LEFOO

LFG303 PM2.5/PM10
INDOOR DUST TRANSMITTER/CONTROLLER

Manual

Dust
PM₂.₅   26 ug/m³
PM₁₀   34 ug/m³
STATUS: Good

SET ∧ ∨

PM2.5
LEFOO

PM2.5 TRANSMITTER

LEFOO

1.Specification

Sensor	Laser dust sensor, detecting particle size 0.3~10μm
Sensor life	Mean time between failures ≥ 3 years
Accuracy/ Consistency	PM2.5: 0～500μg/m3, particle size 0.3～2.5μm
	PM10: 0～600μg/m3, particle size 0.3～10μm
Measuring range	PM2.5:±10μg/m3@0~100μg/m3，±10%FS@ 100~500μg/m3，@25℃
Resolution	1μg/m3
Preheat time	≤2min
Response time	Continuous measurement mode single response time <1S, comprehensive response time <10S
Power supply	15～36VDC / 24VAC±20%
Power supply	4～20mA&0～10V RS485
Relay	1xSPDT 3A/30VDC 3A/250VAC
Working environment	0～50℃&0～95%RH (no condensation)
Storage temperature	-20～60℃&0～95%RH (no condensation)
Display and keys	The equipment can set parameters such as relay working mode
LED indicator light	Green:Good Yellow:Moderate Orange:Sensitive
	Red:Poor Purple:Unhealthy Crimson:Hazardous
Protection level	IP30
Shell material	PC

Note: When using AC power supply for RS485 output products, an isolated 24VAC power supply is required!

## 2.Dimension(mm)

86   27.5 26.5   60
115   Φ4.5   4   4.5 4.5   30
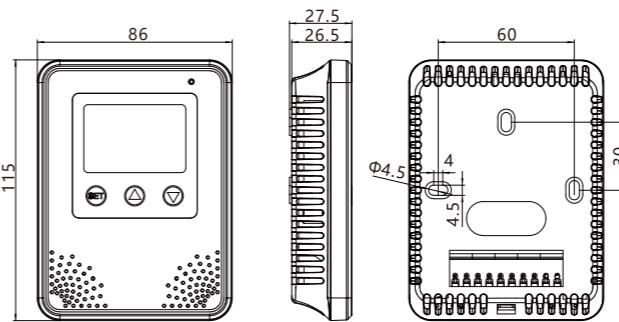
3.Wiring Instruction:

Depending on the selection, the following figures show the current and voltage output, RS485 output and relay wiring methods:

GND V I GND V+
1 2 3 4 5 6 7 8 9 10
N/C COM N/O
0~10V
4~20mA
POWER
15~36VDC/
24VAC±20%

B A GND V+
1 2 3 4 5 6 7 8 9 10
N/C COM N/O
485B 485A
POWER
15~36VDC/
24VAC±20%
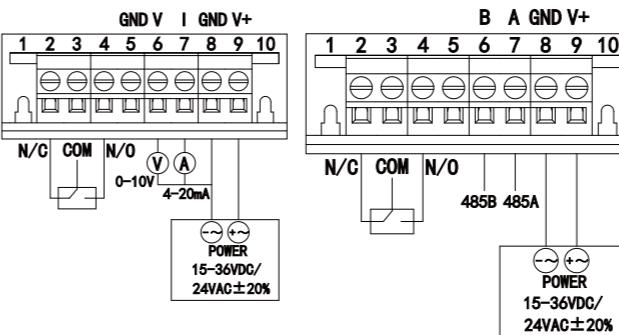
4.Installation method

①   ②   ③   ④
⑤   ⑥   ⑦
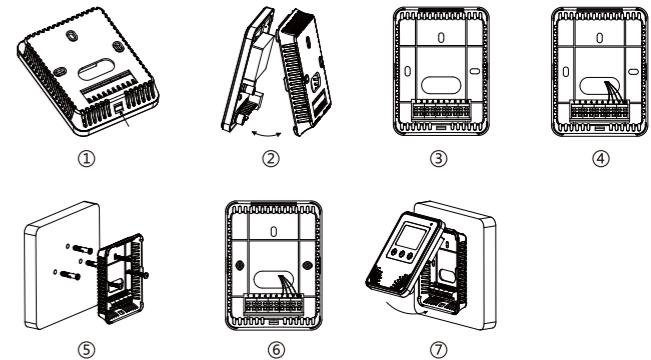
1.Press the cover opening button under the back cover of the transmitter to open the transmitter (as shown in Figures 1 and 2);

