



EkkoAir Installation guide



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Revision history

Version	Notes
V1.0	New
V1.1	Add regulatory information

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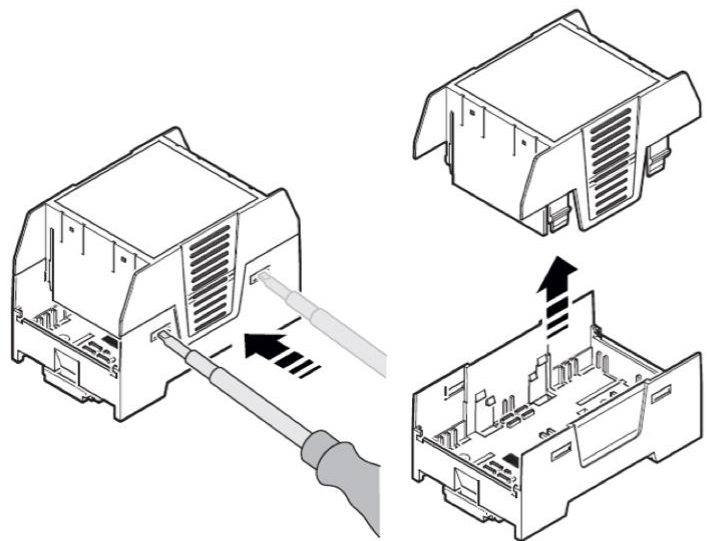
1. About this installation guide

This guide is aimed at EkkoSense installers and explains how to fit and configure the EkkoAir cooling duty sensor.

2. Fit or replace the battery

To fit or replace the battery in an EkkoAir you need to remove the front cover. You will also need to remove the front cover to configure the EkkoAir.

To remove the cover, use a screwdriver to press in the tabs on the side and gently slide the front off. The battery connection is in the front and is wired to the circuit board in the back of the EkkoAir, so take care when removing the front.



The EkkoAir uses a Lithium Thionyl Chloride AA 3.6V battery that fits into the rear of the cover. Only use Tadiran SL760/S or SAFT LS14500 batteries.

Make sure that the polarity of the battery matches the + and – symbols shown next to the battery clips for the battery connection.

The cables that connect the battery panel to the circuit board should be connected so that black (negative) is the top connection and red (positive) is the bottom connection, as shown in the image here.



3. Change the EkkoAir settings

This part of the installation only applies if you need to change the settings of the EkkoAir. It is designed to work with the default settings in place, but you may need to change settings to meet the requirements for the site.

1. Remove the cover of the EkkoAir unit. For instructions on removing the cover, see Fit or replace the battery on page 4.
2. Connect the USB TTL serial cable to the UART connection in the EkkoAir. It is the 6 pin connection on the left side of the circuit board.



Note: Connect the cable so that the green wire at the top, then yellow, orange, red, brown, with black at the bottom. Please check the text on the PCB if you are unsure. The EkkoAir will be unable to connect to a computer if the USB TTL cable is connected in any other way.

