VT8000 Room Controllers

ZigBee Sensors Integration Guide
Pairing VT8000 Room Controllers with Zigbee Sensors

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Occupied

Indoor °C

23.5°   24.0

Humidity 45 %   Outdoor 18 °C

VICONICS
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Overview

This procedure shows how to pair a VT8000 Room Controller with one of the following Zigbee Sensors:

- Wall-mounted motion sensor (SED-WMS-P-5045)
- Motion/Temperature/Humidity sensor (SED-MTH-G-5045)
- Water leak sensor (SED-WLS-G-5045)
- Window/Door sensor (SED-WDC-G-5045)
- Temperature & humidity sensor (SED-TRH-G-5045)
- CO2, temperature & humidity sensor (SED-CO2-G-5045)

The Zigbee Sensors can be paired with a stand-alone Room Controller, or with a Room Controller joined to a BMS network. When pairing a Zigbee Sensor with a Room Controller on a BMS network, the Room Controller is set as a router and the BMS is set as a coordinator. Refer to the BMS documentation on how to set up the Zigbee network.

ZIGBEE NETWORK SECURITY LEVELS

Starting with VT8000 Room Controllers with firmware version 2.4, a new Security Levels parameter with Low and Normal values was added to the Zigbee network. Starting with firmware version 2.6, a third High value was added to the Security Levels parameter.

- **Low**: Disables new security features in Zigbee 3.0 to be fully backwards compatible with Zigbee Home Automation 1.2 devices, and therefore compatible with all of our sensors. The Low Security Level is not compatible with a Room Controller as part of a BMS Zigbee 3.0 network, and can only be used with a stand-alone Room Controller.
- **Normal**: Enables the typical new features of Zigbee 3.0. This means that legacy Zigbee Home Automation 1.x devices cannot join a Normal security network. The Normal Security Level is compatible with a BMS Zigbee 3.0 network and Zigbee SED wireless sensors. If the Normal Security Level is selected with old NYCE or Centralite sensors, they will be removed from the network.
- **High**: Same features as the Normal Security Level, but will also encrypt the initial network key transport from the network coordinator to the joining Room Controller. This will protect the joining process from eavesdropping attacks (also known as sniffing or snooping attacks). When the Security Level is set to High, a third Zigbee Network screen becomes available that contains the information required to join a high security Zigbee network.
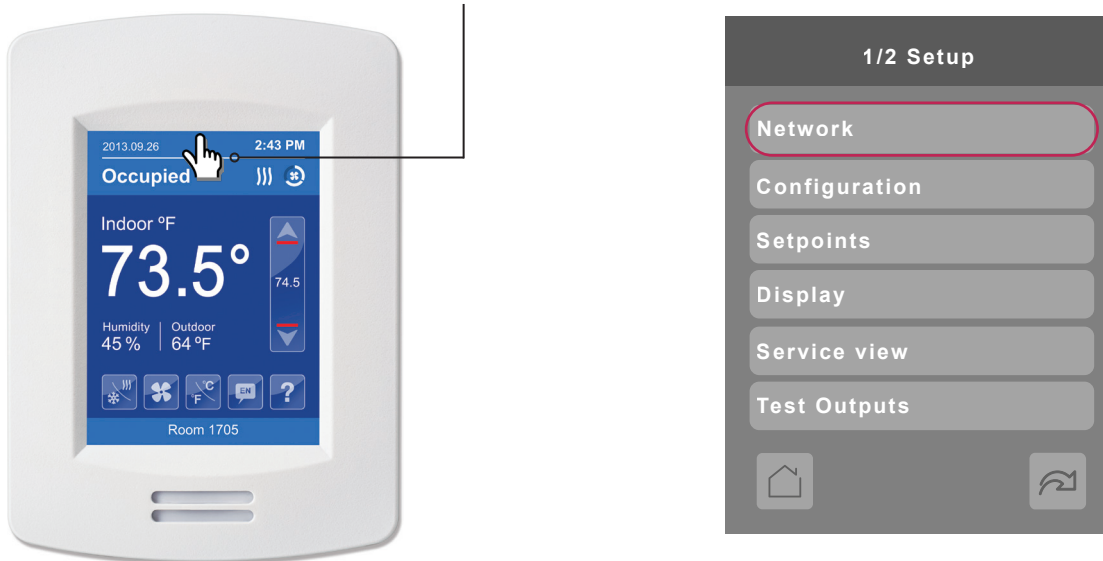

