STH-M02ZB User's Manual (ZigBee HA Profile)

Ver. 1.03

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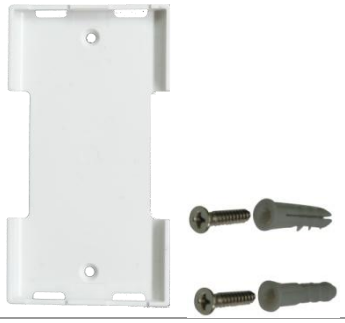
Content

Congratulations for choosing a world-class digital temperature and humidity sensor using ZigBee wireless transmission technology. This manual is designed to help set up and get the most from the sensor in a few short minutes.

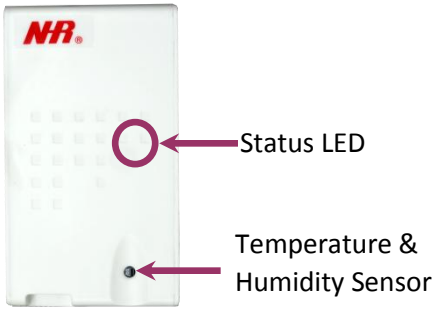
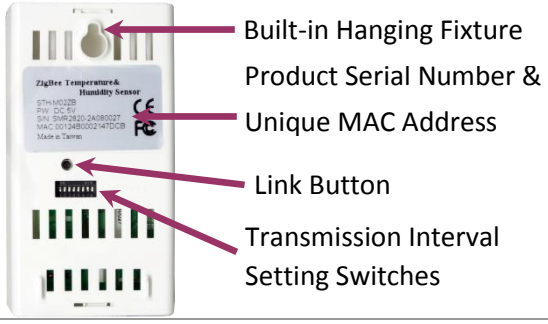
Safety notice: Please read and follow the instructions before using this product

- To prevent electrical shock or fire, do not disassemble or expose the unit to liquids of any kind
- Only use attachments and / or accessories specified by the manufacturer

1 Package Content and STH-M02ZB Views

NHR STH-M02ZB digital temperature and humidity sensor	Mounting fixtures (mounting cradle, 2 wall plugs, 2 screws)	DC 5V USB Adapter and Cable
		

If any of the above is missing please contact your supplier.

Front	Bottom
	
Side	**Back**
	

2 Installing Mounting for STH-M02ZB

Requirements:

- Mounting fixtures
- Drill with 5mm (0.2 inches) drill bit size (if using wall plugs) or 3.5mm (0.14 inches) drill bit size (if not using wall plugs)
- Size 1 Phillips screwdriver

a) Locate STH-M02ZB within 1.0m of AC mains socket and with at least 15cm (approx.. 6 inches) spacing on each side (except on mounting side) avoiding the following sources of interference: direct sunlight, air flow from vents, fans, doors, windows, heaters, sources of steam, oil vapor, etc.

For installation using the mounting cradle –

b) If necessary, pre-drill mounting holes (use mounting cradle for alignment) with the appropriate drill bit – 5mm (approx. 0.2 inches) if using wall plugs or 3.5mm (approx. 0.14 inches) if not using wall plugs.

c) If necessary, first insert wall plugs into the 2 holes, then use size 1 Phillips screwdriver to fasten the screws securing the mounting cradle. Note: pay careful attention to the orientation of the mounting cradle.

d) Install and remove STH-M02ZB using the following 2-step action to ensure the mounting cradle has been correctly and securely installed and STH-M02ZB can be installed and removed.

For installation using the built-in hanging fixture –

b) If necessary, pre-drill mounting hole with the appropriate drill bit – 5mm (approx. 0.2 inches) if using wall plugs or 3.5mm (approx. 0.14 inches) if not using wall plugs.

c) If necessary, first insert the wall plug, then use size 1 Phillips screwdriver to fasten the screw, leaving 2mm (0.08 inches) protruding for seating STH-M02ZB's built-in hanging fixture.

d) Hang and remove STH-M02ZB on the protruding screw to ensure it can be installed and removed.

Initial hardware installation for STH-M02ZB has been successfully completed.

