

Operating manual



Display and Switching Unit ASM 430



Important notes:





-  Please read this operating manual carefully before installing and starting up the device.
-  This operating manual must be kept at an accessible location for further use.
-  This operating manual describes installation and operation of the display and switching unit ASM 430. Information about pressure transmitters from BD SENSORS can be found in the respective product-specific operating manual.
-  The device may only be installed, used and serviced by persons who are familiar with this operating manual as well as with the applicable regulations on occupational safety and accident prevention.

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1. General

1.1 Information on the intended use

- By means of the display and switching module ASM 430, any measuring transmitter can be equipped with a display of measured value and completed with up to 2 contacts. Due to the joining thread M27x1.5, the ASM 430 is especially suited for rotationally symmetric transmitters already having this thread or allowing easy adaption to it.
- In electrical respect, transmitters or transducers with 4 ... 20 mA / 2-wire or 0 ... 10 V / 3-wire analogue output are suited. The unit is electrically connected by cords.
- The display can be freely programmed via two push-buttons. For example scaling, decimal point, damping, and limit contact (optional) can be adjusted. Limit exceeding in both directions can be displayed as a message.
- The device shall be used according to the area of application specified above!
- No liability is assumed and warranty claims are excluded in case of improper application, modification of or damage to the device.

1.2 Target group

This operating manual is intended for qualified technical personnel.

The display and switching unit ASM 430 has been exclusively designed for qualified companies that have a large know how in the final assembly of fine mechanical and electrical devices as well as bonding, joining and soldering technologies.

1.3 Symbols used



: Caution



: Note

1.4 Safety notes

The following notes must be observed to avoid hazards for the operator and his environment:



The device may only be installed, used and serviced by persons who are familiar with this operating manual!



Applicable regulations regarding occupational safety, accident prevention and national installation standards must be complied with!



The product must only be used within the specifications! (Compare the technical data under "Appendix".)



The electronical assembly group in the ASM 430 is equipped with EMC components. The manufacturer of the total appliance must ensure CE conformity.



Mount the device in the currentless condition!

1.5 Package contents

Please verify that all listed parts are included in the delivery:

- Display and switching unit ASM 430
- Sheet of labels
- only with plug DIN 43650:
cable socket with profile seal and fastening screw
- O-ring 22x1.5 NBR
- Operating Manual "ASM 430"

2. Product identification

The device can be identified by its type plate. It provides the most important data. By the ordering code the product can be clearly identified. For identification of the firmware, the program version (e. g. P07) will appear for about 1 second in the display after starting up the device. Please hold it ready for inquiry calls.

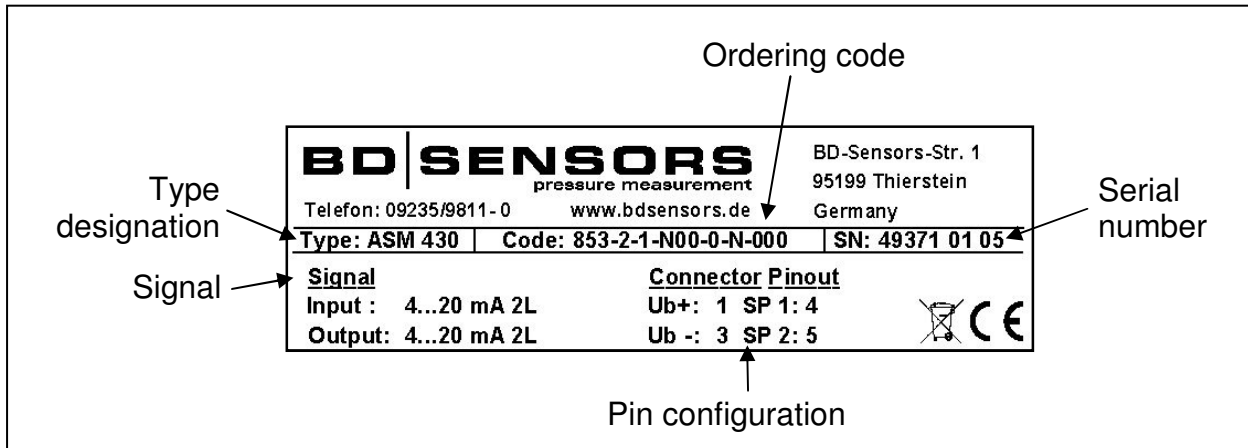


Fig. 1 type plate

☞ If you have a device with ATEX approval, the number of EC type-examination certificate, Ex-designation and safety specific technical max. values are also mentioned on the type plate.

3. Installation

3.1 General notes

- Please note that this device is a precision electronic instrument. Handle the device carefully, so that there is no damage to the plastic surface and housing parts.
- The display and the plastic housing are equipped with a rotational limiter. Please do only rotate the display or the housing within the limit.
- The ingress protection of the manufactured device depends on the housing, mounted by the customer: protection classes up to IP 65 can be reached; by factory the device is delivered with an ingress protection of IP 00.

