Filtration Group®
Industrial

Translation of the original instructions
Differential pressure display unit

PiS 3170 LCD
PiS 3175 LCD

Mat. No. of original instructions
72460064

1 Contents

2 General safety instructions

2.1 Safety instructions for installation and operating personnel

This translation of the original instructions contains important safety information which must be heeded at all times during installation, operation and maintenance.

Non-observance can result in the following risks to persons and the environment as well as in damage to the machine or system:

⇨ Failure of critical functions of the machine or system or of its component parts.
⇨ Danger to persons from electrical or mechanical effects as well as from chemical reactions.
⇨ Danger to the environment owing to the leakage of hazardous substances.

Before installation / start-up:

- Read this translation of the original instructions carefully.
- Make sure that installation and operating personnel are adequately trained.
- Make sure the contents of the original instructions are fully understood by the responsible persons.
- Define areas of responsibility and competence.

During operation of the system:

- Keep this translation of the original instructions handy at the place of use.
- Heed the safety instructions. Always operate the machine or system in accordance with its ratings.

If in doubt:

- Consult the manufacturer.

2.2 Warning symbols used

⚠ DANGER!
Immediate danger! ⇨ Non-observance will result in serious or fatal injury.

⚠ WARNING!
Potentially dangerous situation! ⇨ Non-observance can result in serious or fatal injury.

⚠ CAUTION!
Potentially dangerous situation! ⇨ Non-observance can result in minor or moderate injuries.

CAUTION! (without a symbol)
Potentially dangerous situation! ⇨ Non-observance can result in property damage.

2.3 Warning structure

Where possible, warnings are structured according to the following system:

Signal word	
Possibly with symbol	**Nature and source of the danger** ⇨ Potential consequences of non-observance • Action to avert the danger.

2.4 Other symbols used:

	Danger: High voltage!
	Danger information about explosion protection
	Information about environmental protection
	Wear protective clothing!
	Eye protection must be worn!
	Respirator must be worn!
	Hand symbol: Indicates general information and recommendations
•	Bullet: Indicates the order in which actions are to be carried out
⇨	Arrow: Indicates responses to actions

3 Glossary

Differential pressure
Pressure difference between the dirty side and the clean side of a filter.

Clean side
Area downstream of a filter element after the medium has been cleaned.

Dirty side
Area upstream of a filter element before the medium is cleaned.

Pressure transmitter
Transmitter which converts the measured pressure value to an analogue signal.

Pressure instrument leads
Used to connect the clean and dirty sides, where the pressure measurements take place, to the pressure transmitters.

Basic measurement range
Measurement range of the pressure transmitters.

4 General information

4.1 Manufacturer

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4.2 Information about the original instructions

FG Mat. No. 72460064
Date: 13.10.21
Version: 02

5 Intended use

⚠ DANGER!

Operation contrary to the intended purpose can be dangerous!

⇨ The manufacturer is discharged from all liability and all warranty claims are rendered invalid.

- This differential pressure display unit is only allowed to be used in accordance with the operating conditions specified in the contract documentation and in the original instructions.
  All forms of use which deviate from or exceed the limits of use described above are considered to be contrary to the intended purpose.

⚠ DANGER!

Operation contrary to the intended purpose can be dangerous!

⇨ The manufacturer is discharged from all liability and all warranty claims are rendered invalid.

Prohibited:

- Use for other purposes without prior consultation with the manufacturer.
- Use in hazardous areas unless explicitly mentioned in the contract documentation.
- Use with smouldering, burning or sticky particles.
- Use with highly explosive liquids or pastes.

The devices in the DE39 to D1018 series can be used as pressure transmitters and / or pressure switches to measure the differential pressure of liquid and gaseous media. Owing to their robust design, they are also suitable for severely contaminated media. Please always test for media compatibility.

6 Functional description

6.1 Functional diagram of the PiS 3170

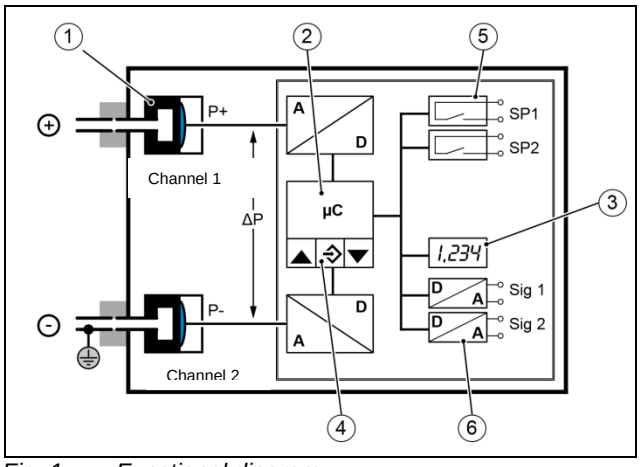

Fig. 1: Functional diagram

1	Ceramic sensor element
2	Microcontroller
3	Display
4	Keypad
5	Switching outputs
6	Analogue outputs

6.2 Functional diagram of the PiS 3175

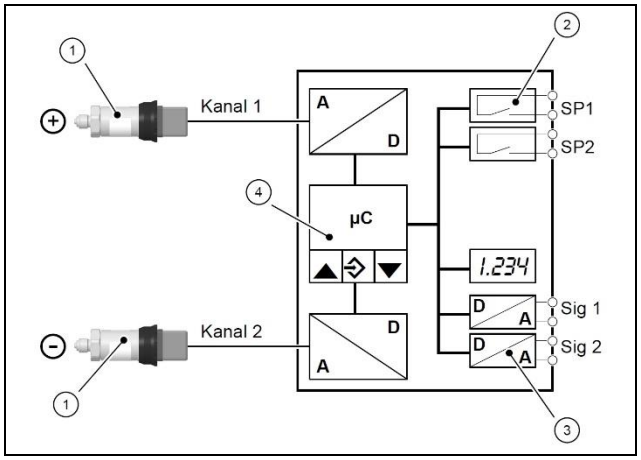

Fig. 2: Functional diagram

1	External pressure sensor
2	Switching output
3	Optional analogue output
4	Microcontroller

6.3 Operating principle

The pressure is measured by two integral ceramic sensor elements; the P+ and P- signals of these elements are evaluated by a digital transmitter. Two separate switching points can then be set, and two programmable output signals supplied, based on the evaluation. The measured values can be indicated together, individually or alternately. The nominal pressures of the built-in sensors and the differential pressure measurement range are factory-set and cannot be changed; they are shown on the name-plate.

