SHS 8300-SH01 Series

Networked Digital Fan-Coil Thermostats
Auto Fan for 2-Pipe & 4-Pipe Controls

SPECIFICATION

The SHS 8300-SH01 Series thermostat is a Modbus/RTU protocol networked, microprocessor based thermostat with 10 icons and 4-digital LCD display. The thermostats are designed to control the fans, valves, compressors or electric heaters in fan-coil unit and air-conditioner applications.

The fan operation could be as “AUTO” (automatic 3 speed changeover) or selectable H/ M/ L continuous fan speed.

The models are available for heating/ cooling control of 2-pipe or 4-pipe fan-coil units. The thermostats can receive an external energy saving input that overrides the heating/ cooling temperature setting for energy savings. And the thermostats can receive an external temperature sensor input for auto changeover the heating/ cooling control.

FEATURES

- RS485 Modbus/RTU protocol communication
- For 2-pipe or 4-pipe Fan-Coil Unit application.
- The fan speed can be operated in the mode of auto changeover or continuous.
- Room temperature digital display and user selected temperature setting on demand
- Proportional plus integral (PI) algorithm applied to on/off control
- Energy Saving Mode: External energy savings input (ESI) from hotel card key , occupancy sensors or lighting interlock signal
- Adjustable unoccupied set-point for heating and cooling mode control
- Remote sensor (RS) input interface for auto changeover the heating/ cooling control
- Timer off (0 to 24 hours) control output function
- Sleep mode control
- Non-volatile memory (EEPROM) retains user settings during power loss
- 10 icons, 4 digit and 1 decimal point LCD display
- °C or °F display
- Control “ON” display
- Control off output when system switch at “OFF” position
- Adjustable heating and cooling control mode
- Adjustable maximum and minimum setpoint limits
- Adjustable minimum off-time for short-cycle protection
- Mounted directly onto standard 2 x 4 inch vertical junction box or standard 65mm x 65mm junction box.
- Custom logos available

SPECIFICATIONS

Supply Voltage：

24, 120, 230 VAC (±10%), 50/60 Hz

Setpoint Range：

0 to 50 °C (32 to 122 °F), default 18 to 30 °C or 64 to 90 °F

Display Range：

0 to 50.0 °C (32.0 to122.0 °F)

Display：

10 icons, 4-digit and 1 decimal point LCD display

Display Resolution：0.1 °C (0.1 °F)

Setting Unit：0.5 °C (0.5 °F) / step

Indication Accuracy：± 0.5 °C (± 0.9 °F)

Setpoint Adjustment：

Up-and-down arrow keys or Mode Selection

Thermostat Output for Valve Control：

1 SPDT relay for 2-pipe valve control,
2 SPDT relays for 4-pipe valves control,
Electrical Rating：2A/250Vac, inductive load

Thermostat Output for Fan Control：

3 SPST relays for Fan control
Electrical Rating：2A/250Vac, inductive load

Minimum off Time：

The least time between two control ONs

Communication:

RS485 Modbus/ RTU protocol

Remote Sensor (RS) Input Interface for Sensing Water Temperature in Pipe to Auto Changeover Heating/cooling Control or for Remote temperature sensing：

For NTC Thermistor 3K ohm

Control Performance：

Proportional plus integral (PI) algorithm applied to on/off control

Minimum Operating Life：

Thermostat contacts: 100,000 cycles
Manual switches: 10,000 operations

Energy Savings Input (ESI)：

To save energy by entering into unoccupied mode when ESI is triggered by Normally open (N.O.) or normally close (N.C.) dry contact

Operating Rating：

0 ~ 50°C, 5 ~ 95% RH (non-condensing)

Dimensions：75×120×42 mm (W × H × D)

Mounting：

Wall Mounting, standard 65×65 mm junction box (hole pitch 60 mm) or standard 2×4 inch vertical junction box (hole pitch 83.5 mm)

Wiring：

16 screw-in terminals, each terminal is suitable for
14 to 22 AWG wires or 1.5 mm^2 wires

Timer：

Selectable 0~24 hours timer to turn off control outputs

Sleep：

Selectable to provide sleep mode control

Certification:

CE

PRODUCT ORDERING INFORMATION

MODEL	Product Description
SHS 83	SHS 8300-SH01 Series Networked Digital Fan-coil Thermostat

