

EMSUIE MANUAL

Version 1.2

Intentionally Blank

Contents

1. Introduction to EMSuite	6
1.1. Description	6
1.1.1. Software	6
1.1.2. EMSuite System Overview	6
1.2. EMSuite Access - Basic Concepts	9
1.2.1. Sites	9
1.2.2. Zones	9
1.2.3. Channels	9
1.2.4. Groups	10
2. Ellab Service	11
2.1. Ellab Service	11
3. EMSuite Installation - Software Pre-Requisites	12
3.1. Software Pre-Requisites	12
3.1.1. Installation Pre-requisite Software (Included in the Installation)	12
3.1.2. EMSuite Server Specifications	12
3.1.3. EMSuite Access Point Ports	13
3.1.4. EMSuite App	14
3.2. Licensing System	14
3.2.1. Basic Version:	14
3.2.2. Pro Version:	14

4.	TrackView Pro Hardware	15
4.1.	Introduction.....	15
4.1.1.	Hardware Communication	15
4.1.2.	Smart Sensors (Probes).....	16
4.1.3.	TVP Transmitter (Transmitter-Sensors).....	28
4.1.4.	Alarm Thresholds	29
4.1.5.	TVP Transmitter Data Display.....	30
4.1.6.	TVP Transmitter Clock (Internal)	32
4.1.7.	Other Details	33
4.1.8.	Access Points.....	33
4.1.9.	Data Display	34
4.1.10.	Network Information Display	34
4.1.11.	Trackview Pro Access Point (Internal).....	35
4.1.12.	Access Point Connections	35
5.	Physical Installation	37
5.1.	Track View Pro (TVP) Transmitters.....	37
5.1.1.	TrackView Pro (TVP) Transmitters - Connection to Access Points	37
5.1.2.	TrackView Pro (TVP) Transmitters - Mounting	38
5.1.3.	TrackView Pro (TVP) Transmitters - Connection to Smart Sensors	39
5.1.4.	Track View Pro (TVP) Transmitters - Battery Access and Mounting	40
5.2.	Track View Pro (TVP) Access Points.....	41
5.2.1.	Access Point - Mounting	41

5.2.2. Access Point - Connections	42
6. Hot-Swapping Sensors.....	43
6.1. Hot-Swapping Smart Sensors	43
6.2. Permissions	43
6.2.1. Hot-Swapping Sensors.....	43
6.2.2. Hot-Swapping Sensors.....	44
7. Safety, Warnings and Caution.....	45
7.1. Safety Information	45
7.2. Warnings	45
7.2.1. Electrical Hazards.....	45
7.3. Cautions.....	45
7.4. Directives.....	46
7.4.1. European Radio Equipment (RED) Directive 2014/53/EU.....	46
7.4.2. European Electromagnetic Compatibility Directive (EMC Directive).....	46
7.4.3. Low Voltage (Safety).....	46
7.4.4. Waste Electrical and Electronic Equipment.....	47
8. Declarations of Conformity	48
8.1. FCC Suppliers Declaration of Conformity (SDoC).....	48
8.2. Declarations of Conformity ISED (English)	49
8.3. Declarations of Conformity ISED (French).....	50
8.4. Declarations of Conformity ARIB	50
9. Document History	51

1. Introduction to EMSuite

1.1. Description

EMSuite is an Environmental Monitoring System (EMS) for use with **TrackView Pro** hardware components.

1.1.1. Software

The EMSuite application provides a browser based Graphical User Interface (GUI) for:

- The configuration and operation of Trackview Pro Loggers and their associated Data Input Channels.
- The presentation of collected data (in Graphs or Reports).
- The analysis (statistical and other) of collected data.
- The configuration of Alarm Thresholds and the distribution of Alarms to Users.

1.1.2. EMSuite System Overview

Figure 1, Figure 2, Figure 3 and Figure 4 below show overviews of the EMSuite System, including the interfaces between hardware, software and Users.

