

HL8102 Series Digital Thermostat Manual

HL8102 series thermostats are used to control room temperature in industrial, commercial and residential environment via controlling electric modulating valve with 0-10VDC (4-20mA) control signal or floating control as well as damper actuator of VAV system.

Electronic control technology is adopted, with green backlit LCD display of: working mode (cooling “❄”, heating “☀”, ventilating “🌀”, auto “⬆”); fan speed (low “🌀”, med “🌀”, high “🌀”, auto “🌀”); room temperature; setting temperature etc. push button: On/Off “⏻”; mode changeover “Ⓜ”; fan speed choose “🌀” and temperature adjustment “⬆” and “⬆”.

Shell: PC + ABS retardant material.



Function :

- ☐ Detect and Display room temperature
- ☐ Room temperature setting
- ☐ Fahrenheit or Celsius degree display
- ☐ Timing sleep
- ☐ Control On/Off of cooling and heating equipment
- ☐ Selectable single speed or three speed fan control

Order Guide:

Model	Output signal		Fan (Single/3-speed)	RS485 Network	Input Control	Remote Sensor
	Floating	Modulation				
HL8102A	Cooling/Heating				√	√
HL8102AN	Cooling/Heating			√	√	√
HL8102B		Cooling/Heating			√	√
HL8102BN		Cooling/Heating		√	√	√
HL8102C	Cooling/Heating		√		√	√
HL8102CN	Cooling/Heating		√	√	√	√
HL8102D		Cooling/Heating	√		√	√
HL8102DN		Cooling/Heating	√	√	√	√
HL8102E	Cooling	Heating	√		√	√
HL8102EN	Cooling	Heating	√	√	√	√
HL8102F	Heating	Cooling	√		√	√
HL8102FN	Heating	Cooling	√	√	√	√
HL8102I	Cooling&Heating		√		√	√
HL8102IN	Cooling&Heating		√	√	√	√
HL8102K		Cooling&Heating	√		√	√
HL8102KN		Cooling&Heating	√	√	√	√

Fan: thermostat with fan functions, can be selected with single speed fan or three speed fan by setting parameter.

Remote Control: input signal can be selected by setting parameter.

Specification :

- ☐ Set temperature range: 0 - 99.5°C adjustable
- ☐ Accuracy displayed: 0.1°C
- ☐ Accuracy: ±0.5°C
- ☐ Rated Power: < 1 W
- ☐ Sensor type: NTC
- ☐ Display: LCD
- ☐ Power: AC 24V ± 10%, 50Hz/60Hz
- ☐ Output signal: AC 24V × 2 (0.5A resistive), 0 - 10VDC(5mA) / 4 - 20mA (600Ω)
- ☐ Input signal: dry contact (NO)
- ☐ Dimensions: 86 × 86 × 23mm (W × H × D)
- ☐ Fixing screw width : 60mm (Standard)

Operations:

- ☞ **On/Off:** Press “⏻” buttons to turn on; press “⏻” again to turn off.
 - ☞ **Setpoint:** With thermostat on, press “▼” to reduce the setpoint, press “▲” to increase the setpoint, the setpoint step is 0.5°C, the setpoint will be confirmed automatically after 5 seconds, and then return to display status, press “▲” or “▼” to check setpoint.
 - ☞ **Mode:** With thermostat on, press “M” to change the working mode – Cooling “❄️”, Heating “🔥”, Vent “🌀”, Auto “🏠” (Auto is available from HL8102E to HL8102K).
 - ☞ **Fan Speed:** With thermostat on, press “S” to select the desired speed – low speed “🌀”, Med speed “🌀”, High speed “🌀”, auto “🏠”. If single speed fan available, there's only med speed “🌀”.
- Under auto speed fan, the fan speed will be changed automatically as below: in low speed when room temperature is 1°C difference with setpoint; in med speed when room temperature is 2°C difference with setpoint; in High speed when room temperature is 3°C difference with setpoint.
- ☞ **Sleep:** Thermostat will get into sleep function after programming. The set Temperature should be.
 - To set:** Press “M” button for 3 seconds till “🕒” display, there's a number of count down in the center of LCD, Use “▲” or “▼” to adjust the desired sleep time: the max. = 48 hours; thermostat will return to the working status after 5 seconds, “🕒” is flashing to start counting down. The setpoint should be replaced by the sleep setpoint.
 - To quit:** When thermostat get into Sleep function, “🕒” will flash, press “▲” or “▼” to quit.
 - ☞ **Keypad lock:** press “▲” and “▼” for 10 seconds till “🔒” display to activate, under this function, any keypad is locked. Press “▲” and “▼” for 10 seconds till “🔒” disappear to quit the function.
 - ☞ **Set Parameters:** With thermostat off, press “M” for 10 seconds to enter menu to set the parameters.

