

## ESS201 Intelligent Pressure Switch

- ✓ Pressure Range: -0.1~0~100Mpa
- ✓ Display: 4-digit LED (Rotate in 330° )
- ✓ Precision: 0.5%F.S
- ✓ Stability: ≤0.2%F.S/Year
- ✓ Power supply: 24V±20%
- ✓ Ingress Protection: IP65
- ✓ Switch type: PNP/NPN
- ✓ OEM: Available



### Product Introduction

ESS201 Series Intelligent Pressure Switch is an intelligent digital-displayed product for pressure testing & controlling. It integrates functions of measuring, display, output and control all in one. It has a complete electronic structure. Oil-filled piezoresistive pressure sensor with diaphragm is applied in the front part. The output is processed by high-precision and low-temperature drift amplifier, then transformed by high-accuracy A/D converter into digital signal that could be processed by MPU(Micro Processor Unit).The processed signals control two switches then to test & control the pressure.

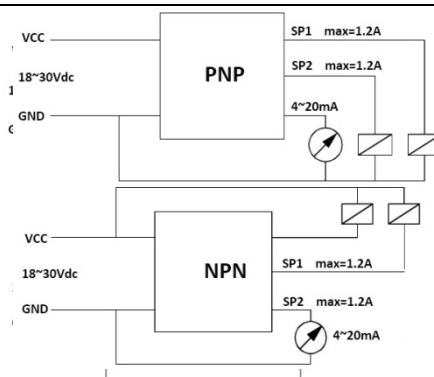
With flexible application, simple handling, easy debugging / high reliability, this product is widely employed to test & control the pressure of fluid medium in many industries such as hydroelectricity, city water, oil, chemical, machinery, and hydraulic system.

### Features

- 4 digits to display pressure on site
- Function of pressure preset and switch delay
- Options for switch output (hysteresis and window function)
- Lighting diode for better monitoring
- Button value set on site for easy handling
- 2-way switch output, loading capacity 1.2A
- Analog output 4~20mA or RS485 digital output
- Pressure connection can be rotated by 330°

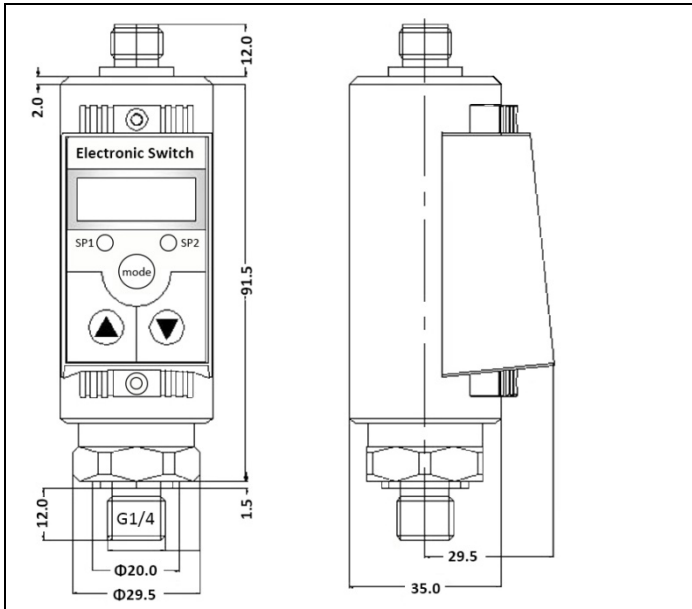
### Electrical Connection

ESS201S	ESS201M	ESS201A1	ESS201R
Hirschmann	M12*1 -4P	M12*1 -5P	Air plug (6)
1:VCC	1:VCC (brown)	1:VCC (brow)	1:VCC (red)
2:GND	2:SP2 (white)	2:SP2 (white)	2:GND (yellow)
3:SP1	3:GND (blue)	3:GND (blue)	3:SP1 (brown)
4:SP2	4:SP1 (black)	4:SP1 (black)	4:SP2 (orange)
		5:4~20mA(gray)	5:RS485A(blue)
			6:RS485B(green)



- ① Please adopt short shielded wire for connection ② Please earth the casing if adopt hose connection. ③ Please make sure all connectors must be treated properly and carefully. ④ Please keep distance and stay away from electromagnetic.

# Drawing and Specifications



Parameters	
Measuring Range	-0.1~0~100Mpa
Stability	≤0.2%/year
Control Accuracy	≤±0.5%FS
Display Accuracy	±0.1%FS
Display Range	-1999~9999
Display	4 digitals
Power Supply	24V ± 20%
Loading Capacity	<24V 1.2A
Response	≤5ms
Consumption (max)	<1W
Switch Type	PNP,NPN
Switch Lifetime	>1 million times
Medium Temperature	-20~80℃
Ingress Protection	IP65
1MPa=10bar; 1bar≈14.5PSI; 1PSI=6.8965kPa; 1kgf/cm2=1atm; 1atm≈98kPa	

## Setting

### Switch Value Output

ESS201 use two values of “ALxH” and “ALxF” to implement the control of each way switch output. ALxH can be set to connect point, and ALxF can be set to release point. On top of that, the output function and output delay function are also available to choose for better controlling on switch.

