

LFM76 SERIES EXPLOSION-PROOF DIFFERENTIAL PRESSURE TRANSMITTER

Product operation manual

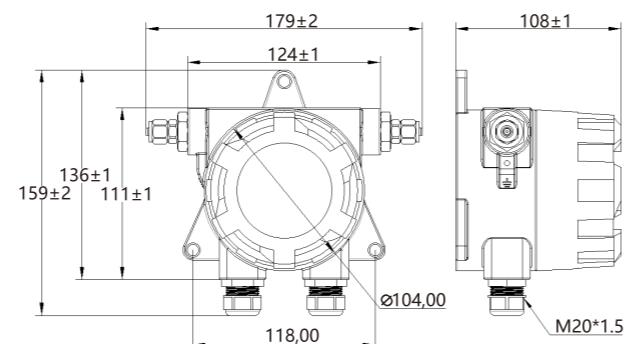


PRODUCT DESCRIPTION

Features

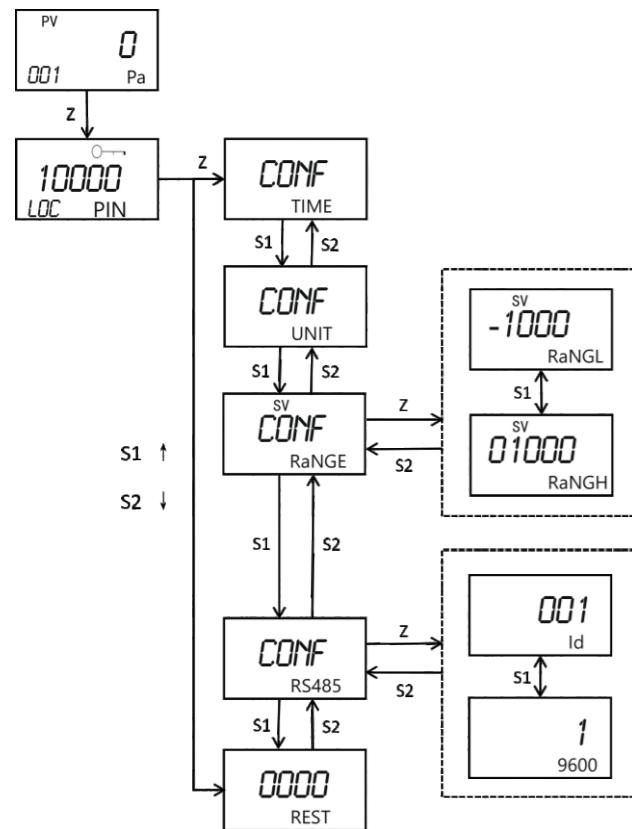
LFM76 Explosion-proof Differential Pressure Transmitter is a high accuracy and high stability device designed for explosion risk environment. It is equipped with multiple optional pressure ranges, with easy on-site adjustment through buttons. Use IP65 housing, suitable for energy management systems, HVAC, VAV and fan control, environmental pollution control, pressure and smoke hood control of static pipeline and clean room, oven pressurization, and boiler ventilation control.

Dimensions (mm)



