# Operating Instructions
# Pressure Transmitter Models DIGPTM..., DIGDTMv...

**B09-860**
**07/23**

## Contents



## 1. Information on This Operating Instruction

- The manual is aimed at specialists and semi-skilled personnel.
- Please read the instructions carefully before carrying out any operation and keep the specified order.
- Thoroughly read and understand the information in chapter 2 “Safety Instructions”.

If you have any problems or questions, please contact your supplier or contact us directly at:


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### 1.1 Pictographs Used

In this manual, pictographs are used as hazard warnings.

Particular information, instructions and restrictions designed for the prevention of personal or substantial property damage:

**WARNING!** Is used to warn you against an imminent danger that may result in personal injury or death.

**IMPORTANT!** Is used to warn you against a possibly hazardous situation that may result in personal, property or environmental damage.

**CAUTION!** Is used to draw your attention to important recommendations to be observed. Disregarding them may result in property damage.

Passages in the text containing **explanations, information or advice** are highlighted with this pictograph.

The following symbol highlights
**actions** you have to conduct
or
**instructions** that have to be strictly observed.

### 1.2 Exclusion of Liability

We accept no liability for any damage or malfunction resulting from incorrect installation, inappropriate use of the device or failure to follow the instructions in this manual.

### 1.3 General Information

Please inspect the transport packaging and the delivered goods immediately upon their receipt to determine their integrity and completeness. You have purchased an instrument that was manufactured in a high quality standard in our company, which is certified according to DIN ISO 9001. Should a reason for complaint however arise, please return the instrument with a precise description of faults to our factory.

The pressure transmitter models DIGPTM... and DIGDTMv... are manufactured in accordance with the corresponding valid standards. The following operating instruction was composed with due care. It is not possible, however, to take into account all variants and possible cases of application in this operating instruction. If you have any questions regarding a special application, instruments, storage, mounting, operation or difficulties, please contact us as manufacturer or the distributor. With special versions (labelling S on the nameplate), please note the specifications indicated on the delivery note.

Please support us in improving this operating instruction. We will gladly accept your advice.

## 2. Safety Instructions

Please read this operating instruction thoroughly before installing the device.
Disregarding the containing warnings, especially the safety instructions, may result in danger for people, the environment, and the device and the system it is connected to.
The instrument corresponds with the state of engineering at the time of printing. This concerns the accuracy, the operating mode and the safe operation of the device.
In order to guarantee that the device operates safely, the operator must act competently and be conscious of safety issues.
The ARMANO Messtechnik GmbH provides support for the use of its products either personally or via relevant literature. The customer verifies that our product is fit for purpose based on our technical information. The customer performs customer and application specific tests to ensure that the product is suitable for the intended use. With this verification, all hazards and risks are transferred to our customers. Our warranty expires in case of inappropriate use.

**Qualified personnel:**

- The personnel that is charged for the installation, operation and maintenance of the instrument must hold a relevant qualification. This can be based on training or relevant tuition. The personnel must be aware of this manual and have access to it at all times.
- The electrical connection shall be carried out by a fully qualified electrician only.

**General safety instructions:**

- In all work, the existing national regulations for accident prevention and safety at the workplace must be complied with. Any internal regulations of the operator must also be complied with, even if these are not mentioned in this manual.
- Degree of protection according to DIN EN 60529: Ensure that the ambient conditions at the installation location do not exceed the requirements of the specified degree of protection (⇨ chapter 4 “Technical Data”).
- Use the device in its perfect technical condition only. Damaged or defective instruments need to be checked immediately and replaced if necessary.
- Only use appropriate tools for mounting, connecting and dismounting the device.
- Nameplates or other information on the device shall neither be removed nor obliterated, since otherwise any warranty and manufacturer responsibility expires.

**IMPORTANT! Disregarding the respective regulations may result in severe personal injuries and / or property damage.**

In order to ensure measurement accuracy and durability of the instrument and to avoid damage, the limit values (⇨ chapter 4 “Technical Data”) have to be observed.
In case of visible damage or malfunctions, the instrument must be put out of operation immediately.
All parts have to be protected against direct contact during the installation of the instrument and the connections.

**Special safety instructions:**

Warnings, which are specifically relevant to individual operating procedures or activities, are to be found at the beginning of the relevant sections of this operating instruction.

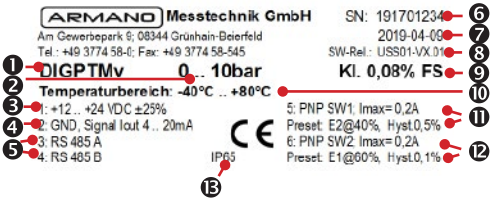
## 3. Device Description

Pressure transmitter models DIGPTM..., DIGDTMv... are temperature-compensated pressure sensors with integrated measuring amplifiers. They measure the pressure in the connected system and convert the measured pressure value into a calibrated, digital and analogue output signal that is suitable for transmission and control.
The transmitter models DIGPTM... and DIGDTMv are additionally equipped with 2 separate, freely programmable PNP-switching outputs that can trigger actions in case of alarm.

