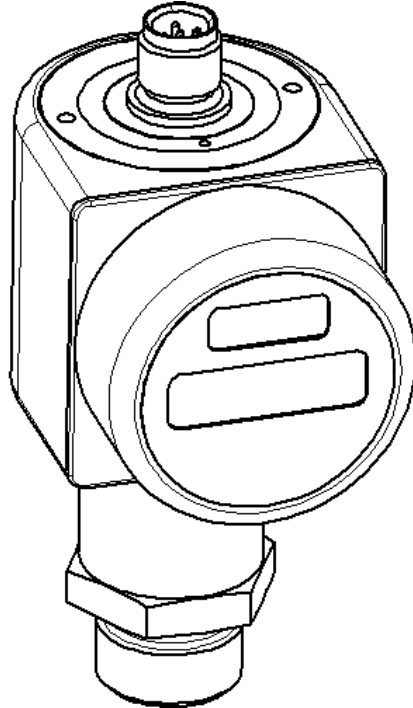


Operating Manual

Multi-Functional Pressure Gauge DS 200



1. General

Please read the operating manual carefully prior to assembly and operation of the pressure gauge.

The devices may only be installed, used and service by people who are familiar with this operating manual as well as the valid regulations for work safety and accident prevention.

2. Contents of the Packaging

Check the contents of the packaging. Ensure that all parts listed are contained therein:

- Pressure gauge DS 200
- Sheet of stickers
- Operating manual
- *Only for plug DIN 43650:*
Cable socket with profile seal and fastening screw

3. Assembly

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 is equipped with a rotational limiter. Please do not try to turn the display or the housing by force further than it should go.

Steps in Assembly

1. Remove the pressure gauge carefully from the packaging.
2. Assemble the device correctly using the available mechanical connection.;
Pressure connectors to DIN 3852: Ensure that the O-Ring is in the proper position in the groove; ensure that the surface of the connecting part is perfectly clean;
Pressure connectors to EN 837 (formerly DIN 16288): use a copper seal depending on the size of the connector thread.
3. Tighten the pressure gauge using a wrench (max. torque 50 Nm)
4. Turn the housing and display into the desired position.
5. Connect the device to an electrical power supply according to the information regarding such connection on the type plate.

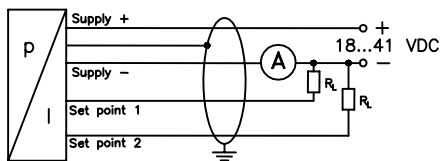
4. Electrical Connection

Circuit Connection Table

	Electrical connections			
	M12x1 (5-pole) (Plastic)	M12x1 (5-pole) (Metal)	Cable color (DIN 47100)	DIN 43650
2-lead system				
Power Supply +	1	1	white	1
Power Supply -	3	3	brown	2
Switch point 1	4	4	grey	3
Switch point 2	5	5	pink	-
Mass	via pressure connector	Plug housing	Cable shield	Mass contact

