STAUFF®

Pressure Transmitter and Reader of the PT-RF Series

Manual

Contents

1 Safety instructions

1.1 Intended use

This portable reading device is intended for measuring, storing and monitoring measuring values, e.g. for service and maintenance work as well as in the field of machine optimisation. The device is only intended for use with a pressure transmitter and accessories from the STAUFF PT-RF accessories range. Any other use is not permitted. This can lead to accidents or destruction of the device and will result in immediate expiration of any warranty and guarantee claims towards the manufacturer.

Warning
Using the selected product outside the specifications or disregarding the operating and warning information can result in serious malfunctions that may cause injuries and property damage.

The device must not be operated in explosive atmosphere!

1.2 Specialist personnel

These operating instructions are intended for trained specialist personnel who are familiar with the current regulations and standards for the area of application.

1.3 Accuracy of technical documentation

These operating instructions were created with the greatest care. We accept no liability for accuracy and completeness of the data, images and drawings. Subject to change.

1.4 High-pressure applications

The overload pressure should not be exceeded when selecting the pressure transmitters. The pressure transmitter can be damaged if the overload pressure is exceeded (depending on length/frequency and height of the pressure spike).

In case of air inclusions, the “diesel effect” can create pressure spikes which far exceed the overload pressure.

The nominal pressure of the pressure transmitter should therefore be greater than the nominal pressure in the system to be measured.

1.5 Service/repairs

Please contact your sales office for repair of the reading devices.

1.6 Information about disposal

Recycling in line with WEEE
Buying our product means that you have the opportunity to return the device to the sales office after the end of its life cycle.

The WEEE (EU Directive 2002/96/EC) governs the return and recycling of old electrical appliances. In the B2B (business to business) field, as of 13 August 2005 manufacturers of electrical appliances are obliged to take back and recycle any electrical appliances sold after this date free of charge. Electrical appliances must therefore not be introduced into the “normal” waste streams. Electrical appliances have to be recycled and disposed of separately. All appliances which are affected by this guidelines are marked with this logo.

What can we do for you?
We therefore want to offer you a cost-neutral option for returning your old appliance to us. We will then recycle and dispose of your appliance in line with current legislation.

What do you need to do?
When your appliance has reached the end of its lifetime, simply send it to your sales office using a courier service (in the box). We will then take on any recycling and disposal measures. This means you have no costs and no troubles.

Any questions?
Please contact the sales office if you have any further questions.

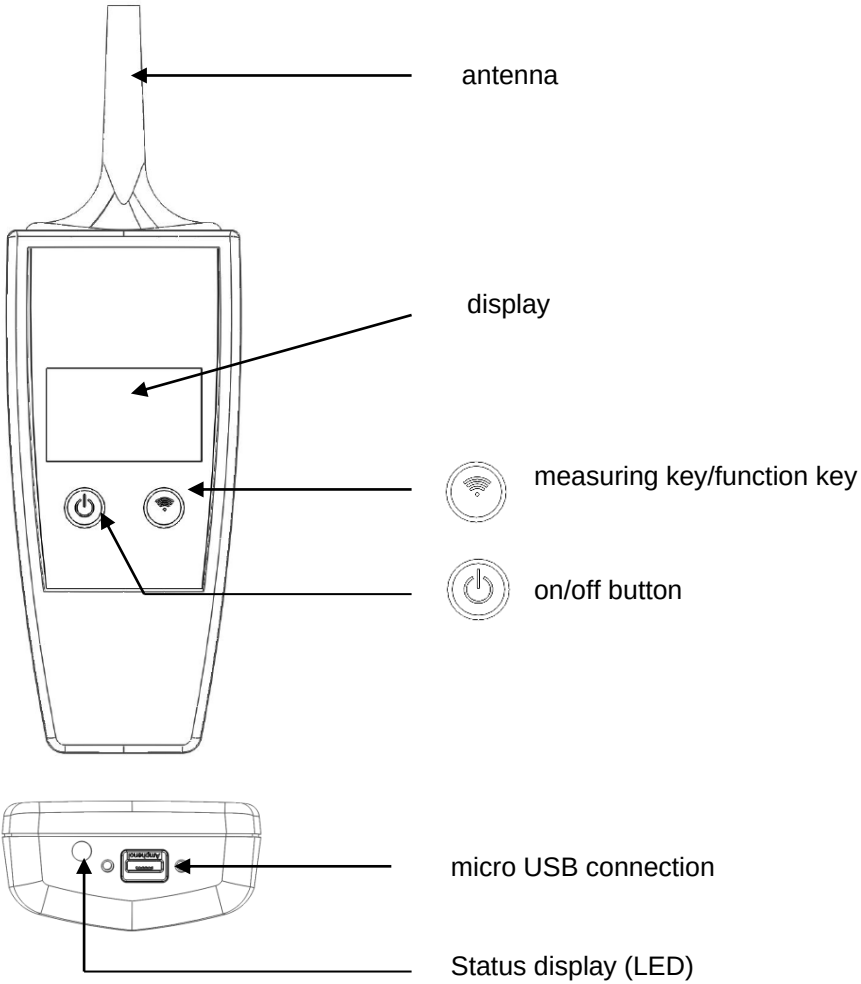
Information about battery disposal
In the EU, the disposal of batteries is subject to the Battery Directive 2006/66/EU, in Germany to the Battery Act (BattG) dated 25 June 2009 and internationally to the respective national legislation.

