

Product Features

- Adopt micro-pressure core, sensitive to pressure
- LCD digital display shows clear
- Digital pressure acquisition and temperature compensation
- Strong stability and long service life



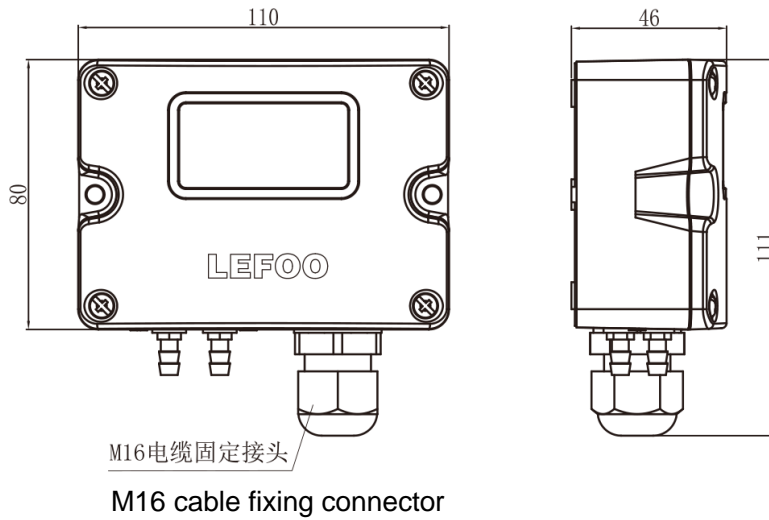
Description

LEFOO LFM5 series differential pressure transmitter are widely used for air or neutral gas detection. This product adopts imported micro-pressure core, digital pressure acquisition and temperature compensation, and has the characteristics of sensitive pressure response, stable long-term output, and superior temperature performance. It has 0.5% F.S accuracy, can OEM, strong overload capability, multiple pressure ranges and signal output, easy installation, ROHS certification, CE certification, strong electromagnetic interference resistance, wide range measurement, etc. This differential pressure transducer is widely used in HVAC, energy management system, VAV and fan control, clean room pressure, smoke hood control, oven pressurization, furnace ventilation control and other fields.

Technical Parameters

General	Value		
Pressure Range	0~±100Pa, 0~±1,000Pa, 0~±10,000Pa		
Over pressure capacity	Measurement Range		Overpressure range
	-1,000~1,000Pa		-15,000~15,000Pa
	-10,000~10,000Pa		-150,000~150,000Pa
	-100~100Pa		-4,500~4,500Pa
Accuracy	±1%F.S/±0.5%FS (Range above 1000Pa)		
Operating temperature	-20℃~70℃		
Compensation temperature	-10℃~60℃		
Response time	0.5s/1s/2s/4s		
Protection Level	IP55		
Electrical connections	Three-wired		Four-wired Six-wired
Output signal	4~20mA	0~5VDC/ 0~10VDC	RS-485 4~20mA/ 0~10VDC
Power supply	16~30 VDC		
Power consumption	≤1.5W		
Pressure interface	Metal barbed interface, φ6mm		
Communication	RS-485 Standard interface, Modbus RTU protocol		
Certification	ROHS certification, CE certification		
Electromagnetic compatibility	Electromagnetic radiation: EN50081-1/-2; Electromagnetic sensitivity: EN50082-2		
Lightning protection	Air conduction withstand voltage 8000V, shell and cable conduction withstand voltage 4000V (can be customized according to requirements)		

