measuring Range (l/min / US GPM)	Max. Flow (l/min / US GPM)	Operating Pressure (bar / PSI)	Max. Pressure (bar / PSI)	Accuracy (at 21 cSt)	Max. Pressure Drop (at FS*) (bar / PSI)	G ** (BSP)	G (UNF)	B	D	L	H	Weight (g / lbs)
SFM-015	1 ... 15	16,5	350	420	±1 (% FS*)	1,5	G1/2	3/4–16	37	71	136	37	650
	.27 ... 3.90	4.4	5076	6091		21.8			1.46	2.80	5.35	1.46	1.4
SFM-060	3 ... 60	66	350	420	±1 (% of the displayed value)***	1,5	G3/4	1-1/16–16	62	72	190	50	750
	.79 ... 15.90	17.4	5076	6091		21.8			2.44	2.83	7.48	1.97	1.6
SFM-150	5 ... 150	165	350	420	±1 (% of the displayed value)***	1,5	G3/4	1-1/16–16	62	72	190	50	750
	1.32 ... 39.60	43.6	5076	6091		21.8			2.44	2.83	7.48	1.97	1.6
SFM-300	8 ... 300	330	350	420	±1 (% of the displayed value)***	4	G1	1-5/16–16	62	76	190	50	1200
	2.11 ... 79.00	87.2	5076	6091		58			2.44	2.99	7.48	1.97	2.6
SFM-600	15 ... 600	660	290	348	±1 (% of the displayed value)***	5	G1-1/4	1-5/8–12	62	66	212	75	1800
	3.96 ... 158.00	174.4	4206	5047		72.5			2.44	2.60	8.35	2.95	4

* FS = Full Scale
** Standard option *** for measured values ≥ 15% FS; for measured values < 15% FS accuracy 0.15% FS
Dimensional drawings: All dimensions in mm (in).

CAN Flow Turbine ▪ Type Flow-meter-PPC-CAN-SFM



Order Codes

Flow-meter-PPC-CAN - SFM-015 - CAL

① ② ③

① Series and Type

CAN Flow Turbine	**PPC-CAN**

② Version

1 ... 15 l/min / .27 ... 3.90 US GPM	**SFM-015**
3 ... 60 l/min / .79 ... 15.90 US GPM	**SFM-060**
5 ... 150 l/min / 1.32 ... 39.60 US GPM	**SFM-150**
8 ... 300 l/min / 2.11 ... 79.00 US GPM	**SFM-300**
15 ... 600 l/min / 3.96 ... 158.00 US GPM	**SFM-600**

③ Calibration

Without calibration certificate	**(none)**
With calibration certificate (factory calibration)	**CAL**

UNF version available on request.

Technical Data

Materials

- Housing: Aluminium (black anodised)
- Gaskets: FKM (Viton®)
- 5-pin connection plug
- Pressure measurement connection: SMK-20 (M16 x 2)
- Temperature measurement connection: M10 x 1 (standard screw plug)

Ambient Conditions

- Media temperature: -20 °C ... +90 °C / -4 °F ... +176 °F
- Ambient temperature: -10 °C ... +50 °C / +14 °F ... +122 °F
- Storage temperature: -20 °C ... +80 °C / -4 °F ... +176 °F
- Rel. humidity: < 80%
- Permissible particle size: <10 Micron for SFM-015 (CAN), <25 Micron for others
- Viscosity range: 10 ... 100 cSt

Electrical Data

- Response time: 50 ms

Process Connection

- Please see table below

Protection Rating

- IP 66 protection rating: Dust protected and protected against strong jets of water

Product Description

The CAN Flow Turbine Flow-meter-PPC-CAN-SFM is specially designed for the use with the CAN Hydraulic Testers and has to be installed permanently in the pipeline where the oil flow rotates the internal axial turbine. The generated frequencies are processed by digital electronics (a signal converter). Interferences caused by flow effects are compensated by this process. The signal converter is now directly integrated into the CAN Flow Turbine. This allows even simpler operation and supports permanent coupling of the turbine and signal converter components that are matched to one another.

The CAN Flow Turbine also improves the response times/ reaction times (from a previous 400 ms to 50 ms) and increases measurement accuracy.
The CAN Flow Turbine is available in five versions for various flow speeds. A CAN Pressure Sensor-PPC-CAN-P (see page 37) can be connected parallel to the CAN Flow Turbine by the way of the integrated test coupling. In addition, the oil temperature can also be measured using the connection of the Temperature Sensor-PPC-CAN-T (see page 39).

In general, the CAN Flow Turbine can handle flows in either direction. The specified technical data an the calibration (available as an option) apply only when the flow through the CAN Flow Turbine matched the recommended flow direction. A double-headed arrow is shown on the nameplate of the Flow-meter-PPC-CAN-SFM. The thicker end of the double-headed arrow specifies the recommended direction of the flow.

Connecting the CAN Flow Turbine to the CAN Hydraulic Tester a CAN Connection Cable and a CAN Terminating Resistor is needed. See page 47 for further information.

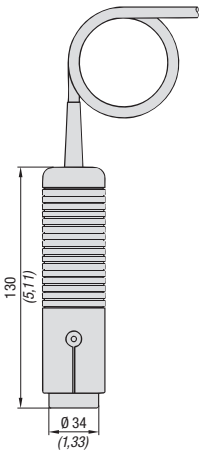
Dimensions and Measuring Range

Version	Measuring Range						Dimensions (mm/in)						
Flow-meter-PPC-CAN-	Measuring Range (l/min / US GPM)	Max. Flow (l/min / US GPM)	Operating Pressure (bar / PSI)	Max. Pressure (bar / PSI)	Accuracy (at 21 cSt)	Max. Pressure Drop (at FS*) (bar / PSI)	G ** (BSP)	G (UNF)	B	D	L	H	Weight (g / lbs)
SFM-015	1 ... 15	16,5	350	420	±1 (% FS*)	1,5	G1/2	3/4–16	37	78,8	136	37	650
	.26 ... 3.90	4.4	5076	6091		21.8			1.46	3.10	5.35	1.46	1.43
SFM-060	3 ... 60	66	350	420	±1 (% of the displayed value)***	1,5	G3/4	1-1/16–16	62	79,4	190	50	750
	.79 ... 15.90	17.4	5076	6091		21.8			2.44	3.13	7.48	1.97	1.65
SFM-150	5 ... 150	165	350	420	±1 (% of the displayed value)***	1,5	G3/4	1-1/16–16	62	79,4	190	50	750
	1.32 ... 39.60	43.6	5076	6091		21.8			2.44	3.13	7.48	1.97	1.65
SFM-300	8 ... 300	330	350	420	±1 (% of the displayed value)***	4	G1	1-5/16–16	62	81,3	190	50	1200
	2.11 ... 79.00	87.2	5076	6091		58			2.44	3.20	7.48	1.97	2.65
SFM-600	15 ... 600	660	290	348	±1 (% of the displayed value)***	5	G1-1/4	1-5/8–12	62	76,2	212	75	1800
	3.96 ... 158.00	174.4	4206	5047		72.5			2.44	3	8.35	2.95	3.97

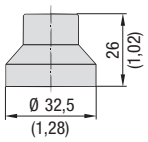
* FS = Full Scale
** Standard option *** for measured values ≥ 15% FS; for measured values < 15% FS accuracy 0.15% FS
Dimensional drawings: All dimensions in mm (in).

B

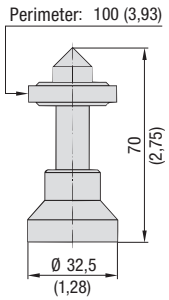
Rotational Speed Sensor ▪ Type Sensor-PPC-04/12-SDS-CAB



Sensor-PPC-04/12-SDS-CAB



Adaptor-PPC-04/12-SFA-Focus



Adaptor-PPC-04/12-SKA-Contact

Product Description

The Sensor-PPC-04/12-SDS-CAB Rotational Speed Sensor allows non-contact speed measurement of rotating components. The sensor is based on a opto-electrical measurement principle that determines the rotational speed with high-accuracy using a reflecting strip on the shaft.

The contact rotational speed measurement is obtained by using a Contact Adaptor that is mounted to the sensor, and which makes contact with the rotating component during measurement.

This also produces high-accuracy measurement results. In the case of espacially small areas, using the focusing adaptor facilities measurement.

Note: The analogue Rotational Speed Sensor-PPC-04/12-SDS-CAB can only be used with analogue Hydraulic Testers.

Technical Data

- Material: ABS
- Weight: 230 g / .51 lbs
- 5-pin connection
- Both contacting and non-contacting measurement possible
- Type of measurement: optical, red LED

Ambient Conditions

- Ambien temperature: 0 °C ... +70 °C / +32 °F ... +158 °F
- Rel. humidity: < 80%

Measuring Range

- Measuring range: 20 ... 10000 1/min
- Measuring distance: 25 ... 500 mm (1 ... 20 in)
- Measuring angle: ±45 °C
- Accuracy: ≤ ±0,5 % FS*
- Resolution: ±5 1/min

Electrical Data

- Output signal: 0 ... 3 V DC
- Input signal: 7 ...12 V DC

Note: We recommended not extending the 3 m / 9.84 ft permanent cable connection provided on the sensor!