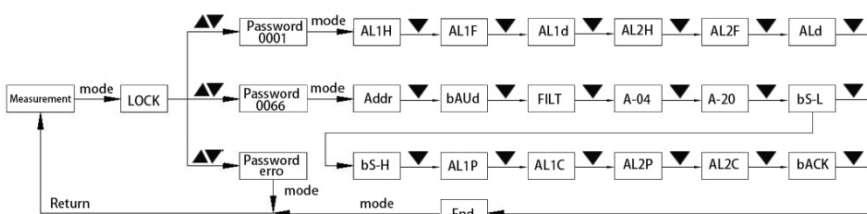
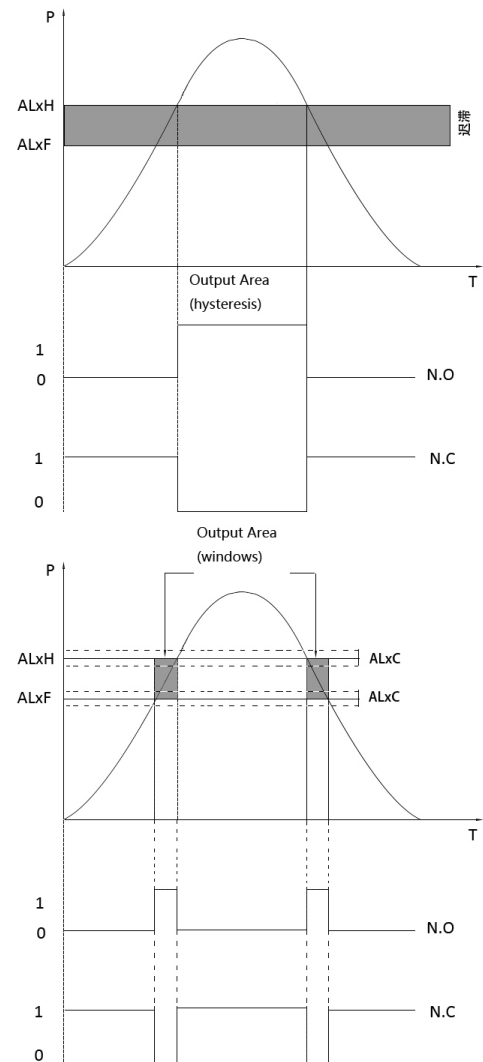
### Hysteresis Function

The delay value can be set via menu, and its output value, by only one output point, also can be used to control the pump-in and pump-out. As it referred in right side figure, take normally open (N.O) as example, grey area refer to hysteresis (ALxH+ALxF), switch connect when pressure rise more than ALxH; switch disconnect when pressure down less than ALxF.

### Windows Function

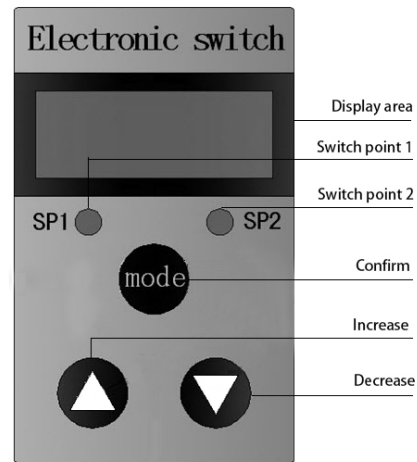
This function can be used to monitor some area and its output value, only need one output point, can perform the function of control and alarm. As it referred in right side figure, take normally open (N.O) as example, grey area refer to windows value(ALxH+ALxF), switch connect when pressure value within windows, and switch disconnect when extra.

Note: As for ALxH/ALxF, the “x” on behalf of “1” or “2”.



Basic		
	Functions	Options
AL1H	Switch 1 connect	0~100% range
AL1F	Switch 1 disconnect	0~100% range
AL1d	Switch 1 delay	0~30S
AL2H	Switch 2 connect	0~100% range
AL2F	Switch 2 disconnect	0~100% range
AL2d	Switch 2 delay	0~30S
Advanced (password:0066)		
	Functions	Options
Addr	RS485 address	1 Not available in
bAUd	RS485 baud rate	1 4~20mA output
FILt	Display smoothing	0~4grade
A-04	Transmit zero adjust	-0.2~+0.2mA
A-20	Transmit F.S adjust	-0.2~+0.2mA
bS-L	Transmit range zero	0~100% range
bS-H	Transmit F.S adjust	0~100% range
AL1P	Switch 1 output	0: hysteresis;1:windows
AL1C	Switch 1 windows function return difference	0~20%(windows range)
AL2P	Switch 2 output function	0: hysteresis;1:windows
AL2C	Switch 2 windows function return difference	0~20%( windows range)
bACK	Rest to default data	0:not rest; 1:reset
-End	Exit	

Instruction



mode	Confirm button, press to show menu data when menu status displaying; press to confirm changing and return menu status when data displaying.
SP1	Switch point 1
SP2	Switch point 2
▲	Increase button, increasing one by one when short holding; increasing quickly when long holding.
▼	Decrease button, decreasing one by one when short holding; decreasing quickly when long holding.
	No data changes save and exit automatically if no action takes within 30 second.
▲ ▼	Press both and hold on 5 seconds to active zero point adjust, a point of +/-10% range will be taken as new zero point. Press both and hold on 5 seconds again to return original pressure without changing.

Error

Er01	Problem: switch 1 output short circuit Solution: repair short circuit and restart
Er02	Problem: switch 2 output short circuit Solution: repair short circuit and restart
Er12	Problem: switch 1/2 output short circuit Solution: repair short circuit and restart
ErEP	Problem: EEPROM data verification error, probably due to strong electromagnetic interference or some item malfunction. Solution: blackout and restart again, or log in "Advanced" menu to reset to default data.

ErAd	Problem: inner A/D conversion error, probably due to strong electromagnetic interference or some item malfunction. Solution: find the reason of such interference and earth the casing properly
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Please contact us if you still experience problem after above actions being taken.