01

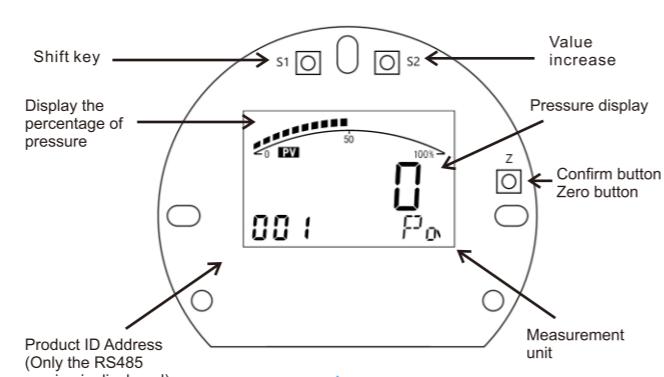
【2】Button function box



04

【3】Display interface

3.1. Pressure display interface



05

TECHNICAL PARAMETERS

Specification

Measurement Medium	Air or neutral gas
Pressure Range	±100Pa~±10000Pa (customized)
Over voltage	10KPa; 80KPa(LFM76-3)
Accuracy	±1.0%FS
Working Temperature	-20°C~80°C
Compensation Temperature	-10°C~60°C
Storage Temperature	-40°C~85°C
Response Time	0.5s(default)/1.0s/2s/4s
Protection Degree	IP65
Pressure Connection	Stainless steel 1/2" quick connection
Output Signal	4~20mA/0~10VDC/RS485
Power Supply ①	12~30VDC/24VAC±20%
Power Dissipation	≤1.5W
Shell Material	Cast Aluminium
Communication	RS-485 standard interface, Modbus RTU protocol
Certification	ROHS, CE
Explosion-Proof Cert	Exd IIC T6 Gb
Display	LCD digital display
Weight (Approximate)	1362g

①When using AC power supply for the product, it is recommended to use an isolated AC power supply.

06

INSTRUCTIONS FOR USE

Function Introduction

【1】Button description

Button	Function	Using Instruction
Z	①Zero ②Main interface ③Secondary interface ④Confirm	1.Double pressing "Z", enter the password setting menu: 2.In the main interface, press and hold the button to perform a reset operation: 3. In the settings interface, long press and hold the button to return to the main interface 4.In the settings interface, short press to enter the next level of settings menu: 5. In the settings interface, short press to modify or save the current parameters. When modifying parameters, the parameters to be modified will flash on the screen.
S1	①Setting interface switch ②Shift key	1.In the settings interface, scroll down the settings menu: 2. Press the button to move the flashing status to the next number.
S2	①Setting interface switch ②Back to last level ③Value increase	1.In the settings interface, scroll up the settings menu: 2.In the settings interface, return to the previous menu level: 3. Value to be modified by adding 1.

03

3.2. Password entering interface

Quickly press button Z twice to enter the password input interface. The bottom right corner of the screen will display "PIN", and the default password is 10000. If you need to change the parameter settings, you must first enter the correct password, otherwise you cannot modify the parameters. The password correct screen will display "SUCC" in the bottom right corner, otherwise it will display "Error". The screen will automatically jump to the next parameter setting interface.



Z Quickly press the Z key twice to enter the password input screen, and the leftmost digit is blinking.
S2 Press S2 button, value will change from 0 to 1.

Press the Z button once to confirm the current input value, and the screen displays "SUCC" in the bottom right corner, means the password has been successfully entered. The screen automatically jumps to the next parameter setting interface.

3.3. Response time setting interface (TIME)

The bottom right corner of the screen displays 'TIME'. Press the Z button once, and the screen will display the current response time setting parameters. Press the S2 button to switch between response time settings. There are four options for response time: 1/2/3/4.

- 1: Response time 0.5s (default)
- 2: Response time 1 second
- 3: Response time 2s
- 4: Response time 4 seconds

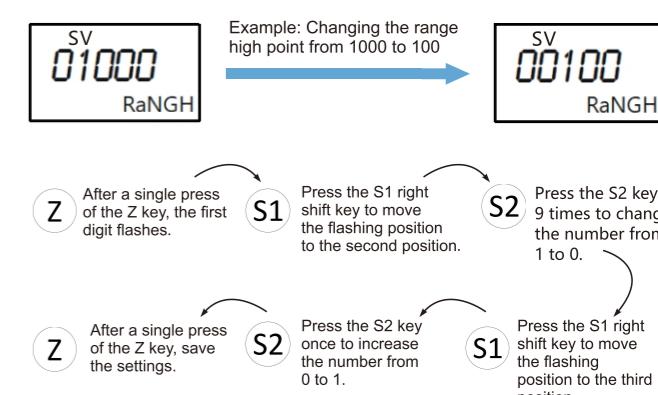
After setting, press the Z button once to save the setting parameters and return to the previous menu level.

3.4. Unit Setting Interface(UNIT)

The bottom right corner of the screen displays "UNIT". The unit can be Pa (default), mmH2O, mbar, inH2O, mmHG, or KPa. (The setting method is similar to the previous step)

3.5. Pressure range setting interface(RaNGE)

Range is displayed in the bottom right corner of the screen, indicating the high point of the set range (default is 1000). Range is displayed in the bottom right corner of the screen, indicating the low point of the set range (default is -1000).