The device has two operating modes:

Differential pressure
The first output signal (Sig 1) is proportional to the differential pressure (ΔP) and can be square rooted or influenced by means of a table. The second output signal (Sig 2) is proportional to the pressure and can be assigned to either the P+ or the P- signal.

Two-channel relative pressure
The output signals are proportional to the pressure; (Sig1) has a fixed assignment to (P+) while (Sig2) is assigned to (P-). Both output signals can be square rooted or influenced by means of a table.

6.4 Main components of the PiS 3170

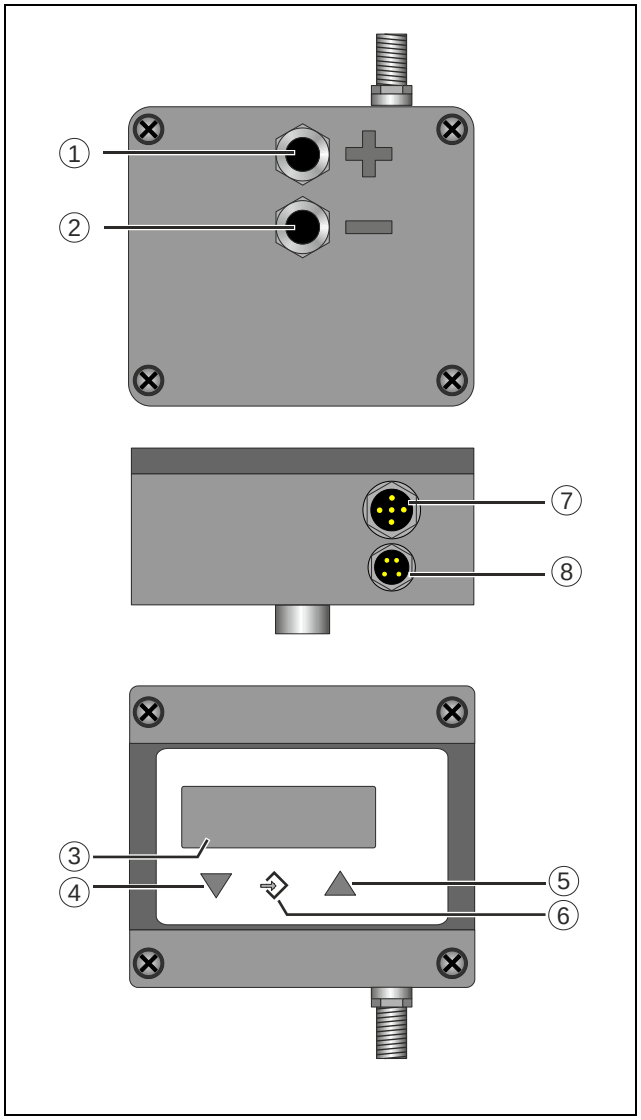

Fig. 3: Main components

1	Filter connection upstream of filter (+)
2	Filter connection downstream of filter (-)
3	LC display
4	Navigation key (arrow down)
5	Navigation key (arrow up)
6	ENTER key
7	Socket 1 M12 x 1
8	Socket 2 M8 x 1

6.5 Main components of the PiS 3175

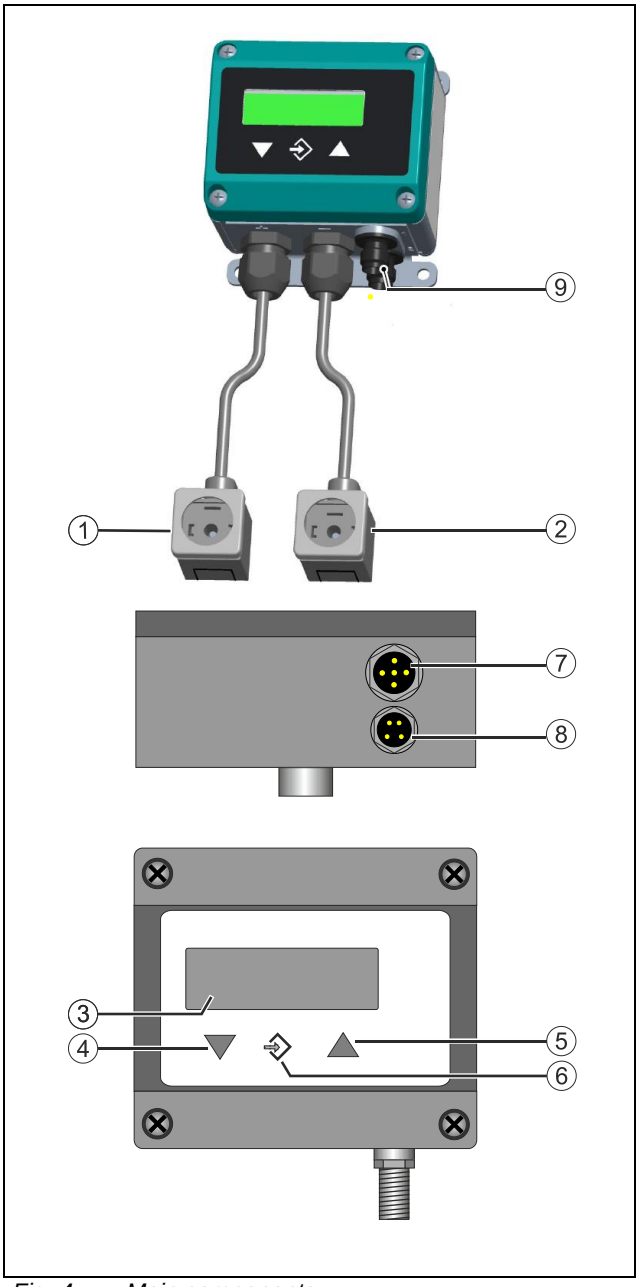

Fig. 4: Main components

1	Process connection (+)
2	Process connection (-)
3	LC display
4	Navigation key (arrow down)
5	Navigation key (arrow up)
6	ENTER key
7	Socket 1 M12 x 1
8	Socket 2 M8 x 1
9	Switching output power supply