3. Connect the USB TTL serial cable to your computer.

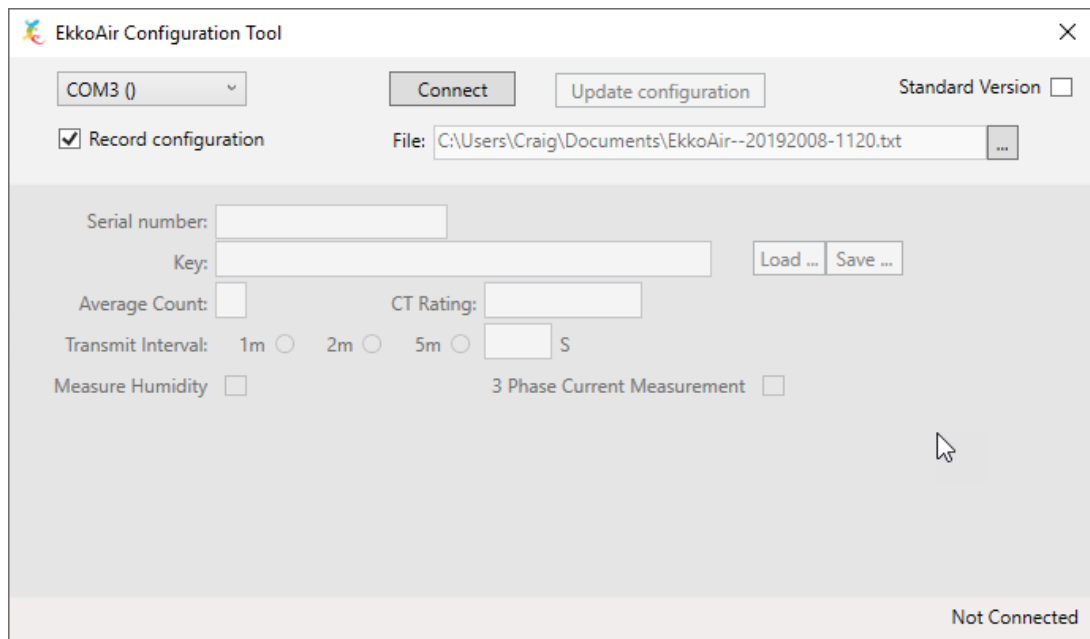
If this is the first time you have connected an EkkoAir to your computer, Windows will detect the USB TTL serial cable and set it up automatically. This can take a few minutes. Windows provides a notification when the setup is complete.

4. Run the EkkoAirConfiguration.exe file.

If Windows Defender protects your PC, select the **More info** link and then select **Run anyway**.

5. When the EkkoAir Configuration Tool app runs, select the:

- **Communication port** that is used for the USB TTL serial connection. Typically, there is only one port shown.
- **Record configuration** option if you want the app to record a log of the configuration changes you make. If you enable this feature, a **File** field appears, which you can use to choose the location for the log file.
- **Connect** button to connect to the EkkoAir.



When you select **Connect**, the EkkoAir Configuration Tool should connect to the EkkoAir. At this point, the settings in the bottom section of the window will become available and you will see “connected” in the bottom right.

If the EkkoAir Configuration Tool cannot connect, the bottom section will remain unavailable for use. In this situation, try:

- Selecting a different COM port. If there are multiple COM ports available, you may have selected the wrong one.
- Checking that the USB TTL serial cable is connected correctly (see step 3 on page 5).

If you are unable to get the EkkoAir to connect, try using a different EkkoAir unit.

- Use the EkkoAir Configuration Tool to change the settings to meet the site requirements.

Setting	Description
Serial number	The serial number of the device. This cannot be changed.
Key	<p>Leave blank to use the default key or enter a new key of exactly 32 hexadecimal characters (0 to F).</p> <p>You can also Load a .txt file that contains a key.</p> <p>If you add a new key manually, we recommend that you Save the key as a .txt file. You can then load the key file on to the other EkkoSense devices in your network. They can only communicate if they all use the same key.</p>
Average Count	<p>Use to define how many measurements the EkkoAir will use to calculate the average.</p> <p>For example, if you set the Average Count to 2, the EkkoAir will use two measurements to calculate the average. It then reports the average at the Transmit Interval time.</p>
CT Rating	Set this to match the rating of the current transformers (CT) that are going to be used to monitor the power supply (10A is standard for EkkoAir).
Transmit Interval	Use to control how often the EkkoAir transmits data to the EkkoHub. You can choose 1, 2, or 5 minute intervals.
Measure Humidity	Check this box if you want the EkkoAir to monitor humidity as well as temperature. Clear the box for temperature monitoring only.
3 Phase Current Measurement	Check this box if you are going to install multiple CTs for the EkkoAir. Clear the box if you are only installing one CT.



