AN808P Programmable Intelligent Temperature Controller/ Adjustor User's Manual

Features:

- ⊙ TC/ RTD/Analog signal universal input
- ⊙ Display ,alarm,adjust & communication function
- ⊙ Advacned Fuzzy algorithm & Two Degrees of Freedom PID
- ⊙ Optional output controls, modularization design,easy to change.
- ⊙ High anti-inteference.
- ⊙ 50 programm segments of controls
- ⊙ Color control bar display

■ Safe Caution

※ For your safe, please read the below content carefully before you use the meter !

Please comply with the below important points:

⚠ Warning An accident may happen if the operation does not comply with the instruction.

⚠ Notice An operation that does not comply with the instruction may lead to product damage.

※ The instruction of the symbol in the manual is as below:

⚠ An accident danger may happen in a special condition.

⚠ Warning

1. A safety protection equipment must be installed or please contact with us for the relative information if the product is used under the circumstance such as nuclear control, medical treatment equipment ,automobile, train, airplane, aviation, entertainment or safety equipment, etc. Otherwise, it may cause serious loss, fire or person injury.
2. Apanel must be installed, otherwise it may cause creepage (leakage).
3. Do not touch wire connectors when the power is on, otherwise you may get an electric shock.
4. Do not dismantle or modify the product, If you have to do so, please contact with us first. Otherwise it may cause electric shock and fire.
5. Please check the connection number while you connect the power supply wire or input signal, otherwise it may cause fire.

⚠ Caution

1. This product cannot be used outdoors. Otherwise the working life of the product will become shorter, or an electric shock accident may happen.
2. When you connect wire to the power input connector or signal input connectors, the moment of the No.20AWG (0.50 mm2) scrwew tweaked to the connector is 0.74n.m-0.9n.m. Otherwise the connectors may be damaged or get fire.
3. Please comply with the rated specifications. Otherwise it may cause fire after the working life of the product becomes shorter.
4. Do not use water or oil base cleaner to clean the product. Otherwise it may cause electric shock or fire, and damage the product.
5. This product should be avoid working under the circumstance that is flammable, explosive, moist, under sunshine, heat radiation and vibration.
6. In this unit it must not have dust or deposit, otherwise it may cause fire or mechanical malfunction.
7. Do not use gasoline, chemical solvent to clean the cover of the product because such solvent can damage it. Please use some soft cloth with water or alcohol to clean the plastic cover.

1. Code Illustration

AN808P — □ — □ □ □ — Input&communication: 0:One input without communication;8: One input wiht RS485 communication.

Alarm output:2:Two alarms 1: One alarms
(One more alarm will be added when not using Heating and cooling control)

Control output:R: Relay C:4～20mA current Q:SSR

Size(mm)：4:48H×48W 6:96H×48W 7:72H×72W 8:48H×96W 9:96H×96W
16:160H×80W 80:80H×160W

AN808P series intelligent adjustor with 50 program segments of control function

2. Model Indication

Model	OUT1(Note①)	OUT2(Note②)	Alarm(Note③)	Communication
AN808P-4-R20	Relay	Relay	1	No
AN808P-4-Q20	SSR	Relay	1	No
AN808P-4-C20	4～20mA Current	Relay	1	No
AN808P-4-R18	SSR	Relay	No	RS485（MODBUS RTU）
AN808P-4-Q18	SSR	Relay	No	RS485（MODBUS RTU）
AN808P-4-C18	4～20mA Current	Relay	No	RS485（MODBUS RTU）

Model	OUT1(Note①)	OUT2(Note②)	Alarm(Note③)	Communication
AN808P-□-R30	Relay	Relay	2	No
AN808P-□-Q30	SSR	Relay	2	No
AN808P-□-C30	4～20mA Current	Relay	2	No
AN808P-□-R38	Relay	Relay	2	RS485（MODBUS RTU）
AN808P-□-Q38	SSR	Relay	2	RS485（MODBUS RTU）
AN808P-□-C38	4～20mA Cureent	Relay	2	RS485（MODBUS RTU）

Note①: OUT1:

4～20mA Current output.load resisdence600Ωmax。Can switch to 4～20mA current output or control current output by

Relay output capacity:3A/250Vac SSR output capacity:30mA/ 24Vdc

Note②: OUT2:

Can be worked just under heating-cooling control(OT=3); under other control, worked as alarm 3 (size 48*48 works as alarm 2 when without communication; size 48*48 work as alarm 1 when with communication.). Relay output capacity:1A/250 Vac.