2.Complete the electrical connection according to the wiring diagram, and introduce the cable through the cable hole (as shown in Figures 3 and 4);

3.There are three mounting holes on the back cover of the transmitter. Use expansion screws to fix it on the wall (as shown in Figure 5). You can also use screws to fix it on the standard switchbox embedded in the wall (as shown in Figure 6);

4.Align and fasten the front cover and bottom case to complete the installation (Figure 7).

5. Key operation instructions

	Main interface functions	Setting page function	Set parameter function
SET	1. Short press to eliminate the alarm sound(When the buzzer sounds) 2. Long press to enter the settings page	1. Short press to enter the corresponding setting parameters on the setting page (the setting parameters flash) 2. Long press to return to the main interface	1. Short press to confirm the parameter setting (the parameter setting does not blink after confirmation), and go to the next parameter setting or corresponding setting page 2. Long press to return to the main screen (save the new parameters after confirming the Settings)
∧	no	Short press to turn up the settings page	1. Short press to increase the value 2. Long press the value to increase quickly
∨	Short press to turn on/off backlight	Short press to scroll through the settings page	1. Short press to decrease the value 2. Long press to quickly decrease the value

Note: Long press means long press the button for 2S

6.Menu introduction

6.1 Password page

password: 00000

On the main interface, press and hold the "SET" key for 2 seconds to enter the password input page. Short press the "SET" key, use "∧" "∨" to set the password "00003" to enter the setting interface.

6.2 Communication parameter setting page

ID: 1
Baud :   9600
AddrsW :   1
0:Disable 1: ENA

Set the communication address ID, baud rate and address dialing enable (0: disable 1: enable); short press the "SET" key, use "∧" "∨" to modify the parameters, short press "SET" again Press the key to confirm the parameters, and long press the "SET" key to save the parameters.

Note: For the address dialing enable setting,
1. When enabled and the address dialing code is not 0, the set ID is not saved and the software cannot modify the ID;
2. When enabled and the address dial code is 0, the set ID is saved and the software can modify the ID;
3. Address dialing is invalid when disabled

6.3 Range parameter setting page

RangeL :   0
RangeH :   500
Set for I/Vout

Set the upper and lower limits of the analog output, short press the "SET" key, short press "∧" "∨" to increase or decrease the parameters (long press for rapid increase or decrease), short press the "SET" key again to confirm the parameters, long press The "SET" key can be used to save parameters.

6.4 Output parameter setting page

Output : 0 PM₂.₅
Class   : 0 CHN
IDLE   : 0 DIS
Buzzer : 1 ENA

Set the output type: select 0: PM2.5 or 1: PM10 corresponding to the analog output;
PM2.5 level: 0: National standard/1: American standard
Sensor sleep: 0: Disabled/1: Enabled
Buzzer setting: 0: Disable/1: Enable

During setting, the prompt bar on the right will display the current setting items. Short press the "SET" key and use "∧" "∨" to modify the parameters. Short press the "SET" key again to confirm the parameters. Press and hold the "SET" key to modify the parameters.
Saving parameters

	Good (Green)	Moderate (Yellow)	Sensitive (Orange)	Poor (Red)	Unhealthy (Purple)	Hazardous (Crimson)
National standard	0~35	35~75	75~115	115~150	150~250	>250
American Standard	0~12	12~35	35~55	55~150	150~250	>250

Note: Select different PM2.5 levels corresponding to different indicator lights (unit: μg/m3)

6.5 Relay working mode setting page

RelayMode : 0
0: OFF
1/2 : Single Mode
3/4 : Range Mode

Set the relay working mode, there are five modes available: 0, 1, 2, 3, and 4; Short press the "SET" key and use "∧" "∨" to modify the parameters. Short press the "SET" key again to confirm the parameters. If it is not 0, it will enter the parameter page of the corresponding mode.

