Optergy
Air

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Revision 3

Optergy Air Temperature & Humidity Wireless Sensor (BW-TH)

Installation Guide

A how-to-guide on installing the Optergy Air temperature & humidity wireless sensor.

When used together with the Optergy P864 controller, these components can measure and communicate an environment's metrics. The number and type of these metrics depend upon which model of sensor is used.

Contents

Before Installation

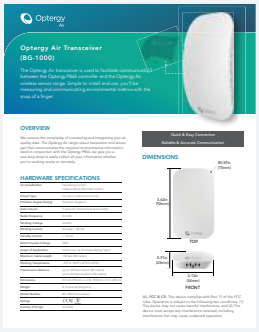
Read these instructions carefully before installing and commissioning the device. Failure to follow these instructions may result in product damage. Do not use in an explosive or hazardous environment, with combustible or flammable gases, as a safety precaution or emergency stop device or in any other application where failure of the product could result in personal injury. Take electrostatic discharge precautions during installation, and do not exceed device ratings.

Before setting up the Optergy Air wireless sensor and transceiver, you must first have set up the Optergy P864 controller. Please follow the Optergy P864 installation guide prior to proceeding with this sensor and transceiver installation.

With your Optergy P864 setup, you can begin the installation of the Optergy Air transceiver.

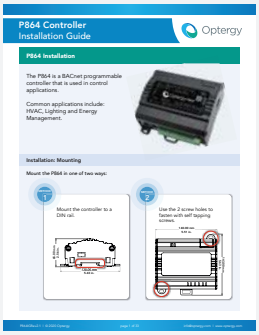
View the Optergy P864 Datasheet >

View the Optergy Air Transceiver Datasheet >



View the Optergy Air BW-TH Sensor Datasheet >

View the Optergy P864 Installation Guide >



View the Optergy Air Transceiver Installation Guide >

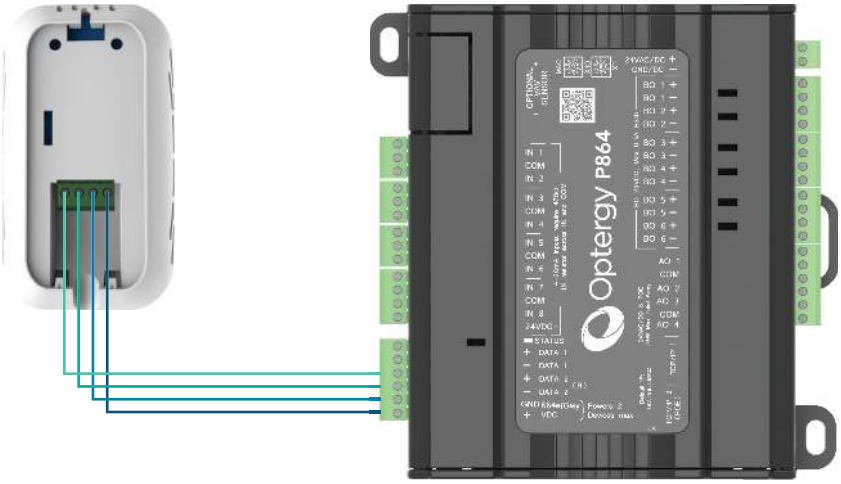
Wiring

Transceiver (BG-1000)

The transceiver is used to facilitate communication between the Optergy P864 controller and the wireless sensor. Its appearance is similar to some of the Optergy Air wireless sensor range, however it can be easily differentiated once opening the back plate. The sensor requires batteries and the transceiver does not.

To connect the transceiver to the Optergy P864 controller, wire the transceiver's terminal to the Optergy P864's terminals as per the image below.

