

# DT-PS900 Series Datasheet

## Smart Programmable Pressure Transmitters

**DAYTECH**

### Key Features

- Accuracy of  $\pm 0.5\%$  F.S.
- Hysteresis of  $\pm 0.2\%$  F.S.
- Long Term Stability of  $\pm 0.3\%$  F.S.
- Thermal Error of  $\pm 0.02\%$  F.S./ $^{\circ}\text{C}$
- Ranges from 0-1Bar to 0-600Bar, IP65
- Scalable output range from 100% to 25%, turn down of 4:1 F.S.
- 4-20mA, 0-5VDC, 0-10VDC output types
- 1 or 2 programmable PNP digital switching outputs
- Time delay setting for PNP switching
- MODBUS output available
- 12-30 VDC supply
- Automatic temperature compensation and display
- 316SS Body and Wetted parts
- Blue OLED Screen display with 3 pushbutton keys
- Display rotatable 180 degrees, Body rotatable 330 degrees
- CE Certification



### Applications

- Gases and Liquids Pressure Measurement
- Tank Level Monitoring and Control
- Pumping Systems
- Pipeline Pressure Monitoring and Control
- HVAC and Boiler Systems
- Hydraulic Systems
- Pneumatic Systems

### Description

The DT-PS900 series of smart pressure transmitters are designed for industrial automation and process control. DT-PS900 is a smart pressure transmitter and switch combining pressure measurement, local display indication and digital ON/OFF control together in one highly engineered device. The housing and wetted parts are made of 316L stainless steel. It uses an advanced ARM industrial-grade MCU for processing power and a high quality pressure sensing element. With 4:1 turndown user scalability, the DT-PS900 is flexible to meet your needs. DT-PS900 has a fast reaction speed and good electro-magnetic compatibility for highly accurate and robust pressure control. It can be used for a wide range of industrial pressure control applications such as pumping, tank level, hydraulic and pneumatic equipment. DT-PS900 provides visual process indication and localized process control via 1 or 2 PNP switch contact outputs. It has optional analog outputs of 0-5VDC, 0-10VDC or 4-20mA.

DT-PS900 has advanced functions such as PNP output time delay setting, output range changing setting (scaling from 25%~100%), as well settings: clear zero, base point and peak display. The device can be installed vertically, horizontally or rack mounted. The body can rotate 330 degrees and the display can rotate 180 degrees in order for viewer to face the display screen in a user friendly direction. The blue OLED display is very clear to read. With a specialized communication adaptor, DT-PS900 can be connected with a PC or PLC for acquiring data using the Modbus communication function.

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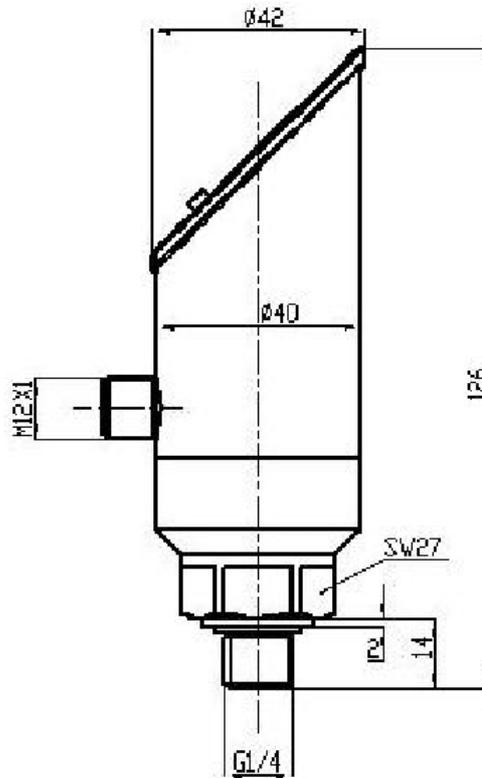
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## Smart Programmable Pressure Transmitters



