LABOR – ASTER

INDUSTRIAL AUTOMATION

AC 083
QMS

POTENTIOMETER POSITION CONVERTER
TYPE PP-S2

- **Linear change of potentiometer position to standard analog signal**
- **Easy and automatic calibration of "0%" and "100%" of potentiometer position**
- **High resolution of the conversion**
- **Settable digital filter of the measurement**
- **Galvanic separation of input, output and power supply circuits**

APPLICATION :

Converter **PP-S2** is designed to operate with movement, rotation or level resistance sensors which are based on potentiometer operation principle.

The converter measures voltage signal from potentiometer slide and through the separation circuit converts it to standard signal. Analog output of the converter can operate in any current or voltage standard. All circuits are mutually separated from each other.

The user can calibrate extreme positions of the potentiometer which allows the elimination of the influence of the connection lines resistance or margin positions of the potentiometer e.g. for electric actuator position transmitters. Calibration signs actual value of potentiometer position to "0%" or "100%" of the output signal.

The user can also choose digital filter which suppresses existing object interferences. On the front panel of the housing are two indication LED diodes and two calibration buttons.

BASIC TECHNIAL PARAMETERS:

Supply voltage	-	24Vdc (20...36Vdc)/60mA
Input signal	-	any potentiometer 50Ω...100kΩ
Potentiometer supply voltage	-	2.5V +/-10%
"0%" calibration range	-	0%… 100%
"100%" calibration range	-	0%… 100%
Output signal / load resistance	-	0/4..20mA / 0…750Ω 0/2..10V / >2kΩ 0/1..5mA / 0…3kΩ
Class	-	0.1%
Temperature drift	-	0.006%/°C
Error due to load resistance changes	-	0.05%
Time constant of the digital filter	-	0.1s , 0,5s , 1s , 2s
Galvanic separation	-	2kV, 50Hz between all circuits
Housing	-	22.5 x 99 x 114.5mm
Mounting	-	on TS35 rail
Operating condition		
a. ambient temperature	-	0 ÷+60°C
b. relative humidity	-	up to 90%
Safety requirements	-	**PN-EN 61010-1:2002**
EMC requirements	-	**PN-EN 61000-6-1**
	-	**PN-EN 61000-6-3**

Potentiometer cable route should be lead with shielded cable.

OPERATION DESCRIPTION :

The converter measures input position signals and supplies, and then counts analog output signal.
Lighting of the green LEDs indicates correctness of the power supply and operating of internal processor.

Programming of chosen digital filter:

- Simultaneously press "0%" and "100%" buttons.
- The converter indicates which filter was set by speed of LEDs blinking.
- Pressing "100%" button causes increasing of time constant of the digital filter and slowing down blinking of LEDs.
- Pressing "0%" button causes saving the value of time constant of the filter in non-volatile memory and entering normal operating mode.

Below table contains values of the time constant of the filter and the way of its signalization:

Filter time constant	Frequency of LED blinking
2 sec	1 Hz
1 sec	2 Hz
0.5 sec	4 Hz
0.1 sec	8 Hz

Calibration of extreme potentiometer positions "0%" / "100%":

- Set position of the potentiometer to "0%" / "100%".
- Press and hold "0%" / "100%" button for about 6 sec (adequate LED will start blinking).
- Release the button – LED is blinking during calibration (about 10 sec) and the converter is averaging the measurements, saving value of "0%" / "100%" in the non-volatile memory and returning to normal operating. Calibration procedure can be repeated multiple times.

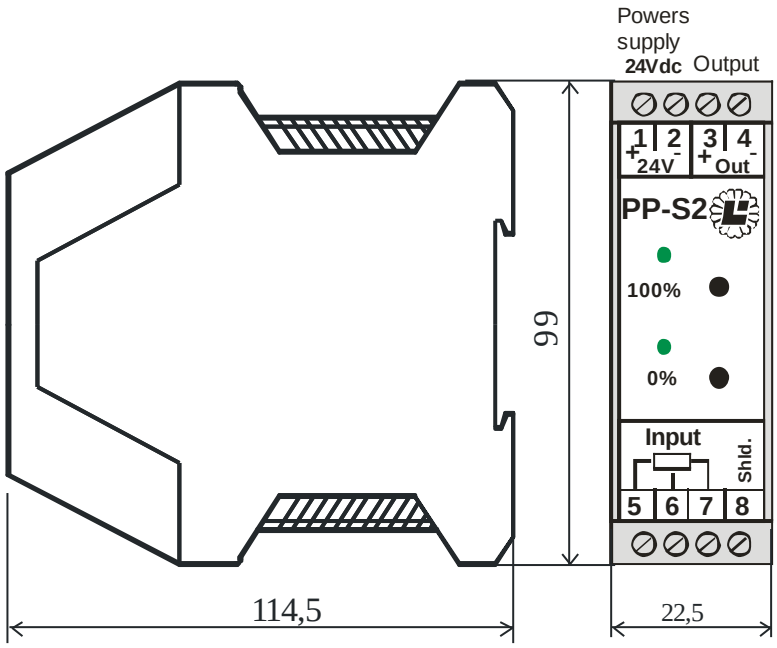

Fig. 1. Terminals description of the PP-S2 converter. Housing dimension of the converter

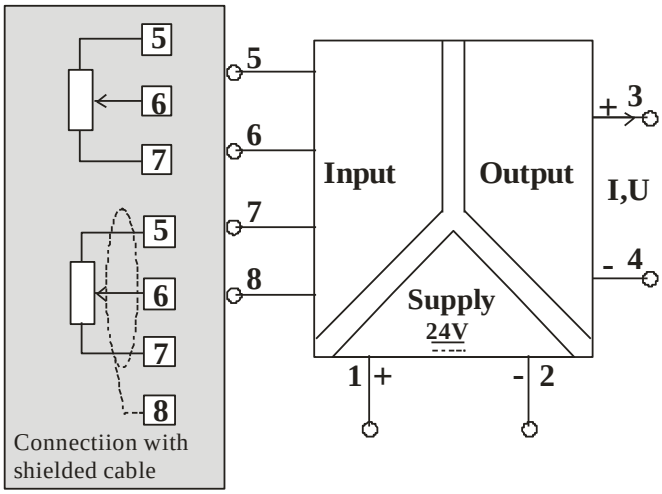

Fig. 2. Functional description of the PP-S2 converter. Way of connection the potentiometer.

HOW TO ORDER: PP-S2 –

Output range (1...7)

1 - 0...5mA
2 - 0...20mA
3 - 4...20mA
4 - 0...5V
5 - 0...10V
7 - other (specify the range)

EXAMPLE OF AN ORDER: Potentiometer position converter, 4-20mA output type **PP-S2–3**

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