



# PAULWEGENER

MESSTECHNIK SEIT 1921

Operating manual

Data acquisition system

## PWBlogg



Type: N7/180/D-Ex1



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# 1 Safety instructions on installation, start-up, maintenance and troubleshooting

## 1.1 Installation and start-up

The data acquisition system PWBlogg N7 is destined for intended use within gas explosion hazardous areas of zone 1 only if there is the respective safety marking on the identification label.

Before installing the device within the hazard area, please check whether the ambient conditions meet the safety level of the data logger (ambient temperature, gas group, temperature classes etc). The applicable installer- and operating regulations must be observed.

The dedicated port at the data logger housing must be used for integration into the unit's or system's potential equalization.

**Note:** The intrinsically safe circuit of the data logger is grounded via device housing.

The data loggers N7/180/D-Ex1 have two transducer interfaces with different electrical parameters (see paragraph 9.2 Explosion protection) and plug connectors. Only approved intrinsically-safe transducers with appropriate electrical parameters must be connected and operated at these interfaces. If there are changes in connection with supplied transducers, the system's intrinsic safety must be assessed again. Only one transducer must be connected to one transducer input! External junctions for connecting several transducers to one input are not allowed!

Using the infrared online port is permitted only in case of nonexistence of an explosive atmosphere! Always close the unused infrared online port with the dedicated protective cap to avoid polluting the optical components.

If the device is equipped with an external infrared online port, this port can both temporarily and permanently be used **outside** the hazardous zone for connecting to a laptop/PC or a modem. This infrared online port is also including pluggable connection part of the measuring device and must only be used with the data logger delivered (compare identification number on type label).

## 1.2 Maintenance

Maintenance jobs at the data logger restrict themselves to doing battery changes, cleaning the device and visual check up of connecting cables of components of the measurement system.

If the connecting cables are damaged, please contact the manufacturer for purpose of repair.

The housing should be simply cleaned by wet cloth to avoid electrostatic charge.

The devices are designed in such a way which facilitates safe battery change within Ex zone 1.

Please note following safety instructions when changing battery:

- **Only** battery packs BP16.5N5-Ex1 supplied by manufacturer must be used. Using other batteries or battery packs may cause danger of fire or explosion.
- The battery pack is safely fixed inside the device by 2 battery holders. Make sure that the new battery pack is firmly fastened at its dedicated position locked by a securing clip. When closing the device, pay attention that no cable is pinched!

### 1.3 Notes on handling the battery pack

- Do not rub and clean the battery pack using dry items. It may cause electrostatic charge.
- The used battery pack in this device can pose a risk of fire and burns in case of mishandling. Do not charge, open, heat more than 100°C or incinerate it.
- Do not try to open the battery pack by force. It contains items which considerably heat themselves due to short circuit.
- If the battery connecting cable is visibly damaged, do not use this battery pack anymore, but replace it by a new one.  
When closing the device, pay attention that no cable is pinched.
- Dispose exhausted battery packs at once. Keep them out of reach of children. Do not open them and do not throw them into fire.
- When doing this work, do not use any pointed or sharp-edged items to avoid damage on the device's electronics.



**Note: The electronics consists of electrostatic sensitive components.  
Pay attention to ESD operation instructions when handling with this electronics!**

### 1.4 Troubleshooting

No modifications are allowed to devices which are designed for intended use in explosion hazardous areas. Repairs of devices must only be done by purpose-trained specialists.

If the measurement system is equipped with pluggable transducer ports (optional), the defect measurement module or pressure transducer can be forwarded to its manufacturer for checking or repair. A complex dismantling of the connecting cables between transducer and measurement module is not applicable.

## 2 Data acquisition system PWBlogg

The data logger PWBlogg N7/180/D-Ex1 is available as solely battery-driven device.

### 2.1 Initial setup

Measurement systems with pluggable transducers are delivered in unplugged state. Measurement module, transducer cable and pressure transducer are separate in the transport package. Transducers and connecting cables are labelled with their respective serial numbers and measurement ranges.

Please note the following references during the first initiation of data measuring- and storage devices:

- Install the software PWB-Soft and the USB driver for the online cable on your PC/laptop first.
- Subsequently, connect the data logger to the PC via infrared online cable using a free USB interface.
- Start the software.
- Set the serial interface in the dialog box „connections“ of the menu item „program“.
- Establish communication between PC and data logger via „Connect“.
- Make all necessary settings in the dialog field „Configuration“. Please note that the data logger is delivered with a **sample rate of 1 min** to extend battery life.
- After confirming with „transfer“, the data logger will be configured again and the memory will be deleted. Measurement can start now.
- Note that the data logger must be switched on for activating measurement and the adjusted measurement start time must be reached!
- Note that integrating relative pressure transducers into the potential equalization can cause a zero offset (see chapter 4.2 Reset to zero).

### 2.2 Components of the data loggers PWBlogg N7

The data logger PWBlogg N7/180/D-Ex1 is exclusively available as battery-driven device. It includes following components:

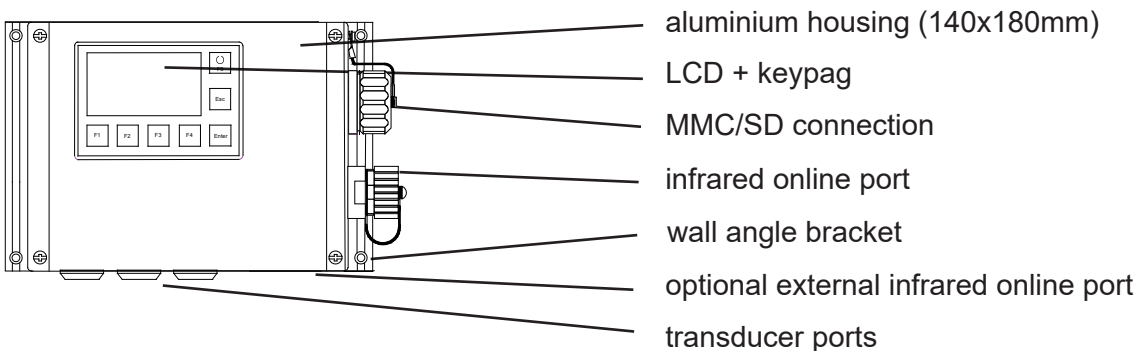


Figure 1 type N7/180/D-Ex1

Depending on type, operating and reading the device is optionally done via display and keypad, connected PC/laptop using infrared online port or via exchangeable MMC/SD card.

