XMT9007-8

temperature & humidity control instrument

Operation Instruction

I . General introduction

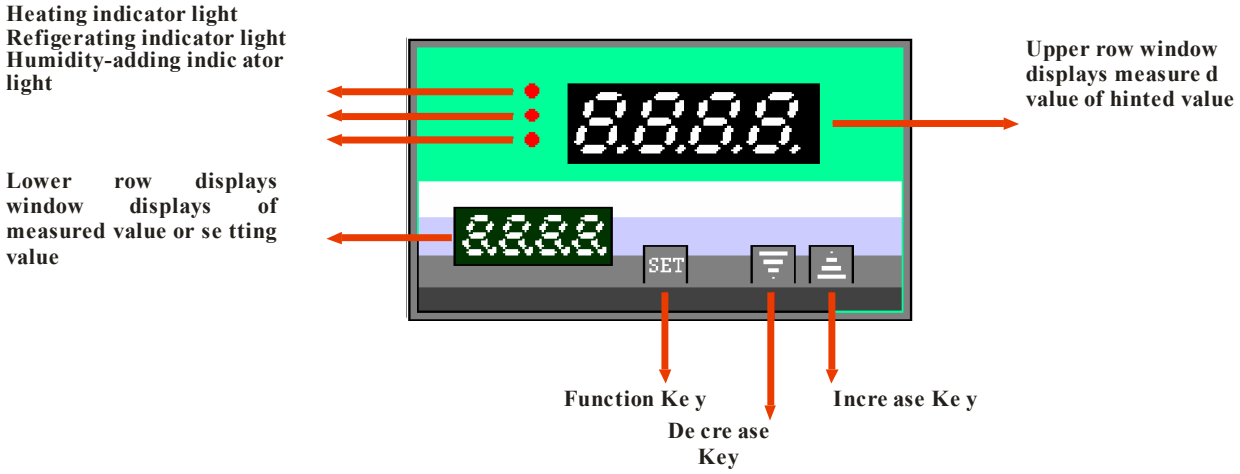
The XMT9007-8 temperature & humidity instrument is an intelligence instrument based on the computer technique. It adopts a 2-row digital 8 high-light 7 segment LED and synchronous display both the humidity and drying temperature measured. The control parameters can be set by panel and displayed in real-time. The user can choose below functions:

1. Sensor: PT100 sensor for temperature measurement, PT100 OR high molecular sensor for the humidity measurement.
2. Control mode: PID and on/off mode for heat and humidity control. On/off mode for cool control. On/off control is convenient for using; PID control can improve the meter control precision.
3. Serial communication: the computer can make a long-distance control to the meter by RS485 serial module. 4, Print function: the meter can regularly print annals and sample value of temperature and humidity by connecting mini printer.

II. Main Technical Specifications

1. Accuracy: Temperature measurement accuracy ±0.5%F.S ±1.0 character
   Humidity measurement accuracy ± 2.0%F.S ±1.0 character
2. Temperature measurement range:-50.0-150.^{0}C
3. 0utput relay: AC220V 5A
4. Power-off data-retention time: over 10 years
5. Work Power: AC85~242V 50/60Hz
   Power consumption less than 5W
6. Normal working ambience: Temperature: 0-50'C ,Relative humidity: 35%-85% without corrosive gas-free space
7. Power on, in case"-----", or "----", or "100% humidity" is always displayed in both the upper and lower row windows respectively. Please, check if the wire of the sensor is broken, or if a case of short circuit or other problem, such as wrong connection, etc.

III. The panel specification



IV. The instrument setting:

1. Normal display status

During the normal use, the upper window displays the currently humidity value, lower row window displays the currently dry temperature value.

When PT100 as humidity sensor, press ▲ the upper window display wet ball temperature

(PT100 temperature value), here, the lowest digit point flicker, press ▲ or without pressing any key will exits from system after 4s, return to humidity display status. (If use high molecule humidity sensor, press ▲, no exit function). When the print module is installed, press ▼, the lower display window shows current time, the second digit LED point flicks for 4s, then exit to normal display, press ▼ for 4s, printer begins.

2. Setting parameters

Powers on, press SET key for 1s, enter into parameter set menu, then press ▲ or ▼ to adjust corresponding parameter. Right press ▲ or ▼ can increase or decrease the parameter value quickly. After setting, press SET key to save the set and enter next parameter set.