7 Technical data

Order-specific data

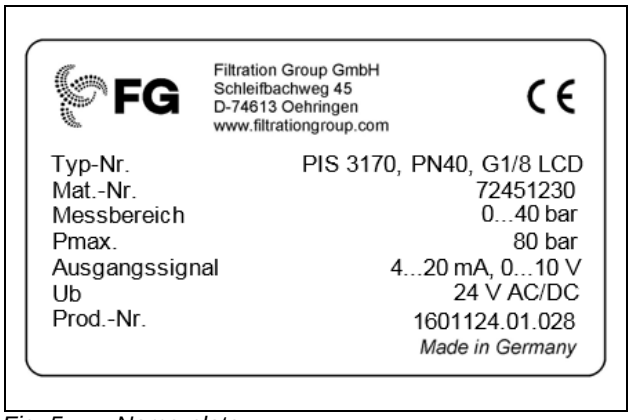

Fig. 5: Name-plate

The order-specific data can be taken from the name-plate.

7.1 Input parameters

Measured values	Differential or relative pressure
Measurement range	0 to 40 bar
Static operating pressure	40 bar
Overpressure	80 bar
Burst pressure	120 bar

7.2 Output parameters

Connection type	Three-wire
Max. rangeability	10:1
Output 1	0 to 10 V
Signal range	0.0 to 11.0 V
Load	$R_L \geq 2$ kΩ
Output 2	4 to 20 mA
Signal range	0.0 to 21.0 mA
Load $U_b \leq 26$ V	$R_L \leq (U_b - 4\ V)/0.02$ A
Load $U_b > 26$ V	$R_L \leq 1100$ Ω
Switching outputs	2 relay contacts
Switching voltage	Operating voltage U_b via PTC
Max. switching current	320 mA

7.3 Measuring accuracy

Non-linearity	Maximum	0.5% FS
	Typical	0.2% FS
Hysteresis	Maximum	0.5% FS
	Typical	0.2% FS
Temperature drift	Zero	0.07% FS/K
	Span	0.05% FS/K
Deviation incl. non-linearity and hysteresis	Maximum	1% FS

7.4 Auxiliary power

Nominal voltage	24 V AC/DC
Max. operating voltage U_b	12 to 32 V AC/DC
Power input	Max 2 W (VA)

7.5 Operating conditions

Ambient temperature	-10 to +70°C
Medium temperature	-10 to +80°C
Storage temperature	-20 to +80°C
Housing protection class	IP65 acc. to EN 60529
EMC	EN 61326-1:2013 EN 61326-2-3:2013
RoHS	EN 50581:2012

7.6 Display and user interface

Display	4 to 6-digit LC display, full graphic, colour backlit
Damping	0.0 to 100.0s (step response time 10 / 90%) for signal output; also separate for display
Switching output	Release point, switching point, response time (0 to 1800 s), function (normally closed / normally open), channel assignment
Measurement unit	bar, mbar, Pa, kPa, MPa, psi, InWc, mmWs, mmHg, "free unit", start value, end value, decimal point for "free unit"
Output signal	Any value within the basic measurement range (1)
Zero window	0 to ⅓ of the basic measurement range (2)
Offset	± ⅓ of the basic measurement range (3)
Characteristic function	Linear, square rooted, table with 3 to 30 interpolation points
Password	001 to 999 (000 = no password protection)
Language	DE, EN, FR, ES, IT, PT, HU

(1) Max. effective rangeability 10:1
(2) Measured values close to zero are set to zero
(3) To compensate for different installation positions

7.7 Mechanical design

Process connection	G 1/8" female thread	Stainless steel 1.4404
Electrical connections	Connector 1	M12 plug connector, 5-pole, male
	Connector 2	M8 plug connector, 4-pole, male with screw cap
Materials	Housing	Polyamide (PA) 6.6
	Parts in contact with medium	Stainless steel (1.4305, 1.4404, 1.4435), Viton®
Installation	Holes provided on rear for mounting bracket	

7.8 Pin assignment

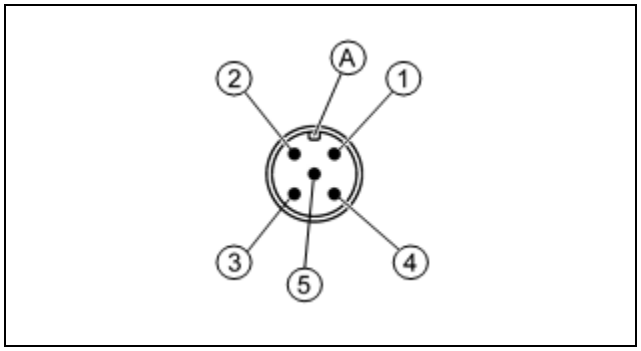

Fig. 6: Socket 1, switching outputs

No.	Socket 1 M12 x 1	Colour
1	+ Supply (+U_b)	Brown
2	Signal output 2 (SP2)	White
3	- Supply (GND)	Blue
4	Signal output 1	Black
5	n.c.	
A	Coding	

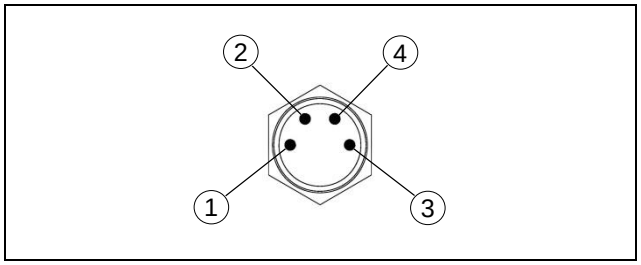

Fig. 7: Socket 2, supply and analogue outputs

No.	Socket 2 M8 x 1	Colour
1	+ Supply	Brown
2	Analogue signal I, 4 to 20 mA	White
3	- Supply (GND)	Blue
4	Analogue signal U, 0 to 10 V	Black

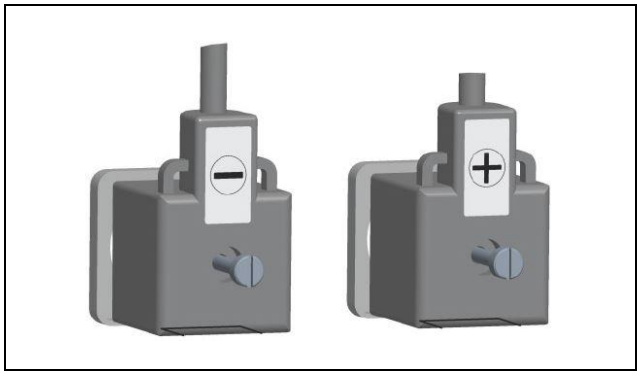

Fig. 8: Process connection

The pin assignment is identical for both inputs. The connectors are marked (+) and (-).

