

# LSWI5589 Intelligent Level Switch

## Introduction

LSWI5589 is an intelligent level switch combining level measurement, local display and control together. It uses advanced industrial-grade MCU as core and high quality pressure sensor as sensing element. With well-designation and adjustment, MPM5589 has quick response and good electro-magnetic compatibility for level control at the premise of accuracy. With separated construction of probe and display, MPM5589 is easy for installation and data-reading. It can be widely used for level measurement and control for oil tank, fuel tank and lorry; also it can be applied in fields such as water treatment, metallurgy, power plant, water supply and sewage, lab etc. LSWI5589 is able to visually process the process level and switch contacts status through switch output, analog output and display screen. It has various output signals for different application. MPM5589 switch has functions such as time delay setting, ranges drift setting (scales: 25%~100%FS). With special designation and construction, the body can rotate 330o; display can rotate 180o in order for viewer to face up to the display screen. OLED display is very clear to read. User can press keys to set liquid density to measure media level of different density.



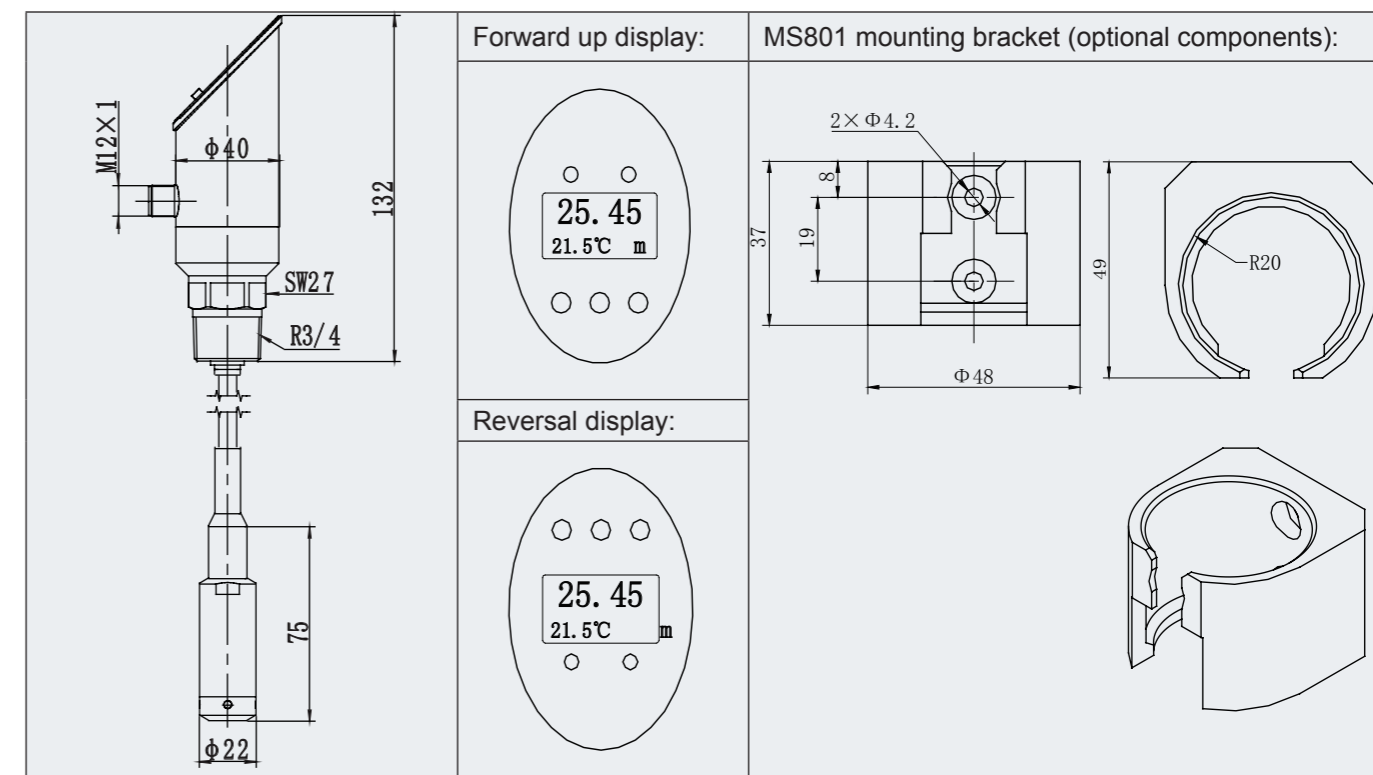
## Features

- Level measurement for liquid and oil
- Optional for PNP, voltage and current output
- Peak value display
- Ranges drift function
- PNP switch point setting, time delay setting for action
- Modbus communication
- OLED display
- Display rotate 180°
- Body rotate 330°
- Change-over of different units: cm, m and inch

