

Datasheet

Pressure Transmitter SP100 - Display

Introduction

Equipped with display, SP100 is convenient to use and view the measured value. Rotatable display, compact design makes it good for limited mount space. Analog and switching output at the same time.



Characteristics

330° rotatable display

Measuring range: see measuring range table for details

On-site setting

High repeatability

4...20mA + 2 switch output

Integrated / remote transmitter

Applications

Applicable to water / gas

Hydraulic and lubrication system

Pump run-dry protection

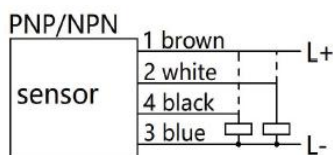
Leaking monitor

Pressure control system

Specifications

Measuring range	See order code for details
Over-pressure	See technical data below for details
Analog output	4...20mA
	Load resistance: $\leq 500\Omega$
	Accuracy: 0.5% of full span
Switch output	Set point range: 0.5%...100% of full span
	Number of switches: 1 or 2 selectable
	Output: PNP / NPN, NC / NO programmable.
	Response time: $\leq 30\text{ms}$
Repeatability	0.5% of full span
Display	4-digit LED display
Power supply	24 VDC
Wiring protection	Reverse polarity, Overvoltage and Short-circuit
Ambient temperature	-4...176°F / -20...80°C
Medium temperature	-13...185°F / -25...85°C
Storage temperature	-40...185°F / -40...85°C
Temperature effect	$< 0.03\%$ of full span / K
Protection class	IP65
Process connection	NPT, G, M20 x 1.5
Housing material	Zinc Alloy
Electrical connection	M12x1 4-pin plug
	M12x1 5-pin plug (for 1 analog output + 2 switching output)

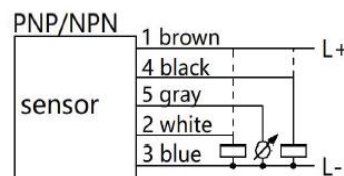
Wiring



2 switching output



analog output

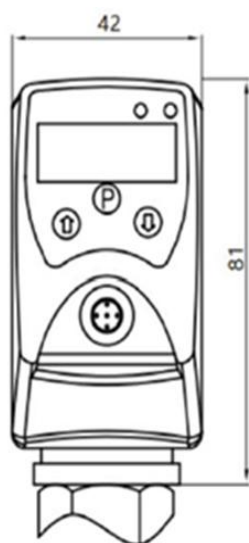
1 switching output +
analog output2 switching output +
analog output

Pin	Cable	2 switching output	analog output	1 switching + analog output	2 switching + analog output
1	Brown	24VDC	24VDC	24VDC	24VDC
2	White	Switch 2 output	4...20mA output	4...20mA output	Switching 2 output
3	Blue	VDC Ground (0V)	VDC Ground (0V)	VDC Grounding (0V)	VDC Grounding (0V)
4	Black	Switch 1 output	/	Switch 1 output	Switch 1 output
5	Gray	/	/	/	4...20mA output

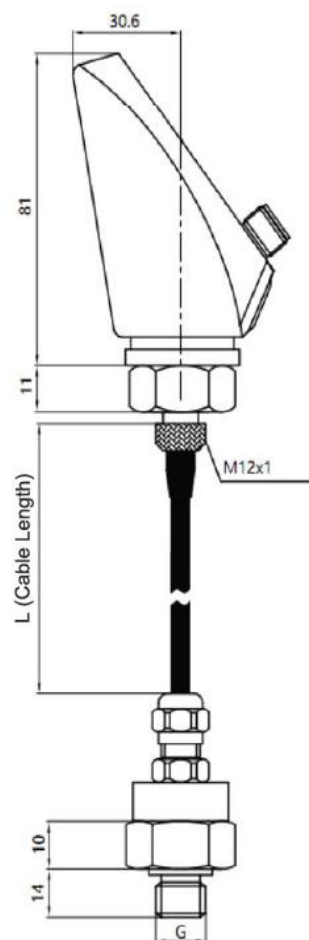
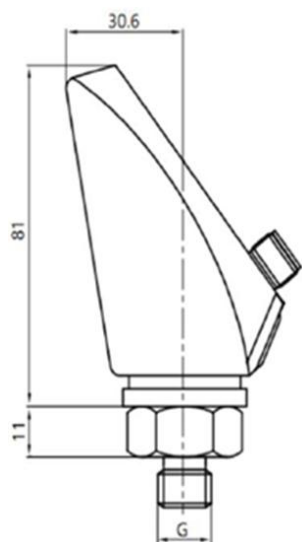
Measuring range

Code	Measuring range		Over-pressure		Burst pressure	
	psi	bar	psi	bar	psi	bar
P1	-14.5...14.5	-1...1	72.5	5	87	6
P2	-14.5...29	-1...2	145	10	174	12
P3	-14.5...72.5	-1...5	290	20	362	25
P4	-14.5...145	-1...10	290	20	362	25
P5	0...14.5	0...1	72.5	5	87	6
P6	0...145	0...10	290	20	362	25
P7	0...362	0...25	725	50	3625	250
P8	0...800	0...60	1740	120	8000	550
P9	0...1450	0...100	2900	200	11600	800
P10	0...2300	0...160	4600	320	14500	1000
P11	0...3600	0...250	7200	500	17400	1200
P12	0...5800	0...400	11600	800	20300	1400

Dimensions in mm



Integrated type



Remote type

Panel



- 1- I = output 1 state
II = output 2 state
2- LED display
3- P confirm
4- up
5- down