Since the transmitter is designed as 2-wire, its signal can be constituted as analogue value 4...20 mA. The current is measured in the minus-branch (⇨ chapter 7 “Operation”). For signalling of possible malfunctions such as a defective measuring cell or exceeding of the pressure range, the internal current source of the transmitter emits a NAMUR status current of < 3.6 mA.

Due to the additional RS-485 interface, the measurement result can also be transferred digitally. Crosslinking of up to 254 transmitters is possible via a bus system. The general rules for RS-485 bus systems apply. Switching functions, software low pass, output signal as well as instrument address can be administered by the user with the USSCOM software via the RS-485 interface. The software furthermore allows for display of the measuring result in some alternative units.

The instrument version is indicated on the nameplate:




❶ Basic model
❷ Pressure range
❸ Power supply
❹ Output signal
❺ Pin assignment
❻ Serial number
❼ Production date
❽ Firmware version
❾ Measurement accuracy
❿ Rated temperature
⓫ Presetting switch 1
⓬ Presetting switch 2
⓭ Degree of protection

### 3.1 Intended Use

The instruments are used for measuring pressures with relative or gauge reference.

Do not use the device beyond its specification or contrary to the operating instructions.

The operational safety of the device supplied is only guaranteed by intended use. The specified limit values (⇨ chapter 4 “Technical Data”) must not be exceeded.
This particularly applies for the adherence to the permissible full scale value and the permissible temperature range.

When using the pressure transmitter, a high degree of care and precaution is required. It has to be protected from strong vibrations, moisture, shocks, magnetic fields and static electricity.

## 4. Technical Data

| Model | DIGPTM | DIGDTMv |
|---|---|---|
| Pressure range | 0 – 4 bar to 0 – 100 bar | 0 – 4 bar to 0 – 400 bar |
| Output signal | • 4...20 mA (measured in GND branch)<br>• digital measurement value (indication via PC)<br>• 2 separate, freely programmable switching outputs | |
| Medium temperature | –40 °C to +80 °C (–40 °F to +176 °F) | |
| Accuracy | ±0.08 % FS in the rated temperature range | ±0.2 % FS |
| Long-term stability | < ±0.05 % p. a. at reference condition | < ±0.2 % p. a. |
| Reference temperature | +20 °C (+68 °F) | |
| Case | stainless steel | |
| Electrical connection | • miniature circular plug connection M 16x0.75<br>• Binder Series 723 / 423; 2...6-pin; EMC-proof version<br>• alternatively: free cable head | |
| Degree of protection acc. to DIN EN 60529 | IP67 (plug connector)<br>IP68 (screwed cable gland) | |
| Correction possibilities | offset (ZERO), span, low-pass (USS-COM software, RS-485 interface) | |

**IMPORTANT! Exceeding the limit values may cause a breakdown of the instrument and result in serious personal and property damage!**

## 5. Installation

**Mounting:**
Remove the packaging with due care! Dispose of the packaging according to environmental conditions and in accordance with the local waste disposal regulations! Please keep the plastic protection caps for a later decommissioning.

**CAUTION! Before installation, putting into operation and operation, ensure that you have the suitable pressure measuring instrument regarding pressure range, version, degree of protection and materials (Risk of corrosion!) for the specific case of application!**

**Please note:**
Avoid any kind of contamination and damage at the process connection and especially at the sealing face!

Do not insert any objects into the process connection!

**IMPORTANT! At process connections with wrench flats, only use the matching torque wrench for installation at the measuring point.**

The wrench must be applied at the designated wrench flat only. The right tightening torque depends on material and shape of the used sealing. **Tightening torque max. 50 Nm!**

- For pressure connections according to DIN EN 837 use profile sealings according to DIN 16258 (⇨ chapter 11 “Accessories”).
- Avoid a direct pressure blast on the sensor diaphragm! In case of doubt, use damping elements (dampers without orifice, etc.), as far as this is possible!

**IMPORTANT! The matching sealings for each connection must be used under all circumstances. Depending on the type of application, even the smallest leak may result in unpredictable personal and property damage!**

## 6. Electrical Connection

Electromagnetic compatibility (EMC) can only be ensured by using shielded cables and a properly connected ground connection. The shield must be connected to the ground terminal of the cable connection box (or the housing, for versions with screwed cable glands).