3.2 Necessary utilities

- O-ring 22x1.5 NBR (included in the scope of delivery)
- suitable adhesive; e. g. Loctite 243
- if the electrical connection should be made by soldering: soldering iron, soldering grease and tin-solder
- if the electrical connection should be pluggable: crimping tool and a compatible plug connection
- pliers and face spanner 2.5 mm for mechanical fastening
- device for simulation of the measuring range (e. g. pressure calibrator) and for measuring the output signal (digital multimeter)
- device for checking the contact functions

3.3 Installation steps

- Place the O-ring 22 x 1.5 over the cables emerging from the ASM 430 and insert it into the designated slot of the ASM 430.
- Establish the electrical contact according to the description below.
- Check the output signal of the transmitter and compare it with the indicated value.
- Wet the cleaned glue surface (thread) of the transmitter with adhesive (e. g. Loctite).
- In order to avoid distortion of the connection cables at the final assembly, it is imperative to twist the ASM 430 approximately 4 1/2 turns counter-clockwise.
- Subsequently, fix the appliance onto the transmitter with approximately 4 1/2 clockwise turns.

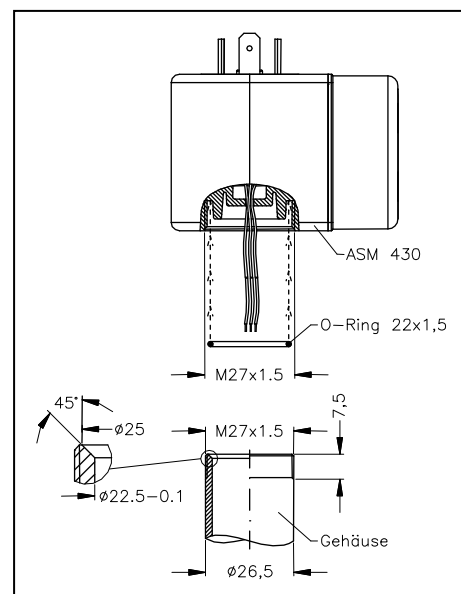


Fig. 2 mounting drawing

3.4 Positioning of the display and switching unit

The display and switching unit is rotatable so that clear readability is guaranteed even on unusual installation positions. In the following figure the rotatability of the display module is shown.

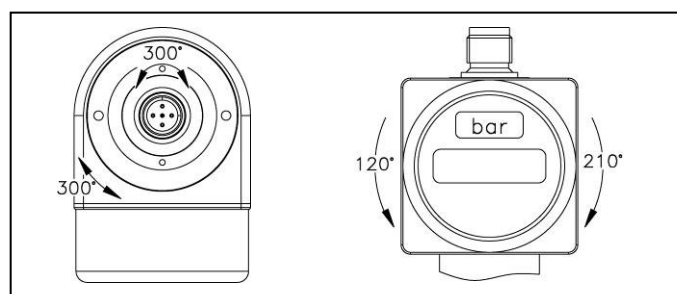


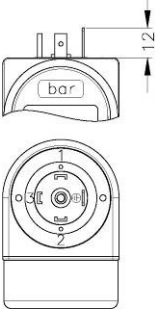
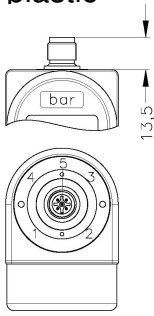
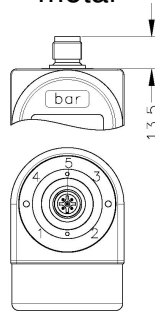
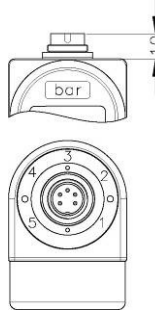
Fig. 3 Positioning of the display module

3.5 Electrical installation

The following table describes how to install the ASM 430 on the transmitter. The connection has to be made by soldering or pluggable.

Electrical connection	2-wire	3-wire	comment
Supply +	white	white	This line must be connected with the positive power supply of the transmitter.
Supply -	brown	grey	This line must be connected with the negative power supply of the transmitter.
GND, Ground	grey	yellow / green	For devices with plug versions DIN 43650, M12x1 metal and cable outlet, this line must be connected with the sensor housing (shield, ground).
Signal	-	brown	This line must be connected with the negative signal output of the transmitter (only for 3-wire-circuit 0 ... 10 V).

Pin configuration (plug sided)

cords (length 45 mm)	DIN 43650	M12x1 plastic	M12x1 metal	Binder 723
				
Supply +	1	1	1	3
Supply –	2	3	3	4
Signal + (with 3-wire)	3 ¹	2	2	1
Contact 1	3 ¹	4	4	2
Contact 2	-	5	5	1
Ground	ground contact	has to be connected ²	plug housing	5

3.6 Supply 2-wire-system

The supply created by the electronics of the device is approx. 6 V_{DC}. Please take this into consideration when planning your power supply. The tolerances for the power supply can be calculated as follows:

minimum supply: $V_{S \min} = V_{\min Tr} + 6 V$

maximum supply: $V_{S \max} = V_{\max Tr} + 6 V$

$V_{\min Tr}$ = minimum supply of the used transmitter

$V_{\max Tr}$ = maximum supply of the used transmitter



With Ex-protection the max. supply for a combination of transmitter and ASM 430 is 28 V_{DC}.