NOTICE

UPGRADE OF ZIGBEE FIRMWARE REVISION 24 TO 30

The upgrade from Zigbee firmware revision 24 to 30 will **not** support the Green Power Sensor (SED-CO2-G-5045 or SED-TRH-G-5045). It will therefore need to be recommissioned.
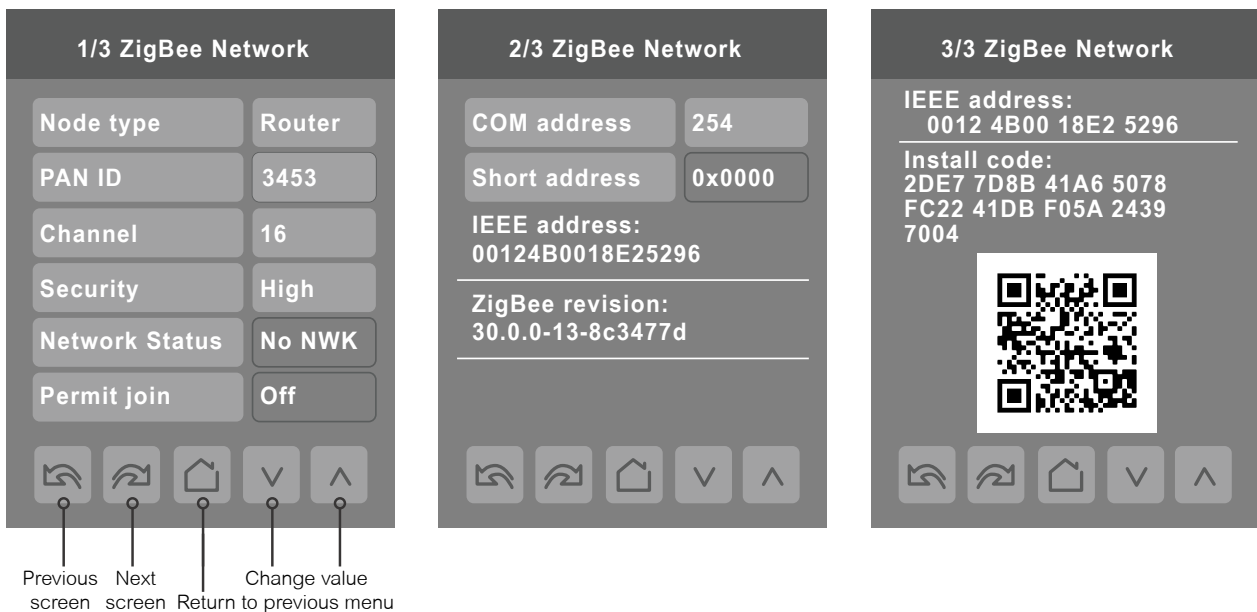
Failure to follow these instructions can result in equipment being disconnected from the network.

Room Controller Configuration

1. Touch and hold screen for 3 seconds to enter setup mode.

1/2 Setup

- Network
- Configuration
- Setpoints
- Display
- Service view
- Test Outputs

2. Select **Network** then select **Next screen** to access the Zigbee Network screens.

1/3 ZigBee Network	
Node type	Router
PAN ID	3453
Channel	16
Security	High
Network Status	No NWK
Permit join	Off

2/3 ZigBee Network

COM address	254
Short address	0x0000

IEEE address:
00124B0018E25296

ZigBee revision:
30.0.0-13-8c3477d

3/3 ZigBee Network

IEEE address:
  0012 4B00 18E2 5296

Install code:
2DE7 7D8B 41A6 5078
FC22 41DB F05A 2439
7004

Previous screen / Next screen / Return to previous menu / Change value

Note: To change the parameters, press the field name and use the up/down change value buttons.