Note: **Standard** mode is the default. An Installer mode is available by checking the box next to 'Standard Version' and entering a password. You should only use this setting under the guidance of EkkoSense technical support.

- Select **Update configuration** to apply the changes.
- Select **Disconnect**, and then disconnect the USB TTL serial cable and refit the EkkoAir cover.

4. Connect the sensors, antenna, CTs and power supply

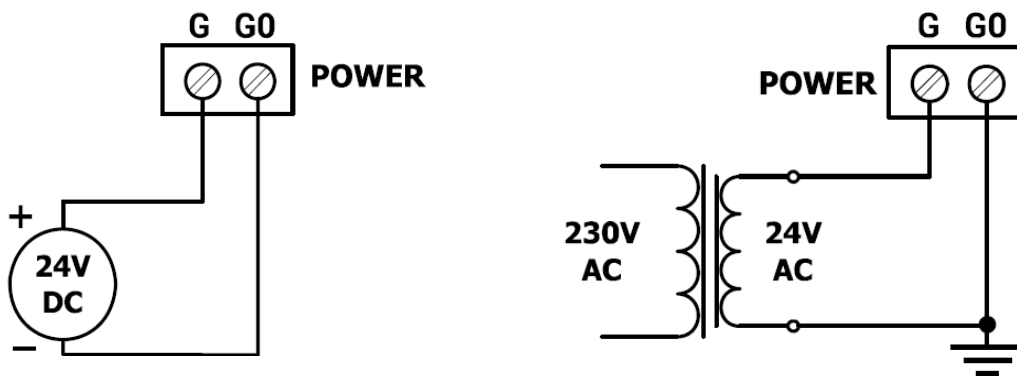
Connect the sensors, antenna, CT(s), and any external power supply and inputs as shown below:



Diagram	Description	Connections	
1	Return sensor	DA	Yellow
		-	Green
		+	Brown
		CL	White
2	Supply sensor	DA	Yellow
		-	Green
		+	Brown
		CL	White

Diagram	Description	Connections	
3	External input 12V-24V (optional). Can be any binary input, typically a status input.		
4, 5, 6	10A 0.333V Current Transformers (CTs). Typically one CT, but can be 2 or 3.	Plain	Black
		Dot	White
7	External antenna. Use a wired Siretta ALPHA14/2.5M/SMAM/S/S/26 antenna if EkkoAir is to be installed inside an AHU. Use a stubby Siretta DELTA2A/X/SMAM/S/RA/11 antenna if the EkkoAir is to be installed in a separate box.		
8	Serial number and QR code for EkkoAir unit.		
9	External power source (optional). The EkkoAir can be powered by its internal battery or can be wired to an external power source.	G	+12 to +24V DC or 12 to 24V AC (50Hz or 60Hz)
		G0	0V

For the optional external power source, connect as shown below:



The current drawn by the EkkoAir is less than 0.1A. Any external power source must include a current limiting device to limit available power to less than 100W. For example, on a 12V supply a fuse rated 8A or less, on a 24V supply a fuse rated 4A or less.

The AC supply can be 50Hz or 60Hz.

5. Install the EkkoAir, sensors, and CTs



Note: Do not extend the sensor cables.

EkkoAir

Fit the EkkoAir to a DIN rail in AHU. If there is not enough space in the AHU, fit a box with DIN rail next to the AHU, and then fit the EkkoAir in the box.

Where possible, fit the EkkoAir so that it is possible to remove the front cover without having to remove the EkkoAir from the DIN rail.

Current transformers (CTs)

Fit the CT(s) around the power supply cable to the fan being monitored.

Antenna

If you are installing a wired Siretta ALPHA14/2.5M/SMAM/S/S/26 antenna, you should fix it in place outside the AHU. It has a self-adhesive pad that you can fix to metal or non-metal surfaces.

Sensors

On the front of each EkkoAir sensor is a label that shows whether the sensor is a supply sensor or a return sensor.

