DPGUARD®

Installation Manual

Filtration manager for automatic calculation of corrected differential pressure measurement in refuelling applications

The DPGUARD® has been designed to give out corrected differential pressure values for all type of filter used in aviation refueling, bringing more safety aspects into refueling operations worldwide.
The DPGUARD® is a self-learning system, consisting of a fully automated touch screen operated minicomputer, integrated in a hard disk IP 65 Box (for wall mounting). It catches electronic signals from differential pressure sensors and related electronic flow signals to mathematically correct and calculate the related differential pressure functionality and give out corrected differential pressure values related to maximal / rated flow. There is no need of preconfiguration to special types of elements like Monitors, Coalescers, Micro filters, Clay – canisters etc.
It fully automatically detects the differential pressure behavior of the elements in use and gives out the most exact corrected differential pressure curve ever, closest to reality without test at test rig.
The differential pressure curve is always related to the actual differential pressure behavior of the elements in use. The mathematical functionality is independent of manufacturer or type of element. There is no need for calibration or adjustment to special type of filter element, based by the fully automated detection algorithm behind the DPGUARD®.
The DPGUARD® only needs to be configured to handle incoming signals from differential pressure sensors across the elements and related flow signals.
Additional hereto the user is asked to adjust warning and alarm levels to be informed if corrected differential pressure values are going to exceed predefined levels.
These warnings or alarms could be used to address digital output or Relays to automatically initiate relevant actions.
Due to the functionality of in built data logger the DPGUARD® is able to identify pressure increase or losses in differential pressure across the filter elements (e.g. pressure loss caused by ruptured filter elements) to automatically address digital output or relays to stop the fuelling process instantly without necessary human interference. All stored real as well as calculated differential pressure values together with status (ready, warning, alarm level) gives the highest level of documentation ever.
Beside DPGUARD®´s main function to calculate corrected differential pressure values – the DPGUARD® can also be used to remind about time or throughput related end criteria of filter elements. This could be helpful if lifetime related filter exchange should be done e.g. for Monitor filters (1 year lifetime). It also fulfills the ATA 103 requirement of recorded throughput of elements at time of inspection or change out.
For instant overview about the filter behavior - it gives out the stored corrected differential pressure curve as a graph to get an idea about the behavior of installed filter elements.

DPGUARD® has a very wide range of connectivity to be integrated in every known system via current (0 /4 … 20 mA), voltage (0 to 10 V), LAN, WLAN, Ethernet, CAN-BUS or other types of bus systems.
Ingress protection is IP 65 to be installed in safe area location.

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1 Safety instructions

This manual provides installation and routine maintenance instructions for the FAUDI Aviation DPGUARD® Filtration managing system. There is only a very short introduction into the operation of the DPGUARD®
Read this manual and ensure that you fully understand its content before you attempt to install, use or maintain the DPGUARD®.
Important safety information is highlighted in this manual as WARNINGs and CAUTIONs.
The DPGUARD® is a fully automated touch screen computerized device to catch up measured signals from differential pressure measurement across filter elements and related flow signals. It´s intention is to give out most exact calculated corrected differential pressure values together with related warning or alarm status or output signals for safe operation during refuelling or filtering steps in Aviation industry.
Work on electrical equipment is to be conducted by trained specialists only, according to valid regulations.
Attention must be paid to the requirements of VDE 0100 when setting up high-power electrical units with nominal voltages of up to 1000V, including associated standards and stipulations.
Check the details on the type plate to ensure that the equipment is connected to the correct mains voltage.
Protect against touching dangerously high electrical voltages. Before opening the equipment, it must be switched off and hold no voltages. This also applies to any external control circuits that are connected.
The equipment is only to be used within the permitted temperature and operation ranges.

Check that the location is weather-protected. It is recommended that the DPGUARD® should not be exposed to either direct rain or moisture.
Installation, maintenance, monitoring and any repairs may only be conducted by authorised personnel with respect to the relevant stipulations.
All changes of the standard DPGUARD® with parts which are not specified or approved by FAUDI Aviation Sensor GmbH, as well as repair and service with unspecified parts will result in loss of the CE conformity and guarantee.
In case of doubt, please turn directly to FAUDI Aviation Sensor GmbH, respectively to your FAUDI Aviation Distributor or Service organisation.

1.1 Designated use

The DPGUARD® is suitable for continuous operation during refuelling or filtering steps in the aviation industry. It´s intention is to catch up electrical signals coming from electrical sensors to detect pressure and flow values. These signals are evaluated and recalculated to give out corrected differential pressure values related to filter elements in use and their actual filtering behaviour. If the filter elements are exposed to higher levels of differential pressure / flow velocity and/or related corrected differential pressure than intended, Relays for alarm or warning could be addressed. The integrated data logger stores al measured data along the whole life of filter elements installed. Additionally hereto it provides the functionality to detect and give out warning or alarm status if drops in corrected differential pressure values are detected.

The manufacturer is not liable for damages caused by improper or non-designated use.

1.2 Installation, commissioning and operation

Please note:
Installation, electrical connection, commissioning, operation and maintenance of the measuring system must only be carried out by trained technical personnel.
The technical personnel must be authorised by the system operator to conduct the specified activities.
Technical personnel must have read and understood these Operating Instructions and must adhere to them.
Before commissioning the entire measuring point, check all the connections for correctness.
Ensure that electrical cables are not damaged.
Do not operate damaged products and secure them against unintentional commissioning.
Mark the damaged product as being defective.
Measuring point faults may only be rectified by authorised and specially trained personnel.
If faults cannot be rectified, the products must be taken out of service and secured against unintentional commissioning.
Repairs not described in these Operating Instructions may only be carried out by manufacturer or by a designated service organisation.

1.3 Operational safety

The DPGUARD® has been designed and tested according to the state of the art and left the factory in perfect functioning order.
Relevant regulations and European standards have been met.
As the user, you are responsible for complying with the following safety conditions:
Installation instructions
Local prevailing standards and regulations.

1.4 Return

If the device requires repair, please send it in cleaned condition to the appropriate sales centre. Please use the original packaging, if possible.
! Note!
When sending for repair, please enclose a note with a description of the error and the application.

1.5 Notes on safety icons and symbols

Warning!
This symbol alerts you to hazards. They can cause serious damage to the instrument or to persons if ignored.

Caution!
This symbol alerts you to possible faults which could arise from incorrect operation. They could cause damage to the instrument if ignored.

Note!
This symbol indicates important items of information.

2 Identification

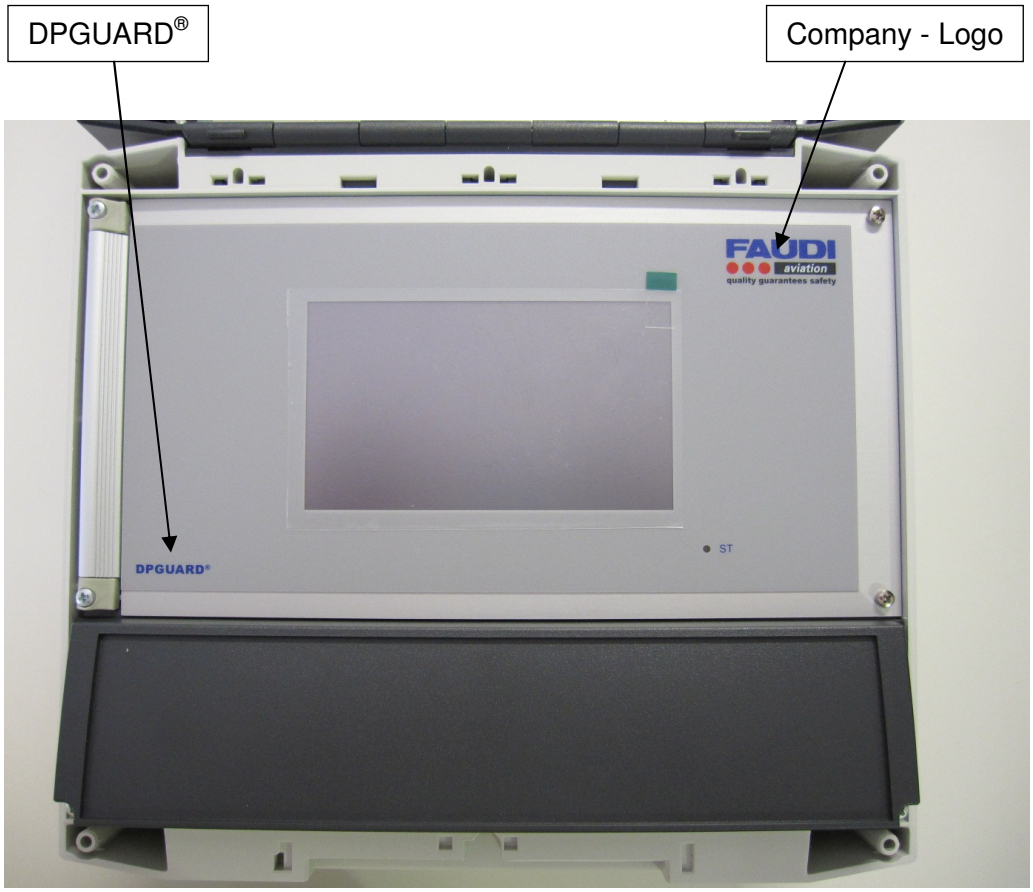
2.1 Incoming acceptance, transport, storage

You should have received a delivery like shown in the Chapter 2.3.

Make sure the packaging is undamaged!
Inform the supplier about damage to the packaging.
Keep the damaged packaging until the matter has been settled.
Make sure the contents are undamaged!
Inform the supplier about damage to the delivery contents. Keep the damaged products until the matter has been settled.
Check that the scope of delivery is complete and agrees with your order and the shipping.
The packaging material used to store or to transport the product must provide shock protection and humidity protection. The original packaging offers the best protection. Also, keep to the approved ambient conditions (see "Technical data").
If you have any questions, please contact your supplier or your sales centre responsible.

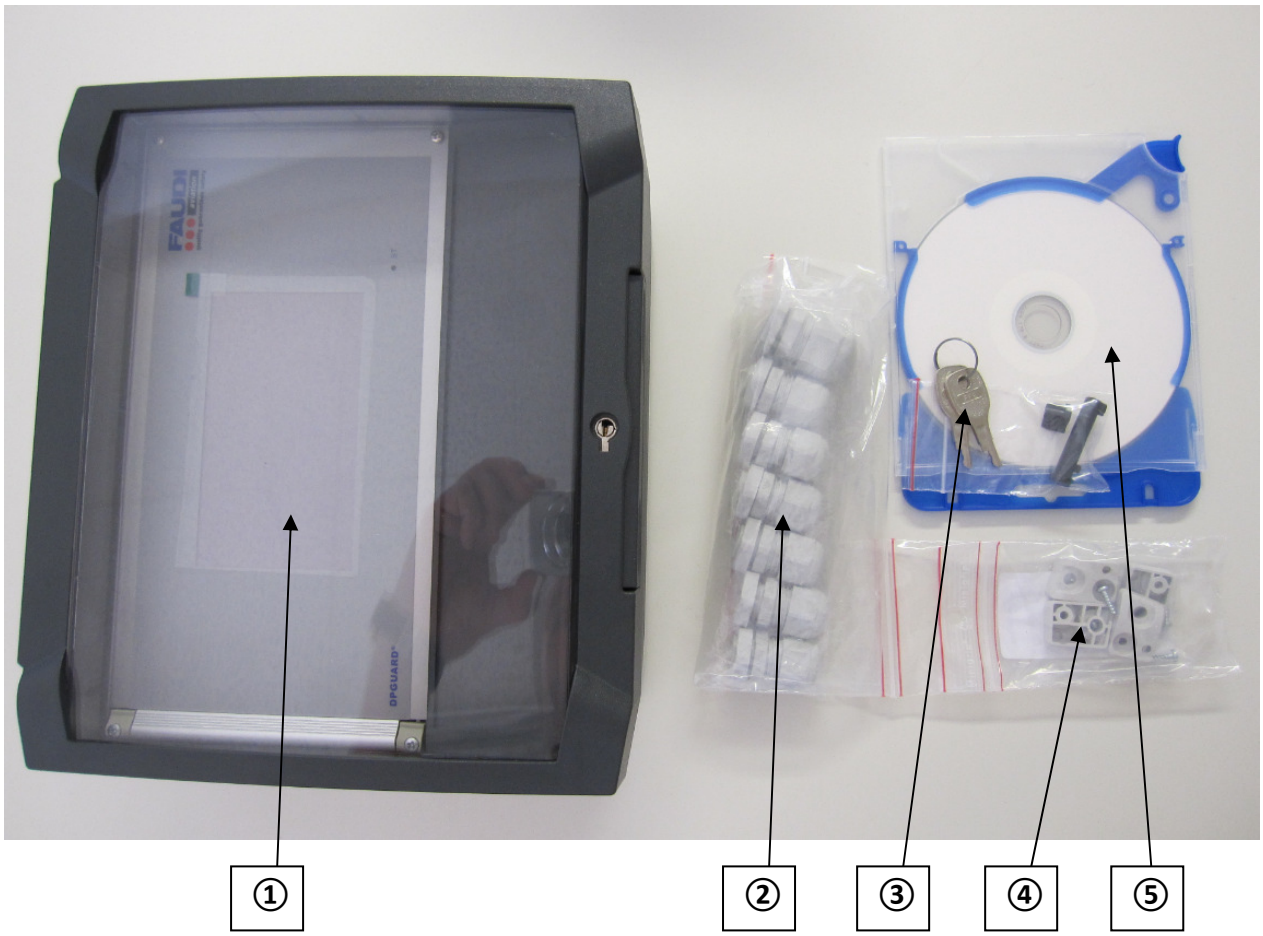
2.2 Product structure

The DPGUARD® is marked with the following, permanently identification marking.



