Sinny®

S6

Digtal–display humiture controller

TH1 Series

Manual Instructions

Thanks for your choosing Sinny's products

Pls read the following safety considerations before use

▣ Safety Considerations

※Please observe all safety considerations for safe and proper product operations to avoid hazards.

※ Safety considerations are categorized as follows.

⚠Warning Failure to follow these instructions may result in serious injury or death.

⚠Caution Failure to follow these instructions may result in personal injury or product damage.

⚠Warning

1. **Fail–safe device must be installed when using the unit with machinery that may cause serious injury or substantial economic loss.(e.g.nuclear power control, medical equipment,ships,vehicles,railways, aircraft,combustion apparatus,safety equipment,crime/disaster prevention devices,etc.)**
   Failure to follow this instruction may result in personal injury,fire,or economic loss.
2. **The unit must be installed on a device panel before use.**
   Failure to follow this instruction may result in electric shock.
3. **Do not connect,repair,or inspect the unit while connected to a power source.**
   Failure to follow this instruction may result in electric shock.
4. **Check the terminal numbers before connecting the power source.**
   Failure to follow this instruction may result in fire.
5. **Do not disassemble or modify the unit,Please contact us if necessary.**
   Failure to follow this instruction may result in electric shock or fire.

⚠Caution

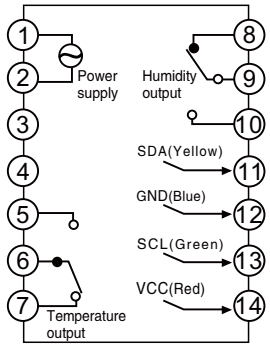
1. **Do not use the unit outdoors.**
   Failure to follow this instruction may result in shorten the life cycle of the unit,or electric shock.
2. **When connecting the power input and relay output cables,use AWG20(0.50mm^2)cables and make sure to tighten the terminal screw bolt above 0.74N.m to 0.90N.m.**
   Failure to follow this instruction may result in fire due to contact failure.
3. **Use the unit within the rated specifications.**
   Failure to follow this instruction may result in shorten the life cycle of the unit or fire.
4. **Do not use loads beyond the rated switching capacity of the relay contact.**
   Failure to follow this instruction may result in insulation failure,contact melt,contact failure,relay broken or fire.
5. **Do not use water or oil-based detergent when cleaning the unit.Use dry cloth to clean the unit.**
   Failure to follow this instruction may result in electric shock or fire.
6. **Do not use the unit where flammable or explosive gas,humidity,direct sunlight,radiant heat, vibration,or impact may be present.**
   Failure to follow this instruction may result in fire or explosion.
7. **Keep dust and wire residue from flowing into the unit.**
   Failure to follow this instruction may result in fire or product damage.
8. **Check the polarity of the measurement input contact before wiring the temperature sensor.**
   Failure to follow this instruction may result in fire or explosion.
9. **For installing the unit with reinforced insulation,use the power supply unit which basic level is ensured.**

▣ Model composition

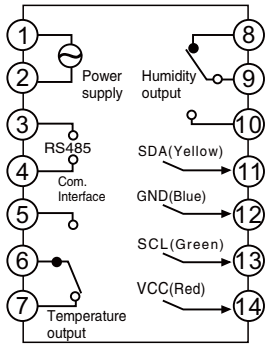
TH □ - □ - □ - □ - □ * □

Com. output	**Blank**	NO RS485 function
	C	RS485 Communication (Modbus RTU method)
Power supply	**2**	100–240VAC
Temperature output specification	**R**	Relay contact output
Humidity output specification	**R**	Relay contact output
Size	**M**	W72 x H72mm
	L	W96 x H96mm
Product type	**1**	Series code
Item	**TH**	Humiture controller