The software PWB-Soft 3.0 is recommended for adjusting the device, reading and evaluating performance data.

### 2.3 Settings

Upon initial operation, following settings relevant to data logging and storage should be adapted to the measurement requirements:

- Long text (e.g. company address)
- Short text (location, project number)

- Start measurement (date/time)
- Measurement interval
- Threshold defaults
- Sample and storage modes

The most important settings can directly be made at the device. See chapter 3 „Operating the data loggers N7“.

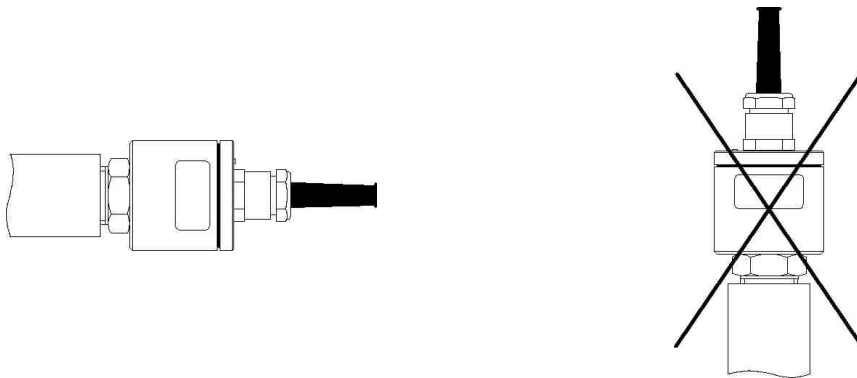
## 2.4 Transducers

Pluggable transducers of the data logger PWBlogg N7/180/D-Ex1 are delivered in unplugged state. Data logger, transducer cable and pressure transducer are separate in the transport package.

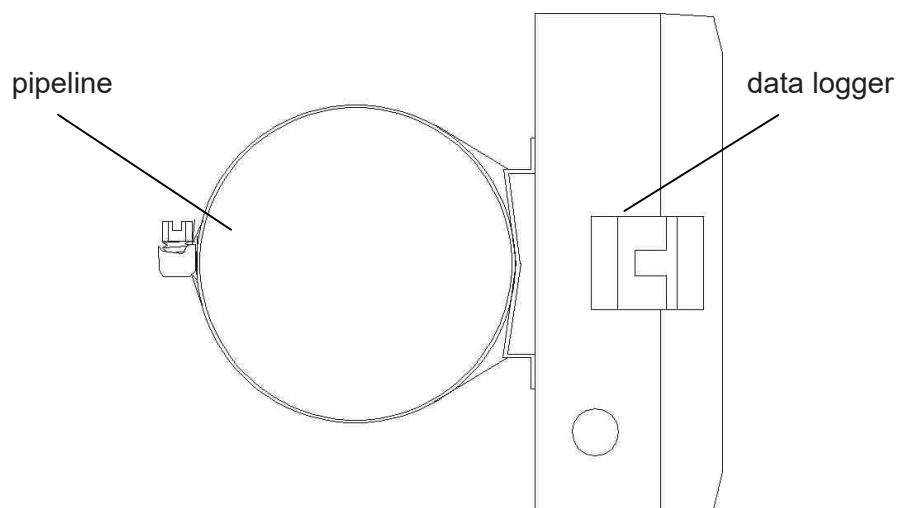
All transducers are retrieved via digital interface. The delivered transducers can be connected in random order at available ports. Unused ports are provided with a closing cap to avoid polluting the contacts.

When embedding relative pressure transducers into the potential equalisation, it may result in a minimal zero offset. This can be cleared during pressureless state by calling the menu function „set to zero“.

### Mounting notes:



**Note:** Relative pressure transducers are equipped with a pressure compensating device, a small circular label on the transducer's closing cap. **Make sure that the pressure compensating device won't be removed or damaged and the transducers are horizontally positioned if possible!**



Data loggers (side view) can optionally be mounted at pipelines or the like by band clamp.

### 3 Operating the data loggers N7

The data logger functions are controlled by keypad and LCD. Different functions are arranged in a menu structure.

#### F1 to F4

Function keys which respective meanings are described in the menu by softkeys. The most important task is navigating in the menu and confirming and cancelling command requests.

#### Enter

Confirms commands and calls menu items.

#### Esc

Quits submenus and cancels command calls.

#### On/Off, F5

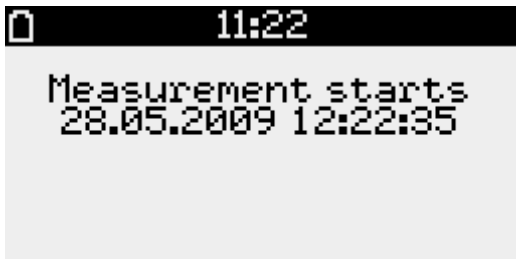
Special key for activating/deactivating measurement and calling main menu respectively.

The keys can be actuated shortly or long. Long actuating automatically calls the functions keys F1 - F4 several times. The F5, Enter and Esc key have a special function by long pressing. The following description gives detailed explanations on individual menus.

### 4 Measurement

#### 4.1 Activating

**Long** pressing F5 key activates measurement. If the main menu is already open, measurement can be started by **short** pressing F5. After confirming the question „Switch on?“ by F1, measurement will start. The current reading will appear on display and the message „Measurement start“ including time specification respectively in case a future start measurement has been specified.