2.3 Scope of delivery

The following items are included in the delivery:



A set comprises of:

① - DPGUARD® – mounted in cabinet with ingress protection of IP 65 for wall mounting
USB-Memory Stick with 4 GB included

② - Mounting kit for wall mounting

③ - Key locker with two keys

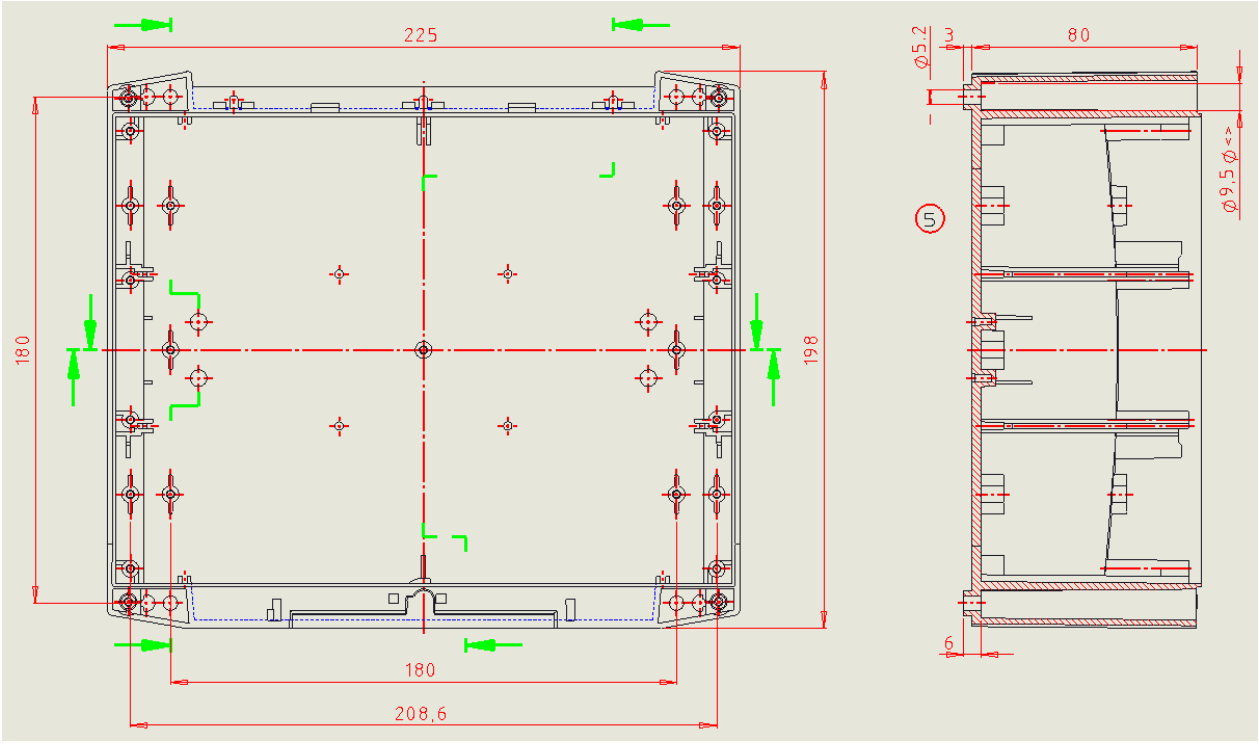
④ - PG-fittings

⑤ - CD with manuals in different languages

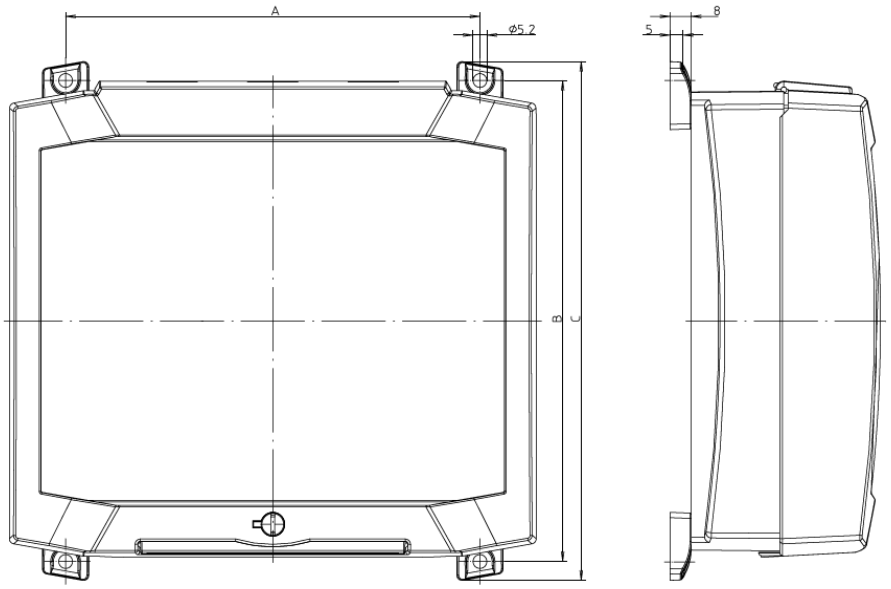
3 Installation and dismantling

3.1 Dimensions

Version 1) Secure mounting by the use of inside fixation holes 180 * 180 mm square



Version 2) Fixation by the use of hangers – fixation holes: 186,5 * 206 mm square



with:
A = 186,5 mm
B = 206 mm

C = 220,3 mm

3.2 Mounting Position

The DPGUARD® should be mounted on walls in safe area location, vibrant free. Do not mount the DPGUARD® in harsh environment / direct solar radiation or without weather/rain protection

3.3 Place of Installation

Select the installation location so that there is easy access. In case of adjustment, change of values or readout of memory – you need to easily access the device.
Make sure that the DPGUARD® and related assemblies are secured safely and vibration-free.

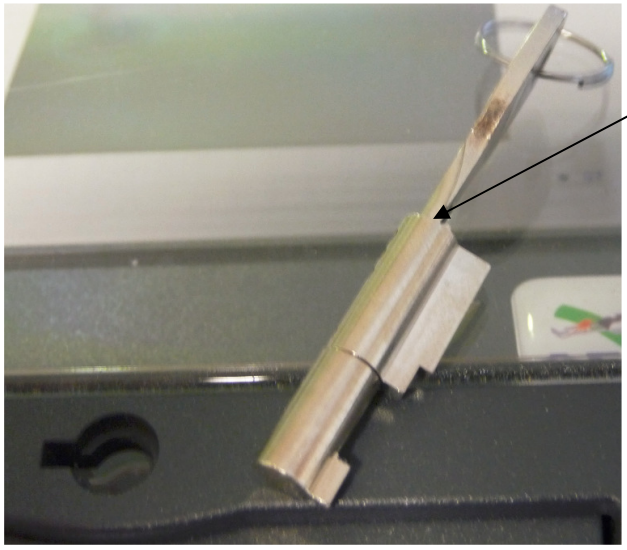
4 Housing

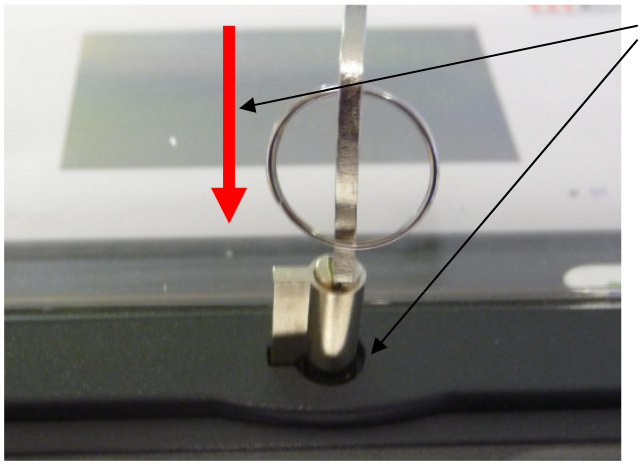
4.1 Installation of Key locker

DPGUARD will be delivered without mounted key locker (first units have been send out with mounted key lockers to be delivered via airfreight. This sometimes resulted in vacuum inside the housing). Key lockers intention is to prevent misuse. DPGUARD could even been used with or without key locker.

4.1.1 Step by step installation procedure for key locker

open key locker and put key locker into opening at front door. Adjust it till end position is reached.



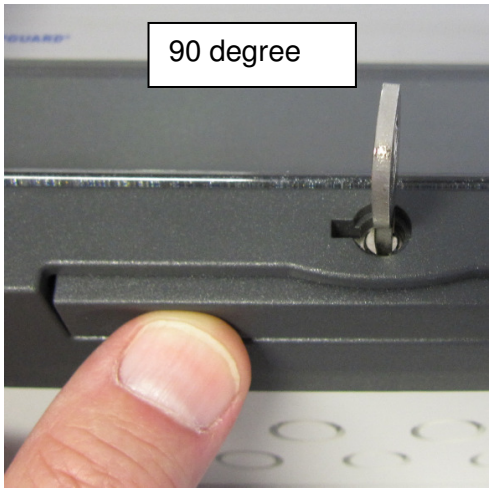


Close front door till it clicks and shut key locker to remove the key.

4.2 Key locker to open the front door of the DPGUARD

The DPGUARD is installed in an IP65 housing with plexiglas door.
To prevent misuse the door could be locked. It is locked when it left the factory.
To unlock – please proceed as follows:

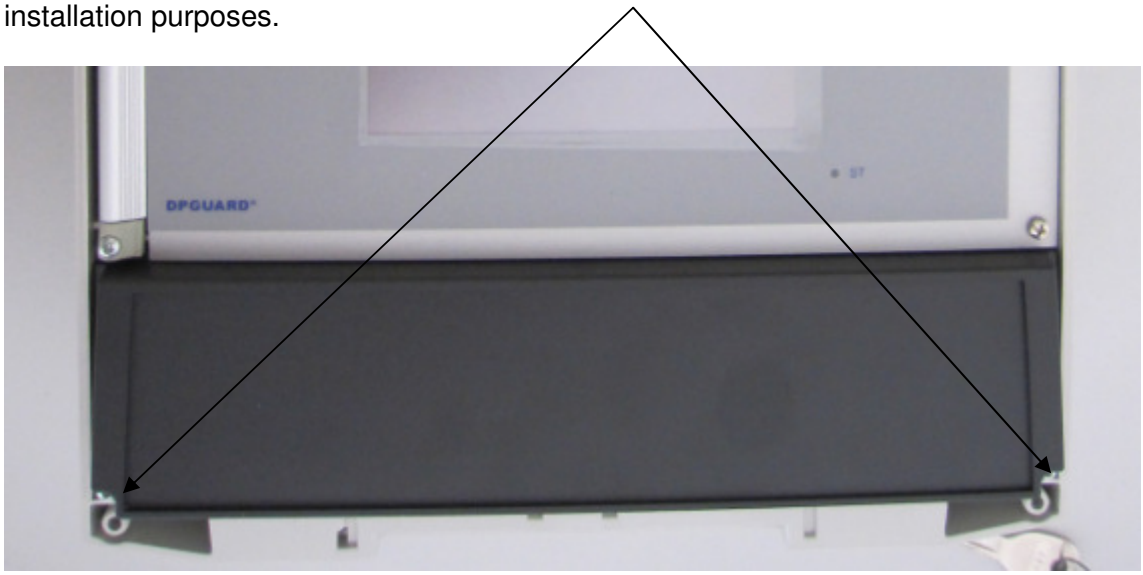
Insert the key into the keyhole and turn it 90 degree counterclockwise.
Than open the housing by pressing the locking device



Open the door carefully. You will feel a slight resistance during opening (100 degree of opening angle) to overcome. The resistance is very useful to held the door open during service operation.

4.3 Access to mainboard

Disconnect the service cover by the use of a screw driver to get access to the mainboard for installation purposes.

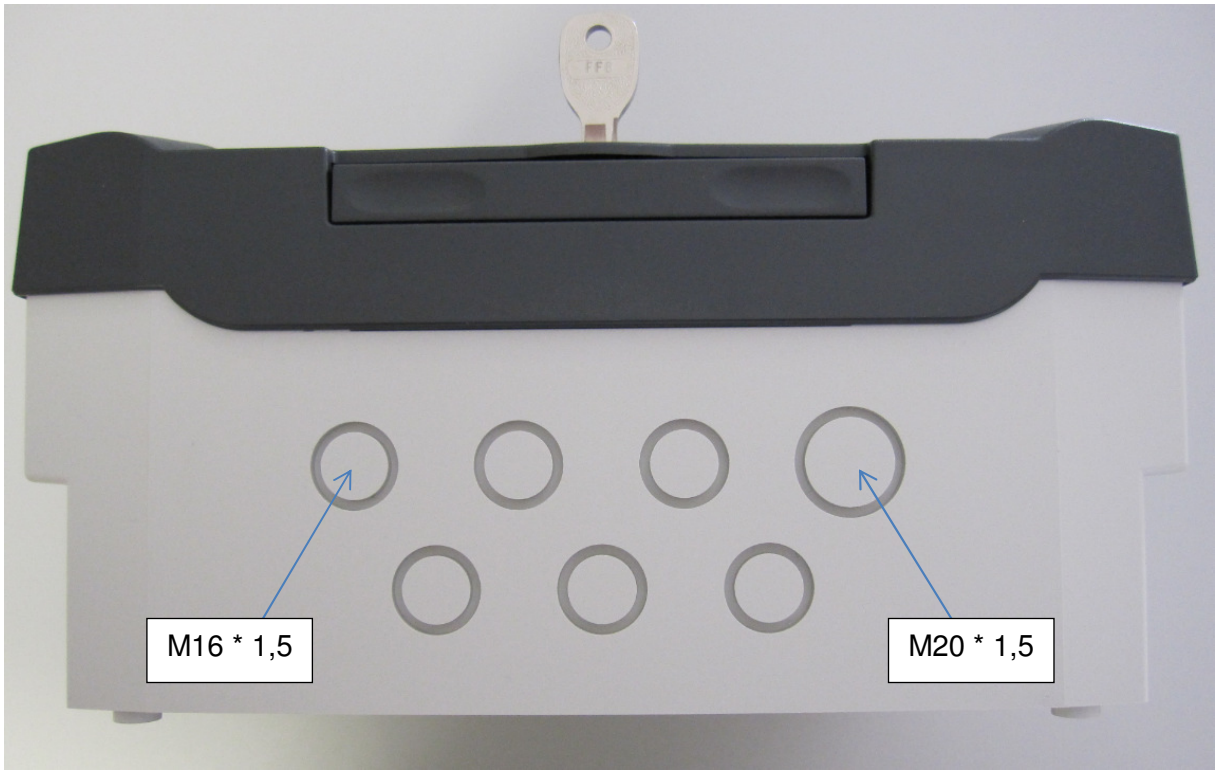


Now you can see the plug connector for power input, analog sensor input and Relays output etc.
In front of any cable connection please install the required numbers of PG-fittings to bring the cables in – see next chapter.

4.4 Installing the PG-fittings for cabling purposes

4.5 Preparation for assembling

The DPGUARD has 7 prepared holes on his bottom side to bring the cables into the housing. These holes could either be used for single cables or multiwire cables.
Please make sure to assemble the required number of PG - fittings ② in front of wall mounting.



View from bottom side

Identification	Wire cross section / clamping range
M16 * 1,5 mm	4 to 10 mm
M 20 * 1,5 mm	6 to 12 mm

Following cables are effective:

Pressure sensor:

1 times differential pressure	1 times M16*1,5 mm	2-wire cable
or		
2 times Pressure	2 times M16*1,5 mm	2 wire cable

Flow sensor:

1 times Flow	1 time M 16*1,5 mm	2-3 wire cable

Relays output:
3 Relays 1 time. M20*1,5 mm multi wire cable

Power supply:
1 time 24 VDC 1 time M16*1,5 mm 2 wire cable

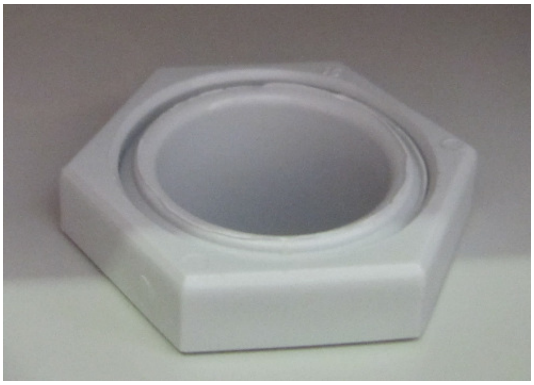
4.5.1 Preparation of housing

Procedure:

1) Remove residual plastic in prepared hole for PG-fittings e.g. by the use of a cutting edge.

2) Remove plastic and screw in the PG-fitting into the prepared hole

3) Connect the counter nut and pull it tight.



Proceed with all other required PG-fittings.

4.6 Cabling

The DPGUARD® is a fully automated computerized touch screen terminal to give out corrected differential pressure values representing the differential pressure under full flow / rated flow conditions of elements in use. Additional hereto you can either connect an AFGUARD® free water sensor to check for water quantity. AFGUARD signal could be combined with flow signal to give out the average water quantity for every refuelling.
To do so, the system need to get most exact information about differential pressure, flow conditions and water quantity. The better the information is the better the system can work.
The terminal area of the DPGUARD is preconfigured to receive signals from:

Pressure transmitter:
One or two pressure transmitters:
Pressure measurement at inlet and pressure measurement at outlet
or
DP as differential pressure signal across the elements.

AFGUARD free water signal coming from inlet or outlet of filter vessel (in most cases it will be the outlet to check against free content of water additional / alternatively to other methods of free water measurement / checks.

Differential pressure tranmitters:

In most cases signals coming from dp transmitters are provided as mA-signasls. DPGUARD is preconfigured to receive 4 – 20 mA differential pressure signals (could be changed to 0 to 20 mA in “setup”).

