LoRaWAN Wireless pressure sensor Operating instruction

I. product overview

LoRaWAN Wireless pressure sensor with high precision and sensitivity and the ultra-low power consumption microprocessor are adopted to process the pressure signal of the medium under test into digital signal, which can display the pressure value on site and transmit the measured data wireless through the standard LoRaWAN protocol. It has the advantages of convenient installation and use, further transmission distance, stable and reliable performance and so on. It is widely used in intelligent fire protection, intelligent water supply, intelligent factory and other wireless pressure monitoring field.

II. Technical parameters

1. Display mode: Five-digit liquid crystal display

2. The test medium: Liquid or gas compatible with material

3. Scale range:-0.1~ 60MPaInner arbitrary interval

4. Precision grade: 0.5%FS

5. Stability: ±0.5%FS/Y

6. Working voltage:3.6VDC battery

7. Battery capacity:19000mAh

8. Sleep currency: <30uA

9. Transmit currency: <140mA

10. Receive currency: <15mA

9. LoraWan frequency: CN470MHz~510MHz, EU863MHz~870MHz, US 902MHz~928MHz, AS923MHz, AU915~928MHz

10. Communication protocol: Lora

11. Working temperature:-20~60°C

12. Overload capacity:300%

13. Service life:>9 million Pressure cycle

Warning: Unauthorized disassembly of the product is strictly prohibited!

Never press the measuring element diaphragm with your finger!

Do not insert any sharp object into the pressure orifice!

14. Install the screw:M20*1.5, G1/2, etc.

15. Protection grade:IP65

16. Data transmission rate: 300bps～5.4Kbps

17. Maximum transmission power: 25db

18. Receiving sensitivity: -150dBm (SF=12)

The battery compartment can be opened by rotating the back cover anticlockwise. After replacing the battery, close the back cover and turn clockwise to lock the back cover to achieve waterproof effect;

III. Communication
Protocol of temperature/humidity sensor（NB、LoraWan）
sensor uplink data：

byte number	1	2	3	4-5	6-7	8	9-10	11-12	13	14-15
Content	20	XX	XX	XXXX	XXXX	XX	XXXX	XXXX	XX	0014
Defination	The total number of byte	The total message sent	data a number	current temperaute value	current humidity valure	dot	unit	battery voltage	reserved	sensor sampling rate
data type	No symbol	with symbol	with symbol	with symbol	with symbol	with symbol	with symbol	with symbol	reserved	with symbol
Value range	1E	0~255	1	-20~+120	0~99	1	7	0~65535	reserved	1~9999S

16-17	18-19	20-21	22-23	24-25	26	27	28	29	30	31-32
00F0	0005	0001	270F	D8F1	02	XX	02	XX	XX	XXXX
Sensor data uplink rate	Collection rate in alarm status	Alarm uplink rate	High alarm threshold (temperature)	Low alarm threshold (temperature)	Alarm mode	reserved	sensor alarm confirmation times	reserved	wireless signal strength	CRC
with symbol	with symbol	with symbol	with symbol	with symbol	with symbol	reserved	with symbol	reserved	with symbol	with symbol

1~9999 min	1~9999 S	1~9999 min	-9999~9999	-9999~9999	0~3	reserved	'1~99	reserved	0~31	0~65535

Unit : MPa,kPa,Pa,BAR,PSI,kgfcm2,kgfm2,℃,℉,mm,cm,m,mV,V,mA,A,blank

（0~16 representing in sequence MPa~blank）

Dot ："3.000", " 2.00", " 1.0", " 0"

（From 3 to 0, three decimal places in sequence until no decimal point is present）

Alarm mode: 0: Out of range alarm; 1: Alarm within the range; 2 high alarms; 3 low alarms

The decimal point only applies to the current value and alarm threshold. For example, with 3 decimal places, dividing the uploaded value by 1000 is the true value.

The true value of battery voltage is equal to the uploaded value divided by 1000, in volts

Verification method: CRC16

The ' content' is all hexadecimal data

Command download (Lora sensors can't download), Issued as a string for 4G products

Serial No.	command byte number	Command	Menu name	Value range	Remard
1	3	A1	data upload interval	1~9999min	default 240min
2	3	A2	sampling interval	1~9999sec	default 20sec

3	3	A3	high alarm value	-9999~9999	Default is 1999, decimal point follows display
4	3	A4	low alarm value	-9999~9999	Default is -1999, decimal point follows display
5	3	A5	alarm mode	HL(0)/IN(1)/CAPH(2)/CAPL(3)	0: Out of range alarm; 1: Alarm within the range; 2 high alarms; 3 low alarms. Default high alarm
6	3	A6	Alarm output	NO/NC	Normally open/normally closed
7	3	A7	sensor alarm confirmation times	1~99	Default is 2 times
8	3	A8	Set cutting value	-9999~9999	Set cutting value
9	3	A9	sampling rate in alarm status	1~9999sec	In the alarm state, the sampling rate is set to 5 seconds by default
10	3	AA	Alarm uplink rate	1~9999min	In the alarm state, the upload rate defaults to 1 minute
11	3	AB	Unit option	MPa、KPa、Bar 等	Multiple units such as pressure and liquid level
12	3	AC	decimal	0~3	Up to 3 decimal places can be set
13	3	AD	Set the minimum range value	-9999~9999	Set the minimum range value
14	3	AE	Set the maximum range value	-9999~9999	Set the maximum range value

15	3	AF	Set compensation value	-9999~9999	Set compensation value

For example: (Command is in hexadecimal, 4G product is a string):

1. Modify a single parameter: change the upload time to 10 minutes: write A1 00 0A;

2. Modify multiple parameters simultaneously: upload time is 10 minutes, decimal point is 2: write A1 00 0A AC 00 02;

3. If a negative number is input, the data will be Symbolic shaping. For example, to input a low level alarm of -5; Actual input FFFB; Input: A4 FF FB;

IV. After-sales service

1. All orders of our products are guaranteed for one year;

2. If the product fails within the warranty period, it is a quality problem detected by the company, and the company shall bear all the maintenance costs;

3. Failure to follow this manual or disassemble of the product, resulting in damage to the components or pressure diaphragm, is not covered by the product warranty。

4. Please contact our company to confirm the repair after product failure. Please attach the following information:

a. Product failure phenomenon;

b. Description of the product using site environment;

c. Delivery address and contact information;