3.7 Supply 3-wire-system

minimum supply:

The minimum supply ($V_{S \min}$) of the ASM 430 is 8 V. The connected transmitter is supplied by the ASM 430, so the minimum supply of the transmitter must be used for the total appliance if it is higher than 8 V. The following formulas are valid:

if: $V_{Tr \min} \geq 8 V$: $V_{S \min} = V_{Tr \min}$

if $V_{Tr \min} < 8 V$: $V_{S \min} = 8 V$

$V_{Tr \min}$ = minimum supply of the used 3-wire transmitter

maximum supply:

The maximum supply of the ASM 430 ($V_{S \max}$) is 36 V. As the connected transmitter is also supplied by the ASM 430, the maximum supply does not only depend on the supply of the ASM 430. If the maximum supply of the transmitter is lower than 36 V, the maximum supply of the total appliance may not exceed the transmitter's value. The following formulas are valid:

¹ pin configuration depends on the version of device

² has to be connected by the customer (e. g. via pressure port)

if $V_{Tr\max} \geq 36\text{ V}$: $V_{S\max} = 36\text{ V}$

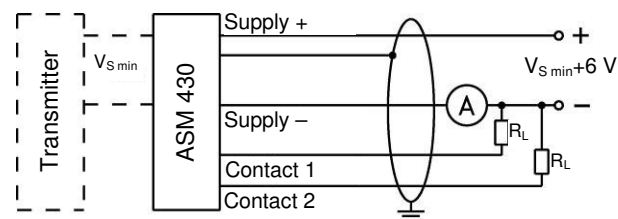
if $V_{Tr\max} < 36\text{ V}$: $V_{S\max} = V_{Tr\max}$

$V_{MU\max}$ = maximum supply of the used 3-wire transmitter

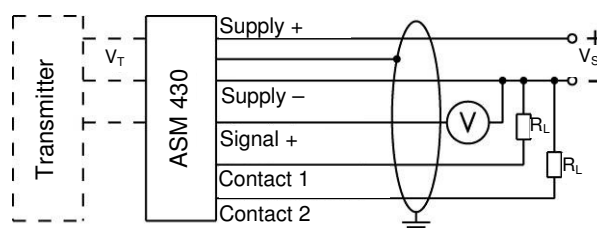
3.8 Wiring diagrams

For the usage with BD SENSORS pressure transmitters, the following wiring diagrams are valid. For electrical connection a sheathed and twisted multicore cable is recommended.

2-wire-system (current)



3-wire-system (voltage)



V_{Tr} : supply of the used 3-wire transmitter

$V_{S\min}$: minimum supply of the used 2-wire transmitter

3.9 Test of signal and displayed value

After the assembly of the transmitter you should in any case perform a test of the displayed value. For this purpose you should connect the ASM 430 in accordance with the technical specification. In the subsequent step you should carry out the settings at the zero point (menu 3), the final point (menu 4), as well as the decimal point (menu 2). The displayed value of the ASM 430 should correspond to the respective measuring value of the transmitter.

3.10 Final inspection of the completely assembled compact appliance

It is essential to test the displayed value as well as the switching function for final inspection again. The switching function may be externally tested by a variety of procedures. The use of two external LEDs, which are triggered through protective resistors, is the simplest and most suitable way.

4. Operation

4.1 Operating and display elements

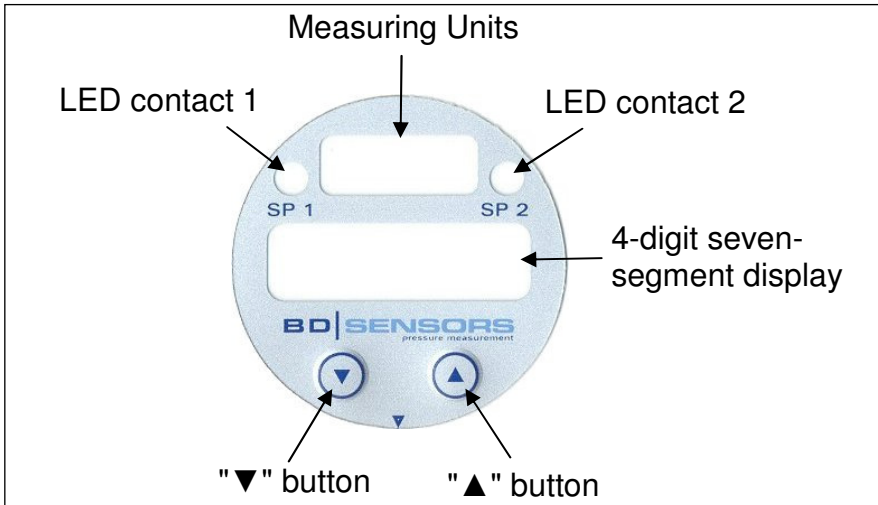


Fig. 4 Touchpad

The device has a green LED for displaying the active contact of set point 1 and a yellow LED for displaying the active contact of set point 2. The LEDs will light up when the respective set point has been reached and the contact is active.

The display of the measured value as well as the configuration of the individual parameters occur through a menu via a 4-digit seven-segment display. The individual functions can be set with the help of two miniature push buttons located in the front.

- **"▲" button:** with this button you move forward in the menu system or increase the displayed value
- **"▼" button:** with this button you move back in the menu system or decrease the displayed value
- **both buttons simultaneously:** if both buttons are pushed simultaneously, the device changes between display and configuration mode; you can also confirm the menu items and set values

👉 When setting the values, you can increase the counting speed by keeping the respective button ("▲" or "▼") pushed for more than 5 seconds.

4.2 Menu operation

The menu system is a closed system allowing you to scroll both forward and backward through the individual set-up menus to navigate to the desired setting item. All settings are permanently stored in an EEPROM and therefore available again even after disconnecting from the supply voltage. The menu system and the menu items have been designed as simply as possible. Below, each individual menu item is described in detail allowing a straightforward and quick configuration of your device. The structure of the menu system is identical for devices with or without contacts. They only deviate by the grey marked menus, which are only available in devices with contacts. In the menu system of devices with one contact, the menus 9, 10, 12, 15 and 16 are missing.