Flow meter:

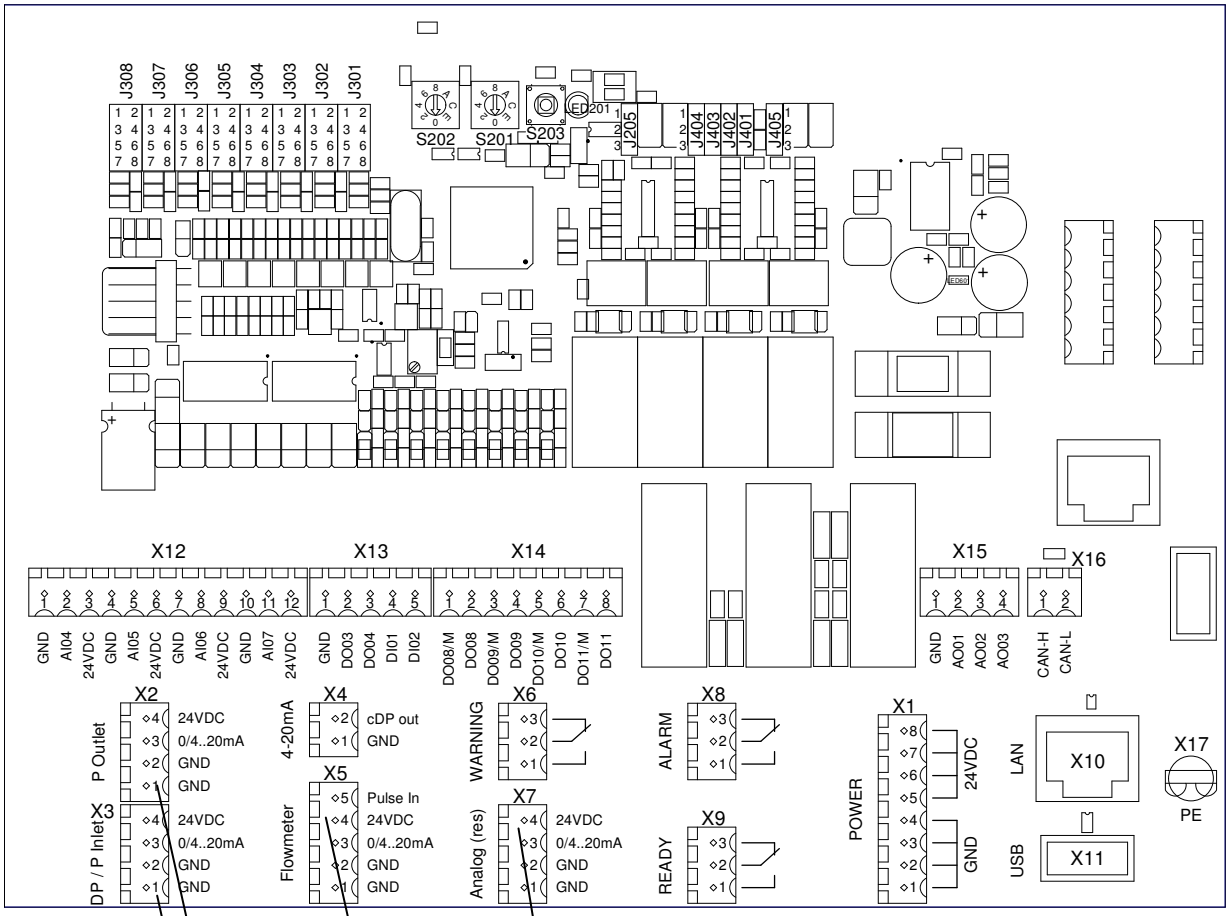
Flow metering signals could be either delivered as 0 / 4… 20 mA, 0 … 10 V or pulsed signals.

The DPGUARD is preconfigured to receive current or pulsed flow signals using one flow meter.

AFGAURD free water sensor:

AFGAURD delivers a 4 to 20 mA signal with additional information about water slugs (> 20.3 mA) These signals could be handled by DPGUARD. Pre-setting is 4 to 20 mA with water slug functionality (>> 1000 ppm).

4.7 Mainboard



dp flow AFGUARD®

5 Electrical connection

The DPGUARD is prepared to be connected to following accessories

Sensors like:
Differential pressure ①
or
Pressure transmitters for Inlet pressure ① and Outlet pressure ②

Flow signal ③

Analogue output signal for corrected differential pressure readout ④

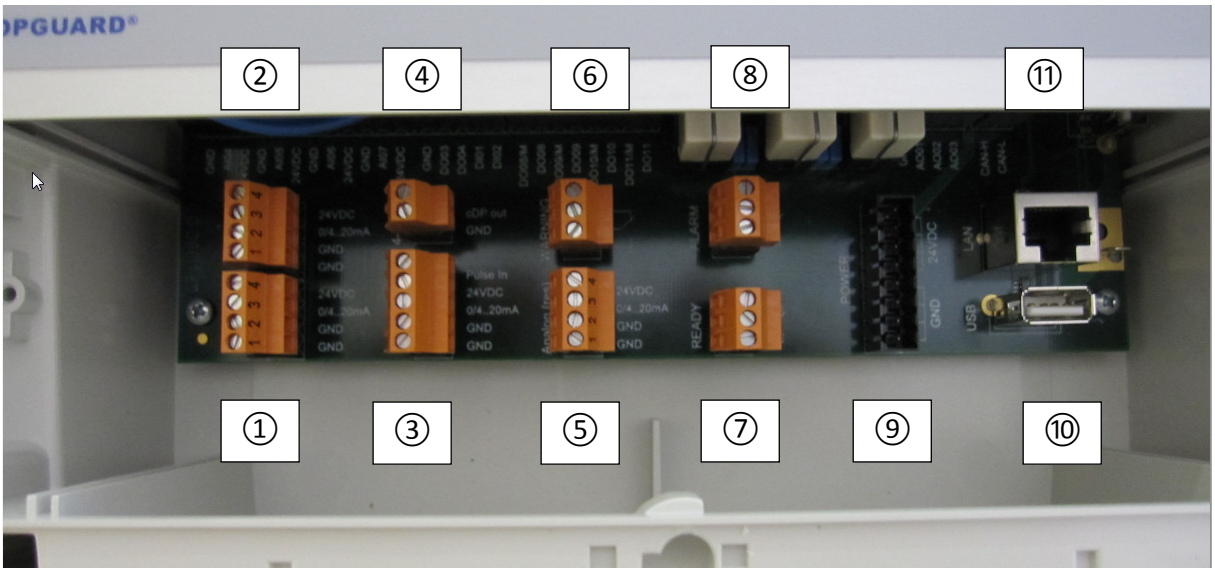
Analogue Input signal for AFGUARD® free water sensor ⑤

Relays outputs for:
Warnings ⑥
Ready ⑦
Alarm ⑧

Power supply with 24 V DC (24 VDC) ⑨
Four connectors for Ground and four connectors for 24 VDC

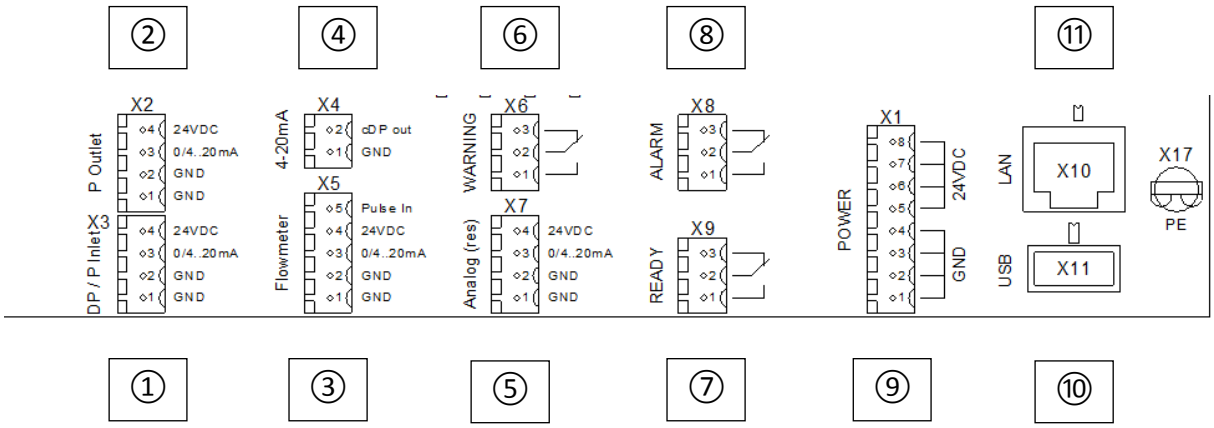
USB-connector for Update and Data logger ⑩

Ethernet connector for communication purposes ⑪



Each plug connector could be used separately. Analogue inputs do have 4 clamps, Relays do have three, Flow sensor does have 5 clamps and Analogue output signal only two. Possibility of misuse is minimized.

5.1 Mainboard – main connectors



5.1.1 MAIN Plug Connections:

Bezeichnung	Funktion
①	Analogue input signal for differential pressure sensor or Input pressure sensor (Front end or Inlet of filter)
②	Analogue input signal for pressure sensor at outlet of filter
③	Analogue input signal from flow sensor. Could either be current (mA based or pulsed)
④	Analogue output signal for corrected differential pressure readout
⑤	Analogue input for AFGUARD®
⑥	Relays output for warning signal
⑦	Relays output for Ready signal
⑧	Relays output for Alarm signal
⑨	Power supply with four times ground and for times 24 VDC connectors
⑩	USB – port for USB-stick e.g. for update purposes and / or data logger
⑪	Ethernet connector for communication purposes

5.2 Mainboard – extension connectors

DPGUARD consists of different extension connectors to receive digital input signals as well as additional analogue inputs plus several digital and analogue output signals.
Few of them are already programmed:

Digital input DI01:
Connector X 13

To be used to reset ALARM status by the use of external switch.
Digital Input signal should stay on for more than 1 second to reset ALARM
- With internal power supply – only use + 24 VDC (GRND internally connected.
- External power supply – use both, 24 VDC + GRND

Digital input DI02:
Connector X 13

To be used to activate actual free water measurement and average functionality during fuelling. Activation due to trigger signal that should stay on – e.g. coming from counter or pump relay.
Digital Input signal should stay on during whole fuelling step
use 24 VDC (GRND internally connected).
- External power supply – use both, 24 VDC + GRND

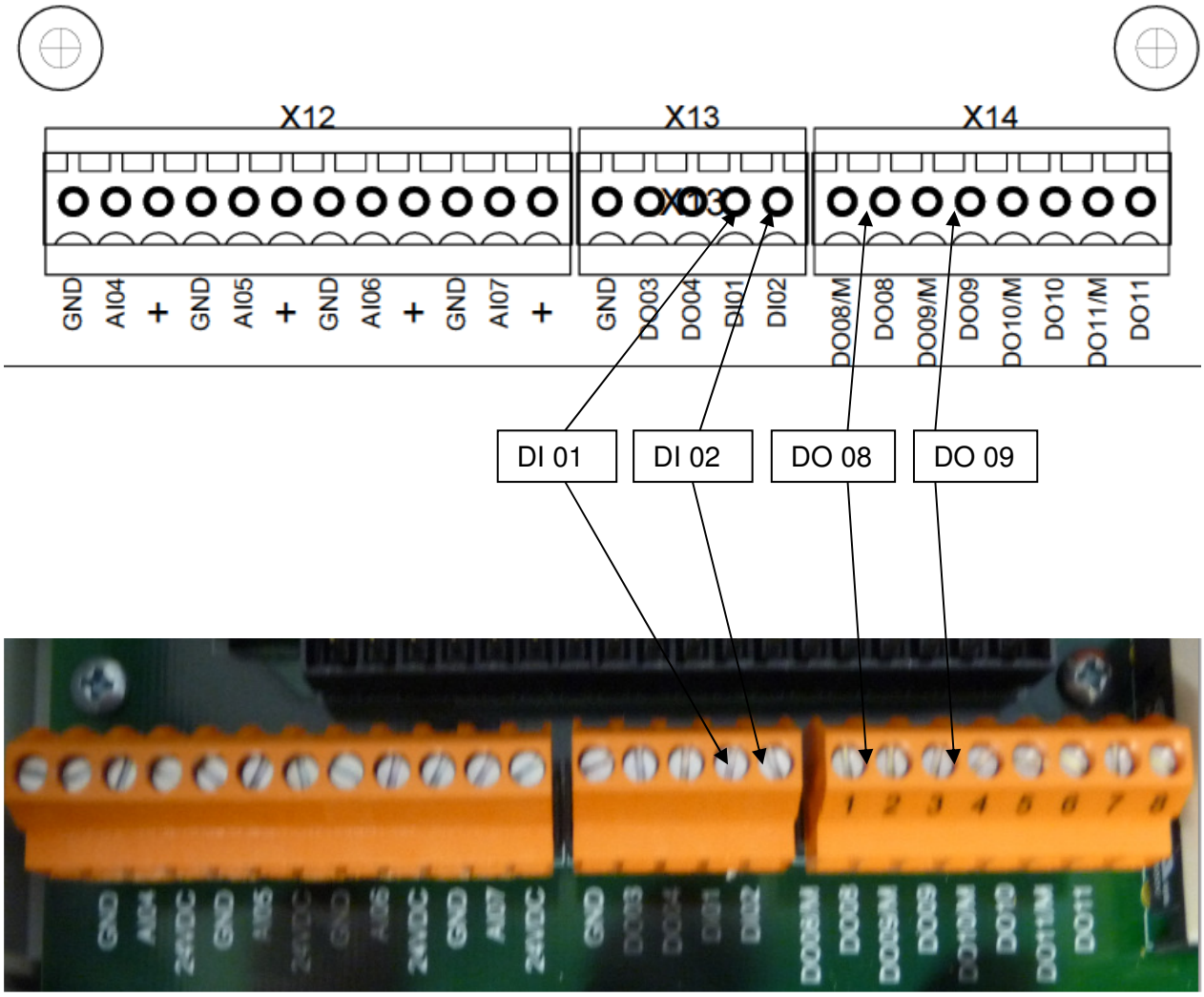
Additional Relay 1:
Connector X 14

To be used to indicate flow status of more than 50 % of rated flow
Use PIN DO08 and DO08M (must be looped)
Normally open contact

Additional Relay 2:
Connector X 14

To be used to indicate flow status less than 50 % of rated flow
Use PIN DO09 and DO09M (must be looped)
Normally open contact

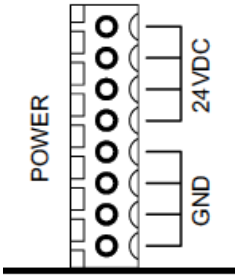
5.2.1 Location of additional inputs and relays:

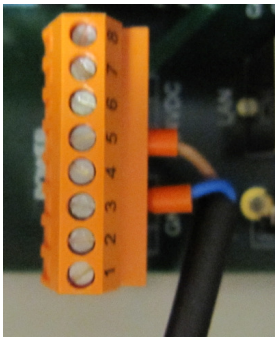


6 Cabling / Connection to sensors

6.1 Power connection

Before wiring the device, ensure that the supply voltage corresponds to the specification on the nameplate. The DPGUARD® usually is preconfigured for 24 V DC power supply.





There are four connectors for ground connection and four to connect to 24 VDC. Please proceed as shown in picture to set DPGUARD under power.

