

# Digital Pressure Transmitter with Low Power Consumption and High Precision

## MPM3801A



### Applications

- Flowmeter
- IoT
- Natural gas industry
- Electricity industry
- Petroleum and chemical industry

### Features

- Standard structure for general applications
- Low power consumption
- Standard I<sup>2</sup>C or SPI protocols
- RoHS approved

### Introduction

The MPM3801A digital pressure transmitter adopts MPM3801 stainless steel oil-filled sensor as the sensing element, has the stainless-steel housing. Its wetted material is stainless steel, which has excellent corrosion resistance and long-term stability. The sensor is temperature compensated to ensure that the technical parameters such as zero point, sensitivity, linearity and stability are well maintained within the operating temperature range.

MPM3801A digital pressure transmitter has two versions: Type I and Type II. Type I is the complete transmitter, mostly used in end-user equipment with nice outfit and easy to install. It can be used in many industries.

Type II consists of MPM3801 digital pressure sensor with weldable or threaded process fittings, uses end face seal or waterline seal through strict test which structure is flexible.

### Specifications

Range	0mbar ~ 70mbar/200mbar/350mbar/700mbar/1bar/2bar/3.5bar/5bar/7bar/10bar/16bar/20bar/35bar/70bar/100bar/200bar/350bar/700bar/1000bar
Overpressure	≤2 times FS or 1100 bar (minimum value is valid)
Pressure Type	gauge, absolute, sealed gauge
Pressure Accuracy	see Accuracy on page 2
Temperature Accuracy	±1.5°C (tested in constant temperature for reference)
Long-term Stability	±0.2%FS/year
Compensated Temperature	-10°C ~ 50°C
Application Temperature	-20°C ~ 80°C
Storage Temperature	-20°C ~ 85°C
Vibration	10g, 20Hz ~ 2000Hz
Shock	100g, 11ms
Housing Protection	IP67 ( I type) IP65 ( II type)
Weight	≤100g( I type) ≤150g( II type)

## Accuracy

Pressure Type			Accuracy
Gauge (G)	Absolute (A)	Sealed Gauge (S)	
0mbar ~ 70mbar			±1%FS
0mbar ~ 200mbar			
0mbar ~ 350mbar	0mbar ~ 350mbar		
0mbar ~ 700mbar	0mbar ~ 700mbar		±0.5%FS
0bar ~ 1bar	0bar ~ 1bar		
0bar ~ 2bar	0bar ~ 2bar		±0.25%FS
0bar ~ 3.5bar	0bar ~ 3.5bar		
0bar ~ 5bar	0bar ~ 5bar		
0bar ~ 7bar	0bar ~ 7bar		
0bar ~ 10bar	0bar ~ 10bar		
0bar ~ 16bar	0bar ~ 16bar		
0bar ~ 20bar	0bar ~ 20bar		
0bar ~ 35bar	0bar ~ 35bar	0bar ~ 35bar	
	0bar ~ 70bar	0bar ~ 70bar	
	0bar ~ 100bar	0bar ~ 100bar	
	0bar ~ 200bar	0bar ~ 200bar	±0.5%FS
	0bar ~ 350bar	0bar ~ 350bar	
	0bar ~ 700bar	0bar ~ 700bar	
	0bar ~ 1000bar	0bar ~ 1000bar	

When the range <70bar, the accuracy is the accuracy between the compensated temperature(-10°C ~ 50°C ), when the range ≥70bar, the accuracy is the accuracy at 20±5°C

