



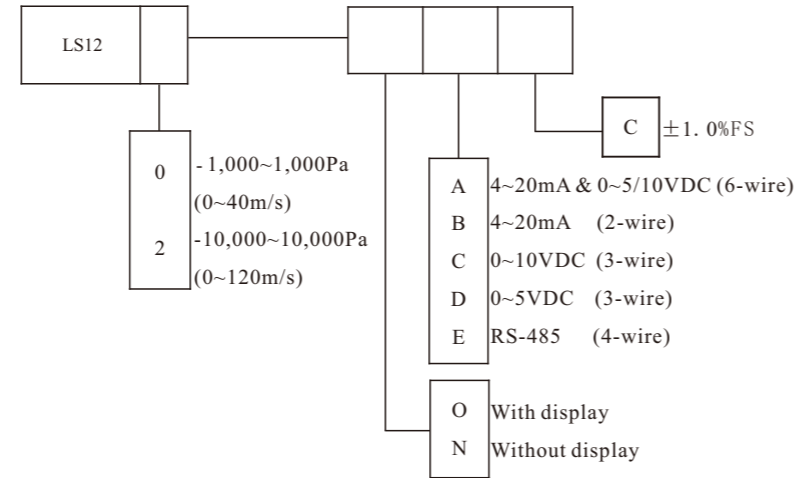
## LS1 Series Differential pressure transmitter



### Technical Detail

Range	LS120 -1,000 ~ +1,000Pa, 0 ~ 40.0m/s LS122 -10,000 ~ +10,000Pa, 0 ~ 120.0m/s
Accuracy	±1.0%
Pressure unit	Pa, m/s, mbar, Ft/s, KPa
Output signal	0~5VDC, 0~10VDC, 4~20mA, RS-485 Analog signal: current type 2-wire, voltage type 3-wire, current and voltage type 6-wire; Digital signal: RS-485 4-wire
Supply voltage	6-wire output: supply voltage is 16~30VAC/VDC, can be collocated with 24VDC adaptor (3.5×1.35mm) Current type 2-wire output: supply voltage is non-polarized 12~30VDC. (The positive pole and negative pole of voltage can be connected in a contrary way) Voltage type 3-wire output: supply voltage is 16~30 VAC/VDC RS-485 4-wire output: supply voltage is 12~30VAC/VDC
Power consumption	≤1.5W
Parameters of Wind Speed	$V=C_M \sqrt{2\Delta P / \rho}$ L-Pitot coefficient : $C_M=0.998$ $\Delta P$ : Pressure difference $\rho = 1.18 \text{ kg/m}^3$ (Barometric P=101.325KPa ; TEMP T=25°C)
① non-polarized: The input power is not divided into positive or negative	

### Order Ref table

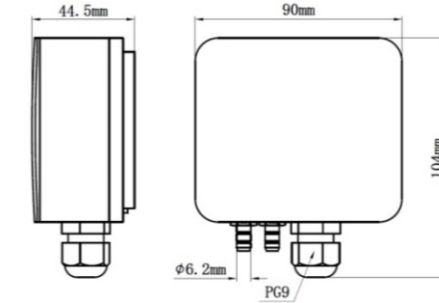


### Functions

Response Time	0.5s, 1s, 2s, 4s	
Resolution	LS120 LS122	1Pa, 0.1m/s, 0.01mbar, 0.1Ft/s, 0.001KPa
Zero Calibration	Manual with push button or automatic at starting for zero calibration	
Media	Air and neutral gases	
Tolerated Overpressure	15KPa (M120); 150KPa (M122)	
Operating Temperature	-10~+60°C	
Storage Temperature	-10~+70°C	

### Housing Function

Material: Industrial plastic  
Degree of protection: IP54  
Display: backlit digital display 50 x 22.5 mm  
(2-wire Without backlight)  
Digital Height: Value 10 mm, Units 5 mm  
Pressure Connection: Ribbed Ø 6.2 mm  
Cable Gland: For cables Ø 8 mm maximum  
Weight: 166g