Transceiver (BG-1000) Sensor (BW-TH)



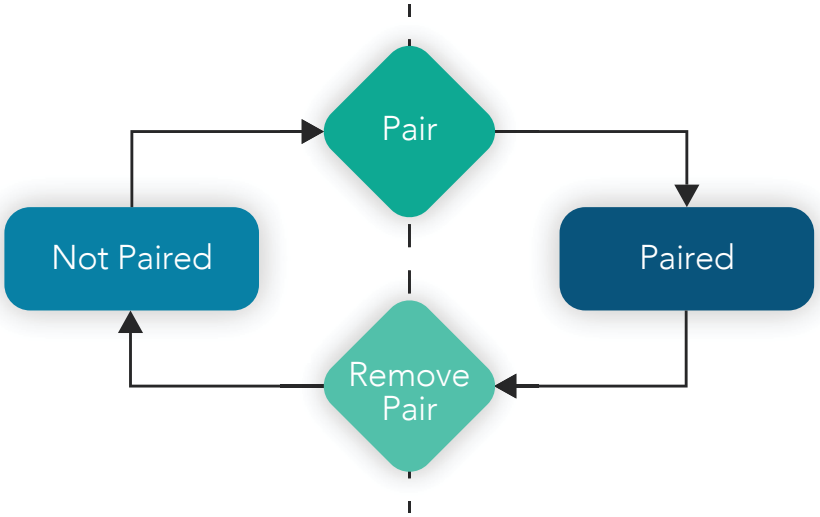
Optergy P864		Transceiver
DATA 2 +	——	DATA +
DATA 2 -	——	DATA -
GND 864e/Gwy	——	GND
VDC +	——	24 VDC +

Note: Please ensure that the power and data are wired to their respective terminals.

Pairing

The state of the Optergy Air transceiver and sensor can either be paired, or not paired.

There are two ways to enter the transceiver into pairing mode; through the Optergy P864 user interface, or manually using the pairing button on the transceiver.



Once the transceiver has been connected to the Optergy P864 controller, navigate to the user interface of the controller. When connected, the Optergy P864 user interface will show a tab labelled 'Wireless Data". *Note: If this tab is still not visible, please refer to the troubleshooting section below.*

When on this page, click 'pair' or manually press and hold the transceiver's button for two seconds to put the transceiver into 'pairing mode'. Whilst in this mode, manually press and hold the associated sensor's pair button for two seconds or until the transceiver and sensor both flash green twice a second. This indicates a successful pairing.

Once in the paired state the Optergy Air wireless sensor will flash green once every thirty seconds, and it will display a card in the user interface. This card will show all of the sensor's metrics, the ability to blink the sensor's LED for identification, and an option to remove the sensor pairing from that slot. The sensor metrics are exposed as BACnet objects as per the table on the following page.

Optergy Air Sensor 1		
Sensor Description	**BACnet Object**	**Units** (auto assigned based on the Optergy P864 configuration)
Temperature	AI-101	°C or °F
Humidity Level	AI-102	%rH
Sensor Online Status	BI-20031	Shows whether this sensor is detected (This BI's description will show the version number and the sensor's serial number)
Low Battery Level Warning	BI-102	No units
Sensor Locating LED	BO-101	No units

Optergy Air Transceiver		
Description	**BACnet Object**	**Units** (auto assigned based on the Optergy P864 configuration)
Transceiver Detected	BI-20008	Shows whether the transceiver is detected (This BI's description will show the version number)
Sensor Slot Paired Status	BI-20021	Shows whether this sensor slot is paired to a sensor
Enable Pairing	BO-102	No units

If a sensor is required to be removed for any reason, this can be completed in the user interface or physically using the sensor's button. Simply click 'Remove' in the user interface to remove the pairing, or otherwise click and hold the pairing button for two seconds on the wireless sensor.

Mounting

When it comes to mounting, there are considerations for both the transceiver and the sensor.

Transceiver (BG-1000)

When mounting the transceiver there are two important components to consider; the distance of the transceiver from the Optergy P864 controller, and distance from the wireless sensors.

The transceiver can be run up to 30m from the Optergy P864 controller, and it is best practice to run this as close to the wireless sensors as possible to account for any attenuation caused by environmental obstacles.

Note: Obstacles will cause different amounts of attenuation based on the material they are made of, and whether they completely close-off an area or not.

It is good practice to test the connection with sensors when all obstacles are in-place to ensure the transceiver can still effectively communicate with its paired sensor.