Connection Diagrams

2-Lead-System



5. Setting

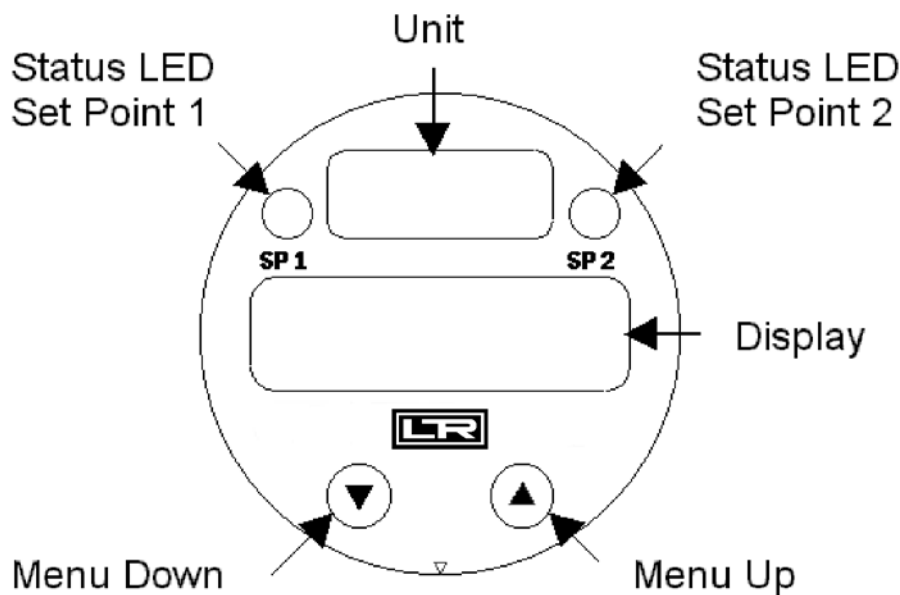
General

When designing the plug-in display DS 200 user-friendliness was emphasized. The individual functions can be set using a closed menu system via two miniature pressure switches on the front.

The settings are stored in a Flash-EPR0M and can be secured from unauthorized manipulation with a password.

The display of the measured values, and the individual menus is by means of a 4-digit, seven-segment display with a digit size of 7.62 mm. It is possible to turn the display and housing so that there is optimum visibility of the display even in unusual installation locations.

Position of the display and control elements



Measuring Units

The units of the values to be measured are determined on ordering. It is also possible to change the unit later by putting on one of the enclosed unit stickers.

Display of the switching function

To display the active switch output, the devices have a green LED for Switching Point 1 and a yellow LED for switching point 2. If this is lit up then the switching point has been reached and the switching output is active.

Display of the measured values and the settings menu

Below the LED there is a four-digit display for the measured value and for configuration. The display of the measured value is in the units defined for the user and depends on the scaling and the settings selected.

Control Elements for the Settings

The unit is controlled using two small buttons located under the control pad. Using button "▲" you move forward through the menu or raise the values in the display. The button "▼" reduces the values, as well as moving backwards through the menu.

The menu system is a closed circuit such that you can move forward or backward through the menu to reach individual setting required.

If the buttons are activated for a longer period (> 5 seconds) the rate of counting increases.

If both buttons are pushed together

- you change from display to configuration mode
 - a setting value is stored
- or
- you return to display mode.

Attention: Changes to the setting parameters (switching point, hysteresis etc.) are only stored after returning to the display mode.

Resetting the display on deviation of the pressure transmitter's Offset (depending on the measuring range of the pressure transmitter a pressure reference is required)


During the life of the pressure transmitter it may happen that the Offset, normally set at 4,000 mA, becomes displaced. This would result in the plug-in display showing a signal value deviating from the measuring range zero point originally set. The software of the plug-in display has a function to remove this phenomenon.

- Select the menu PAof. Then activate the two buttons,
- Set the number at 0247 to select this special function,

- Again, simultaneously activate the two buttons. The following appears on the display:

The image shows a red LED display with the characters 'OF 5' in a seven-segment font. The 'O' is formed by the top, bottom, and left segments. The 'F' is formed by the top, middle, and left segments. The '5' is formed by the top, middle, bottom, and right segments.

- Now it is necessary to place the pressure transmitter under pressure using a known pressure reference. This pressure must correspond to the zero point of the pressure measuring range.
- If you then activate both buttons the signal being emitted from the transmitter will be stored as the offset. The display will then show the zero point although the sensor signal in the offset is displaced.

 **Attention:** Please note that the output signal is not affected by this change. Simultaneously with the displacement of the offset the full scale will be equally displaced.

Correction of the display on deviation of the full scale of the pressure transmitter (depending on the measuring range of the pressure transmitter a pressure reference is required)

During the life of a pressure transmitter the full scale, set nominally at, e.g. 20,000mA becomes displaced. This would result in the plug-in display showing a signal value deviating from the measuring range changeover point originally set.

- Select the menu PAof,
- activate the two buttons,
- enter 4238 to activate the special function,
- Then activate the two buttons again. The above then appears in the display.

The image shows a red LED display with the characters 'FS 5' in a seven-segment font. The 'F' is formed by the top, middle, and left segments. The 'S' is formed by the top, middle, bottom, and right segments. The '5' is formed by the top, middle, bottom, and right segments.

- Now it is necessary to place the pressure transmitter under pressure using a known pressure reference. 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 the offset. The display will then show the end point although the sensor signal in the offset is displaced.