**Cable:**

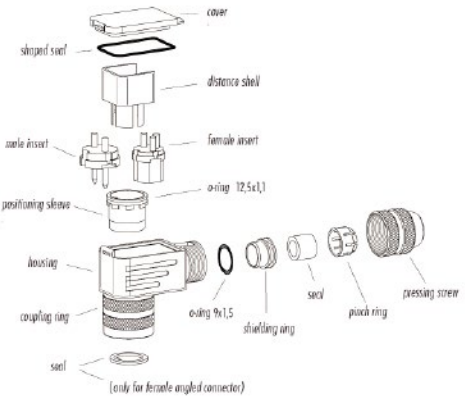
| Type | Screw fitting | Cable cross-section | Cable diameter |
|---|---|---|---|
| Circular plug connector 423 | M 16x0.75 | 2 x 0.5 mm² to 6 x 0.25 mm² e.g. LiYCY | 4...6 mm |
| Skintop EMC IP68 | PG 9 | 2 x 0.5 mm² to 6 x 0.32 mm² | 4...8 mm |

### 6.1 Pin Assignment and Cable Colour Key
(see nameplate)

1 rs/PK: +12...+24 V DC ±25 %
2 gn/GN: GND, signal Iout 4...20 mA
3 ws/WH: RS-485-A
4 bn/BN: RS-485-B
5 ge/YE: switching output 1 (PNP SW1); Imax= 0.2 A
6 gr/GY: switching output 2 (PNP SW2); Imax= 0.2 A
Case: shield

### 6.2 Mounting of the Cable Box Binder Series 423 (EMC)

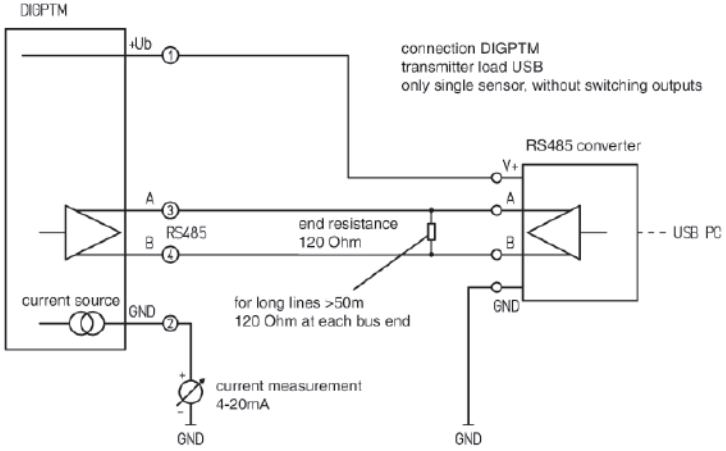
→ Assemble sealing rings
→ Bead cable parts
→ Dismantle cable and shielding braid
→ Push single wires through housing
→ Mount shielding ring and pinch ring
→ Slightly tighten pressing screw
→ Solder single wires to insert
→ Mount positioning sleeve in angled position
→ Put in insert and distance sleeve
→ Mount lid
→ Tighten pressing screw
→ Insert sealing



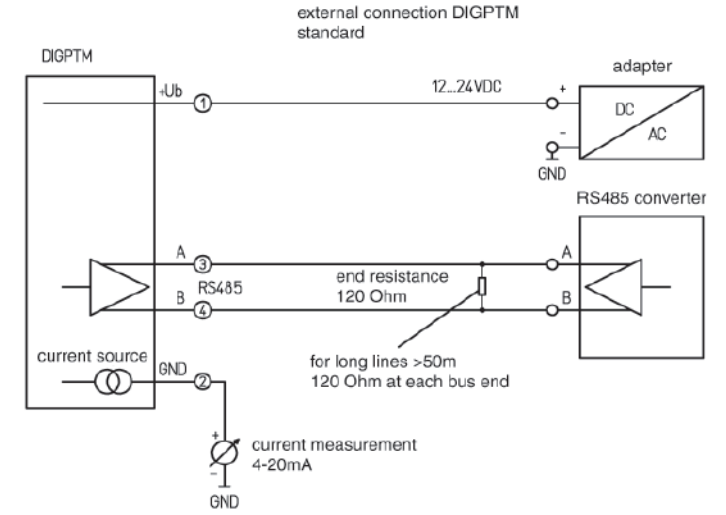

## 7. Operation

**Analogue and Digital Connection:**
**Please note that during the digital communication burst peaks occur on the 2-wire GND line, which affect the analogue measurement!**
**As soon as the digital communication for the respective transmitter is stopped or interrupted, the analogue measuring signal is unrestrictedly available again.**