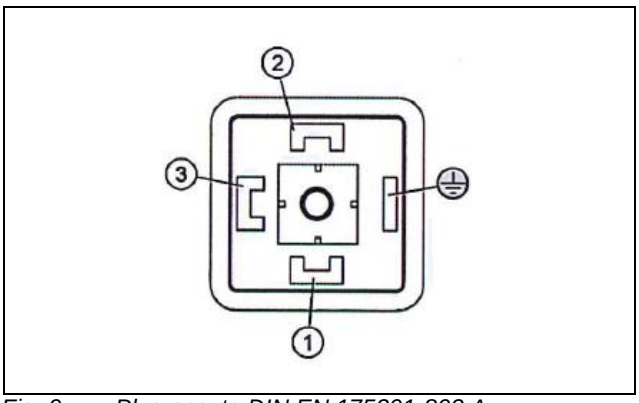

Fig. 9: Plug acc. to DIN EN 175301-803 A

No.	Signal (2L pressure transmitter)	
1	Pressure transmitter signal and power supply (+)	$+Sig_T/+U_T$
2	Pressure transmitter signal and power supply (-)	$-Sig_T/-U_T$
3	Not connected	NC
⏚	Functional earth	FE

No.	Signal (3L pressure transmitter)	
1	Pressure transmitter signal and power supply (+)	$+Sig_T$
2	Pressure transmitter power supply (+)	$+U_T$
3	Pressure transmitter signal and power supply (-)	$-Sig_T/-U_T$
⏚	Functional earth	FE

8 Transport and storage

Transport

- Avoid vibration.

Storage

- Always store in a dry, frost-free room.

9 Installation

⚠ DANGER!

Electric shock

⇨ Risk of serious or fatal injury

- The system is only allowed to be installed and started up by a suitably trained person.

9.1 Installation

- Unpack the differential pressure display unit.
- Fasten the differential pressure display unit to the mounting bracket using the 4 holes provided for this purpose (3.5 mm self-tapping screws).
- The unit can also be installed without screws using the process connection on the rear.
- If it is not installed vertically, the zero signal must be corrected by means of the built-in offset function.

9.2 Process connection

- Check that the pressure transmitters are compatible with the medium to be measured.
- Connect the pressure transmitters.
- Note the maximum pressures.
- Check that all pressure connections are tight.

9.3 Electrical connections

⚠ DANGER!

Electric shock

⇨ Risk of serious or fatal injury

- The system is only allowed to be installed and started up by a suitably trained person.

- Connect the electrical power supply in accordance with VDE specifications and the requirements of the local utility.
- Isolate the system in which the differential pressure display unit is to be installed prior to making the electrical connections.
- Connect fuses upstream.

10 Start-up

⚠ DANGER!

The differential pressure display unit must not be put into service until the relevant machinery into which it is to be incorporated has been declared in conformity with the applicable EC directives, harmonised standards, European standards or equivalent national standards.

- Make sure the pressure transmitters are connected correctly.

11 Normal operation

- The differential pressure must be monitored daily.

12 Operation

12.1 Membrane keypad

⇨ All parameters are set on the membrane keypad:

Key	Function
	Scroll down in the Settings menu. Increment a parameter value.
	Open the Settings menu. Confirm a parameter input.
	Scroll up in the Settings menu. Decrement a parameter value.

12.2 Settings menu

☞	You configure the individual parameters in the Settings menu. Some parameters have been preset by the manufacturer and are not allowed to be changed.

12.2.1 Menu structure

⇨ The PiS 3170 has the following menus:

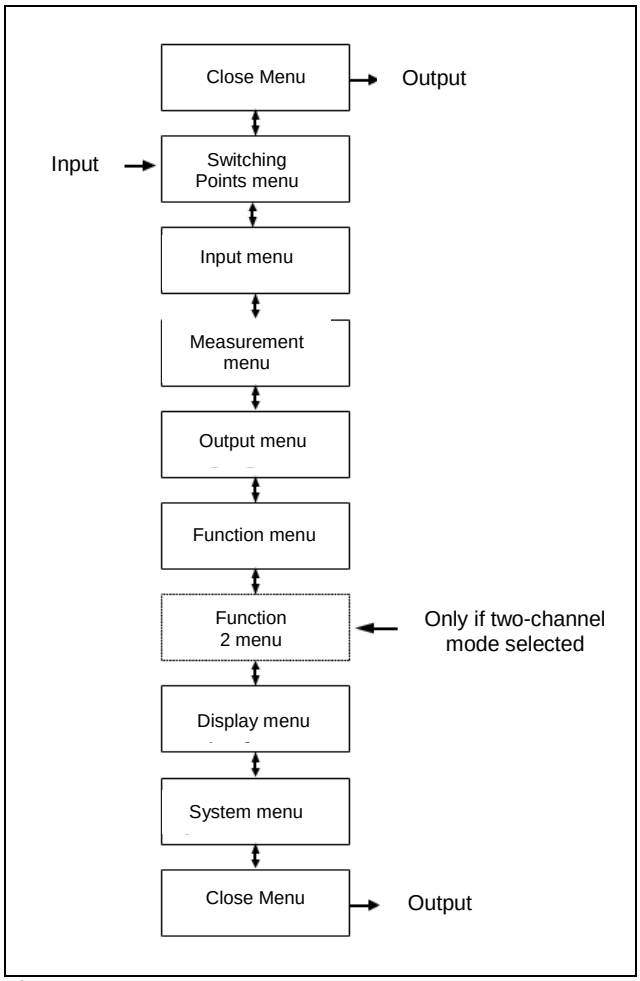

Fig. 10: Menu structure

12.2.2 Opening the Settings menu

- Press the key.

⇨ The Settings menu opens.

12.2.3 Navigation in the Settings menu

- Navigate to the required function with the or key.
- Press the key.