Batteries must never be placed in household waste.

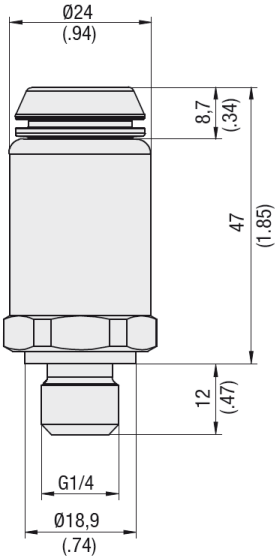
2 Scope of Supply

- reading device Reader-PT-RF
- power supply unit 230/110 V 1.2 A
- USB 2.0 cable
- software on CD
- Quick Guide

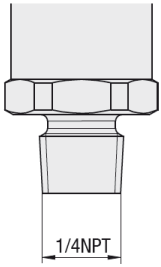
3 Reading device Reader-PT-RF



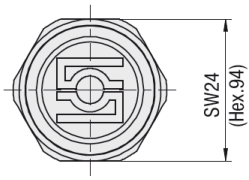
4 Pressure transmitter PT-RF



Process connection G1/4 (B04)



Process connection 1/4NPT (N04)



4.1 Installing the pressure transmitters

The pressure transmitter has a G1/4 or 1/4NPT process connection, depending on the version.

The pressure transmitter has to be installed in line with these connections.

Connection using STAUFF Test SDA adaptors can be fitted for direct connection with test couplings.

It should be ensured that there is sufficient space above the plastic cap to allow reading out the values with the Reader-PT-RF reading device.

The ambient temperature must not exceed + 85 °C / + 185 °F.

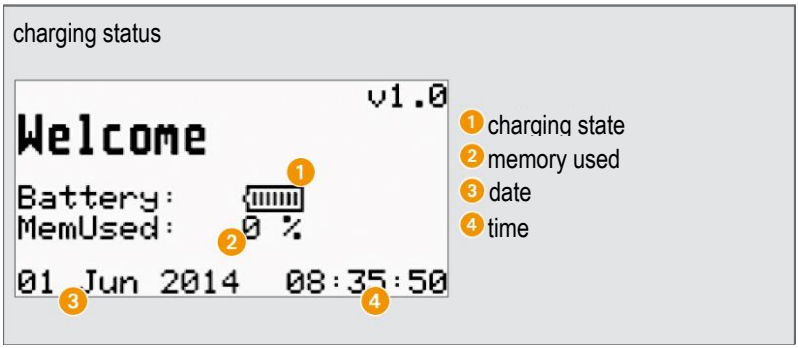
5 Carrying out a measurement

5.1 Preparing a measurement

Start the reading device before carrying out a measurement.

To do this, press the  key.