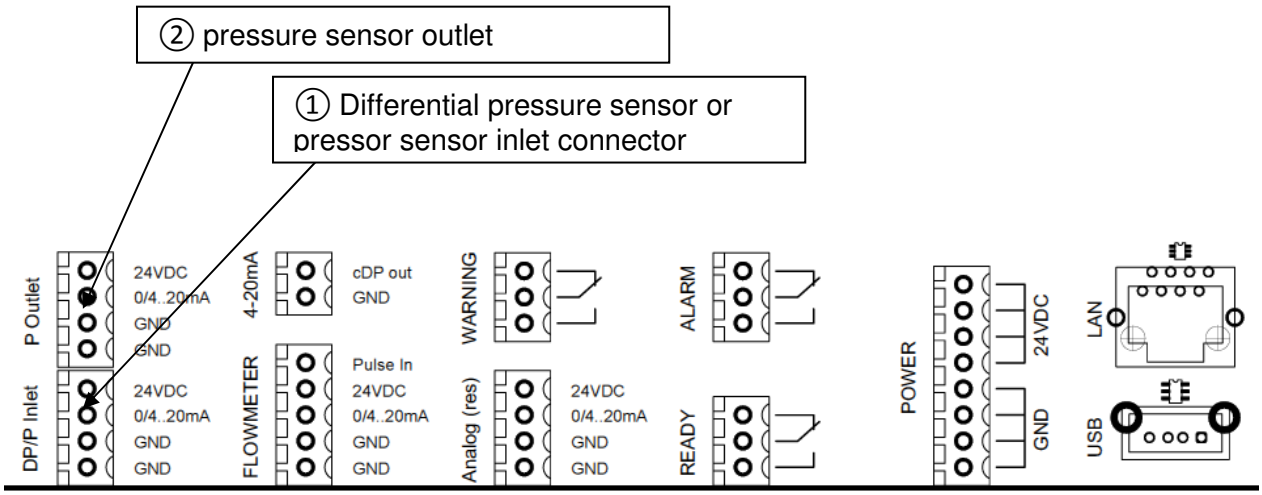
6.2 Connection to sensor

DPGUARD´s intended use is to catch up signals from differential pressure sensors as well as signal from flow sensors. The more precise these signals are the better the results of DPGUARD could be.

6.2.1 Pressure

Pressure signals could be delivered via differential pressure measurement or from two pressure sensors – one upstream the other one downstream of filter elment / vessel of interest.
These signals could either be 0 / 4 … 20 mA or 0 to 10 V.
Our recommendation is to use 4 to 20 mA ranged current signals.

6.2.1.1 Connection of pressure measurement



Picture of connection board

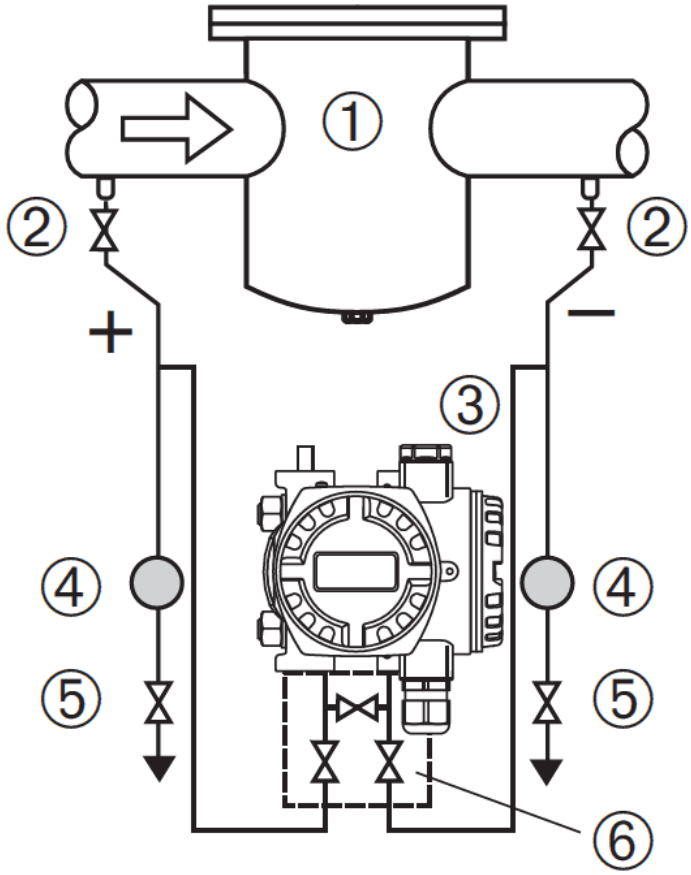
Elaboration of terms on pressure sensor screen:

①	Connector for differential pressure sensor or single inlet pressure sensor.
②	Connector for single outlet pressure sensor (use only if ① is single inlet pressure sensor)

6.2.1.2 Differential pressure sensors

Please refer to original manual delivered together with related sensors.

Example of Installation – Endress+Hauser Deltabar S PMD 75:



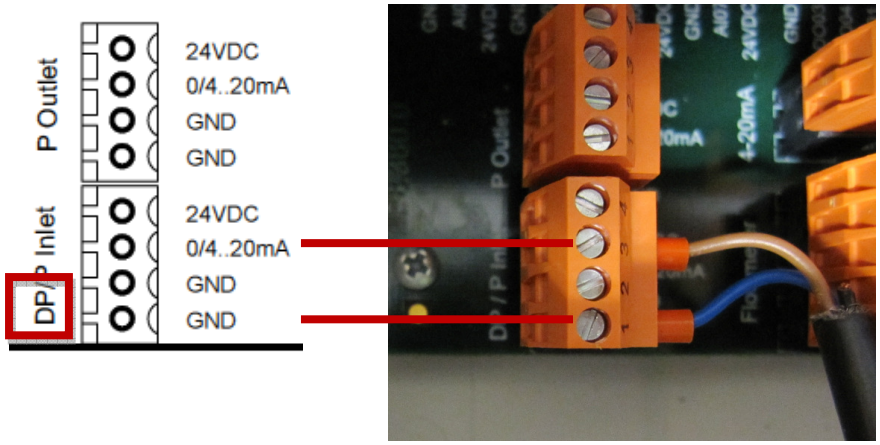
①	e.g. filter
②	Shut-off valves
③	Deltabar S, e.g. PMD 75
④	Separator
⑤	Drain valves
⑥	Three-way valve manifold

Remark A)
Mount the Deltabar S below the measuring point so that the pressure piping is always filled with liquid and gas bubbles can run back into the process piping.
Remark B)
When measuring in media with solid parts, such as dirty liquids, installing separators and drain valves is useful for capturing and removing sediments.

Source: E+H Deltabar S PMD75

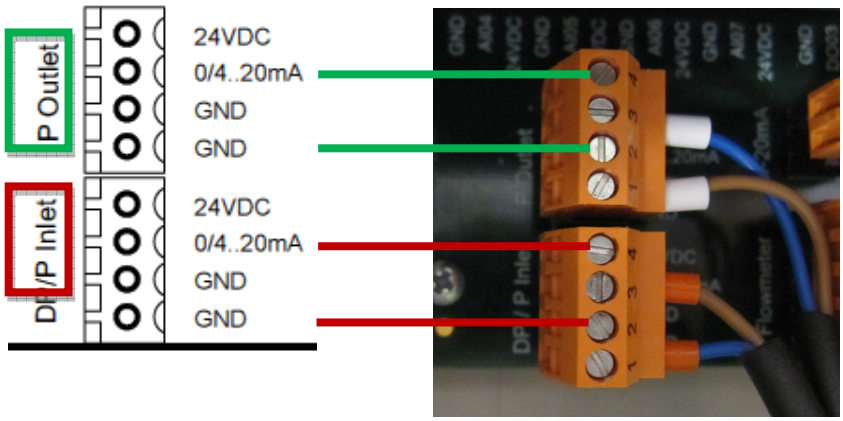
6.2.1.2.1 Cabling - Connection to differential pressure transmitter

Please refer to original manual delivered together with differential pressure sensor



Example shows the installation of one differential pressure transmitter DP.

You can also use two single pressure transmitters instead of one differential pressure transmitter.

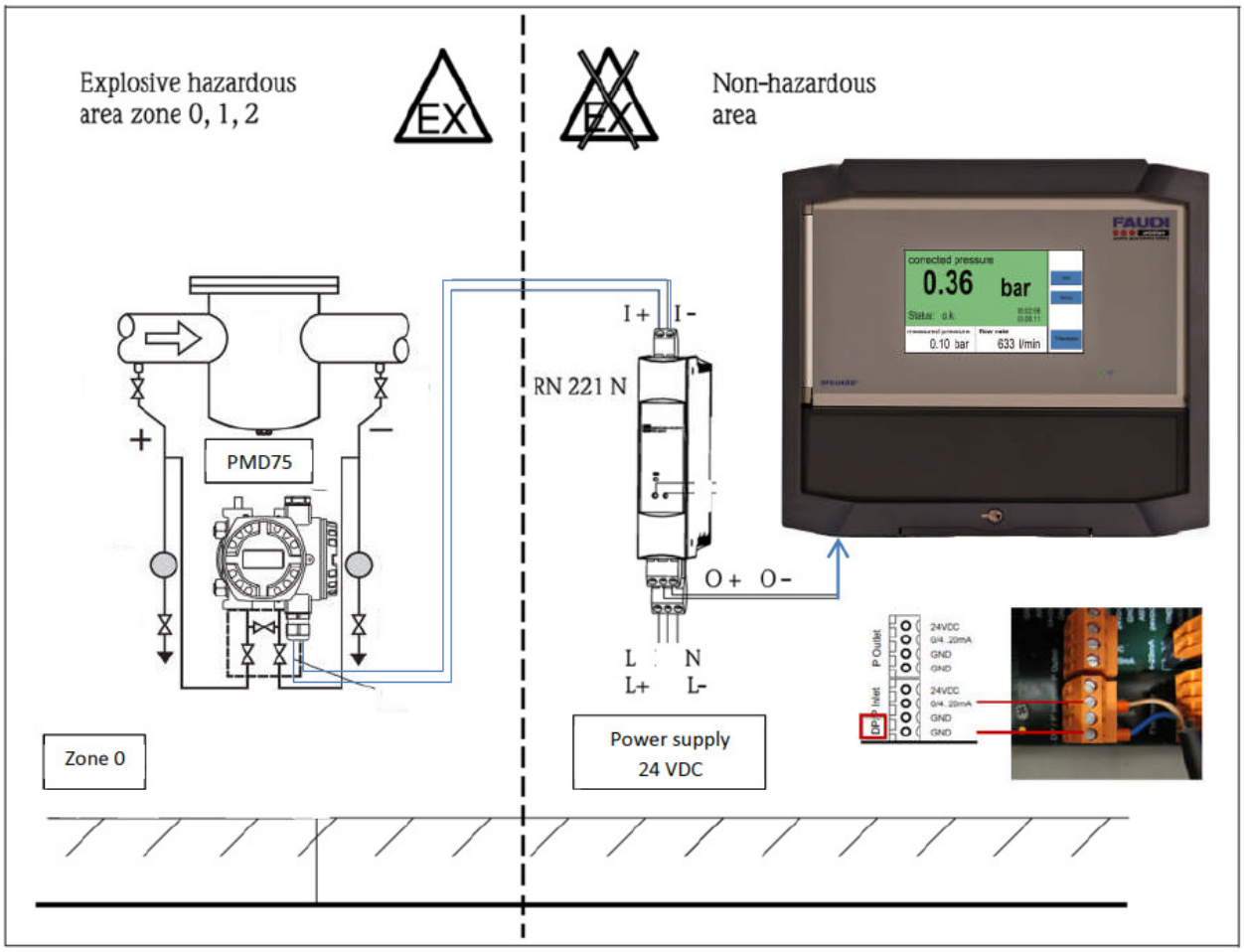


Example shows the installation of two single pressure transmitters – P Inlet and P Outlet

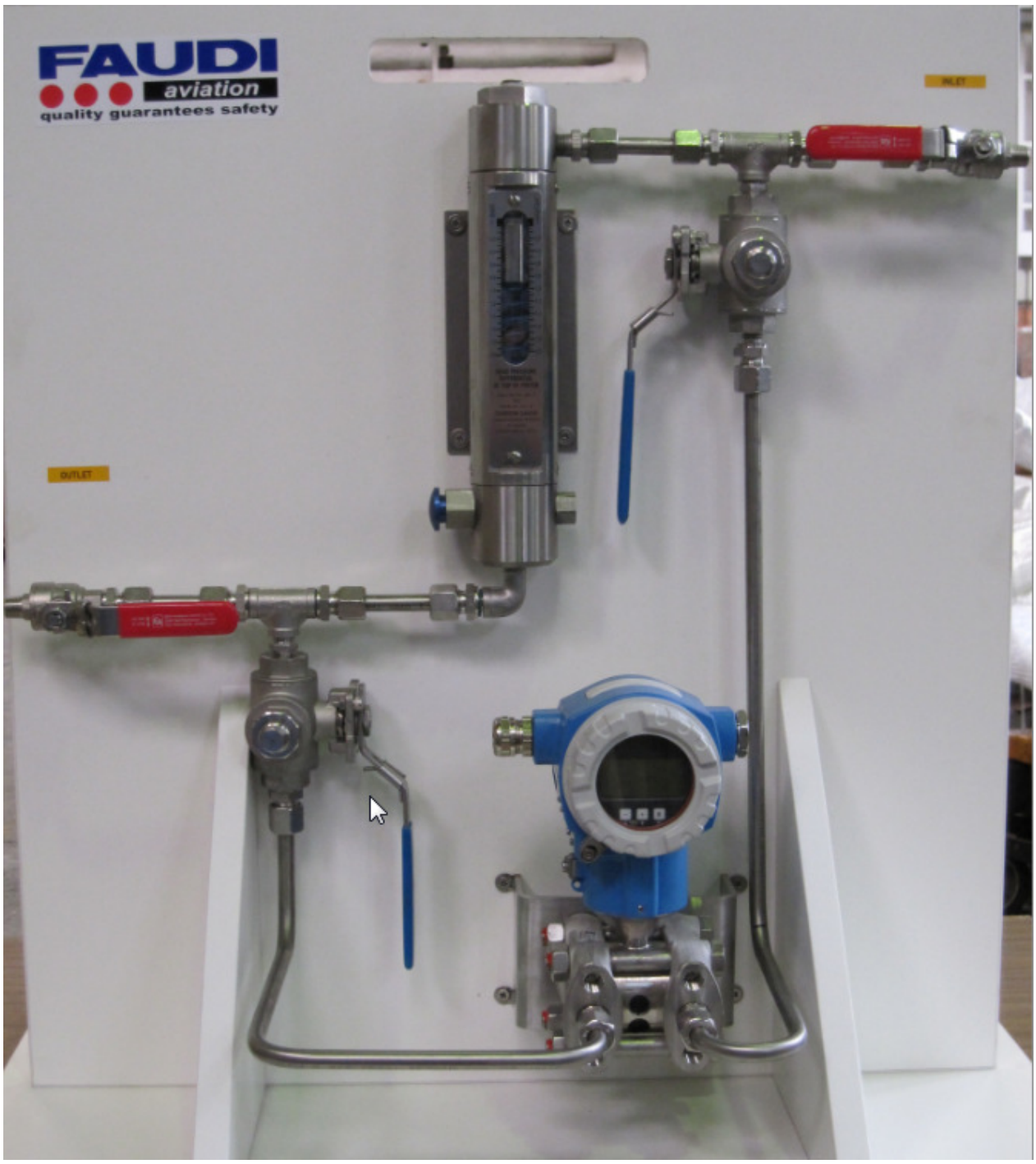
6.2.1.2.2 Hazardous area – differential pressure measurement

Please refer to manuals delivered with differential pressure transmitter and related barrier for hazardous area use.

Example for the connection of PMD75 (differential pressure transmitter from E+H) in combination with barrier RN221 N:



Make sure to install the differential pressure transmitter according to manufacturers recommendation:
Mount the differential pressure tranmitter below the measuring point so that the pressure piping is always filled with liquid and gas bubbles can run back into the process piping – see next picture.