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

Load Defaults

the plug-in display software can switch the device back to the defaults. This can be used to cancel any changes to the offset or range that had been carried out.


- to re-load defaults select menu Paof.
- Activate both buttons.
- Enter the number 5729 to select this special function.
- Activate the two buttons again. The following appears in the display:

The image shows a red LED display with the word 'LOAD' in a seven-segment font. Each letter is formed by the top, middle, and bottom segments.

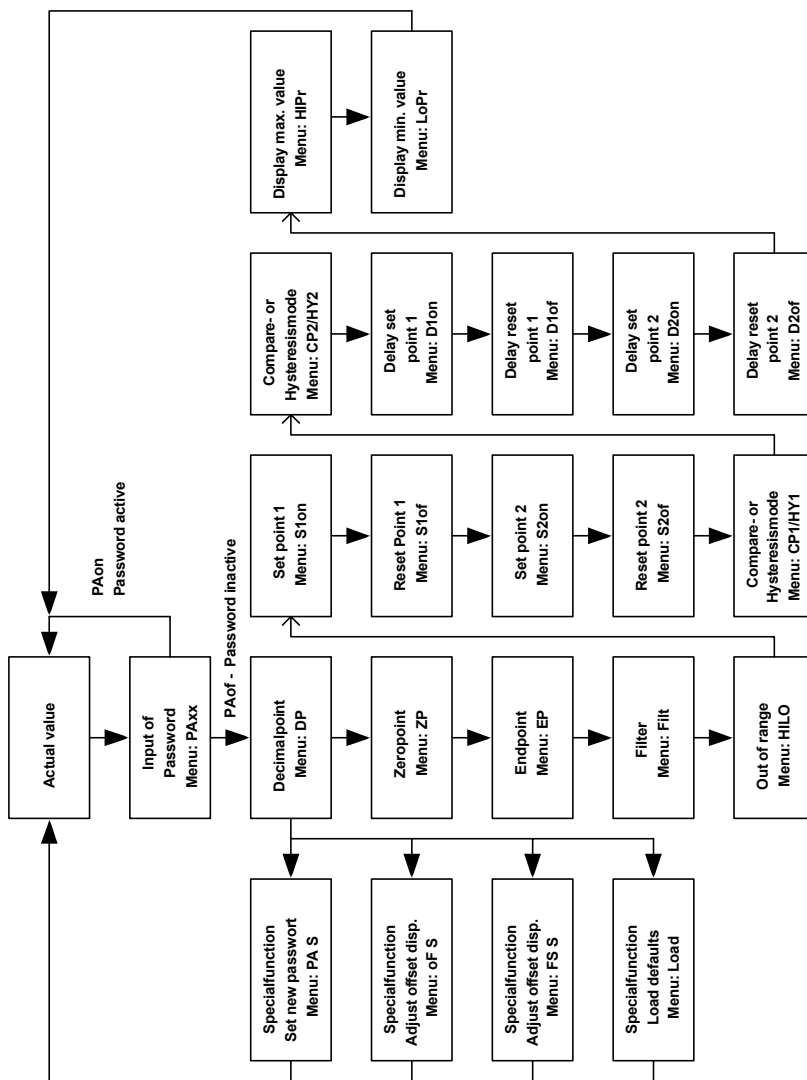
- Pressing the two buttons again loads the defaults.

Limited password access

Because of the special functions for adjusting the offset, scale and loading defaults, and the ability to change passwords different codes were given for the different functions.

 **Attention:** Please note that these codes cannot be used as passwords.

Structure of the Menu System



Setting Access Codes – Secure condition

PAon

If the password is active, the system will request entry of the access code to make changes in the system when the two buttons are pushed.

Setting password security – unsecured condition

PAof

If the password is inactive, it can be activated by pushing the two buttons simultaneously and then entering a previously determined secret number. The default setting for the secret number is 5. To change the secret number activate the two buttons simultaneously in this menu and using the cursor buttons set the number 0835. Again push the two buttons simultaneously and enter a secret number from 0...9999 using the cursor buttons. this sets the new password. To activate the password, proceed as described in menu PAon.

Setting the decimal point position

00

After pushing the two buttons, the position of the decimal point can be selected. Using the buttons "▲" or "▼" The position can be selected. To complete the setting push both buttons simultaneously.