Order Codes

Sensor-PPC-04/12-SDS-CAB - **CAL**

① ②

① Series and Type

Rotational Speed Sensor	**Sensor-PPC-04/12-SDS-CAB**

② Calibration

Without calibration certificate	**(none)**
With calibration certificate (factory calibration)	**CAL**

Order Codes

Focus Adaptor

Adaptor-PPC-04/12-SFA-focus

①

① Series and Type

Focus Adaptor	**Adaptor-PPC-04/12-SFA-focus**

Contact Adaptor

Adaptor-PPC-04/12-SKA-contact

①

① Series and Type

Contact Adaptor	**Adaptor-PPC-04/12-SKA-contact**

Applications Examples

Fig. 1 -
Contacting rotational speed measurement with the contact adaptor

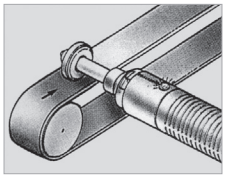


Fig. 2 -
End face rotational speed measurement with the contact adaptor

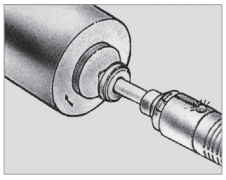
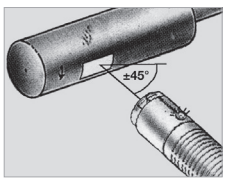
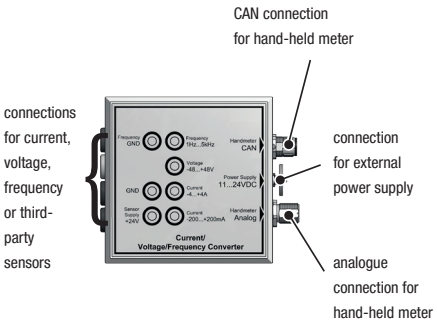


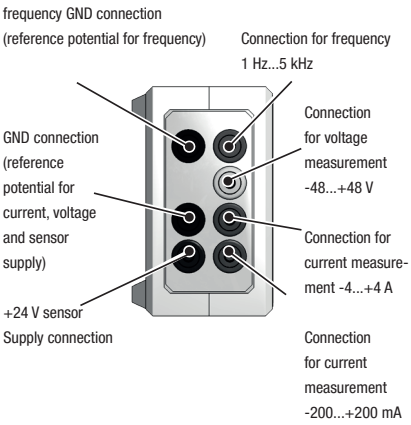
Fig. 3 -
Rotating shaft / non-contacting rotational speed measurement using the focusing adaptor and marking strip



Dimensional drawings: All dimensions in mm (in).

Current/Voltage/Frequency Converter ▪ Type Sensorconverter-PPC





Order Codes

Sensorconverter-PPC

①

① Series and Type

Current/Voltage/Frequency Converter	**Sensorconverter-PPC**

Product Description

The PPC Sensor Converter offers users the option of connecting third party sensors to the PPC Hydraulic Tester which are not equipped with a STAUFF sensor detection. These can have different output levels and can therefore also be easily measured with the Hydraulic Tester.

Specifications

▪ Dimensions:	100x100x61 mm
▪ Material:	ABS
▪ Weight:	240 g
▪ Operating temperature	0...+60 °C
▪ Storage temperature	-20...+85 °C
▪ Rel. humidity	< 80 %
▪ Protection rating	IP40 (EN 60529)

External power supply

▪ Power supply	11...30 V DC

Power supply for third-party sensor (galvanically isolated)

▪ Voltage	24 V DC ±2 V
▪ Current without PSU	max. 50 mA
▪ Current with PSU	max. 100 mA

Analogue Signal Measurement

Measuring of electric signals from a third-party sensor (e.g. 4 – 20 mA, 0 – 10 V) with the Sensorconverter-PPC.

The Sensorconverter-PPC is used, for example, for to measurue the current consumption on proportional valves or for determining the switching statuses of motors or pumps. This allows the PPC testers to read these third-party sensors. Typical applications for generating and measuring a force/displacement diagram or torque/volumetric flow characteristic curves.

The following input signals can be processed:

▪ Voltage (DC)	-48 V...+48 V CAN: ±0.5% FS; Analogue: ±1% FS
▪ Current (DC)	-200 mA...+200 mA CAN: ±0.5% FS; Analogue: ±1% FS
▪ Current (DC)	-4...+4 A ±1.5% FS
▪ Long term stability	0.1% span/a

Frequency Signal Measurement

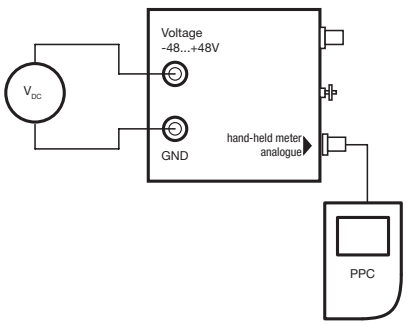
Measuring of electric frequencies from a third-party sensor

The Sensorconverter-PPC is used to make frequency signals (e.g. from turbine flow meters, volumetric flow meters and speedometers) measurable for PPC Hydraulic Testers. The adaptor can process sinusoidal and square signals from 1 Hz to 5 kHz with amplitudes from 100 mV to 24 V.

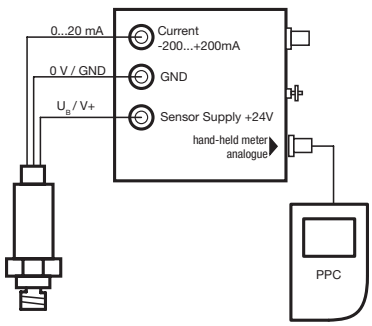
The following input signals can be processed:

▪ Frequency	1...5000 Hz; 100 mV...24 V CAN: ±0.1% FS @ < 100 Hz CAN: ±0.5% FS @ > 100 Hz Analogue: ±1%
▪ Long term stability	0.1% span/a

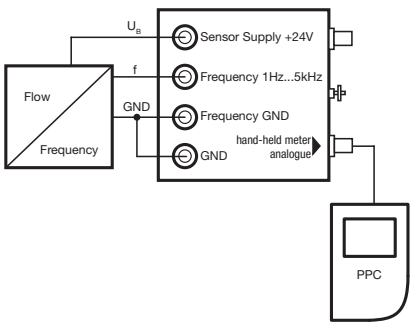
Connection example for voltage measurement



Connection example for pressure sensor 600 bar, 0...20 mA



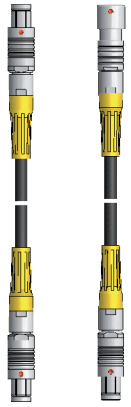
Connection example for flow meter 160 l/min, 1 kHz



The measured data are transferred to the Hydraulic Testers directly with the normal CAN or analogue Connection Cables.

B

Connection and Extension Cables (analogue)



Connection Cable-PPC-04/12-3
Extension Cable-PPC-04/12-5-EXT

Product Description

Different Connection and Extension Cables for all Hydraulic Testers of the PPC series are available. These cables on the one hand, connect the sensors to the Hydraulic Testers and on the other hand connect the Hydraulic Testers with a PC or laptop. The following items are available:

Connection and Extension Cables

A Cable-PPC-04/12-3 Connection Cable is required to connect the sensors to the current Hydraulic Testers PPC-04/06/08-plus or PPC Pad. The cable comes with a 5-pin push/pull connection at each end and has a length of 3 m / 9.84 ft.

Note: This cable cannot be used with older Hydraulic Testers and/or sensors (with 4-pin connection)! The Cable-PPC-04/12-5-EXT Exentsion Cable has a length of 5 m/16 ft.
Note: Please keep in mind that it is generally recommended not to exceed a total cable length of 8 m / 26.25 ft!

Order Codes

Cable-PPC-04/12-3

①

① Series and Type

Standard Connection Cable for Sensors	**Cable-PPC-04/12-3**
Extension Cable	**Cable-PPC-04/12-5-EXT**

CAN Accessories

CAN Connection Cable-PPC-CAN-CAB

CAN Y-Splitter Cable-PPC-CAN-CAB-Y

CAN Terminating Resistor-PPC-CAN

Product Description

To connect the CAN bus sensors to the CAN Hydraulic Testers are different cable lengths are available, depending on customers requirements. The CAN sensors work on a bus system as displayed in the connection overview on page 27. All connections are 5-pin connection plugs. The following items are available:

CAN Connection Cable

The CAN Connection Cable is available in different lengths between 0,5 m / 1.64 ft and 20 m / 65.62 ft.

CAN Y-Splitter Cable

To connect a new sensor to the CAN bus, a CAN Y-Splitter Cable is necessary.

CAN Terminating Resistor

Each sensor on the end of a CAN bus has to be closed with a CAN Terminating Resistor. The resistor is also necessary when only one sensor is used.

Order Codes

Cable-PPC-CAN - 2

① ②

① Series and Type

CAN Connection Cable	**Cable-PPC-CAN**

② Length

0,5 m / 1.64 ft	**0.5**
2 m / 6.65 ft	**2**
5 m / 16.40 ft	**5**
10 m / 32.81 ft	**10**

Order Code

Cable-PPC-CAN-Y

①

① Series and Type

CAN Y-Splitter Cable 0,3 m / .98 ft	**Cable-PPC-CAN-Y**

Order Code

Resistor-PPC-CAN-R

①

① Series and Type

CAN Terminating Resistor	**Resistor-PPC-CAN-R**

B

PPC Complete Systems for analogue Hydraulic Testers PPC-04-plus / PPC-PAD-light

Complete System PPC-04-plus-SET (PPC-04-plus)

Complete System PPC-PAD-light-SET (PPC-PAD-light)

Product Description

The PPC complete systems are assembled in different versions according to customer requirements. All complete systems are supplied in a handy case with customised foam inserts and offer space for the components listed below:

Components

Standard Options for Complete Systems PPC-04-plus

- 1x Case-PPC-04-plus/PAD-light
- 1x Hydraulic Tester PPC-04-plus
- 1x Power supply incl. country-specific adaptor Power-Supply-PPC-PAD-light-MULTI
- Up to 3 Pressure Sensor-PPC-04/12-P with installed adaptors for STAUFF Test 20 (M16 x 2)
- 1x Temperature Sensor-PPC-04/12-T-M02 with installed SGV-16S-G-W3 (optional)
- Up to 2 connection cables (3 m / 9.84 ft)
- 3x Adaptors SAD for the STAUFF Test 15/12/10 series
- 1x USB cable 1m (USB A to Micro-USB)
- 1x Quick guide with link to: PC software and instructions

Standard Options for Complete Systems PPC-PAD-light

- 1x Case-PPC-04-plus/PAD-light
- 1x Hydraulic Tester PPC-PAD-light
- 1x Power supply incl. country-specific adaptor Power-Supply-PPC-PAD-light-MULTI
- Up to 3 Pressure Sensors with installed adaptors STAUFF Test 20 (M16 x 2)
- 1x Temperature Sensor-PPC-04/12-T-M02 with installed SGV-16S-G-W3 (optional)
- Up to 4 connection cables (3 m / 9.84 ft)
- 3x Adaptors SAD for the STAUFF Test 15/12/10 series
- 2x USB cable 1m (USB A to C and USB C to C)
- 1x Quick guide with link to: PC software and instructions

Order Codes

PPC	-	PAD-light-SET	-	T	-	015	/	150	/	600	-	CAL
①		②		③		④		⑤		⑥		⑦

① Series and Type

Hydraulic Tester	**PPC**

② Version

PPC-04-plus	**04-plus-SET**
PPC-PAD-light	**PAD-light-SET**

③ Temperature Sensor

without Temperature Sensor T and SGV	**(none)**
with Temperature Sensor T and SGV	**T**

④ Pressure Range and Pressure Sensor

1. Pressure Sensor	**see table**

⑤ Pressure Range and Pressure Sensor

2. Pressure Sensor	**see table**

⑥ Pressure Range and Pressure Sensor

3. Pressure Sensor	**see table**

⑦ Calibration

without calibration certificate	**(none)**
with calibration certificate (factory calibration)	**CAL**

Pressure Range and Pressure Sensor

Pressure Range	Pressure Sensor		
000	When ordering a complete system with one or two pressure sensors, specify „000“ for the pressure range of the 2. and / or 3. pressure sensors.		
015	Pressure Range 1. Pressure Sensor	Pressure Range 2. Pressure Sensor	Pressure Range 3. Pressure Sensor
060			
150			
400			
600			
601			
z.B.	**015** (15 bar)	**060** (60 bar)	**000** (0 bar)
Please keep in mind that two pressure sensors with identical measuring ranges are necessary for differential pressure measurements.			