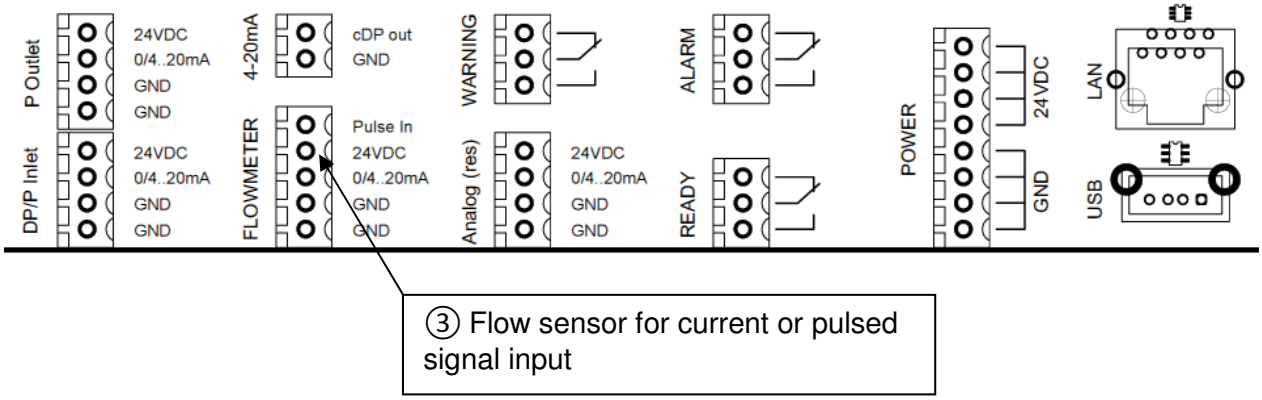

FAUDI
aviation
quality guarantees safety
INLET
OUTLET

Flow

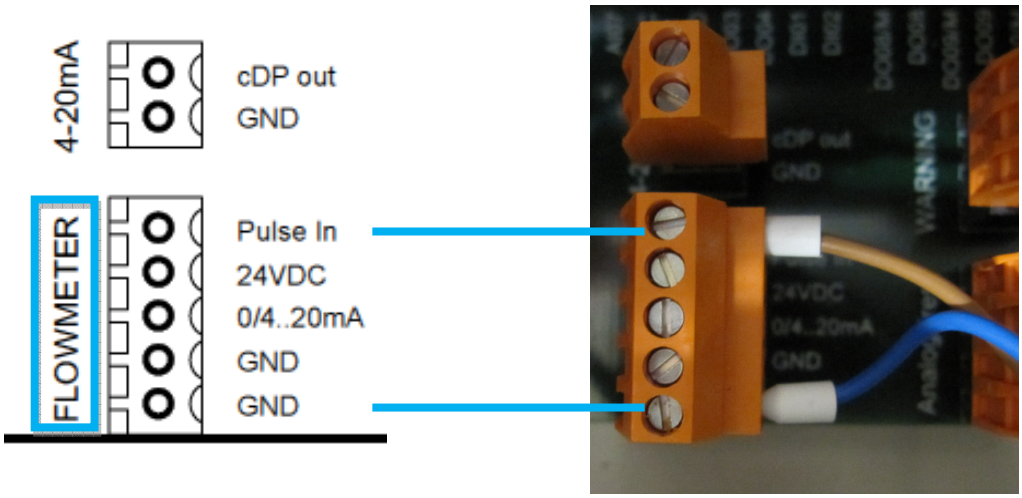
Examples of flow measurement sensors to be connected to no ③ plug connector:

Pulser – e.g. Veeder Root
or
Ultrasonic flow measurement – e.g. Prosonic Flow 91WA1 Clamp On from Endress+Hauser
or
Deltatop flow measurement via DO62C1F (differential pressure) etc.

Connector

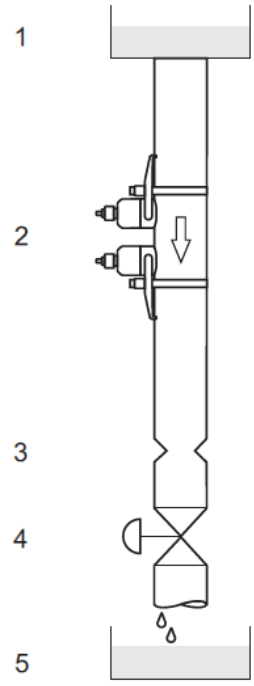


6.2.1.2.3 Cabling - Connection to flow sensor



Example shows the cabling for a pulsed flow signal coming from the flow sensor.
In case of current signals for flow tranmitters please use the 0/4…20mA connector instead of Pulse in.

6.2.1.3 Prosonic Flow measurement

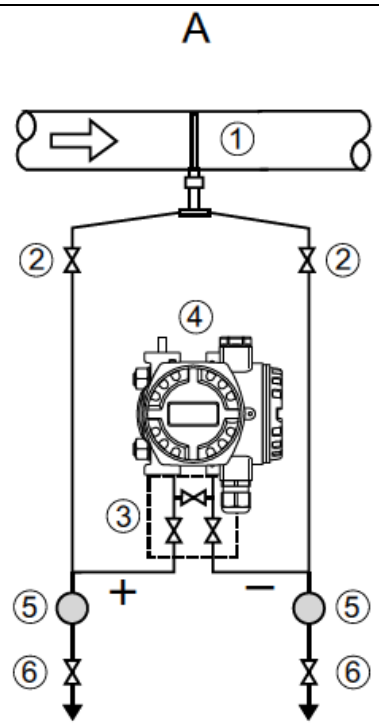


Sensor arrangement:

①	Supply tank
②	Measuring sensors
③	Pipe restriction
④	Valve
⑤	Filling tank

(Source: E+H Prosonic Flow measurement)

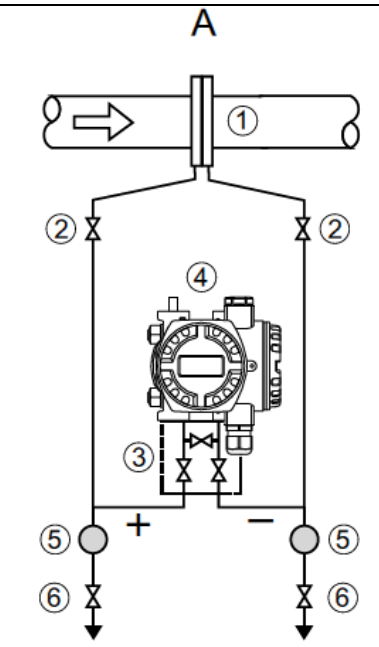
6.2.1.4 Deltatop – with pilot tube flow measurement



①	Pilot tube
②	Shut-off valves
③	Three-way valve manifold
④	Differential pre sure transmitter e.g. Deltabar
⑤	Separator
⑥	Drain valves

Mount the measuring device below the measuring point so that the pressure piping is always filled with liquid and gas bubbles can run back into the process piping.
When measuring in media with solid parts, such as dirty liquids, installing separators and drain valves is useful for capturing and removing sediments.

6.2.1.5 Deltatop – with orifice plate flow measurement



①	Orifice plate
②	Shut-off valves
③	Three-way valve manifold
④	Differential pressure transmitter e.g. Deltabar
⑤	Separator
⑥	Drain valves

Mount the measuring device below the measuring point so that the pressure piping is always filled with liquid and gas bubbles can run back into the process piping.
When measuring in media with solid parts, such as dirty liquids, installing separators and drain valves is useful for capturing and removing sediments.

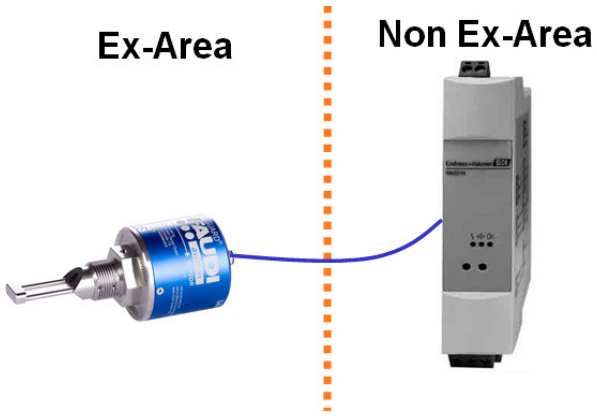
In every case: Refer to original installation manual of sensor supplier.

6.3 Cabling / connection to AFGUARD® free water sensor

Connection of AFGUARD® free water sensor should be done in the same way as described under 6.2.1.2.1

AFGUARD® delivers a 4 to 20 ma signal that is straight linear for the calibrated range of measurement.

Please ensure to use a barrier if AFGUARD® is intended to be used in hazardous area with reference to original manual of AFGUARD® free water sensor.



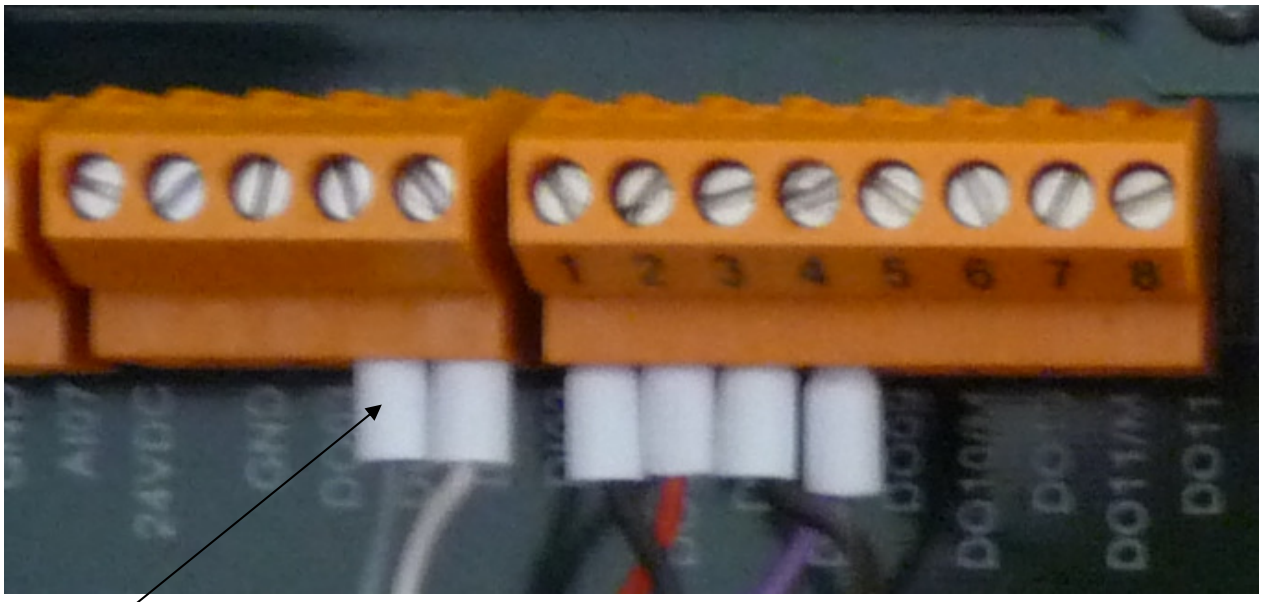
AFGUARD gives out signal for free water content in the calibrated range:
In most cases 0 to 50 ppm
and
water slug signal if free water content is much higher than high range calibration (> 500 ppm)

6.4 Cabling of external signals

6.4.1 Reset Alarm by the use of an external switch

Critical Alarm situation are screened permanently and must be reset. This could either be done by the use of the touch screen (Than housing must be opened) or by the use of an external switch (key locked switch is recommended).

Connection:

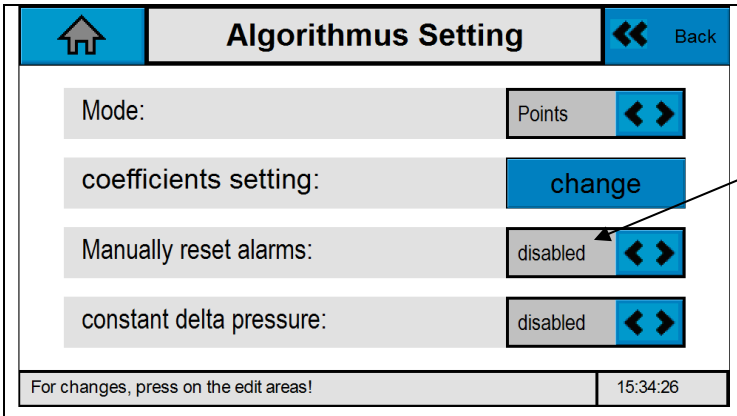


Digital input DO01:
Connector X 13

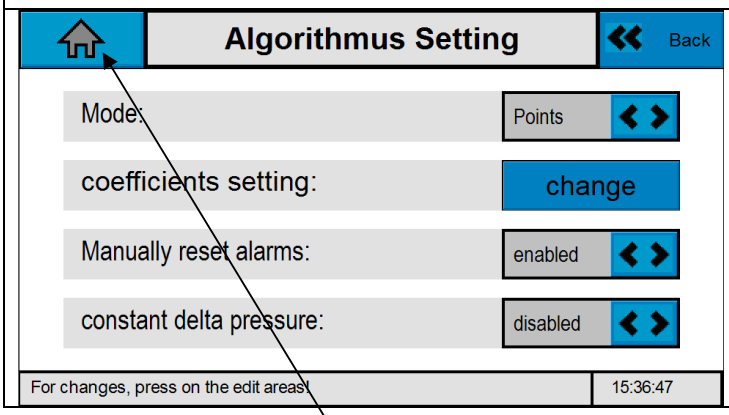
To be used to reset ALARM status by the use of an external switch. Digital Input signal should stay on for more than 1 second to reset ALARM
- With internal power supply – only use + 24 VDC (GRND internally connected.
- External power supply – use both, 24 VDC + GRND

6.4.1.1 Software settings

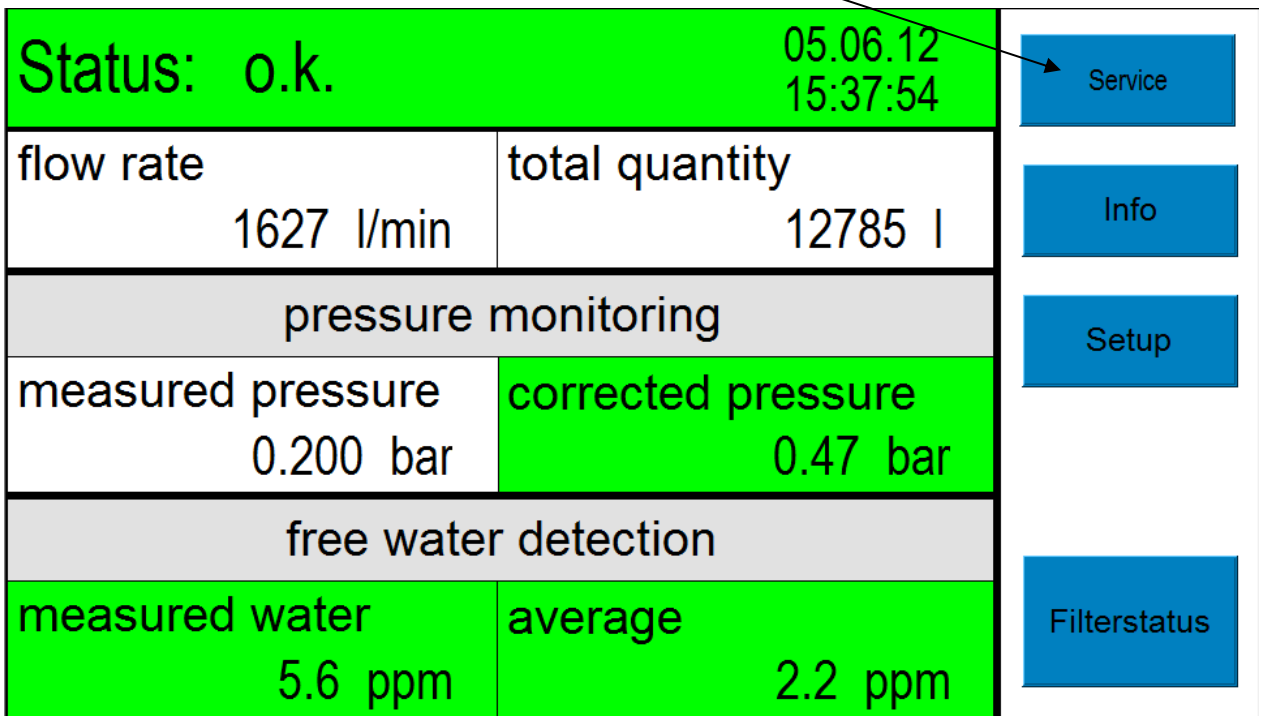
Go into Setup (use super setup password level “DPGUARD = 3748273)
Go into Service Setting and touch submenu: Manually reset alarms to disable or enable digital input to reset alarms – see next picture.