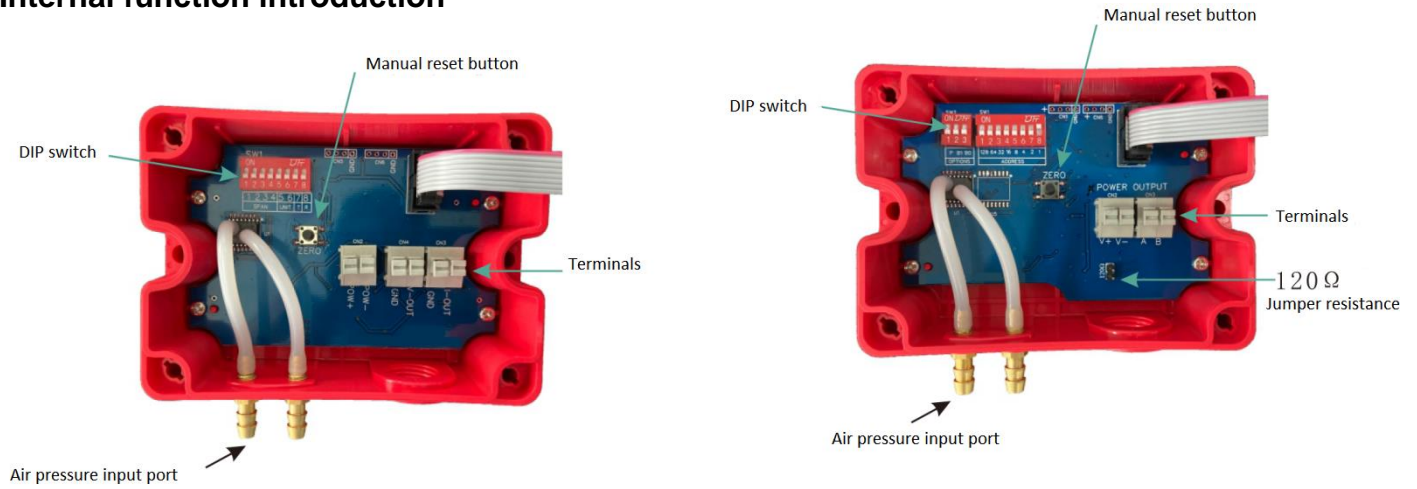
Dimensions



Model Selection instructions

Code and description		Remark			
LFM51		Model			
6	-100~100pa	Range			
4	-1000~1000Pa				
0	-10000~10000Pa				
O	With display	Display			
A	4~20mA and 0~10VDC(Simultaneous output) P = psi	Output type			
B	4~20mA (Two-wired)				
C	0~10VDC (Three-wired)				
D	0~5VDC (Three-wired)				
E	RS-485 communication				
C	±1.0%FS	Accuracy			
K	±0.5%FS				
LFM51	4	O	B	C	Selection example

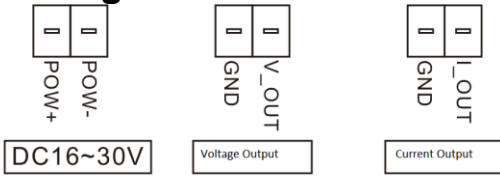
Internal function introduction



1. 1 Analog output type

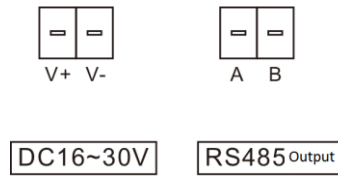
1. 2 Digital output type

Wiring



* Here POW- and GND can be shared

2. 1 Analog output type



2. 2 Digital output type

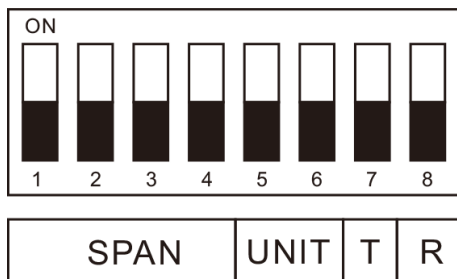
Manually clear

Open the panel and long press the manual reset button to reset. When the screen displays [SUCC], it indicates that the reset is successful; when it displays [Error], it indicates that the reset failed. (Please manually clear the zero while keeping parallel with the installation method; please clear manually when the positive and negative air inlets are connected)

DIP switch

4.1 Analog output

4.1.1 Analog output: Dialing diagram



- * SPAN: Analog quantity corresponding to pressure range setting
- * UNIT: Unit setting
- * T: Sensitivity setting
- * R: Reserved dial code position, no function