👉 Please follow the manual meticulously and remember that changes of the adjustable parameters (switch-on point, switch-off point, etc.) become only effective after pushing both buttons simultaneously and after leaving the menu item.

4.3 Password system

The device is equipped with an access protection to permit operation of the complete menu system only to authorized persons.

- Activating the access protection with the password will lock the complete menu.
- Deactivating the access protection with the password will unlock the complete menu.
 - ☞ The password can be activated and deactivated through menu "PAon" resp. "PAof".
 - ☞ It can be changed according to special menu 4.
 - ☞ In case the password has been lost, there is a possibility to reset the password. You can do this by loading the defaults via special menu 3.

4.4 Unit

The unit of the values to be measured is determined on ordering. But it is also possible to change the unit later by using one of the enclosed unit labels.

4.5 Structure of the menu system

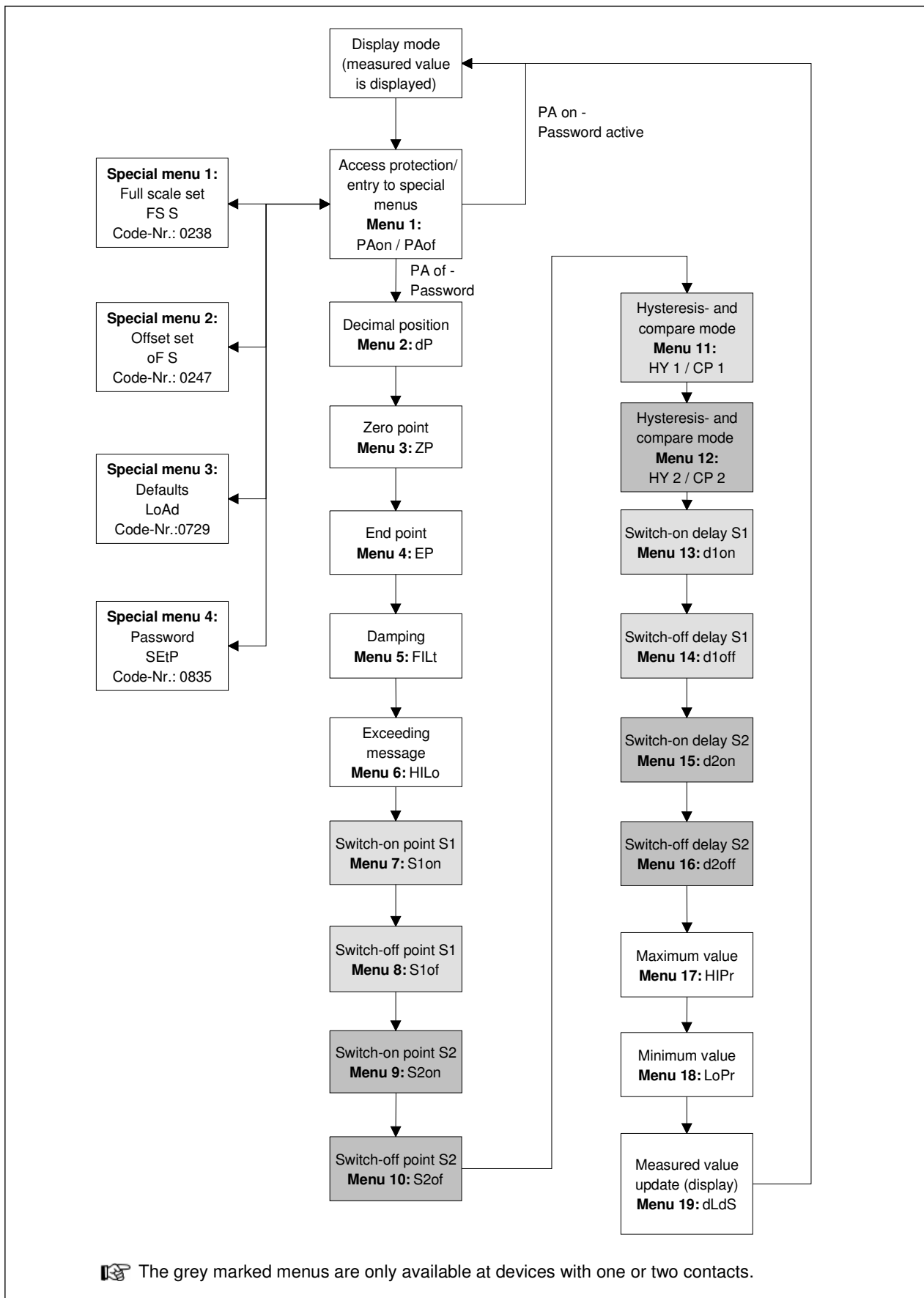


Fig. 5 Menu system Rev. P07

4.6 Menu list

Menu 1 – Access protection


PAon

If the password is active, the menu "PAon" will appear. Before being able to perform settings in the menu system, you must first enter the password. Proceed as follows for deactivation: Press both buttons simultaneously to confirm the menu item "PAon". Then set a password using the "▲" or "▼" buttons and confirm it by pushing both buttons together. The menu system is now unlocked and "PAof" will appear in the display. You can now proceed as desired.