Note③: Alarm 3:

The load capability of Relay output is1A/250Vac

3.Main Technical Parameter

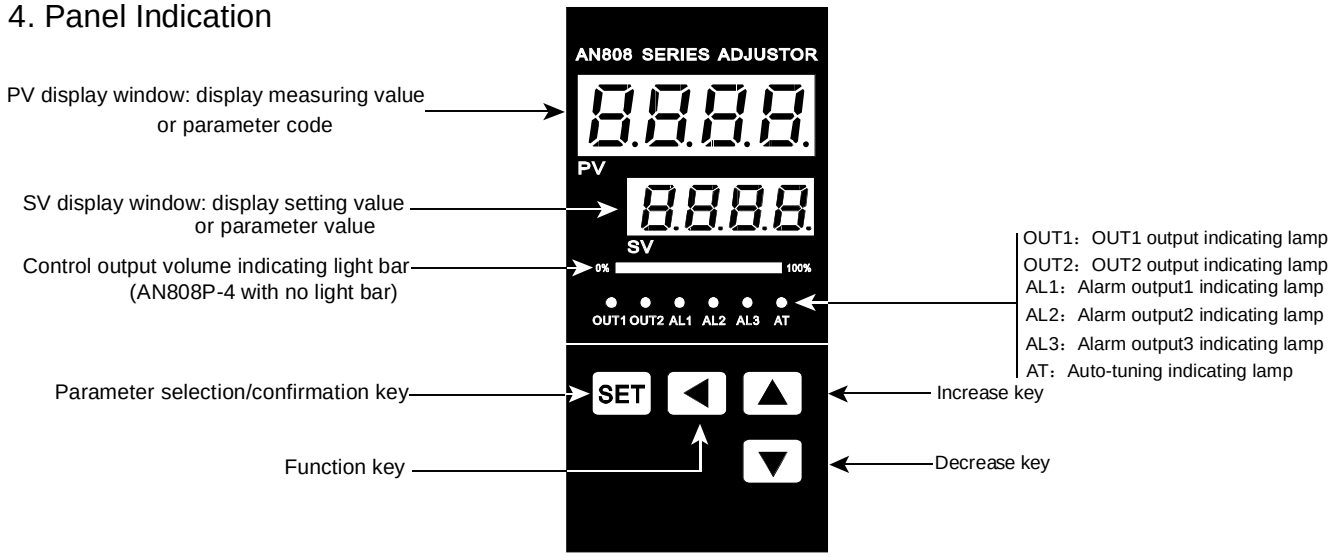
3.1 Whole controller parameters

Power supply	100～240VAC/DC
Total current	＜30mA（220VAC）
Ambient temperature	0～50℃
Humidity	45～85%RH
Accuracy	±0.3%F.S±3digits 25℃
Control mode	ON/OFF control，PID heating control，PID colding control，PID heating&colding control
Communication	RS485 communication interface MODBUS protocol
Panel protection level	IP65
Temperature excursion	≤0.01%F.S/℃
Dielectric strength	Among power supply terminals,relay output terminals&signal terminals ≥2000VDC, between the reciprocally isolated weak signal terminals ≥600VDC

3.2 Table ofInput parameters

No.	Symbol	Input type	Measuring range	Resolution	Input resistance
0	K	K	-50～1300℃	1℃	＞100KΩ
1	J	J	-50～1200℃	1℃	＞100KΩ
2	E	E	-50～1000℃	1℃	＞100KΩ
3	T	T	-50～400℃	1℃	＞100KΩ
4	B	B	600～1800℃	1℃	＞100KΩ
5	R	R	-10～1700℃	1℃	＞100KΩ
6	S	S	-10～1600℃	1℃	＞100KΩ
7	N	N	-50～1200℃	1℃	＞100KΩ
8	000	Reserved			
9	Pt	PT100	-199.9～850.0℃	0.1℃	（0.2mA）
10	IPt	JPT100	-199.9～500.0℃	0.1℃	（0.2mA）
11	Cu50	CU50	-50.0～150.0℃	0.1℃	（0.2mA）
12	Cu00	CU100	-50.0～150.0℃	0.1℃	（0.2mA）
13	2U	Linear voltage	0～50mV	0.01%F.S	＞100KΩ
14	4A	Linear current	4～20mA	0.01%F.S	＜110Ω
15	1U	Linear voltage	0～10V	0.01%F.S	＞100KΩ
16	rt	Linear resistance	0～400Ω	0.01%F.S	（0.2mA）