⇨ The function is selected.

12.2.4 Closing the Settings menu

- Navigate to “Close Menu” with the or key.
- Press the key.

⇨ The Settings menu closes.

12.2.5 Editing parameters

- Open the Settings menu (section 12.2.2).
- Navigate to the required function (section 12.2.3).
- Press the key.

⇨ The parameter value is incremented.

- Press the key.

⇨ The parameter value is decremented.

- Press the key.

⇨ The parameter value is stored.

- Close the Settings menu (section 12.2.4).

13 Selecting the displayed value

13.1 Changing the pressure display

⇨ Default setting = “Differential pressure”.

- Open the Settings menu (section 12.2.2).
- Navigate to the “Display” menu (section 12.2.3).
- Press the key until “Select channel” is displayed.
- Press the key.

⇨ The function is selected.

- Press the or key.

⇨ The functions are displayed.

- Press the key.

⇨ The function is selected.

Parameter	Description
Channel 1 (dP)	The dp value is displayed.
Channel 2 (P+)	The P+ value is displayed.
Both channels	Both channels are displayed.
3 s, 6 s and 9 s alternately	Sets the time interval at which the displayed values are alternated.
All values	All measured values (P+, P-, dP and the function of dP) are displayed at once.

14 Parameter settings

14.1 Switching Points menu

CAUTION!
Risk of damage due to incorrect operation ⇨ Risk of damage to downstream systems. ⇨ The differential pressure display unit may no longer work correctly. • Don't change the manufacturer's factory-set values.

Parameter	Description	Value range
SP1 On	Switching point 1 on	Measurement range start - 50% to measurement range stop + 50%
SP1 Off	Switching point 1 off	Measurement range start - 50% to measurement range stop + 50%
SP1 Delay	Switching point 1 delay	0 to 1800 s
SP1 Function	Function of switching point 1	NO, NC
SP Assignment	Channel assignment	Channel 1, 2, 1+2
SP2 On	Switching point 2 on	Measurement range start - 50% to measurement range stop + 50%
SP2 Off	Switching point 2 off	Measurement range start - 50% to measurement range stop + 50%
SP2 Delay	Switching point 2 delay	0 to 1800 s
SP2 Function	Function of switching point 2	NO, NC

The two parameters SP1 On and SP1 Off together form the switching function of switching output 1:
• If SP1 On > SP1 Off and the measured value is greater than SP1 On, the output is switched. It is not switched off again until the measured value is less than SP1 Off (hysteresis function).
• If SP1 On = SP1 Off and the measured value is greater than SP1 On, the output is switched; it is switched off again when the measured value is less than SP1 Off.
• If SP1 On < SP1 Off and the measured value is between these two switching points, the output is switched, in other words it is switched if:
SP1 On < measured value < SP1 Off (window function).
SP1 Delay allows you to delay the response of the switching output by between 0 and 1800 s. This parameter applies to both switching on and switching off.
SP1 Function changes the function of switching output 1. You can specify here whether the contact is normally open (NO) or normally closed (NC).
SP Assignment determines which input the contacts are assigned to. You can choose between the following options:
• Channel 1
Both contacts are assigned to channel 1.
• Channel 1, channel 2
One contact is assigned to each channel
Channel 1: SP1
Channel 2: SP2
• Channel 2
Both contacts are assigned to channel 2.
When you enter the switching points, the unit and the input range are adjusted accordingly.

14.2 Input menu

Channel 1

Parameter	Description	Value range
Damping	Sets the damping	0 to 100 s
Offset	Corrects the displayed value	⅓ of basic measurement range
Zero window	Zero window	⅓ of basic measurement range

Mode	Channel 1	Channel 2
Differential pressure	Differential pressure (dP)	Pressure (P+)
Two-channel	Pressure (P+)	Pressure (P-)

Channel 2

Parameter	Description	Value range
Damping 2	Sets the damping	0 to 100 s
Offset 2	Corrects the displayed value	⅓ of basic measurement range
Zero window 2	Zero window	⅓ of basic measurement range

☞	If you set the damping to maximum, it takes more than 2 minutes for the display to show zero after the measured value changes from 100% to 0%.

☞	If the displayed value drifts, you can stabilise both this value and the output signal by means of the damping and zero window functions.

14.3 Measurement menu

☞	The parameters which are displayed vary according to the set operating mode (differential pressure / two-channel relative pressure measurement). You cannot change the basic measurement range or the type of output signal (current or voltage).

☞	If you change the operating mode, certain values (unit, rangeability, table function) are reset to the defaults. You must therefore either check these values and correct them if necessary or define the operating mode before you set the parameters.

Differential pressure mode

Parameter	Description	Value range
Measurement range start	Lower range limit	Basic measurement range
Measurement range stop	Upper range limit	Basic measurement range
Unit	Measurement unit	
Limit	Measurement range limit	Yes, no
Mode	Operating mode	Differential pressure Two-channel

Two-channel relative pressure

Parameter	Description	Value range
Measurement range start	Lower range limit, channel 1	Basic measurement range
Measurement range stop	Upper range limit, channel 1	Basic measurement range
Unit	Measurement unit, channel 1	
Limit	Measurement range limit, channels 1+2	Yes, no
Mode	Operating mode	Differential pressure Two-channel
Measurement range start 2	Lower range limit, channel 2	Basic measurement range
Measurement range stop 2	Upper range limit, channel 2	Basic measurement range
Unit 2	Measurement unit, channel 2	

The measurement range start and stop parameters define the two measured values between which the output signal varies. Both values can be set anywhere in the basic measurement range. The set values always refer to the measured value in the respective unit. However, the signal values (current / voltage for the measurement range start and stop are fixed.

If the measurement range start is less than the measurement range stop, we refer to this as a rising characteristic, in other words the output signal increases the higher the measured value.
If the measurement range start is greater than the measurement range stop, we refer to this as a falling characteristic, in other words the output signal decreases the higher the measured value. The difference between the measurement range start and stop must be at least 25% of the basic measurement range.

You can use the unit parameter to select a different measurement unit compared to the basic measurement range. However, please note that not every unit is meaningful. The unit is converted automatically.

The limit parameter allows you to limit the displayed value, the output and the switching points to the range between the measurement range start and stop. If you set this parameter to “No”, all measured values which are greater or less than the upper range limit values are also displayed. If “two-channel” mode is selected, the limit applies to both channels.