PAof

If the password is inactive, the menu "PAof" will appear. To activate the access protection, press both buttons simultaneously. Then set your password using the "▲" or "▼" buttons to activate the access protection. Confirm the password with both buttons. The menu system is now locked completely and "PAon" will appear in the display.

The default setting for the password is "0005".

 A modification of the password is described in special menu 4.

Menu 2 - Setting the decimal point position

dP

After confirming "dP" by pushing both buttons, the position of the decimal point can be selected. Set the desired position by using the "▲" or "▼" button. To complete the setting, push both buttons simultaneously.

Menu 3 - Setting the zero point

ZP

After confirming "ZP" by pushing both buttons, the zero point can be set. The value set is shown when the output signal of the transmitter is 4 mA (zero point). To complete the setting, push both buttons simultaneously.

Menu 4 - Setting the end point

EP

After confirming "EP" by pushing both buttons, the end point can be set. The programmed value will be shown when the electrical output signal of the transmitter is 20 mA (end point). To complete the setting, push both buttons simultaneously.

Menu 5 – Setting the damping (filter)

FILT

After confirming "FILt" by pushing both buttons, the time constant for a simulated low-pass filter can be set. This function allows getting a constant display value although the measuring values may vary considerably. The permissible range reaches from 0.3 up to 30 seconds. To complete the setting, push both buttons simultaneously.

Menu 6 – Activation of the exceeding message

HILO


After confirming "HILO" by pushing both buttons, the alarm for exceeding the range of the display can be activated. Condition "on" or "off" can be selected. To complete the setting, push both but-

tons simultaneously.

Menu 7 - Setting the switch-on point for contact 1

5 1on


After confirming "S1on" by pushing both buttons, the value to activate contact 1 can be set. To complete the setting, push both buttons simultaneously.

 Please take further information from the figures in menu 11.

Menu 8 - Setting the switch-off point for contact 1

5 1oF


After confirming "S1oF" by pushing both buttons, the value to deactivate contact 1 can be set. To complete the setting, push both buttons simultaneously.

 Please take further information from the figures in menu 11.

Menu 9 - Setting the switch-on point for contact 2

5 2on


After confirming "S2on" by pushing both buttons, the value to activate contact 2 can be set. To complete the setting, push both buttons simultaneously.

 Please take further information from the figures in menu 11.

Menu 10 - Setting the switch-off point for contact 2

5 2oF


After confirming "S2oF" by pushing both buttons, the value to deactivate contact 2 can be set. To complete the setting, push both buttons simultaneously.

 Please take further information from the figures in menu 11.

Menu 11 – Hysteresis and compare mode of set point 1

HY 1
CP 1

After confirming "HY 1" resp. "CP 1" by pushing both buttons, you can choose between hysteresis and compare mode for contact 1. To complete the setting, push both buttons simultaneously.

 The following figures show the difference between hysteresis and compare mode as well as their inversion. To invert the respective modes, you must exchange the values for switch-on point and switch-off point.

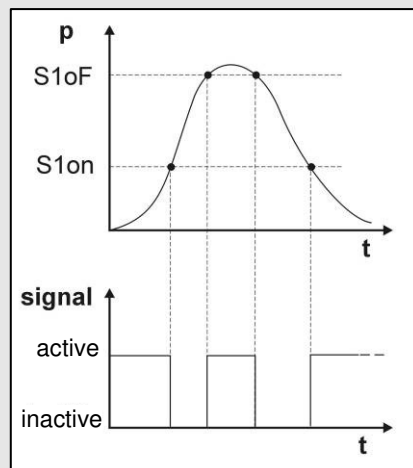


Fig. 6 compare mode

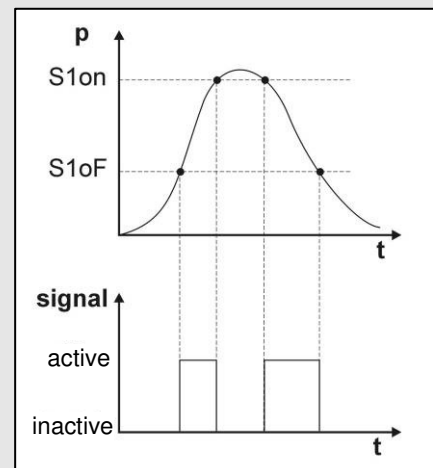


Fig. 7 compare mode inverted

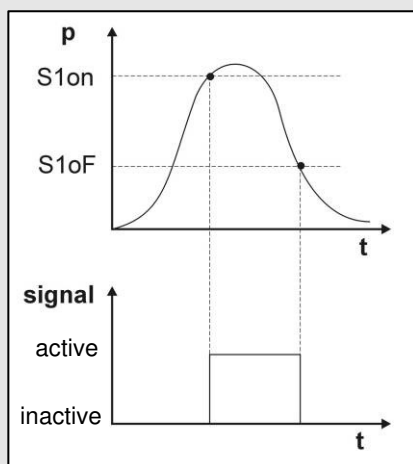


Fig. 8 Hysteresis mode

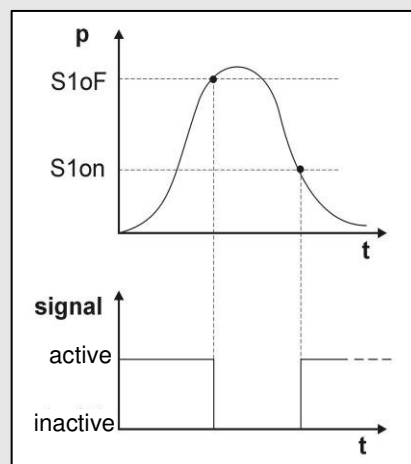


Fig. 9 Hysteresis mode inverted

Menu 12 – Hysteresis and compare mode of set point 2

HY 2
CP 2

After confirming "HY 2" or "CP 2" by pushing both buttons, you can choose between hysteresis and compare mode for contact 2. To complete the setting, push both buttons simultaneously.