Wireless Sensor

When mounting the wireless sensor it is important to factor in the height of the sensor from the ground, the environment that the sensor is in, and the distance between the sensor and the transceiver.

An important component of the sensor's accuracy also depends on the height of installation, and the environment. When mounting, ensure that:

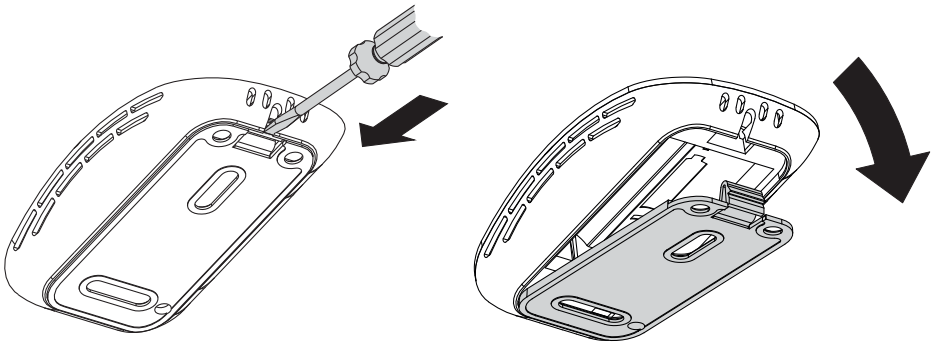
1. The sensor is not mounted in areas that could inherently affect the temperature or air quality, and thereby affect the accuracy of readings. This can include: direct sunlight, drafty areas etc.
2. The sensor is not mounted near any devices that could inherently affect the temperature or air quality, and thereby affect the accuracy of readings. This can include: printers, scanners etc.

When mounting, it is also recommended that the sensor be mounted 1.5m from floor level to best indicate the thermal comfort of the space.

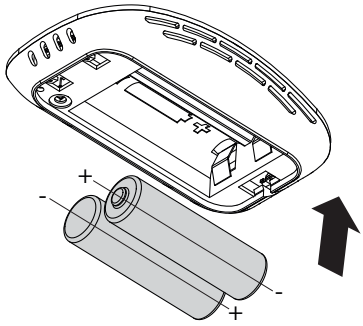
The sensor is made up of two components; the backplate, and the sensor body. In order to mount the device please follow the steps outlined on the following page.

Installation Instructions

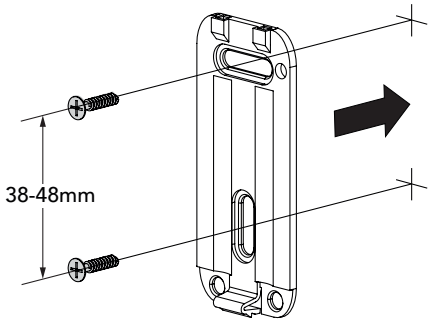
1
Remove wall plate from the housing using a flat head screw driver.



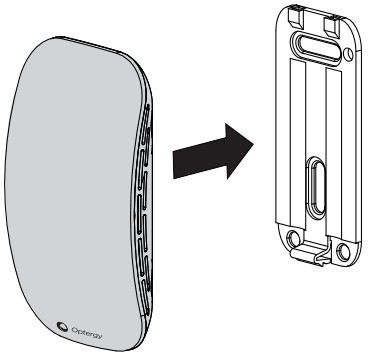
2
Insert 2xAA batteries into the base. Note the direction of the batteries during installation.



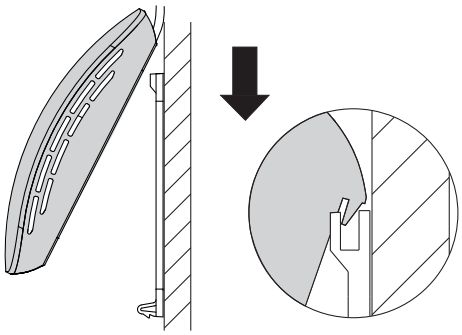
3
Screw wall plate into chosen substrate surface. Where mechanical fasteners are not suitable, use double sided tape.