4.1.2 Analog output type: Analog quantity corresponding pressure range (SPAN) DIP switch comparison table

Range screen *	Dial position (If the dialing code is upward, it is indicated by a black dot ●)				Analog output corresponding pressure range (Here is an example with the maximum range ** of 1000Pa)			
	1	2	3	4	Pa	mbar	mmH ₂ O	inH ₂ O
A0100	○	○	○	○	1000	10.00	100.0	4.00
A0075	●	○	○	○	750	7.50	75.0	3.00
A0050	●	●	○	○	500	5.00	50.0	2.00
A0025	●	●	●	○	250	2.50	25.0	1.00
B0100	○	○	○	●	500	5.00	50.0	2.00
B0075	○	○	●	●	375	3.75	37.5	1.50
B0050	○	●	●	●	250	2.50	25.0	1.00
B0025	○	●	○	●	125	1.25	12.5	0.50

* [A] in the range indicates the forward pressure range corresponding to the analog output, such as A0100 is 0~1000Pa. [B] in the range indicates the bidirectional pressure range corresponding to the analog output, for example, B0100 is -500~+500Pa. The specific pressure value here is shown in the above table.

* If the maximum range is 100Pa, divide the number listed in the above table by 10.
If the maximum range is 10000Pa, multiply the numbers listed in the above table by 10.

4.1.3 Analog output type: Unit setting dial switch comparison table

Corresponding unit	Dial position (If the dialing code is upward, it will be indicated by a dot ●)	
	5	6
Pa	○	○
mbar	○	●
mmH ₂ O	●	○
inH ₂ O	●	●

4.1.4 Analog output type: Sensitivity setting (T) dial switch comparison table

Corresponding unit	Dial position (If the dialing code is upward, it will be indicated by a black dot ●)	
	7	
Level 1	○	
Level 2	●	

4.2 Digital output

4.2.1 Digital output: Dialing diagram



* P: Check position setting
* B1 B0: Baud rate setting
* ADDRESS: Slave ID setting

4.2.2 Digital output type: Check digit, baud rate setting

startup screen	Dial position (If the dialing code is upward, it will be indicated by a black dot ●)			Corresponding parameters
	1	2	3	
9600		○	○	9600 bps
19200		●	○	19200 bps
38400		○	●	38400 bps
4800		●	●	4800 bps
0	○			No verification
2	●			even verification

4.2.3 Digital output type: Slave ID setting

5.1 Character format

Start: 1Bit

Data: 8Bit

Parity: None、Even (Dial code settings)

Stop: 1Bit

Baud Rate: 9600bps、19200bps、38400bps、4800bps (Dial code settings)

Dial position (The dial up is indicated by a black dot ●)								Corresponding parameters*
1	2	3	4	5	6	7	8	
							●	1
						●		2
					●			4
				●				8
			●					16
		●						32
	●							64
●								128

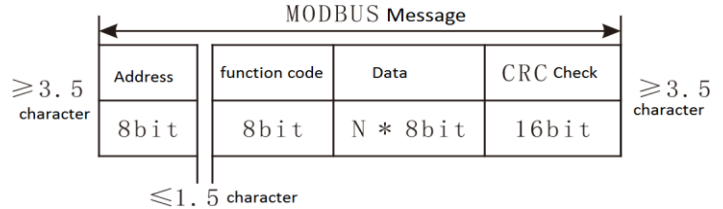
The slave ID is equal to the sum of the numbers

* corresponding to each dial code. If the code is not dialed, it means 0

For example: when only 1 and 8 are dialed up, then the slave ID is 129 (128+1=129)

4.2.4 Communication protocol (only applicable to digital output models)

The protocol runs on the RS485 hardware platform, and can realize remote one-to-many control and signal acquisition through the 485 bus. This communication protocol is implemented in accordance with the ModBus RTU standard protocol.



