ZN020MOD-W Controller & TA640MOD Thermostat

CAUTION:

1. Turn off all electrical devices (e.g. heater, cooler) that are connected to the unit before installation and maintenance.
2. The installer must be a trained service personnel
3. Disconnect the power supply before maintenance.
4. It must be mounted on a dry clean indoor place.
5. Do not expose this unit to moisture.
6. Do not expose this unit to dipping or splashing.

ZN020MOD-W & TA640MOD, placed next to the plenum, form a universal plug-n-play kit that connects the valves, manages 3-speed fans in multiple zones.

Feature List

- Controller: ZN020MOD-W
- Room thermostats: TA640MOD
- Voltage supply: 24V_{AC}
- Temperature display in °C or °F
- Temperature measurable range: 0 ~ 50 °C
- 2-pipe system
- Selection of Heat/Cool in Controller
- 1day program, 4 slots per zone.
- Adjustable control span locally, in Thermostats
- Adjustable fan-speed locally, in Thermostats
- EEPROM stores all settings

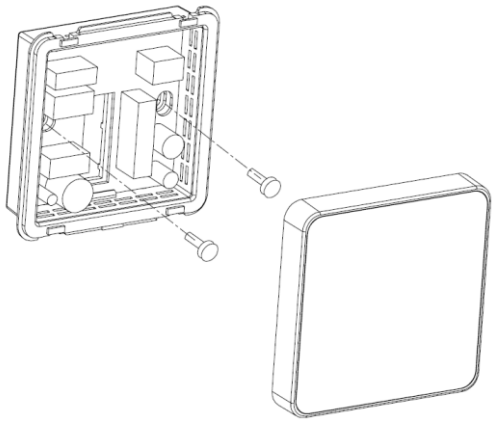
Terminals at TA640MOD

Symbols	Terminals
R	24Vac Live
C	24Vac Common
B_O	RS485 Modbus RTU
A_O	RS485 Modbus RTU
EXT	External Sensor
EXT	External Sensor
DI1	Digital Input (open/close detect)
DI2	Digital Input (open/close detect)

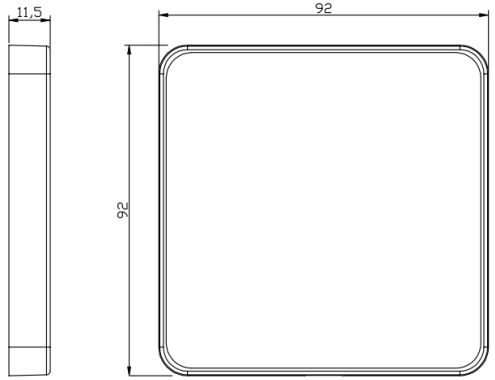
Pull all cables back into the wall beforehand to avoid trapping of wires. Do not use any metal conduits or cables provided with metal sheaths.
Recommend adding fuse or protective device in the live circuit.

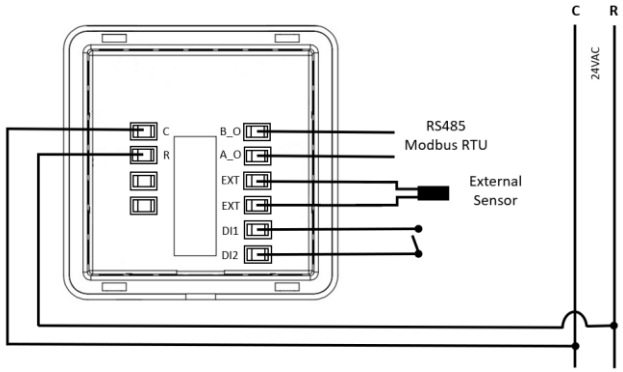
Mounting of TA640MOD

The top and bottom housings are packed separately.
1. Secure wires at the terminal blocks.
2. Mount the bottom housing to the wall by screws
3. Plug the harness connector onto both PCBAs
4. By using the top edge of the front housing as pivot, close the top and bottom housings carefully, do not pinch the wires.