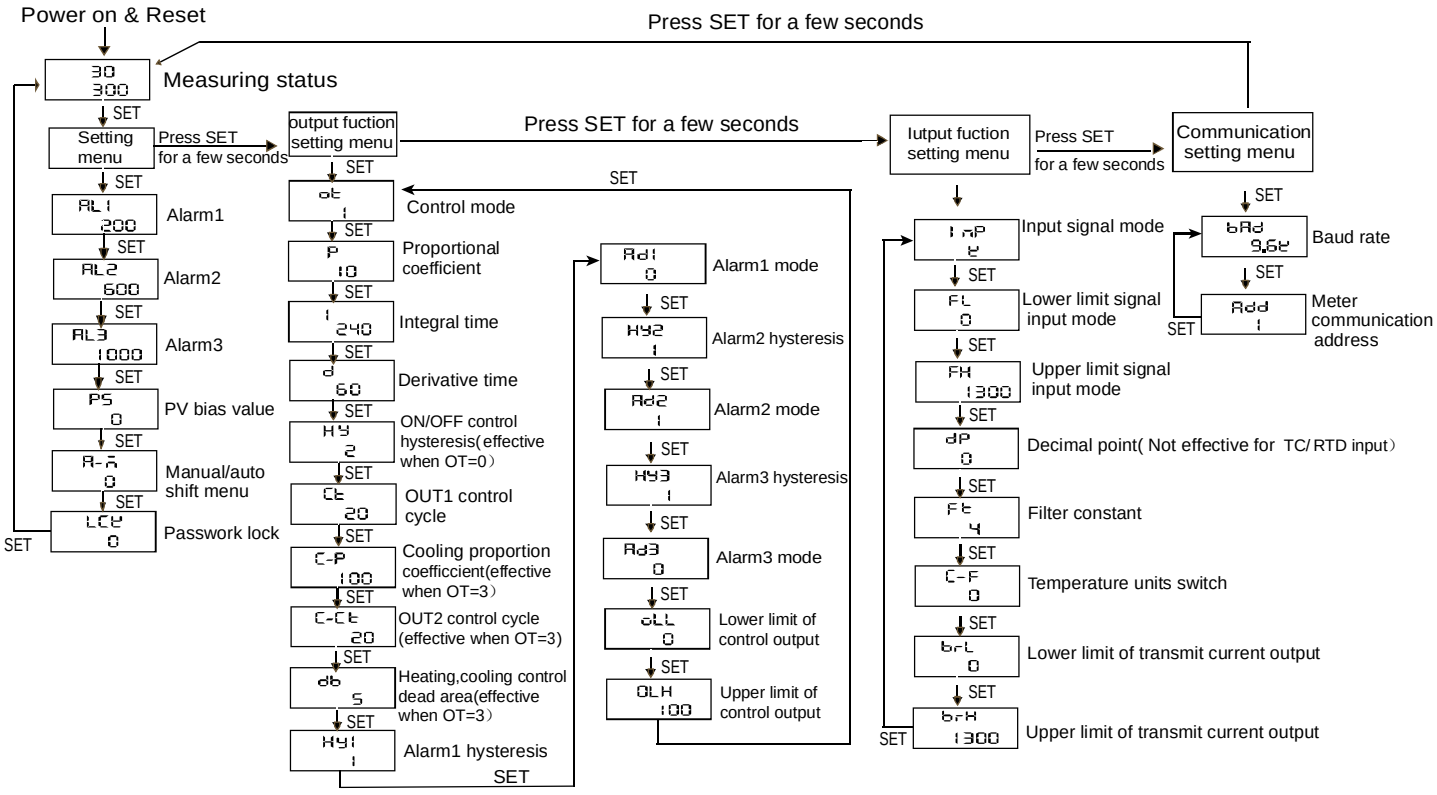
4. Panel Indication



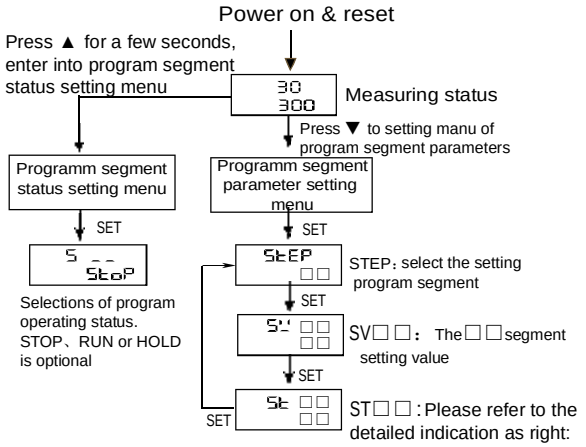
5. Panel key operations

（1）SET key：in normal display status, press SET key to show setting menu, and press it for a few seconds to show the advanced setting menu.
（2）◀ key：press ◀ key to make the parameter to flicker, then the parameer can be changed.
（3）▲ 、▼ key：to change parameters in setting status,and press SET key after changed.
（4）In advanced setting menu, press SET key for a few seconds to quit the menu and back to normal display status.
（5）In normal display status, press ◀ for 3 seconds to start Auto-tuning function, then AT indicating lamp turns on.
（6）In normal display status, press ▲ key for a few seconds to enter the setting menu of program status; press▼for a few seconds to enter into the setting menu of program parameter.