Keys

keys	Function
 + 	Press and hold for 3 seconds to enter setting mode
	Shift menu up / change a setting value
	Shift menu down / move cursor
	Enter menu / Confirm and enter next menu

Menus

Menus	Description	Options
unit	Display unit	bar / psi
SP1	Switch 1 set point	2%...100% of measuring range
rP1	Switch 1 reset point	0...98% of measuring range
out1	Switch 1 output mode	Hno / Hnc / Fno / Fnc*
SP2	Switch 2 set point	2%...100% of measuring range
rP2	Switch 2 reset point	0...98% of measuring range
out2	Switch 2 output mode	Hno / Hnc / Fno / Fnc*
Sfun	Switch output type	PnP / nPn
Afr	Analog output lower limit	0...75% of measuring range
Ato	Analog output upper limit	25%...100% of measuring range
Aout	Analog output range	0...20mA / 4...20mA
dAp	Damping of switching output	0...8s
Sto	Save	YES / NO

*

Hno - Hysteresis normally open

Hnc - Hysteresis normally close

Fno - Window normally open

Fnc - Window normally close

Note:

1) The difference between set point and reset point must be at least 2% of measuring range, or one of them will be adjusted automatically.

2) The difference between analog output upper limit and lower limit must be at least 25% of measuring range, or it will be adjusted automatically.

Others	Description
OL	Higher than upper limit alerting
UL	Lower than low limit alerting

Output mode - Window / Hysteresis

Hysteresis

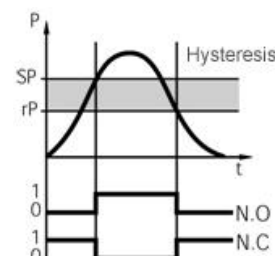
Hysteresis is used to have a stable output if the pressure fluctuates around set point.

Use NC (normally closed) as example:

The Hysteresis(SP-rP) is shown as gray area in right diagram.

For rising pressure, switch opens when pressure is higher than set point (SP).

For falling pressure, switch closed only when pressure is lower than reset point (rP).



Window

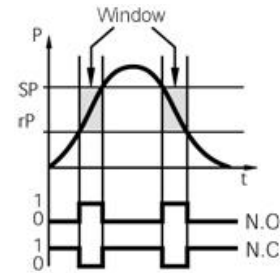
Window is used to monitor whether the pressure is in a certain range. Alerting will be activated if the pressure is out of the range.

Use NC (normally closed) as example:

The window range is shown as gray area in right diagram.

If pressure is inside the range of set point (SP) and reset point (rP), switch is closed.

If pressure is high than SP or lower than rP, switch opens.



Order Code

Example: SP100-FP51AN12-

1. Model

SP100- Pressure transmitter

2. Version

F Integrated type
R Remote type

3. Measuring range

P1 -14.5...14.5 psi (-1...1 bar)
P2 -14.5...29 psi (-1...2 bar)
P3 -14.5...72.5 psi (-1...5 bar)
P4 -14.5...145 psi (-1...10 bar)
P5 0...14.5 psi (0...1 bar)
P6 0...145 psi (0...10 bar)
P7 0...362 psi (0...25 bar)
P8 0...800 psi (0...60 bar)
P9 0...1450 psi (0...100 bar)
P10 0...2300 psi (0...160 bar)
P11 0...3600 psi (0...250 bar)
P12 0...5800 psi (0...400 bar)

3. Output

2S 2 switching output
1A 4...20mA output
2A 4...20mA + 1 switching output
3A 4...20mA + 2 switching output

4. Process connection

N12 NPT1/2" male thread
N14 NPT1/4" male thread
G12 G1/2" male thread
G14 G1/4" male thread
M20 M20 x 1.5 male thread
other connection on request

5. Connectivity from sensor to transmitter (Remote type only)

- None
2 Cable length 2 m / 6.5 ft
5 Cable length 5 m / 16.5 ft
10 Cable length 10 m / 33 ft
Other length on request

Accessory - power/signal cable with socket

1. Connecting cable with socket

ET04-	4-pin M12 x 1 connecting cable with socket
ET05-	5-pin M12 x 1 connecting cable with socket
	5-pin cable is for 2 switching + analog output

2. Material

PU	Material: PUR
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3. Length

02	6.5ft / 2m (default)
05	16.5ft / 5m

4. Type

R	Regular cable
S	Shielded cable

5. Connector

G	Straight socket
W	Angled socket



Accessory - wirable plug

1. Wirable plug

ST04	4-pin M12 x 1 wirable plug
ST05	5-pin M12 x 1 wirable plug
	5-pin cable is for 2 switching + analog output



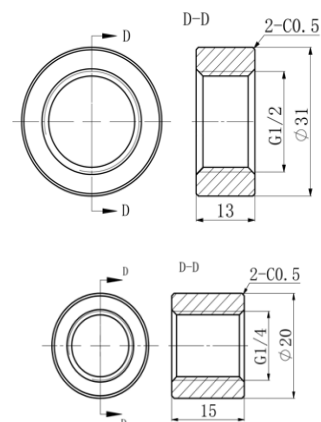
Accessory - Welding socket

1. Model

TT01-	Welding socket
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2. Thread

G12	Fitting thread: 1/2" G thread
N12	Fitting thread: 1/2" NPT thread



Accessory - Wall mounting bracket for remote trasnmitter

1. Model

RR002-	Wall mounting socket (for remote transmitter)
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2. Material

A	Aluminum
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3. Hole size on wall

6	Hole diameter: 6mm
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