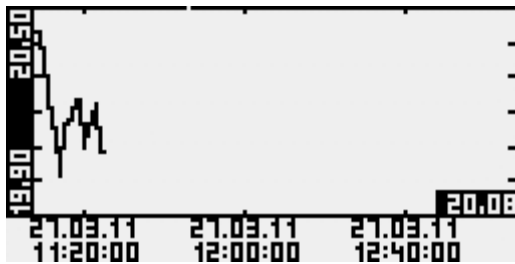


In the top line of this online display are a symbol on battery state, the current time as well as the memory card symbol if an MMC/SD is inserted. The menu items are visible below. If measurement is activated, the additional menu item Reset Min/Max will appear. Minimum and maximum values can be reset here.

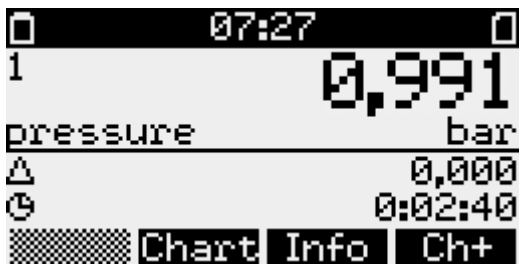
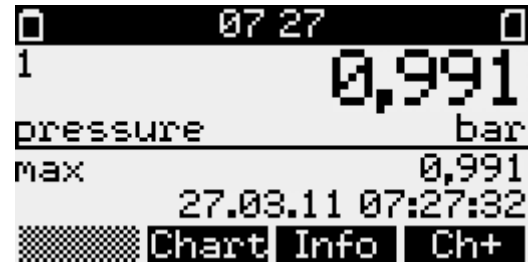


The channel numbers are shown on the left. Selecting one of them can be done by F1 and F4. The chart of the last 100 values can be displayed by pressing F2 and adapts itself optimally to the fluctuation range of the values shown.





Further information on the current channel displayed are provided by pressing the info key F3. There can be navigated between minimum- maximum-, delta value and multi display of all channels. The measurement range of the respective transducer can additionally be shown.



The delta value is the difference of the current value to the one which was visible when activating measurement last time. Below this difference value you can see the elapsed time since last activating measurement or reset minimum/maximum and on the right side on top the maximum value and below the minimum value. When using external transducers (sensor modules), a \* symbol after the channel number indicates that the transducer reading could not be retrieved. In this case the reading will be created from the last known one as substitute value. If the query several times in sequence is unsuccessful, a query lock will be activated, i.e. the transducer wont further be queried and a „-“ will be shown instead of a value. This lock can be manually cancelled by long pressing Esc for one transducer and by restart measurement for all transducers respectively.

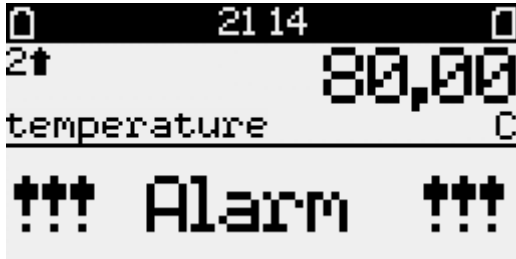
## 4.2 Reset to zero

Some transducers (e.g. relative displaying absolute pressure transducers) enable correcting the zero point. If pressure transducers during pressureless state display a value unequal zero, then the zero offset saved in the device should be corrected. For this purpose, measurement must be activated and the channel to be reset to zero must be called in the readings display (using F1 or F4). Thereafter call the main menu using the Enter key. There „set to zero“ will appear as additional menu item (as the case may be use F1 or F4). After calling the menu item and confirming a further request, the current reading will be saved as zero offset. This channel will show 0 now.

**NOTE:** Reset to zero must only be done at pressureless state!

### 4.3 Alarm message when threshold is exceeding

If one of the thresholds adjusted in the menu item „channel parameters“ exceeds/falls below, the message „!!!Alarm!!!“ will appear on display. The alarm message disappears by pressing the Esc key. The arrow symbol after the channel number indicates the alarm is still recorded. This symbol disappears not until the reading is beyond the alarm range again. When using a connected iModem via external infrared online interface, alarm messages can be sent as SMS or email.



Threshold exceeding and falling below is shown on display by triangle symbols in the readings display. It will be switched over from interval 1 to interval 2 during an alert state. This way the measurement signal can be finer resolved. Therefore it is necessary always to adjust interval 2 less than interval 1 (see page 13 „Interval 1“ and „Interval 2“).

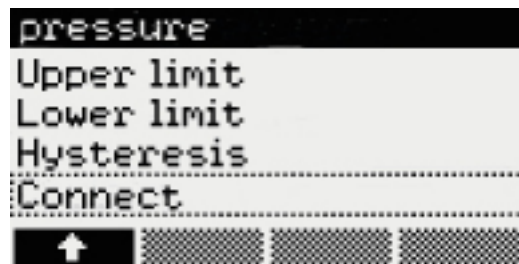
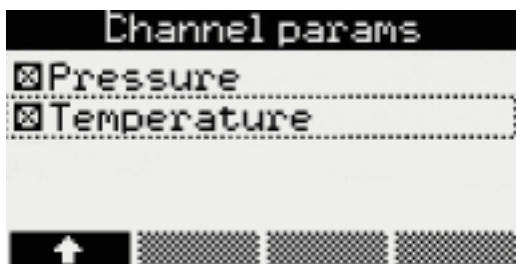
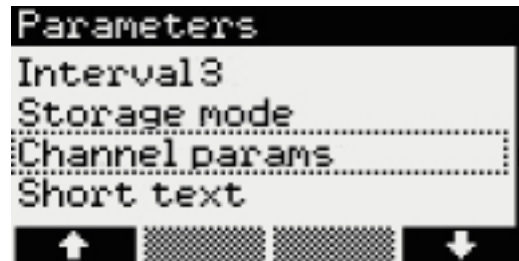
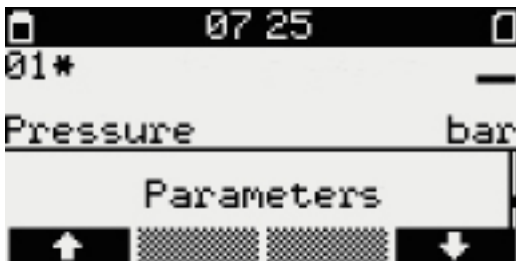
### 4.4 Deactivating

After actuating the F5 key, the question „Switch off?“ will appear. Measurement can be deactivated by using the F1 key. This process can be stopped by pressing F4.