Entering the zero point

2P

After pushing the two buttons, the zero point can be set. The value set is shown when the output signal of the pressure transmitter is 4 mA (zero point). Finish the setting by pushing both buttons simultaneously.

Setting the end point

EP

After pushing the two buttons simultaneously the end point can be set. the value programmed will be shown when the electrical output signal of the transmitter is 20mA (End point). Finish the setting by pushing both buttons simultaneously.

Setting the Filter

FILT

After pushing the two buttons the time for updating the display value can be set. The settings possible range from 0.3 to 30 seconds. Push both buttons simultaneously to complete configuration.

Activating alarm function for exceeding range

HLo

After pushing the two buttons the alarm for exceeding the range of the display can be activated. It can only be "ON" or "OFF". Push the two buttons to complete the setting.

Setting the switch-on point for switching point 1

S1on

After pushing the two buttons the value can be set at which switching point one is activated. To complete the setting push the two buttons simultaneously.

Setting the switch-off point for switching point 1

S1of

After pushing the two buttons the value can be set at which the switching point one is deactivated. To complete the setting push the two buttons simultaneously.

Setting the switching-on point for switching point 2

S2on

After pushing the two buttons the value can be set at which switching point 2 is activated. To complete the setting push the two buttons simultaneously..

Setting the switch-off point for switching point 2

S2of

After pushing the two buttons the value can be set at which the switching point 2 s deactivated. To complete the setting push the two buttons simultaneously.

Hysteresis and compare mode switching point 1

Hyst 1
CP 1

After pushing the two buttons simultaneously, the hysteresis and compare modes for switching point 1 can be switched over. The difference between the two kinds of operating modes will become apparent from the illustration. Push both buttons simultaneously to complete setting. (See Note on the following page)

Hysteresis and compare mode switching point 2

Hyst 2
CP 2

After pushing the two buttons simultaneously, the hysteresis and compare modes for switching point 2 an be switched over. The difference between the two kinds of operating modes will become apparent from the illustration. Push both buttons simultaneously to complete setting. (See Note on the following page)

Setting the switch-on delay for switching point 1

d1on

After pushing the two buttons simultaneously the switch-on delay after reaching switching point 1 can be set. The time can be set from 0 to 100 seconds. Push the two buttons simultaneously to complete setting.

Setting the switch-off delay for switching point 1

d 1 OF

After pushing the two buttons simultaneously the switch-off delay after reaching switching point 1 can be set. The time can be set from 0 to 100 seconds. Push the two buttons simultaneously to complete setting.

Setting the switch-on delay for switching point 2

d 2 ON

After pushing the two buttons simultaneously the switch-on delay after reaching switching point 2 can be set. The time can be set from 0 to 100 seconds. Push the two buttons simultaneously to complete setting.

Setting the switch-off delay for switching point 2

d 2 OF

After pushing the two buttons simultaneously the switch-off delay after reaching switching point 2 can be set. The time can be set from 0 to 100 seconds. Push the two buttons simultaneously to complete setting.

High-Pressure

H 1 P_r

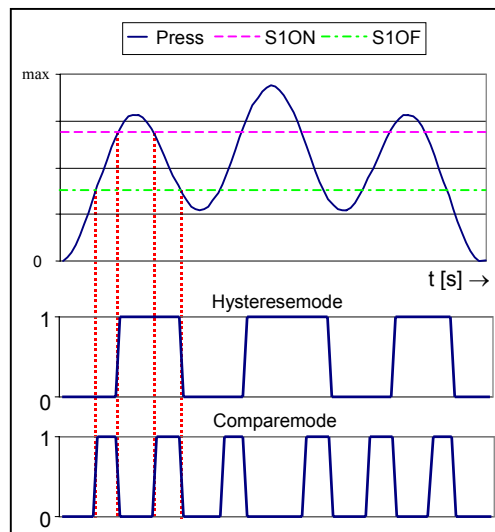
After pushing the two buttons simultaneously the maximum pressure during the measuring process will be shown. If both buttons are activated again within one second, the stored value will be deleted. Please note that the value is not stored if the power supply is interrupted.

Low-Pressure

L 0 P_r

After simultaneous activation of the two buttons the minimum pressure 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 note that the value will not remain stored if the power supply is interrupted..

Note



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