Alternative

If you need more space in the case for your components, STAUFF offers the **Case-PPC-PAD-plus** as an alternative. This can hold several measuring devices at the same time and offers a variety of storage options (at least 9 pressure sensors and 2 flow turbines and much more). The case is only available individually. The contents must be ordered separately.

PPC Complete Systems for CAN Hydraulic Testers PPC-04-CAN / PPC-PAD-light-CAN

Complete System PPC-PAD-light-CAN-SET (PPC-PAD-light-CAN)

Complete System PPC-04-plus-CAN-SET (PPC-04-plus-CAN)

Order Codes

PPC - **PAD-light-CAN-X-SET** - **T** - **160** / **400** / **600** - **CAL**

① ② ③ ④ ⑤ ⑥ ⑦

① Series and Type

Hydraulic Tester	**PPC**

② Version

PPC-04-plus-CAN	**04-plus-CAN-SET**
PPC-PAD-light-CAN	**PAD-light-CAN-SET**
PPC-PAD-light-CAN-AUX	**PAD-light-CAN-X-SET**

③ CAN Temperature Sensor

without CAN Temperature Sensor T and SGV	**(ohne)**
with CAN Temperature Sensor T and SGV	**T**

④ Pressure Range and Pressure Sensor

1. CAN Pressure Sensor	**see table**

⑤ Pressure Range and Pressure Sensor

2. CAN Pressure Sensor	**see table**

⑥ Pressure Range and Pressure Sensor

3. CAN Pressure Sensor	**see table**

⑦ Calibration

without calibration certificate	**(ohne)**
with calibration certificate (factory calibration)	**CAL**

Pressure Range and CAN Pressure Sensor

Pressure Range	CAN Pressure Sensor		
000	When ordering a complete system with one or two CAN pressure sensors, specify „000“ for the pressure range of the 2. and / or 3. CAN pressure sensors.		
016	Pressure Range 1. CAN Pressure Sensor	Pressure Range 2. CAN Pressure Sensor	Pressure Range 3. CAN Pressure Sensor
060			
160			
400			
600			
601			
z.B.	**016** (16 bar)	**060** (60 bar)	**000** (0 bar)
Please keep in mind that two CAN pressure sensors with identical measuring ranges are necessary for differential pressure measurements.			

Alternative

If you need more space in the case for your components, STAUFF offers the **Case-PPC-PAD-plus** as an alternative. This can hold several measuring devices at the same time and offers a variety of storage options (at least 9 pressure sensors and 2 flow turbines and much more). The case is only available individually. The contents must be ordered separately.

Product Description

The PPC complete systems are assembled in different versions according to customer requirements. All complete systems are supplied in a handy case with customised foam inserts and offer space for the components listed below:

Components

Standard Options for Complete Systems PPC-04-plus-CAN

- 1x Case-PPC-04-plus/PAD-light
- 1x Hydraulic Tester PPC-04-plus-CAN
- 1x Power Supply incl. country-specific Adaptor
- Up to 3 CAN Pressure Sensor-PPC-CAN-P with installed Adaptors for STAUFF Test 20 (M16 x 2)
- CAN Temperature Sensor-PPC-CAN-T-M02 with installed SGV-16S-G-W3 (optional)
- Up to 3 CAN Connecting Cables
- Up to 2 CAN Y-Splitter Cables
- 1x CAN Terminating Resistor
- 3x Adaptors SAD for the STAUFF Test 15/12/10 series (standard for all PPC complete systems)
- 1x USB cable 1m (USB A to Micro-USB)
- 1x Quick guide with link to: PC software and instructions

Standard Options for Complete Systems PPC-PAD-light-CAN or PPC-PAD-light-CAN-AUX

- 1x Case-PPC-04-plus/PAD-light
- 1x Hydraulic Tester PPC-PAD-light-CAN or PPC-PAD-light-CAN-AUX
- 1x Power Supply incl. country-specific Adaptor
- Up to 3 CAN Pressure Sensor-PPC-CAN-P with installed Adaptors for STAUFF Test 20 (M16 x 2)
- CAN Temperature Sensor-PPC-CAN-T-M02 with installed SGV-16S-G-W3 (optional)
- Up to 4 CAN Connecting Cables
- Up to 2 CAN Y-Splitter Cables
- 1x CAN Terminating Resistor
- 3x Adaptors SAD for the STAUFF Test 15/12/10 series (standard for all PPC complete systems)
- 1x USB cable 1m (USB A to C and USB C to C)
- 1x Quick guide with link to: PC software and instructions

B

PPC Starter System ▪ Type PPC-PAD-plus

Content of the case may vary

Trolley is optionally available (Trolley-Frame-Case-PPC-PAD-plus)

Product Description

An initial starter kit with hydraulic tester, different input modules, cables and accessories is also available in a case. This contains everything required for the preferred sensor connection variant. This means that cables for connecting 4 CAN bus sensors or 3/6 analogue sensors as well as the required input modules are included. Sensors and test couplings are not included and have to be ordered separately.

The case is robust, lightweight and contains two special foam inserts that protect the device and any accessories in a well structured storage solution.

The sets are available with a device with or without WIFI capability and can also be purchased as a calibrated version with certificate.

Individual Components

Delivery standard for complete system SET-PPC-PAD-plus

- PPC-PAD-plus
- 24 V DC/2.5 A power supply unit incl. country-specific adaptor
- USB 2.0 cable (2 m/6.56 ft)
- Quickguide with Link for PC-Software and Manual
- Case-PPC-PAD-plus

And the following equipment, depending on the set:

SET-PPC-PAD-plus-ANALOG-3

- 1 analogue input module
- 3 analogue cables, 3 m

SET-PPC-PAD-plus-ANALOG-6

- 2 analogue input modules
- 6 analogue cables, 3 m

SET-PPC-PAD-plus-CAN-4

- 2 CAN cables, 0.5 m
- 2 CAN cables, 2 m
- 2 Y-splitters
- 2 terminating resistors

Order Codes

SET-PPC-PAD-plus - **W** - **ANALOG-6** - **CAL**

① ② ③ ④

① Series and Type

Hydraulic Tester	**SET-PPC-PAD-plus**

② WIFI

Without WIFI	**(none)**
With WIFI	**W**

③ Version

for 3 analogue STAUFF Sensors	**ANALOG-3**
for 6 analogue STAUFF Sensors	**ANALOG-6**
for 4 STAUFF CAN Sensors	**CAN-4**

④ Calibration

Without calibration certificate	**(none)**
With calibration certificate (factory calibration)	**CAL**

Ordering table for measuring and test instruments

This list shows the individual components for the PPC-04-plus, PPC-06-plus, PPC-08-plus and PPC-PAD-plus Hydraulic Testers with their exact Order Codess.

* Pressure spikes up to 1000 bar/14500 psi

Description	Order Codes
1. Hydraulic Tester PPC-04-plus	
Hydraulic Tester PPC-04-plus with 2 sensor inputs, including accessories	**PPC-04-plus**
Hydraulic Tester PPC-04-plus with 2 sensor inputs, including accessories, calibrated	**PPC-04-plus-CAL**
CAN Hydraulic Tester PPC-04-plus-CAN with one CAN bus interface, including accessories	**PPC-04-plus-CAN**
Power Supply Unit (110/230 V AC) for PPC-04-plus with USB connection, including country-specific adaptor	**Power-supply-PPC-04-plus-110/230V-USB**
Case-PPC-04-plus/PAD-light (with foam insert)	**Case-PPC-04-plus/PAD-light**
2. Hydraulic Tester PPC-PAD-light	
Hydraulic Tester PPC-PAD-light for up to 4 sensor inputs, including accessories	**PPC-PAD-light**
Hydraulic Tester PPC-PAD-light for up to 4 sensor inputs, including accessories	**PPC-PAD-light-CAL**
Hydraulic Tester PPC-PAD-light-CAN for up to 6 CAN interfaces, including accessories	**PPC-PAD-light-CAN**
Hydraulic Tester PPC-PAD-light-CAN-AUX for up to 6 CAN interfaces, Third-party Sensors, including accessories	**PPC-PAD-light-CAN-AUX**
Quick Charger	**Power-Supply-PPC-PAD-light-MULTI**
Case-PPC-04-plus/PAD-light (with foam insert)	**Case-PPC-04-plus/PAD-light**
3. Hydraulic Tester PPC-PAD-plus	
Hydraulic Tester PPC-PAD-plus for up to 48 STAUFF CAN interfaces, including accessories	**PPC-PAD-plus**
Hydraulic Tester PPC-PAD-plus for up to 48 STAUFF CAN interfaces, including accessories, calibrated	**PPC-PAD-plus-CAL**
Hydraulic Tester PPC-PAD-plus for up to 48 STAUFF CAN interfaces, including accessories, WIFI capability	**PPC-PAD-plus-W**
Hydraulic Tester PPC-PAD-plus für bis zu 48 STAUFF CAN interfaces, including accessories, WIFI capability, calibrated	**PPC-PAD-plus-W-CAL**
Analogue Input Module	**INPUT-MODUL-ANALOG-PPC-PAD-plus**
Analogue Input Module, calibrated	**INPUT-MODUL-ANALOG-PPC-PAD-plus-CAL**
Analogue Input Module, galvanically isolated sensor inputs	**INPUT-MODUL-ANALOG-PPC-PAD-plus-GALV**
Analogue Input Module, galvanically isolated sensor inputs, calibrated	**INPUT-MODUL-ANALOG-PPC-PAD-plus-GALV-CAL**
CAN Input Module	**INPUT-MODUL-CAN-PPC-PAD-plus**
Connector for third-party sensor inputs M12 5-pin	**PLUG-PPC-PAD-plus-AUX-M12A/5**
Carrying Strap	**Carry-strap-PPC-PAD-plus**
Power Supply Unit (110/230 V AC) for PPC-PAD-plus, including country-specific adaptor	**Power-Supply-PPC-PAD-plus-MULTI**
Case-PPC-PAD-plus (with foam insert)	**Case-PPC-PAD-plus**
Trolley	**Trolley-Frame-Case-PPC-PAD-plus**
4. Current/Voltage/Frequency Converter/Third-Party Sensors	
Current/Voltage/Frequency Converter/Third-Party Sensors (up to 4 A DC/48 V DC)	**Sensorkonverter-PPC**
5. Cables	
Analogue	
Connection Cable 3 m/9.84 ft (5-pin connection on both ends)	**Cable-PPC-04/12-3**
Extension Cable 5 m/16.40 ft (5-pin connection on both ends)	**Cable-PPC-04/12-5-EXT**
CAN	
CAN Connection Cable 0.5 m/1.64 ft	**Cable-PPC-CAN0.5**
CAN Connection Cable 2 m/6.65 ft	**Cable-PPC-CAN2**
CAN Connection Cable 5 m/16.40 ft	**Cable-PPC-CAN5**
CAN Connection Cable 10 m/32.81 ft	**Cable-PPC-CAN10**
CAN Y-Splitter Cable 0.3 m/0.98 ft	**Cable-PPC-CAN-Y**
CAN Terminating Resistor	**Resistor-PPC-CAN**