The modification method for low range points is the same.

07

3.6. ID and baud rate setting interface (RS485 version available)
 The ID is displayed in the bottom right corner of the screen, indicating the product ID address setting (The setting method is similar to the previous step). The ID address setting range is from 1 to 255; The bottom right corner of the screen displays 9600 or 19200, indicating the baud rate setting of the product.

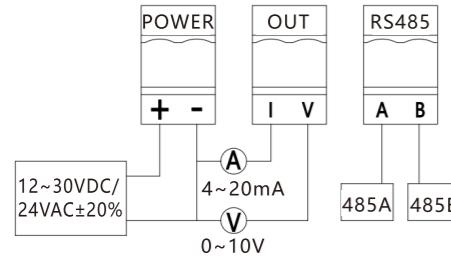
1: Baud rate set to 9600 (default)
 2: Baud rate set to 19200

3.7. Restore factory settings interface(REST)

The bottom right corner of the screen displays ' REST '. The password is set to 1234. After entering this password, the settings will be restored to the factory default settings.

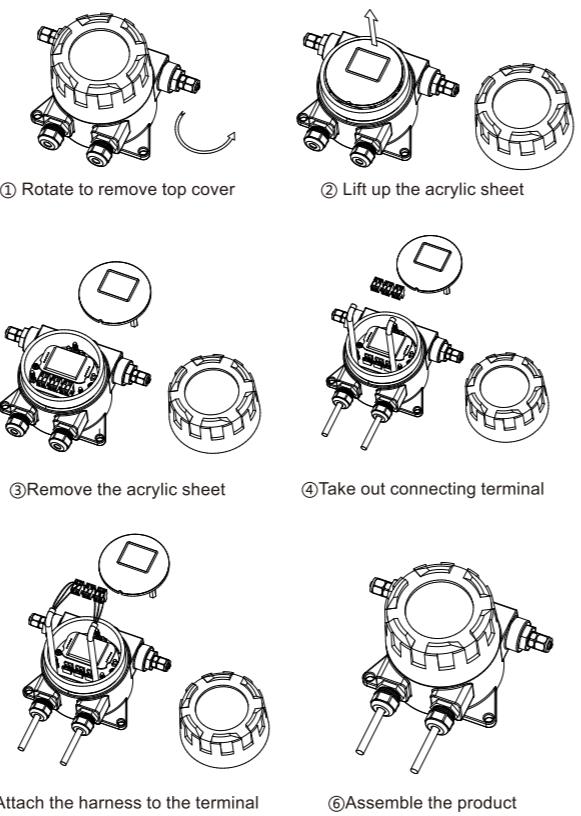
Wiring Instruction

Attention: Wiring should be operated by qualified technical personnel. When wiring, the transmitter must be disconnected from supplying power.



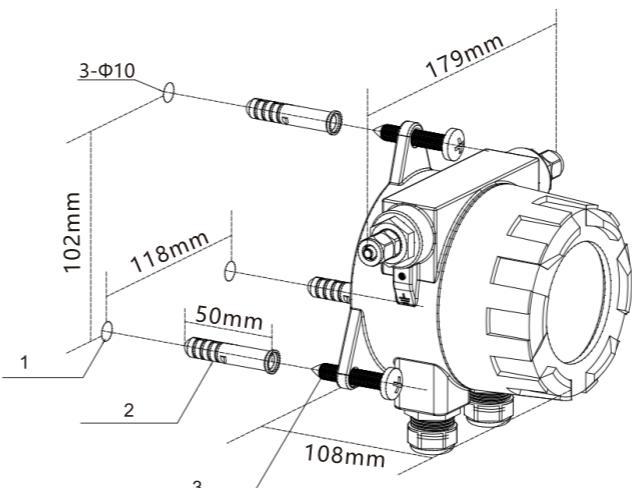
08

Specific operation steps for wiring:



