



EkkoHub and EkkoSensors Installation and User Manual



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REVISION HISTORY

Version	Notes
V0.1	First version



1. Document Information

1.1. Introduction

This document contains the standards for hardware installation and configuration.

This document is for installers.

These standards are followed in all EkkoSense installations unless otherwise specified and agreed.

1.2. Disclaimer

THIS DOCUMENT IS FOR INFORMATIONAL PURPOSES ONLY. THIS DOCUMENT IS PROVIDED “AS IS” WITH NO WARRANTIES WHATSOEVER, INCLUDING ANY WARRANTY OF MERCHANTABILITY, NON-INFRINGEMENT, FITNESS FOR ANY PARTICULAR PURPOSE, OR ANY WARRANTY OTHERWISE ARISING OUT OF ANY PROPOSAL, SPECIFICATION OR SAMPLE.

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The information in this document relates to EkkoSoft Critical v3.2+

2. Sensor Installation

2.1. Sensor types

Sensor functionality is identified by the part number:

Frequency of operation		Functionality code		Hardware version
ES (868MHz)	-	See below	-	Currently 02
FS (915MHz)				

TSI FS-TSI-02/ES-TSI-02 Wireless Temperature Sensor with internal measurement

TSX FS-TSX-02/ES-TSX-02 Wireless Temperature Sensor with external and internal measurement

THI FS-THI-02/ES-THI-02 Wireless Temperature and Relative Humidity Sensor with internal measurement

THX FS-THX-02/ES-THX-02 Wireless Temperature and Relative Humidity Sensor with internal measurement and external only temperature measurement

THD FS-THD-02/ES-THD-02 Wireless Temperature and Relative Humidity Sensor with internal measurement and display of measured values

TDX FS-TDX-02/ES-TDX-02 Wireless Temperature and Humidity Sensor with Display and external temperature only measurement

All sensors include the functionality section of their part number in the barcode label:



Temperature only and Temperature and Humidity sensors can also be distinguished by the fact that the Temperature and Humidity sensors have slots cut in the bottom of the sensor.



For simplicity in this document where sensors need to be distinguished by functionality they will be identified by their functionality code only.

2.2. Standard Racks

This section indicates the EkkoSense standards for installing sensors on racks within data centre environments. There are a number of different configurations depending on the sensors purchased and client installation preferences.

The follow general principles apply to all variations:

- Sensors are to be installed on **inlets only**
- Wireless sensors should be fixed to glass front racks with **Hi-Bond adhesive tape**. This is supplied as standard on the sensors.
- Wireless sensors should be fixed to mesh front racks with a **black cable tie** using the holes in the back of the sensor. The **Hi-Bond adhesive tape** can be used to provide additional stability but must not be used as the primary method of attachment.
- Flylead (external) sensors should be securely fastened using **black cable ties**.
- In some cases, additional **black tie-wraps** may be required to fix the device in place
- Sensors should be positioned near equipment inlets in such a way that the inlet is not blocked

2.2.1. Wireless Sensor - single

Below is the standard installation for EkkoSense Critical Things sensors on equipment racks within data centres. This applies to the following sensor types:

- Wireless Temperature only (**TSI**)
- Wireless Temperature + RH (**THI**)
- Wireless Temperature + RH + Display (**THD**)



2.2.2. Wireless Sensor - dual

Below is the standard installation for EkkoSense Critical Things dual sensors on equipment racks within data centres. This applies to the following sensor types:

- Wireless Temperature + Temperature flylead (**TSX**)
- Wireless Temperature + RH + Temperature flylead (**THX**)
- Wireless Temperature + RH + Display + Temperature flylead (**TDX**)



1.2m flylead variant



2.0m flylead variant (special order)

2.2.3. Wireless Sensor - alternative

In some cases it may not be appropriate to install to the standards listed previously due to one of the following reasons;

- Client does not wish to have wireless sensor case on display
- Sensor case does not have a fixing position on the front of the rack

In these cases, the sensor should be fixed to the top of the rack and a flylead sensor run down to the monitoring locations as shown below.



Flylead sensor (hidden)

Dual Flylead sensor (hidden)

NOTE 1: The EkkoSoft application will assume a single flylead sensor is positioned as high inlet and low inlet. This configuration will need to be adjusted when installing sensors so as not to give provide incorrect readings into the application.

NOTE 2: The Dual Flylead sensor is not a standard offering and must be asked for on request – lead times are 2-4 weeks.

2.3. Other Rack Types & Installations

In some data centres other rack types exist which affect the installation methodology.

2.3.1. Glass Front Racks

For these racks the airflow for the equipment is usually provided at the bottom of the rack, rather than through the front.

If the airflow is predominantly provided at the base of the rack then a flylead sensor should be installed so that the flylead sensor is located behind on the glass near to the equipment.

2.3.2. Mixed Inlet Racks

For mixed inlet racks it can be difficult to assess the best place for a sensor to be placed. The sensor should be placed on the side of the rack where the uppermost piece of equipment has an inlet. This represents the 'worst-case' inlet and is therefore the most critical.

In EkkoSoft, the rack should be indicated as mixed.

3. Hub V2 installation

3.1. Mounting method

The EkkoHub has four mounting holes concealed behind the flaps at the side of the unit:



These holes can be used with cable ties to fit the EkkoHub to cable baskets or to screw the EkkoHub to a wall.

The EkkoHub can be installed in any orientation. The antenna is mounted internally behind the front panel (with the label and status LEDs). When installing the EkkoHub ensure that this front panel is not positioned on or adjacent to metal. For best performance ensure the body of the EkkoHub is in clear space with the EkkoHub attached on its back face only.

3.2. Connections

The EkkoHub has three external connections along one face:



The Ethernet port is the only one that is normally connected at installation, with power being supplied to the EkkoHub using a Power over Ethernet switch. The USB port can be used to connect to a laptop for

changing the EkkoHub configuration. In this case the EkkoHub will draw power from the USB host device and does not need the Ethernet connection.

3.3. Status LEDs



LED name	Function and expected status
Power	Illuminates to indicate that the EkkoHub is receiving power. This must be illuminated for the hub to work. If the LED does not light then check the cabling between the hub and the PoE switch and check that the PoE switch is powered.
Network	Illuminates continuously to indicate that the EkkoHub has a connection to EkkoSense servers. This must be illuminated for the EkkoHub to work. If the LED does not light then check the cabling to the PoE switch, check that the PoE switch has a connection to external internet, check that there is no MAC address filtering implemented, check that the EkkoHub has been configured correctly.
Transmit	Status not currently relevant
Receive	Toggles state from dark to illuminated and vice versa every time a data packet is received from a sensor. If there is no activity then check that the hub is correctly configured for the sensors (PAN ID, Encryption Key).

4. Regulatory information

These devices comply 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.

CAUTION: Changes or modifications to the products that are not expressly approved by EkkoSense Ltd could void the user’s authority to operate the equipment.