Press grey button to change between enable or disable function to manually reset alarms.



Go back by the use of home button and press service button to deactivate service setup password level



6.4.2 Activate free water measurement / averaging by the use of an external switch

This function could be used to have an idea about average water content during a single fuelling step. It could either be addressed by the use of pre-set time to reset counter after refuelling – see subchapter – or by the use of external trigger signal, coming from pump or meter relay (+24 VDC)

6.4.2.1Software settings

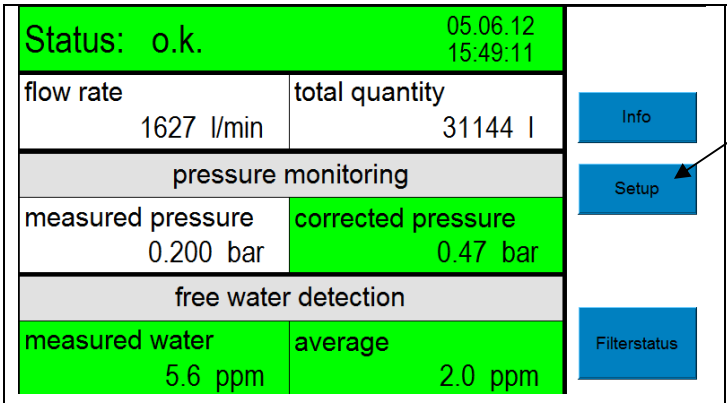
Go into setup routine by the use of administrator password level (could either be super setup level) “12345678”
Go into sensor input sub menu
Press AFGUARD button
Press Delay/average buttonPress Reset time after refuelling to set it up:

Use time frame of 10 to 3600 seconds to automatically reset counter after refuelling – or Disable time settings to use external trigger signal – DI02.

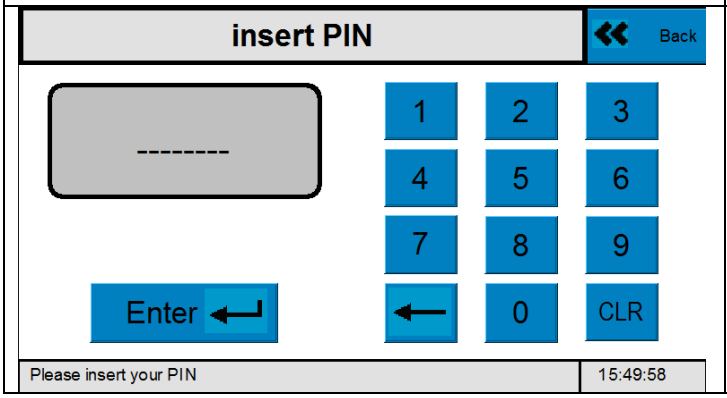
Digital input DI02: Connector X 13

To be used to activate actual free water measurement and average functionality during fuelling. Activation due to trigger signal that should stay on – e.g. coming from counter or pump relay.
Digital Input signal should stay on during whole fuelling step
use 24 VDC (GRND internally connected).
- External power supply – use both, 24 VDC + GRND

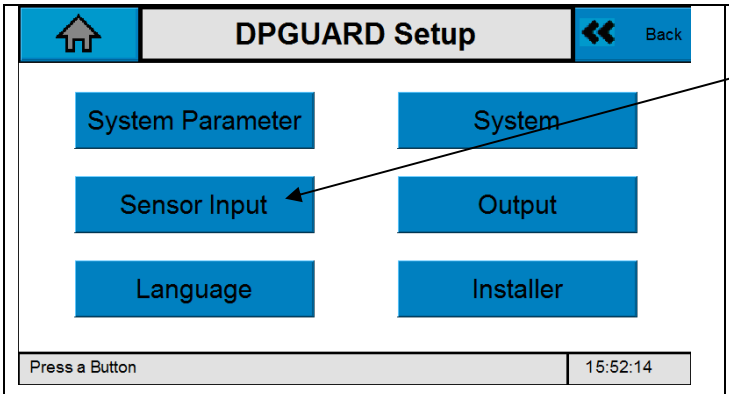
Step by step explanation:



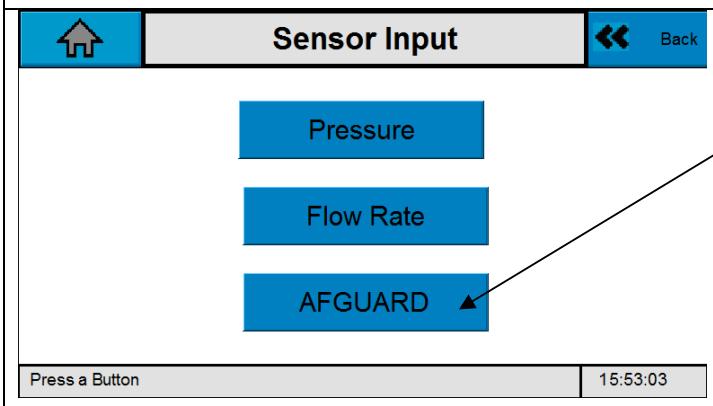
Press setup button



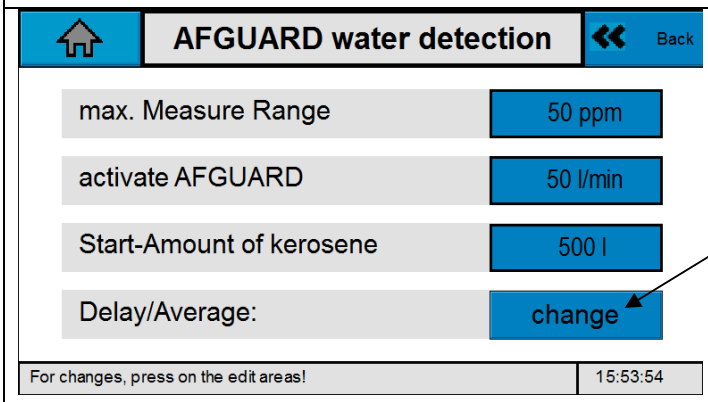
Type in:
Administrator: 12345678
password and press Enter button



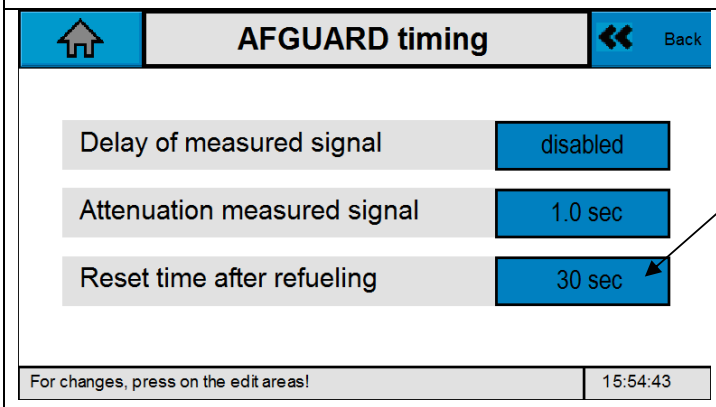
Press Sensor Input button



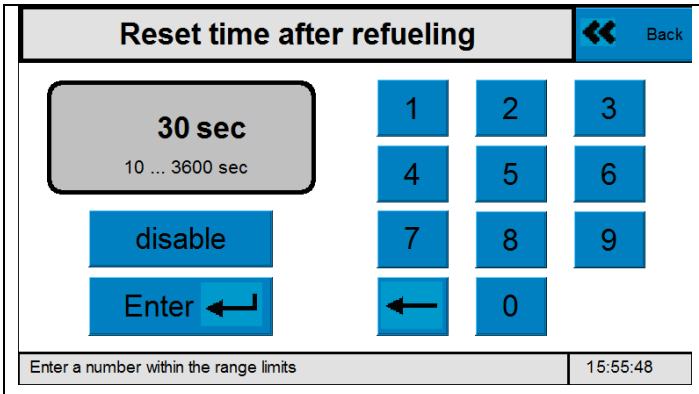
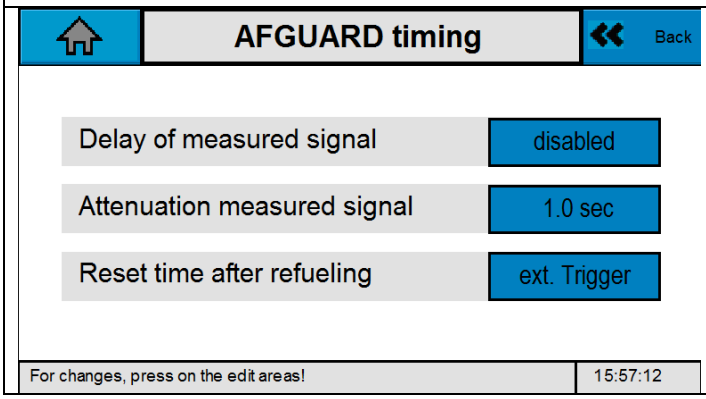
Press AFGUARD button



Press Delay / average (blue field)



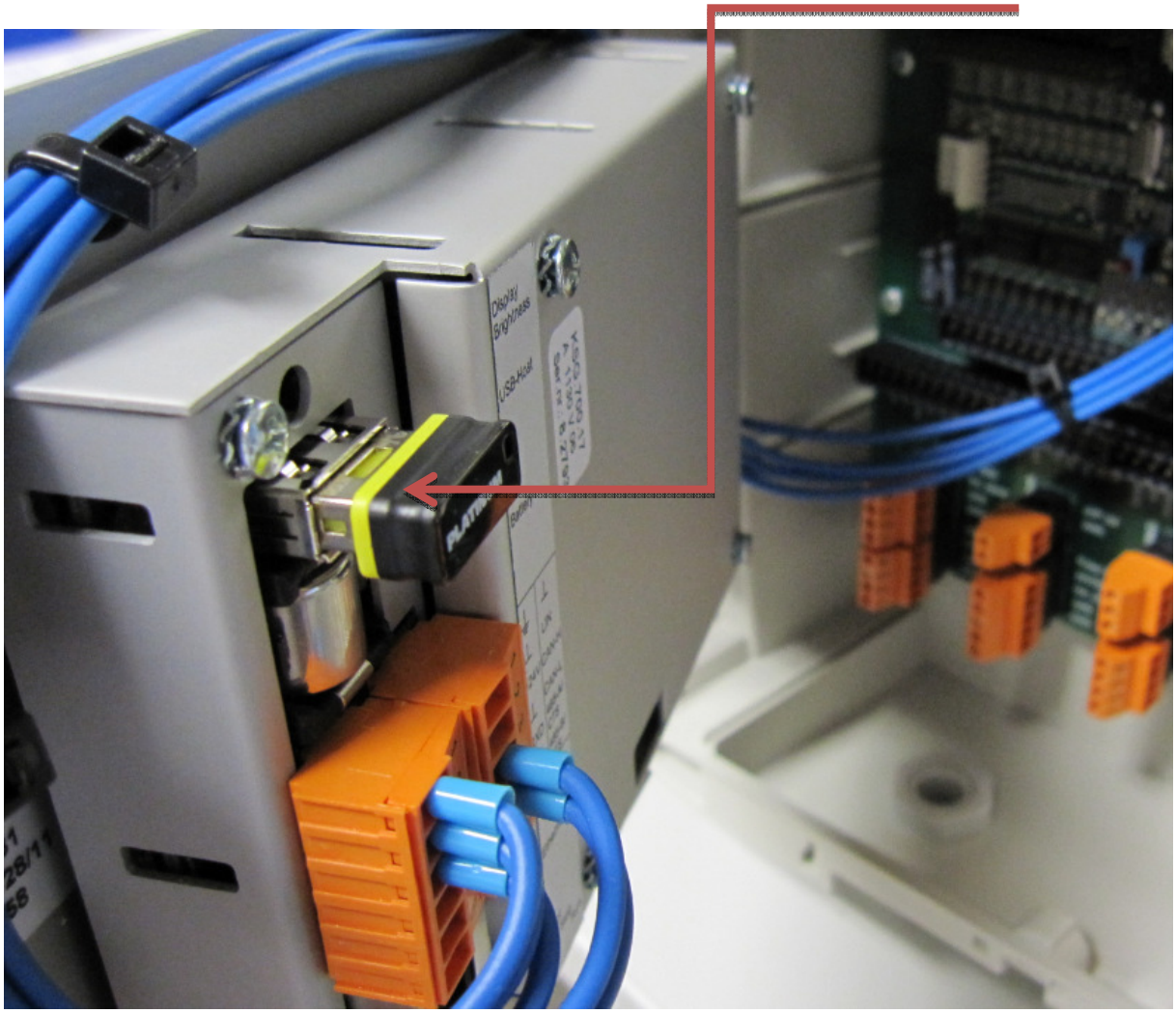
Press reset time after refueling

	Type in new time interval or disable automatic reset to use external trigger signal DI02
	Now external trigger is enabled

7 Datalogger

The DPGUARD consists about an in build data logger. All relevant data are stored there.

These data are stored during operation onto an USB memory stick that could be found on the backside of the DPGUARD.
To get access of these data – please open the housing and remove the USB memory stick.

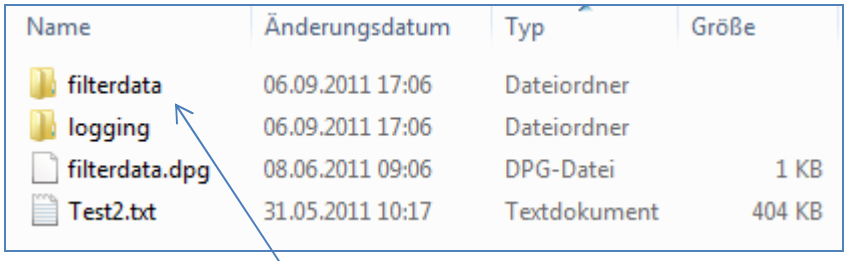


Logged data could be analyzed with every computer based software that is able to read CSV data or Excel files.

