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PRESSURE TRANSMITTER WITH DISPLAY

BPT50-A

OPERATION MANUAL

Please read this Operation Manual before mounting and operating!
Save the Manual for future references!

Overview

BPT50-A is a combination of a pressure sensor and a programmable loop-powered 5-digit LCD display that allows visualization of the measured pressure from -9999 to 9999 units. BPT50-A is also equipped with a programmable pressure alarm driving a low-power electronic relay output which can also be used to activate various electric actuators for ON/OFF pressure control.

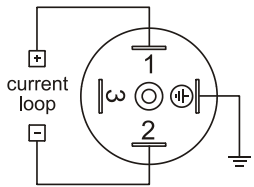
Mounting and Wiring

Important note:

If the medium temperature is higher than the maximum, specified for your transmitter, mount an additional cooling spiral tube between the object and the transmitter in order to decrease the medium temperature at the transmitter input.

Mounting

- Screw the BPT50-A transmitter to its exact place using a preinstalled bush with a female thread matching the transmitter's one (¼", ½", etc.).
- To ensure hermetical mounting, use a proper gasket (e.g. DIN16258).
- The right tightening torque depends on the gasket material and shape as well as on the mounting thread.
- For mounting, use ONLY a proper hexagonal wrench applying the torque ONLY to the hexahedral transmitter head!
- The installation site must be protected from deep-freezing and high-temperature sources, and all environmental conditions must be within those, specified for your transmitter type (see '**Specifications**').



Wiring

Connect the transmitter via detachable connector Mini-HIRSCHMAN by following the markings as shown on the left.

Important note:

The supply voltage must be greater than the required minimum (marked on the label) plus the load voltage drop at 20 mA!

Some parameters are accessible only when the respective functionality is installed. (see '**Specifications**'*).*

- *Changing* **Point Position** *value reflects on the real value of all parameters with ISU!*

E.g.: changing **Point Position** *value from (0) to (0.0) would change a Set-point value of 100 to 10.0!!!*

Device parameters

BPT50-A is a programmable device whose service behavior is determined by a set of parameters. All the parameters, along with their names, symbols, and value ranges, are given in Table 1.

Setting numerical parameter value

- Enter parameter value adjustment mode (see '**Program Levels**').
- The whole part of the value together with the left zeroes appears on the display, and the rightmost digit blinks.
- To select another digit, press [◆].
- The 4 rightmost digits can accept values from **0** to **9**, and the leftmost digit can accept the value **-** or none.
- To increase or decrease the blinking digit value, use respectively [≪] or [≫].
- Confirm the adjusted value by pressing simultaneously [◆] + [≪].
- If the new value has not been confirmed and no key has been pressed for a certain period of time, value adjustment automatically ceases, and the parameter retains its initial value.

Setting symbolic parameter value

- Enter parameter value adjustment mode (see '**Program Levels**').
- Read the blinking parameter value.
- To change the value, use [≪] or [≫], and to confirm, press [◆] + [≪].
- If the new value has not been confirmed and no key has been pressed for a certain period of time, value adjustment automatically ceases, and the parameter retains its initial value.

Table 1

Parameter	Symbol	Description	Value	Unit	Notes
Configuration Parameters					
Point Position	PnE	Display decimal point position	0, 0.0, 0.00, 0.000	-	when indicating values with the input-signal measurement unit (**ISU**)
Display Low	rLo	Display value at low limit of the input range	-9999 ... 9999	ISU	
Display High	rHi	Display value at high limit of the input range	-9999 ... 9999	ISU	
Display Offset	oFFS	Constant to be added to the measured input value	-9999 ... 9999	ISU	display offset value
Filter Time	FE	Relative time constant of the input filter	0…255	-	higher value for better filtration
Filter Band	Fb	Zone around the measured value, within which the filter is active	0…3000	-	
Calibration	CALE	Enables / disables calibration mode.	no, YES	-	For authorized personnel ONLY! DO NOT SET to YES!
Set Point	SP1	Set-point value of the alarm output	-9999 ... 9999	ISU	
Direction	dir1	Control action direction of the alarm output	--L, -J--	-	--L - activates under set point, -J-- - activates over set point
Keyboard Locking Parameter (parameter of Hidden level)					
Lock Keyboard	LocK	Keyboard locking mode	dtEY, ESP, EtEY	-	dtEY (keyboard disabled), ESP (only set-point adjustment enabled), EtEY (keyboard enabled)

Programming order

- Unlock the keyboard.
- Adjust the configuration parameters.
- If needed, restrict the access again by adjusting the **Lock Keyboard** parameter.