3. To join a BMS Zigbee network, set the **Node type** to **Router**. For a stand-alone Room Controller, set the **Node type** to **Coordinator**.

4. Select the **COM address**. Make sure the COM address is unique to each device.

5. Select the **PAN ID**. Make sure it matches the PAN ID of the BMS Coordinator device.

6. Select the **Channel**. Make sure it matches the Channel of the BMS Coordinator device.

7. Select the **Security** level. For Zigbee 3.0 networks, the security is set to **Normal** or **High**.

   Note: The 3/3 Zigbee Network screen is displayed only when Security is set to High.

Pair Zigbee Sensor

SET PERMIT JOIN TO ON

For Room Controllers joined to a BMS Coordinator:

1. In BMS, set the **Permit join** to **On**.

2. The Room Controller Zigbee Network Permit join parameter will switch to On.

For stand-alone Room Controllers:

1. On the Room Controller Zigbee Network screen or the Ecosystem Settings screen, set the **Permit join** parameter to **On**.

The Zigbee sensors can now join the Zigbee Network.

PAIR ZIGBEE SENSOR WITH ROOM CONTROLLER

1. Navigate to the **Ecosystem Settings** screen and verify that the **Network status** is **Online** and that the **Permit join** is **On**.
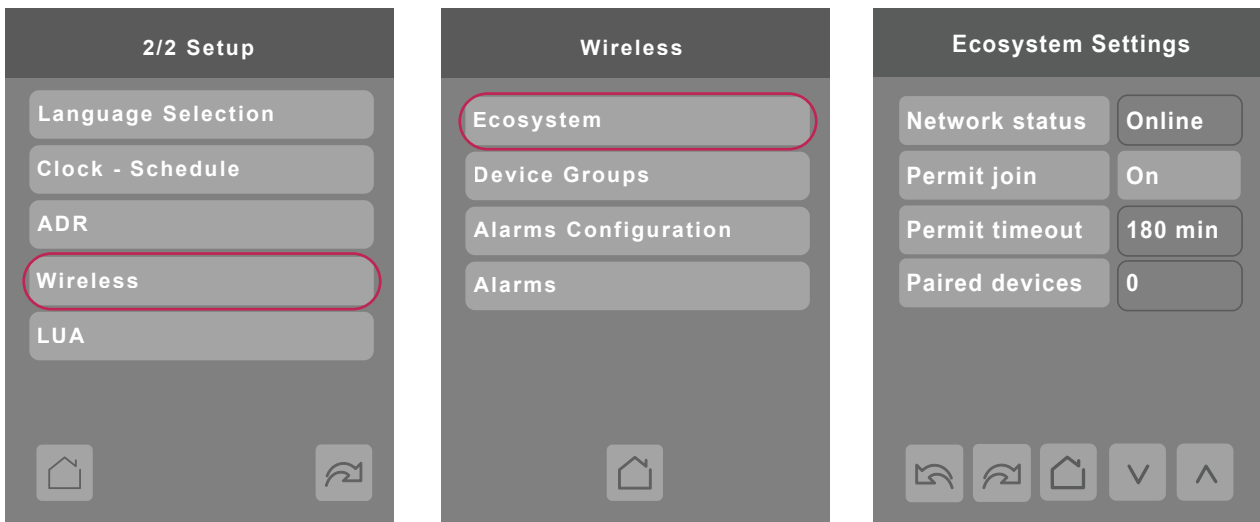
Note: The Permit timeout parameter is shown only on stand-alone Room Controllers with Node type set to Coordinator.

IMPORTANT: The Room Controller attempts to pair itself with a sensor when you open the Ecosystems Settings screen. If for any reason you exit from the Ecosystems Settings screen, you must wait 30 - 60 seconds before attempting to enter the Ecosystems Settings screen again. The Room Controller cannot pair itself with a sensor if you access the Ecosystems Settings screen without waiting for the necessary amount of time to pass.

