

Pressure Transmitter with Integral LED Display and Programmable Solid State Switches Type PSD-30

WIKA Datasheet PSD-30

Applications

- Pumps and compressors
- Hydraulics and pneumatics
- Machine tools
- Machine building

Special Features

- Available with single or dual NPN or PNP solid state switches
- High visibility, rugged 14-segment red LED display electronically rotates 180° for top-down installation
- Independent rotation between the M12x1 electrical connection and the display
- User-friendly, intuitive 3-key operation
- Versions with 4-20 mA or 0-10V analog output available
- Programming menu meets VDMA Standards for user friendly navigation

Description

Award-winning functionality and design

The design and outstanding functionality of the PSD-30 received the **IF Product Design Award** in 2009. The display, with its .35" (9 mm) high digits, was designed to be as large as possible and positioned at an angle, so the pressure reading is visible from a distance of at least 10 feet (3 meters). Time-proven and rugged LED technology with 14-segment display is used so alphanumeric messages are much easier to understand compared to typical 7-segment displays.

The large, ergonomically designed programming push buttons provide the user with tactile feedback for immediate confirmation that the touch event was registered by the transmitter. The user-friendly menu navigation layout meets the new VDMA Standard form for fluid sensors (24574-1, Part 1, pressure switch). The goal of the VDMA is to simplify the use of pressure switches by standardizing menu navigation and display parameters.



Type PSD-30 Pressure Transmitter with Integral LED Display

Flexible and adaptable

The PSD-30 can be adjusted three different ways to fit specific installation requirements. The display and electrical connection can be rotated independently to maximize visibility while still orienting the electrical connection in the best position for the cable connector. If the transmitter is installed overhead or upside down the display can be electronically rotated 180°.

Quality and reliability

Time tested, proven WIKA thin film and piezoresistive pressure sensor technology is an integral part of the PSD-30 providing the high quality and long term reliability users demand.

Specifications		Type PSD-30						
Pressure ranges	15 psi	25 psi	30 psi	50 psi	100 psi	160 psi	200 psi	300 psi
Over pressure safety	30 psi	60 psi	60 psi	100 psi	200 psi	290 psi	400 psi	600 psi
Burst pressure	75 psi	150 psi	150 psi	250 psi	500 psi	500 psi	1,500 psi	1,500 psi
Pressure ranges	500 psi	1,000 psi	1,500 psi	2,000 psi	3,000 psi	5,000 psi	8,000 psi	
Over pressure safety	1,000 psi	1,740 psi	2,900 psi	4,000 psi	6,000 psi	10,000 psi	17,400 psi	
Burst pressure	2,500 psi	7,975 psi	11,600 psi	14,500 psi	17,400 psi	24,650 psi	34,800 psi	
		{Absolute pressure: 0 ... 15 psi up to 0 ... 300 psi}						
		{Vacuum and compound: -14.5 ... 0 psi up to -14.5 ... 300 psi}						
Pressure ranges	1 bar	1.6 bar	2.5 bar	4 bar	6 bar	10 bar	16 bar	25 bar
Over pressure safety	2 bar	3.2 bar	5 bar	8 bar	12 bar	20 bar	32 bar	50 bar
Burst pressure	5 bar	10 bar	10 bar	17 bar	34 bar	34 bar	100 bar	100 bar
Pressure ranges	40 bar	60 bar	100 bar	160 bar	250 bar	400 bar	600 bar	
Over pressure safety	80 bar	120 bar	200 bar	320 bar	500 bar	800 bar	1,200 bar	
Burst pressure	400 bar	550 bar	800 bar	1,000 bar	1,200 bar	1,700 bar	2,400 bar	
		MPa and kg/cm ² are available						
		{Absolute pressure: 0 ... 1 bar up to 0 ... 25 bar}						
		{Vacuum pressure: -1 ... 0 bar up to -1 ... 24 bar}						
Fatigue life			Rated to 10 million cycles					
Materials								
■ Wetted parts								
Pressure connection	316 L							
Pressure sensor	316 L (13-8 PH for ranges above 150 psi)							
■ Case								
Lower body	316 L							
Plastic head	Heat and chemical resistant fiberglass reinforced plastic (PBT)							
Keyboard	TPE-E							
Display window	PC							
■ Internal transmission fluid	Synthetic Oil (only with pressure ranges < 0 ... 160 psi and ≤ 0 ... 300 psia)							
Power supply U+	U+ in VDC	15 ... 35						
Signal output and maximum ohmic load RA	RA in Ohm	4 ... 20 mA, 3-wire			RA ≤ 0,5 k			
		0 ... 10 V, 3-wire			RA > 10 k			
		Adjustment zero point offset, max. 3 % of span						
Setting time (Analog signal)	ms	3						
Current consumption	mA	≤ 100						
Total current supply	mA	max. 350 / 600 (incl. switching current)						
Switch points	Individually adjustable using external control keys							
■ Type	PNP or NPN transistor switching output							
■ Number	1 or 2							
■ Function	user-adjustable, normally open / normally closed; windows- and hysteresis functions							
■ Contact rating	VDC	Supply voltage (U+) – 1 V						
■ Switching current	mA	250						
■ Response time	ms	≤ 10						
■ Accuracy	% of span	≤ 0.5 (switch setting)						
Isolation voltage	VDC	500						
Display								
■ Design	Red 4-digit, 14 segment LED .35" (9 mm) high							
■ Range	-1999 to 9999							
■ Accuracy	≤ 1.0 ± 1 Digit							
■ Update	ms	1000, 500, 200, 100 (adjustable)						
Accuracy	% of span	≤ 1.0 *)						
		*) Including non-linearity, hysteresis, zero point and full scale error (corresponds to error measurement per IEC 61298-2)						
Non-linearity	% of span	≤ ± 0.5			(BFSL) according to IEC 61298-2			
Long-term drift	% of span	≤ 0.2			according to IEC 61298-2			
Permissible temperature of								
■ Medium **)			-4 ... +185 °F	-20 ... +85 °C				
■ Ambient **)			-4 ... +176 °F	-20 ... +80 °C				
■ Storage **)			-4 ... +176 °F	-20 ... +80 °C				