Access control (Hidden level)

- Hold ◆ depressed while turning the power supply on and until LocK appears.
- Set keyboard locking mode according to Table 1.

Basic level

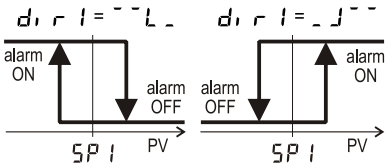
At power-on, BPT50-A enters Basic level. At this level, the device indicates the measured pressure with a resolution, according to the **Point Position** parameter.

- If the measured value is greater than **Display High** + 10, the display shows blinking error message ----.
- When the measured value is less than **Display Low** - 10, ____ is displayed.
- Either error message may appear on the display also as a result of a damaged sensor.

Configuration level

- Enter from Basic level by pressing and holding ◆ until conF appears on the display.
- Choose a parameter using ⩓ or ⩔.
- To enter parameter value adjustment mode, press ◆.
- If no key has been pressed for a while, the device automatically returns to Basic level, storing all confirmed changes.
- For quick exiting and saving, use key combination ⩓ + ⩔ or select rtn and press ◆.

Output Control



Alarm output operation

- The alarm output operates according to the control algorithm parameters.
- The ▲ sign in the upper left display corner indicates activated alarm output.

ON/OFF control algorithm

The static characteristic of an alarm relay controlled by an ON/OFF algorithm is shown on the left drawing.

Input Filtration

Low-pass filter

This first-order filter acts ONLY within a certain band around filter output value. This has been designed to cut periodic noises outside the communication signal spectrum.

- Filter operation is defined by two parameters: **Filter Time** (defines filter time constant) and **Filter Band** (defines filter active band around filter output value).
- If the newly measured value differs from the filter output by more than **Filter Band**, the filter resets with a new initial output value (newly measured value).

Waste Disposal

Do not dispose of electronic devices together with household waste material!

If disposed of within European Union, this product should be treated and recycled in accordance with the laws of your jurisdiction implementing the WEEE Directive 2002/96 on the Waste Electrical and Electronic Equipment.

Specifications

Pressure Range	..... bar
Output Signal	4…20 mA, 2-wire
Alarm Output	☐ SSR 0.12A/240V, ☐ MOS gate 0.1A/60V
Power Supply U_B	☐ 16…32 VDC, ☐ .....
Voltage Deviation	± 2% at 50/60 Hz
Loop Voltage Drop	max. 6 V
Maximum Line Load	$R_A[\Omega] = (U_B[V] - 14\ V) / 0.02\ A$
Medium Temperature	-30…85 °C
Ambient Temperature	-20…70 °C
Sensor Accuracy	1.0% (at medium temperature 10...40 °C)
Display Error	± 0.1% from span
Sensor Temperature Drift	0.02% from span for 1 °C
Display Temperature Drift	0.01% from span for 1 °C
Response Time	≤ 10 ms (0...99% of span)
Overload	1.5 x full span
Process Connection	☐ G¼", ☐ G½", ☐ ¼" NPT, ☐ ½" NPT, ☐ .....
Protection Class: sensor / display	IP65 / IP44

Warranty and Support

……
serial number

……
manufacturing date

QC check mark ……(passed)
(stamp)

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QD-8.2.4-WC

Warranty

BASI Instrument AB warrants this product to be free from defects in materials and workmanship for 2 years. If your unit is found to be defective within that time, we will promptly repair or replace it. This warranty does not cover accidental damage, wear or tear, or consequential or incidental loss. This warranty does not cover any defects caused by wrong transportation, storage, installation, or operating (see '**Specifications**').

Technical support

In the unlikely event that you encounter a problem with your BASI device, please call your local dealer or contact directly our support team.