SetVAL : 75
HysVAL : 0
OpenDLY : 0s
ShutDLY : 0s

Set the 1/2 single point mode to enter this setting page and set the relay set point SetVAL.Hysteresis value HysVAL, closing delay OpenDLY, opening delay ShutDLY, the delay can be set up to 3600S.

RangeL : 75
RangeH : 150
OpenDLY : 0s
ShutDLY : 0s

Set the 3/4 interval mode to enter this setting page and set the lower limit of the relay interval RangeL., The upper limit of the interval is RangeH, the closing delay OpenDLY, the opening delay ShutDLY, and the maximum delay can be set to 3600S.

Note: Relay working mode setting diagram

Relay Working Mode Setting		
Working Mode	Function Description	Function Diagram
0	Relay close	Relay OFF
1	Below the setvaluethe relay close	Relay ON — Return difference — Relay OFF / set value
2	Above the setvalue the relay close	Relay OFF — Return difference — Relay ON / set value
3	Within the setintervalthe relay close	Relay OFF / Relay ON / Relay OFF — Upper limit of interval
4	Exceed the setintervalthe relay close	Relay ON / Relay OFF / Relay ON — Upper limit of interval

6.6 Single point offset setting page

PM₂.₅
    Offset： 0
PM₁₀
    Offset： 0

To set the PM2.5/PM10 single-point calibration offset value, short press the "SET" key. Short press "∧" "∨" to increase or decrease the parameters (long press for rapid increase or decrease). Short press the "SET" key again to confirm. Parameters, press and hold the "SET" key to save parameters.

Note: The final transmitter output value is: displayed value (output) = actual measured value + deviation value

6.7 Initialization page

Restore
Setting?

password : 00000

To restore the initial setting password, short press the "SET" key, and set the password "00123" through "∧" "∨" (long press to quickly increase or decrease). Short press the "SET" key again to restore the parameters to the initial settings. Please proceed with caution.

7.Menu icon

Main Interface

```
Dust
PM2.5 :  16  ug/m³
PM10 :  18  ug/m³
STATUS :  Good
```
[SET] Press and Hold for 2S

password : 00000
[SET] Short Press
password : 00000
[^v]
password : 00003

[SET] Short Press to confirm

```
Device ID
baud  rate
Dip switch enable
settings  page
```

```
ID :    1
Baud :  9600
AddrSW :  1
0:Disable  1:ENA
```
[SET] Short Press
```
ID :    1
Baud :  9600
AddrSW :  1
0:Disable  1:ENA
```
[^v]
```
ID :    255
Baud :  9600
AddrSW :  1
0:Disable  1:ENA
```

[SET] Short Press to confirm

```
ID :    1
Baud :  9600
AddrSW :  1
0:Disable  1:ENA
```
[^v]
```
ID :    1
Baud :  19200
AddrSW :  1
0:Disable  1:ENA
```

[SET] Short Press to confirm

```
ID :    1
Baud :  9600
AddrSW :  1
0:Disable  1:ENA
```
[^v]
```
ID :    1
Baud :  9600
AddrSW :  0
0:Disable  1:ENA
```

[^v]

```
Range Low  point
Range High  point
Settings  page
```

```
RangeL :    0
RangeH :   500
Set  for  I/Vout
```
[SET] Short Press
```
RangeL :    0
RangeH :   500
Set  for  I/Vout
```
[^v] Long press to quickly add/subtract
```
RangeL :    499
RangeH :   500
Set  for  I/Vout
```

[^v]

```
Output  type
PM2.5 level
Sensor  sleep
Buzzer enable
settings  page
```

```
Output :  0   PM2.5
Class  :  0   CHN
IDLE  :  0   DIS
Buzzer:  1   ENA
```

[^v]

```
Relay
Operating mode
settings  page
```

```
RelayMode :  0
0 : OFF
1/2 : Single Mode
3/4 : Range Mode
```
[SET] Short Press
```
RelayMode :  0
0 : OFF
1/2 : Single Mode
3/4 : Range Mode
```