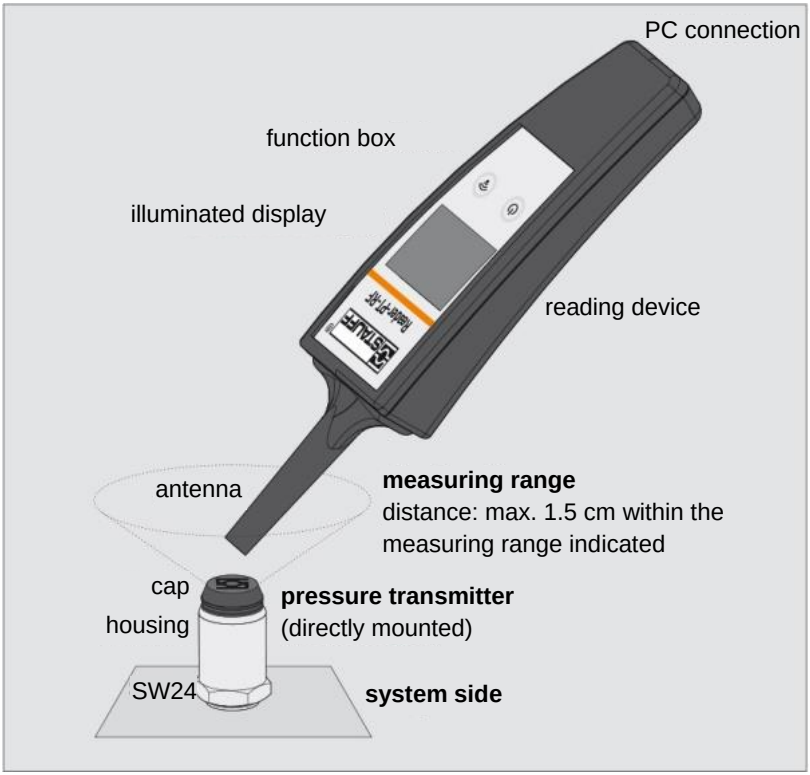
The reading device will start with the start screen which displays the charging state and the available free memory.



Set time and date before using the reading device. This cannot be carried out on the actual reading device but has to be done through a connection to a PC. The PT-RF-SOFT software allows setting the time and deleting the memory there.

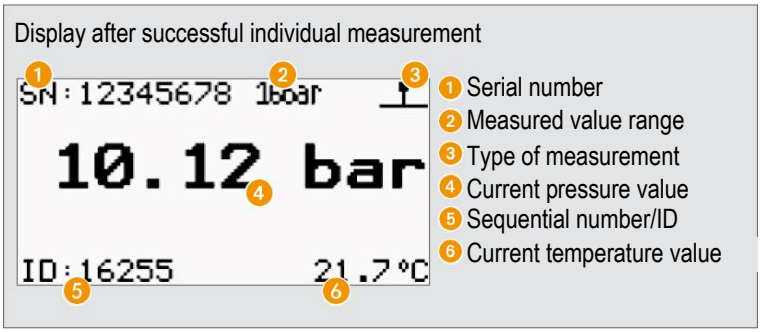
It can also be set whether pressure values should be displayed in bar and °C or in psi and °F.

Now hold the antenna in front of the pressure transmitter as shown in the read-out image below. To record a measuring value, the antenna has to remain within the measuring area during the measuring process.



5.2 Individual measurement

Now carry out a measurement by pressing the key once briefly.
The measured value will appear on the display within 0.5 s as shown below.



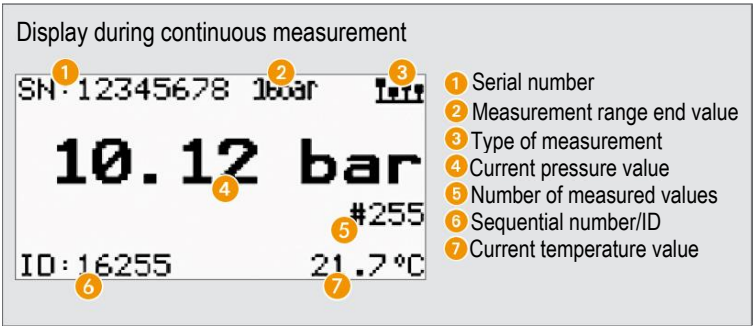
The measured value is stored in the memory of the reading device together with temperature, ID, serial number and pressure zones.
(Conversion bar <-> psi /°C <-> °F is done by the software)

If no connection to the pressure transmitter was established, an error message will appear on the screen. Ensure that the reading device is within the reception area and then try again.

5.3 Continuous measurement

To carry out a continuous measurement, hold the reading device in front of the pressure transmitter as for an individual measurement.

Press and hold the key to carry out a continuous measurement.