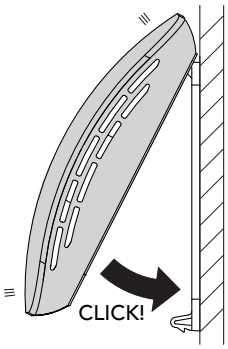
4
Steps 5 to 6 outline how to secure the housing to the wall plate.



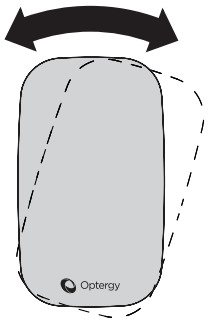
5
Hook the two prongs found on the housing into the receiving holes found at the top of the wall plate.



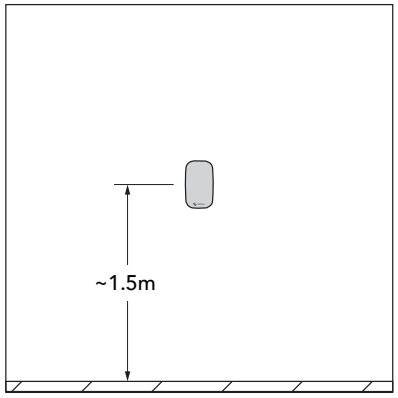
6
Rotate housing towards the wall until it clicks with the wall plate.



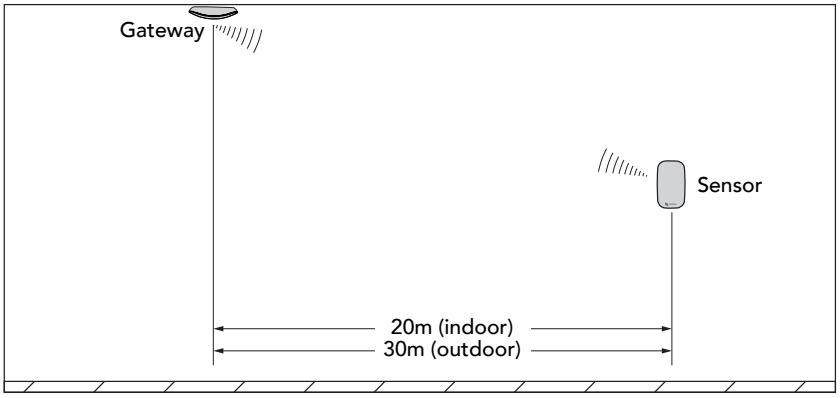
7
Once fixed to the wall, rotate the housing as required to achieve a vertical position.