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

5.2 Communication protocol

5.2.1 Slave ID address

The slave ID address is the identification number of each slave. The default value of this machine is 0x01, which can be modified by modifying the register value. The modification range is 0x01~0xFF, among which 0x00 is the broadcast receiving address, see (II.4) for details.

Two.4					
Slave ID address	function code= 0x03	Register start address	Number of read registers	CRC Low bit	CRC high bit
8Bit	8Bit	16Bit	16Bit	8Bit	8Bit
Slave normal response sequence					
Slave ID address	function code= 0x03	Data bytes n	data	CRC Low bit	CRC high bit
8Bit	8Bit	8Bit	N * 8Bit	8Bit	8Bit
Slave error response sequence					
Slave ID address	error code = 0x83	Exception code = 0x02 or 0x03		CRC Low bit	CRC high bit
8Bit	8Bit	8Bit		8Bit	8Bit

3. Write a single register (function code 0x06)

The host can use this function to write data to the slave register, and can only operate on a single register.

Sequence format:

The host sends and writes a single register sequence					
Slave ID address	function code = 0x06	Register address	Write register value	CRC Low bit	CRC high bit
8Bit	8Bit	16Bit	16Bit	8Bit	8Bit
Slave normal response sequence					
Slave ID address	function code = 0x06	Register address	Write register value	CRC Low bit	CRC high bit
8Bit	8Bit	16Bit	16Bit	8Bit	8Bit
Slave error response sequence					
Slave ID address	error code = 0x86	Exception code = 0x02 or 0x03		CRC Low bit	CRC high bit
8Bit	8Bit	8Bit		8Bit	8Bit

4. Broadcast write register (function code 0x06)

The host can write register data to all the slaves on the bus through this function, and the slave ID address is unified as 0x00.

Sequence format:

The host sends a broadcast write register sequence					
Slave ID address = 0x00	function code = 0x06	Register address	Write register value	CRC Low bit	CRC high bit
8Bit	8Bit	16Bit	16Bit	8Bit	8Bit
No answer from slave					

Communication code example:

Host send sequence: 00 06 00 02 00 01 E8 1B
 Slave ID function code Register address Value written to register CRC calibration

Note: This function will perform group operation on all slaves on the bus, please use it with caution.

Register address reference table

Register address	Register definition	Read and write method	Specific function description
0x0001	Pressure data	Read only	Pressure output range-1000~1000Pa,-10000~10000Pa,resolution is 1Pa.Example: reading,0x0000 = 0Pa,0x03E8 = 1000Pa;When the pressure value is negative = -(0x10000 - n (reading value)),reading value is 0xFFFF = -1Pa,0xFC18 = -1000Pa Pressure output range-100~100Pa,resolution is 0.1Pa.When the pressure value is positive = n (reading value) /10,Example:reading value 0x0001 = 0.1Pa,0x03E8 = 100.0Pa;When the pressure value is negative = - (0x10000 - n (reading value)) /10,Example:reading value 0xFFFF = -0.1Pa,0xFC18 = -100.0Pa
0x0002	Unit setting	Can Read and write	1=Pa 2=mmH ₂ O 3=mbar 4=inH ₂ O(There is no such unit within the range of 100Pa) default:1
0x0003	Sensitivity setting	Can Read and write	1=1 level 2=2 level 3=3 level 4=4 level Default: 1
0x0006	Clear operation	Write Only	Write 1234 (0x04D2) for clear operation, the read value is the pressure value

Exception code analysis

Exception code	Error reason	Solution
0x01	Read the number of registers error	Compare the register address reference table to check whether the number of read registers exceeds the number of readable registers
0x02	Read register start address error	Compare the register address reference table to check whether the starting address of the read register is readable
0x03	The value written to the register is wrong	Compare the register address reference table to check whether the value written to the register is in the list
0x04	Write register address error	Compare the register address reference table to check whether the register address is writable
0x05	Clear failed	When the current pressure has a large deviation from the factory-calibrated zero pressure, it is not allowed to clear it. Please retry after releasing the pressure