

LF810 Series Differential Pressure Transmitter Catalogue

LEFOO high quality LF810 series differential pressure transmitter is using to measure the level, density, pressure and flow of liquid, gas or steam, and then convert it into a 4-20mA DC HART current signal output. It can also communicate with HART375 or HART475 communicator for parameter setting and process monitoring.



Standard

(Adjust the range based on the standard zero point, stainless steel 316L diaphragm, filling fluid is silicone oil)

1: Performance specifications

Adjust the reference accuracy of range

(Including linearity, hysteresis and repeatability from zero)

±0.075%

If $TF > 10$ ($TF = \text{Maximum range/adjustment range}$) then:

±(0.0075×TF)%

The square root output accuracy is 1.5 times the above linear reference accuracy

Temperature Influence	Environmental Influence
A	±(0.20×TF+0.10)%×Span
B	±(0.10×TF+0.10)%×Span
C/D/E	±(0.075×TF+0.10)%×Span
Range Code	-40°C~-20°C and 70°C~85°C Total influence
A	±(0.20×TF+0.10)%×Span
B	±(0.10×TF+0.10)%×Span
C/D/E/F	±(0.075×TF+0.10)%×Span

Influence of static pressure

Range Code	Influence
A	±(0.15%URL+0.10%Span)/4MPa
B	±(0.10%URL+0.075%Span)/16MPa
C/D/E/F	±(0.05%URL+0.05%Span)/16MPa

Overpressure Effect

Range Code	Influence
A	±0.2%×Span/4MPa
B	±0.2%×Span/16MPa
C/D/E	±0.1%×Span/16MPa

Long-term stability

Range Code	Influence
A	±0.2%×Span/1年
B	±0.2%×Span/1年
C/D/E/F	±0.1%×Span/1年

Power influence: ±0.001% /10V (12~42V DC), Negligible.

2: Functional specifications

Range and Scope

Range/Scope		KPa	mbar
A	Range	0.2~1	2~10
	Scope	-1~1	-10~10
B	Range	0.2~6	2~60
	Scope	-6~6	-60~60
C	Range	0.4~40	4~400
	Scope	-40~40	-400~400
D	Range	2.5~250	25~2500
	Scope	-250~250	-2500~2500
E	Range	10~1000	0.1~10 bar
	Scope	-500~1000	-5~10bar
F	Range	30~3000	0.3~30 bar
	Scope	-500~3000	-5~30bar

Range limit

It can be adjusted arbitrarily within the upper and lower limits of the range.

It is recommended to select a range code with the lowest possible turndown ratio to optimize performance characteristics.

Zero setting

Zero point and range can be adjusted to any value within the measurement range in the table, as long as: calibration range \geq minimum range

Installation location influence

The change of the installation position parallel to the diaphragm surface will not cause the zero drift effect. If the installation position and the diaphragm surface change more than 90° , the zero position effect within the range of $<0.4\text{KPa}$ will occur, which can be adjusted by adjusting the zero. No range effect.

Output

2-wire system, 4-20mA DC, optional HART output digital communication, optional linear or square root output.

Output signal limit: $I_{\min}=3.8\text{mA}$, $I_{\max}=20.8\text{mA}$

Alarm current

Low alarm mode (minimum): 3.8 mA

High alarm mode (maximum): 20.8 mA

Non-alarm mode (hold): keep the effective current value before the fault

Alarm current standard setting: high alarm mode

Response time

The damping constant of the amplifier component is 0.1s; the time constant of the sensor is 0.1 to 1.6s, depending on the range and range ratio. The additional adjustable time constant is: 0.1~60s.

The effect on the non-linear output (such as the square root function) depends on the function and can be calculated accordingly.

Preheat time: < 15s

Ambient temperature

-40~85°C

With LCD display and fluorine rubber seal -20~70°C

Storage temperature/transport temperature

-50~85°C; With LCD display: -40~85°C

Work pressure

The rated working pressure is divided into three levels: 16MPa, 25MPa, and 40MPa

Static pressure limit

From 3.5KPa absolute pressure to rated pressure, the protection pressure can be greater than 1.5 times the rated pressure, and it is added to both sides of the transmitter at the same time.