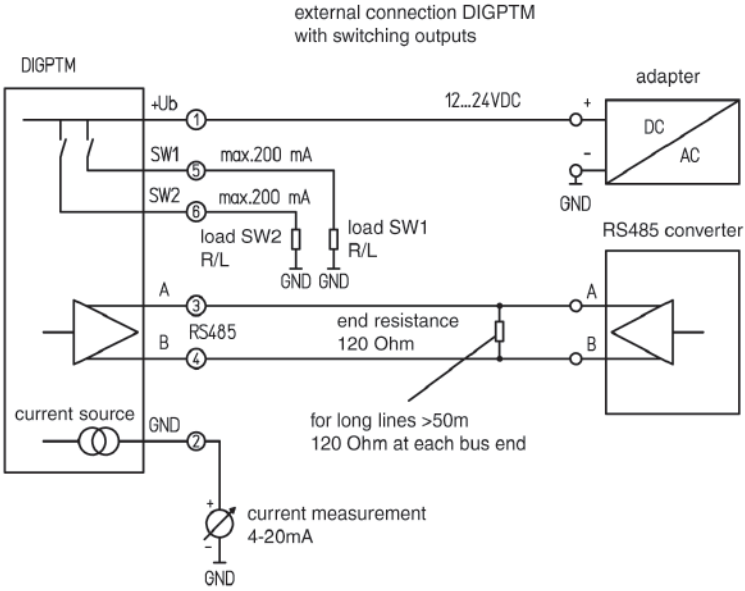
During operation of the transmitter without current-intensive use of the switching outputs it is possible, for the purpose of transmitter administration (address, switch, low-pass, offset, spread), to load the transmitter directly through the USB connection of the PC via the box by using the USB / RS-485 connection box with internal 5 V to 12 V DC-DC-converter. An additional mains adapter is not necessary.




During bus operation of several transmitters, the provided current of the PC USB port is not sufficient. An external current supply is necessary.



The complete wiring with loaded switching outputs also requires an external power supply. Please note that the loads and the current measurement must be assigned separately to GND according to the wiring diagram.




With the help of the USSCOM software (⇨ chapter 11 “Accessories”), the user has the possibility to adjust the transmitter according to his requirements, to display the measured value in different units and to examine instrument information.

In the basic menu, the instrument address is indicated and can be changed if necessary, the switches S1 and S2 can be activated or deactivated, and the current switching condition can be displayed. With the functions “download” and “upload”, the current transmitter configuration can be stored and restored on a data storage medium.

## 8. USSCOM, Software for Administration and Visualisation

Compatibility: WinXP, Vista, Win7 and Win8

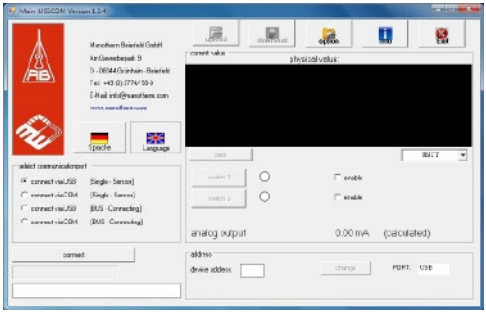
### 8.1 Installation

→ Insert CD
→ Install components with the installer
→ Connect USB cable
→ Connect the RS-485 converter box to the USB cable
→ Automatic driver installation
→ Connect the transmitter to USB / RS-485 converter or the COM-RS-485 interface
→ Start software (via programmes or desktop icon)

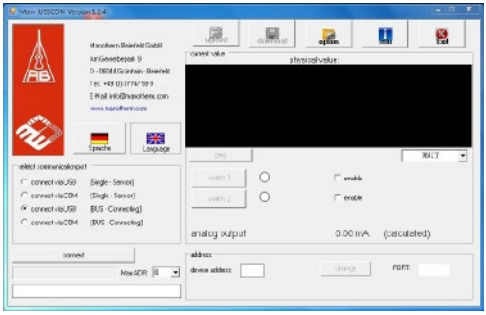
The menus are self-explanatory and are partly equipped with a quick info. If the cursor is positioned on a button, guidelines appear.

### 8.2 Connection with Transmitter / Bus

**Basic menu:**

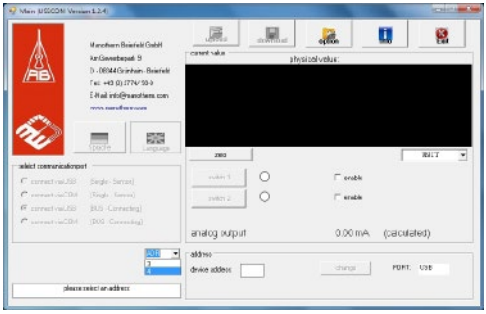


- Language selection German / English
- Communication “Single Sensor” or BUS operation if several sensors are present at RS-485 bus
- Bus connection via USB / RS-485 converter box or RS-485 interface as COM interface



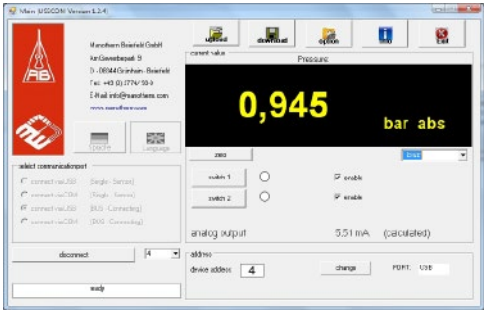
- Select language
- Select connection port (RS-485-COM or RS-485-USB) and connection type (single sensor or bus operation)
- In case of single sensor operation, the communication automatically runs over backdoor address
- In case of bus operation: select address area to be scanned (1...8 or 1...32 or 1...99 or 1...254)