3 Powering On STH-M02ZB

Requirements:

- DC 5V USB adapter and cable

a) Connect USB cable's Standard-A plug to DC 5V USB adapter and plug into live AC Mains socket.

b) Connect USB cable's Micro-B plug to STH-M02ZB.

c) The status LED on STH-M02ZB should start flashing to indicate its current state:

Blue LED	Status
1 flash every 5 seconds	Ready to join a parent device
1 flash every 2 seconds	Already joined a parent device and functioning normally
2 flashes every 5 seconds	Already joined but unable find a parent device in the same network

STH-M02ZB has been successfully powered on.

Recommendation: It is strongly recommended to power on STH-M02ZB **just before** joining to parent device or when required as this will reduce power wastage and RF traffic.

4 Joining STH-M02ZB to the Network

Requirements:

- Parent device, such as coordinator (eg. WZB-01USBC, WZB-02485C), gateway (eg. G07-W, WZB-05ET), or router (eg. WZB-01USBR, WZB-02485R)
- Sharp pointed tool

a) Ensure parent device is powered on (see relevant device's manual).

b) Power on STH-M02ZB ensuring it is in ***ready to join*** status (blue LED flash once every 5 seconds).

c) Enable ***permit join*** status on parent device (see relevant device's manual) and check STH-M02ZB joined the parent device.

d) If STH-M02ZB has successfully joined the parent device, the blue LED should flash 3 times, then once every 2 seconds.

If STH-M02ZB's blue LED does not flash once every 2 seconds, then it has not successfully joined. Repeat above steps until STH-M02ZB has joined successfully. If STH-M02ZB has still not joined after a few attempts, check it is within the operational range of 100m (line of sight) from the parent device and away from other 2.4GHz devices that might interfere with its operations.

If STH-M02ZB has joined successfully, but the blue LED flashes twice every 5 seconds (***disconnected***), then check parent device is correctly powered on. If the parent device is functioning correctly, STH-M02ZB may be out of range or experiencing interference, additional router(s) may need to be added to ensure good connections.

5 Enabling STH-M02ZB to Permit Join Other Devices to its Network

Requirements:

- Child device, such as router (eg. STH-M02ZB, WZB-01USBR, WZB-02485R), or end device (eg. STH-01 series, STH-M02ZB, STH-03ZB, S05 series)
- Sharp pointed tool

a) Ensure STH-M02ZB is powered on (see "**Powering On STH-M02ZB**") and has already joined the parent's network (blue LED flash twice every 5 seconds).

b) Ensure child device(s) to be joined to STH-M02ZB's network is in ***ready to join*** status (see relevant device's manual).

c) Use a sharp pointed tool to apply 1 quick press to the link switch on STH-M02ZB, the blue LED will flash twice every 3 seconds for up to 60 seconds to ***permit join*** other devices to its network.

d) If a child device has successfully joined STH-M02ZB's network, the red LED should flash twice.

6 Removing STH-M02ZB from the Parent's Network

Requirements:

- Sharp pointed tool

a) Ensure parent device is powered on (see relevant device's manual).

b) Ensure STH-M02ZB is powered on (see "**Powering On STH-M02ZB**") and has already joined the parent's network (blue LED flash twice every 5 seconds).

c) Use a sharp pointed tool to apply 3 quick presses to the link switch on STH-M02ZB, the red LED will flash rapidly for up to 30 seconds or until successful removal.

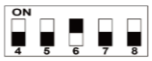
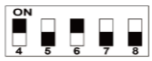
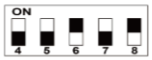
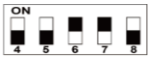
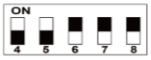
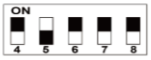
d) If STH-M02ZB has been successfully removed, the blue LED should flash once every 5seconds.

Recommendation: Before removing STH-M02ZB from the network, please ensure its router capability is no longer needed on the network by child device(s). Once STH-M02ZB has been removed from the network, it is suggested to remove power from the STH-M02ZB when not in use to reduce power wastage, RF traffic, and unintentional joining to original or new network.