6. Operation Process



7. Program segment setting



The mode of program segment control setting:

(1). Total 50 segments on program segment setting,each segment with 2 setting parameters:SV□□、ST□□.

(2). Parameter SV□□ is the setting value of this segment. For example,SV01 is set as 200 ， the controlling expected value of this segment (the first segment）is 200℃。

(3). Parameter ST □□ is the parameter of controlling status of this segment.

When ST□□ is set as -51，indicates to finish the program segment cotrol, and resumes to single setting value controlling status (please refer to below example1).

When ST□□ is set as-50～-1，indicates skipping to the appointed segment.For example, when ST □□ =-45, it indicates the current segment skipping to 45 segment;

When ST□□setting value is 0，indicates the temperature reachingSV□□，and skipping to next segment (please refer to below example 1)

When ST□□ setting value is 1～1440，the unit is min, and it indicates when this segment is under operating ,it will run in constant speed to the setting value within the setting time; the meter will decrease to 0 within countdown time when it runs to ST □□.

If ST□□ has been decreased to 0,but the PV measuring value does not reach SV setting value, the program will continue the operation of this segment till SV□□ value is accordance with PV value.For example: SV□□=200, ST□□ =10, the current temperature is 30℃,the programm will run at this segment by 10mins, and the temperature increases 17℃/min averagely.

(4).In normal display status,press ▼ key for a few seconds to enter the program segment for parameter setting menu.

(5).In normal display status,press ▲ key for a few seconds to enter program segment status setting menu.You can select RUN(Normal operation) ,STOP(Stop operation),HOLD(Keep the current SV value and not be changed anymore),total 3 status.

Example 1:

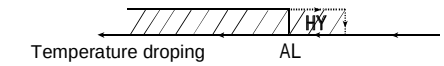
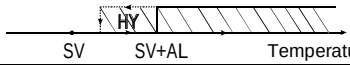
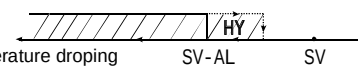
To operate a treatment cycle curve,

Require the temperature reaching 300℃,	SV01=300 、ST01=0；
The temperatue is evenly rising from 300℃ to 500℃ (average10℃ per minute),	SV02=500，ST02=20；
Then lower the temperature to 150 ℃,	SV03=150 、ST03=0；
After 60 mins kept in the status of 150℃,	SV04=150 、ST04=60；
Jump to operate the 10th program segment ,	ST05=-10；
Lower the temperature on the 10th program segment,	SV10=25 、ST10=0；
Stop on the 11th segment ,and exit the program segment then carry on the former programmed value (SV10=25) to control the temperature	ST11=-51；

8. Menu

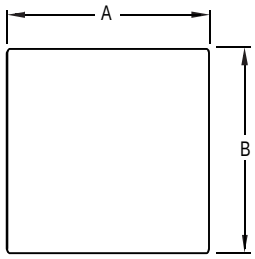
Parameter	Indication	Setting range	Ex-factory setting
Setting Menu			
AL1	Alarm 1 setting value	FL～FH	200
AL2	Alarm 2 setting value	FL～FH	600
AL3	Alarm 3 setting value	FL～FH	1000
PS	Measuring value correction	-100～100	0
A_M	Manual/Auto setting . 0: Manual; 1: semi-auto (enter to AT by manual setting); 2: Auto (autoly enter into AT when power on)	0～2	1
LCK	When 0001, forbid to modify SV; When 0010, forbid to modify Menu parameter; When 0011, forbid to modify SV and Menu.	0～9999	0
Output Function Setting Menu			
Ot	Control mode: 0: ON/OFF control; 1: Heating control; 2:Cooling control; 3: Heating&Cooling control	0～3	1
P	PID Menu: coeffcient of proportionality	0～9999	10
I	PID Menu: integration time	0～3600	240
d	PID Menu: derivative time	0～3600	60
HY	ON/OFF control hystersis (effective when in ON/OFF control mode)	0～1000	2
Ct	OUT1 control period: current output is set as 0; SSR output is set as 1; The range of Relay output is set ≥4	0～250	20
C_P	Cooling proportionality coefficient	1～200	100
C_Ct	OUT2 Controlling cycle (the settable range is ≥4)	1～250	20
db	Heating & cooling control dead band	-100～100	5
HY1	Alarm1 hystersis	0～1000	1
Ad1	Alarm1 (refer to introduction of alarm function)	0～3	0
HY2	Alarm2 hystersis	0～1000	1
Ad2	Alarm2 (refer to introduction of alarm function)	0～3	1
HY3	Alarm3 hystersis	0～1000	1
Ad3	Alarm3 (refer to introduction of alarm function)	0～3	0
OLL	Control output low limit	0～99	0
OLH	Control output high limit	1～100	100
Input Fucntion Setting Menu			
InP	Type of Input Signal	Refer to Input Parameter Table	K
FL	The signal indicates the setting of low limit	Refer to Input Parameter Table	-50
FH	The signal indicates the setting of high limit	Refer to Input Parameter Table	1300
dP	Decimal point setting: the setting is effective when it's not TC& RTD signal input	0～3	0
Ft	Filter constant: when the parameter is big, the response is slow, and vice versa .	1～250	60
C-F	0:℃ 1:℉	0/1	0
brL	Low limit value of analog (to be effective when the ordered code with communication)	FL～FH	-50
brH	High limit value of analog (to be effective when ordered code with communication)	FL～FH	1300
Communication Setting Menu			
bAd	Communication baud rate	4.8K, 9.6K	9.6K
Add	Address of the Meter	0～250	1

