

Digital LED Pressure Switch



Operation Manual

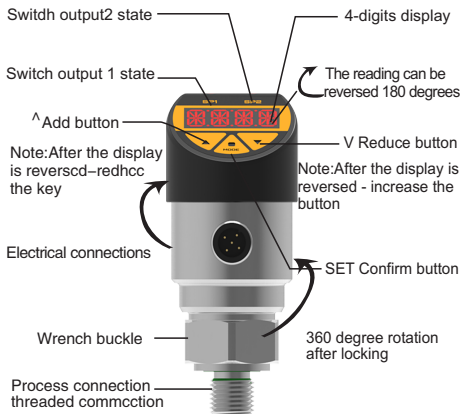
1. Overview

The smart pressure switch is an intelligent pressure controller integrating pressure measurement, display, output and control. It is made of advanced components such as diffused silicon sensors, ARM chips, and solid state relays. It is a compact and reliable smart instrument. Widely used in electric power, tap water, petroleum, chemical industry, machinery.

2. Main Features

- 4-bit high-precision word tube design, 180° reversible
- Flexible installation, the main body can be rotated 360°
- Support multi-unit switching
- Flexible output configuration (hysteresis normally open/normally closed, window normally open/normally closed)
- Anti-shock, anti-vibration, switch life up to 100 million times
- One-key reset, sleep mode

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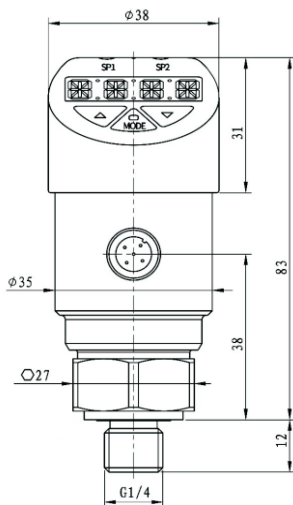


3. Specifications

Range	-100kPa... 0~100kPa... 100MPa	Accuracy	± 0.5%FS (including nonlinearity, hysteresis and repeatability)
Display mode	LED	Display range	-9999~99999

Overload	1.5 times the full scale pressure or 110MPa to take the minimum	Load Resistance	$\leq (U-10)/0.02\Omega$ (two wires)
Source range	13-30VDC	Pressure type	Gauge, absolute or sealed gauge pressure
Switch-off point response time	< 5mS	Lead wire	M12 Industrial connectors
Output mode	2-way switching PNP/NPN/RELAY+1 channel analog 4~20mA	Load capacity	$\leq 24V$ 1.5A
Protect	IP65	Switch life	>1000000 times
Zero temperature drift	0.03%FS/°C ($\leq 100kPa$) 0.02%FS/°C ($>100kPa$)	Full scale temperature drift	0.03%FS/°C ($\leq 100kPa$) 0.02%FS/°C ($>100kPa$)
Environment temperature	-30°C~70°C	Medium temperature	-40°C~85°C
Save temperature	-40°C ~ 85°C	Relative humidity	0~80%

4.Dimension and Structure



5.Connection instructions

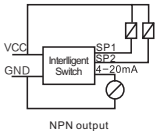
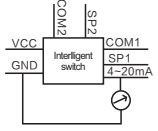
5.1 Connection instructions

It can be directly installed on the pressure pipeline through the pressure pipe joint (G1/4) (other size joints can be specified when ordering). In critical

applications (e.g. severe vibrations and shocks), the pressure fittings can be mechanically decoupled with micro-hose.

Note: When the measuring range is less than 100kPa, it must be installed vertically.