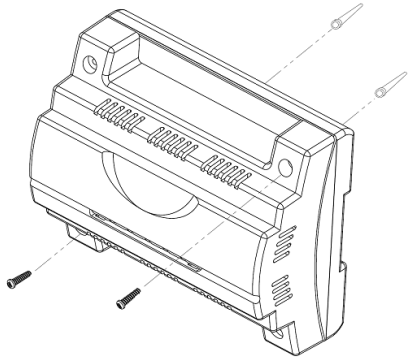
Dimensions of TA640MOD (mm)



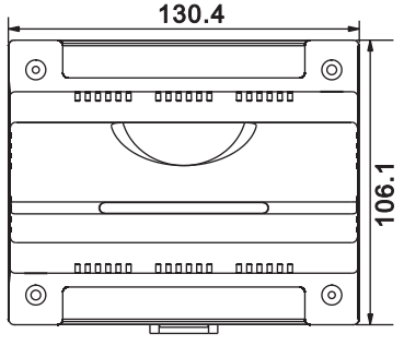


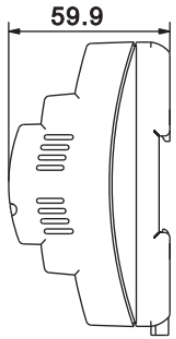
Mounting of ZN020MOD-W

Controller can be mounted on Din rail or on wall directly.
Drilling 2 holes on the wall and fix the wall anchor. Fasten the Zone output unit with 2 pcs screws at top housing.



Dimensions of ZN020MOD-W (mm)





Terminals at ZN020MOD-W

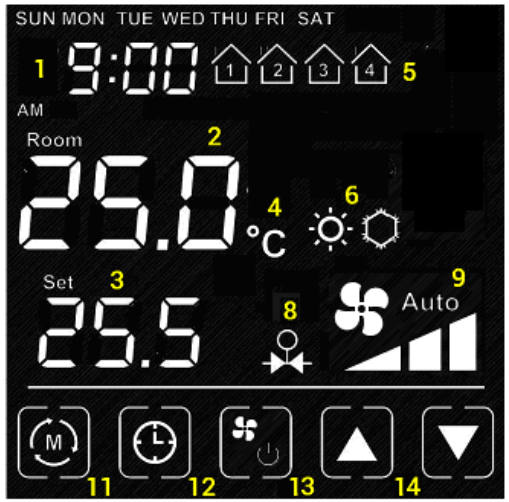
Wiring power and outputs according to the labeled terminals

Terminals	Definition
C	24V_{AC} common
R	24V_{AC} power
G43	Zone D: High Fan
G42	Zone D: Med Fan
G41	Zone D: Low Fan
V4	Zone D Valve
G33	Zone C: High Fan
G32	Zone C: Med Fan
G31	Zone C: Low Fan
V3	Zone C Valve
G23	Zone B: High Fan
G22	Zone B: Med Fan
G21	Zone B: Low Fan
V2	Zone B Valve
G13	Zone A: High Fan
G12	Zone A: Med Fan
V1	Zone A Valve
G11	Zone A: Low Fan
A	A/C
W	Heat
Y	Cool
O/B	Reversing value
COM	Common for RTU
D+	RS485 Modbus RTU
D-	RS485 Modbus RTU
Y	Compressor
DI1	reserved
DI2	reserved
DI3	reserved
DI4	reserved
DI5	reserved
DI Gnd	Digital Input Gnd

LEDs at ZN020MOD-W

LEDs	Definition
	Power
	Wi-Fi transmission
	Modbus transmission
	A/C status
	On when in heat/cool mode