Test standrad: GB/T 17614.1-2015/IEC60770-1:2010

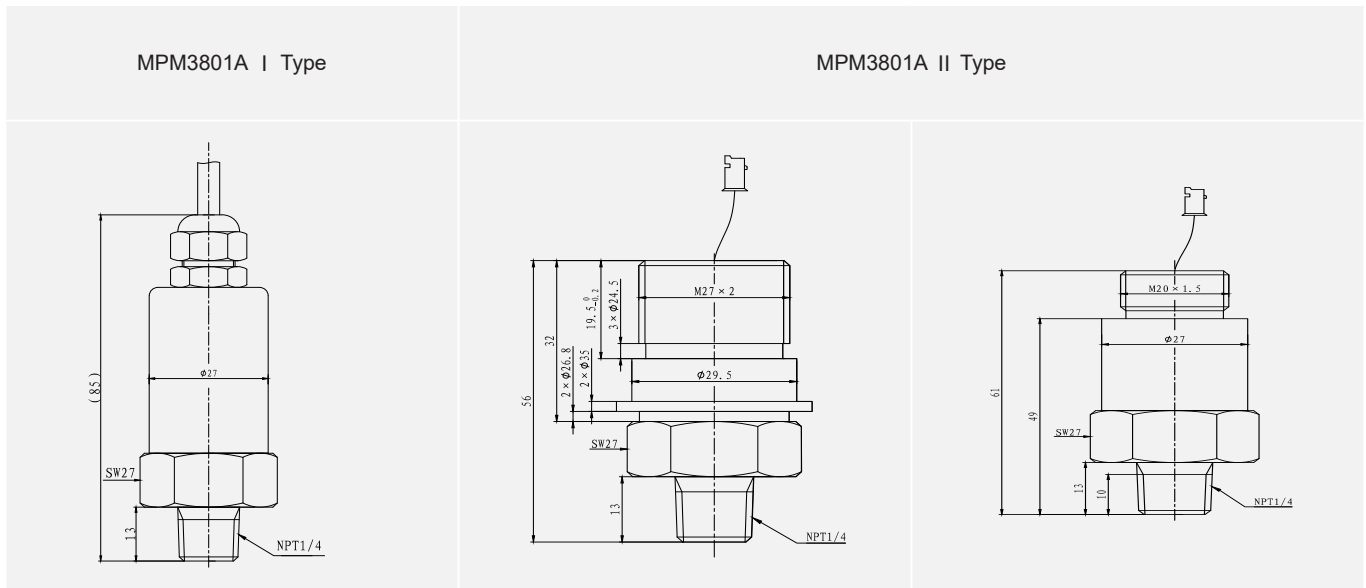
## Output Signals

Output Signal	Power Supply	Output Digits	Output Digital Value	Consumption
I <sup>2</sup> C	3.3V±0.1V DC (default)	14 digits (maximum is 16383)	1638 (zero) ~ 14746 (span)	5uA (standby)@25°C
	5V±0.1V DC			
SPI	3.3V±0.1V DC (default)			
	5V±0.1V DC			

Note: There are 14-digits for sensor pressure output digital value. The maximum digital value is 16383, but in order to reserve a certain value for overpressure, 10%~90% of span value is chosen for output zone, its zero and full values are 1638 and 14746 respectively.

## Outline Dimensions

unit: mm



## Electrical Connection

MPM3801A I Type				MPM3801A II Type		
Color	I <sup>2</sup> C	SPI		Wire Number (1 for red)	I <sup>2</sup> C	SPI
Black	V-	V-		1	V-	V-
Red	V+	V+		2	V+	V+
Green	SCL	SCLK		3	SCL	SCLK
White	SDA	MISO		4	SDA	MISO
Yellow	null	SS		5	null	SS

## Materials

### Wetted Parts

Isolated Diaphragm: SS 316L

Pressure Port: SS 304/SS 316L

### Non-wetted Parts

Housing: SS 304/SS 316L

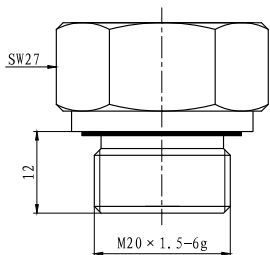
Cable: PUR

**Process Connection**

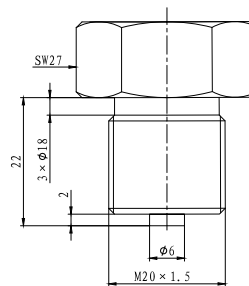
**Process Connection Dimensions**

unit: mm

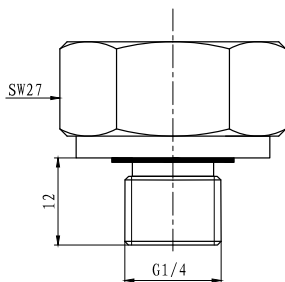
M20×1.5 Male, End Face(C1)



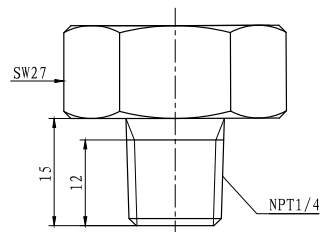
M20×1.5 Male, Waterline(C5)



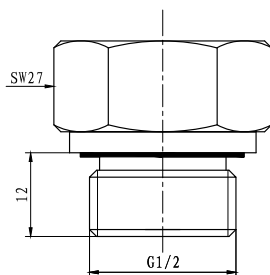
G1/4 Male, End Face(C2)



NPT1/4 Male(C6)



G1/2 Male, End Face(C3)



### Ordering Guide

MPM3801A	Digital Pressure Transmitter									
	Range	0mbar ~ 70mbar/200mbar/350mbar/700mbar/1bar/2bar/3.5bar/5bar/7bar/10bar/16bar/20bar/35bar/ 70bar/100bar/200bar/350bar/700bar/1000bar								
	[0 ~ X]mbar or bar	X: actual measurement range								
		Code	Structure Type							
		I	assembled type							
		II	sensor-fitting type							
		Code	Power Supply							
		3	3.3V±0.1V DC (default)							
		5	5V±0.1V DC							
		Code	Communication Interface							
		C	I <sup>2</sup> C							
		D	SPI							
		Code	Pressure Type							
		G	gauge							
		A	absolute							
		S	sealed gauge							
		Code	Material							
			Isolated Diaphragm	Pressure Port				Housing		
		22	SS 316L	SS 304				SS 304		
		24	SS 316L	SS 316L				SS 316L		
		Code	Process Connection							
		C1	M20×1.5 male, end face seal							
		C2	G1/4 male, end face seal							
		C3	G1/2 male, end face seal							
		C5	M20×1.5 male, waterline							
		C6	NPT1/4 male							
		Code	Electrical Connection (for II type only)							
		H1	M27×2 male							
		H2	M27×1.5 male							
		H3	M20×1.5 male							
MPM3801A	[0 ~ 16]bar	I	G	C	3	22	C2	Complete Type Specification		
MPM3801A	[0 ~ 16]bar	II	G	C	3	22	C2	H1	Complete Type Specification	

## Ordering Notes

1. MPM3801A cable material is PUR, recommended cable length  $\leq 2\text{m}$ .
2. For special requirements, please contact us and specify it in the order.