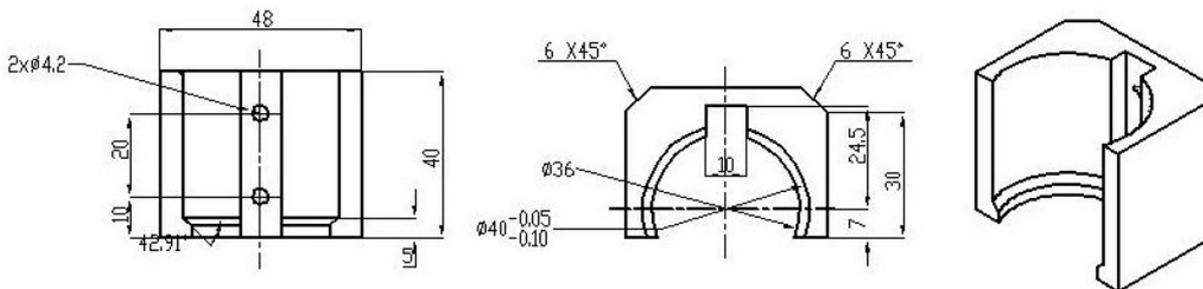
### Dimensions

Unit: mm



### OPTIONAL MOUNTING BRACKET:

DT801 mounting bracket (optional components):



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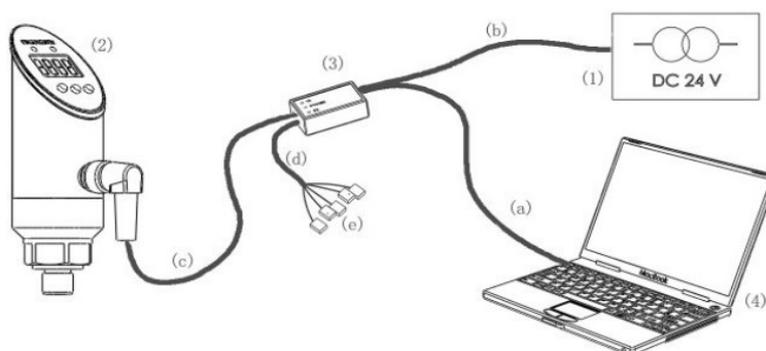


### USER ROTATABLE DISPLAY AND BODY:

Forward up display	Reversal display	Forward up display
Rack Mounting Installation	Pipe horizontal installation	Pipe vertical installation

Due to the rotatable body and inverting display, you can install the device in various locations and rotate to see the display.

### MODBUS COMMUNICATION CONNECTION:



(a)	USB connection cable	(1)	24VDC Power Supply (user purchase)
(b)	5.5mm DC Power Supply Plug	(2)	DT-PS900 Smart Pressure Sensor
(c)	M12x1, 8-pin cable	(3)	DT-PS900 Communication Adaptor
(d)	5-pin RVVP shielded cable	(4)	PC / PLC or external device
(e)	cable fastener: Red—VCC Green—OUTPUT	Yellow—K1	Black—GND Blue—K2

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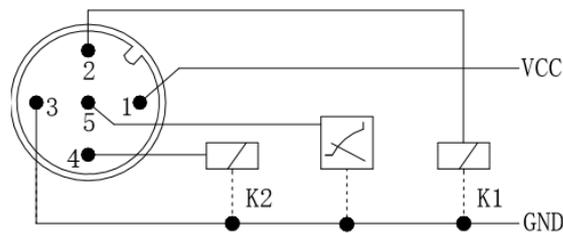
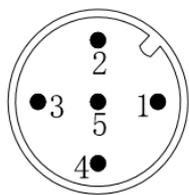
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**5-PIN PLUG ANALOG AND DIGITAL CONNECTION:**

(1) 5-pin plug pin definition and wire connection:

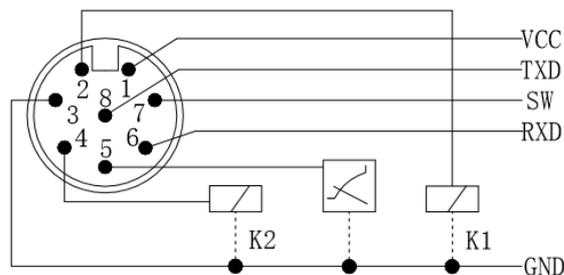
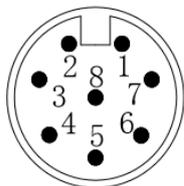
Wire	Color	1×PNP	2×PNP	1×PNP+ Voltage	2×PNP+ Voltage	1×PNP+ Current	2×PNP+ Current
1	Red	VCC					
2	Yellow	K1- Output					
3	Black	GND					
4	Blue	-	K2-Output	-	K2-Output	-	K2-Output
5	Green	-	-	0V~5/10V		0/4mA~20mA	



**8-PIN PLUG ANALOG, DIGITAL AND MODBUS CONNECTION:**

(2) 8-pin plug pin definition and wire connection:

Code	Wire color	1×PNP	2×PNP	1×PNP+ Voltage	2×PNP+ Voltage	1×PNP+ Current	2×PNP+ Current
1	Red	VCC					
2	Yellow	K1- Output					
3	Black	GND					
4	Blue	-	K2-Output	-	K2-Output	-	K2-Output
5	Yellow	-	-	0V~5/10V		0/4mA~20mA	
6	-	RXD					
7	-	SW					
8	-	TXD					



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### Operating Modes – User Scalability

Range	Range Changing percent	New range	New range scale	
0bar~4bar <sup>①</sup>	25%FS <sup>②</sup>	1bar <sup>②</sup>	0bar~1bar 1bar~2bar <sup>③</sup> 2.1bar~3.1bar 3bar~4bar	
	50%FS	2bar	0bar~2bar 1.5bar~3.5bar 2bar~4bar	
	75%FS	3bar	0bar~3bar 1bar~4bar	
	100%FS	4bar	0bar~4bar	
0bar~4bar <sup>①</sup>	25%FS <sup>②</sup>	1bar <sup>②</sup> reversal output	1bar~2bar <sup>④</sup>	

The DT-PS900 has flexible and advanced scalability options built in to the sensor, using the on board control of the MCU.

- Scalable turndown ratio of 4:1 (25% to 100% F.S.).
- User can select the URL (Upper Range Limit) and LRL (Lower Range Limit) so that the output is scaled to the window of pressure range that is required.
- User can reverse the operation of the analog output.
- Note – the accuracy remains the original sensor accuracy as %F.S.

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### Operating Modes – PNP Output Programming

Hys. Mode	Win. Mode
<p>① Action Value</p> <p>② Release Value</p> <p>③ Difference between ① and ②/hysteresis</p> <p>④ Output status of NO</p> <p>⑤ Output status of NC</p>	<p>① Upper action value</p> <p>② Lower action value</p> <p>④ Output status of NO</p> <p>⑤ Output status of NC</p>
<p>Setting range for switch points:</p> <p>Action Value: 1.5%FS~100%FS</p> <p>Release Value: 1%~99.5%FS</p> <p>Action Value-Release Value<math>\geq</math>0.5%FS</p>	<p>Switch point setting ranges:</p> <p>Upper Action Value: 1.5%FS~100%FS</p> <p>Lower Action Value: 1%~99.5%FS</p> <p>Upper Action Value-Lower Action Value<math>\geq</math>0.5%FS</p>
<p>Switch action time delay can be set: 0.00s~99.99s</p>	

The DT-PS900 has flexible and advanced PNP switched digital output options built in to the sensor, using the on board control of the MCU.

- Hysteresis Mode – Rising and Falling, Action and Release
- Window Mode – ON/OFF within a window of the 0-100% scaled output.
- Delay timer for increased process control usability
- User can reverse the operation of the analog output.
- Note – the accuracy remains the original sensor accuracy as %F.S.