Alarm Function Table

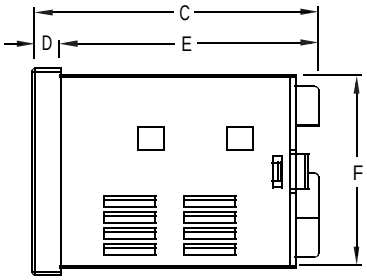
Alarm Code	Alarm Mode	Alarm output (AL1,AL2 are separated)	Formula
0	High limit absolute value alarm		Alarm：PV＞AL Cancel：PV≤AL-HY
1	Low limit absolute value alarm		Alarm：PV＜AL Cancel：PV≥AL+HY
2	High limit bias value alarm		Alarm：PV＞AL+SV Cancel：PV≤SV+AL-HY
3	Low limit bias value alarm		Alarm：PV＜SV-AL Cancel：PV≥SV-AL+HY

9. Panel dimension and mounting size (unit:mm)

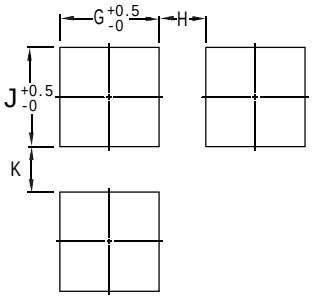
Panel size



Side face size



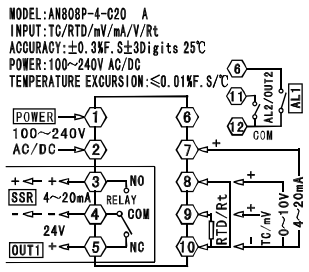
Mounting size



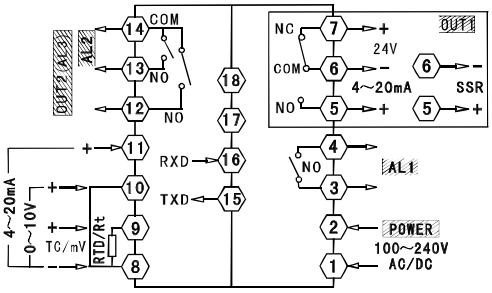
Size code	A	B	C	D	E	F	G	H(Min)	J	K(Min)
4:(48*48)	48	48	101	10	91	45	45.5	25	45.5	25
6:(96*48)	48	96	100	6	94	91	45.5	25	91.5	25
7:(72*72)	72	72	100	10	90	67.5	68	25	68	25
8:(48*96)	96	48	100	6	94	45	91.5	25	45.5	25
9:(96*96)	96	96	101	10	91	90.5	91	25	91	25
80:(80*160)	160	80	102	10	92	76	154	30	76.5	30
16:(160*80)	80	160	102	10	92	153.5	76.5	30	154	30
Remark	Unit: (mm) Tolerance +0.5%(except indicating specially)									

10. Connecting Drawing

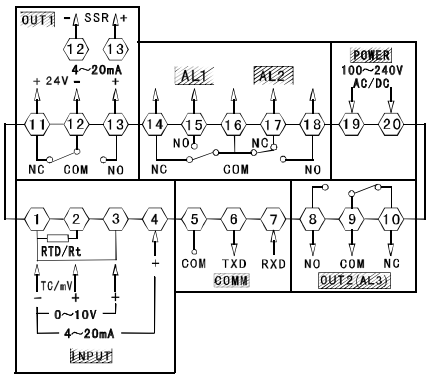
AN808P Series



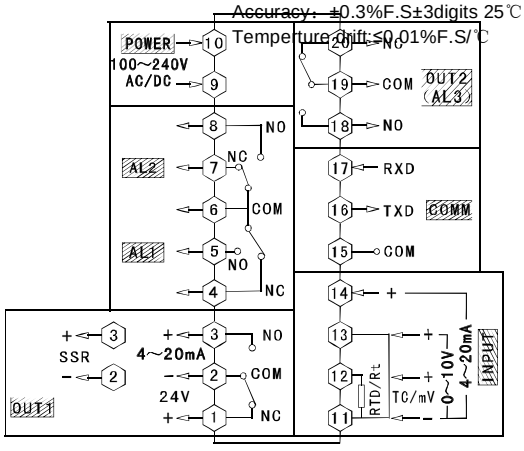
Model：AN808P-7
Accuracny：±0.3%F.S±3digits 25℃
Temperature drift:≤0.01%F.S/℃