### Details

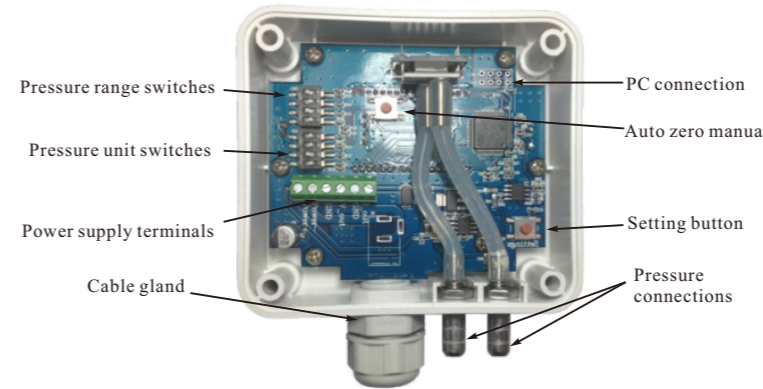


Figure 1  
M12X-XAX Internal Circuit

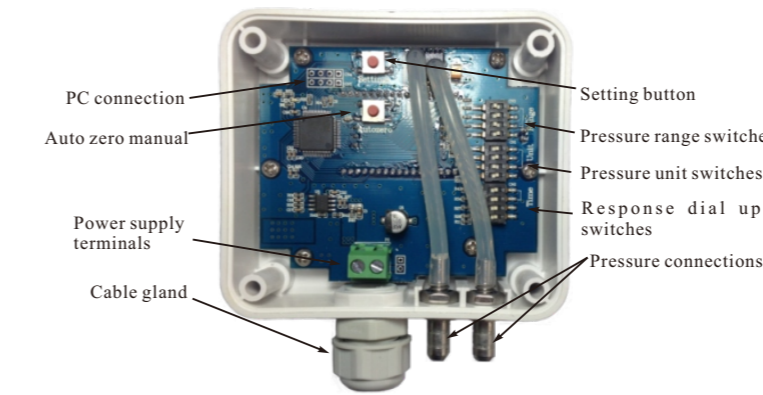


Figure 2  
M12X-XBX Internal Circuit

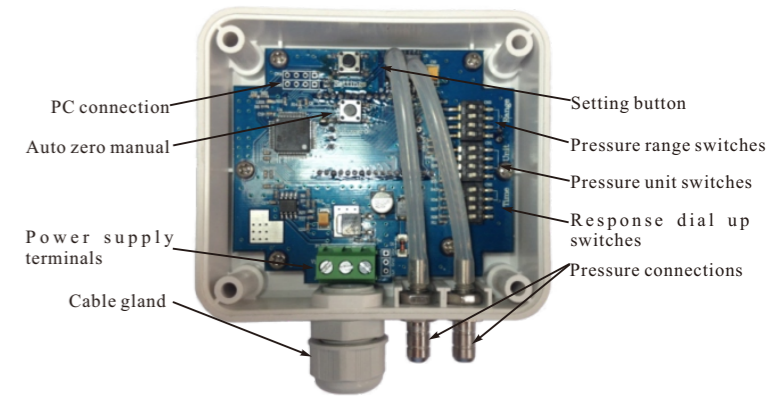


Figure 3  
M12X-XC (D) X Internal Circuit

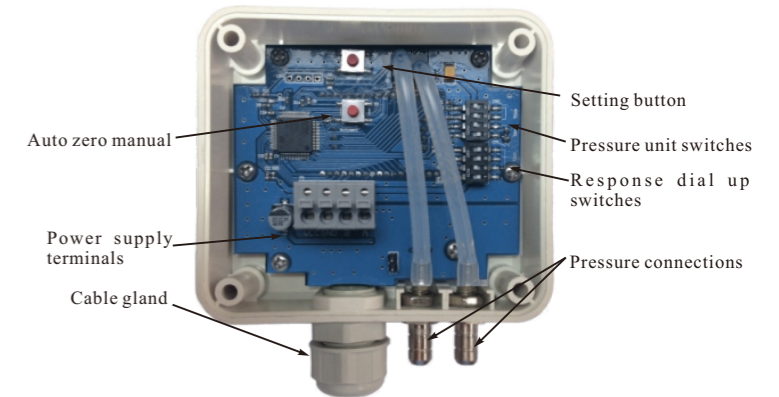


Figure 4  
M12X-XEX Internal Circuit

### 1. Display function

Display pressure and pressure unit, available as Pa, SQRT, mbar, KPa.

### 2. Function settings

Precision calibration is through the circuit board by pushing the button. Taking -1000pa to 1000pa as an example, when the button activated, the sensor will enter into the precision calibration status. Input the pressure supply to -1000Pa and push the button to save the -1000Pa pressure value. Then validating the setting for each additional 500pa. If the next value smaller than the previous one, the validation is invalid and will display "Err" without saving the value. Usually, we set the pressure range with professional machines and workers before shipment, customers are not encouraged to set the pressure.