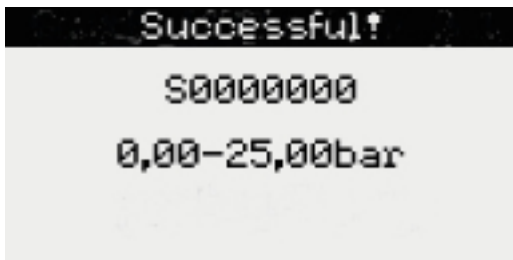
After measurement has been deactivated, data will automatically be saved on the MMC/SD-Card if there is one plugged. Thereafter the successful saving process will be shown on display.

## 5 Transducers connecting/releasing

N7/180/D-Ex1 data loggers are equipped with digital transducers. Contrary to analogue transducers, these ones can be operated at any plug port of the device. The digital interface facilitates changing transducers on site and new ones to be trained. For this purpose, the channel to be assigned to the new transducer will be called in the menu „parameters“ → „channel parameters“. The data logger automatically notices if the transducer destined for the channel is not plugged and shows *Connect* as last menu item.

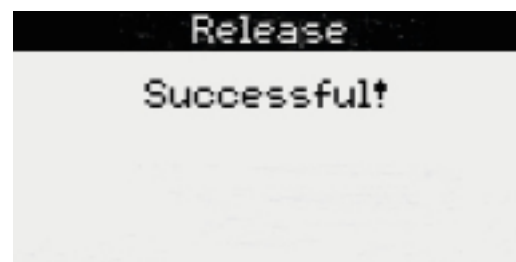
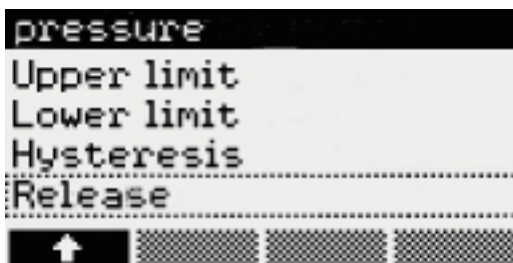


Searching for the transducer is started by „Enter“. If a new transducer of a matching type is found, a success message will be shown. Measurement range and serial number of the transducer will be shown.



A successful search requires that the transducer is marked as not just yet assigned and no more than one as not marked transducer is plugged at the device! If one as already at another device *connected* transducer shall be used, this one must be *released* from that device first. For this purpose, the menu „channel parameters“ of this connected transducer will be called there and the menu item *release* must be chosen.

The transducer can also be released via PC software using an adapter cable.



The transducer will be marked as „not assigned“ and can now be *connected* at another device. Even *connecting* again at the previous device or at another channel destined for this transducer type is possible.

## 6 Menü des Datenloggers

The readings display, described in paragraph 4 is the top display level. The menu is opened by short pressing F5 or „Enter“. It includes the following submenu items:



### 6.1 Evaluation



### 6.1.1 Chart

The values are displayed graphically here. A cursor menu can be activated by pressing F1 and F4. F1 switches over from the right to the left cursor there. The cursors can be moved to left and right using F2 and F3. The area between the right and left cursor will be accepted and zoomed by Enter. Furthermore, the displayed area in the cursor menu can be printed out by pressing F4. After pressing F5, the previous measurement area will be shown again.



### 6.1.2 Table

Values are shown in tabular form here. F1 and F4 navigate between data records. Channels can be selected by F2 and F3.

1 Pressure	bar
28.05.09 11:23:44	0.410
28.05.09 11:23:45	0.410
28.05.09 11:23:46	0.410
28.05.09 11:23:47	0.410
28.05.09 11:23:48	0.410
28.05.09 11:23:49	0.410
28.05.09 11:23:50	0.410

Navigation icons: Up arrow, Ch+, Down arrow

### 6.1.3 Printing (not admissible in Ex atmosphere)







Readings can be printed out here on a connected thermal printer. Graphic output can be done normally or enlarged (zoom). Printout can alternatively be done as status print. This way current values as well as minima and maxima of all channels can be printed out.



### 6.1.4 Logfile

Any recorded events e.g. activated/deactivated measurement are displayed here. Navigating between entries can be done by F1 and F4.

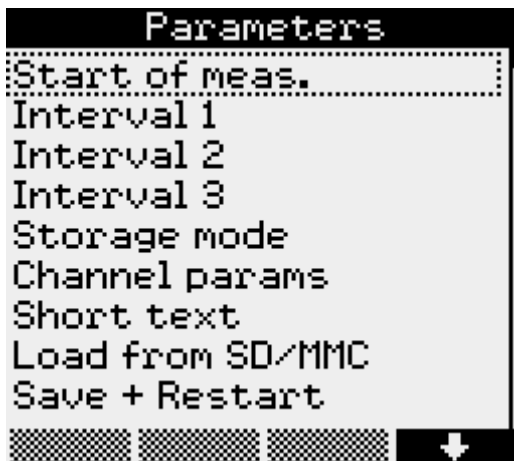


	„v“ measurement on	„-“ measurement off
	„v“ alarm active	„-“ alarm inactive
	„v“ memory card available	„-“ memory card not available „x“ memory card not readable
	„v“ battery all right	„x“ battery not all right
	„v“ power supply connected	„-“ power supply not connected
	„v“ modem on	„-“ modem off

## 6.2 Backup

This menu item provides the backup function. Data are saved on MMC/SD card. After pressing Enter, the question „Store data?“ will appear. Subsequently, backup can be started by pressing F1.