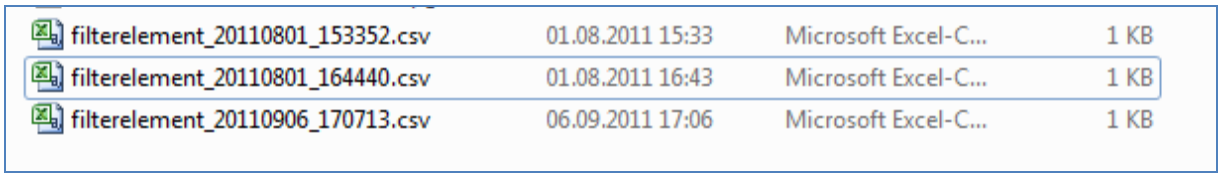
Please insert the memory stick into a windows based computer. You can see following data structure:

There are two subfolders:

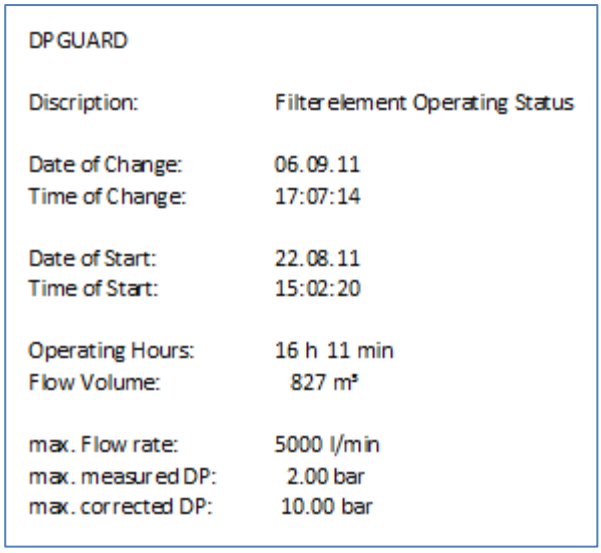
1. filterdata
2. logging



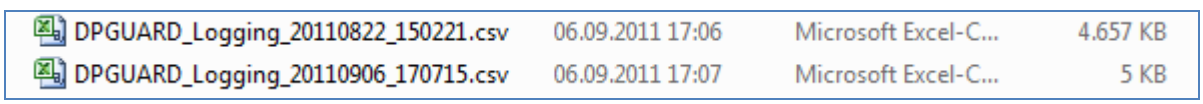
Subfolder „filterdata“ contains logged data that belongs to processed filter exchanges. Every filter exchange does have its own data file – see example below.



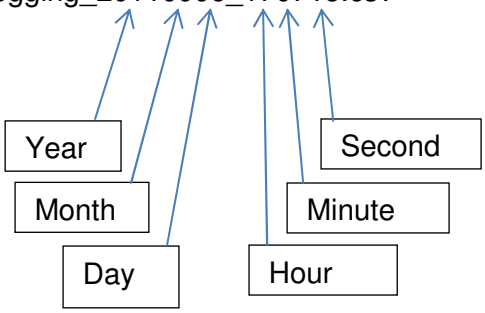
Above example shows three data files of filter elements that have been exchanged onfirst of August 2011 and the sixth of September. For every filter exchange you will find Date and time of exchange in its filename: (Year: 2011, Month: 09, Day: 06, Hour:17, Minute: 07, Second: 13) e.g. „filterelement_20110906_170713.csv“.
The related log file could be opened to see stored data according the element life.



Related details according lifetime of filter elements could also be analyzed. To do so, please click on to the logging subfolder:



Filterelement related data are also stored according its time and date of exchange.
DPGUARD_Logging_20110906_170715.csv



Date and time are corresponding to data in subfolder “filter data“, whereas seconds are a little bit behind the name of saved filter element data.
Logged data are below: with date and timestamp, logged corrected dp, measured dp, measured flow learned differential pressure function (coefficients) and overall status.

Date	Time	corrected DP		measured DP		measured Flow		y = a x² + b x		Status DPGU
								a	b	
06.02.2012	16:19:09	10.74	psi	4.94	psi	125.90	m³/h	1.000	0.500	o.k.
06.02.2012	16:19:10	10.74	psi	4.94	psi	125.90	m³/h	1.000	0.500	o.k.
06.02.2012	16:19:11	10.74	psi	4.94	psi	125.90	m³/h	1.000	0.500	o.k.
06.02.2012	16:19:11	10.74	psi	4.94	psi	125.90	m³/h	1.000	0.500	o.k.
06.02.2012	16:19:12	10.72	psi	4.93	psi	125.96	m³/h	1.000	0.500	o.k.
06.02.2012	16:19:14	10.72	psi	4.93	psi	125.96	m³/h	1.000	0.500	o.k.
06.02.2012	16:19:15	10.73	psi	4.94	psi	125.96	m³/h	1.000	0.500	o.k.
06.02.2012	16:19:16	10.73	psi	4.94	psi	125.96	m³/h	1.000	0.500	o.k.
06.02.2012	16:19:17	10.73	psi	4.94	psi	125.96	m³/h	1.000	0.500	o.k.

Above example shows logged data with second based logged data.

Logged data files are daily based to simplify the use and analysis of logged data.
New daily data log will start with start of new fuelling step.
Fuelling e.g. at 01.01.2012 at 23:55 in the night will be stored onto logfile for 01.01.2012.

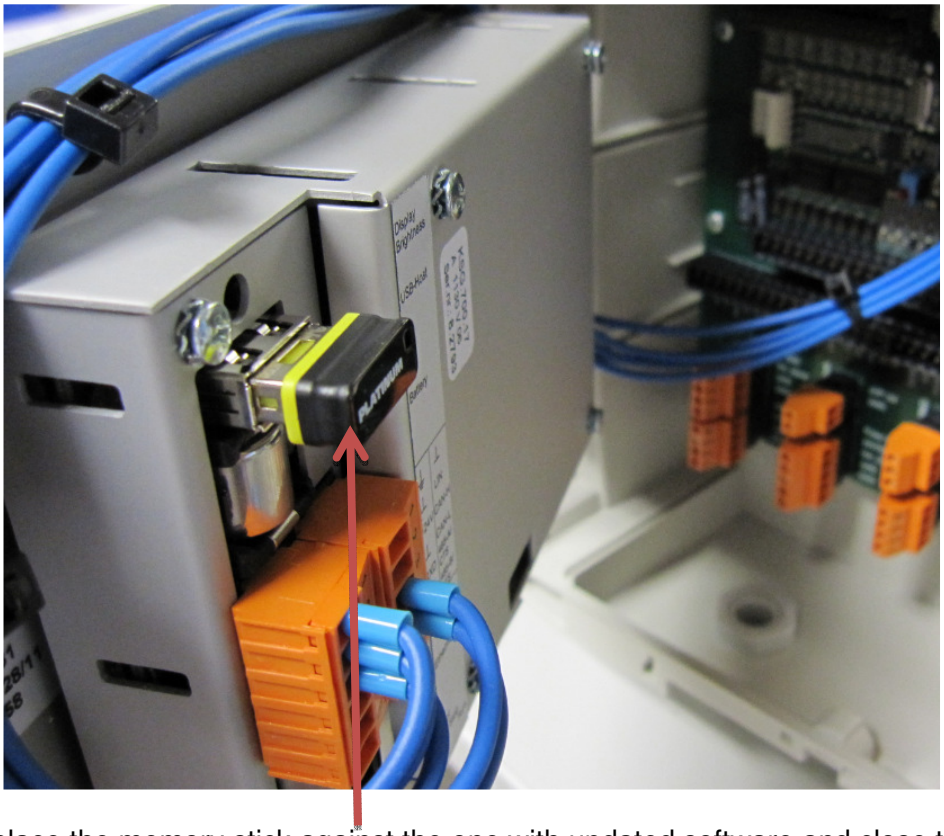
It is recommended to do data back up whenever filter exchange is due to be done or when revisions of filter cartridges are callable.

Without memory stick – DPGUARD does not work.

8 Update via USB

A very comfortable way to do updates whenever program changes or program updates are due could be done by the use of inbuilt USB-connector.

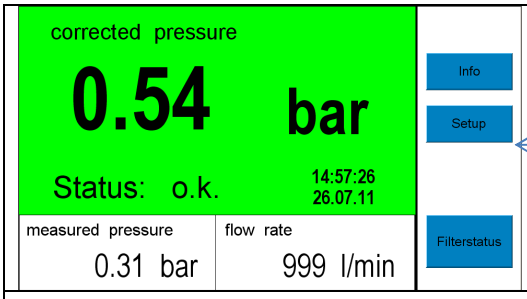
To do so please open the housing to get access. You should see the following result:



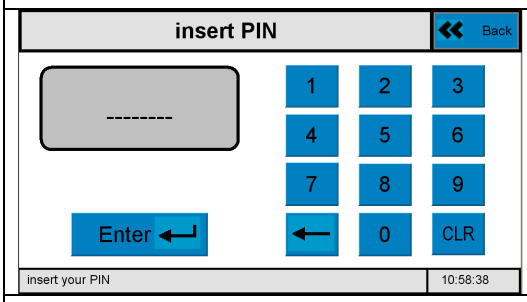
Please replace the memory stick against the one with updated software and close the housing

8.1 Activation of update

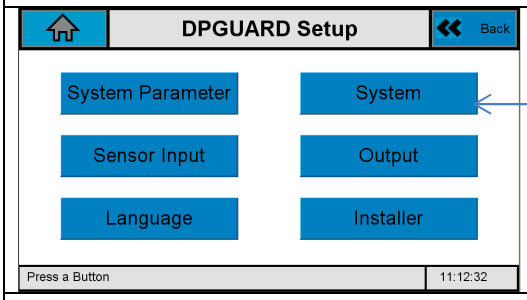
After replacement of memory stick (USB) please go into submenu (see next pictures and press update button to start update.



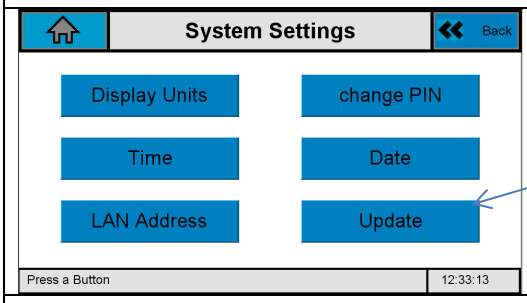
From main menu please press Setup button



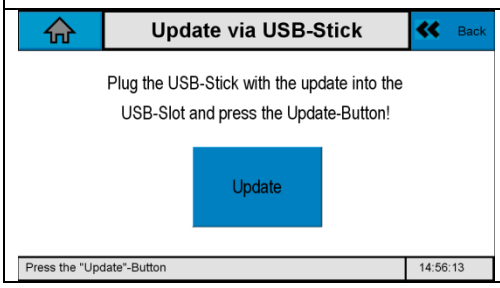
You will be asked to enter Administrator PIN number.
Please give in:
„12345678“ or previously changed own PIN for Administrator level.



Now you are in submenu to change DPGUARD settings. Please press System button to enter the system settings menu



Please press update button to proceed update. Make sure that new USB-memory stick with required software update has already been inserted.



After pressing the update button – fully automated Software update will start together with restart of the unit. After successful update please check the settings to make sure that all settings are OK.

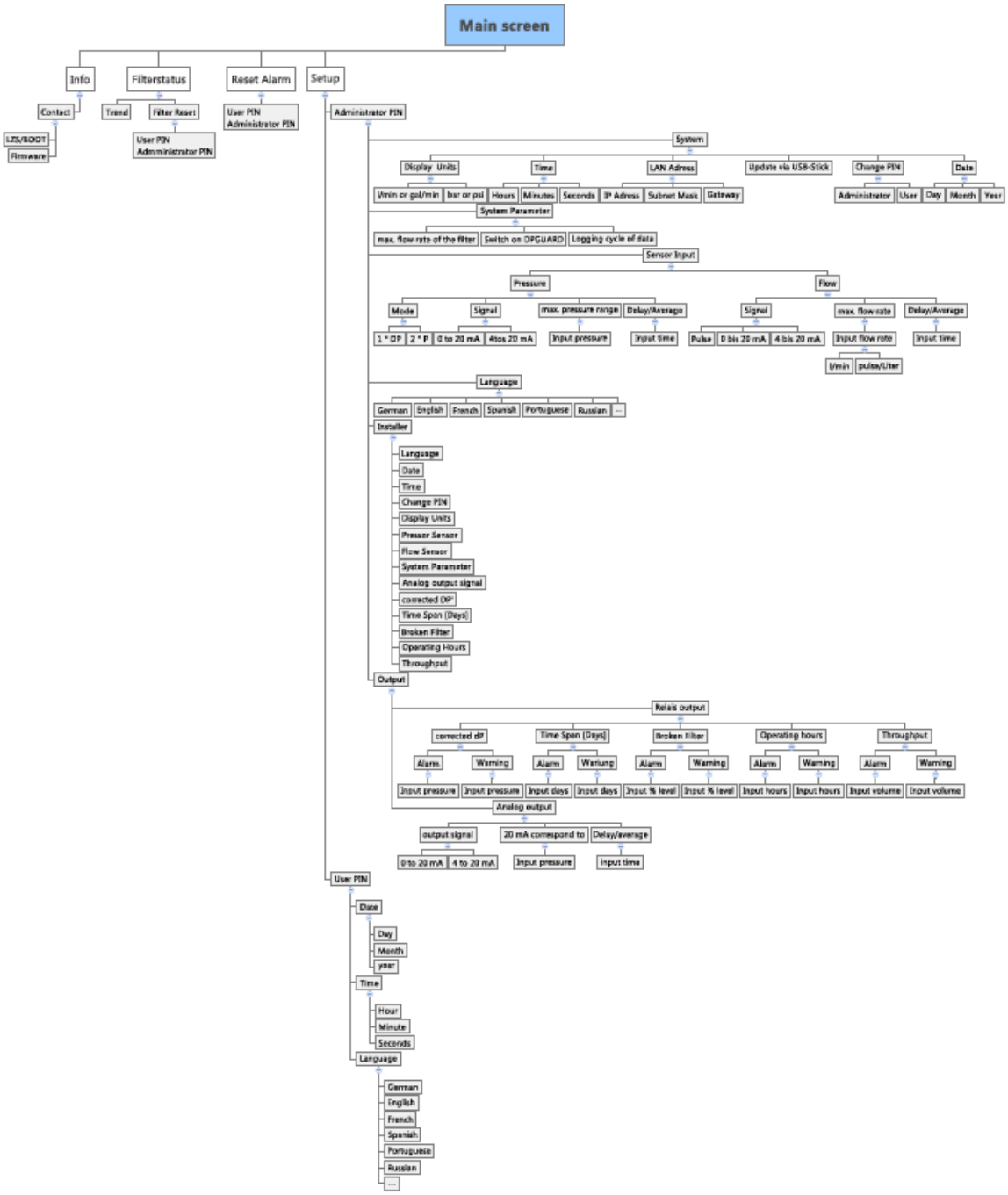
The software has been programmed to use setup as it was behind the update. Please double check the correctness of settings after each update.

9 Short introduction into menu structure to set up DPGUARD

For detail instruction on how to operate the DPGUARD please refer to operation manual that you can find on the CD, delivered together with the hardware

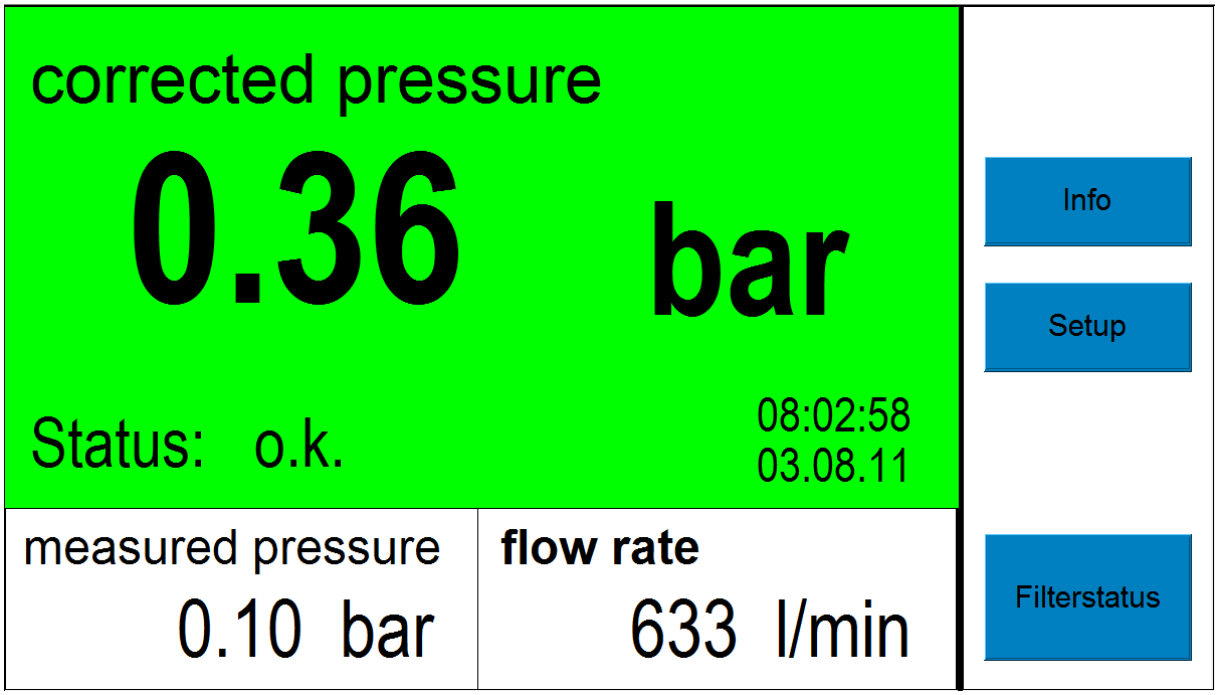
9.1 Operation

The DPGUARD® is a self-learning fully automated touch screen operated minicomputer. The implemented menu structure is listed below:



9.2 Start of DPGUARD®

Set the DPGUARD® under power (24 VDC).
FAUDI Aviation logo appears - It takes approximately 20 seconds time to boot the DPGUARD®.
After successful booting the main screen should appear.