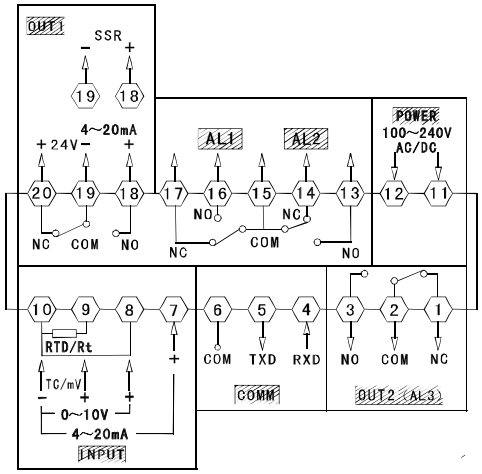
Model：AN808P-6/8
Accuracy：±0.3%F.S±3digits 25℃
Temperature drift:≤0.01%F.S/℃



Model：AN808P-9
Accuracy：±0.3%F.S±3digits 25℃
Temperture drift:≤0.01%F.S/℃



Model：AN808P-16/80
Accuracy：±0.3%F.S±3digits 25℃
Temperature drift:≤0.01%F.S/℃



Note:Please subject to the connecting drawing on the actual product if any changes.

11．Simple problems shooting

Display Message	Reasons and Solution
Display HHHH	Input wire is disconnected or over the high limit. Check input signal, FH and ambient temperature
Display LLLL	Input wire is disconnected or over the low limit .Check input signal, FL and ambient temperature

12．Communication Protocol

AN808P series apply to Modbus RTU communication protocol, in process of RS485 half duplex communication,read function code 0x03,write function code 0 x10, adopt 16 bits of CRC correction.

Data frame format：

Start bit	Data bit	Stop bit	Correct bit
1	8	2	None

12.1. Read register

For example, the master unit reads float data AL1 (the value is 15.4)

The address code of AL1 is 0x0002, because AL1 is float data(4 byte), it covers 2 data registers according to IEEE-754 standard, the hexadecimal memory code of decimalist float data 15.4 is 0x41766666.

Master unit request(read multi-register)							
1	2	3	4	5	6	7	8
Meter address	Function code	High bit of start address	Low bit of start address	High bit of data byte length	Low bit of data byte length	Low bit of CRC code	High bit of CRC code
0x01	0x03	0x00	0x02	0x00	0x04	0xE5	0xC9

Slave unit normal answer (read multi-register)								
1	2	3	4	5	6	7	8	9
Meter address	Function code	Data byte length	High bit of data 1	Low bit of data 1	High bit of data 2	Low bit of data 2	Low bit of CRC code	High bit of CRC code
0x01	0x03	0x04	0x41	0x76	0x66	0x66	0xE2	0xF4

12.2. Write register

For Example：The master unit write floating data SV（setting value is 600)

Address code of SV is 0x0000，because SV is floating data (4 bytes), it covers 2 data registers .hexadecimal memory code of decimalist float data 600 is 0x44160000

Master request (Write multi-register)												
1	2	3	4	5	6	7	8	9	10	11	12	13
Meter address	Function code	High bit of start address	Low bit of start address	High bit of data byte length	Low bit of data byte length	Data byte length	High bit of data 1	Low bit of data 1	High bit of data 2	Low bit of data 2	Low bit of CRC code	High bit of CRC code
0x01	0x10	0x00	0x00	0x00	0x02	0x04	0x44	0x16	0x00	0x00	0xFD	0xFC

Slave machine normal answer (Write multi-register)							
1	2	3	4	5	6	7	8
Meter address	Function code	High 8 bits of start address	Low 8 bits of start address	High bit of data byte length	Low bit of data byte length	Low bit of CRC code	High bit of CRC code
0x01	0x10	0x00	0x00	0x00	0x02	0x41	0xC8