One-way overload limit: the one-way overload can reach the rated pressure

Electromagnetic compatibility (EMC)

See "Electromagnetic Compatibility Schedule" on the next page

3: Installation

Power supply and load conditions

The power supply voltage is 24V $R \leq (U_s - 12V) / I_{\max}$ k Ω among $I_{\max}=20.8\text{mA}$

Maximum power supply voltage: 42VDC

Minimum supply voltage: 12VDC, 15VDC (Backlit LCD display)

Digital communication load range: 250~600 Ω

Electrical connections

M20X1.5 cable sealing buckle, terminal block is suitable for 0.5~2.5mm² wire.

Process connection

Both ends of the process connection flange have NPT 1/4 and UNF 7/16" internal threads.

4: Physical specifications

Material

Measuring capsule: stainless steel 316L

Diaphragm: stainless steel 316L, Hastelloy C

Process flange: stainless steel 304

Nuts and bolts: stainless steel (A4)

Filling fluid: silicone oil

Sealing ring: NBR, FKM, PTFE

Transmitter housing: aluminum alloy material, sprayed with epoxy resin

Shell seal: NBR

Nameplate: stainless steel 304

Weight: 3.5kg (None: LCD display, mounting bracket, process connection)

Enclosure protection IP: IP67

Electromagnetic compatibility schedule

No.	Test items	Basic standard	Test Conditions	Performance level
1	Radiation interference (housing)	GB/T 9254-2008 Table 5	30MHz~1000MHz	Qualified
2	Conducted interference (DC power port)	GB/T 9254-2008 Table1	0.15MHz~30MHz	Qualified
3	Electrostatic discharge (ESD) immunity	GB/T 17626.2-2006	4kV(Contact) 8kV(Air)	B
4	RF electromagnetic field immunity	GB/T 17626.3-2006	10V/m (80MHz~1GHz)	A
5	Power frequency magnetic field immunity	GB/T 17626.8-2006	30A/m	A
6	Electrical fast transient pulse group immunity	GB/T 17626.4-2008	2kV(5/50ns, 5kHz)	B
7	Surge immunity	GB/T 17626.5-2008	1kV (Between lines) 2kV (Between line and ground) (1.2us/50us)	B
8	RF field induced conducted interference immunity	GB/T 17626.6-2008	3V(150KHz~80MHz)	A

Note: (1) A performance level description: during the test, the performance is normal within the technical specification limit.

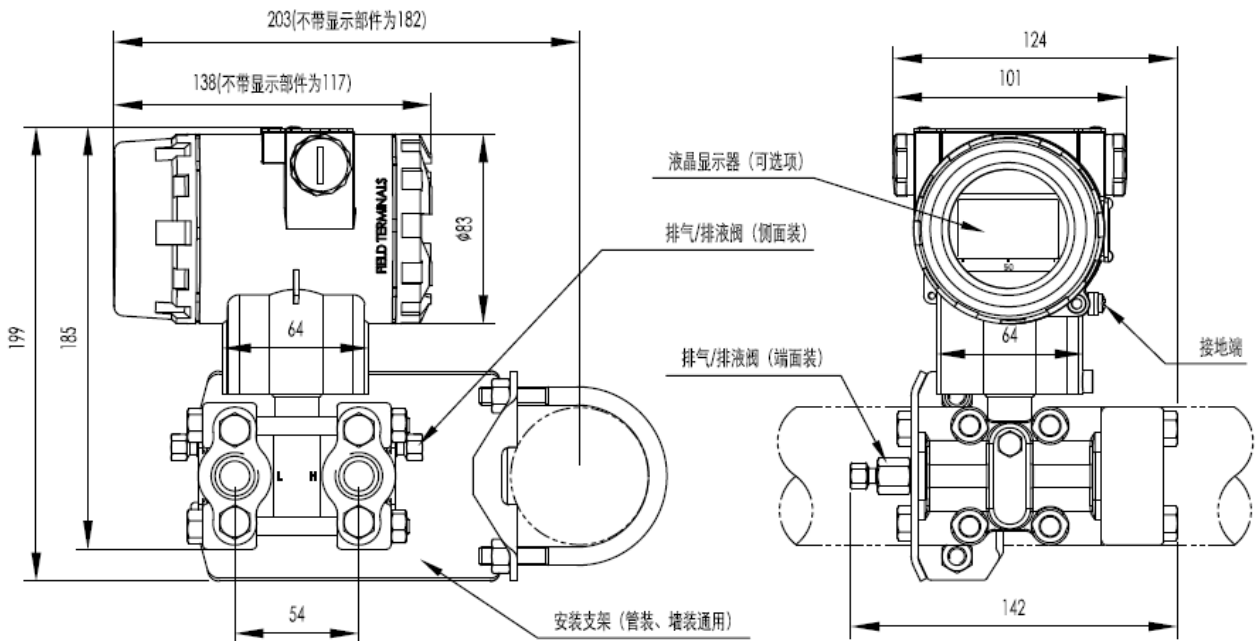
(2) B performance level description: during the test, the function or performance is temporarily reduced or lost, but it can be restored by itself, and the actual operating status, storage and data will not change.