**Addresses serve as specific assignment to measuring points – therefore, each address may only exist once at the bus!**



- Select bus device (address)

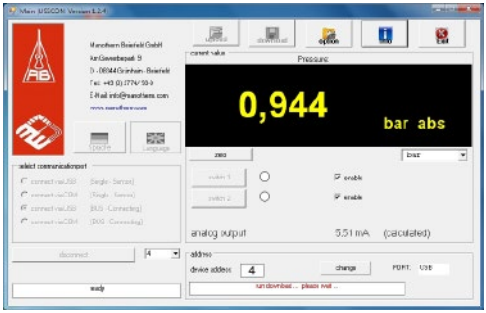
Connected




- Select unit if required

**We strongly recommend to back up the condition at delivery BEFORE changing parameters, to be able to restore the original condition anytime!**

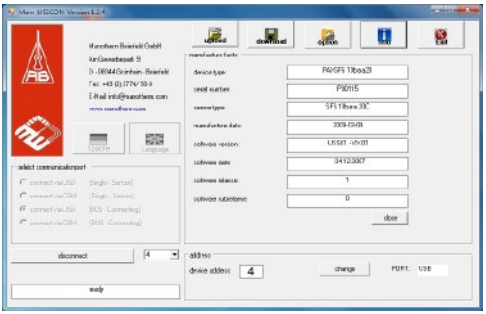
**Back up of original configuration:**




- Button “download” saves the current transmitter configuration on the PC
- Button “upload” writes a selected *.dat-file back into the transmitter

**Each transmitter has its individual calibration data. In each case, the whole transmitter parameter setting is saved or loaded via “download” or “upload” respectively.**
**A change of configuration files inevitably leads to wrong measurements!**

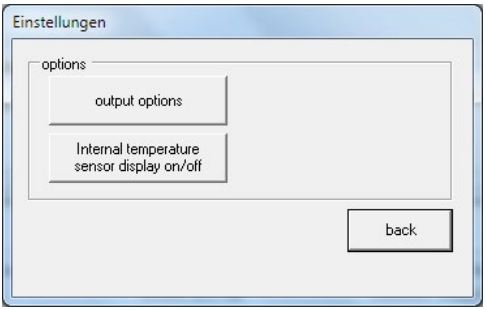
**Button “Info” – the information menu:**



- The button “Info” opens a window, in which device type, serial number, sensor type, manufacture date and software release etc. are displayed
- This indication can be exited with the button “back”

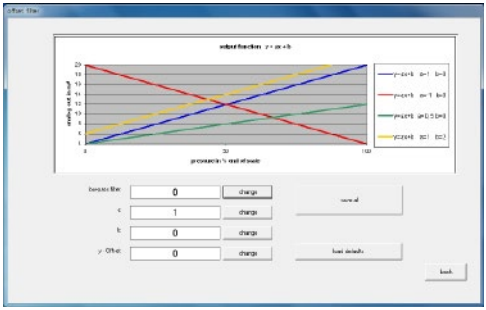
- Button “Exit” –
exits the programme “USSCOM”

- Button “option” –
setting of transmitter and software




- Activating the internal temperature sensor display indicates the temperature in the basic menu until reboot

**Menu "output options":**



The displayed measured value is calculated on the basis of the following formula:

$$\text{Output} = a * x + b - \text{Offset}$$

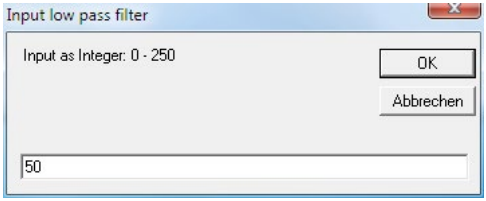
"Output" = displayed measured value digital
"x" = real pressure, measured value
"a" = spread factor (factor span, slew rate)
"b" = shift of the characteristic diagram
"Offset" = also shift of the characteristic diagram

[ "Output", "b", "x" and "Offset" in bar! ]

**Changes of the values a, b and Offset change the calculated digitally displayed measured value, which accordingly also affects the analogue measured value!**

**IMPORTANT! Changes of the values a, b and offset may thus only be executed by qualified personnel! An incorrectly adjusted pressure range may result in unpredictable bodily injuries and damage to equipment!**
**A spread of the pressure range always results in an increase of the measuring error by the same factor.**