Set1/2 Singlepoint mode
```
SetVAL  :    75
HysVAL  :     0
OpenDLY :    0S
ShutDLY :    0S
```

[^v]

Set3/4 Interval model
```
RangeL  :    75
RangeH  :   150
OpenDLY :    0S
ShutDLY :    0S
```

```
PM2.5
Single point offset
PM10
Single point offset
Settings page
```

```
PM2.5
Offset :    0
PM10
Offset :    0
```

```
Restore
Setting?

password : 00000
```

[^v]

```
Restore initialization
settings  page
```

```
Restore
Setting?

password: 00000
```
[SET] Short Press
```
Restore
Setting?

password : 00000
```
[^v]
```
Restore
Setting?

password : 00123
```

Short Press
[SET]

Initialization

8.Address dialing (RS485 output only)

```
ON
1  2  3  4  5  6  7  8
1  2  4  8  16 32 64 128
ADDRESS
```

If it is turned to the ON side, add the subscript ADDRESS column number accordingly.
As shown in the figure, the address is: 1+4+128=133, corresponding to 0x85 (hexadecimal).
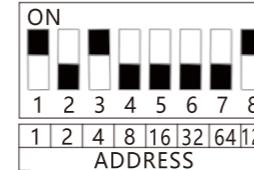
Note: Power on again to update the DIP address; only when the DIP address is 0, the device ID address can be modified through software.
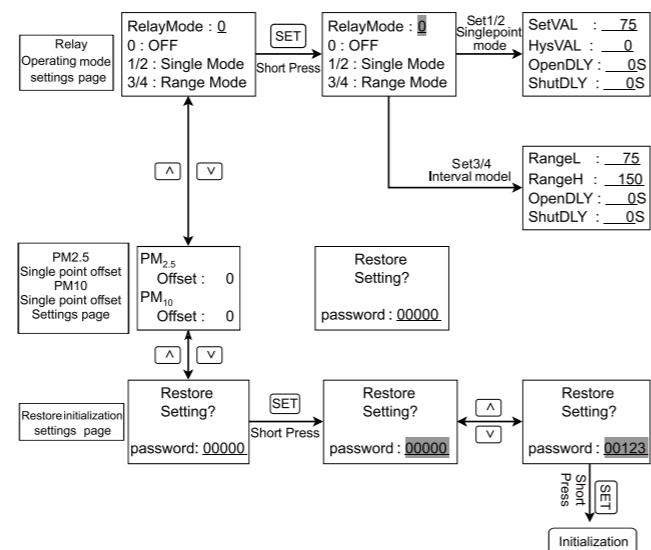
9.Precautions

●Before use, please confirm: whether the output voltage of the power supply is correct; the positive and negative wiring of the power supply and the positive and negative wiring of the product; the output wiring of the product;

●This product is suitable for ordinary indoor environment measurement. If the user places the instrument in an environment that exceeds the measurement range for a long time, the measurement accuracy may decrease; in environments with high water mist (such as hot springs, bathrooms) and oil fumes (such as kitchens) When used in normal environments, excessive dust accumulation, oil accumulation, and water intrusion may cause a decrease in accuracy or even damage;

●When installing and using the product, avoid direct sunlight or direct contact with heat/cold sources; avoid vibration, which will have a certain impact on accuracy;

●The product installation position should be more than 20cm above the ground to prevent large particles of dust and floc near the surface from entering the sensor, causing sensor contamination and reduced accuracy.

10.Analysis and handling of common problems

Fault phenomenon	Cause Analysis	Method of exclusion
During analog output, the transmitter has no output.	1. The product is not powered 2. Output wiring error	1. Power supply according to the correct power supply 2. Rewire correctly according to the wiring diagram
When RS485 is output, communication cannot be performed	1.A and B communication lines are connected reversely 2. Address or baud rate settings do not match 3. Failure to communicate according to communication protocol	1. Check and perform correct wiring 2. Check whether the communication test software is set correctly; check whether the product address and baud rate settings match. 3. Communicate according to communication protocol
The relay is not working properly	1. Wrong setting of relay working mode 2. Relay normally open/normally closed wiring error	1.Set the correct working mode according to your needs 2. Check and perform correct wiring