- Fit the supply sensor so that the front of the sensor is in the supply (intake) airflow.
- Fit the return sensor so that the front of the sensor is in the return (exhaust) airflow.

Use self-tapping screws or loop cable ties to secure the sensors to the strut.



6. Regulatory information

The EkkoAir must be professionally installed.

The EkkoAir is only approved for use with a wired Siretta ALPHA14/2.5M/SMAM/S/S/26 antenna (2.5m cable) or directly connected Siretta DELTA2A/X/SMAM/S/RA/11 antenna. Use of other antennas is not permitted and invalidates the radio regulatory approval. Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

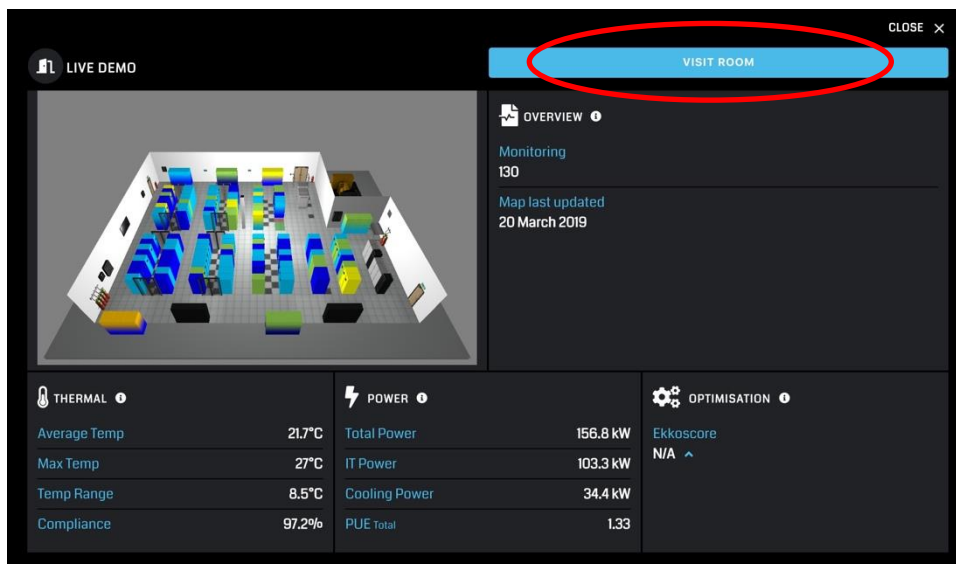
This FS-EA-10 device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: 1) This device may not cause harmful interference, and 2) this device must accept any interference received, including interference that may cause undesired operation.

7. Add EkkoAir to EkkoSoft

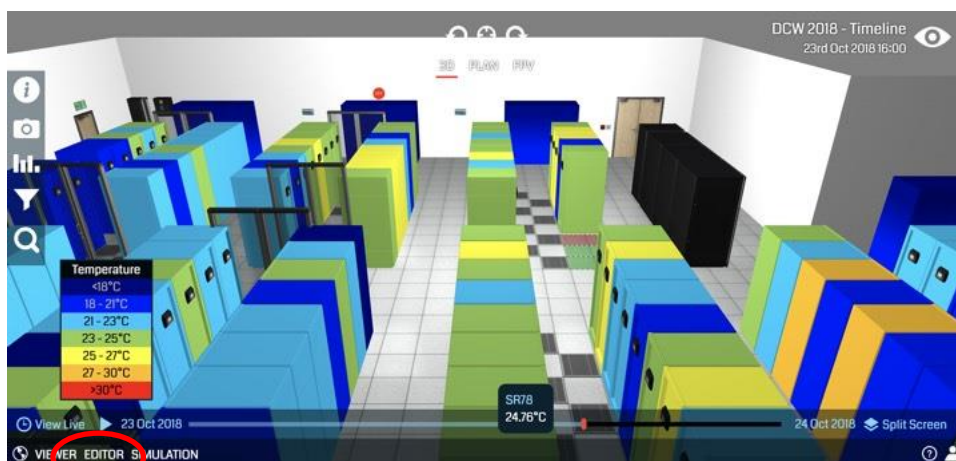
When you have installed a sensor, you need to add it to the EkkoSoft software so that it can be monitored.