**Software low-pass:**

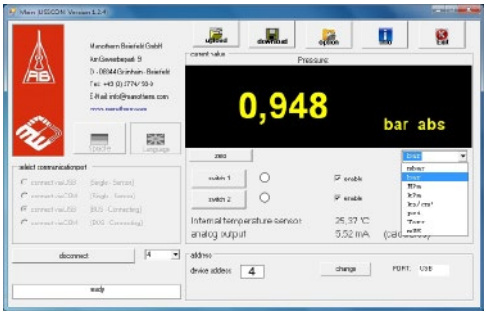



The digital software low-pass serves as averaging calculation of several measured values, in order to arithmetically settle a signal, which varies through pulsation. Its adjustment range comprises 0 to 250. The low-pass is ineffective at "0". The damping degree is calculated according to the following formula:

$$P = ((P(n-1) * \text{SoftwareLP} - 1) + P(n)) / \text{SoftwareLP}$$

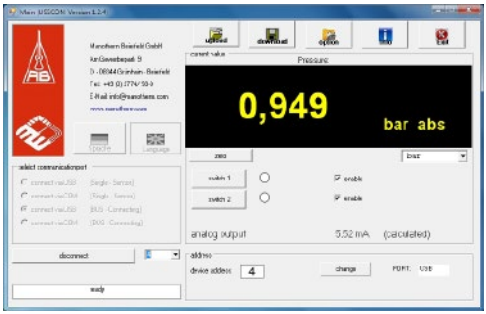
## 8.3 The Measuring Procedure in the Basic Menu

**Select pressure unit:**



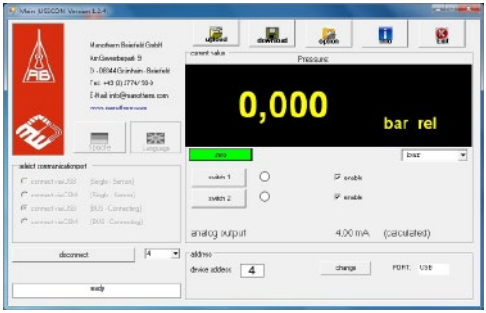

- Selection of a pressure unit according to the proposed list

**Zero adjustment – button “zero”:**

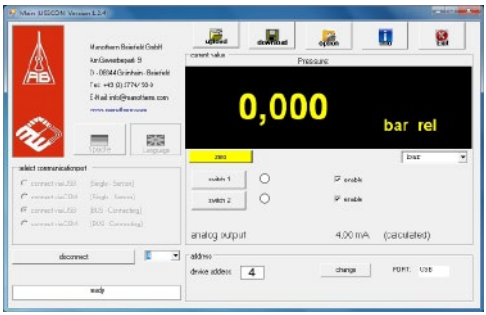



The button “zero” serves for the zero setting of the atmospherically vented transmitter before starting the gauge pressure measurement (the addition “abs” in the display disappears); the display is set to “0”, the “zero” button is highlighted green.

**Gauge pressure measurement on the tared transmitter:**




With taring, the current measured value is added to the register “Offset” and is thus thereafter always subtracted (see point “output options”). Thus, it is possible to measure “gauge pressures” even with absolute pressure transmitters and to suppress fluctuations of the air pressure or the geographical installation altitude.
As long as the offset value in the menu “output options” is not equal “0”, the unit addition “abs” is not displayable – an absolute pressure measurement is not possible either. For this purpose, the “Offset” in the menu “output options” has to be set to “0” or the transmitter has to be set back to its factory settings.




When switching between different transmitters (measuring points) in bus operation, the “zero” button is highlighted yellow if the “Offset” register is not set to “0”, which means that a previous zero setting is still set. This indicates that no new taring of the measuring chain was performed.

## 8.4 The Switching Functions of the Transmitter

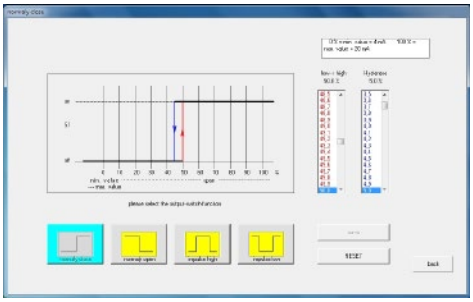
- In the basic menu, the switches of the transmitter can be activated or deactivated
- The current switching states of the particular switches are indicated via the green display.

**Setting of the switches:**
When a switch is activated (enabled), the required switching function is selected from the 4 different switching symbols at first. The variable parameters (switching point and switching hysteresis) can be selected via the sliders.

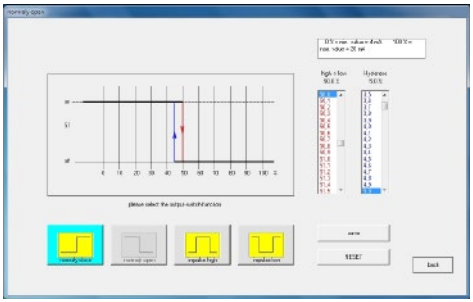
The % values always refer to the entire pressure range (which is the output current 4...20 mA).
After setting the switching parameters, the updated switch configuration is saved to the transmitter by clicking the button “save”.