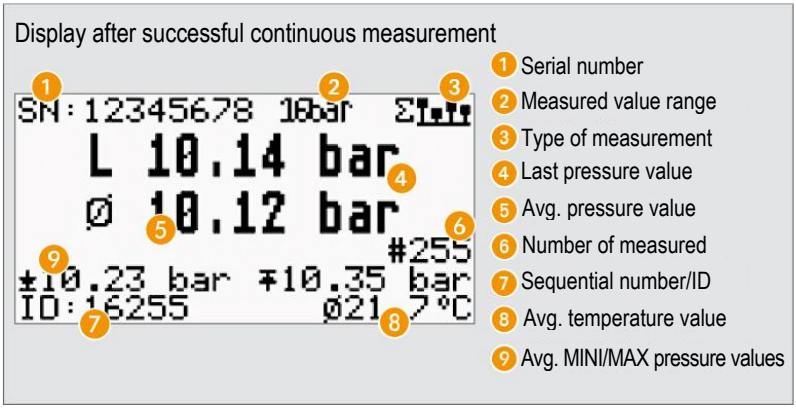


During the measurement, the continuous measurement symbol will appear in the upper right corner and the number of measurements will be shown below the pressure value #002.

Measurement results are stored in the memory with a resolution between 250 ms and 400 ms. The resolution depends on the orientation of the antenna towards the pressure transmitter and on the ambient conditions of the measurement.

"Connected" or "No Signal" will be displayed above the measured pressure value.

If "No Signal" or "No Reading Error Log" is displayed, immediately get closer to the measuring point again to continue the measurement. If no valid measuring value is received for 6 seconds, the continuous measurement will be stopped and an error message will be displayed on the screen. The measurement data up until the error message are stored in the memory.



Releasing the key ends the measurement and displays the result on a screen. Last measured value, mean value, MIN/MAX pressure value and mean temperature are shown on the display.
(Conversion bar <-> psi /°C <-> °F is done by the software)

All individual measurements and the measuring summary are stored in the internal memory.

6 Functions

6.1 Storage battery

The charging state of the power supply is indicated on the start screen.

A fully charged battery will be represented by a filled symbol. This state will allow approx. 6 hours of measuring or 1.800 measurement data sets.

If the battery is nearly empty, all segments of the symbol will disappear and a warning message will be displayed. In this case the reading device has to be charged.

To do this, connect the USB charger set supplied to the device.

If you continue to use the reading device despite the warning, the device will automatically turn off and give out another warning message. The device has to be charged immediately to prevent damage to the storage battery.

6.2 Energy saving function

To preserve the charging state of the battery, the energy saving function automatically turns off the reading device after 30 seconds of no interaction.

If the reading device is supplied via USB, it will not be turned off automatically and the device will remain active.

6.3 Status indicator (LED)

The status indicator (LED) is located next to the USB port on the reading device and has different functions.

If the reading device is connected to the charger or a PC via a USB cable, the LED lights up red to indicate charging of the lithium ion battery. If it lights up green, the storage battery is fully charged and the device can be disconnected from the PC or charger.

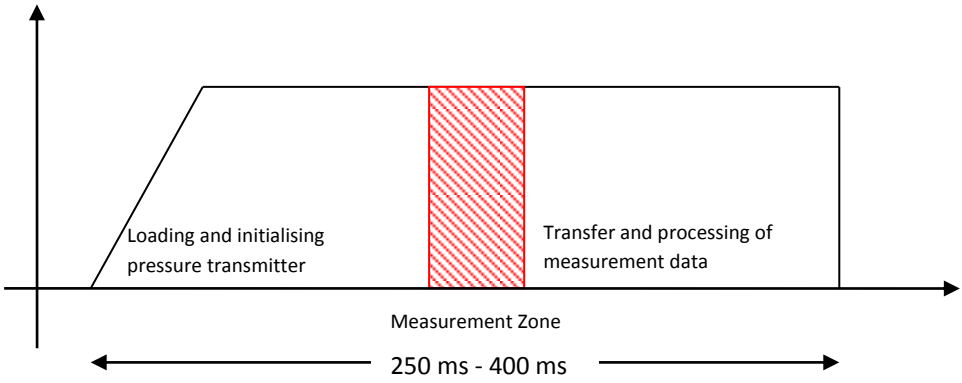
In addition to this charging indicator, the LED signals successful or failed measurements as sometimes a direct view of the display is not possible.

If the LED flashes green after a measurement, the measurement was successful. If it flashes red, an error has occurred.

