TRANE®

Installation and Configuration Instructions

Air-Fi™ Wireless Communications Sensor (WCS-SO/SCO2)

Model Numbers: X13790986001, X13790987001

X39641284001

⚠ SAFETY WARNING

Only qualified personnel should install and service the equipment. The installation, starting up, and servicing of heating, ventilating, and air-conditioning equipment can be hazardous and requires specific knowledge and training. Improperly installed, adjusted or altered equipment by an unqualified person could result in death or serious injury. When working on the equipment, observe all precautions in the literature and on the tags, stickers, and labels that are attached to the equipment.

The three types of advisories are defined as follows:

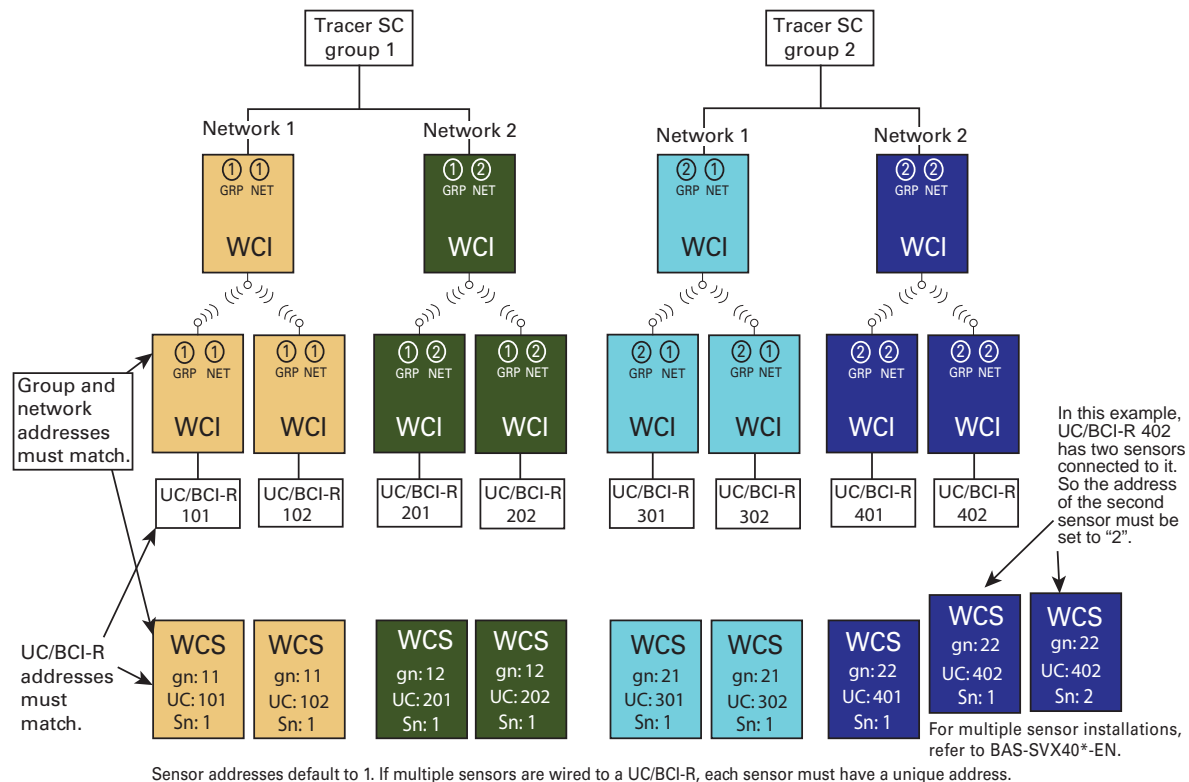| ⚠ WARNING | Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury. |
| ⚠ CAUTION | Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury. It could also be used to alert against unsafe |
| NOTICE | Indicates a situation that could result in equipment or property-damage only accidents. |

1 Addressing Overview

Sensor addresses default to 1. If multiple sensors are wired to a UC/BCI-R, each sensor must have a unique address.

In this example, UC/BCI-R 402 has two sensors connected to it. So the address of the second sensor must be set to "2".