B

Ordering Table for Sensor System

All available individual components for the PPC Hydraulic Testers are listed here with their exact Order Codess.

* Pressure spikes up to 1000 bar/14500 psi

All pressure, temperature and flow rate sensors are available as calibrated versions.
Please add "-CAL" to the Order Codes.

Description	Order Codes
1. Pressure Sensors G1/4 (without adaptor)	
Analogue	
Pressure range from -1 ... 15 bar/-14.5 ... 217 psi relative pressure	Sensor-PPC-04/12-P-015
Pressure range from 0 ... 60 bar/0 ... 870 psi absolute pressure	Sensor-PPC-04/12-P-060
Pressure range from 0 ... 150 bar/0 ... 2175 psi absolute pressure	Sensor-PPC-04/12-P-150
Pressure range from 0 ... 400 bar/0 ... 5801 psi absolute pressure	Sensor-PPC-04/12-P-400
Pressure range from 0 ... 600 bar/0 ... 8702 psi absolute pressure	Sensor-PPC-04/12-P-600
Pressure range from 0 ... 600 bar/0 ... 8702 psi absolute pressure*	Sensor-PPC-04/12-P-601
CAN	
Pressure range from -1 ... 16 bar/-14.5 ... 232 psi relative pressure	Sensor-PPC-CAN-P-016
Pressure range from 0 ... 60 bar/0 ... 870 psi absolute pressure	Sensor-PPC-CAN-P-060
Pressure range from 0 ... 160 bar/0 ... 2321 psi absolute pressure	Sensor-PPC-CAN-P-160
Pressure range from 0 ... 400 bar/0 ... 5801 psi absolute pressure	Sensor-PPC-CAN-P-400
Pressure range from 0 ... 600 bar/0 ... 8702 psi absolute pressure	Sensor-PPC-CAN-P-600
Pressure range from 0 ... 600 bar/0 ... 8702 psi absolute pressure*	Sensor-PPC-CAN-P-601
2. Pressure/Temperature Sensors G1/2 (without adaptor)	
Analogue	
Pressure range from -1 ... 15 bar/-14.5 ... 217 psi relative pressure	Sensor-PPC-04/12-PT-015
Pressure range from 0 ... 60 bar/0 ... 870 psi absolute pressure	Sensor-PPC-04/12-PT-060
Pressure range from 0 ... 150 bar/0 ... 2175 psi absolute pressure	Sensor-PPC-04/12-PT-150
Pressure range from 0 ... 400 bar/0 ... 5801 psi absolute pressure	Sensor-PPC-04/12-PT-400
Pressure range from 0 ... 600 bar/0 ... 8702 psi absolute pressure	Sensor-PPC-04/12-PT-600
Pressure range from 0 ... 600 bar/0 ... 8702 psi absolute pressure*	Sensor-PPC-04/12-PT-601
CAN	
Pressure range from -1 ... 16 bar/-14.5 ... 232 psi relative pressure	Sensor-PPC-CAN-PT-016
Pressure range from 0 ... 60 bar/0 ... 870 psi absolute pressure	Sensor-PPC-CAN-PT-060
Pressure range from 0 ... 160 bar/0 ... 2321 psi absolute pressure	Sensor-PPC-CAN-PT-160
Pressure range from 0 ... 400 bar/0 ... 5801 psi absolute pressure	Sensor-PPC-CAN-PT-400
Pressure range from 0 ... 600 bar/0 ... 8702 psi absolute pressure	Sensor-PPC-CAN-PT-600
Pressure range from 0 ... 600 bar/0 ... 8702 psi absolute pressure*	Sensor-PPC-CAN-PT-601
3. Process Connection Adaptors for PPC Pressure Sensors	
Adaptor G1/4 to M16 x 2 (STAUFF Test 20)	SDA-20-G1/4-W3
Adaptor G1/2 to M16 x 2 (STAUFF Test 20)	SDA-20-G1/2-W3
Adaptor M16 X 2 to M16 x 1.5 (STAUFF Test 20 to STAUFF Test 15)	SAD-20/15-B-W3
Adaptor M16 X 2 to S12.65 x 1.5 (STAUFF Test 20 STAUFF Test 12)	SAD-20/12-B-W3
Adaptor M16 X 2 to plug-in system (STAUFF Test 20 to STAUFF Test 10)	SAD-20/10-B-W3
4. Temperature measurement (temperature sensors -40°C ... +150 °C/-40 °F ... +302 °F)	
Analogue	
Screw-In Temperature Sensor for line installation (M10 x 1)	Sensor-PPC-04/12-T-M02
Screw-In Temperature Sensor for line installation (G1/4)	Sensor-PPC-04/12-T-B02
Rod-type Temperature Sensor for tank/reservoir measurements	Sensor-PPC-04/12-TSH
Straight Fitting with M10 x 1 connection (for PPC-04/12-T-M02)	SGV-16S-G-W3
CAN	
Screw-In Temperature Sensor for line installation (M10 x 1)	Sensor-PPC-CAN-T-M02
Screw-In Temperature Sensor for line installation (G1/4)	Sensor-PPC-CAN-T-B02
Straight Fitting with M10 x 1 connection (for PPC-CAN-T-M02)	SGV-16S-G-W3
5. Flow Rate Measurement (Turbine Flow Meter SFM with integrated signal converter)	
Analogue	
Measuring range from 1 ... 15 l/min / 0.3 ... 3.9 US GPM	Flow-meter-PPC-04/12-SFM-015
Measuring range from 4 ... 60 l/min / 1 ... 15.9 US GPM	Flow-meter-PPC-04/12-SFM-060
Measuring range from 6 ... 150 l/min / 1.6 ... 39.6 US GPM	Flow-meter-PPC-04/12-SFM-150
Measuring range from 10 ... 300 l/min / 2.7 ... 79 US GPM	Flow-meter-PPC-04/12-SFM-300
Measuring range from 20 ... 600 l/min / 5.3 ... 158 US GPM	Flow-meter-PPC-04/12-SFM-600
CAN	
Measuring range from 1 ... 15 l/min / 0.3 ... 3.9 US GPM	Flow-meter-PPC-CAN-SFM-015
Measuring range from 4 ... 60 l/min / 1 ... 15.9 US GPM	Flow-meter-PPC-CAN-SFM-060
Measuring range from 6 ... 150 l/min / 1.6 ... 39.6 US GPM	Flow-meter-PPC-CAN-SFM-150
Measuring range from 10 ... 300 l/min / 2.7 ... 79 US GPM	Flow-meter-PPC-CAN-SFM-300
Measuring range from 20 ... 600 l/min / 5.3 ... 158 US GPM	Flow-meter-PPC-CAN-SFM-600
6. Rotational speed measurement	
Analogue	
Speed Sensor with integrated Connection Cable 2 m/6.56 ft	Sensor-PPC-04/12-SDS-CAB
Contact Adaptor	Adaptor-PPC-04/12-SKA-contact
Focusing Adaptor	Adaptor-PPC-04/12-SFA-focus

Wireless Pressure Measurement System PT-RF

The PT-RF series of pressure transmitters are an alternative solution for universal pressure measurements for fluid technology applications, which will provide benefits for system operators, maintenance personnel and repair technicians as well as for original equipment manufacturers.

The advantages resulting from the use of the new technology for system operators, maintenance personnel and repair technicians are clear:

Measurements can be carried very easily, without extensive training and within a few seconds at the press of a button and then documented in a reliable process.

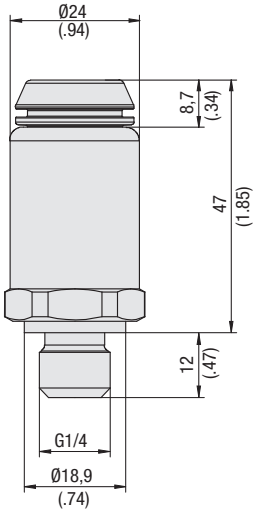
Unscrewing and re-installing pressure gauges or other measuring and display devices – practically a temporary opening of the system – is not required. Potential hazards for people, machines and the environment, for example from emitted waste oil in the test hose or leaks at the measuring point, as well as ingress of dirt into the system (e.g. in dusty environments) can be effectively excluded.

Original equipment manufacturers will also benefit from this new technology: If the pressure transmitters are installed at their factory already, the innovative technology can provide a competitive edge over alternative suppliers and open up specific advantages for the users, increasing the value retention of their own devices in the long term.

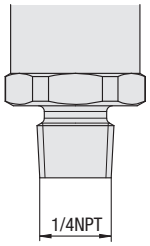
If the pressure transmitters are installed directly in the system or pipeline for permanent use, they protrude only slightly more than conventional hydraulic test couplings and meet the highest demands with regard to space requirements and weight.