**) Also complies with EN 50178, Tab. 7, Operation (C) 4K4H, Storage (D) 1K4, Transport (E) 2K3

Specifications

Type PSD-30

Rated temperature range		+32 ... +176 °F	0 ... +80 °C
Temperature error within rated temperature range		≤ 1.0 typ., ≤ 2.5 max.	
Temperature coefficients within rated temperature range			
■ Mean TC of zero	% of span	≤ 0.2 / 10 K	
■ Mean TC of span	% of span	≤ 0.2 / 10 K	
Relative humidity	%	< 90	
Approval		cULus	
RoHS-conformity		Yes	
CE-conformity			
■ Pressure equipment directive		This instrument is a pressure accessory as defined by the directive 97/23/EC	
■ EMC directive		2004/108/EEC, EN 61 326 Emission (Group 1, Class B) and Immunity (industrial locations)	
Shock resistance	g	50 according to IEC 60068-2-27	(mechanical shock)
Vibration resistance	g	10 according to IEC 60068-2-6	(vibration under resonance)
Wiring protection			
■ Overvoltage protection	VDC	40	
■ Short-circuit protection		S+/SP1/SP2 to U-	
■ Reverse polarity protection		U+ to U-	
Weight	oz	Approx. 7	

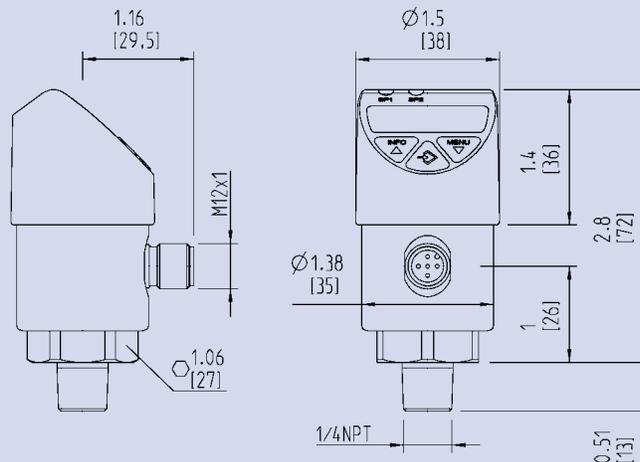
Dimensions in inches (mm)

Electrical connection

Circular connector *
M 12x1 5-pin
Order Code: M5

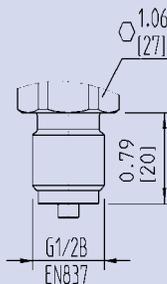
Pressure connections

1/4" NPT Male
(others available)
Order Code: NB

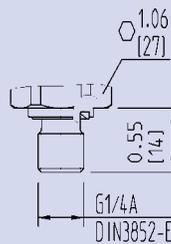


Optional pressure connections (others available)