5.2 Wiring

M12×1 Navigation insertion body	Wiring diagram	Wiring definition
	 NPN output	1:VCC (Power+) Brown 2:Sp2 (Switch 2) White 3:GND (Power-) Blue 4:Sp1 (Switch 1) Black 5:4~20mA Gray
	 Relay output	2:VCC (Power+) Brown 1:SP2 (Switch 2) White 7:GND (Power-) Blue 4:SP1 (Switch 1) Yellow 5:4~20mA Gray 6:COM1 Pink 3:COM2 Green

Note: In order to reduce the influence of electromagnetic interference, the following items should be noted:

- Keep wiring connections as short as possible
- Use shielded wire
- Try to avoid direct access to the wiring of user devices or electrical and electronic devices that cause interference
- If installed with micro-hose, the housing must be grounded separately

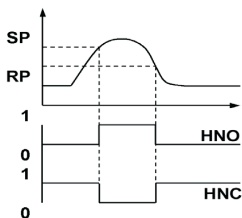
6.Switch Function Description

6.1 Hysteresis function

If the system pressure fluctuates at zero, the hysteresis will keep the switching state of the output stable.

With increasing system pressure, the output switches when the switching point (SP) is reached.

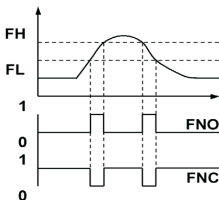
- Contact normally open (HNO): active
- Contact Normally Closed (HNC): Not active In case the system pressure drops again, the output does not switch until the reset switch point (RP) is reached, and only below the reset switch point (RP) does the output switch.
- Contact normally open (HNO): not active
- Contact normally closed (HNC): active



6.2 Window function

The definition range can be controlled through the window function. When the system pressure is between window high (FH) and window low (FL), the output switch will open.

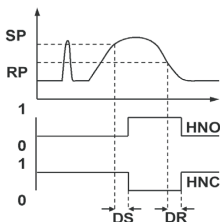
- Contact normally open (FNO): active
- Contact normally closed (FNC): not active The output switch will not open when the system pressure is outside the window high (FH) and window low (FL) ranges.
- Contact normally open (FNO): not active
- Contact normally closed (FNC): active



6.3 Delay time (≤ 30 s)

In this way, unwanted transient pressure peaks or high-frequency signals are filtered out.

■ When the pressure reaches the switching condition, the switch output does not change state immediately, but must wait until the delay time is over before changing. A change in pressure during the time delay does not change the state of the switch output.



6.4 Range scaling

For special applications, this product can scale the analog output range.

Factory settings	Calibrated measuring range
The graph shows the factory settings for the analog output range. The vertical axis represents the output current I (mA) with marked values at 4 and 20. The horizontal axis represents pressure P. A linear relationship is shown between the pressure range from A0L to A0H and the current range from 4 mA to 20 mA.	The graph shows the calibrated measuring range for the analog output. The vertical axis represents the output current I (mA) with marked values at 4 and 20. The horizontal axis represents pressure P. A linear relationship is shown between the pressure range from 新A0L to 新A0H and the current range from 4 mA to 20 mA.

AOL is the starting point of the analog output signal (measured value corresponding to 4mA)

AOH is the end point of the analog output signal (measured value corresponding to 20mA)

Minimum range for AOL and AOH = 25% of the measurement range

6.5 Zero setting

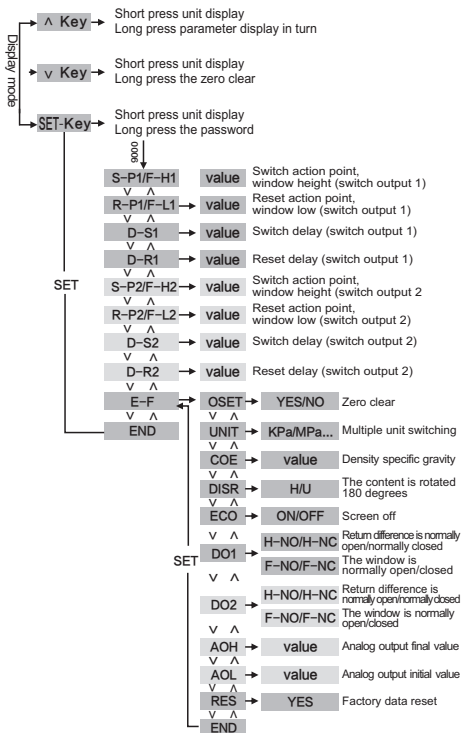
Check the zero position displayed on the digital display during debugging. If the zero point deviation is displayed after installation, you can use 0SET or press the "v" button to reset the zero position in the programming mode.