CODE	Cooling Outputs
0	None
2	1 On/ Off
X	Specified

CODE	Heating Outputs
0	None
2	1 On/ Off
X	Specified

CODE	Application
A	Cooling only
B	4-Pipe Heating or Cooling(Manual Selectable)
C	Heating and Cooling (Auto changeover by sensing room temperature)
D	Heating only
E	2-Pipe Heating or Cooling(Auto changeover by sensing water temperature in the pipe)
X	Specified

CODE	FAN Control
0	None
1	Reserved
4	3-Speed Automatic FAN Control

CODE	Thermostat, Valve, FAN (Power)
0	24Vac, 24Vac, None
1	24Vac, 24Vac, 110Vac
2	24Vac, 24Vac, 230Vac
3	24Vac, 24Vac, 24Vac
4	110Vac, 110Vac, None
5	110Vac, 110Vac, 110Vac
6	110Vac, 110Vac, 230Vac
7	110Vac, 110Vac, 24Vac
8	230Vac, 230Vac, None
9	230Vac, 230Vac, 110Vac
A	230Vac, 230Vac, 230Vac
B	230Vac, 230Vac, 24Vac
X	Specified

CODE	Color for Case
1	Ivory
2	Pure White

CODE	Color for LCD Backlit
0	None
2	White

SHS 83	2	2	E	4	A	2	0	-SH01

Example: SHS 8322E4A20-SH01, 1 Cooling, 1 Heating, Auto changeover by sensing water temperature, 3-speed automatic fan control, 230VAC Power for All, Pure white color for case, No backlit, No RC