6.4 Measurement process

A measurement process generally takes 250 ms. This requires the reading device to be at the optimum distance to the pressure transmitter. If the position is less than ideal this can result in a longer loading time or transmission time of the reading device. This can then take up to 400 ms.

The following graph shows an approximation of the measurement protocol.



7 Software

The software stored on the original STAUFF data medium allows the transfer of measurement values from the reading device to the PC. It allows easy display and processing of the measurement values as well as data export to Microsoft Excel®.

7.1 Installation

To install the PT-RF-Soft software, insert the data medium into your drive

or download from www.stauff.com

Run the installation file and follow the instructions.

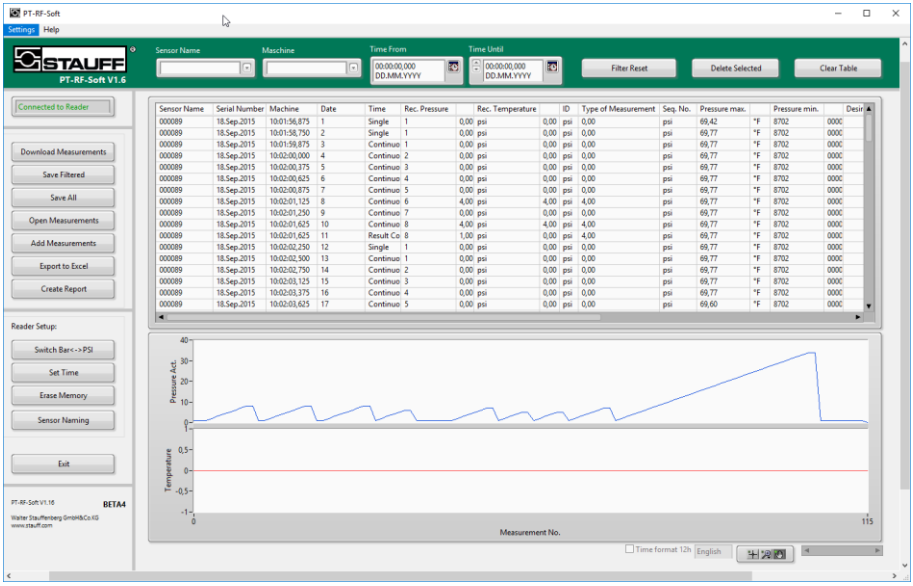
The installation process will install the software and the corresponding USB drivers.

Please connect the Reader to the PC before starting the installation. This ensures that the drivers are installed correctly.

7.2 The Interface

If the installation was successful, the software can be started from the Start menu on the PC.

After starting the user interface appears as shown below.



On the left side of the interface, the different functions of the software can be run on different buttons (download measurement data, storing, exporting, settings ...).

On the right side you will find the list of data that has been downloaded or opened. Above this list, the filters can be found.

Below the list of measurements you find the measurement graph, which always shows the actual displayed measurements in the list.

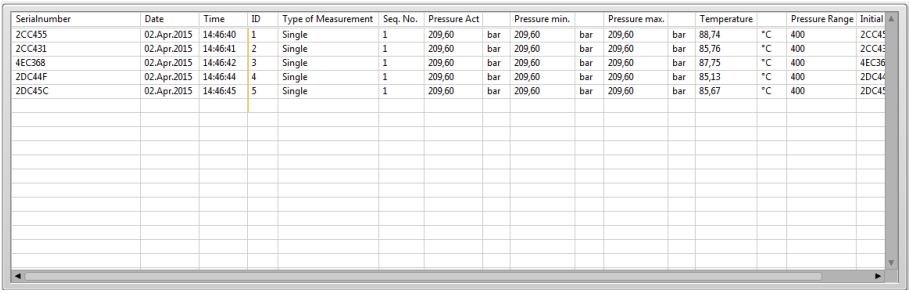
7.3 Connecting a reader

To connect a reader to the software simply use the supplied USB cable and connect the reader to the PC. After a couple of seconds the “Status field” in the upper left corner will change from red to green and you are ready to use the “Download” function.

During the first connection it is possible that finding the reader can take a half a minute.

7.4 The measurement list

This list displays all measurements that have been downloaded or opened.