AN808 series meter address reflection table

NO.	Reflection address	Variable name	Byte No.	Read/Write allow	Remark
0	0x0000	Setting value SV	2	R/W	
2	0x0002	1st alarm value AL1	2	R/W	
4	0x0004	2nd alarm value AL2	2	R/W	
6	0x0006	3nd alarm value AL3	2	R/W	
8	0x0008	Measuring value deviation amend PS	2	R/W	
10	0x000A	Proportion coefficient P	2	R/W	
12	0x000C	Integral time I	2	R/W	
14	0x000E	Derivative time D	2	R/W	
16	0x0010	ON/OFF controlling hystersis HY	2	R/W	
18	0x0012	Heating/cooling control dead band	2	R/W	
20	0x0014	1st alarm hystersis HY1	2	R/W	
22	0x0016	2st alarm hystersis HY2	2	R/W	
24	0x0018	3rd alarm hystersis HY3	2	R/W	
26	0x001A	Control output low limit OLL	2	R/W	
28	0x001C	Control output high limit OLH	2	R/W	
30	0x001E	Display low limit FL	2	R/W	
32	0x0020	Display high limit FH	2	R/W	
34	0x0022	Low limit value of analog	2	R/W	
36	0x0024	High limit value of analog	2	R/W	
38	0x0026	Measuring value	2	R	
40	0x0028	Manual/auto switch(refer to"meter menu "illustration)	1	R	
42	0x002A	LCK password value	1	R	
44	0x002C	Control mode OT	1	R	
46	0x002E	Heating control cycle CT	1	R	
48	0x0030	Cooling proportion coefficient C_P	1	R	
50	0x0032	Cooling control cycle C_CT	1	R	
52	0x0034	1st alarm mode AD1	1	R	Note①
54	0x0036	2nd alarm mode AD2	1	R	Note①
56	0x0038	3rd alarm mode AD3	1	R	Note①
58	0x003A	Input signal selection INP	1	R	Note②
60	0x003C	Decimal point setting DP	1	R	
62	0x003E	Filter constant FT	1	R	
64	0x0040	Baud rate BAD	1	R	Note③
66	0x0042	Meter address ADD	1	R	
68	0x0044	Program step No.STEP	1	R	
70	0x0046	Step1 setting value SV1	2	R/W	
72	0x0048	Step1 status ST1	2	R/W	
74	0x004A	2nd setting value SV2	2	R/W	

No.	Address reflection	Variable name	Byte No.	Read/Write allow	Remark
76	0x004C	Step2 status setting value ST2	2	R/W	
78	0x004E	Step3 setting value SV3	2	R/W	
80	0x0050	Step3 status setting value ST3	2	R/W	
82	0x0052	Step4 setting value SV4	2	R/W	
84	0x0054	Step4 status setting value ST4	2	R/W	
86	0x0056	Step5 setting value SV5	2	R/W	
88	0x0058	Step5 status setting value ST5	2	R/W	
90	0x005A	Step6 setting value SV6	2	R/W	
92	0x005C	Step6 status setting value ST6	2	R/W	
94	0x005E	Step7 setting value SV7	2	R/W	
96	0x0060	Step7 status setting value ST7	2	R/W	
98	0x0062	Step8 setting value SV8	2	R/W	
100	0x0064	Step8 status setting value ST8	2	R/W	
102	0x0066	Step9 setting value SV9	2	R/W	
104	0x0068	Step9 status setting value ST9	2	R/W	
106	0x006A	Step10 setting value SV10	2	R/W	
108	0x006C	Step10 status setting value ST10	2	R/W	
110	0x006E	Step11 setting value SV11	2	R/W	
112	0x0070	Step11 status setting value ST11	2	R/W	
114	0x0072	Step12 setting value SV12	2	R/W	
116	0x0074	Step12 status setting value ST12	2	R/W	
118	0x0076	Step13 setting value SV13	2	R/W	
120	0x0078	Step13 status setting value ST13	2	R/W	
122	0x007A	Step14 setting value SV14	2	R/W	
124	0x007C	Step14 status setting value ST14	2	R/W	
126	0x007E	Step15 setting value SV15	2	R/W	
128	0x0080	Step15 status setting value ST15	2	R/W	
130	0x0082	Step16 setting value SV16	2	R/W	
132	0x0084	Step16 status setting value ST16	2	R/W	
134	0x0086	Step17 setting value SV17	2	R/W	
136	0x0088	Step17 status setting value ST17	2	R/W	
138	0x008A	Step18 setting value SV18	2	R/W	
140	0x008C	Step18 status setting value ST18	2	R/W	
142	0x008E	Step19 setting value SV19	2	R/W	
144	0x0090	Step19 status setting value ST19	2	R/W	
146	0x0092	Step20 setting value SV20	2	R/W	
148	0x0094	Step20 status setting value ST20	2	R/W	
150	0x0096	Step21 setting value SV21	2	R/W	
152	0x0098	Step21 status setting value ST21	2	R/W	
154	0x009A	Step22 setting value SV22	2	R/W	
156	0x009C	Step22 status setting value ST22	2	R/W	
158	0x009E	Step23 setting value SV23	2	R/W	
160	0x00A0	Step23 status setting value ST23	2	R/W	
162	0x00A2	Step24 setting value SV24	2	R/W	
164	0x00A4	Step24 status setting value ST24	2	R/W	
166	0x00A6	Step25 setting value SV25	2	R/W	
168	0x00A8	Step25 status setting value ST25	2	R/W	
170	0x00AA	Step26 setting value SV26	2	R/W	
172	0x00AC	Step26 status setting value ST26	2	R/W	