Dimensions

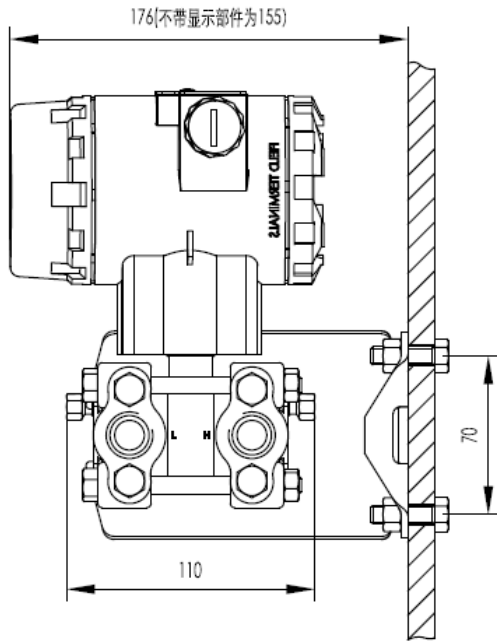
(mm)

Horizontal piping connection method (side)

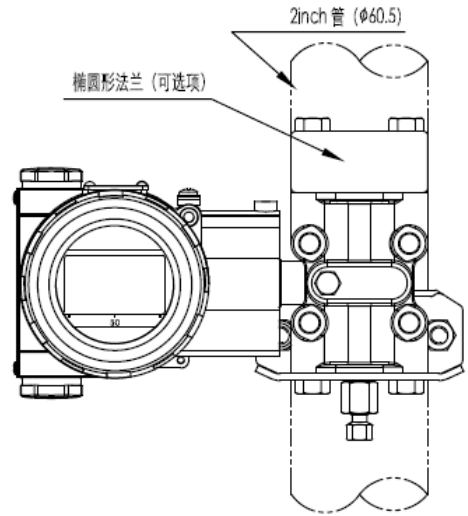
Horizontal piping connection method (front)



Wall-mounted connection

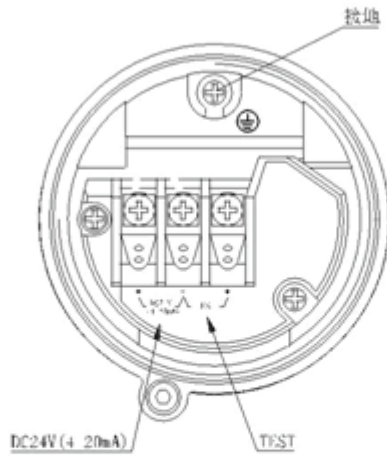


Vertical piping connection method



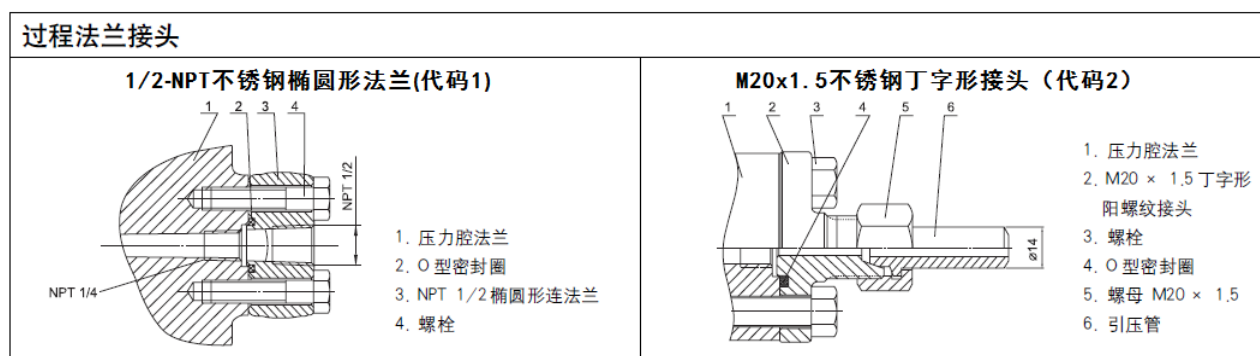
5: Electrical connection diagram

端子侧接线图



接线端子	
DC24V (4~20mA) $\begin{matrix} + \\ - \end{matrix}$	供电电源和输出端
TEST $\begin{matrix} + \\ - \end{matrix}$	外接电流表测试端(阻抗应小于10Ω)
⏏	接大地端