### 3. Auto zero Manual

Push the auto zero manual button for resetting. (If any deviation of pressure value or output, please reset the transmitter parallel with the installation)

### 4. Dial-up switch setting

#### ① Range setting

Set the pressure range by the pressure range switch. (The range is correlated to the output. For example, 0~100pa carries with the corresponding 4~20mA and 0~5VDC / 0~10VDC.)

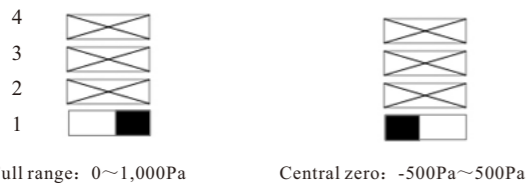
### Products Features

- This transmitter can detect differential pressure or gauge pressure then convert this pressure difference to a proportional analogue output signal, in order to monitor and control building automation with precise pressure and flow
- According to the specific conditions, set the pressure by dial-up switch
- Range: 0 ~ ±100Pa / 0 ~ ±10,000Pa
- Accuracy: ±1.0%
- Selectable pressure unit
- LCD backlit digital display or without display
- Auto zero point when power on
- Selectable response time field adjustable from 0.5S ~ 4S
- Manual zero point push button
- Adopt the imported core
- Separated mounting blanket for stepped installation
- Square root function

		Unit	Pa	m/s	mbar	Ft/s	KPa
		Model					
4 3 2 1		LS120	100	4.0	1.00	13.1	0.100
		LS122	1,000	12.0	10.00	39.3	1.000
4 3 2 1		LS120	250	10.0	2.50	32.8	0.250
		LS122	2,500	30.0	25.00	10.00	2.500
4 3 2 1		LS120	500	20.0	5.00	65.6	0.500
		LS122	5,000	60.0	50.00	20.00	5.000
4 3 2 1		LS120	750	30.0	7.50	98.4	0.750
		LS122	7,500	90.0	75.00	30.00	7.500
4 3 2 1		LS120	1,000	40.0	10.0	131.2	1.000
		LS122	10,000	120.0	100.00	40.00	10.000

Full range/Central zero (take 0~1,000Pa as an example)

To set the type of measuring range by adjusting the pressure range switch as indicated below.



**⚠** Please follow carefully the combinations above the Dial-up switch. If the combination is wrongly done, the following message will appear on the display as "Err". In that case, you have to unplug the transmitter, place the Dial-up switches correctly and then power the transmitter up.

SQRT only the full range.

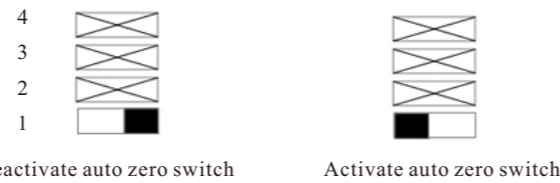
## ②Unit setting

Set the pressure unit by adjusting the dial up switches referring to following combination

Combination	Pa	m/s	mbar	KPa	Ft/s
4					
3					
2					
1					

## ③Auto zero function setting

Dial the switch 1 to activate or deactivate the auto zero function when powering up(the transmitter will be auto zeroed when activate this switch and vise versa)



## ④Response time setting

Set the response time by adjusting the time response dial up switches referring to following combination