Please take further information from the figures in menu 11.

Menu 13 – Setting the switch-on delay for set point 1

d1on

After confirming "d1on" by pushing both buttons, the switch-on delay after reaching contact 1 can be set. The time can be set from 0 up to 100 seconds. To complete the setting, push both buttons simultaneously.

Menu 14 – Setting the switch-off delay for set point 1

d1oF

After confirming "d1oF" by pushing both buttons, the switch-off delay after reaching contact 1 can be set. The time can be set from 0 up to 100 seconds. To complete the setting, push both buttons simultaneously.

Menu 15 – Setting the switch-on delay for set point 2

d2on

After confirming "d2on" by pushing both buttons, the switch-on delay after reaching contact 2 can be set. The time can be set from 0 up to 100 seconds. To complete the setting, push both buttons simultaneously.

Menu 16 – Setting the switch-off delay for set point 2

d2oF

After confirming "d2oF" by pushing both buttons, the switch-off delay after reaching contact 2 can be set. The time can be set from 0 up to 100 seconds. To complete the setting, push both buttons simultaneously.

Menu 7 – Maximum value display

H IPr

After confirming "HlPr" by pushing both buttons, the maximum signal value during the measuring process will be shown in the display. If both buttons are activated again within one second, the stored value will be erased. Please remember that the value does not remain stored in case of an interruption of the voltage supply (current loop).

Menu 6 – Minimum value display

LoPr

After confirming "LoPr" by pushing both buttons, the minimum signal value during the measurement process will be shown in the display. If both buttons are activated again within one second, the stored value will be erased. Please remember that the value does not remain stored in case of an interruption of the voltage supply (current loop).

Menu 19 – Measured value update (Display)

dLdS

To set the measured value update in the display, select the menu item "dLdS" using the "▲" or "▼" button. Confirm by pushing both buttons simultaneously. The cycles for updating the display can be set. The permissible range reaches from 0.0 up to 10 seconds. To complete the settings, push both buttons simultaneously.


4.7 Special menus

To access the special menus, you must be in menu 1 "PAof". Select the menu item "PAof" with the "▲" or "▼" button and confirm by pushing both buttons simultaneously. To navigate to the special menus, proceed as described below.

Special menu 1 – Correction of the display on deviation of full scale

FS S

For correction of the display on deviation of the full scale, select "0238" by using the "▲" and "▼" buttons. Confirm by pushing both buttons simultaneously. "FS S" will appear in the display. Now it is necessary to place the device under pressure. This pressure must correspond to the end point of the pressure measuring range. If you then activate both buttons, the signal being emitted from the transmitter will be stored as full scale. The display will then show the end point although the full scale sensor signal is displaced.


 Please note that the output signal is not affected by this change.

Special menu 2 – Resetting the display on deviation of offset

of S

For resetting the display on deviation of the offset, set the number "0247" using the "▲" and "▼" buttons. Confirm by pushing both buttons simultaneously. "of S" will appear in the display. If the offset differs from the ambient pressure, it is necessary to place the device under pressure. This pressure must correspond to the zero point of the pressure measuring range. To store the signal being emitted from the device as offset, confirm by pushing both buttons

simultaneously. The display will then show the zero point although the sensor signal in the offset is displaced.

 Please note that the output signal is not affected by this change. When displacing the offset, the full scale will also be displaced.

Special menu 3 – Load Defaults

LoAd

To load the defaults, set the number "0729". Confirm by pushing both buttons simultaneously. "LoAd" will appear in the display. Pressing the two buttons again will load the defaults.

 Please note that also the password will be set on its default.

Special menu 4 – Set new password

SEtP

To change the password, set the number "0835" using the "▲" and "▼" buttons. When confirmed with both buttons, "SEtP" will appear in the display. Push both buttons again and set the password using the "▲" or "▼" button. It can be freely chosen (0 ... 9999). However, it must not be identical with the code numbers of the special functions (i. e. numbers 0238, 0247, 0729 and 0835). Finally, confirm the password by pressing both buttons. The new password is now set. To activate the password, proceed as described in menu PAon.

5. Placing out of service



When dismantling the device, it must always be done in the depressurized and currentless condition!

6. Service

This device is maintenance-free.

If desired, the device can be cleaned using non-aggressive cleaning solutions.

7. Repair

If there are malfunctions which cannot be eliminated the device should be sent to us for repair. Before that the device has to be cleaned carefully and packed shatter-proofed. You have to enclose a notice of return with detailed defect description when sending the device. If your device came in contact with harmful substances, a declaration of decontamination is additionally required. Appropriate declarations can be downloaded from our homepage **www.bdsensors.com**. Should you dispatch a device without a declaration of decontamination and if there are any doubts in our service department regarding the used medium, repair will not be started until an acceptable declaration is sent.



If the device came in contact with hazardous substances, certain precautions have to be complied with for purification!