## 6.3 Parameters



### Measurement start

You can determine the measurement start under Start of meas. The cursor position can be changed by pressing F1 and F4. The respective value can be increased/decreased by F2 and F3.

*Interval 1*, the period between two reading samples during normal operation, can be set from 1 second up to 60 minutes.



*Intervall 2* determines the period between two reading samples in case of alert and provides setting options between 1 second and 1 minute. This period must always set lesser than or equal to Interval 1. Readings are logged in Interval 1 during normal operation (depending on storage mode). If a threshold violation is detected, sampling will be switched over to Interval 2 and logged there till the threshold violation is over (under consideration of preset hysteresis values). If „Alarm watching“ is preset, sampling will be done permanently in Interval 2. Thereby threshold violations can be quicker detected. Switching over storage interval from Interval 1 to Interval 2 will be done promptly. Please note that frequent sampling increases power consumption of the data logger and hence battery lifetime diminishes!

*Interval 3*

Is used for saving annual files. Data are logged in minute cycle, independent of interval 1 and interval 2, and can be saved in so-called annual files on SD card. This can be meaningful if logging is done with minimum sample rate where a large amount of date accumulates.

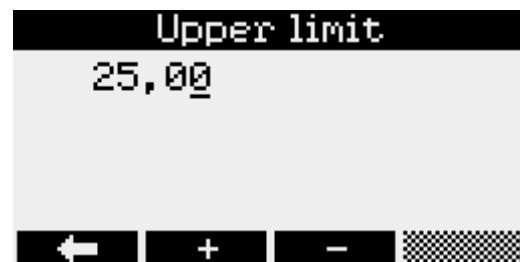
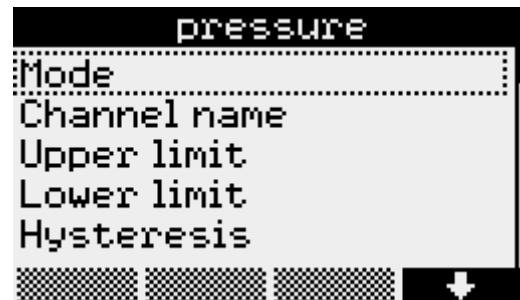
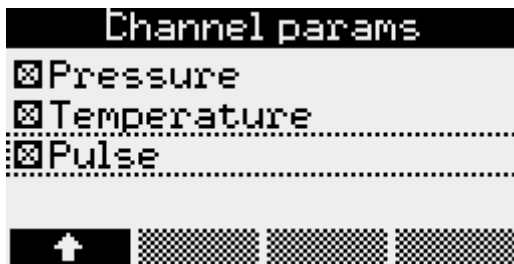
*Storage mode*

In Storage mode can be determined whether Cycle memory shall be activated, so that existing values will be overwritten at full memory, whether only alarm values shall be stored, whether permanent monitoring shall be done or whether alarm values shall only be stored within a limited period to use memory more efficiently.



*Channel parameters*

Channel-specific parameters for all channels of the data logger are adjusted under Channel params. Pressing Enter will open the menu items such as the mode where „Show“ and „Save“ are adjusted, the „Channel name“ which can be individually allocated, the „Upper“- and „Lower limit“ where, if exceeded, the alert message will be shown as well as the hysteresis which inhibits permanent switching over in case of fluctuations of the reading. These settings can be altered by the navigation keys F1 to F4. Digital transducers can be connected and released here -> see chapter 5 „Transducers connecting/releasing“.



### Short text

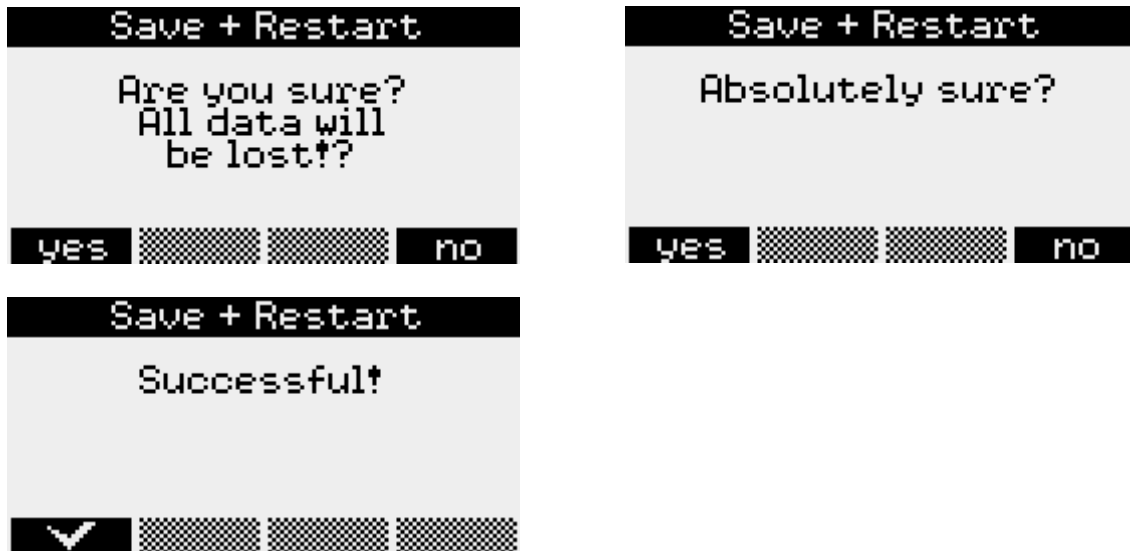
The cursor position can be changed by F1 and F4 in menu item Short text. Selecting characters of the provided ones can be done by F2 and F3.