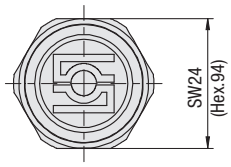
B

Pressure Transmitter ▪ Type PT-RF



Process connection G1/4 (B04)





Process connection 1/4NPT (N04)

Product Description

The pressure transmitters from the PT-RF series are integrated into fluid technology plants and systems permanently or temporarily using the appropriate process connection adapters. The energy required for a measurement is transferred to the pressure transmitter via the antenna of the reading device using wireless RFID technology.
This means that the pressure transmitters require neither internal nor external power supply and are completely maintenance-free.

Technical Data

Wetted Parts
- Suitable for liquid and gaseous media

Materials
- Housing: Stainless Steel 1.4305
- Sealing (B04): FKM (Viton®)
- Cap: Polyamide (glass fibre-reinforced)

Dimensions / Weight
- Dimensions: 59 x 26 mm / 2.32 x 1.02 in
- Weight: 80 g / .18 lbs

Temperature Range
- Media temp. (N04): -40°C … +135°C / -40°F … +275°F
  Media temp. (B04): -30°C … +135°C / -22°F … +275°F
- Ambient temp.: -40 °C ... +85 °C / -40 °F ... +185 °F
- Storage temp.: -55 °C ...+125 °C / -67 °F ... +257 °F

Electrical Data
- Sampling rate: typ. 250 ms / max. 400 ms
- Long-term stability: according to IEC EN 60770-1
  max. ± 0,25 % FS* /a
- Load cycles (10^6): 10
- Vibration loading: acc. to IEC 60068-2-6 (20 g)
- Shock loading: acc. to IEC 60068-2-27 (30 g) 11ms

Protection Rating
- IP69 protection rating: Dust tight and protected against high-pressure and steam cleaning

Order Codes

PT - **RF** - **B00600** - **B04**

① ② ③ ④

① Series and Type

Pressure Transmitter	**PT**

② Version

Signal transmission via RFID technology	**RF**

③ Pressure Range

see table

④ Process Connection

G1/4	**B04**
1/4 NPT	**N04**

Pressure Range and Accuracies

Version	Pressure Range and Accuracies					
Pressure Transmitter PT-RF	Pressure Range ($^{bar}/_{PSI}$)	Type of Measurement	Maximum Pressure ($^{bar}/_{PSI}$)	Burst Pressure ($^{bar}/_{PSI}$)	Accuracy (±% FS*) typ.	Accuracy (±% FS*) max.
B00016	0 ... 16	Relative pressure	32	48	0,25	0,5
	0 ... 232		464	696		
B00060	0 ... 60	Relative pressure	120	180	0,25	0,5
	0 ... 870		1740	2610		
B00160	0 ... 160	Relative pressure	320	480	0,25	0,5
	0 ... 2320		4641	6961		
B00400	0 ... 400	Relative pressure	800	1200	0,25	0,5
	0 ... 5801		11603	17405		
B00600	0 ... 600	Relative pressure	1200	1800	0,25	0,5
	0 ... 8702		17404	26107		

Temperature behaviour: max. ± 0,2 % FS* /10K (test condition 25 °C; 45 % r. H.)

* FS = Full Scale

Process Connection Adaptors for Pressure Transmitter PT-RF

Various adaptors are available in addition to the pressure transmitters from the PT-RF series, allowing connection to the known STAUFF Test 20 system as well as installation in pipes.

SDA-20-G1/4-W3
Adaptor for process connection G1/4 (B04)
on test coupling STAUFF Test 20
(connection thread M16 x 2)

SRS-G1/4-*-V-G-W3**
Straight fitting with adaptor
Note: Please replace *** with tube-Ø and series (L or S).

SMD-20-1/4NPT-W3
Adaptor for process connection 1/4NPT (N04)
on test coupling STAUFF Test 20
(connection thread M16 x 2)

Dimensional drawing: All dimensions in mm (in).

Reader ▪ Type Reader-PT-RF

Order Code

Reader-PT-RF

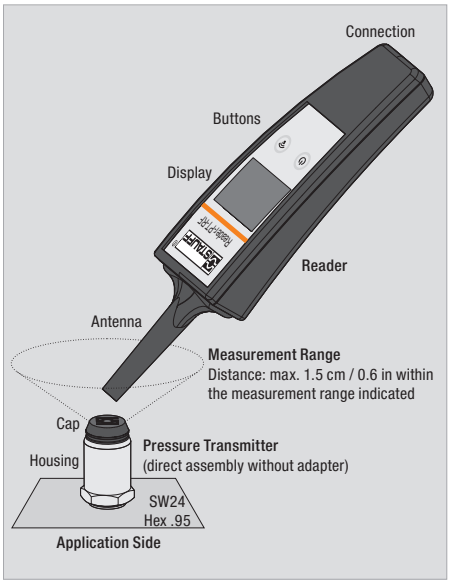
①

① Series and Type

Reader	**Reader-PT-RF**

Standard option:
- Reader-PT-RF
- Quickguide
- USB 2.0 cable (1 m / 3.28 ft)
- 5 V DC / 1 A power supply incl. country-specific adaptors

Set Up



Product Description

The hand-held readers transfer the energy required for a measurement to the pressure transmitter using RFID technology. All that is required is a maximum distance of 1.5 cm / 0.6 in from the antenna to the tip of the pressure transmitter for the duration of the measurement.

When the pressure transmitter is activated by the press of a button, a current measured value is determined within only 0.5 seconds and then immediately transmitted back to the reading device together with other relevant information and then output on the illuminated display and stored.
Over 15,000 of these measurement sets can be stored in the internal memory of the device.

PC Software

The software included with the delivery allows transmission of the stored measured values from the reading device to the PC, subsequent evaluation and export, e.g. to Microsoft Excel®.

Technical Data

Material
- Housing made of ABS

Dimensions / Weight
- Dimensions: 76 x 35 x 240 mm / 3.0 x 1.38 x 9.45 in
- Weight: 220 g / .49 lbs

Measurements / Display
- Pressure: in bar and PSI
- Temperature: in °C and °F
- Display: graphic, LED backlit
- Visible area: 55 x 46 mm / 2.17 x 1.81 in
- Resolution: 128 x 64 Pixel

Power Supply
- Battery: Lithium Ion (3,7 V DC / 900 mAh)
- Operating time approx. 6h (approx. 1800 individual measurement)

Temperature Range
- Ambient temp.: -20 °C ... +70 °C / -4 °F ... +158 °F
- Storage temp.: -25 °C ... +60 °C / -13 °F ... +140 °F
- Storage temperature -20...+85 °C
- Rel. humidity < 80 %
- CE certified

Electrical Data / Interface
- Sampling rate: typ. 250 ms / max. 400 ms
- Interface: Micro USB
- EMV: EN 61326-1:2013
  EN 300330

Protection Rating
- IP65 protection rating: Dust tight and protected against water jets

Type of Measurement

Start Measurement

1. Switch on the reader using the ⏻ function button.

During the brief start process, the charge state of the lithium ion battery (Battery) is shown on the display and the share of the currently occupied data memory (MemUsed) in percent as well as the current date and time.

2. Position the tip of the antenna of the reader inside the measurement range of the pressure transmitter and hold this position as long as possible during the entire measurement process.

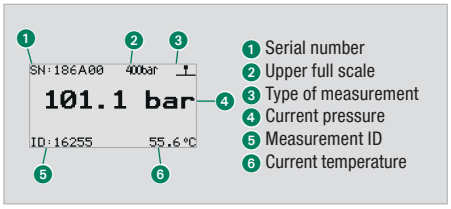
Individual Measurement (Single Value)

3. **Start the individual measurement by tapping the function button once.**

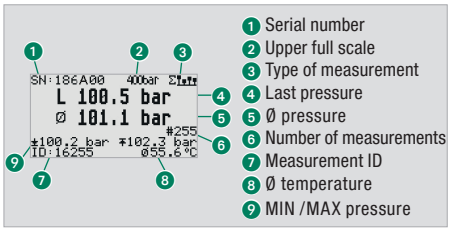
Permanent Measurement (Multiple Values)

3. **Start the permanent measurement by holding down the function button.**
The simplest way of recognising the successful start of a permanent measurement is the change in the corresponding symbol in the upper right-hand corner of the display.
The absolute number of the values determined as part of the measurement process is shown below the current pressure.

4. **End a continuous measurement by releasing the function key.**



Display after successful individual measurement



Display after successful permanent measurement

B

Complete system ▪ Type PT-RF-SET

Complete system in case PT-RF-SET

Product Description

The PT-RF-SET complete system is compiled in different versions according to customer requirements. All complete systems are supplied in a handy carrying case containing individually shaped foam inserts for a maximum of 10 pressure transmitters and 10 process connection adaptors and offering space for the following components:

Standard Option

- 1x Reader-PT-RF
- up to 3 Pressure Transmitters PT-RF
- up to 3 Process Connection Adaptors SDA or SMD
- 1x Quickguide
- 1x USB 2.0 cable(1 m / 3.28 ft)
- 1x Power Supply incl. country-specific adaptors

Order Codes

PT-RF - SET - 2 - 400 / 600 / 000 - B

① ② ③ ④ ⑤ ⑥ ⑦

① Series and Type

Series PT-RF	**PT-RF**

② Version

Complete system in case	**SET**

③ Number of Pressure Transmitters in the Set

1x pressure transmitter	**1**
2x pressure transmitter	**2**
3x pressure transmitter	**3**

④ Pressure Range / Version

1st pressure transmitter	**see table**

⑤ Pressure Range / Version

2nd Pressure Transmitter	**see table**

⑥ Pressure Range / Version

3rd Pressure Transmitter	**see table**

⑦ Process Connection Adaptor

Adaptor SDA for process connection G1/4 (B04)	**B**
Adaptor SMD for process connection 1/4NPT (N04)	**N**

Pressure Transmitter: Pressure Range and Version

Pressure Range	Version of Pressure Transmitter		
000	When ordering a complete system with one or two pressure transmitters, the pressure range for the 2nd and 3rd pressure transmitter is given as "**000**".		
016	Version pressure transmitter: **B00016** (pressure range: 0 ... 16 bar / 0 ... 232 PSI)		
060	Version pressure transmitter: **B00060** (pressure range: 0 ... 60 bar / 0 ... 870 PSI)		
160	Version pressure transmitter: **B00160** (pressure range: 0 ... 160 bar / 0 ... 2320 PSI)		
400	Version pressure transmitter: **B00400** (pressure range: 0 ... 400 bar / 0 ... 5801 PSI)		
600	Version pressure transmitter: **B00600** (pressure range: 0 ... 600 bar / 0 ... 8702 PSI)		
e.g.	**400** (400 bar)	**600** (600 bar)	**000** (0 bar)

Spare Parts / Accessories

Case-Reader-PT-RF

Product Description

In addition to the Charger-Set-Reader-PT-RF which is available as a spare part, the Case-PT-RF-Set is also available as an individual item for assembling a complete system later on.