**Specification**

Range	1mH <sub>2</sub> O, 3mH <sub>2</sub> O, 5mH <sub>2</sub> O
Range Drift	25%FS~100%FS
Accuracy	<2%FS
Hysteresis	±0.1%FS
Power supply	12V~30VDC
Thermal error	±0.02%FS/°C (Zero/FS)
Long Time Stability	±0.3%FS/Year
Media	water, synthetic oil and mineral based hydraulic oil
Outputs	2 switches + voltage output: 2×PNP + 0V~5VDC/10VDC 2 switches + current output: 2×PNP + 0mA/4mA~20mADC
Switch current	01.0A(Max.)
Switch reaction	<10ms
Switch time delay	0.0s~99.9s
Switch action pattern	Hys.Mode/Win.Mode
Screen display	Blue 128×64 OLED
Switch display	2 red LED
Display units	m/cm/inch
Key	3 silicone rubber keys, please operate according to instructions on the screen.
Temperature display	referenced environment temperature <sup>②</sup>
Peak display	Level peak in process
Working Temperature	-20°C ~80°C <sup>③</sup>
Media temperature	0°C ~60°C
Storage Temperature	-40°C ~80°C
Electromagnetic compatibility	GB/T 17626.2/3/4-2006
EMC	GB/T 17626.2/3/4-2006
Shock	≤10g/10Hz...500Hz(IEC 60068-2-6-2007)
Impact	≤50g/11ms(IEC 60068-2-27-2008)
Protection	IP65 (housing), IP68 (probe)
Probe	SS, NBR
Housing	SS
Display board	PMMA
Diaphragm	SS 316L
O-ring	Viton Rubber
Electrical connection	M12×1 round plug
Gross weight	570g, including 2m breath cable

**Outline Construction** (Unit: mm)



1. MCU core working temperature is for reference.
2. Within working temperature range, media ( liquid or oil) can not be frozen; otherwise, frozing may damage probe permmerenety.

**Ranges Drift**

LSWI5589 is able for ranges drift between 25%FS and 100%FS. Analog output changes along with range scale.

And also, analog output can be reversal. E.g, 4mA-20mADC can be changed into 20mA~4mA; 0V~5VDC to 5V~0VDC. Take 5mH2O current output as an example:

Range	Range Drift percent	New range	New range scale	Diagram
-50°C ~200°C <sup>①</sup>	25%FS <sup>②</sup>	1.25mH <sub>2</sub> O <sup>②</sup>	0mH <sub>2</sub> O~1.25mH <sub>2</sub> O	
			1.25mH <sub>2</sub> O~2.5mH <sub>2</sub> O <sup>③</sup>	
	2.5mH <sub>2</sub> O~3.75mH <sub>2</sub> O			
	3.75mH <sub>2</sub> O~5mH <sub>2</sub> O			
-50°C ~200°C <sup>①</sup>	50%FS	2.5mH <sub>2</sub> O	0mH <sub>2</sub> O~2.5mH <sub>2</sub> O	
			1mH <sub>2</sub> O~3.5mH <sub>2</sub> O	
			2.5mH <sub>2</sub> O~5mH <sub>2</sub> O	
-50°C ~200°C <sup>①</sup>	75%FS	3.75mH <sub>2</sub> O	1mH <sub>2</sub> O~3.75mH <sub>2</sub> O	
			1.25mH <sub>2</sub> O~5mH <sub>2</sub> O	
-50°C ~200°C <sup>①</sup>	100%FS	5mH <sub>2</sub> O	0mH <sub>2</sub> O~5mH <sub>2</sub> O	
			1.25mH <sub>2</sub> O~2.5mH <sub>2</sub> O	
-50°C ~200°C <sup>①</sup>	25%FS <sup>②</sup>	1.25mH <sub>2</sub> O <sup>②</sup> reversal output	1.25mH <sub>2</sub> O~2.5mH <sub>2</sub> O	
			1.25mH <sub>2</sub> O~2.5mH <sub>2</sub> O	

Note : Accuracy will decrease for ranges drift.