Serialnumber	Date	Time	ID	Type of Measurement	Seq. No.	Pressure Act		Pressure min.		Pressure max.		Temperature		Pressure Range	Initial
2CC455	02.Apr.2015	14:46:40	1	Single	1	209,60	bar	209,60	bar	209,60	bar	88,74	°C	400	2CC45
2CC431	02.Apr.2015	14:46:41	2	Single	1	209,60	bar	209,60	bar	209,60	bar	85,76	°C	400	2CC43
4EC368	02.Apr.2015	14:46:42	3	Single	1	209,60	bar	209,60	bar	209,60	bar	87,75	°C	400	4EC36
2DC44F	02.Apr.2015	14:46:44	4	Single	1	209,60	bar	209,60	bar	209,60	bar	85,13	°C	400	2DC44
2DC45C	02.Apr.2015	14:46:45	5	Single	1	209,60	bar	209,60	bar	209,60	bar	85,67	°C	400	2DC45

The following information is stored with each measurement.

Sensorname:	Assigned name of the sensor. If no name has been assigned, it will show the serial number.
Serial number:	Serial number or custom naming of transmitter
Maschine:	Maschine name, that has been assigned

Date:	Date of measurement
Time:	Time of measurement
Pressure Act.*:	Pressure value (only for single or continuous) (When a continuous type of measurement is taken, the Result Cont. will show the average of all continuous readings)
Temp*:	Temperature value.
ID:	Measurement ID which is assigned and shown during taking the measurement.
Type of measurement:	This shows the type of measurement that has been used. If the measurement was a single measurement it is shown “Single”. If the measurement was a continuous measurement it is shown “Continuous” and the result of measurement type is shown as “Result continuous”.
Seq. No.:	In the case of a continuous measurement, this number is used as an indicator of the number of measurement. During a single measurement, this value remains at 1.
Pressure min.*:	Minimal pressure value when doing a continuous measurement.
Pressure max.*:	Maximal pressure value when doing a continuous measurement
Nominal pressure:	Configurable Nominal pressure
Tolerance +%:	Configurable positive tolerance of the measuring point

Tolerance -%:	Configurable negative tolerance of the measuring point
Maximum system pressure:	Configurable maximum system pressure
Minimum system pressure:	Configurable minimum system pressure
Customer:	Configurable customer name
Pressure range:	Pressure range of the sensor

*The units will be shown in separate columns

7.5 Function-Buttons

Download measurements

By pressing this button, all measurement contained in the reader will be downloaded and displayed in the data list.

All measurements remain on the Reader. They remain there until the memory is full or the “erase memory” function was used.

Save selected

By pressing this button, all measurements that are shown on the list are stored and saved as a .PT-RFs file format.

Save all

By pressing this button, all measurement are stored.

This file is stored in your computer as a .PT-RFs file format and can be opened with the PT-RF SOFT.

Open measurements

By pressing this button, data files with the file name .PT-RFs can be opened into the list again.

Import measurements

With this function you can import attach old .PT-RFs data lists which can be
added to below the data currently being displayed. This data can then be compared and saved.

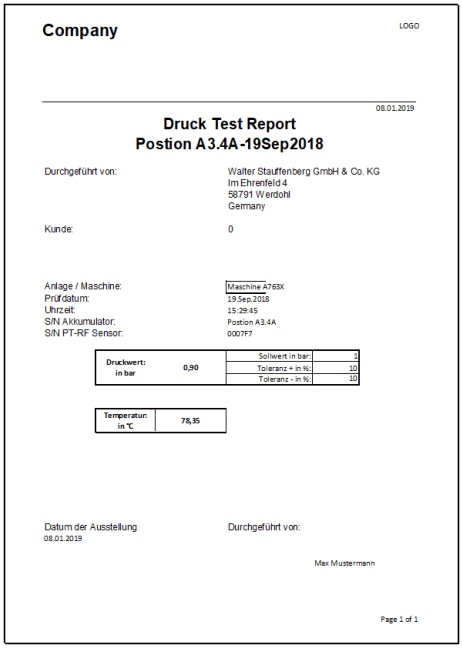
Export as csv

By pressing this button, all measurements that are shown on the list are saved as a csv file. You can open this file with excel or any spreadsheet program for further processing.

When you open the measurement data in Excel, it may happen that due to Excel Auto-formatting the measurement time is not displayed correctly. To correct this you need to set the "cell format“ to category "custom" and use the type "hh: mm: ss,000".

Create Report

This function creates a report file in Excel from the selected measurement record. Excel is necessary for this. The first selected data record is output in a report. Further marked measurement appear on a second page.