For multiple sensor installations, refer to BAS-SVX40*-EN.
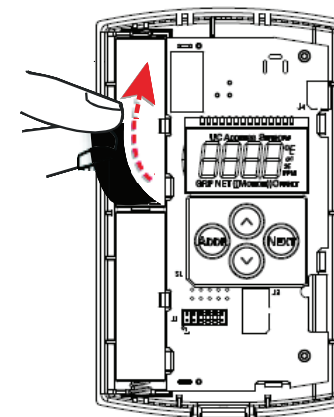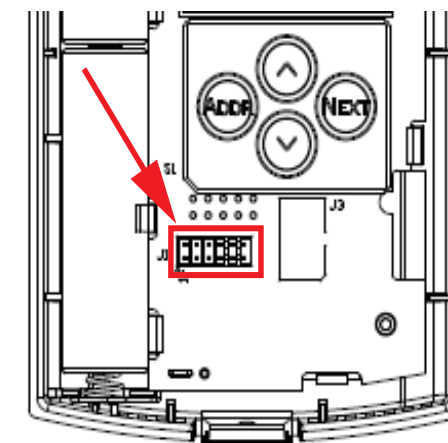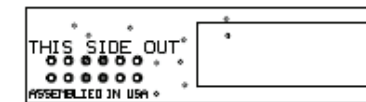
2 Remove the cover
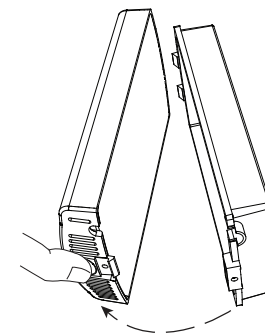
Pull the insulation strip from between the batteries

3 RH Sensor Module

A 2% relative humidity sensor module, available as a separate part (X13790973030; model WCS-SH), can be installed on a WCS either before or after the WCS is powered up.
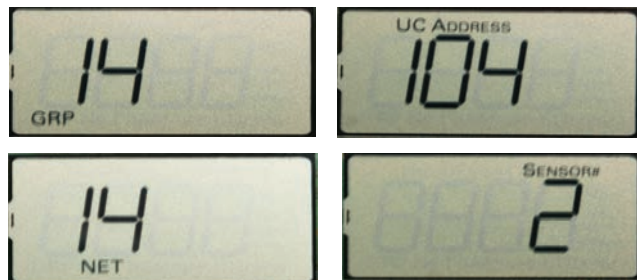

4 Set Addresses

Press and hold the **ADDR** button for 3 seconds to enter addressing mode. Press the **UP/DOWN** arrows to change the value of the number that is flashing. Press the **NEXT** button to move to the next item in the addressing sequence.

- Set the group (GRP) address.
- Set the Network (NET) address.
- Set the UC address (UC ADDRESS).
- Set the Sensor number (SENSOR #).

Press and hold the **ADDR** button for three (3) seconds to exit addressing mode.
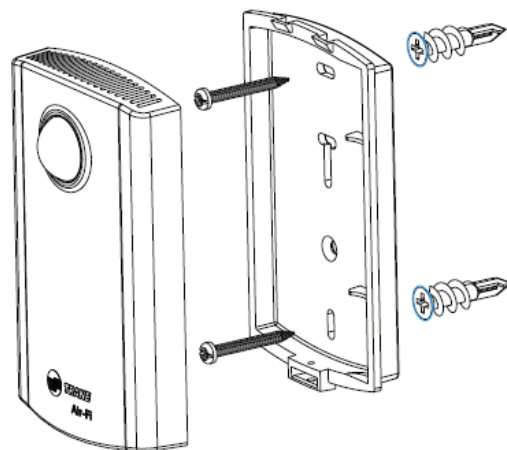

Sensor Response

After addresses are set, the WCS will immediately attempt to join the network and associate with the controller.

Error code E2 will appear on the sensor display until the WCS successfully joins the network.

Note: The network must be open to allow the sensor to join.

Error code E1 will be displayed until the sensor associates to the controller.