7 Setting Transmission Interval for STH-M02ZB

a) If necessary, remove the STH-M02ZB from its mounting (see "**Installing Mounting for STH-M02ZB**").

b) Set the transmission interval using switches 4-8 based on the following DIP switch positions:

Transmit Interval	DIP Switch Setting	Transmit Interval	DIP Switch Setting
1 Second		1 Minute	
5 Seconds		5 Minutes	
10 Seconds		10 Minutes	
15 Seconds		15 Minutes	
20 Seconds		20 Minutes	
25 Seconds		25 Minutes	
30 Seconds		30 Minutes	
35 Seconds		35 Minutes	
40 Seconds		40 Minutes	
45 Seconds		45 Minutes	
50 Seconds		50 Minutes	
55 Seconds		55 Minutes	
60 Seconds		60 Minutes	
65 Seconds		65 Minutes	
70 Seconds		70 Minutes	
75 Seconds		75 Minutes	

c) Ensure STH-M02ZB is joined to a parent device (see "**Joining STH-M02ZB to the Network**").

d) Use software for reading information from coordinator or gateway device (see relevant device's manual) to confirm STH-M02ZB transmissions are being received at the correct interval.

e) If necessary, replace STH-M02ZB into its mounting (see "**Installing mounting for STH-M02ZB**").

Transmission interval setting has been successfully configured.

Note: Transmission interval is read at power on, a power cycle is required to effect interval change.

8 STH-M02ZB LED Status

The table below shows the LED status for STH-M02ZB:

LED Sequence	Status
Blue LED: 1 flash every 5 seconds	***Ready to join*** – ready to join network of parent device (coordinator, gateway, or router)
Blue LED: 3 flashes (one time)	***Successfully joined*** – joined network of parent device
Blue LED: 1 flash every 2 seconds	***Normal Operations*** – joined network of parent device and functioning normally
Blue LED: 2 flashes every 3 seconds	***Permit join*** – permit requests from other devices (routers / sensors) to join the network
Blue LED: 2 flashes every 5 seconds	***Disconnected*** – joined network, but unable to find any parent device of the network
Red LED: 2 flashes (one time)	***Device joined*** – device (router / sensor) joined to the network
Red LED: 3 flashes (one time)	***Device removed*** – device (router / sensor) successfully removed from the network
Red LED: rapid flashing up to 30 seconds	***Removing*** – being removed from the network of the parent device
Blue & Red LED: ON	***ZigBee Reset*** – reset to factory default, remove all ZigBee network linkages

9 ZigBee Reset

In the case where the parent devices (coordinator, gateway, or router) for STH-M02ZB are no longer available or have been reset, STH-M02ZB will need to be reset by applying a 5-second press to the link switch, the blue & red LEDs will both come on during the reset, then the blue LED should show ***ready to join*** status (flash once every 5 seconds).

Recommendation: Before removing power from STH-M02ZB, removing it from the network or resetting, please ensure its router capability is no longer needed on the network by child device(s). Once STH-M02ZB has been removed from the network or reset, it is suggested to remove power from the STH-M02ZB when not in use to reduce power wastage, RF traffic, and unintentional joining to original or new network.

10 Product Specifications

Measuring Element	Built-in combined temperature and humidity sensor	
Wireless Protocol	Compliant IEEE 802.15.4, ZigBee2007 / PRO HA Profile	
Operating Frequency	2.4GHz ISM band	
Transmission Range	100m (328ft) line of sight	
RF Output Power	1mW / 0dBm	
Power Supply	DC 5V USB Adapter	
Operating Environment	0 ~ +40°C, < 85% relative humidity	
Power Consumption	TX: 35mA	
Measurement Accuracy	Temperature: ±0.5°C, Humidity: ±5%	
Network Topology	Star / Tree / Mesh	
Transmit Interval	1 second to 75 minutes, based on DIP switch setting	
Enabling Devices	Coordinator	WZB-01USBC / WZB-02485C
	Gateway	G07-W / WZB-05ET
	Router	S05-R / WZB-01USBR / WZB-02485R
Dimensions	85(L) x 48(W) x 11(H) mm	
Weight	19.8g / 0.64oz. (Exclude Cable) ; 97.2g/ 3.42 oz. (Includes Cable)	
Supported Systems	Windows NT ~ Win 8	
Certifications	CE / FCC	