Parameter table:

Parameter	Description	Default	Range	Step
1	Power on status (0: Off; 1: On; 2: Hold)	2	0 - 2	
2	Fan speed (0: Single Speed; 1: Three Speed)	1	0 - 1	
3	Fan mode (DA; DB)	0		
4	Sensor selection (0: Internal; 1: Remote)	1	0 - 1	
5	Temperature format (0: Celsius; 1: Fahrenheit)	0	0 - 1	0.1
6	Temperature calibration	0	-20.0 - + 20.0	0.1
7	Minimum setpoint	5°C/41°F	0 - 99.5	0.5
8	Maximum setpoint	35°C/96	0 - 99.5	0.5
9	Dead band (from HL8102E to HL8102K)	2	0 - 10	0.5
10	Heating & Auto sleep setpoint	7°C/45°F	0 - 99.5	0.5
11	Cooling sleep setpoint	28°C/82	0 - 99.5	0.5
12	Comms# (HL8102XN)	1	1 - 32	1
13	Input Signal Mode 0: Invalid 1: Changeover (from HL8102A to HL8102D) 2: thermostat will be sleep without input signal 3: thermostat will be Off without input signal	0	0 - 3	
14	Heating reset time	90 sec.	10 - 300 sec.	10 sec.
15	Cooling reset time	90 sec.	10 - 300 sec.	10 sec.
16	Ports mode (0: Modulation & Floating; 1: On/Off)	0	0 - 1	
17	Valve status as turn off (0: Close; 1: Hold; 2: Open)	0	0 - 2	
18	Port1 Modulation direction (0: 10V Open; 1: 10V Close)	0	0 - 1	

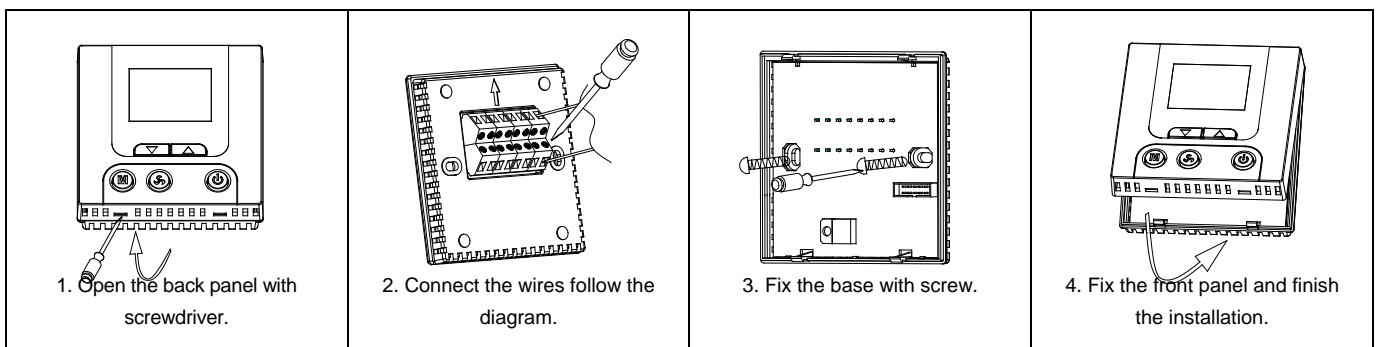
19	Port1 Modulation minimum signal	0Bit	0-128Bit(5V/10mA)	0.04V/Bit(0.08mA/Bit)
20	Port1 Modulation proportional	2	1 - 20	0.5
21	Port2 Modulation direction(0:10V Open;1:10V Close)	0	0 - 1	
22	Port2 Modulation minimum Signal	0 Bit	0-128Bit(5V/10mA)	0.04V/Bit(0.08mA/Bit)
23	Port2 Modulation proportional	2	1 - 20	0.5
24	Port1 Floating minimum time	1 sec.	1 - 9 sec.	1 sec.
25	Port1 Floating maximum time	30 sec.	10 - 300 sec.	10 sec.
26	Port1 Floating minimum time	1 sec.	1-9 sec.	1 sec.
27	Port1 Floating maximum time	30 sec.	10 - 300 sec.	10 sec.
28	Disable / Enable bypass PID control (0: Disable; 1: Enable)	0	0 - 1	
29	Override output value when bypass PID control Display output value when enable PID control		0 - 255	
30	Override output value when bypass PID control Display output value when enable PID control		0 - 255	
31	Input signal management: 0: Input valid 1: Override Input: open 2: Override Input: close	0	0 - 2	
32	Display room temperature or set-point 0: Room temperature 1: Set-Point	0	0 - 1	
33	Configuration external sensor 0: B = 3950; 1: B = 3450; 2: B = 3900 3: User define (via network. default B = 3950)	0	0 - 3	
34-38	N/A			
39	Start temperature of Low temperature protection	5°C/42°F	0-15°C/42-62°F	1°C/2°F
40	Stop temperature of Low temperature protection	7°C/46°F	2-17°C/46-66°F	1°C/2°F

It will confirm itself 20 seconds later after setting and return to Off state.