5 Secure the backplate to a mounting surface

6 Error Codes

Possible cause	Explanation/Resolution
Sensor is not associated with UC (**E1**)	• Verify that the unit controller and WCI firmware are up to date. • The configured address in the sensor does not match the dials of a UC for any WCI in the same wireless network. Re-associate the sensor with the WCI by correcting the UC address in the sensor. WCI WCS UC ADDRESS — Match to UC
Sensor has not joined the network (**E2**)	• Verify that the network is open. • Normal for sensor configured with GRP-NET 0-0. • Verify that the sensor has the correct group (GRP) and network (NET) addresses. • Verify that the sensor is within radio range. • If the sensor has previously joined the network, verify that WCIs in range are powered up. From the blank screen or error screen, press the **UP** arrow to force manual association/joining. Otherwise, set the correct **GRP** and **NET** addresses and open the wireless network to allow the sensor to join.
Sensor drains battery current during sleep (**E3**)	If the error persists and batteries drain prematurely, the sensor may have defective components and need to be replaced.
Internal failure (**E7**)	Replace the sensor.
Wrong sensor address (**E8**)	The configured sensor address does not match the sensor address that is expected by the UC. Use Tracer TU to configure the UC for the quantity of sensors it should accept, if more than one.
Duplicate sensor (**E9**)	Another sensor with the same configured UC address and sensor address is already associated with the UC. Resolve the duplication. This may involve waiting (up to 51 minutes) for the UC to forget the address of a failed sensor.

7 Testing WCS-to-WCI signal strength and battery life

From the blank or error screen, press the **UP** arrow to display signal strength and the **DOWN** arrow to display battery strength.

| S | An "S" indicates signal strength. |
| b | A lowercase "b" indicates battery life. |

Symbols:

These symbols follow the S or b:

- **S -** Excellent signal quality (Equals green link on the Tracer TU network health map)
- **b -** 100-50% battery life remaining

- **S -** Satisfactory signal quality (Equals yellow link on the Tracer TU network health map.)
- **b -** 50% - 3% battery life remaining

- **S -** Poor signal quality resulting in unreliable communication (Move sensor or WCI to a better location, if necessary.)
- **b -** Less than 3% battery life remaining

Changing the Batteries

Remove the cover as shown in panel 2. Remove the cells. Dispose of used cell promptly. Keep away from children.

> **⚠ CAUTION**
>
> **Avoid Risk of Fire!**
> To reduce risk of fire, use only Energizer L91 lithium batteries.

> **⚠ CAUTION**
>
> **Fire Hazard!**
> The cells used in this device may present a fire or chemical burn hazard if mistreated. Do not disassemble, heat above 100ºC (212ºF), or incinerate.

Remove and replace batteries
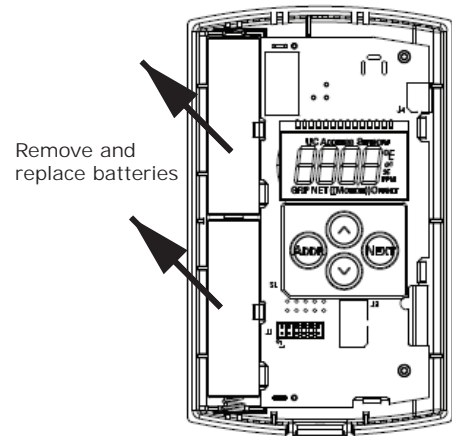
Note: Batteries will last over 15 years in typical locations. Replace with Energizer L91 batteries.

Manually Associating a Sensor to a UC

Pressing the **UP** arrow while on a blank or error screen forces the sensor to attempt a manual association to a UC. This is indicated by rotating segments on the display. After the manual association is accomplished, the signal strength is displayed. However, if the manual association fails, the unit displays an error code.

Note: The network must be open to allow a sensor to join.

Here is an example of excellent signal quality:
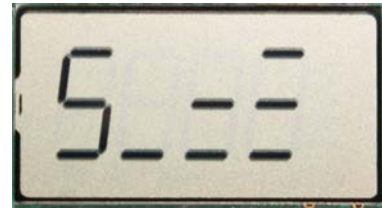
Here is an example of 100 - 50% battery life remaining:
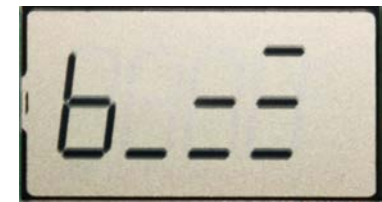
Display Sequence

Pressing the **NEXT** button repeatedly will display the following settings in this order:

1. Blank screen or errors
2. CO_2 ppm (optional)
3. Temperature
4. Temperature offset
5. % Relative Humidity (optional)
6. Humidity Offset (optional)
7. Motion Test

1. Blank Screen or Errors

This is the "Home" screen. It will be blank if there are no errors. If errors are present, it will show the error number.