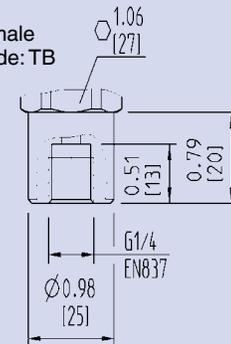
G 1/2 B
Order Code: GD



G 1/4 A to DIN 3852-E
Order Code: HD



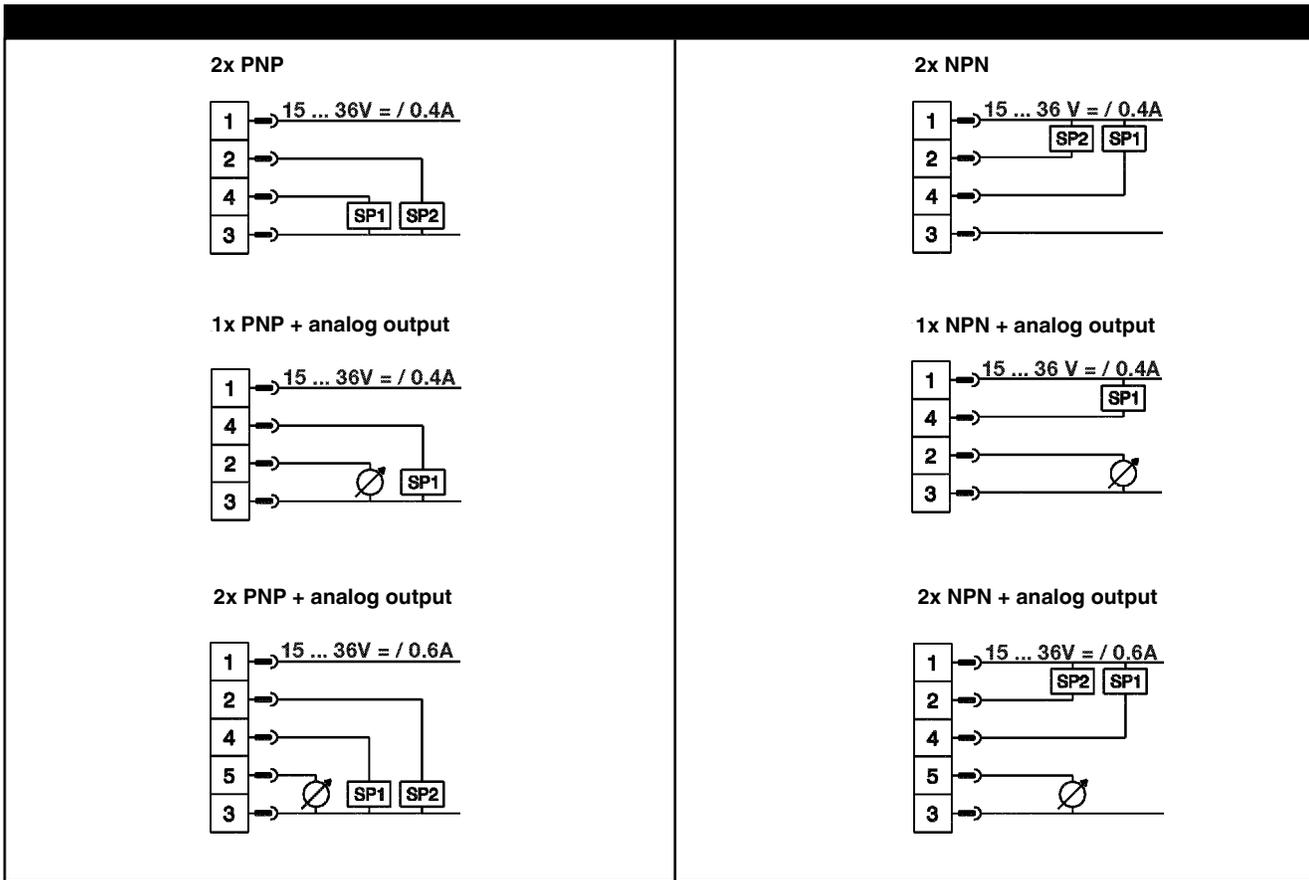
G 1/4 Female
Order Code: TB



* Mating connectors are not included

Wiring Details

	Circular connector M12x1, 4 pin	Circular connector M12x1, 5 pin
		
	2 switching outputs or 1 switching output + 1 analog output	2 switching outputs + 1 analog output
	U+ = 1 U- = 3 SP1 = 4 SP2 = 2 / S+ = 2	U+ = 1 U- = 3 SP1 = 4 SP2 = 2 S+ = 5
Ingress Protection per IEC 60 529	IP 65 and IP 67	IP 65 and IP 67
	The ingress protection classes specified only apply while the pressure transmitter is connected with female connectors that provide the corresponding ingress protection.	



Legend:

U+	Positive supply connection
U-	Negative supply connection
SP1	Switching point 1
SP2	Switching point 2
S+	Analog output

Specifications and dimensions given in this datasheet represent the state of engineering at the time of printing. Modifications may take place and materials specified may be replaced by others without prior notice.