NOTE: Make sure system pressure is relieved before zero setting

7 .Menu guide

7.1 Key introduction

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8.Parameter introduction

Menu	Description	Parameter	Factory Setting
S-P1/ S-P2	Hysteresis function: switch action point	Measuring range 0.25%FS... 100%FS	Nominal pressure 90%
R-P1/ R-P2	Hysteresis function: reset action point	0...(switch action point-measuring range 0.25%FS	Nominal pressure 10%
F-H1/ F-H2	Window function: window upper limit	Measuring range 0.25%FS... 100%FS	Nominal pressure 90%
F-L1/ F-L2	Window function: window lower limit	0...(window upper limit-measuring range 0.25%FS)	Nominal pressure 10%
D-S1/ D-S2	Switching delay time	0.0 ...30.0 s	0.0 s
D-R1/ D-R2	Reset delay time	0.0 ...30.0 s	0.0 s
E-F	Extended programming function		
0SET	Adjusts the zero point/performs “Auto Zero ” (maximum 5% FS)	YES/NO	
UNIT	Unit switching	kPa、MPa、PSI、 BAR、mBAR、 KGcm (kg/cm ²)、%	In order (only eligible units are shown)
COE	Density Coefficient (Level Models Only)	0.5-15	1.0

DISR	Display content rotated 180° (digital display)	U-horizontal H-reverse U	U
ECO	Screen	YES/NO	
Do1/ DO2	Switch function	HNO=hysteresis function, normally open HNC=hysteresis function, normally closed FNO=window function, normally open FNC=window function, normally closed	HNO
AOL	Measuring Range Scaling/Turndown (Analog value, initial value)	Corresponding analog output	Measuring range initial value
AOH	Measuring Range Scaling/Turndown (analog value, end value)	Corresponds to analog output	Measuring range end value
RES	Reset to factory settings	YES/NO	
END	Rturn/Exit		

9. Malfunction

9.1 Alarm information

Information	Meaning	Solution
ATT1	Incorrect password	Re-enter

ATT2	Parameter Conflict Prompt	The system automatically adjusts the lower limit of the set point, pay attention to enter to view
ATT3	The zero point deviation exceeds 5%, cannot be cleared	Make sure system pressure is relieved
UL		Pay attention to observe the pipeline pressure and allow the product to recover
OL	30% higher than the upper limit of the range	Pay attention to observe the pipeline pressure and allow the product to recover

9.2 Trouble removal

In the event of any malfunction in the controller, first check that the pressure switch is correctly installed mechanically and electrically.

Common faults and solutions are as follows:

Fault	Reason	Solution
No output signal	Cable broken	Check connectivity
No output signal error	No power supply/ power fault	Correct power supply

No output signal/output signal error	Wiring error or switching logic/analog signal switching error	1. Observe the pin assignment 2. Check output configuration
Deviation from zero signal	Exceeding the overvoltage limit	Please follow the allowable overvoltage range
Larger signal error	Exceeds the ambient temperature	Use within the allowable temperature range
Pressure changes, constant output	Controller damaged	Replace controller
Signal jumps	There are EMC interference sources on site, such as inverters	Use shielded cables
Signal range reduced/too small	Diaphragm damaged, e.g. due to shocks, Abrasive/corrosive media; Diaphragm/process connection corroded	Contact manufacturer and replace gauge

10. Warranty

Under the condition that the user abides by the use and maintenance rules, the meter is guaranteed for one year from the date of delivery, and the maintenance after one year will be repaired according to our maintenance cost standards. The company welcomes users to write letters, inquire and make suggestions at any time.