The Case-Reader-PT-RF is available if only a storage case for the reading device is required. It only provides space for the reading device and the associated accessories (without pressure transmitters and process connection adaptors).

Order Codes

Spare Parts / Accessories

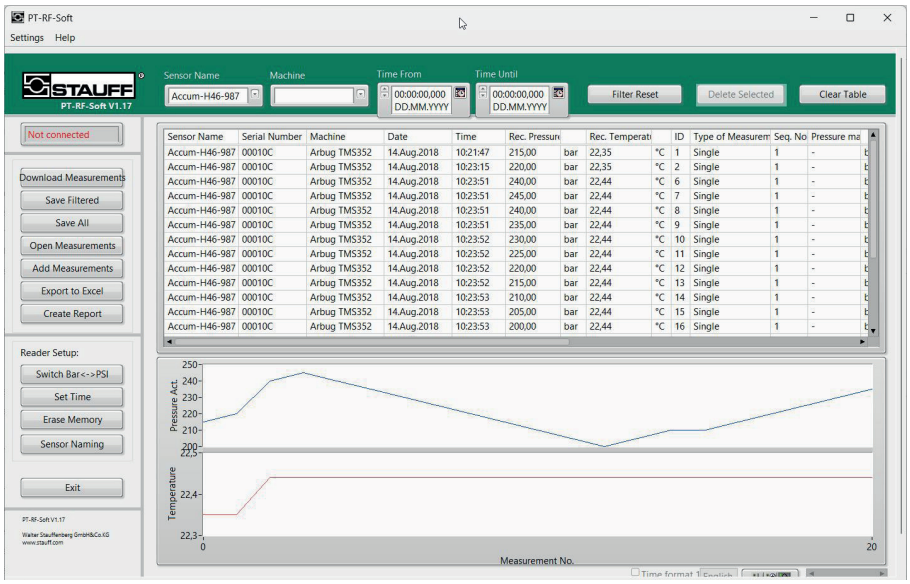
①

① Spare Parts / Accessories

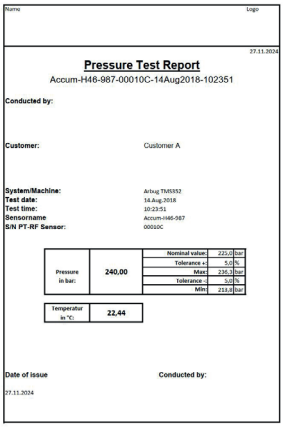
Case, small	**Case-Reader-PT-RF**
Case, large	**Case-PT-RF-SET**
5 V DC / 1 A power supply incl. country-specific adaptors and USB 2.0 cable	**Power-Supply-PT-RF-Reader-MULTI**
Adaptor for pressure transmitter (B04)	**SDA-20-G1/4-W3**
Adaptor for pressure transmitter (N04)	**SMD-20-1/4NPT-W3**
Straight fitting with adaptor	**SRS-G1/4-***-V-G-W3**

Software PT-RF-Soft

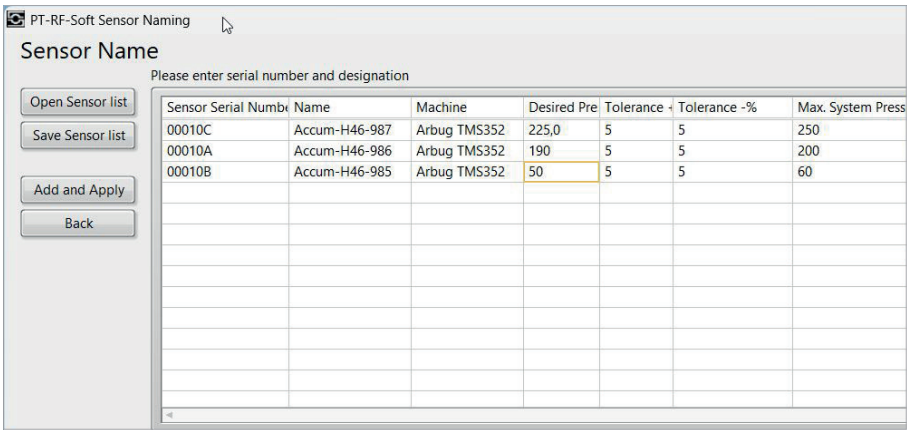
Option for complete documentation of test results, display of pressure curves, export of measurement data via CSV file and creation of customer-specific measurement reports.



Evaluation of the measured values recorded by the reader and direct comparison with previous measurement data.



Customer-specific reports can be created quickly and easily from the measurement data.



Serial numbers of the sensors can be clearly assigned to a measuring point or machine. New measurement data is assigned the correct name immediately after downloading.

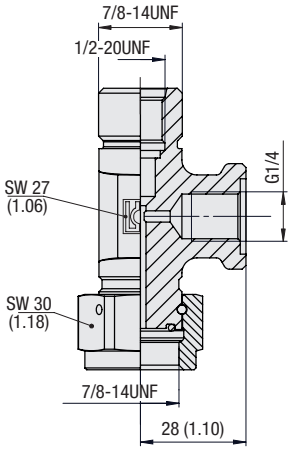
Application of the Wireless Pressure Measurement System PT-RF

Adaptor Type SBAA-P-FV

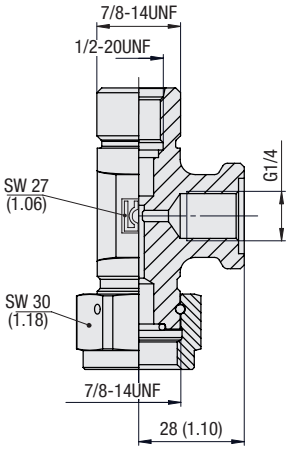
Adaptor Type SBAA-FV

B

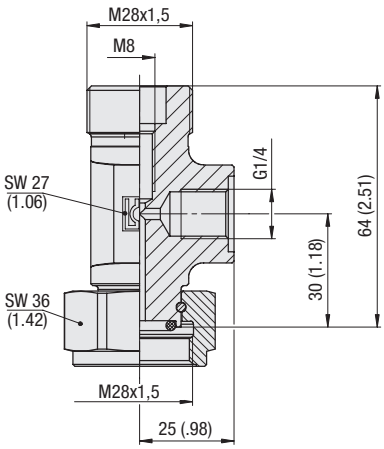
Accumulator Adaptor ▪ Type SBAA / SDAA



Bladder accumulator adaptor SBAA-CV



Bladder accumulator adaptor SBAA-FV



Diaphragm accumulator adaptor SDAA

Product Description

Membrane and bladder accumulators are important components of modern hydraulic systems. Monitoring the nitrogen pressure level is becoming ever more important for ensuring correct operation.

The STAUFF Accumulator Adaptor together with the PT-RF pressure sensors allow maintenance personal to quickly and easily check the accumulator pressure without pressure loss. Pressure values, serial numbers, date and time will automatically be stored in the memory of the reader and then easily and conveniently read out on the PC later on.

For this, the Accumulator Adaptor is screwed onto the nitrogene connection of the accumulator and a PT-RF pressure sensor is attached at the side.

Technical Data

- max. Pressure: 400 bar / 5801 PSI
- Burst Pressure: 1600 bar / 23206 PSI
- Sealing Material: NBR (Buna-N®)

Order Codes

SBAA - CV - U05 - B04 - W3

① ② ③ ④ ⑤

① Series and Type

STAUFF Bladder Accumulator Adaptor 7/8-14UNF Connection Thread	**SBAA**
STAUFF Diaphragm Accumulator Adaptor M28x1.5 Connection Thread	**SDAA**

② Adaptor Type (only for SBAA)

for accumulators with changeable valve (only for SBAA)	**CV**
for accumulators with fixed valve (only for SBAA)	**FV**

③ Valve Connection Thread

1/2-20UNF (only for SBAA)	**U05**
M8 (only for SDAA)	**M08**

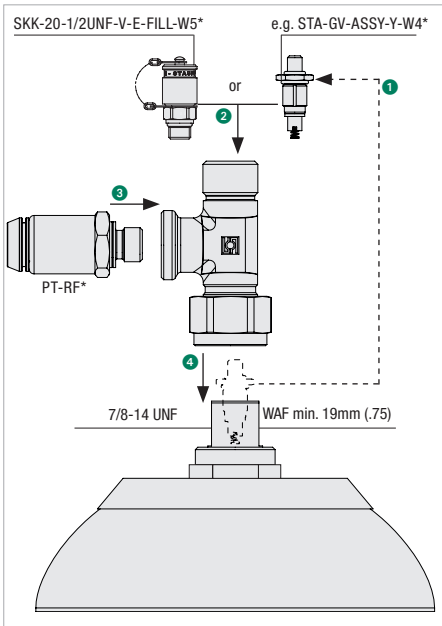
④ Sensor Connection Thread

G1/4 Connection Thread	**B04**

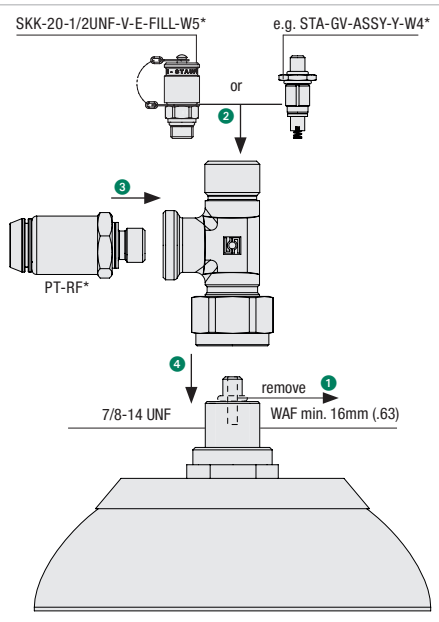
⑤ Material Code

Steel, zinc/nickel-plated	**W3**

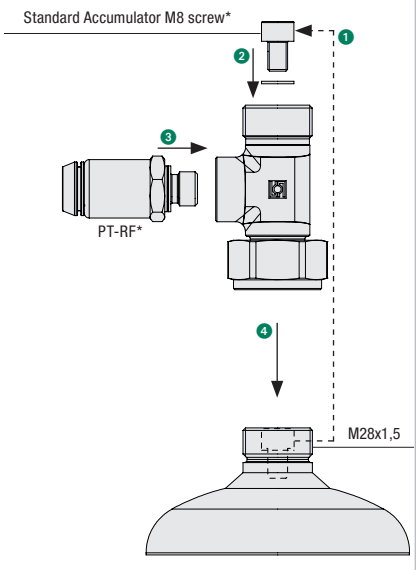
Set Up



Bladder Accumulator Adaptor SBAA-CV
(with changeable valve)



Bladder Accumulator Adaptor SBAA-FV
(with fixed valve)



Diaphragm Accumulator Adaptor SDAA

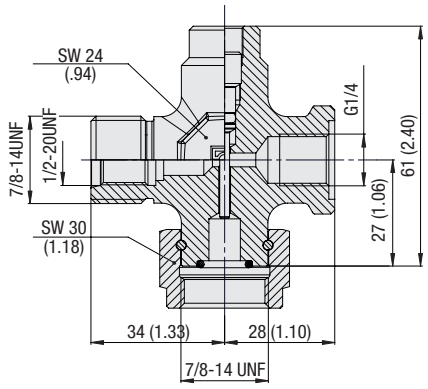
*not included.