Combination	0.5s	1s	2s	4s
4				
3				
2				
1				

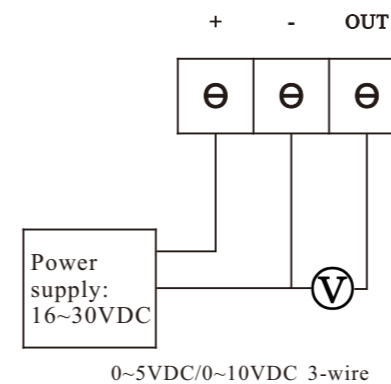
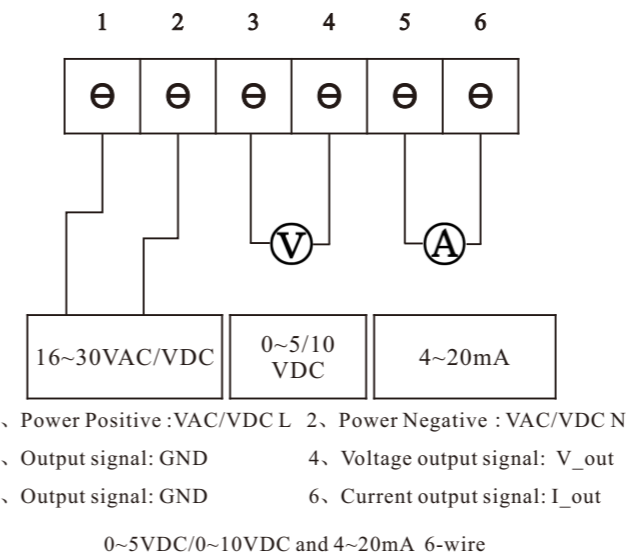
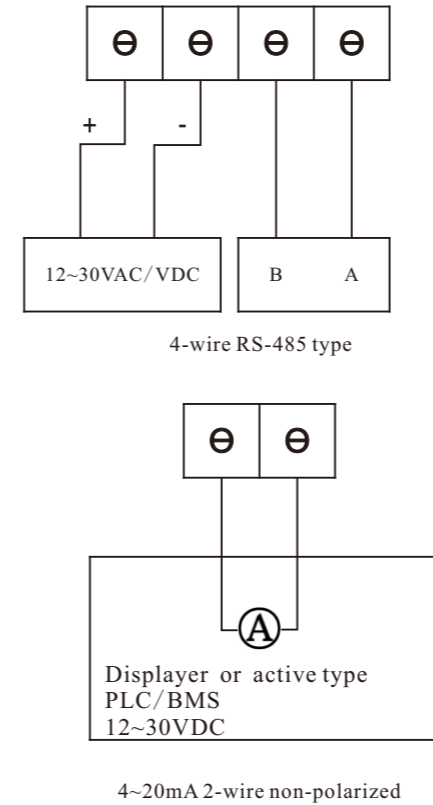
## ⑤RS-485 model setting

We included the RS-485 communication function in time response dial up switches. By dial up the switch 1 and 2 in following combination to change the baud rate either in 19200 or 9600(Only workable for RS485 differential transmitter)



In the Figure 4 there are a set of resistor jump which could be connected for reducing signal interference when the communication distance above 300 meters.

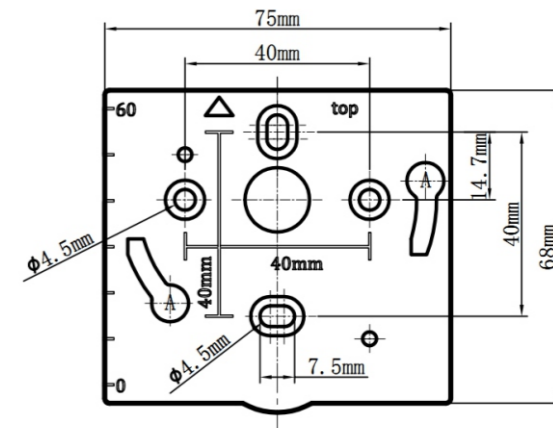
## Electrical connection



**Remark:** Unscrew the 4 screws from the back cover, then take out the rubber cap, then connect the terminal and cable through the cable gland, then tighten the cable gland and cover the back cover

## Mounting

To mount the transmitter, mount the ABS plate on the wall(drilling:  $\varnothing 6\text{mm}$ , depth 30mm, screws and pins are supplied)Insert the transmitter on the fixing plate(see A on the drawing)Rotate the housing in clockwise direction until you hear a 'click' which confirms that the transmitter is correctly installed.



## Maintenance

Please avoid any aggressive solvent and protect the transmitter and its probes from any cleaning product containing formalin, that may be used for cleaning rooms and ducts.