No.	Reflection address	Variable name	Byte No.	Read/Write allow	Remark
174	0x00AE	Step27 setting value SV27	2	R/W	
176	0x00B0	Step27 status setting value ST27	2	R/W	
178	0x00B2	Step28 setting value SV28	2	R/W	
180	0x00B4	Step28 status setting value ST28	2	R/W	
182	0x00B6	Step29 setting value SV29	2	R/W	
184	0x00B8	Step29 status setting value ST29	2	R/W	
186	0x00BA	Step30 setting value SV30	2	R/W	
188	0x00BC	Step30 status setting value ST30	2	R/W	
190	0x00BE	Step31 setting value SV31	2	R/W	
192	0x00C0	Step31 status setting value ST31	2	R/W	
194	0x00C2	Step32 setting value SV32	2	R/W	
196	0x00C4	Step32 status setting value ST32	2	R/W	
198	0x00C6	Step33 setting value SV33	2	R/W	
200	0x00C8	Step33 status setting value ST33	2	R/W	
202	0x00CA	Step34 setting value SV34	2	R/W	
204	0x00CC	Step34 status setting value ST34	2	R/W	
206	0x00CE	Step35 setting value SV35	2	R/W	
208	0x00D0	Step35 status setting value ST35	2	R/W	
210	0x00D2	Step36 setting value SV36	2	R/W	
212	0x00D4	Step36 status setting value ST36	2	R/W	
214	0x00D6	Step37 setting value SV37	2	R/W	
216	0x00D8	Step37 status setting value ST37	2	R/W	
218	0x00DA	Step38 setting value SV38	2	R/W	
220	0x00DC	Step38 status setting value ST38	2	R/W	
222	0x00DE	Step39 setting value SV39	2	R/W	
224	0x00E0	Step39 status setting value ST39	2	R/W	
226	0x00E2	Step40 setting value SV40	2	R/W	
228	0x00E4	Step40 status setting value ST40	2	R/W	
230	0x00E6	Step41 setting value SV41	2	R/W	
232	0x00E8	Step41 status setting value ST41	2	R/W	
234	0x00EA	Step42 setting value SV42	2	R/W	
236	0x00EC	Step42 status setting value ST42	2	R/W	
238	0x00EE	Step43 setting value SV43	2	R/W	
240	0x00F0	Step43 status setting value ST43	2	R/W	
242	0x00F2	Step44 setting value SV44	2	R/W	
244	0x00F4	Step44 status setting value ST44	2	R/W	
246	0x00F6	Step45 setting value SV45	2	R/W	
248	0x00F8	Step45 status setting value ST45	2	R/W	
250	0x00FA	Step46 setting value SV46	2	R/W	
252	0x00FC	Step46 status setting value ST46	2	R/W	
254	0x00FE	Step47 setting value SV47	2	R/W	
256	0x0100	Step47 status setting value ST47	2	R/W	
258	0x0102	Step48 setting value SV48	2	R/W	
260	0x0104	Step48 status setting value ST48	2	R/W	
262	0x0106	Step49 setting value SV49	2	R/W	
264	0x0108	Step49 status setting value ST49	2	R/W	
266	0x010A	Step50 setting value SV50	2	R/W	
268	0x010C	Step50 status setting value ST50	2	R/W	
270	0x010E	Program running status	1	R	Note④
272	0x0110	Output alarm status	1	R	Note⑤

R: Read only R/W:Read &.Write

Each parameter setting range please refer to “meter’s menu illustration”

Note①：Alarm mode

Alarm mode	High limit alarm	Low limit alarm	High deviation alarm	Low deviation alarm
Value	0	1	2	3

Note②：Input signal(Please refer to input parameter table)

Note③：Baud rate

Value	0	1
Baud rate	4.8	9.6

Note④:Running status

Running status	STOP	RUN	HOLD
Value	0	1	2

Note⑤：Output alarm status（corresponding bit : 1 is on，0 is off ）

Parameter bit	7	6	5	4	3	2	1	0
control status			AT	AL3	AL2	AL1	OUT2	OUT1

Program for 16 digit CRC code abtaining

```
unsigned int Get_CRC(uchar *pBuf, uchar num)
{
    unsigned i,j;
    unsigned int wCrc = 0xFFFF;
    for(i=0; i<num; i++)
    {
        wCrc ^= (unsigned int)(pBuf[i]);
        for(j=0; j<8; j++)
        {
            if(wCrc & 1){wCrc >>= 1; wCrc ^= 0xA001; }
            else
                wCrc >>= 1;
        }
    }
    return wCrc;
}
```