2. Insert the battery or remove the pull tab (for contact sensors) to activate the Zigbee sensor.

3. Hold the Zigbee sensor in close proximity to the Room Controller and press the **function key** on the Zigbee sensor (consult the Zigbee sensor installation guide to determine the location of the function key and LED). The required number of times to press the function key is as follows:

Zigbee Sensor	Pair with a Controller	Factory Reset
SED-WMS-P-5045	Press 1 time	Press 10 times rapidly
SED-MTH-G-5045) SED-WLS-G-5045 SED-WDC-G-5045	Press 3 times within 1 second	Press 3 times within 1 second then press and hold for 10 seconds
SED-TRH-G-5045 SED-CO2-G-5045	Press 1 time	Press and hold for 10 seconds

Note: If the Zigbee sensor pairing fails or the sensor is decommissioned or moved to another controller, do a factory reset of the sensor. The sensor will now be ready to pair with a controller. Removing the battery and inserting it back into the sensor will also perform a factory reset.

4. Ensure the LED on the Zigbee sensor flashes in the following sequences:

   1. 🟡🔴🟡   YRY   Searching for Network
   2. 🟡🟢🟡   YGY   Device Being Configured
   3. 🟢🟢🟢   GGG   Device Joined

5. The following sequence shows if there is a problem with pairing:

   🔴🔴🔴   RRR   Device Failed to Join

6. For any other sequence of LED flashes, consult the Zigbee sensor installation guide to determine how to troubleshoot.

⚠️ **Restrictions and limitations**

When pairing Zigbee sensors in a networked environment where multiple Room Controllers are bound to a single BMS, **it is necessary to make certain that one Room Controller at a time is being bound with a Zigbee sensor.**

When **Permit Join** is set to **On** for a BMS, all Room Controllers paired to it also have **Permit Join** set to **On**. A Zigbee sensor trying to pair with a Room Controller will pair with the first Room Controller in range that has the **Ecosystem Settings** screen open in the **Wireless** section of the interface.

If more than one Room Controller in range of the Zigbee sensor has the Ecosystem Settings screen open, the pairing may fail. Make sure to never have more than one Room Controller at a time with the Ecosystem Settings screen open when pairing with a Zigbee sensor.

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7. Once the Zigbee sensor has joined the network, a new Device screen will appear, and the Paired devices parameter will increment by 1. Verify that the IEEE address on the back of the sensor matches the address on the Device screen.

Device X

Function	Env. data
Comm. status	Online
Battery	Normal

Addr.: **1122334455667788**

Status: No motion
Temperature: 23.0 °C
Humidity: 25 %RH
CO2:   500 PPM

[↶] [↷] [⌂] [∨] [∧]

8. After the sensor has paired with Room Controller, make sure the **Function** parameter matches the Zigbee sensor type, and if required change it accordingly to one of the following choices:

None   No status reported to Room Controller

Window   Window sensor installed

Door   Door sensor installed

Motion   Device set to detect motion

Env. data   Temperature, Humidity, CO2 sensor installed

Remove   Removes device from Device list

Water   Water leak sensor installed

Refrig.   Refrigerator temperature sensor installed

Freezer   Freezer temperature sensor installed

If the incorrect function is configured, then either the **Comm. status** changes to **Invalid** (when incorrectly setting motion<-->contact), or incorrect responses get triggered in the Room Controller (example window<-->door). For example, the Room Controller can tell the difference between a contact sensor and a motion sensor, but it needs to be told if the contact is a window sensor or door sensor.

SET PERMIT JOIN TO OFF

After confirming that you have successfully joined all the Zigbee sensors needed with the Room Controller, set the **Permit Join** parameter to **Off**. This prevents any other Zigbee sensors from accidentally joining the network.

Once the pairing procedure is complete, proceed with the physical installation of the Zigbee sensor(s) according to the instructions in the **Installation Guide** appropriate to the model(s) of Zigbee sensor(s) being used.