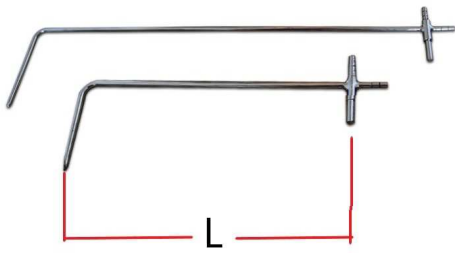
## Chargeable Accessories

- Power adapter
- Connection tube

## Common problem and solutions

- The display range or units do not tally with the Settings.
    - dial the code switch is not in place, the electricity to restart the redial later.
  - Pressure pressure showed no change or the output value (display of 0 or FULL), or change is not allowed.
    - whether the load pressure over blasting pressure directly blunt bad core body;
    - whether there is corrosive or use media. And the purchased product applicable medium exist discrepancy (existing micro differential pressure transmitter are for no corrosive gas);
    - check whether there is any foreign bodies blocked on inlet hose (particulate matter or water) or leakage;
    - using the environment temperature is beyond compensation temperature range (micro differential pressure transmitter temperature compensation range - 10 ~ 60 °C);
    - with and without the pressure to zero wrong operation, such as there is no input in determining the state of stress under the reset again;
    - have corrosive Settings button of wrong operation (Settings button to prevent wrong operation mechanism, namely the set point pressure value must be increasing from small to big to finally set up successful, needs to be in high precision pressure source under the calibration set, don't recommend customer to calibration, such as the deviation caused by the calibration operation, must be returned to the factory heavy school).
  - Pressure normal value, no output analog or analog output is not allowed.
    - check the output line connection is normal;
    - three wire system output is to detect transducer with control instrument is normal (i.e., ground wire must be connected to);
    - check the load resistance to choose proper.
  - The zero pressure value drift slightly.
    - clear operation after drift stability.
- If the above method cannot eliminate the fault, contact the manufacturer!

• CAUTION:Please read the manual carefully and follow the wiring diagram to operate,if any damage caused by wrong wiring,it is not covered by the warranty.



### L 型標準皮託管、畢託管廠家直銷

L 型畢託管係數：0.99~1.01 之間

S 型畢託管係數：0.81~0.86 之間

1. 流體流速範圍：0.2-5 米/秒

2. 氣體測速範圍：2-70 米/秒

3. 託柄長度：0.1-3 米

4. 感應頭直徑：4mm-12mm

#### 二·應用範圍

在科研，生產，教學，環境保護以及淨化室，礦井通風，能源管理部門，常用皮託管測量管道風速，爐窖煙道內的氣流速度，經過換算來確定流量，有可靠的理論根據，使用方便，準確，是一種經典的廣泛的測量方法。此外，它還可用來測量流體的壓力。

#### 三.結構：

標準皮託管用兩根不同內徑管子同心套接而成，內管通直端尾接頭是全壓管，外管通側接頭是靜壓管。

L 型皮託管是用兩根不同直徑不鏽鋼管子同心套接而成，內管通直端尾街頭時全壓管，外管通側接頭靜壓管。指向杆和測杆頭部方向一致，使用時可確定方向，使測頭對準來流方向。

S 型皮託管用二支同徑管焊接而成，面對氣流為全壓端，背對氣流為靜壓端，並在接頭處標有係數號及靜壓接頭標記號，使用時不能接錯。側面指向杆與測頭方向一致，使用時可確定方向，保證測頭對準來流方向。

產品名稱	型號	材質	規格	型號
L 型標準皮託管	L 型	304 不鏽鋼	φ3×100mm	L-03-100
L 型標準皮託管	L 型	304 不鏽鋼	φ3×200mm	L-03-200
L 型標準皮託管	L 型	304 不鏽鋼	φ3×300mm	L-03-300
L 型標準皮託管	L 型	304 不鏽鋼	φ4×100mm	L-04-100
L 型標準皮託管	L 型	304 不鏽鋼	φ4×200mm	L-04-200
L 型標準皮託管	L 型	304 不鏽鋼	φ4×300mm	L-04-300
L 型標準皮託管	L 型	304 不鏽鋼	φ4×500mm	L-04-500
L 型標準皮託管	L 型	304 不鏽鋼	φ6×300mm	L-06-300
L 型標準皮託管	L 型	304 不鏽鋼	φ6×500mm	L-06-500
L 型標準皮託管	L 型	304 不鏽鋼	φ6×800mm	L-06-800
L 型標準皮託管	L 型	304 不鏽鋼	φ6×1000mm	L-06-1000
L 型標準皮託管	L 型	304 不鏽鋼	φ6×1200mm	L-06-1200
L 型標準皮託管	L 型	304 不鏽鋼	φ6×1500mm	L-06-1500

#### 五·正確使用

1·要正確選擇測量點斷面，確保測點在氣流流動平穩的直管段。為此，測量斷面離來流方向的彎頭、閘門、變徑異形管等局部構件要大於 4 倍管道直徑。離下游方向的局部彎頭、變徑結構應大於 2 倍管道直徑。

2.皮託管測量的直徑規格選擇原則是與被测管道直徑比，不大於 0.02。以免產生幹擾，使誤差增大。測量時不要讓皮託管靠近管壁。

L 型標準皮託管測量時應當將全壓孔對準氣流方向，以指向杆指示，靜壓在氣流的垂直方向上。測量點插入孔應避免漏風,可防止該斷面上氣流乾擾。

3·每根皮託管靜壓接頭處敲有標記號。標定係數及鑑定單應長期保存，以供計算。

4·配上本公司數字風速風壓儀 L1S,可直讀風壓、風速。