14.4 Output menu

☞	You cannot change the type of output signal.

There are two possible operating modes: differential pressure and two-channel.

Parameter	Description	Value range
Min. output 1 / 2	Min. output 1 / 2	0.0 to 21.0 mA or 0.0 to 11.0 V
Max. output 1 / 2	Max. output 1 / 2	
Error signal 1 / 2	Error signal 1 / 2	
Assignment Out2 (only in differential pressure mode)	Assignment of output 2	dP, P+, P-, function

The “Min. output”, “Max. output” and “Error signal” parameters define the minimum and maximum permissible limits of the output signal regardless of the measured value. These limit values take priority over the range defined by the “measurement range start” and “measurement range stop” parameters. They are mainly used to suppress error messages in downstream systems if the upper or lower range limit is temporarily exceeded.

The “Assignment Out2” parameter allows you to specify which signal is output at the second analogue output. If you choose “Function”, the settings in the Function menu also apply to analogue output 2.

14.5 Function menu

☞	If “two-channel mode” is selected, you also see a “Function 2” menu. The parameters there are identical to those in the “Function” menu.

14.5.1 Linear

☞	The linearised input signal is sent to the display and the output. The measurement range is the range specified in the “Measurement” menu. If the “Linear” function is enabled, the other functions are disabled.

Parameter	Description	Value range
Function	Function	Value = Linear

14.5.2 Square rooted

☞	The square rooted input signal is sent to the display and the output. You can define a “free unit” for the display. The display range start and stop must be specified for this purpose as well as the number of decimal places. You can also define the unit by entering 4 characters.

Parameter	Description	Value range
Function	Function	Value = Square rooted
Decimal places	Decimal places in measurement range	1234, 123.4, 12.34, 1.234, 12345, 123456
Measurement range start	Lower range limit	-9999 to +9999
Measurement range stop	Upper range limit	-9999 to +9999
Unit	Measurement unit	4 characters

14.5.3 Table

☞	This function allows the input parameter to be freely adapted to the display and the output by means of a table with up to 30 interpolation points. A value pair consisting of a measured value and a displayed value is entered for each interpolation point.

☞	The set values are lost if you change to a function other than “Table”.

☞	The values are also lost if you change the number of value pairs.

Parameter	Description	Value range
Function	Function	Value = Table
Decimal places	Decimal places in measurement range	1234, 123.4, 12.34, 1.234, 12345, 123456
Measurement range start	Lower range limit	-9999 to +9999
Measurement range stop	Upper range limit	-9999 to +9999
Unit	Measurement unit	4 characters
No. of pairs	Number of value pairs	n = 3 to 30
Value pair 1	Value pair 1	Measurement range start to measurement range stop
Value pair 2	Value pair 2	
Value pair 3	Value pair 3	
	...	
Value pair 30	Value pair 30	

The **Decimal places**, **Measurement range start** and **Measurement range stop** parameters define the display range. This is freely configurable.
The **Decimal places** parameter also allows you to choose between a 5 or 6-digit display. This has no effect on the resolution. Another one or two zeros are simply added to the values on the display. High values can thus be shown more accurately. If you select a 6-digit display, the measurement range must be positive.
Unit lets you define a completely different unit. You can use letters and / or numbers plus certain symbols for this purpose. The unit can be a maximum of 4 characters long.
If the “Table” function is selected, you must also specify the **No. of pairs**. This determines how many value pairs (interpolation points) there are in the table. Tables must have a minimum of 3 and a maximum of 30 interpolation points.
By selecting **Value pair 1** to **Value pair 30**, you can display and edit the individual value pairs. Value pairs consist of a measured value (on the left) and a displayed value (on the right). The measured value must be within the measurement range and the displayed value within the defined unit. The limits are indicated during the input. The table must contain either continuously rising or continuously falling values. You are not allowed to change the characteristic from rising to falling within an interpolation point table.

14.6 Display menu

Parameter	Description	Value range
Colour assignment	Assigns a colour change	Channel 1, channel 2
Colour	Fixed background colour or colour change depending on value	Off, red, green, yellow, blue, pink, turquoise, white **Auto1: Red-green** **Auto2: Red-yellow-green**
Backlighting	Backlight time	0 s; 10 to 600 s
Contrast	Contrast setting	15 to 45
Bar chart	Change to bar chart	Yes, no
Select channel	Selects a channel	Channel 1, channel 2, both channels, 3 s, 6 s and 9 s alternately, all values

Colour: Auto1 Red-green

Parameter	Description	Value range
Colour assignment	Defines the channel	Channel 1, channel 2
Change red-green	Defines the switching thresholds	Measurement range start - 50% to measurement range stop + 50%
Change green-red	Defines the switching thresholds	
Hysteresis	Prevents the colour from changing too fast	0.1 to 10.0%
Delay	Prevents the colour from changing too fast	0 to 1800 s
Colour	Colour	Off, red, green, yellow, blue, pink, turquoise, white **Auto1: Red-green** Auto2: Red-yellow-green
Backlighting	Backlight time	0 s; 10 to 600 s
Contrast	Contrast	15 to 45
Bar chart	Change to bar chart	Yes, no
Select channel	Selects a channel	Channel 1, channel 2

Colour: Auto2 Red-yellow-green

Parameter	Description	Value range
Colour assignment	Defines the channel	Channel 1, channel 2
Change red-yellow	Colour change from red to yellow	Measurement range start - 50% to measurement range stop + 50%
Change yellow-green	Colour change from yellow to green	
Change green-yellow	Colour change from green to yellow	
Change yellow-red	Colour change from yellow to red	
Hysteresis	Prevents the colour from changing too fast	0.1 to 10.0%
Delay	Prevents the colour from changing too fast	0 to 1800 s
Colour	Colour	Off, red, green, yellow, blue, pink, turquoise, white Auto1: Red-green **Auto2: Red-yellow-green**
Backlighting	Backlight time	0 s; 10 to 600 s
Contrast	Contrast	15 to 45
Bar chart	Change to bar chart	Yes, no
Select channel	Selects a channel	Channel 1, channel 2

14.7 System menu

Parameter	Description	Value range
Language	Changes the language	DE, EN, FR, ES, IT, PT, HU
Software info	Information on the software	Device type, serial number, firmware version
Config info	Information on the configuration	Basic measurement range, output signal, contacts
Statistics	Shows statistics	Working hours, contact operating cycles
Password	Password	0/1 to 999
Load config	Load configuration	
Save config	Save configuration	

☞	You cannot restore your password if you forget it. Please contact the manufacturer.