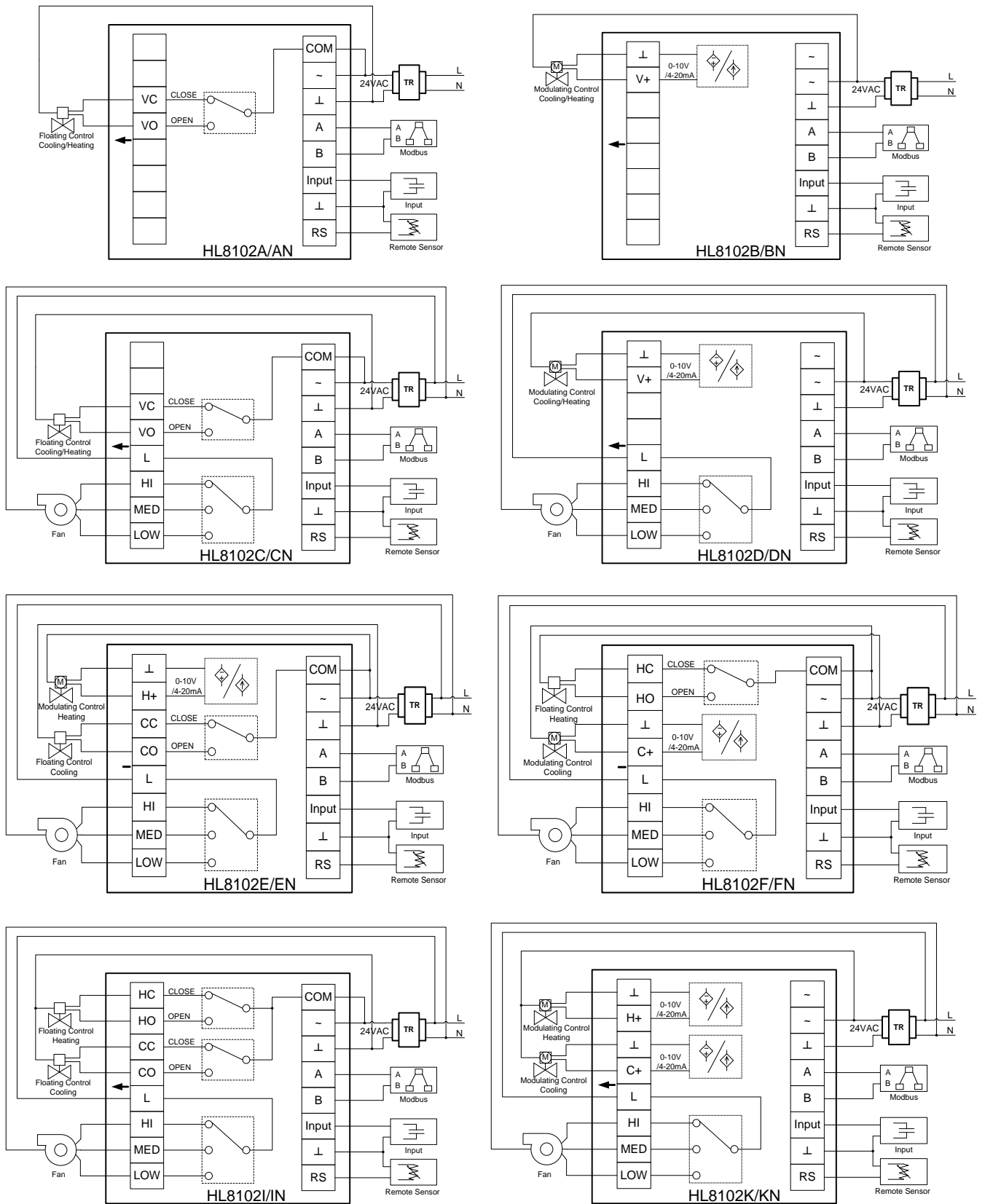
Switch: There is a 5 poles switch on PCB. The meaning is below:

Location	ON	OFF
1	120 ohm Resistance between AB wires	No Resistance between AB wires
2	Port 1 Modulation 0 - 20mA	Off
3	Port 1 Modulation 0 - 10VDC	Off
4	Port 2 Modulation 0 - 20mA	Off
5	Port 3 Modulation 0 - 10VDC	Off

Mounting:



Wiring diagram:



Note: Be sure to connect all the wires as per the wiring diagrams and keep it away from water, mud and other material so as to prevent the unit being spoiled!