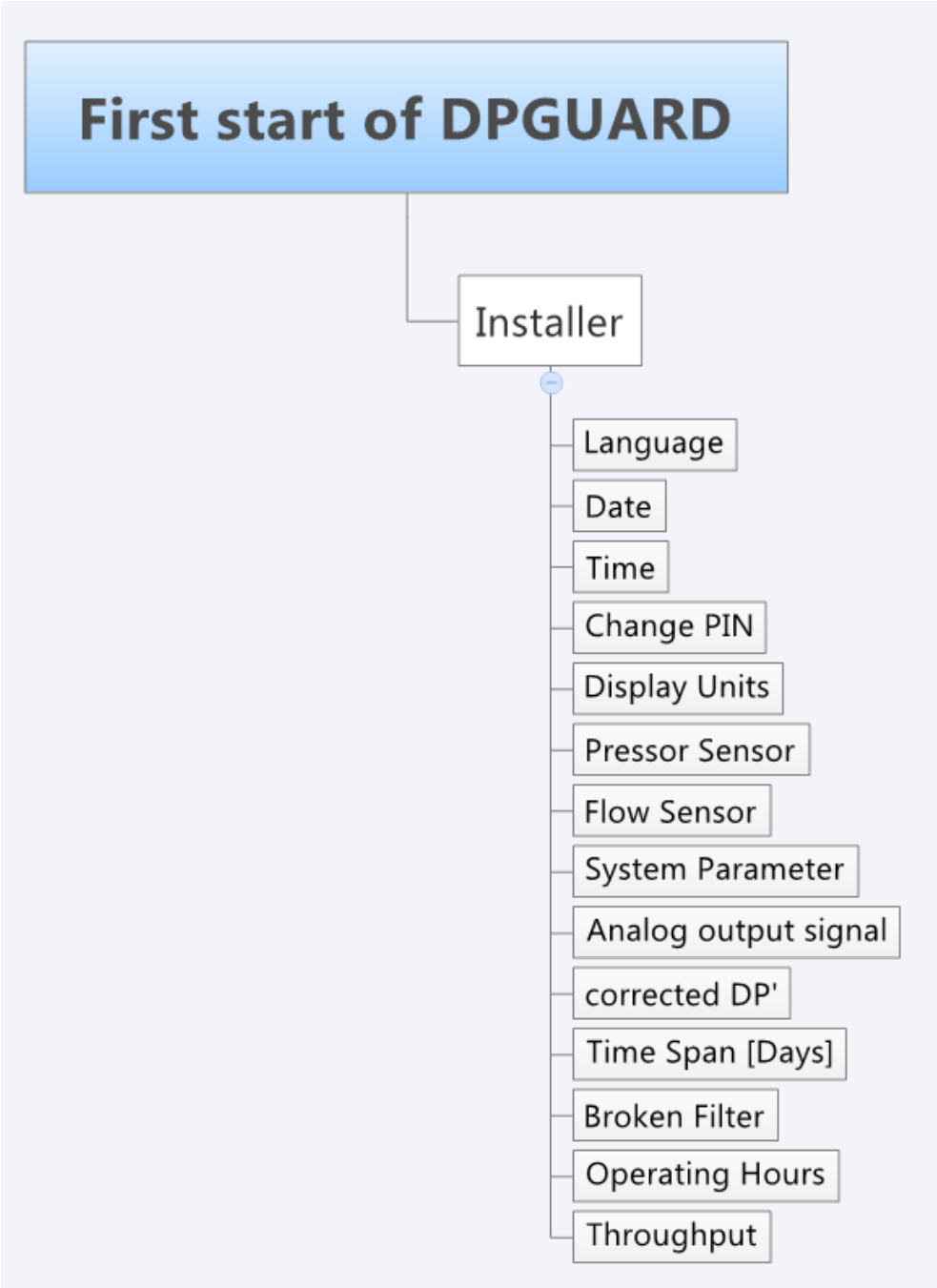


For first Installation of the DPGAURD – a configurator appears that guides you through the configuration menu.
This subroutine could be called when ever you go inte the setup menu to enter the Installer (see Chapter 9.3 Installer).

9.3 Installer

It is recommended to go through the configurator (Installer) that appears during first installation of the DPGUARD.

Following sub menus are addressed during this auto configuration routine:

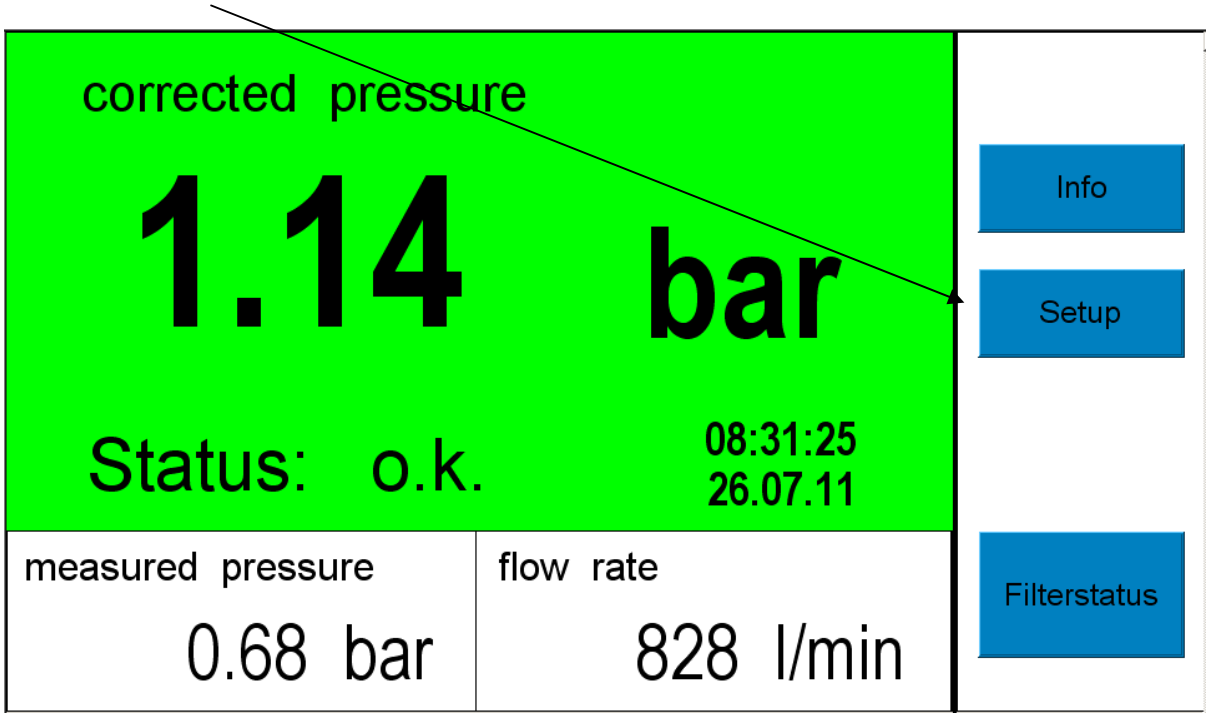


The Installer should be used for first installation of DPGUARD®. The Installer guides you through the setup menu.

The Installer has been created to guide you through first setup of DPGUARD® and associated signal input and output.

9.3.1 Manually start of the Installer

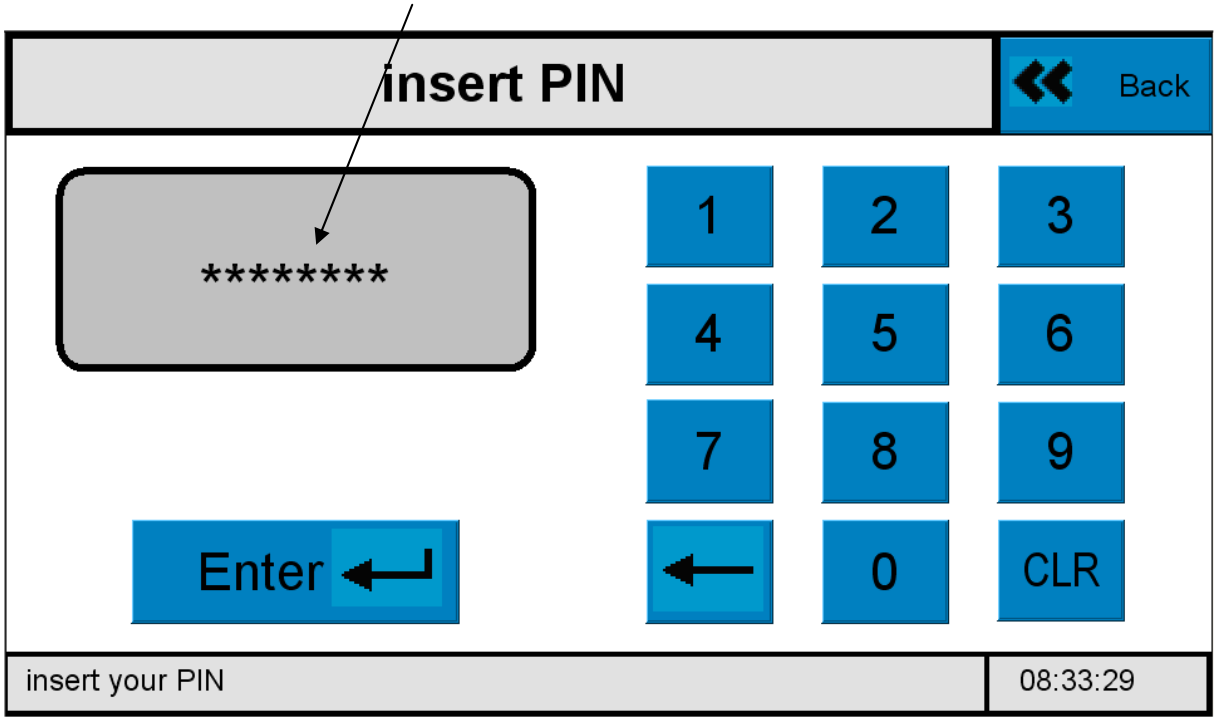
In cases where you want to manually start the Installer – please go on main screen and press the Setup button:



You will be asked to enter your PIN.

9.3.1.1 PIN number – Entering the DPGUARD® Setup Menu

You are asked to give in your PIN number (1 2 3 4 5 6 7 8):



Following PIN numbers are preconfigured:

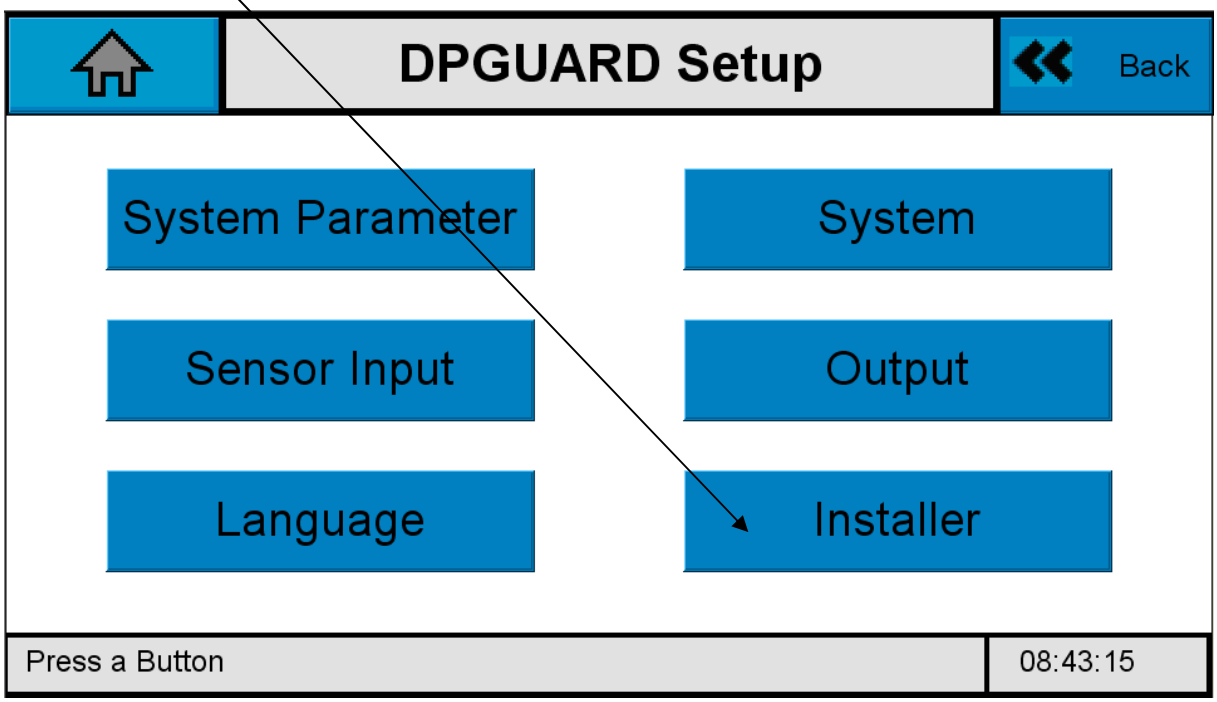
Administrator – PIN level: 12345678
User – PIN level: 00000000

Please type in Administrator PIN number or USER PIN number and press Enter.

Now you are in DPGUARD® Setup mode.

9.3.2 Installer mode to start DPGAURD adjustment

Press the Installer button to enter the Installer menu



Please refer to operation manual where all functions are explained in detail.

10 Trouble-shooting

10.1 Trouble-shooting instructions

10.2 Sensor checks

Caution!
Only authorised and trained personnel may test the DPGUARD®!

10.3 Spare parts

10.4 Return

If the device requires repair, please send it cleaned to the responsible sales centre. Please use the original packaging.

10.5 Disposal

The device contains electronic components and must therefore be disposed of in accordance with regulations on the disposal of electronic waste.
Please observe local regulations.

11 Technical Data

11.1 General

Power supply	24 VDC
Power consumption	8 VA (220 mA … 330 mA) depending on connection
dimensions	225 * 198 * 120 mm
weight	1.5 kg
Ingress protection	IP 65
hazard	Only for Safe Area location

11.2 Ambient conditions

Storage temperature	- 20 °C … + 75 °C
Operating temperature	- 30 °C … + 60 °C
Rel. humidity	10 % … 90 %
Ingress protection acc. EN 60529	IP 65