09

Installation method



1. Drill
2. Embedding expansion pipes
3. Lock the product with screws

10

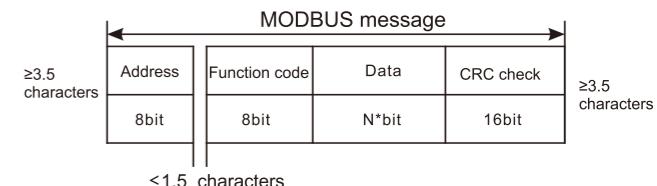
Appendix: RS485 Communication Protocol

This protocol runs on the RS485 hardware platform and can achieve remote one-to-many control and signal acquisition through the 485 bus. This communication protocol is executed according to the ModBus RTU standard protocol.

【1】Character Format

Start : 1Bit Data : 8Bit Parity : None, Even
 Stop : 1 Bit Baud Rate : 9600bps, 19200bps

Under RTU mode, the interval between two characters must be less than 1.5 characters, otherwise the message frame is considered incomplete and the receiving station discards it. The interval between two message frames should be at least 3.5 characters.



【2】Communication Protocol

2.1. Read a single register (function code 0x03)

The host can read the slave register data through this function, and can simultaneously read one or more registers.

Sequence format:

11

Host sends and reads a single register sequence					
Slave ID address	function code = 0x03	Register Start Address	Register command	CRC low order	CRC high order
8Bit	8Bit	16Bit	16Bit	8Bit	8Bit
Slave normal response sequence					
Slave address	function code = 0x03	Number of bytes	Date	CRC low order	CRC high order
8Bit	8Bit	8Bit	N*8Bit	8Bit	8Bit
Slave Error Acknowledge Sequence					
Slave address	Error code = 0x83	Exception code = 0x02or0x03	CRC low order	CRC high order	
8Bit	8Bit	8Bit	8Bit	8Bit	8Bit

Example of communication code

Sequence sent by the host :	01	03	00 01	00 01	D5 CA
Normal response sequence of the slave:	Slave ID	function code	Register Start Address	Read the number of registers	CRC check
Normal response sequence of the slave:	01	03	02	03 E8	D8 FA
Normal response sequence of the slave:	Slave ID	function code	Error code	CRC check	

【3】Register Address Reference Table

Register address	Register definition	Data type	Reading & writing methods	Specific Function Description
0x0001	Pressure value(Pa)	Signed Integer /16Bit	read only	<p>①When the pressure range is $\leq \pm 100$Pa, the unit is 0.1Pa. Pressure value=n (reading value)/10, for example: reading value 0x0001=0.1 Pa, reading value 0x3E8=100.0Pa, reading value 0xFFFF=-0.1Pa, reading value 0xFC18=-100.0Pa.</p> <p>②When the pressure range is greater than ± 100Pa, the unit is 1Pa. Pressure value=n (reading value), for example: reading value 0x0001=1Pa, reading value 0x3E8=1000Pa, reading value 0xFFFF=-1Pa, reading value 0xFC18=-1000Pa.</p>
0x0002-0x0003	Pressure value(Pa)	Float/32Bit	read only	Adopting floating point small end byte exchange mode; Unit: Pa The order of sample acceptance data is: 0A 3D 3F 57; Then it is 0x3F570A3D (0.84)
0x0004-0x0005	Pressure value (inH2O)	Float/32Bit	read only	Unit: inH2O, The data transmission format is the same as above
0x0006-0x0007	Pressure value (mmH2O)	Float/32Bit	read only	Unit: mmH2O, The data transmission format is the same as above
0x0008-0x0009	Pressure value (mbar)	Float/32Bit	read only	Unit: mbar, The data transmission format is the same as above
0x000A-0x000B	Pressure value (mmHG)	Float/32Bit	read only	Unit: mmHG, The data transmission format is the same as above
0x000C-0x000D	Pressure value (KPa)	Float/32Bit	read only	Unit: KPa. The data transmission format is the same as above

【4】Error code parsing

Error code	Season	Solution
0x02	Error reading register start address	Check if the starting address of the read register is readable by referring to the register address reference table
0x03	Wrong value written to register	Check whether the value written to the register is in the list by referring to the register address reference table

12

13

14

15