Press SET and ▼ key synchronously can return to the previous parameter menu

Press SET and ▲ synchronously, can exit from parameter set status.

V. Parameter specification

No.	Symbol		Parameter definition	Specification		Range	Default
1		**LOCK** **LOCK** **LOCK**	Password Password Password	= 0	can adjust all valid parameters except "IN" parameter	0~200	0
				= 155	"IN" parameter can be set		
				= 166	when match with printer, you can set TIME parameter, and set its all parameters.		
				= 186	All parameter can be set		
2		**°C1**	Heating control set point	The parameter can be set after °C2 parameter has been set. And the parameter max value is always lower than the value of °C2		-50~150°C	50.0
3		**rH**	Humidity control set point			0~100%RH	50
4		**°C2**	Refrigeration control set point	The parameter min value is always higher than the value of('C 1+2)		-50~150°C	50.0
5*		**OP-A**	Control output mode	OP-A=Ax1+Bx2+Cx4+Dx8+Ex16 A: heating control mode A=0: PID control A=1: on-off control B : increase humidity control mode B=0: PID control B=1: on-off control C : refrigeration delay mode C=0: no delay C=1: with delay D : assistant model (printer or communication mode) D=0: communication mode D=1 : printer mode E : transfer output E=0: no transfer output E=1: with transfer output For example: heating control mode is PID control, humidity control is on-off control mode, refrigeration is with delay mode, with mini printer, no constant current output, then		0~23	By user set

No.	Symbol		Parameter definition	Specification	Range	Default
6*	Temperature transfer parameter	**AL**	Temperature transfer output low limit	Temperature transfer output low limit: For example: 4-20mA output, then AL=40	0~250	40
7*		**AH**	Temperature transfer output upper limit	Temperature transfer output upper limit : For example:4-20mA output ,then AH=200	0~250	200
8*	Communication transfer parameter	**bAUD**	Baud rate or humidity transfer output upper limit	When RS 485 communication interface model is installed: Baud rate can set by bAud parameter. The parameter range is 300-9600. When the meter is set as transfer output mode, bAud parameter is set as humidity transfer upper limit set For example: 4-20mA output, bAud=200		9600
9*		**Adt**	Printer interval time /communication address/ or humidity transfer output low limit	When RS 485 communication interface model is installed: Communication address can set by Adt parameter When the meter is set as transfer output mode, Adt parameter is set as humidity transfer low limit set. For example: 4-20mA output Adt=40 When printer output, Adt parameter as print interval time, the unit is minute.	0~100	1
10		**tb**	Refrigeration error	When the measure temperature higher than ^{0}C+tb, the refrigeration function enabled, till the measure temperature lower than ^{o}C2 end	0~20.0	5.00
11*	Heating PID parameter	**P1**	Heating proportion bandwidth time	Heating PID control need set P1	0~2000	80
12*		**I1**	Heating integral time	The parameter can improve the reminds error	0~3600	80
13*		**d1**	Heating differential time	The parameter setting can avoid output fluctuating, improve the stability	0~900	20
14*		**t1**	Heating period	The parameter set relay control period	0~100s	10
15*		**Hy1**	Heatin dead band	When measure temperature lower than (^{o}C1 – Hy1), heating is enabled, till the temperature higher than ^{o}C1 end.	0~100^{o}C	1.0

No.	Symbol		Parameter definition	Specification	Range	Default
16*	Humidity PID parameter	**P2**	Humidity proportion bandwidth time	Humidity PID control need set P2	0~2000	80
17*		**I2**	Humidity integral time	The parameter can improve the reminds error	0~3600	80
18*		**d2**	Humidity differential time	The parameter setting can avoid output fluctuating, improve the stability	0~900	20
19*		**t2**	Humidity period	The parameter set relay control period	0~100s	1.0
20*		**Hy2**	Humidity dead band	When measure humidity lower than (rH- Hy2) , the increase humidity function is enabled, till the measure humidity higherthan rH end.	0~100%RH	10
21		**IN**	Humidity sensor choice	IN=1: high molecule humidity sensor, measure accuracy: 0.1 IN=O: PT100 humidity sensor, measure accuracy: 1	0~1	1
22		**SC1**	Dry temperature sensor error revise	For dry temperature sensor input revise, compensate sensor signal error.	-20.0~20.0	0.0
23		**SC2**	Humidity sensor error revise	For humidity sensor input revise, compensate sensor signal error.	-20.0~20.0	0.0
24*		**yEAr**	Year	For example 2005, then set as 05	01 ~99	The current time
25*		**yuE**	Month	For example March, set as 3	1~12	
26*		**dAtE**	Day			
27*		**Hour**	Hour		0~23	
28*		**FEn**	Minute		0~59	
PS: For "*" items mean that special parameter based on corresponding function, not for all meters .For example: transfer parameter only for transfer output mode; PID parameter only for PID control output mode; Dead band parameter only for non-PID control mode; TIME parameter only for printer mode and refer to OP-A parameter.						