### Load from SD/MMC

This function facilitates data transmission to the data logger via memory card. The file to be transmitted is selected by F1 and F4. Pressing Enter starts data transmission.

### Save+Restart

Any changed parameter will be saved. The memory will be deleted. The confirmation prompts must be confirmed by F1. Can be called from any other point of the parameters menu by long pressing Enter.



All parameters will be initially buffered and accepted not until pressing **Save + Restart**.

## 6.4 Settings

### Module time

The current time of the data logger is entered here. The navigation keys F1 and F4 are used for that purpose. Changings of values must be confirmed by Enter. After confirmation prompt has appeared, changings can be saved by F1 or undone by F4.



### LCD view

The period, where after last key pressing the display and illumination shall be switched off automatically, can be adjusted in the menu item LCD view. Furthermore, the display contrast can also be adjusted here. Changings will be saved by pressing Enter. +/- changes for F1 and F4 between input mode for the values to be adjusted and cursor function.



*Printer (not admissible in Ex atmosphere)*

The printer type to be used can be determined under the menu item *Printer* and must be confirmed by Enter.

*Language*

This menu item enables adapting the language of menu navigation such as German, English and Polish.

## 6.5 Status

Dieser Menüpunkt zeigt die aktuell eingestellte *Modulzeit*, die aktuelle Position (nur bei vorhandenem GPS-Modul), den eingegebenen *Kurztext*, den freien internen Speicher, den freien Speicher einer eingelegten MMC/SD-Karte, die *Betriebsstunden* des Datenloggers, den Zustand der Batterie, die Seriennummer des Gerätes, *Baujahr* sowie die verwendete *Hard- und Firmwareversion* an.



## 6.6 Password protection

The menu items „Parameters“, „On/Off“ and „Time“ can optionally be protected from unauthorized access. The software PWB-Soft provides in its configuration dialog a dedicated input box where a password can be set. Subsequently, that password can be transmitted to the data logger via data cable. If thereafter the menu items „On/Off“ „Parameters“ and „Time“ are called, a prompt for entering that password will appear.

## 7 MMC/SD

The MMC/SD card is in a dedicated slot outside of the data logger and provides backup and transmitting data wirelessly to PC/laptop.

The available memory capacity will be automatically determined upon inserting the card into the data logger.

**Note: As these information has to be determined by searching available sections on the card, this process can take some minutes when using cards with large memory capacity! Meanwhile a card symbol is shown in the system state display.**

**The card should not be removed while searching!**

Backup can be done manually by menu command „Backup“ as well as automatically when deactivating measurement. The memory card should not be removed during storage process, to avoid potential loss of data.

The MMC/SD card can be directly inserted into the slot of the PC/laptop, or, if not provided, plugged in an USB port by means of a card reader. The memory card will be automatically recognized as removable medium. Clicking on the respective drive letter will make data visible. They can be evaluated now by the software PWB-Soft.

Before you remove the MMC/SD card, open the context menu by right mouse click on the drive letter of the memory card and use the function „Remove“.



Correct storage of accumulated data on the external memory card can only be guaranteed if memory cards supplied by the Paul Wegener GmbH are used! These cards are formatted when delivered, so that they can be used promptly without any further preparations. If, however, there was the necessity to format, the context menu could be opened by right mouse click on the drive letter of the memory card and the function „Format“ could be used. Please note that formatting can only be done using FAT or FAT32, as other file systems are not recognized by the data logger.

## 7.1 Generated files

When saving the first time, a file will be automatically created on MMC/SD which corresponds to the serial number of the data logger. All reading files will be consecutively stored there, beginning with „DAT00000.PWB“.

## 8 Battery

### 8.1 Battery check

The battery state is checked by the firmware of the data logger. All activities of peripherals are taken into consideration, ie the period where the display is on or the data logger is online will be logged and included into calculation of remaining battery capacity. The activities are acquired and included to evaluation of battery capacity. **The influence of low temperatures to the available battery pack capacity can not be considered in respect of evaluation.**

The manufacturer gives an estimate of durability of the measuring system on request.

Measurement is stopped after falling below minimum voltage and the data logger will be operated by energy-saving mode. Thereafter, a backup battery will provide power supply to avoid loss of data over a longer period (even if battery is changed). If battery capacity falls below 20%, battery should be replaced. Recycling of used batteries/rechargeable batteries is described in the paragraph Recycling of batteries and old appliances.

In case the battery is discharged below 10%, the message „**!!!Battery!!!**“ will be shown after activating the display.

### 8.2 Battery change at battery-operated devices

**We recommend, battery change should be carried out by manufacturer.** Please consider following notes if you want to change it by yourself.

Do **EXCLUSIVELY** use the BP16.5N5-Ex1 battery pack! This battery pack can be obtained from manufacturer.

General information note on battery change:

Battery change should be carried out without any loss of data when the backup battery is intact. Reading out data prior to battery change is used as guarantee in case of a discharged backup battery. Changing the backup battery can only be done by manufacturer!

The battery change at N7 devices is supported by an own menu item. For this purpose, change into the device's menu „settings“. The submenu item „battery“ allows checking the battery state and battery change.

After confirming the prompt „Change battery?“, the data logger will save the current system status and it will deactivate measurement. The prompts „Change battery!“ and „Press any key“ will appear on display.

Now the battery of the device can be replaced by a new one as follows.

- Unscrew the four cross-head screws of the housing.
- Loose the pin-and-socket connector at battery pack **carefully** and remove the old battery.
- Place the new battery in the battery tray and fit it with the dedicated retaining clips.
- Connect the new battery with the pin-and socket connector of the data logger.
- Close the housing again without crimping the connecting cable inside.