**Electrical Connection**

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

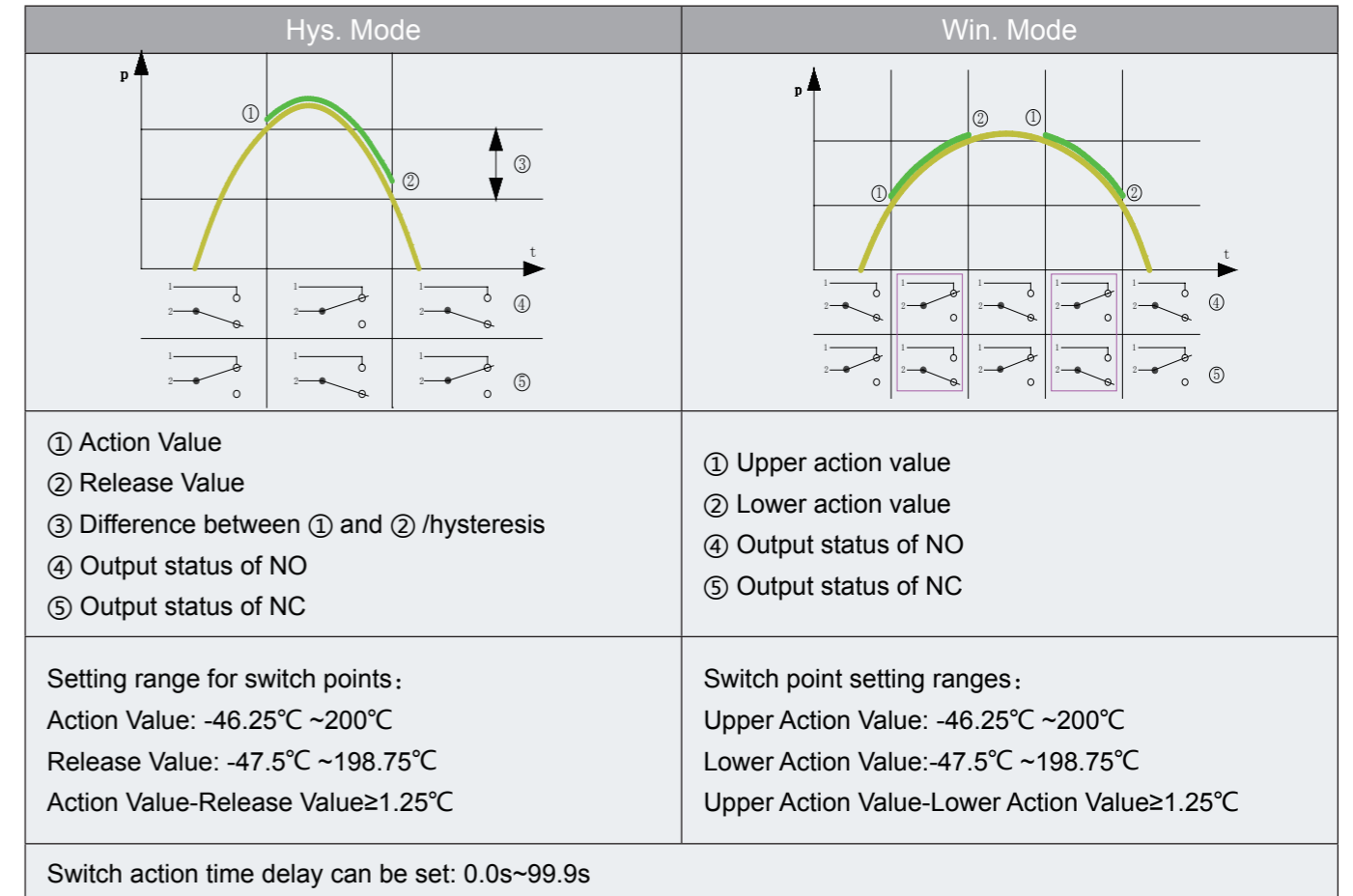
  

8-pin plug pin definition and wire connection:

Code	Wire color	2×PNP+ Voltage	2×PNP+ Current
1	Red	VCC	
2	Yellow	K1- Output	
3	Black	GND	
4	Blue	K2-Output	
5	Green	0V ~ 5/10V	0/4mA ~ 20mA
6	Brown	485-A	
7	White	485-B	
8	-		

**Switch Action**



**Optional Component:**

- MS801 Mounting Bracket
- MS901 2m RVVP cable with 5-pin M12X1 female right angle plug
- MS902 2m RVVP cable with 8-pin M12X1 female right angle plug

## Order Guide

LSWI5589		Intelligent Level Switch				
		Code	Level Measurement Range			
		X1	[0~1]mH <sub>2</sub> O			
		X2	[0~3]mH <sub>2</sub> O			
		X3	[0~5]mH <sub>2</sub> O			
		Code	Cable Length (L is cable length, m in unit)			
		L	At user's request			
		Code	Output			
		2KV	2×PNP+0V~5/10VDC			
		2KA	2×PNP+0/4mA~20mADC			
		Code	Thread/flange			
		C17	R3/4 male			
		F3	DN10 Flange			
		Code	Others			
		R5	5-pin M12X1 male plug			
		R8	8-pin M12X1 male plug for Modbus communication			
LSWI5589	X2	10	2KA	C <sub>17</sub>	R <sub>5</sub>	the whole spec.

## Notes

1. LSWI5589 standard electric connection is 5-pin M12X1 male plug without Modbus communication.
2. Thread can be customized according to user's request. Please make clear note in purchase order.
3. If users have special request for specifications and functions, please contact our company.