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### Technical Specifications

Parameter	Value	Note
Measurement Range	OMPa-0.1MPa.....0MPa-60.0MPa (0-1Bar to 0-600Bar) (BAR) 0-1, 0-3.5, 0-6.0, 0-10, 0-16, 0-25, 0-35, 0-70, 0-100, 0-250, 0-400, 0-600	
Maximum Overload Pressure	Lesser of 2×RP(rated pressure) OR Rated Pressure + 100MPa	
Range Scalability	100% to 25% of F.S. / 4:1	
Accuracy	±0.5%F.S	
Hysteresis	±0.2%F.S	
Thermal Error	±0.02%F.S/°C	
Long Term Stability	±0.3%F.S.	
Power Supply	12-30VDC	
Operating Temperature	- 30°C~+70°C	
Operating Humidity	0%RH to 85%RH	
Sensing element compensation temperature	-10°C~+70°C	
Media Compatibility	Corrosive medium compatible with 316SS Body and 316SS diaphragm	
Screen Display	Blue OLED 128 x 64 resolution	
Switch Display	2 x Red LEDs	
Display Units	KPa, MPa, BAR, psi, kgf/cm2	
Key Push Buttons	3 Rubber Keys	
Digital and Analog Output Configurations	1 switch: 1×PNP 2 switches: 2×PNP 1 switch + voltage output: 1×PNP + 0V~ 5VDC/10VDC 2 switches + voltage output: 2×PNP + 0V~ 5VDC/10VDC 1 switch + current output : 1×PNP + 0mA/4mA~ 20mADC 2 switches + current output : 2×PNP + 0mA/4mA~ 20mADC Switch current: Max.1.2A Switch life time: >100 times Switch reaction: <10ms Switch time delay: 0.00s~99.99s Switch action pattern: Hys. Mode / Win. Mod	
Communication Signal	RS485 Modbus	
Diaphragm	SS17-4/316L	
Gross Weight	300 grams	
Electrical connector	M12x1, 5 PIN Connector OR M12x1, 8 PIN Connector.	
Pressure Connection	M20×1.5 G1/2 G1/4 NPT1/4	
Response Time	10ms	
Pressure Form	Gauge G / Absolute A	
Compliance Certification	RoHS, CE	
EMC	GB/T 17626.2/3/4-2006	
Shock	≤10g/10Hz...500Hz (IEC60068-2-6-2007)	
Impact	≤50g/11ms (IEC60068-2-27-2008)	

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### Selection Guide

DT-PS900	Smart Pressure Transmitter and Switch				
	Code	Pressure Range and Type	Code	Pressure Range and Type	
	G1	[0~0.1]MPa G	A1	[0~0.1]MPa A	
	G2	[0~0.35]MPa G	A2	[0~0.35]MPa A	
	G3	[0~0.7]MPa G	A3	[0~0.7]MPa A	
	G4	[0~1.6]MPa G	A4	[0~1.6]MPa A	
	G5	[0~3.5]MPa G	A5	[0~3.5]MPa A	
	G6	[0~7]MPa G	A6	[0~7]MPa A	
	G7	[0~10]MPa G			
	G8	[0~20]MPa G			
	G9	[0~40]MPa G			
	G10	[0~60]MPa G			
		Code	Output		
		1K	1×PNP		
		2K	2×PNP		
		1KV	1×PNP+0V~5/10VDC		
		2KV	2×PNP+0V~5/10VDC		
		1KA	1×PNP+0/4mA~20mADC		
		2KA	2×PNP+0/4mA~20mADC		
			Code	Thread	
			C1	M20X1.5 male, face-seal	
			C2	G1/4 male	
			C3	G1/2 male	
			C5	M20X1.5 male, waterline seal	
			C6	1/4NPT male	
				Code	Others
				R5	5-pin M12X1 male plug
				R8	8-pin M12X1 male plug for Modbus communication
DT-PS900	G4	1KA	C2	R5	←the whole spec.

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#### Optional Components

- DT-PS900 Communication adaptor (USB connector included, 2m RVVP cable with 8-pin M12\*1 straight plug.
- DT801 Mounting Bracket
- DT901 2m RVVP cable with 5-pin M12X1 female right angle plug
- DT902 2m RVVP cable with 8-pin M12X1 female right angle plug
- The 5 PIN option does not come with MODBUS.
- If you require different types of process connections or functions, please talk to our sales engineers, we can accommodate many different requests.

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