▣ Wiring diagram



TH1 basic series

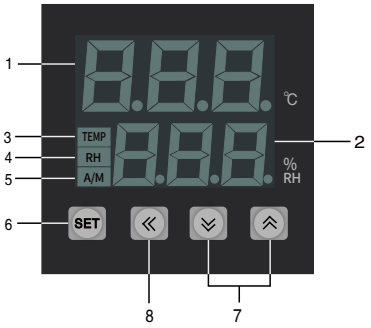


TH1 communication series

▣ Specifications

Power supply		100–240VAC
Allowable voltage range		90–110% of rated voltage
Power consumption		Max. 8VA
Perameter range	Temperature	–40~125℃
	Humidity	0~100%RH
Display accuracy		±1%
Output specification		Temperature ： Relay contact output 250VAC 5A 1NO1NC
		Humidity ： Relay contact output 250VAC 5A 1NO1NC
Control method		Warming
		Cooling
		Humidification
		Dehumidification
Communication interface		RS485 Communication (Modbus RTU method)
Sampling period		100ms
Relay life cycle		Mechanical above 2.5 million times, Electrical above 100000 times
Dielectric strength		2000VAC 50/60Hz for 1min. (between all terminals and case)
Vibration		0.75mm amplitude at frequency 5 to 55HZ(for 1min.) in each X,Y,Z direction for 2 hours
Insulation resistance		Min.100MΩ (500VDC) MEGA
Noise resistance		Square shaped noise by noise simulator(pulse width 1 μs) ±2kV R–phase,S–phase
Memory retention		Approx.10years(non–volatile semiconductor memory type)
Environment	Ambieht temp.	–5~40℃ storage:–10~50℃
	Ambient humi.	35%~85%RH storage:35~85%RH

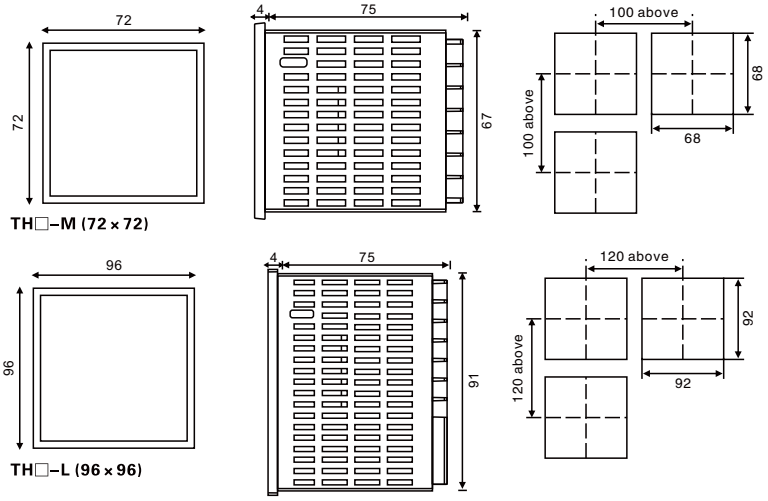
▣ Parts description



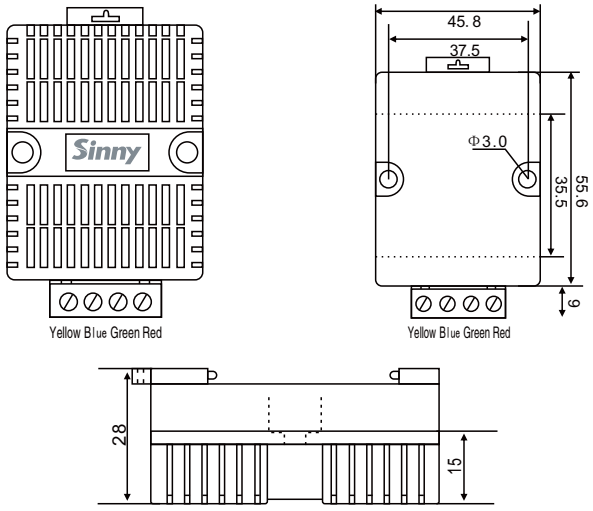
1. **Present temperature display**
   1) Run mode : Present temperature diaplay
   2) Setting mode : Parameter diaplay
2. **Present humidity display**
   1) Run mode: Present humidity display
   2) Setting mode : Setting value diaplay
3. **Temperature output (TEMP) indicator**
   when temperature output is ON, the light turns on.
4. **Humidity output (RH) indicator**
   when humidity output is ON, the light turns on.
5. **Automatic / Manual output mode (A / M) indicator**
   A / M light flashes during manual output exxcution
6. **SET key**
   Used when entering into parameter setting group. returning to RUN mode, turn the parameters down, and saving the set values.
7. **Adjustment** ⩓ ⩔
   Used for changing setting value, press it to enter manual mode.
8. **Adjustment** ⩤
   Used for moving digits, press it to exit manaul mode.