Company LOGO

08.01.2019

Druck Test Report
Postion A3.4A-19Sep2018

Durchgeführt von: Walter Stauffenberg GmbH & Co. KG
Im Ehrenfeld 4
58791 Werdohl
Germany

Kunde: 0

Anlage / Maschine: Maschine A763X
Prüfdatum: 19.Sep.2018
Uhrzeit: 15:29:45
S/N Akkumulator: Postion A3.4A
S/N PT-RF Sensor: 0007F7

Druckwert: in bar	0,90	Sollwert in bar:	1
		Toleranz + in %:	10
		Toleranz - in %:	10

Temperatur: in °C	78,35

Datum der Ausstellung
08.01.2019

Durchgeführt von:

Max Mustermann

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Example: Standard Report Sheet

Stauff provides various report templates with this software. These templates can be customized by the user, for example, with logo and lettering.

The report sheets can be found in the this directory:
C:\Users\Public\Documents\Stauff\PT-RF-Soft\Report-Templates

7.6 Set-Buttons

BAR <-> PSI

The reader can receive data in either Bar pr PSI. This setting can be changed using this function. If a reader is set to PSI, the temperature is always stored in °F. If reader is set to bar, temperature will be in °C.

The successful setting is confirmed with a feedback.

Set Time

This function set the current time of the PC to the reader.

Erase Memory

By using this function, the memory of the reader is emptied.

Restoring it again is not possible.

Sensor Naming

When using this button a sub menu will open. In this menu it is possible to attach a name to a serial number. This function enables the naming of a transmitter unique to a system of piece or equipment. After clicking “Add and Apply” in this menu the current list will be updated with the name used.

Time Format 12h

By clicking the 12h option in the settings menu the time format of the results are changed from 24h mode to 12h mode. This also changes the date format to US format.

Above the measuring table you find the information box, which informs you about the setting.

7.7 Filter Options

Above the measurement data list are three filter options can be found, Serial No of sensor, Time from and Time until. Here the data can be filtered by the sensor serial number or the time of the measurement. "Reset Filter" will reset all filters.

7.8 Deleting

Delete selected

This function deletes records from the table that were previously marked.

Clear table

This function empties all records from the table.

8 Maintenance/cleaning/repairs

Caution
Switch off the reading device before cleaning and disconnect it from the power supply.

Caution
Aggressive cleaning agents such as solvents, petrol or similar hydrocarbons must not be used. These substances could damage the housing or the display.

If the housing is dirty, wipe it with a soft, slightly damp cloth. Use a mild household cleaner for stronger contaminations.

8.1 Repairs and Service

Please contact your sales office for assistance.

9 Technical Data

9.1 Pressure transmitter

Materials	housing: stainless steel 1.4305 seal (B04): FPM (Viton®) cap: polyamide (glass fibre-reinforced)
dimensions:	59 x 26 mm / 2.31 x 1.02 in
weight:	80 g / .18 lbs
Temperature range	media temp.: -30 °C ... +135 °C / -22 °F ... +275 °F ambient temp.: -30 °C ... +85 °C / -22 °F ... +185 °F storage temp.: -50°C … +100 °C / -58°F … +212 °F
Response time	typ. 250 ms; max. 400 ms
Long-term stability:	acc. to IEC EN 60770-1 max. ± 0.25 % FS* /a
Vibration load:	in line with IEC 60068-2-6 (20 g)
Impact load:	in line with IEC 60068-2-27 (30 g) 11 ms
Temperature behaviour	max. ± 0.2 % FS* /10K (test condition 25 °C; 45 % v. F.)
Protection rating	IP69: Dust-tight and protected against high pressure and steam jet cleaning.

9.2 Reading device

Materials	ABS plastic housing
dimensions:	76 x 35 x 240 mm / 3.0 x 1.38 x 9.45 in
weight:	220 g / .49 lbs
Measurement/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
Storage battery:	lithium ion (3.7 V DC / 900 mAh)
Operating time	approx. 6 h (approx. 1800 individual measurements)
Temperature range:	ambient temp.: -20 °C ... +70 °C / -4 °F ... +158 °F storage temp.: -25 °C ... +60 °C / -13 °F ... +140 °F
Sampling rate	typ. 250 ms; max. 400 ms
Interface	Micro-USB
EMC compatibility:	EN 61326-1:2013 EN 300330
Protection rating	protection rating IP65: Dust-tight and protected against water jets