Dimensional drawing: All dimensions in mm (in).

Accumulator Adaptor ▪ Type SBAA-P

B

connection without draining the nitrogen accumulator



Order Codes

SBAA-P	-	FV	-	U05	-	B04	-	W3
①		②		③		④		⑤

① Series and Type

STAUFF Bladder Accumulator Adaptor Nachrüstung ohne Speicherentleerung	**SBAA-P**

② Adaptor Type

for accumulators with fixed valve	**FV**

③ Valve Connection Thread

1/2-20UNF	**U05**

④ Sensor Connection Thread

G1/4 Anschlussgewinde	**B04**

⑤ Material Code

Steel, zinc/nickel-plated	**W3**

Product Description

- nitrogen pressure on hydraulic accumulators quickly and easily
- Contactless digital measurement, recording and documentation, no screwing, no connecting
- Maintenance-free, no battery and handy, lightweight reader
- Easy retrofitting, without pressure loss and without great effort

Membrane and bladder accumulators are important components of modern hydraulic systems. Monitoring the nitrogen pressure level is becoming ever more important for ensuring correct operation.

The STAUFF Accumulator Adaptor together with the PT-RF pressure sensors allow maintenance personal to quickly and easily check the accumulator pressure without pressure loss. Pressure values, serial numbers, date and time will automatically be stored in the memory of the reader and then easily and conveniently read out on the PC later on.

For this, the Accumulator Adaptor is screwed onto the nitrogene connection of the accumulator and a PT-RF pressure sensor is attached at the side.

The SBAA-P adaptor for hydraulic bladder accumulators represents a consistent further development in accumulator adaptation.

It enables monitoring of the nitrogen filling without having to empty the accumulator during installation, as is necessary with the simple SBAA.

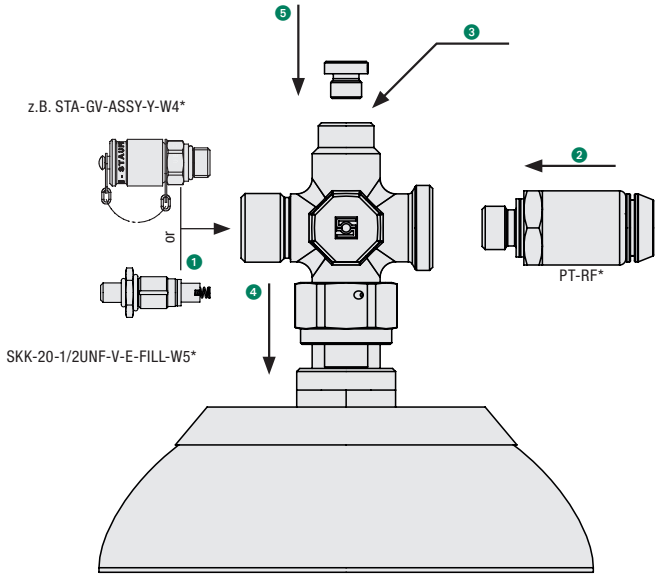
The SBAA-P is screwed directly onto the existing accumulator valve with sensor* and additional valve*. The valve opening tappet opens the accumulator valve of the hydraulic accumulator by means of an Allen key.

A blanking plug serves to additionally seal and secure the adaptor. Retrofitting with this accumulator adaptor is possible within a few minutes without emptying the accumulator and the accumulator pressure can be read out immediately using the PT-RF sensor.

Technical Data

- max. Pressure: 400 bar / 5801 PSI
- Burst Pressure: 1600 bar / 23206 PSI
- Sealing Material: NBR (Buna-N®)

Set Up



Bladder Accumulator Adaptor SBAA-P
(connection without draining the nitrogen accumulator content)

*not included.
Dimensional drawing: All dimensions in mm (in).

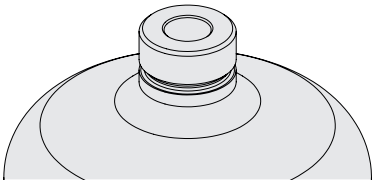
*not included.

B

SDAA

The SDAA is designed for use with diaphragm accumulators.

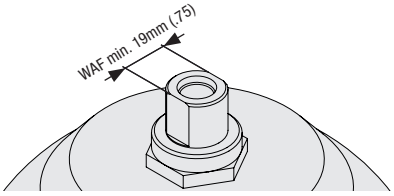
To use the adaptor, the M8 screw in the accumulator has to be removed with the sealing ring and re-inserted into the upper connection of the adaptor. The adaptor is supplied with a replacement seal (BD-Ring-U02-W32-B), so worn or defective seals can be replaced. The conventional filling set is used for refilling.



SBAA-CV

The SBAA-CV is designed for use with bladder accumulators with changeable valves. The spanner area (WAF) on the accumulator connection **cannot be smaller than 19 mm/.75 in**.

To use the adaptor, the original valve must be unscrewed from the accumulator connection, and – if it fits (external thread 1/2-20UNF) – inserted into the upper connection of the adaptor again. The conventional filling set is used for refilling. If the original valve does not have a matching thread, either a default gas valve (e.g. STA-GV-ASSY-Y-W4) or a test connection SKK-FILL (SKK-20-1/2UNF-V-E-FILL-W5) can be used, which are offered by STAUFF as accessories.

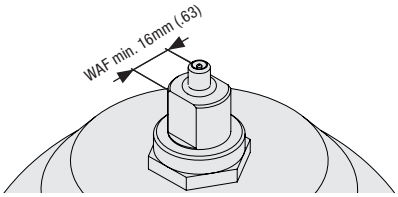


!The Spanner area on the accumulator connector cannot be smaller than 19mm / .75in!

SBAA-FV and SBAA-P-FV

The SBAA-FV is designed for use with bladder accumulators with a fixed valve head (7.5 mm / 0.29 in). The spanner width (WAF) on the accumulator connection **cannot be smaller than 16 mm/.63 in.**

For use the SBAA-FV, the valve insert must be removed from the valve head to allow filling through the adaptor. A new valve with an external thread 1/2-20UNF must then be inserted into the upper connection of the adaptor. STAUFF offers a matching default gas valve (e.g. STA-GV-ASSY-U-W3) or a test connection SKK-FILL (SKK-20-1/2UNF-V-E-FILL-W5). With the SBAA-P-FV the original valve does not have to be removed and remains in the accumulator.



!The Spanner area on the accumulator connector cannot be smaller than 16mm / .63in!

Accessories / Spare Parts

Order Codes

Accessories / Spare Parts

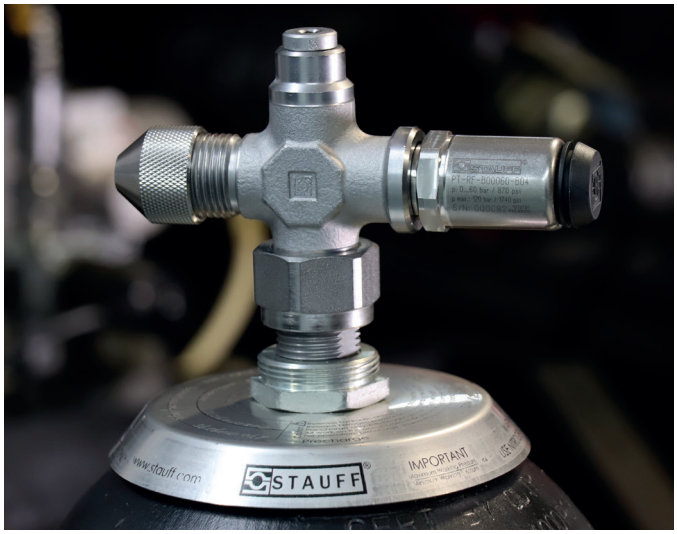
①

① Accessories / Spare Parts

Sealing for SDAA	**BD-Ring-U02-W32-B**
Gas Valve (Type 8V1 - ISO 4570)	**STA-GV-ASSY-Y-W4**
Test connection SKK	**SKK-20-1/2UNF-V-E-FILL-W5**

Application

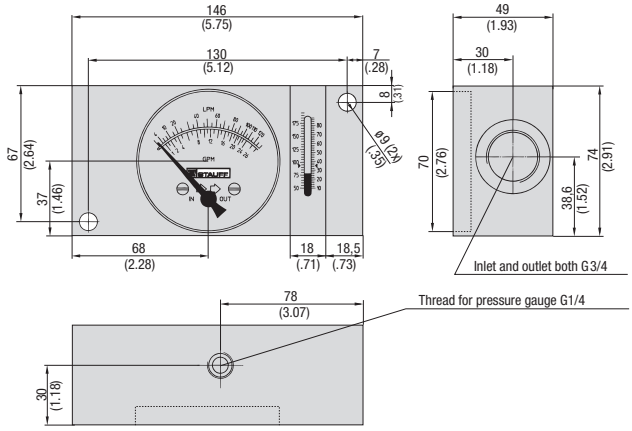
Adaptor Type SBAA-CV and SBAA-FV



Adaptor Type SBAA-P-FV

B

Flow Indicator ▪ Types SDM / SDMKR



Dimensions SDM-750

Product Description

Analogue flow indicators for measuring the flow rate of fluids in mobile and industrial hydraulics.
The SDMKR is designed with a loading valve for the strain test of the hydraulic system to facilitate precise control of the operating pressure. In addition, this product can also be subjected to a reverse flow direction (without flow rate determination).