After subsequent arbitrary keypress, the enquiry „Battery changed?“ will appear. If this is confirmed by „yes“, the current date will be entered and the battery status will be reset to 100%.

Just to refresh the battery date, even if the backup battery is discharged, the menu item „settings/battery“ can be called again. When doing so, confirm any prompts in the same way as you do when changing battery, without removing it again!

## 9 Technical specifications

### 9.1 Data logger

Inputs	maximum 8 inputs for digital transducers logging in the adjusted sample interval AD resolution 16 bit
Data memory	0,5 MB optional 1 MB, 2 MB, 3,8 MB optional changeable memory card (MMC/SD up to 4GB)
Threshold	adjustable upper and lower threshold for each recording channel
Sample rate	freely adjustable from 1s to 1h
AD converter	16 bit (65536 digital levels, $\pm 1\text{LSB}$ )
Real time clock	deviation $\pm 3$ ppm ( $-15^{\circ}\text{C}$ up to $60^{\circ}\text{C}$ )
Storage mode	cycle memory mode (overwrites oldest data at full memory) or straight memory mode (stops at full memory)
Interface	infrared interface, 9600 Bd, maximum 57600 Bd when reading data
LCD	128x64 pixel, with LED background illumination contrast and display duration adjustable
Power supply	BP16.5N5-Ex1 lithium battery intrinsically safe
Working temperature	$-20..60^{\circ}\text{C}$
Storage temperature	$-30..80^{\circ}\text{C}$

#### Transducer interface 1:

plug connector:	type 67L/5
maximum output voltage $U_o$ :	7,8V, permanent supply
maximum output current $I_o$ :	0,394A
maximum output power: $P_o$ :	0,768W
internal capacitance $C_i$ :	15,25 $\mu\text{F}$
maximum external capacitance $C_o$ :	114,75 $\mu\text{F}$
internal inductance $L_i$ :	insignificant
maximum external inductance $L_o$ :	1,6mH

#### Transducer interface 2:

plug connector::	type 67B/5
maximum output voltage $U_o$ :	7,8V, switched in sampling interval
maximum output current $I_o$ :	0,192A
maximum output power: $P_o$ :	0,374W
internal capacitance $C_i$ :	16,81 $\mu\text{F}$
maximum external capacitance $C_o$ :	113,19 $\mu\text{F}$
internal inductance $L_i$ :	insignificant
maximum external inductance $L_o$ :	5,9mH

Note: The inductance of the used transducer must not exceed 1% of the maximum external capacitance  $L_o$ . Data logger, data line (cable) and transducers have to be assessed in terms of intrinsic safety.

## 9.2 Explosion protection

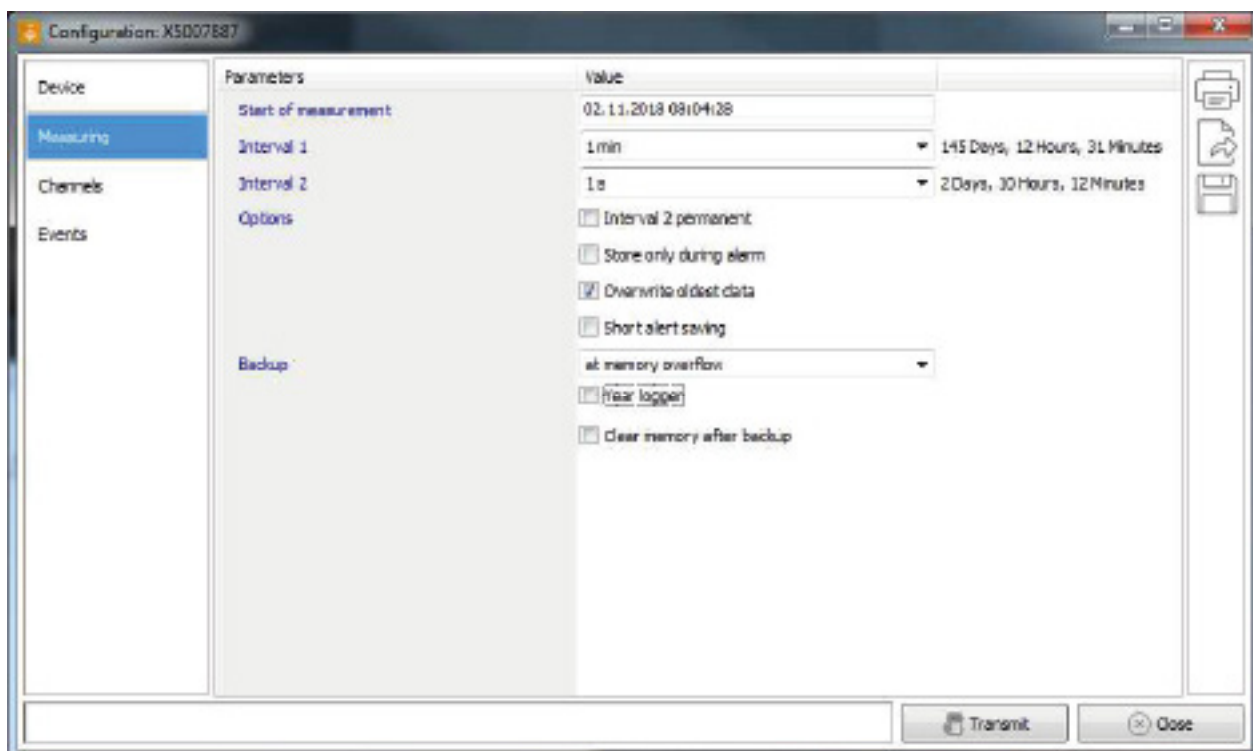
Intrinsically safe  $\text{Ex}$  IIB T4 Gb according to DIN EN 60079-0, DIN EN 60079-11 and DIN EN 60079-28 for intended use within the explosion-hazard area of zone 1.