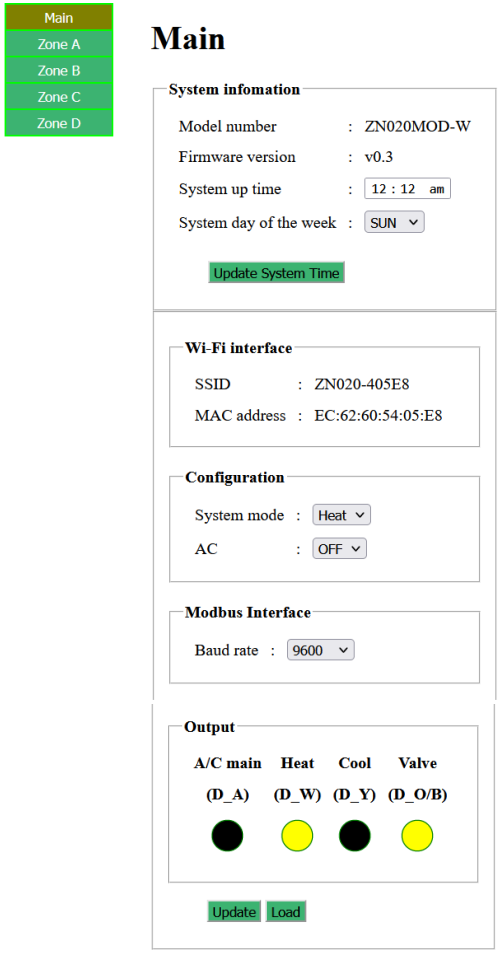
TA640MOD LCD Interface



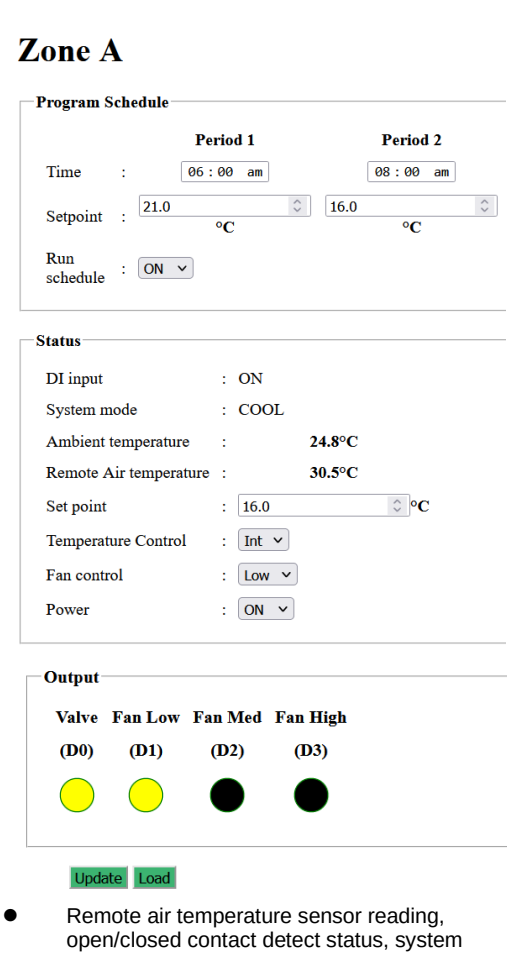
Item	Meaning
1	Time
2	Room Temperature
3	Set Point Temperature
4	Temperature Unit
5	Current scheduled program
6	Heat / Cool Mode
7	----
8	Valve status. #1 for Heat; #2 for Cool
9	Fan Low/Med/High/Auto
10	---
11	Press-n-hold to access internal setting
12	Press to set clock manually
13	Short Press: Fan L/M/H/Auto Press-n-Hold: ON/OFF
14	Adjust Set point or Value of setting.

ZN020MOD-W Web Portal Interface

- Go to Wi-Fi settings and find, ZN020-405E8
- Open a web browser: http://192.168.4.1



- System info is listed on the main page.
- Manually set up system clock by entering current time in the *System up time* slot and choose day in the *day of the week* drop-down menu below.
- Press **Update System Time**
- Select Heat / Cool mode and press **Update**
- Turn A/C on/off and press **Update**
- Select Baud rate in the drop-down menu and press **Update**
- At any time you may find out the status of the relay (output) to the valve by pressing **Load**



- Remote air temperature sensor reading, open/closed contact detect status, system mode status are listed for each of the 4 zones.
- Program schedule time slot and setpoint are displayed and adjustable for each zone
- Select OFF for *Run Schedule* before adjusting time slot and setpoint.
- Press **Update**
- At any time you may find out the status of the relay (output) to the valve and fan by pressing **Load**

Baud Rate & Address of TA640MOD

- The kit is preset to communicate at 9600
- Press-n-hold "Mode" key and "Power" key to access Advanced parameter menu to view the Baud rate and device address

Clock setting

Two ways to manually set clock:
on (i) ZN022MOD-W or (ii) TA640MOD –

(i) input time & day, press **Update System Time**

(ii) Press [CLOCK]
Press [▲] / [▼] to change day.
Press [CLOCK] again to confirm day.
Press [▲] / [▼] to change hour.
Press [CLOCK] again to confirm hour.
Press [▲] / [▼] to change minutes.
Press [CLOCK] again to confirm minutes.
Press [ ] to quit. Auto-return after no key is pressed for 20 seconds.