Home screen with no errors
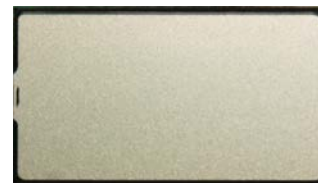
Home screen displaying an error code
See "Error Codes" (Panel 6) for causes and solutions.

2. CO_2 PPM (Optional)

Displays CO_2 ppm for 1 minute, then the screen goes blank or displays an error code.

Notes:

- *The CO_2 sensor has automatic calibration and altitude compensation. No calibration is required.*
- *It takes eight (8) days for a newly installed CO_2 sensor to acclimate to the environment and complete a calibration cycle.*

3. Temperature:

Use the **UP** or **DOWN** arrow to toggle between ºC and ºF.

4. Temperature Calibration Offset

The temperature calibration offset is adjustable in increments of 0.1 ºF or 0.1 º C to a maximum of ±3.6ºF or ±2º C).

Use the **UP** and **DOWN** arrows to adjust the offset.

5. % Relative Humidity

(Available as a field installed option.)

6. Humidity Calibration Offset

The humidity calibration offset is available if the RH module is installed on the WCS. You can adjust the humidity calibration offset in increments of +/- 0.1% RH to a maximum of +/- 5.0% RH. Use the **UP** and **DOWN** arrows to adjust the offset.

Motion Test

In this mode, the display will count down from 120 seconds giving the installer 2 minutes to adjust the sensor position for proper range for the area. When motion is detected within the range of the beam, the sensor eye will glow red briefly.

Note: The red light comes on only during motion test mode. It does not come on during normal sensor operation.

If more time is needed than the default 120 seconds, you can press the **UP** arrow to add time in 30 second increments to a maximum of 600 seconds.
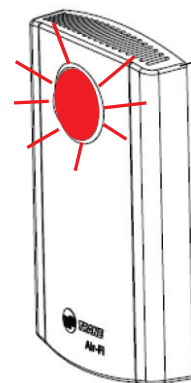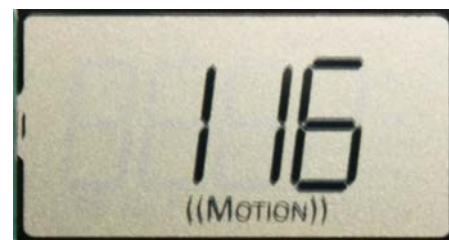
This adjustment is necessary for both WCS-SO and WCS-SCO$_2$ versions. The WCS-SCO$_2$ version has a built-in occupancy sensor. It is used to reduce the number of CO_2 samplings when the space is unoccupied to conserve battery life.

Mount the sensor in a position where occupancy or CO_2 will be monitored. The maximum range for the occupancy sensor is 32 feet (10 meters). Set the sensor in Motion Test mode and wait for the red light to go off. Walk through the area and watch the sensor eye illuminate red indicating that your presence is sensed. Make any mounting adjustments to achieve the best overall position allowing the sensor to detect human traffic.

Agency Listings and Compliance

The European Union (EU) Declaration of Conformity is available from your local Trane® office.

Use the following occupancy sensor coverage pattern to determine the best mounting position.
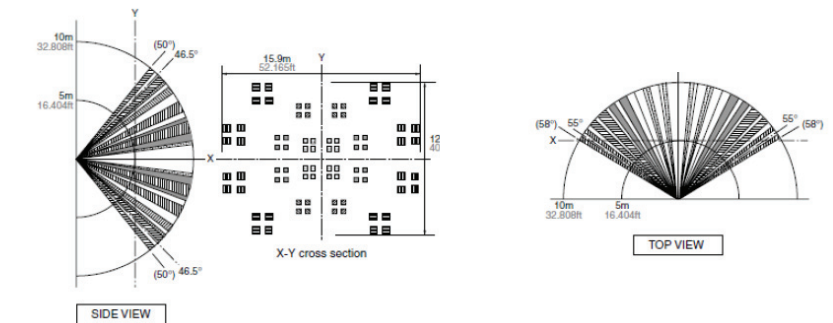
Note: This sensor coverage pattern also applies when occupancy sensing is activated on WCS-SCO$_2$ applications.

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