Our service address:

BD SENSORS GmbH, Serviceabteilung, BD-Sensors-Str. 1, 95199 Thierstein, Germany

8. Disposal

The device must be disposed according to the European Directives 2002/96/EC and 2003/108/EC (on waste electrical and electronic equipment). Waste of electrical and electronic equipment may not be disposed by domestic refuse.



⚠ Special consideration is required for the disposal if the device has been in contact with hazardous substances!

9. Warranty conditions

The warranty conditions are subject to the legal warranty period of 24 months from the date of delivery. In case of improper use, modifications of or damages to the device, we do not accept warranty claims. Furthermore, defects due to normal wear are not subject to warranty services.

10. CE-Note

The electronical assembly group in the ASM 430 is equipped with EMC components. The manufacturer of the total appliance must ensure CE conformity.

11. Ex-Note

With the intrinsically safe version of the ASM 430 the type plate must not be removed unless a type-examination for the total appliance is available. The manufacturer of the total appliance must ensure that all ex-relevant safety precautions and tests have been performed during production. The responsibility for all documentation and operating manual rests with the manufacturer of the total appliance.

It is the responsibility of the user to verify whether the chosen version of the device is suitable for the intended application and the existing environmental conditions. BD SENSORS does not assume any liability for an incorrect selection and its consequences!

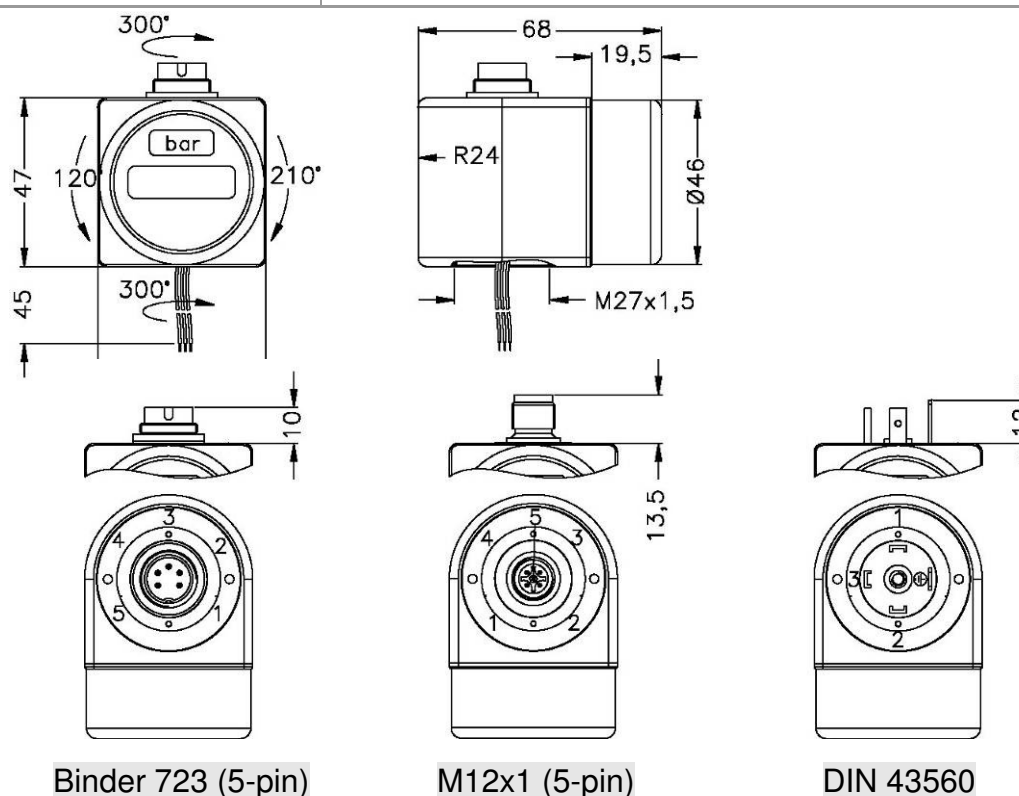
The technical data listed in the EC type-examination certificate are engaging and must be absolutely complied with.

12. Appendix

12.1 Technical Data

Analogue signal		
2-wire-system	4 ... 20 mA	Ex-protection: 4 ... 20 mA
3-wire-system	0 ... 10 V	
Supply		
2-wire-system	supplied by current loop; voltage drop ≤ 6 V; $V_S = (V_{Tr \min} \dots V_{Tr \max}) + 6 V_{DC}$ with V_{Tr} = supply of the used transmitter	
	Ex-protection: max. 28 V_{DC} (for combination of transmitter and ASM 430)	
3-wire-system	display is supplied parallely to the transmitter; $V_S \min = 8 V_{DC} \dots V_{Tr \min}$ $V_S \max = V_{Tr \max} \dots 36 V_{DC}$ with V_{Tr} = supply of the used transmitter	