▣ Dimensions

Unit : mm

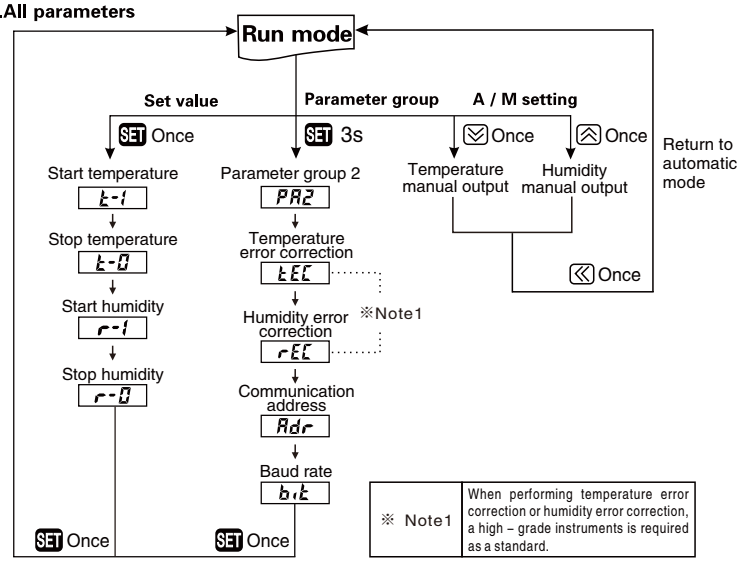


▣ Sensor outline



▣ Parameter Setting

1.All parameters



※ Note1	When performing temperature error correction or humidity error correction, a high – grade instruments is required as a standard.

※ If no key entered for 30 seconds, it returns to RUN mode automatially and the set value of parameter is not be saved. (Exception: not included A / M setting)

※ In each parameter group, press once to save the set value and go to the next parameter.

※ Press SET key 3 seconds in any setting group, it saves the set value and returns to RUN mode. (Exception: press ≪ key once in A / M setting)

2.Set value

Setting item	Parameter	Range	Factory default	Description
Start temperature	t-1	–40~125℃	5	Set start temperature
Stop temperature	t-0	–40~125℃	15	Set stop temperature
Start humidity	r-1	0~100%RH	90	Set start humidity
Stop humidity	r-0	0~100%RH	75	Set stop humidity

3.Parameter group

Setting item	Parameter	Range	Factory default	Description
Temperature error correction	tEC	–20~20℃	0	Error correction of display temperature
Humidity error correction	rEC	–20~20%RH	0	Error correction of display humidity
Communication address	Adr	001~247	001	User set address
Baud rate	b.t	240、480、960	960	Communication baud rate

▣ Function Description

1.Control method

Warming / Humidification

When the stop value > start value, it is the warming / humidification method.

For example : set start temperature【t-1】=20℃, stop temperature【t-0】=30℃,when the actual temperature is lower than 20℃, the temperature output TEMP indicator lights up and the output turns on. After warming up, when the actual temperature rises to 30℃, the temperature output TEMP indicator is off and tne output is off.

The same applies to the humidification mode setting.

Cooling / Dehumidification

When the stop value < start value, it is the cooling / dehumidification method.

For example : set start temperature【t-1】=30℃, stop temperature【t-0】=20 ℃,when the actual temperature is higher than 30℃, the temperature output TEMP indicator lights up and the output turns on. After cooling down, when the actual temperature drops to 20 ℃, the temperature output TEMP indicator is off and the output is off.

The same applies to the humidification mode setting.

2.Error correction

This function is used to correct the user's perceived temperature / humidity error in the humiture controller.

For example : if the current temperature of the humiture controller is 78℃, the user wants to display it at 80℃.

The temperature error correction【tEC】set to 002. The display temperature of the controller will be corrected to 80℃.

※ Temperature error correction【tEC】setting range : –20℃~20℃

※ Humidity error correction【rEC】setting range : –20%RH~20%RH

※ After the error correction, if the current temperature / humidity exceeds the sensor's range of use, " HHH " or " LLL " will be displayed.

3.Automatic / manual mode

In the running mode, press ≪ key, the temperature output is manually turned on, TEMP lights on.

In the running mode, press ≪ key, the humidity output is manually turned on, RH lights on.

In the manual mode, press ≪ key, the manual mode is turned off and returned to automatic mode.

※In the temperature / humidity manual mode, A/M lamp flashes, after exiting the manual mode, the lamp turns off.

▣ Error

Display	Description	Troubleshooting
HHH	Input broken or out of input range	Pls check if the input signal is wrong
LLL	Input broken or out of input range	Pls check if the input signal is wrong

▣ Caution

1.The connection wire of this unit should be separated from the power line and high voltage line in order to prevent from inductive noise.

2.Please install power switch or circuit–breaker in order to cut power supply off.

3.Keep away from the high frequency instruments.(High frequency welding machine & sewing machine, large capacity SCR controller)

4.This unit may be used in the following environments.

①It shall be used indoor ②Pollution degree 2 ③Altitude up to 2000m ④Installation category II

※ Failure to follow these instructions may result in product damage.