6: Process connection instructions



7: LF810Series smart differential pressure transmitter model and specification code

LF810-DP	LF810-DP Intelligent Differential Pressure Transmitter
Code 1	Measuring range
B	0. 2~6 KPa
C	1.0~40KPa
D	2.5~250KPa
E	10~1000KPa
F	30~3000KPa
Code 2	Output
E	Standard intelligent (4~20) mA DC two-wire system + HART protocol digital communication
J	Standard intelligent (4-20) mA DC two-wire system + HART protocol digital communication + square signal output
Code 3	Isolation diaphragm
22	316L Stainless steel
23	Hastelloy C
24	Monel
25	Tantalum
Code 4	Filling fluid
D	Silicone oil
F	Fluorine oil
Code 5	Electrical Interface
M	M20x1.5internal thread
N	1/2NPTinternal thread
Code 6	Relief valve position
A	No relief valve (with plug)
B	Upper side of process flange
C	Lower part of the process flange side
Code 7	Mounting brackets
N	Without mounting bracket
B1	Tube bending bracket (carbon steel)

B2	Panel mounting bracket (carbon steel)
B3	Tube mounted flat bracket (carbon steel)
B5	Tube bending bracket (stainless steel)
B6	Pan-mounted curved bracket (stainless steel)
B7	Tube mounted flat bracket (stainless steel)
Code 8	Static pressure
A	10MPa
B	16Mpa
C	25MPa
Code 9	Explosion-proof grade
N	Common type (no explosion-proof)
D	Flameproof ExdIICT6
I	Intrinsically safe explosion-proof type ExiaIICT6
Code 10	Accuracy class
2	0. 2
5	0. 5
7	0. 075
6	0. 065
8	0.05

Option code	Option
N	With "waist" shaped joint: NPT1/2 taper pipe internal thread
J	With "T" shaped joint: M20×1.5 external thread and welding pressure tube (stainless steel) at the rear
F	With "waist" shaped joint plus NPT1/2 pressure transfer head and back welding pressure tube (stainless steel)
P	No process connection (1/4 NPT female thread on chamber flange)
K	Degreasing and washing treatment
L	Hanging tag
H	Lightning protection (transient voltage resistance)
E	English nameplate
V3	Three valve group
V5	Five valve group
M5	LCD liquid crystal display
N	No header

LF810-DR	LF810-DR Intelligent Differential Pressure Transmitter
Code 1	Measuring range
A	0.2~1KPa
B	0.6~6KPa
Code 2	Output
E	Standard intelligent (4~20) mA DC two-wire system + HART protocol digital communication
J	Standard intelligent (4~20) mA DC two-wire system + HART protocol digital communication + square signal output
Code 3	Isolation diaphragm
22	316L Stainless steel
23	Hastelloy C
24	Monel
25	Tantalum
Code 4	Filling fluid
D	Silicone oil
F	Fluorine oil
Code 5	Electrical Interface
M	M20×1.5internal thread
N	1/2NPTinternal thread
Code 6	Relief valve position
A	No relief valve (with plug)
B	Upper side of process flange
C	Lower part of the process flange side
Code 7	Mounting brackets
N	Without mounting bracket
B1	Tube bending bracket (carbon steel)
B2	Panel mounting bracket (carbon steel)
B3	Tube mounted flat bracket (carbon steel)
B5	Tube bending bracket (stainless steel)
B6	Pan-mounted curved bracket (stainless steel)
B7	Tube mounted flat bracket (stainless steel)
Code 8	Static pressure
A	200KPa
B	4Mpa
Code 9	Explosion-proof grade
N	Common type (no explosion-proof)
D	Flameproof ExdIICT6
I	Intrinsically safe explosion proof type ExiaIICT6
Code 10	Accuracy class
2	0. 2
5	0. 5

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1	0. 1
7	0.075

Option code	Option
N	With "waist" shaped joint: NPT1/2 taper pipe internal thread
J	With "T" shaped joint: M20x1.5 external thread and welding pressure tube (stainless steel) at the rear
F	With "waist" shaped joint plus NPT1/2 pressure transfer head and back welding pressure tube (stainless steel)
P	No process connection (1/4 NPT female thread on chamber flange)
K	Degreasing and washing treatment
L	Hanging tag
H	Lightning protection (transient voltage resistance)
E	English nameplate
V3	Three valve group
V5	Five valve group
M5	LCD liquid crystal display
M3	No header