15 Troubleshooting

⇨ No troubleshooting is necessary in normal operation.

- If a fault occurs, please contact the manufacturer.

16 Maintenance

⇨ The differential pressure display unit requires no maintenance.

17 List of spare parts

Qty.	Benennung	Material no.	Designation
1	PiS 3170 PN40	70369971	PiS 3170 PN40
1	Anbausatz PiS 3170 PN40	70374001	Mounting kit PiS 3170 PN40
1	Anschlusskabel mit M12 x 1 Kupplung 5-polig für digitale Schaltausgänge 5 m	70305364	Connecting cable with M12 x 1 coupling 5-pole for digital switching outputs 5 m
1	Anschlusskabel mit M8 x 1 Kupplung 4-polig für analoge Versorgung/Signal 5 m	70374044	Connecting cable with M8 x 1 coupling 4-pole for analog supply/signal 5 m

☞	Please request a separate spare parts drawing and list of spare parts for special versions.

18 Dimension drawing

18.1 PiS 3170

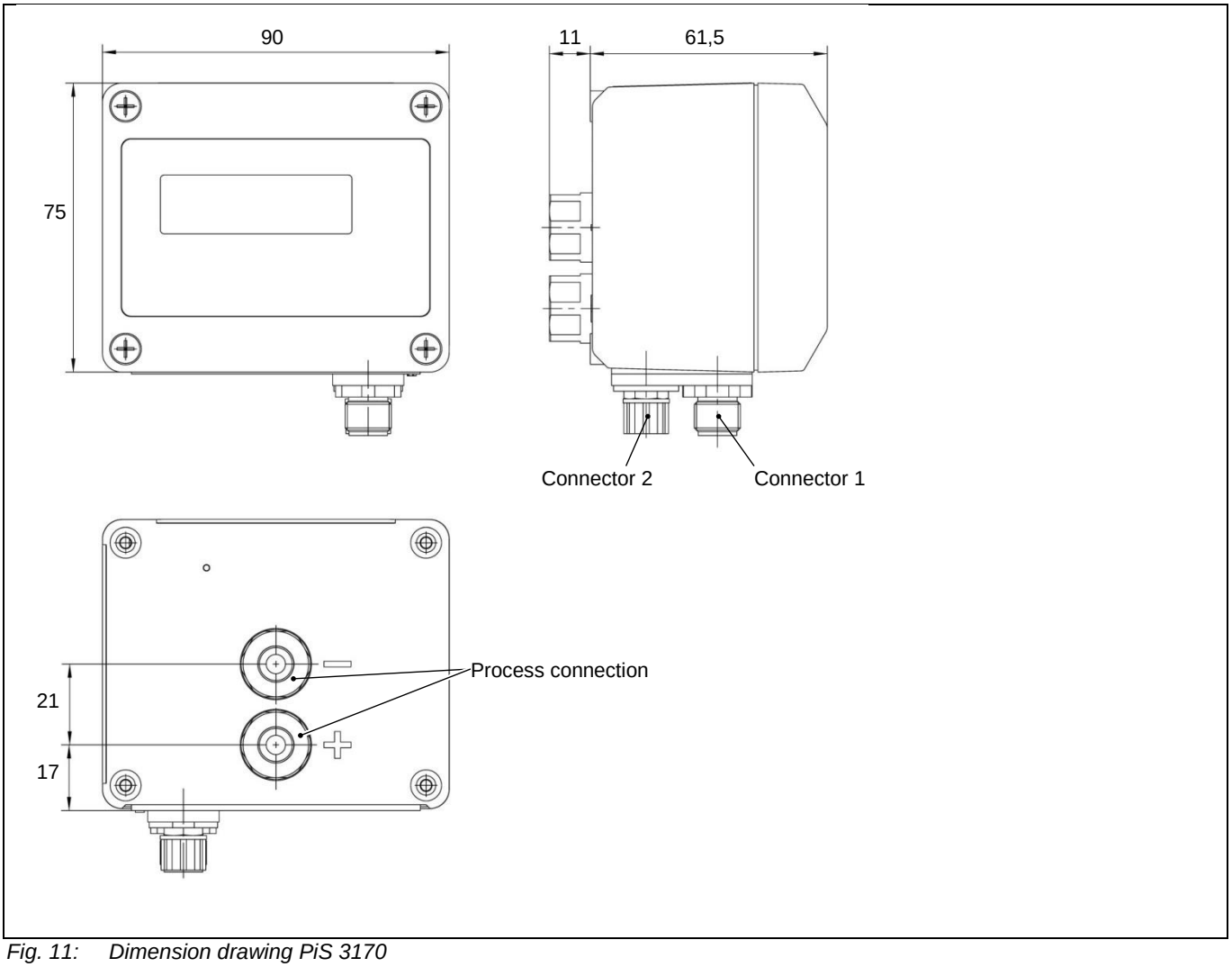

Fig. 11: Dimension drawing PiS 3170

18.2 PiS 3175

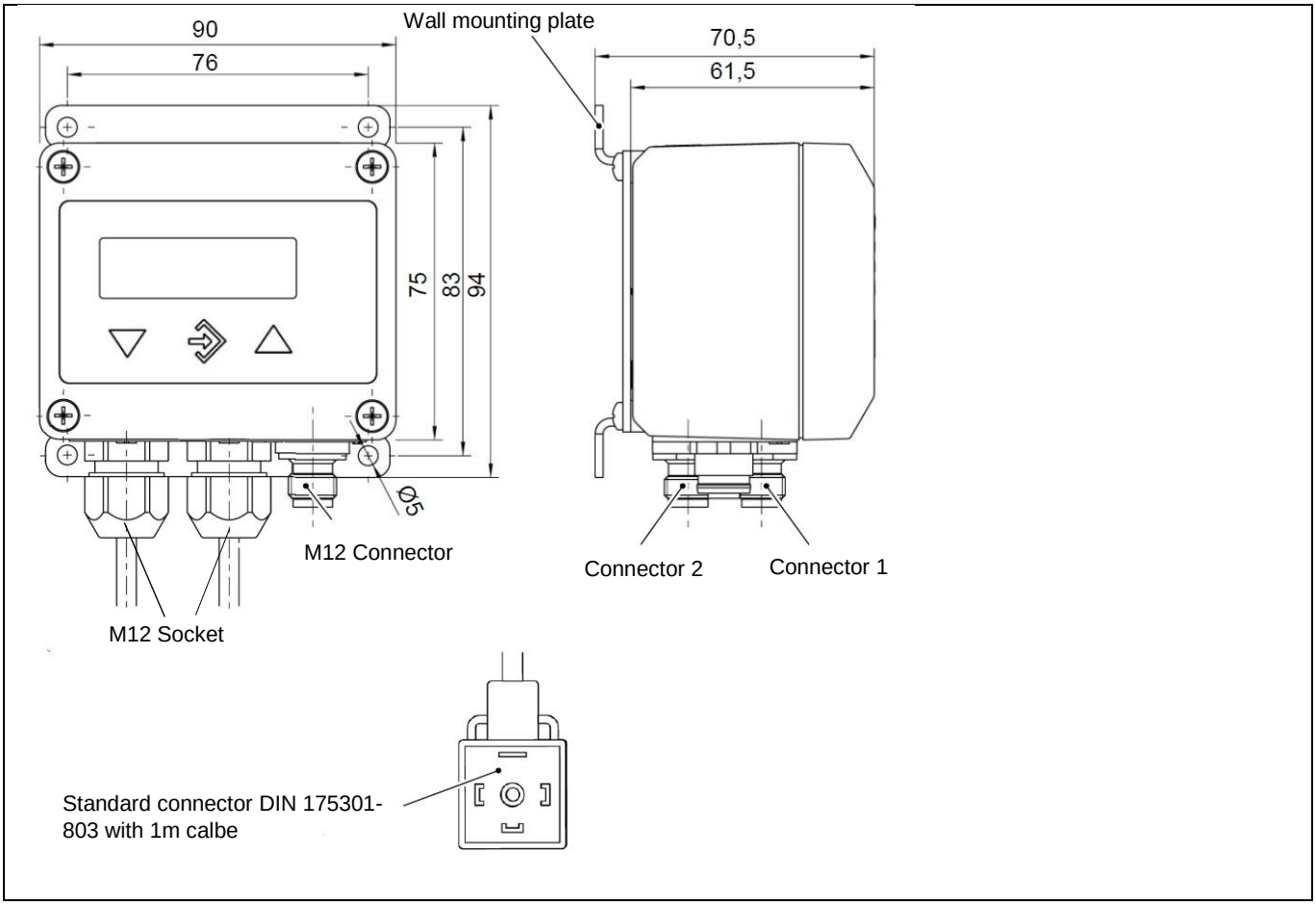

Fig. 12: Dimension drawing PiS 3175

19 Declaration of conformity

EU – Konformitätserklärung
EU declaration of conformity
Déclaration de conformité UE

Der Hersteller
The manufacturer
Le producteur

Filtration Group GmbH
Schleifbachweg 45
74613 Öhringen
Telefon 07941 6466-0
Telefax 07941 6466-429

erklärt hiermit, dass das folgende Produkt
hereby declares that the following product
déclare par la présente que le produit suivant

Produktbezeichnung:
Product designation:
Désignation du produit :
Differenzdruckschalter mit Anzeige
Differential pressure switch with display
commutateur de pression différentielle avec affichage

Typenbezeichung:
Type designation:
Désignation du type :
PIS 3170/3175

Das Produkt entspricht allen Bestimmungen der Richtlinie 2014/30/EU über elektromagnetische Verträglichkeit.
The product conforms to all provisions of the Electromagnetic Compatibility Directive 2014/30/EU.