Contact (optional)	
Number, type	1 or 2 independent PNP open collector contacts
Switching performance	$V_{\text{Switch}} = V_S - 2 \text{ V}$; contact rating max. 125 mA, short-circuit resistant
Repeatability	$\leq \pm 0.1 \% \text{ FSO}$
Switching frequency	max. 10 Hz
Switching cycles	$> 100 \times 10^6$
Delay time	0 ... 100 s
Electrical protection	
Short-circuit protection	permanent
Reverse polarity protection	no damage, but also no function
Ingress protection	IP 00; the ingress protection of the total appliance depends on the housing, mounted by the customer (IP 65 can be reached.)
Miscellaneous	
Display	4-digit 7-segment LED display, digit height 7 mm; range of indication -1999 ... +9999; accuracy $0.1 \% \pm 1 \text{ digit}$; digital damping 0.3 ... 30 sec. (programmable); measured value update 0.0 ... 10 sec. (programmable)
Permissible temperatures	electronics / environment: -25 ... 80 °C storage: -40 ... 85 °C
Material display housing	PA 6.6, polycarbonate
Explosion protection (optional for 4 ... 20 mA / 2-wire)	
approval AX11-ASM 430	Zone (0) 1: II (1) 2 G EEx ia IIC T4
Safety technical maximum values	$U_i = 28 \text{ V}$, $\Sigma I_i = 93 \text{ mA}$, $\Sigma P_i = 660 \text{ mW}$; max. switching current ³ : 70 mA; max. inductivity: 4.7 mH
Permissible temperatures	Environment: -25 ... 70 °C
Dimensions	


³ the real switching current in the application depends on the power supply unit

12.2 EC type-examination TÜV 02 ATEX 1841



Translation

EC TYPE-EXAMINATION CERTIFICATE

- (1)
- (2) Equipment or protective system intended for use in potentially explosive atmospheres - **Directive 94/9/EC**
- (3) EC-Type Examination Certificate Number



TÜV 02 ATEX 1841

- (4) Equipment: Display and switching device type AX11-....
- (5) Manufacturer: BD SENSORS GmbH
- (6) Address: D-95199 Thierstein, Sechsamterstraße 2
- (7) This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.
- (8) The TÜV NORD CERT GmbH & Co. KG, TÜV CERT-Certification Body, notified body number N° 0032 in accordance with Article 9 of the Council Directive of the EC of March 23, 1994 (94/9/EC), certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.
The examination and test results are recorded in the confidential report N° 02 YEX 15588801.
- (9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 50 014: 1997
EN 50 020: 1994
- (10) If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.
- (11) This EC-type examination certificate relates only to the design, examination and tests of the specified equipment in accordance to the Directive 94/9/EC. Further requirements of the Directive apply to the manufacturing process and supply of this equipment. These are not covered by this certificate.
- (12) The marking of the equipment or protective system must include the following:

II (1) 2 G EEx ia IIC T4

TÜV NORD CERT GmbH & Co. KG
TÜV CERT-Certification Body
Am TÜV 1
D-30519 Hannover
Tel.: 0511 986-1470
Fax: 0511 986-2555

Head of the
Certification Body



Hanover, 2002-06-05

TÜV CERT A4 07.01 10.000 L6

This certificate may only be reproduced without any change, schedule included.
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(13)

SCHEDULE(14) **EC-TYPE EXAMINATION CERTIFICATE N° TÜV 02 ATEX 1841**

(15) Description of equipment

The display and switching device type AX11-.... will be switched into 4 to 20 mA loops and it is intended for the display of measured values inside of hazardous explosive areas that require equipment of category 2 resp. 3.

The 4 to 20 mA loop may also be led to transmitters that are certified as category 1 equipment.

The maximum permissible ambient temperature is 70°C.

Electrical data

Signal- and supply circuit
(plug, cable or single wire)

in type of protection „Intrinsic Safety“ EEx ia IIC
only for the connection to certified intrinsically safe circuits
maximum values see below
The effective internal capacitance and inductance are negligibly small.

Switching outputs (optional)
(plug, cable or single wire)

in type of protection „Intrinsic Safety“ EEx ia IIC
only for the connection to certified intrinsically safe circuits
Maximum values:

$$U_o = U_i$$

$$I_o = \Sigma I_i$$

$$P_o = \Sigma P_i$$
 max. permissible outer sum capacitance 80 nF
 max. permissible outer sum inductance 4,7 mH

The maximum values of the signal- and supply circuit and the optional switching circuits are:

$$U_i = 28 \text{ V}$$

$$\Sigma I_i = 93 \text{ mA}$$

$$\Sigma P_i = 660 \text{ mW}$$

(16) Test documents are listed in the test report No.: 02 YEX 15588801.

(17) Special conditions for safe use

none

(18) Essential Health and Safety Requirements

no additional ones



Translation

1. SUPPLEMENT to

EC TYPE-EXAMINATION CERTIFICATE No. TÜV 02 ATEX 1841

of the company: BD SENSORS GmbH
BD-Sensors-Straße 1
D-95199 Thierstein

In the future, when assembled with a transmitter, the display and switching device type AX11- may also be manufactured and operated according to the test documents listed in the test report.

The amendments concern the internal design.

The electrical data and all other data apply unchanged for this supplement.

- (16) Test documents are listed in the test report N° 04 YEX 551572-1.
- (17) Special conditions for safe use
none
- (18) Essential Health and Safety Requirements
no additional ones

TÜV NORD CERT GmbH & Co. KG
TÜV CERT-Certification Body
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Tel.: 0511 986-1470
Fax: 0511 986-2555

Hanover, 2004-06-24

A handwritten signature in blue ink, appearing to read 'J. H. H. H.', positioned above the title 'Head of the Certification Body'.

Head of the
Certification Body

BD SENSORS GmbH
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95199 Thierstein
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The contents of this operating manual reflect the version available at the time of printing. It has been issued to our best knowledge and belief. However, errors may still be included. For incorrect statements and their consequences, liability cannot be assumed by BD SENSORS.

– Technical modifications reserved –