WIRING EXAMPLE

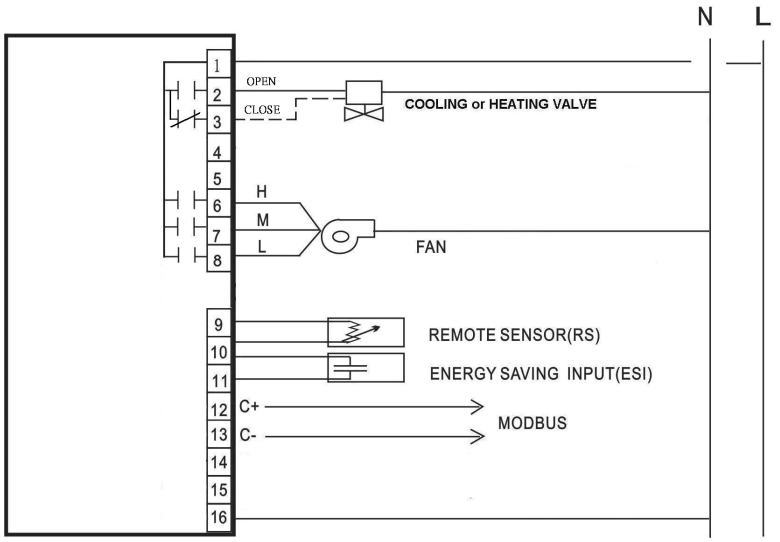


Fig.1-1 2 Pipe Control, 120/230Vac Thermostat

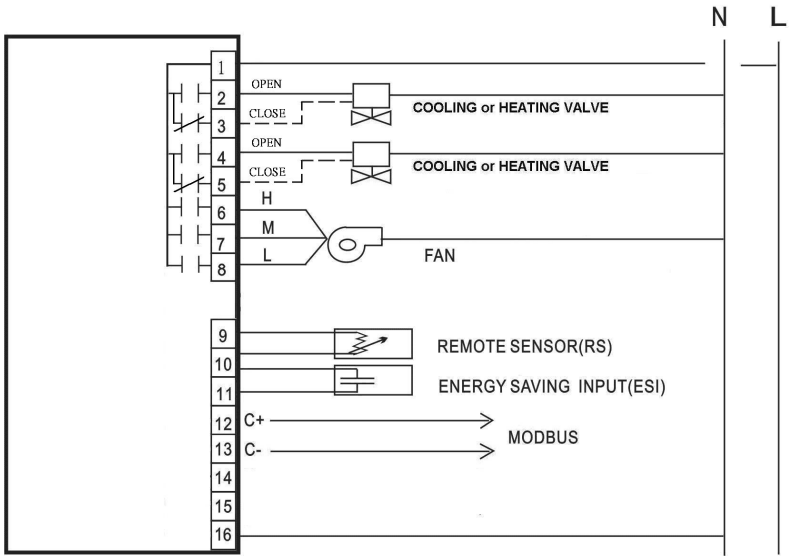


Fig.1-2 4 Pipe Control, 120/230Vac Thermostat

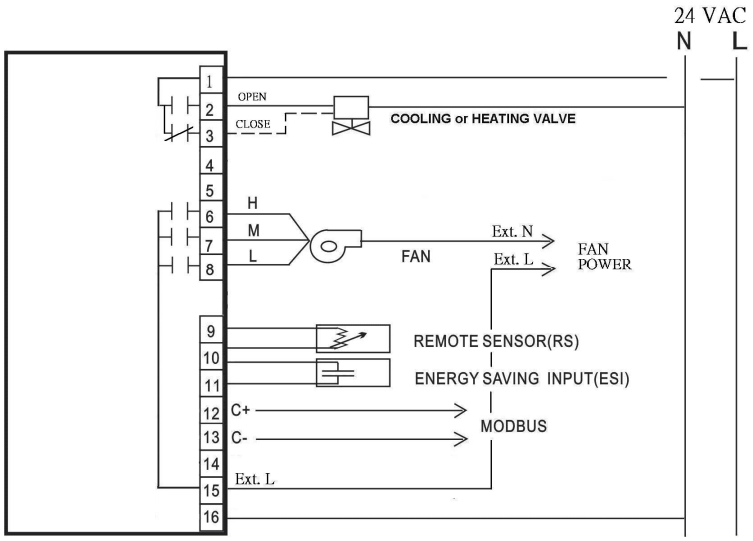


Fig.2-1 2 Pipe Control, 24Vac Thermostat

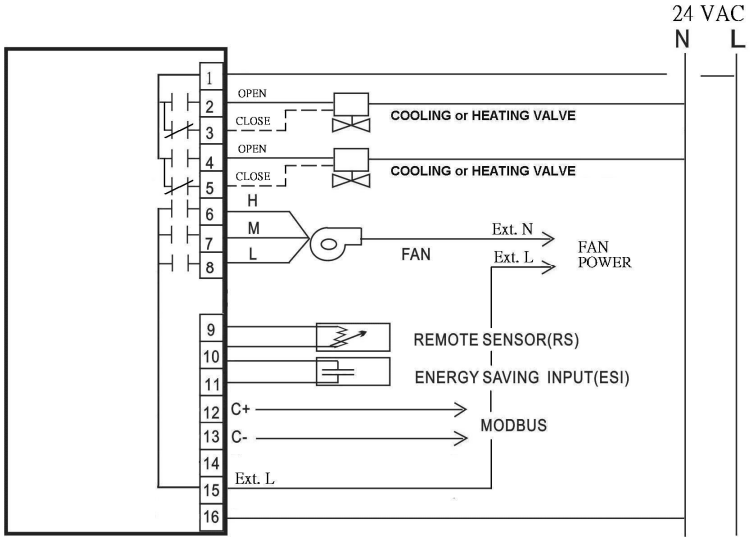
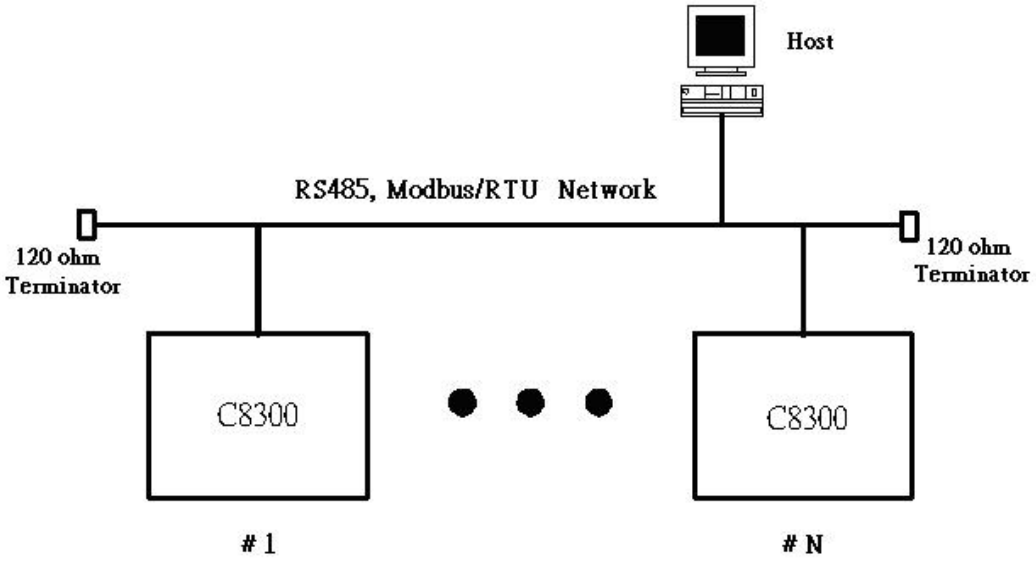