There are two ways to add a sensor to EkkoSoft. You can either use a 2D barcode scanner to scan the sensor's QR code or you can enter the scanner's ID manually.

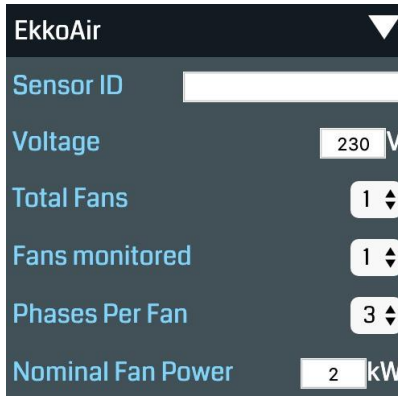
1. Login to EkkoSoft on a laptop (internet connection required).
2. Select the data centre.
3. Select **Visit Room**.



4. Select **Editor** mode.



5. Select the ACU that the EkkoAir is fitted to.
6. Expand the **EkkoAir** settings.
7. Select the **Sensor ID** field.



8. Connect a 2D barcode scanner to your laptop (via USB) and scan the EkkoAir's QR code. The QR code is on the label next to the antenna connection at the bottom of the EkkoAir.

If you do not have a 2D barcode scanner, you can enter the EkkoAir's ID manually.

When you scan the QR code, the EkkoAir's ID code is automatically copied from the 2D barcode reader into the **Sensor ID** field (as long as the Sensor ID field is selected).

9. Add the configuration details:

Setting	Description
Voltage	Set to match the voltage of the fan, as defined in the fan specification.
Total Fans	Set to match the total number of supply fans in the ACU.
Fans Monitored	Set to the number of fans that have their power supply monitored by the EkkoAir's CTs.
Phases Per Fan	Set this to match the phases that are defined in the fan specification.
Nominal Fan Power	Set to match the total amount of power required by the fan when running at 100%. This information is included in the fan specification.

- When you have configured the EkkoAir, check that it is set up correctly. In EkkoSoft, view the room in Viewer mode and look at the values for the ACU.

The EkkoAir entry should show an airflow reading.

AIR-CON UNIT ✕	
ID	17202
Label	AHU4
Manufacturer	Weatherlite
Return Temp	23.7°C
Supply Temp	18.0°C
EkkoAir	1.4m ³ /s
Cooling Load	9.56kWc
This has been off for 0% of 11th Jul, 1% down on previous day	
Avg cooling load on 11th Jul is 8.1kWc, 1 up on previous day	



Note: There may be a delay of several minutes before the readings from the EkkoAir are shown in EkkoSoft for the first time. This is because EkkoAir is designed to send data every 2 minutes (default) and EkkoSoft acquires data periodically.

- Repeat this process for each EkkoAir.

8. Troubleshooting checklist

In the unlikely event that you experience problems with the EkkoAir, please check:

- The battery is fitted correctly or the external power supply is present
- If the battery is used then check that the connection from the battery board to the main circuit board is fitted correctly
- The supply and return sensors are wired to the appropriate terminals and with the correct colours to each terminal
- The front side (the side with the label) of the sensors is in the airflow
- The CTs are connected to the appropriate terminals and are installed around the AC power cables.

You should also use the EkkoAir Configuration Tool to check:

- The EkkoAir is used the same key as the other EkkoSense products in the network
- The CT rating is correct, and the 3 Phase Current Measurement setting is enabled if there is more than one CT
- Measure Humidity is enabled if humidity monitoring is required.

If these conditions and settings are all in place, contact EkkoSense support. You may need to install a different EkkoAir unit.