**The switch configuration saved in this way, remains saved in the transmitter, even if there is no digital communication (2-wire operation) or the transmitter is temporarily disconnected from the power supply.**

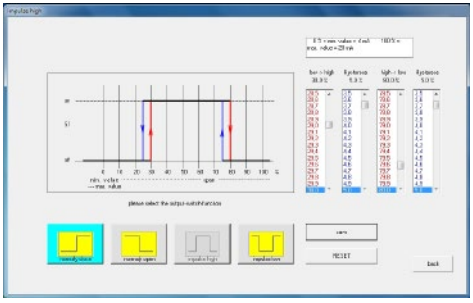
Contactor



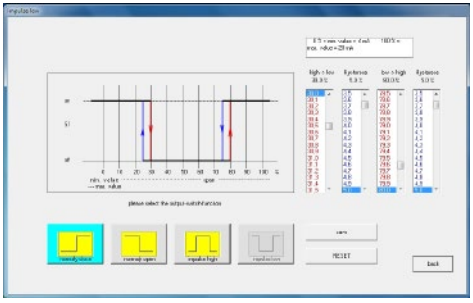
Breaker



Window



Window inverse



## 9. Maintenance / Cleaning, Storage and Transport

**CAUTION! Material damage and loss of warranty!**
Any modifications or interventions in the device, made by the customer, might damage important parts or components. Such intervention leads to the loss of any warranty and manufacturer's responsibility!
→ Never modify the device or perform any repairs yourself.

**Maintenance:**
Our pressure transmitters are maintenance-free.
In case of faults, which cannot be corrected by controlling the digital parameter setting within the scope of the USSCOM software (RESET, factory settings), please return the pressure transmitter, together with a precise description of the faults, to the manufacturer for repair. Any arising repairs may only be executed by the manufacturer.

**Cleaning**:
- Clean the device with a dry or slightly dampened soft cloth.
- Do not use any sharp objects or aggressive agents for cleaning.

**CAUTION! Never use sharp or hard objects or ultrasonic baths when cleaning the pressure connection, as these destroy the sensor!**

**Storage and transport:**
**Pressure transmitters are sensitive sensors and have to be handled with due care.**

- Use the original packaging or comparable packaging for storage / for transport. Especially the protection cap should not be removed from the process connection and the plug connector until the installation of the device.
- Avoid impacts or strong vibrations.
- Protect the device against damage caused by external influences.
- During storage, the specified temperature limits must not be exceeded.

## 10. Dismounting and Disposal

**WARNING! Risk of injury!**
Never remove the device from a system in operation.
Make sure that the system is switched off professionally.

**Before dismounting:**
Check before dismounting, whether the system
- is switched off,
- is in a safe and currentless state,
- is unpressurised and cooled down.

**Dismounting:**
→ Pay attention to potentially leaking media. Take appropriate precautions to collect them.
→ Please clean the process connection before attaching the protection cap.
→ In case of contamination of the transmitter with physiologically, chemically or ecologically harmful substances, please mark this before return or storage and choose a suitable packaging.

**Disposal:**
In compliance with the directives 2011/65/EU (RoHS) and 2012/19/EU (WEEE), the device must be disposed of separately as electrical and electronic waste. Please regard legal regulations of the country of distribution.

**NO DOMESTIC WASTE!**
The device comprises various materials. It shall not be disposed of together with domestic waste.

→ Bring the device to your local recycling plant

or

→ send the device back to your supplier or to the ARMANO Messtechnik GmbH.

## 11. Accessories

**USSCOM software:**

for digital display of the measuring value and adjustment of the switching outputs, the software low pass, the offset and the instrument address

**item number:** 1000 25 0002

**USB / RS-485 connection box:**


for PC communication of the transmitter(s) to a PC via USB port and for feeding with 12 V DC to 0.165 A

**item number:** 1000 25 0001

**CU form sealing:**

**item number:** 1000 118 005 (G ¼ B, M 12x1.5)

**item number:** 1000 118 006 (G ¼ B, G ⅜ B, M 20x1.5)

## 12. CE Conformity

The CE marking of the instruments certifies the conformity with prevailing EU directives for placing products on the market within the European Union. The following directives apply:

EN 61326-1:2013 (EMC) and
2014/68/EU (PED)
The corresponding declaration of conformity is enclosed or available upon request.