Le produit répond à toutes les dispositions de la directive 2014/30/UE relative à la compatibilité électromagnétique .

Folgende harmonisierten Normen wurden angewandt:
The following harmonised standards have been used:
Les normes harmonisées ci-dessous ont été appliquées :
DIN EN 61326-1:2013-07, EN 61326-2-3, EN 61010-1:2011-07

Die Geräte werden gekennzeichnet mit:
The gauges are marked with:
Les appareils sont caractérisés par :
CE

Unterzeichner:
Signatory:
Signataire :

Wolfram Zuck
Dipl.-Ing. (FH) Industrial Engineering
Managing Director, Plant Manager Öhringen

Öhringen,
15.08.2017
Datum/Date/Date

Unterschrift/Signature/Signataire

20 Appendix: Default settings

Function	Settings menu	Recommended values	User values (date)
Switching outputs	SP1 On	0.5 bar	
	SP1 Off	0.5 bar	
	SP1 Delay	0.5 s	
	SP1 Function	Normally open (NO)	
	SP assignment	Channel 1	
	SP2 On	0.7 bar	
	SP2 Off	0.7 bar	
	SP2 Delay	0.5 s	
	SP2 Function	Normally open (NO)	
Input	Damping	1.0 s	
	Offset	0.0 bar	
	Zero window	0.1 bar	
	Damping 2	0.0 s	
	Offset 2	0.0 bar	
	Zero window 2	0.0 bar	
Measurement	Measurement range start	0.0 bar	
	Measurement range stop	16.0 bar	
	Unit	bar	
	Limit	No	
	Mode	Differential	
Output	Min. output	0.0 V	
	Max. output	11.0 V	
	Error signal	11.0 V	
	Min. output 2	0.0 mA	
	Max. output 2	21.0 mA	
	Error signal 2	21.0 mA	
	Assignment output 2	delta P	
Function	Function	Linear	
Display	Colour assignment	Channel 1 (dP)	
	Change red-yellow	-20.0 bar	
	Change yellow-green	-1.0 bar	
	Change green-yellow	0.5 bar	
	Change yellow-red	0.7 bar	
	Hysteresis	0.10%	
	Delay	0 s	
	Colour	Auto 2: Red-yellow-green	
	Backlighting	Constantly on	
	Contrast	33	
	Bar chart	No	
	Select channel	Channel 1	
System	Language	German	
	Software info		
	Config info		
	Statistics		
	Password	No password	
	Load config		
	Save config		

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72460064.I02.10/2021