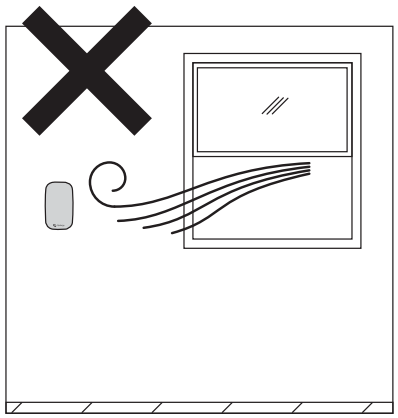
Installation Considerations



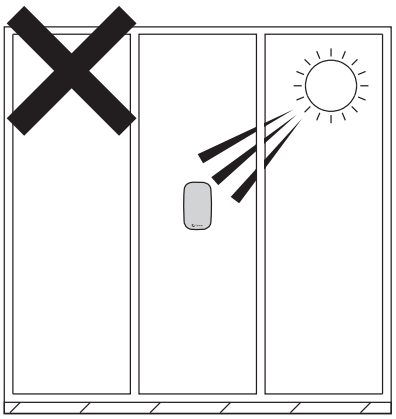
Ideal sensor height



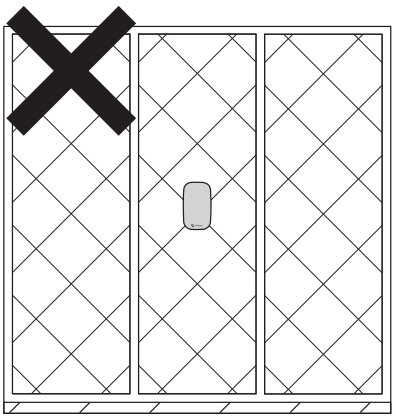
Maximum recommended range



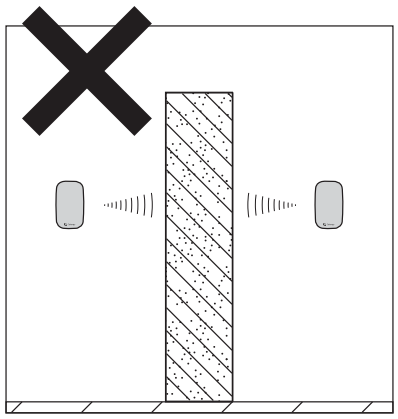
Avoid draught



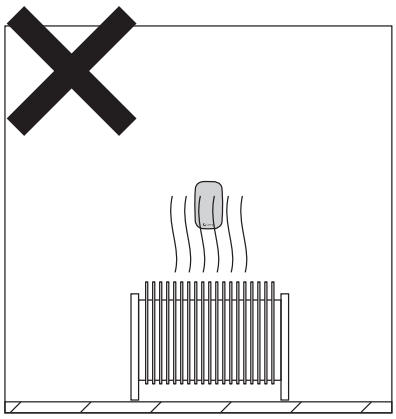
Avoid direct sunlight



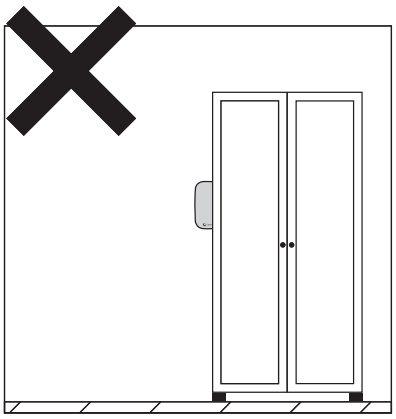
Avoid reinforced glass



Avoid solid walls



Avoid heat source



Avoid obstrucions

Signals

At various times of the setup of the device, or in the troubleshooting of the device, both the transceiver or sensor may flash their LEDs in varying frequencies and colours. If unsure as to the state of the device please refer to the following table:

Transceiver	
LED Behaviour	**Description**
Green flash every two seconds	Transceiver is not in pairing mode, but is connected to/looking for connected sensors.
Blue flash twice every second	Transceiver is in pairing mode.
Green flash twice a second	Transceiver indicates that a pairing action was successful.

Wireless Sensor	
LED Behaviour	**Description**
Green flashes twice a seconds	Sensor indicates that a pairing action was successful.
Blue flashes once every thirty seconds	Sensor is not paired/in an idle state or sensor is disconnected.
Green flash every thirty seconds	The sensor has been paired with a transceiver and is operating appropriately.

Troubleshooting

You may encounter scenarios where you will require to troubleshoot your devices.
Use the below common questions or scenarios to help:

"I'm unable to see the wireless sensor tab in the Optergy P864 user interface."	If you are unable to see the wireless sensor tab in the Optergy P864 interface, it could be for the following reasons: 1. The Optergy P864's version does not support the transceiver. 2. The transceiver is unable to communicate with the Optergy P864. Please ensure that the Optergy P864 is on version v6.0.5 or above in order to support the addition of the user interface with the transceiver. If the Optergy P864 is on the right version, then the problem will be due to an inability to communicate with the transceiver. Please ensure that the transceiver is correctly connected with the Optergy P864 controller as described in the 'Wiring' section above.
"I can't see my sensor data in the user interface, and I have a status of *disconnected.*"	If you are experiencing this there may be a communication issue between the transceiver and the sensor. This could be due to the sensor being out of range of the transceiver, or having run out of battery. In either scenario the sensor will remain 'paired' with the transceiver. The user interface will indicate this state by continuing to show the sensor card, however with a transparent overlay that states 'disconnected'. As soon as communication has returned between the transceiver and the sensor, this overlay message will disappear.