## 9.3 EMC

Checked in accordance with EN 61000-6-3 (emitted interference in living quarters) and with EN 50081-2 (interference resistance in industrial field).

## 9.4 Data memory

The data loggers have an internal memory with storage depth of 512kB, 1MB, 2MB or 3,8MB. The available recording duration without data overwriting depends on channel occupancy and resolution. The easiest way of reading is provided by the configuration dialog of the software PWB-Soft:



Depending on the parameters setting „ring buffer, measurement stops when the memory is full (ring buffer deactivated) or the oldest data will be overwritten in favour of the new ones (ring buffer activated).

If external data memory (SD/MMC card) is available, backups can be done at memory overflow or regularly (e.g. daily).

### Error sources

The analog signals of transducers are converted into a digital value with resolution of 16 bit. The values, shown in PWB-Soft program or on LCD must be rounded to the defaulted number of decimal places so that the increment between two neighbouring values will not always be identical.

Potential sources of error are non-linearities of the AD converter as well as temperature drift and long-term ageing of components.

## **10 Recycling batteries and old appliances**

Used electric appliances, batteries and rechargeable batteries are subject to particular statutory provisions. Batteries, rechargeable batteries and electric appliances must not be disposed with the household waste. The end user is obligated to return them by the law. Used electric appliances, batteries and rechargeable batteries can be disposed at collecting points, municipal disposal areas or by manufacturer / supplier.

The Paul Wegener GmbH as seller of batteries and electric appliances fulfills its take-back obligation and disposes used batteries and old electric appliances free of charge. This take-back obligation, however, limits itself to used electric appliances, batteries and rechargeable batteries which belong or belonged to the product range of the Paul Wegener GmbH and the amount which was delivered by the Paul Wegener GmbH. The end user bears the forwarding charges.

## EC-DECLARATION OF CONFORMITY


Herewith we declare that the data acquisition systems of type range

### PWBlogg N7/180/D-Ex1

complies with the directive **2014/30/EU** in reference to electromagnetic compatibility and **2014/34/EU** for equipment and protective systems for use according to regulations in consideration of explosion-hazard areas. The data acquisition system has been developed according to following harmonizing of standards:

<b>DIN EN 61000-6-3:2011-09</b>	Subject basic standard for emitted interference – emitted interference for living quarters, business- and trade as well as small firms
<b>DIN EN 61000-6-2:2011-06</b>	Subject standard for interference resistance– industrial sector
<b>DIN EN 60079-0:2019-09</b>	Explosion-hazard areas - section 0: equipment general requirements
<b>DIN EN 60079-11:2012-06</b>	Explosive atmosphere - section 11: equipment protection by intrinsic safety „i“
<b>DIN EN 60079-14:2014-10</b>	Explosion-hazard areas - section 14: project planning, selecting and mounting electrical systems
<b>DIN EN 60079-28:2016-04</b>	Explosion-hazard areas - section 28: protection of devices and transmission systems which operate with optical radiation

Marking as category 2 - equipment for use in explosion-hazard areas of the zone 1:

 **II2G Ex ib op is IIB T4 Gb**  
-20 °C ≤ Ta ≤ +60 °C

EC type-examination certificate:

**IBExU18ATEX1039**

The quality management system is monitored by:

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**The safety advice of the product documentation must be followed!**

Ballenstedt, 16.02.2022

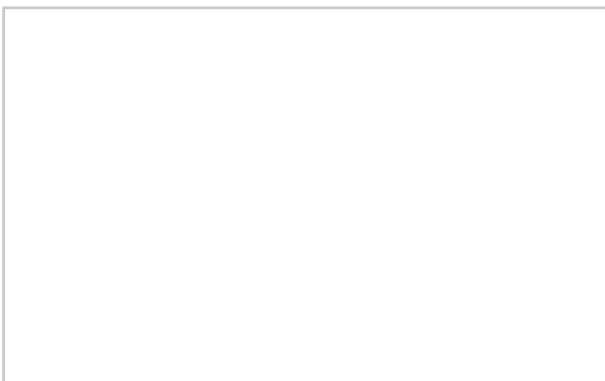


Wegener  
Managing Director

## 11 Troubleshooting

Problem	Measure
Software reports: „No modules found!“	Check the following: <ul style="list-style-type: none"> <li>• whether correct interface chosen</li> <li>• whether cable to data logger and PC is connected properly</li> </ul>
No data stored in the data logger	Check, whether: <ul style="list-style-type: none"> <li>• a pre-set starting time is reached and measurement is activated</li> <li>• battery is functional</li> <li>• all transducers and cable are functional</li> <li>• readings are shown on LCD</li> <li>• moisture is intruded into the data logger</li> </ul>
Battery is exhausted	Change battery or have it changed by manufacturer
Password forgotten	Read out measured data, send reading file to manufacturer
Software does not read performance data completely or reports errors when reading data	Check, whether: <ul style="list-style-type: none"> <li>• all cable connections are made properly</li> <li>• moisture is intruded into the data logger</li> <li>• battery of data logger is functional</li> </ul> <p>Connect it directly again (menu item „module/connect“) and start reading performance data again</p>
Not enough memory	Data backup has to be done. Delete or rather format the card.
Could not create MMC file	General error message if write/read problems on the card occur. Maybe wrong file system or card is not readable.
Data logger notifies: „Card invalid!“	Data storage not possible. Remove card, insert it again, if necessary format it again.
„*“ next to channel display, no reading	Check, whether the respective transducer is <i>connected</i> and in this case repeat the call by long pressing Esc.
„-“ next to channel display, plugged transducer not recognized	Check, whether the transducer has been <i>released</i> . If not, check whether a second transducer with the same address is plugged and <i>connect</i> the transducers successively at different channels.
Short text in status display not readable	Please abbreviate the short text.
Pressure transducer shows value unequal zero during pressureless state	Reset the respective channel to zero when measurement is activated (see chapter 4.2. Reset to zero).





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