LF810-GP	LF810-GP Intelligent Differential Pressure Transmitter
Code 1	Measuring range
B	0. 2~6 KPa
C	1.0~40KPa
D	2.5~250KPa
E	10~1000KPa
F	30~3000KPa
Code 2	Output
E	Standard intelligent (4~20) mA DC two-wire system + HART protocol digital communication
J	Standard intelligent (4-20) mA DC two-wire system + HART protocol digital communication + square signal output
Code 3	Isolation diaphragm
22	316L Stainless steel
23	Hastelloy C
24	Monel
25	Tantalum
Code 4	Filling fluid
D	Silicone oil
F	Fluorine oil
Code 5	Electrical Interface
M	M20×1.5internal thread
N	1/2NPTinternal thread
Code 6	Relief valve position
A	No relief valve (with plug)
B	Upper side of process flange
C	Lower part of the process flange side
Code 7	Mounting brackets
N	Without mounting bracket
B1	Tube bending bracket (carbon steel)
B2	Panel mounting bracket (carbon steel)
B3	Tube mounted flat bracket (carbon steel)
B5	Tube bending bracket (stainless steel)
B6	Pan-mounted curved bracket (stainless steel)
B7	Tube mounted flat bracket (stainless steel)
Code 8	Explosion-proof grade
N	Common type (no explosion-proof)
D	Flameproof ExdIICT6
I	Intrinsically safe explosion-proof type ExiaIICT6
Code 9	Accuracy class
2	0. 2
5	0. 5

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7	0. 075
6	0. 065
8	0.05
Option code	Option
N	With "waist" shaped joint: NPT1/2 taper pipe internal thread
J	With "T" shaped joint: M20×1.5 external thread and welding pressure tube (stainless steel) at the rear
F	With "waist" shaped joint plus NPT1/2 pressure transfer head and back welding pressure tube (stainless steel)
P	No process connection (1/4 NPT female thread on chamber flange)
K	Degreasing treatment
L	Hanging tag
H	Lightning protection (transient voltage resistance)
E	English nameplate
M5	LCD liquid crystal display
N	No header

LF810-AP	LF810-AP Intelligent Differential Pressure Transmitter
Code 1	Measuring range
B	0. 2~6 KPa
C	1.0~40KPa
D	2.5~250KPa
E	10~1000KPa
Code 2	Output
E	Standard intelligent (4~20) mA DC two-wire system + HART protocol digital communication
J	Standard intelligent (4-20) mA DC two-wire system + HART protocol digital communication + square signal output
Code 3	Isolation diaphragm
22	316L Stainless steel
23	Hastelloy C
24	Monel
25	Tantalum
Code 4	Filling fluid
D	Silicone oil
F	Fluorine oil
Code 5	Electrical Interface
M	M20×1.5internal thread
N	1/2NPTinternal thread
Code 6	Relief valve position
A	No relief valve (with plug)
B	Upper side of process flange
C	Lower part of the process flange side
Code 7	Mounting brackets
N	Without mounting bracket
B1	Tube bending bracket (carbon steel)
B2	Panel mounting bracket (carbon steel)
B3	Tube mounted flat bracket (carbon steel)
B5	Tube bending bracket (stainless steel)
B6	Pan-mounted curved bracket (stainless steel)
B7	Tube mounted flat bracket (stainless steel)
Code 8	Explosion-proof grade
N	Common type (no explosion-proof)
D	Flameproof ExdIICT6
I	Intrinsically safe explosion-proof type ExiaIICT6
Code 9	Accuracy class
2	0. 2
5	0. 5
7	0. 075

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6	0. 065
8	0.05

Option code	Option code
N	With "waist" shaped joint: NPT1/2 taper pipe internal thread
J	With "T" shaped joint: M20x1.5 external thread and welding pressure tube (stainless steel) at the rear
F	With "waist" shaped joint plus NPT1/2 pressure transfer head and back welding pressure tube (stainless steel)
P	No process connection (1/4 NPT female thread on chamber flange)
K	Degreasing treatment
L	Hanging tag
H	Lightning protection (transient voltage resistance)
E	English nameplate
M5	LCD liquid crystal display
N	No header