VI Control specification

1. Heating control:

(1) on-off control mode:

When the measure temperature is lower than (^{0}C1- Hyl), the relay closes, the heating function is enabled, when the measure temperature higher than ^{0}C1 value ,the heating function ends. The heating indicator dims.

(2) PID control mode:

The system runs as heating PID auto-tune mode.

2. Refrigeration control:

(1) on-off control mode:

When the measure temperature is higher than (^{0}C1+ tb), the relay closes, the refrigeration function is enabled, when the measure temperature lower than ^{0}C1 value ,the refrigeration function ends. The refrigeration indicator dims. If the delay function is chosen, the next refrigeration will delay 3 minutes to begin, in order to prevent the refrigeration startup continually, apply to compressor refrigeration.

(2) PID control mode:

No refrigeration PID controlling mode.

3. Increase humidity control:

(1) on-off control mode:

When the measure humidity is lower than (rH- Hy2), the relay closes, the humidity function is enabled, when the measure humidity higher than rH value, the increase humidity function ends. The humidity indicator dims.

(2) PID control mode:

The system runs as humidity PID auto-tune mode.

VII Model definition

XMT□ -9007-8□
1 2

1: the exterior size (mm):

None: 160x80x120m
m hole:
152x76mm

D: 72x72x110
mm hole:
68x68 mm

2: suffix

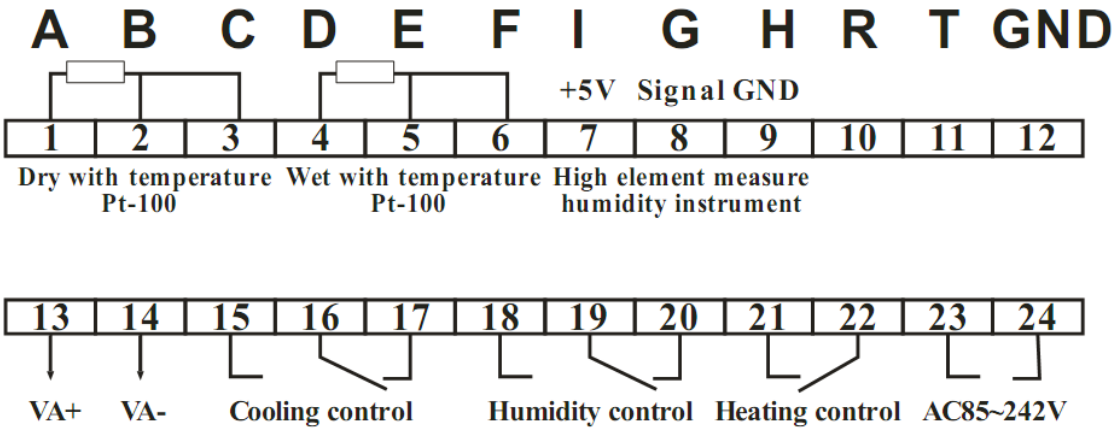
None: relay on-off output

WT: with mini printer output function

K: With RS485 PC communication function

C2: with electric current transfer output function

VIII Connection scheme(consult)



PS: the printer connect definition

Priner port	The meter port
21	R
19	T
10, 11, 12, 13, 14, 15, 16, 17, 18	GND
20, 22, 23, 24	GND
others	none

IX. Attentions

1. If meter number jump continually, please find out the abnormity in work power or other likely cause this.
2. If parameter cannot be altered, check if the "lock" is set to other value instead of “0”.
3. Please make sure that all wires have been connected accurately.
4. Once the sensor break down, all the operation will end.