Schedule Programming

- System employs "1 day program" algorithm.
- Thermostat in each zone follows its own individual schedule every day.
- Adjust the start time and setpoint on the Web Portal

Override Temperature

At any time you may override the scheduled programmed setpoint by pressing [▲] / [▼].
When it is in program mode, The set point will be overridden until the next time slot. Press [Clock] to quit the override mode.

Internal Parameter Menu

- Press-n-hold on [Mode] key
- Press [Mode] to advance to the next item
- Press [▲] / [▼] to adjust the value
- Press [ ] to confirm and exit

Items	Value	Default Value
User Interface Screen Saver (P00)	0-3	2
Screen Saver Count down (P01)	0-120	20
Reserved (P02)	---	--
Reserved (P03)	---	--
Reserved (P04)	---	--
Temperature Offset (P05)	-5° C ~ 5° C	0° C
Switching Differential Heat (P05)	2 ~ 4°C	2° C
Switching Differential Cool (P06)	2 ~ 4°C	2° C

Advanced Parameter Menu

Items	Value	Default Value
Clear Parameter setting (P20)	Yes / No	No
Reserved (P21)	---	---
Room thermostat address (P22)	01 ~ 04	---
Baud Rate (bAr)	9600	9600

- Press-n-Hold on [Mode]+[Fan] keys
- Press [Mode] to advance to the next item
- Press [▲] / [▼] to adjust the value
- Press [ ] key to confirm and exit

Clear Parameter setting (P20):
When set to yes, all Internal parameter settings will be restored to default value in the next bootup i.e. a complete power-cycle is needed to activate the clearing.

LCD Screen Saver

The thermostat will go to screen saver mode after no key for certain period
Mode 0: Nothing will be displayed in screen saver mode.
Mode 1: Only room temperature will be displayed in screen saver mode.
Mode 2: Room temperature and Time will be displayed in screen saver mode.
Mode 3: Display all in screen saver mode.

1.

LCD Screen Saver Count Down

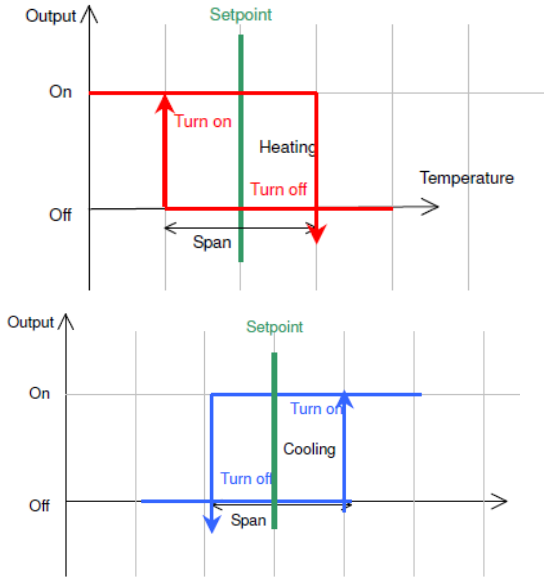
The count down time (in seconds) to screen saver mode.

Temperature offset

The temperature of internal sensor can be calibrated from **-5° C - +5° C** in case there is temperature difference between actual value and thermostat.

Switching Differential

The difference between **switching** the heating or controller on and off



Technical Data

Power supply:	230 ± 10% V_{AC}
Relay Contact Voltage:	230V_{AC} max 50/60 Hz
Relay Contact Current:	2(1)A max
Sensing Element:	103AT
Terminals:	2 sq. mm Cable
Operating Temperature:	32 – 122 °F / 0 – 50 °C
Storage Temperature:	23 – 122 °F / -5 – 50 °C
Operating Humidity:	5-95%RHnon-condensing