Features

- Suitable for Mineral Oil (Aluminium), HFC Fluids and Water (Brass)
- Designed for in-line installation
- Mechanical flow measurement
- Controlling working pressure with a pressure control valve (only SDMKR)
- Flow indication in l/min and GPM for Aluminium units, Brass units have flow indication for Water and Oil both in l/min
- Aluminium unit: Dual scale
- Brass unit: Single scale
- Thread to connect with pressure gauge (only SDM)

Technical Data

Accuracy

(at a kinematic viscosity of 28cSt):

- Flow: ±4 % FSD
- Temperature: ±2,5 °C / ±5 °F
- Pressure (only SDMKR): ±1.6 % FS*
- Temp. measuring range: +20 °C ... +110 °C / +55 °F ... +245 °F
- Media temperature
  permanent: +80 °C / +176 °F
  temporary (<10 min.): +110 °C / +245 °F

Note: Other thread versions available on request.

Order Codes

SDM	-	750	-	A	-	016	-	T
①		②		③		④		⑤

① Series and Type

Flow Indicator Type SDM	**SDM**
Flow Indicator Type SDMKR	**SDMKR**

② Size

750	**750**
1500 (only SDM)	**1500**

③ Housing Material

Aluminium	**A**
Brass (only SDM)	**B**

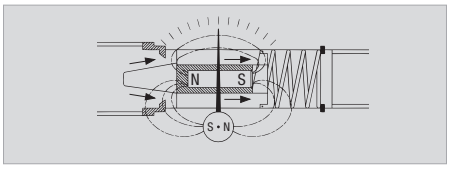
④ Flow Ranges

See table on page 63

⑤ Thermometer

With integrated thermometer (standard option)	**T**

Functional Principal Flow Measuring



The flow indicators SDM and SDMKR have a sharp-edged orifice and a tapered metering piston, which moves in proportion to changes of flow against a spring.
In no flow condition the piston closes the opening and the pointer indicates zero.

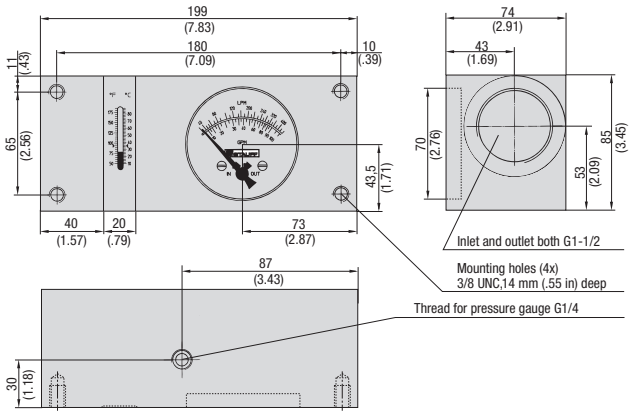
With increasing flow and differential pressure the piston moves against the calibrated spring. The piston movement is directly proportional to the flow rate and is magnetically coupled to the rotary pointer. During this function the sharp-edged orifice minimises the effects of viscosity.
The flow is shown on a calibrated scale in l/min and gal/min.

Controlling Working Pressure with SDMKR

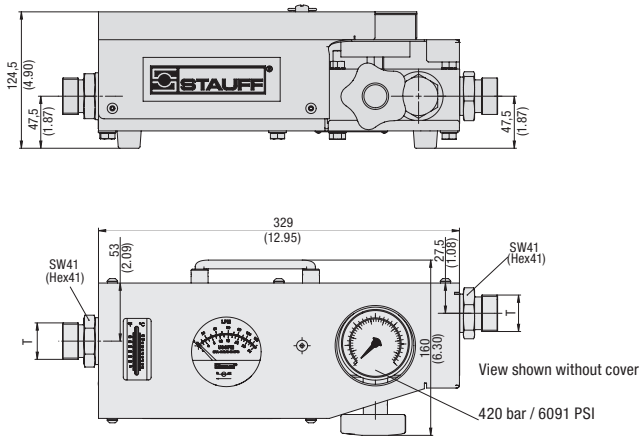
The pressure control valve of the SDMKR is directly connected to a flow-block and together with the integrated pressure gauge it allows an exact control of the working pressure in the maximum range.
For protection the SDMKR has two rupture disks. At a pressure >420 bar the disks burst and the fluid is by-passed around the valve. The rupture disks (other pressure ranges on request) can be replaced easily.
The SDMKR also permits flow in the reverse direction (without flow rate determination).

Dimensional drawings: All dimensions in mm (in).
*FS = Full Scale

Flow Indicators ▪ Types SDM / SDMKR



Dimensions SDM-1500



Dimensions SDMKR-750

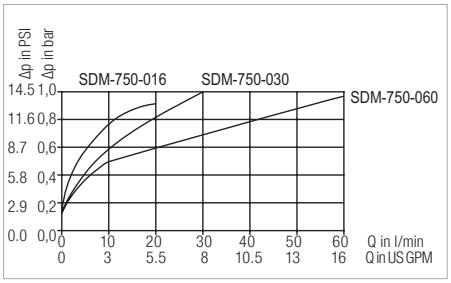
B

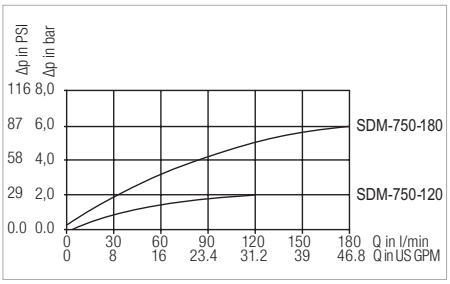
Technical Data

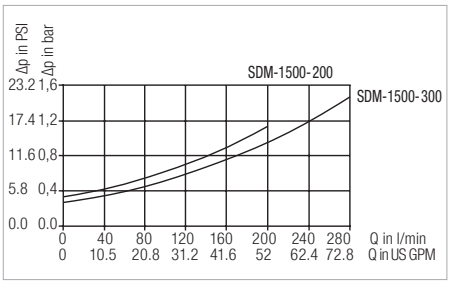
Max. Working Pressure (bar/PSI)	Flow Range (l/min/US GPM) Aluminum Units	Flow Range Brass Units (only SDM) *	Weight (kg/lbs)	Connection T	Order Codes
420	2 - 16	-	1,36	G3/4	SDM-750-A-016-T
6091	0.5 - 4	-	3.0		
420	2 - 30	-	1,36	G3/4	SDM-750-A-030-T
6091	0.5 - 8	-	3.0		
420	2 - 60	-	1,36	G3/4	SDM-750-A-060-T
6091	0.5 - 16	-	3.0		
420	4 - 120	-	1,36	G3/4	SDM-750-A-120-T
6091	1 - 32	-	3.0		
420	10 - 180	-	1,36	G3/4	SDM-750-A-180-T
6091	4 - 48	-	3.0		
420	-	2 - 30 l/min in oil	3,80	G3/4	SDM-750-B-030-T
6091	-	2 - 30 l/min in water	8.40		
420	-	3 - 60 l/min in oil	3,80	G3/4	SDM-750-B-060-T
6091	-	3 - 70 l/min in water	8.40		
420	-	4 - 120 l/min in oil	3,80	G3/4	SDM-750-B-120-T
6091	-	4 - 140 l/min in water	8.40		
350	10 - 200	-	3,0	G1-1/2	SDM-1500-A-200-T
5075	5 - 50	-	6.61		
350	20 - 300	-	3,0	G1-1/2	SDM-1500-A-300-T
5075	4 - 80	-	6.61		
350	20 - 400	-	3,0	G1-1/2	SDM-1500-A-400-T
5075	5 - 100	-	6.61		
350	-	10 - 200 l/min in oil	8,0	G1-1/2	SDM-1500-B-200-T
5075	-	10 - 200 l/min in water	17.64		
350	-	20 - 400 l/min in oil	8,0	G1-1/2	SDM-1500-B-400-T
5075	-	20 - 400 l/min in water	17.64		
420	2 - 30	-	6,6	G3/4	SDMKR-750-A-030-T
6091	0.5 - 8	-	14.55		
420	5 - 60	-	6,6	G3/4	SDMKR-750-A-060-T
6091	1.3 - 16	-	14.55		
420	5 - 120	-	6,6	G1	SDMKR-750-A-120-T
6091	1.3 - 32	-	14.55		
420	10 - 200	-	6,6	G1	SDMKR-750-A-200-T
6091	4 - 53	-	14.55		

Flow Curves - Aluminium Version (Oil)

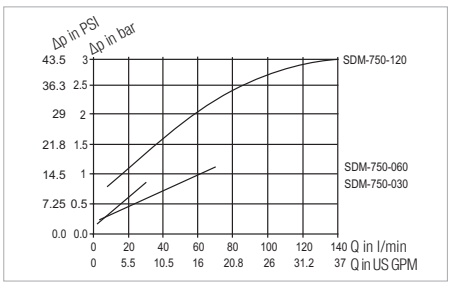
(Curves reffer to kinematic viscosity of 25cSt):

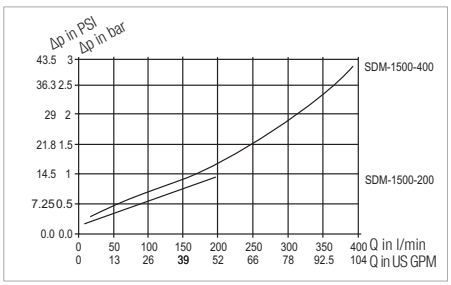


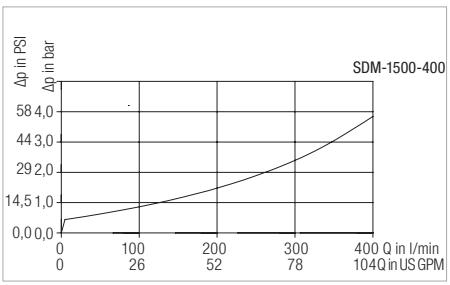




Flow Curves - Brass Version (Water)







* The Brass units have a scale for water and oil – in l/min.
Dimensional drawings: All dimensions in mm (in).