## 13. Electrical Malfunctions

| Fault Description | Potential Cause | Correction |
|---|---|---|
| No output signal | missing operating voltage | apply operating voltage |
| | broken cable | check the cable and repair it |
| | wiring fault | check the wiring and correct it |
| | missing input pressure | check the pressure connection, apply pressure |
| | operating conditions not permissible | return to works with description of faults and operating conditions |
| Output signal constant | clogged orifice | check the measuring point, clean it carefully, if necessary return to works with description of faults |
| | NAMUR fault report (Iout < 3.6 mA) | return to works with description of faults |
| | defective pressure transmitter | return to works with description of faults |
| Output signal too high | pressure range incorrect | replace pressure transmitter |
| | pressure transmitter scaled incorrectly | reset values a, b and Offset to factory setting (RESET) via USSCOM software |
| | defective pressure transmitter | return to works with description of faults |
| Output signal too low | pressure range incorrect | replace pressure transmitter |
| | load impedance too high | reduce load impedance or increase operating voltage; calculation see data sheet |
| | pressure transmitter scaled incorrectly | reset values a, b and Offset to factory setting (RESET) via USSCOM software |
| | NAMUR fault report (Iout < 3.6 mA) | return to works with description of faults |
| | operating voltage too low | increase operating voltage |
| | defective pressure transmitter | return to works with description of faults |
| Incorrect zero signal | zero point misaligned due to non-permissible operating conditions | return to works with description of faults |
| | operating voltage not permissible | apply permissible operating voltage |
| | NAMUR fault report (Iout < 3.6 mA) | return to works with description of faults |
| | pressure transmitter scaled incorrectly | reset values a, b and Offset to factory setting (RESET) via USSCOM software |
| | defective pressure transmitter | return to works with description of faults |
| No RS-485 communication | check wiring of RS-485-A and RS-485-B | if applicable, change cable connection A and B |
| | check driver settings | check driver for RS-485 converter, check settings of PC interface card: asynchronous, half-duplex, NRZ format,1 start bit, 8 data bits, 1 stop bit, without parity; (Autogate, Half-Duplex, UART-Type BB950) |
| | incorrect instrument address or repeatedly assigned in the bus | correct address(es) |
| | defective pressure transmitter, NAMUR fault report (Iout < 3.6 mA) | return to works with description of faults |

## 14. Declaration of Conformity

# EU-Konformitätserklärung

# *EU Declaration of Conformity*

Für die nachfolgend bezeichneten Erzeugnisse

*We hereby declare for the following named goods*

**DRUCKMESSUMFORMER**

***PRESSURE TRANSMITTER***

**Typen DIGPTM... und DIGDTMvUHP**

***Models DIGPTM... and DIGDTMvUHP***

wird hiermit bestätigt,

dass sie den wesentlichen Schutzanforderungen entsprechen, die in der Richtlinie des Rates zur Angleichung der Rechtsvorschriften der Mitgliedstaaten über die elektromagnetische Verträglichkeit (2014/30/EU) festgelegt sind.

*that they meet the essential protective requirements, which have been fixed in the Directive of the European Parliament and the Council on the approximation of the laws of the Member States relating to the electromagnetic compatibility (2014/30/EU).*

Diese Erklärung gilt für alle Exemplare, die nach den Datenblättern 9860, 9860.2, 9870.21 und 9891 hergestellt werden.

*This declaration applies to any specimen manufactured according to the data sheets 9860, 9860.2, 9870.21 and 9891.*

Zur Beurteilung der Erzeugnisse hinsichtlich elektromagnetischer Verträglichkeit wurden folgende Normen herangezogen:

*The following standards have been used to assess the goods regarding their electromagnetic compatibility:*

**IEC 61326-1:2022-11**
**DIN EN 61326-1:2022-11**

Des Weiteren fallen diese Geräte mit einem Druckmessbereich >0,5 bar als „druckhaltende Ausrüstungsteile“ unter die

*Moreover, these instruments with a pressure range >0.5 bar are, as pressure equipment parts, subject to*

**Druckgeräterichtlinie (2014/68/EU)**

***Pressure Equipment Directive (2014/68/EU)***

Die Geräte werden nach geltender guter Ingenieurpraxis ausgelegt und gefertigt.

*The instruments are designed and manufactured according to sound engineering practice.*

Mit Messbereichen ab 0 – 200 bar werden sie folgendem Konformitätsbewertungsverfahren unterzogen:

*Versions with pressure ranges from 0 – 200 bar are subjected to the following conformity assessment procedure*

**Modul A „Interne Fertigungskontrolle“**

***Module A “Internal Production Control”***

Soweit zutreffend erstreckt sich die CE-Kennzeichnung dann auch auf diese Richtlinie.

*As far as they are concerned, the CE-marking then also applies to this directive.*

Diese Erklärung wird verantwortlich für den Hersteller:
*This declaration is issued under the sole responsibility of the manufacturer:*

**ARMANO Messtechnik GmbH**
abgegeben durch / *by*
Grünhain-Beierfeld, 2023-06-09

**Bernd Vetter**
Geschäftsführender Gesellschafter / *Managing Director*

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