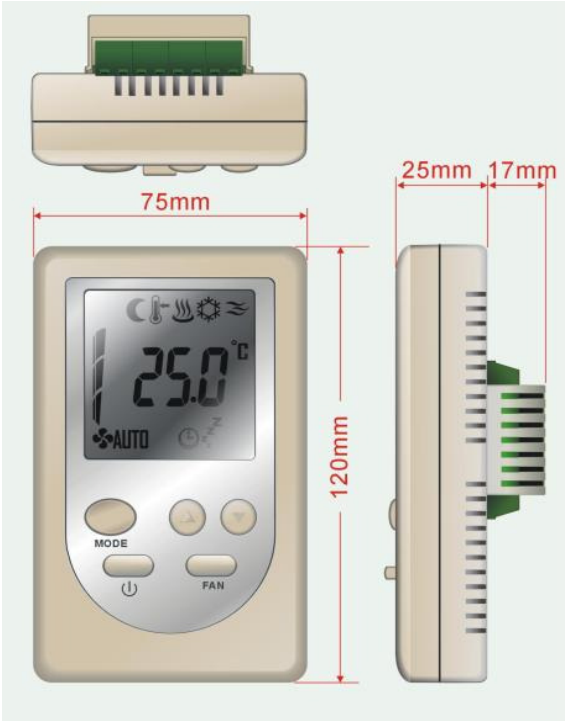
Fig.2-2 4 Pipe Control, 24Vac Thermostat

SYSTEM CONNECTION



P.S.: N<32

DIMENSION



Engineer mode menu item descriptions:

Item	Mnemonic	Description	℃ Type		℉ Type		Step
			Default	Range	Default	Range	
1	ESIC	Unoccupied(ESI) cooling set point	30.0	20.0~30.0	86.0	68.0~86.0	0.5
2	ESIH	Unoccupied(ESI) heating set point	10.0	10.0~22.0	50.0	50.0~72.0	0.5
3	LOC	0-Unlock 1-Lock Mode, Up, Down & Fan Buttons 2-Disable ESI 3-Both item 1&2 4-Lock Mode Button 5-Lock Fan Button 6-Lock Fan and Mode buttons	0	0-6	0	0-6	1
4	baud	Baud rate	9600	2400 bps 4800 bps 9600 bps 19200 bps	9600	2400 bps 4800 bps 9600 bps 19200 bps	
5	Prty	Parity/ Data/ Stop bits	8E1	8O1 8E1 8N1 8N2	8E1	8O1 8E1 8N1 8N2	
6	node	Modbus Node ID	1	1~125	1	1~125	1
7	CH-C	Not Used					
8	CH-H	Not Used					
9	db	Deadband	2.0	0~10.0	3.6	0~18.0	0.5
10	Pb	Proportional band or stage width	2.0	0~10.0	3.6	0~18.0	0.5
11	diFF	Stage differential	0.5	0.1~1.0	0.9	0.1~1.8	0.1
12	SP-L	Low limit for temperature set point	18.0	15.0~30.0	64.4	59.0~86.0	0.5
13	SP-H	High limit for temperature set point	27.0	15.0~30.0	80.6	59.0~86.0	0.5
14	tESt	Self-Diagnostic					
15	OFSt	Current temperature offset1	0.0	-9.0~9.0	0.0	-9.0~9.0	0.1
16	I-t	Integral Time and Output Cycle Time	90	10~500	90	10-500	10
17	Str	Not Used					
18	OP-L	Not Used					
19	SPAn	Not Used					
20	ESI	ESI contact definition	1	0~1	1	0~1	0: N.O. 1: N.C.
21	rS	1-Remote/ 0-Built-in Sensor	0	0~1	0	0~1	0: built-in 1: remote
22	LFAn	Lowest Fan Speed used for Fan Auto mode	0	0~1	0	0~1	0: stop 1: low speed
23	Fand	Heating OFF FAN Delay 120S Action	1	0-1	1	0-1	0: No Run On Timer 1:Run On Timer
24	PuLC	Normal Display	1	0-1	1	0-1	0: display PV 1: display SP
25	Ret1	Return to factory defaults					
26	End	Exit Engineer Mode					