Figure 1

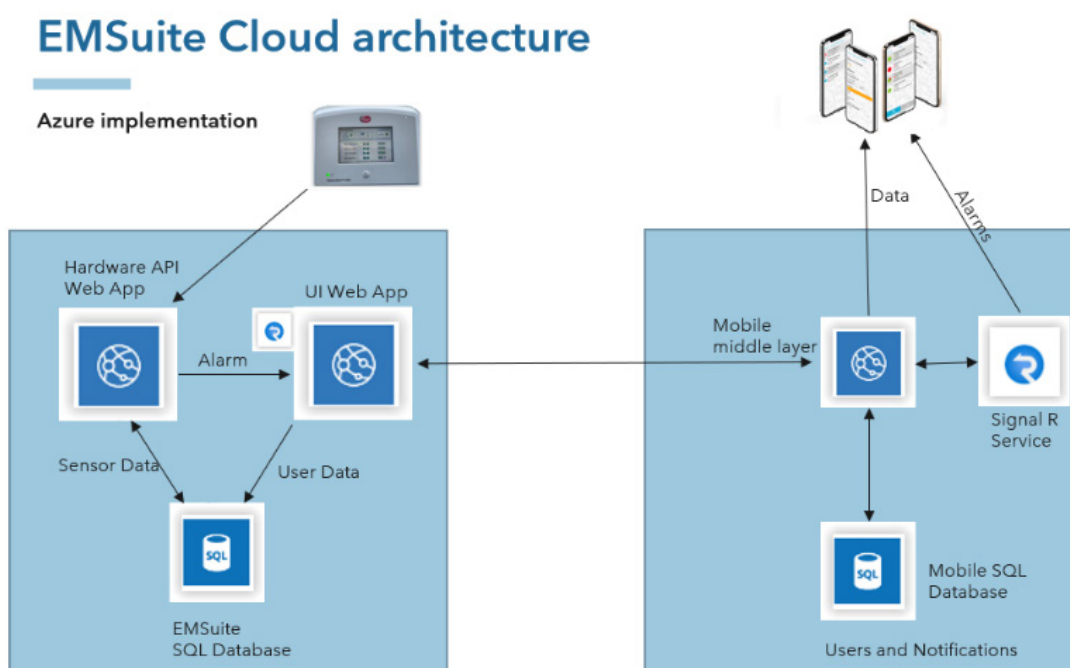


Figure 2

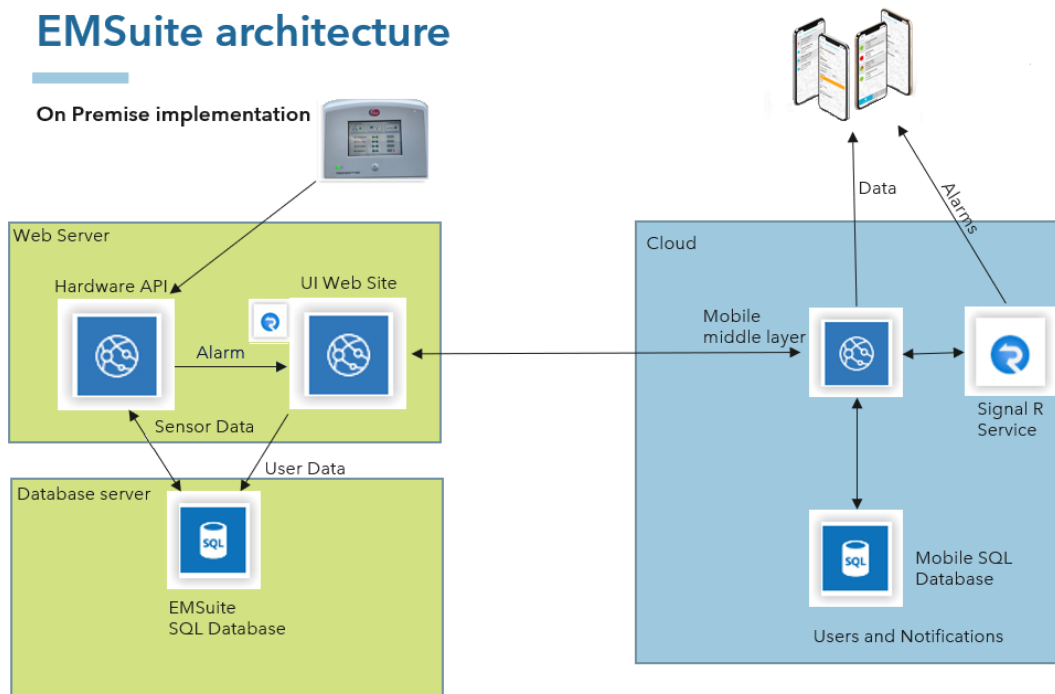


Figure 3

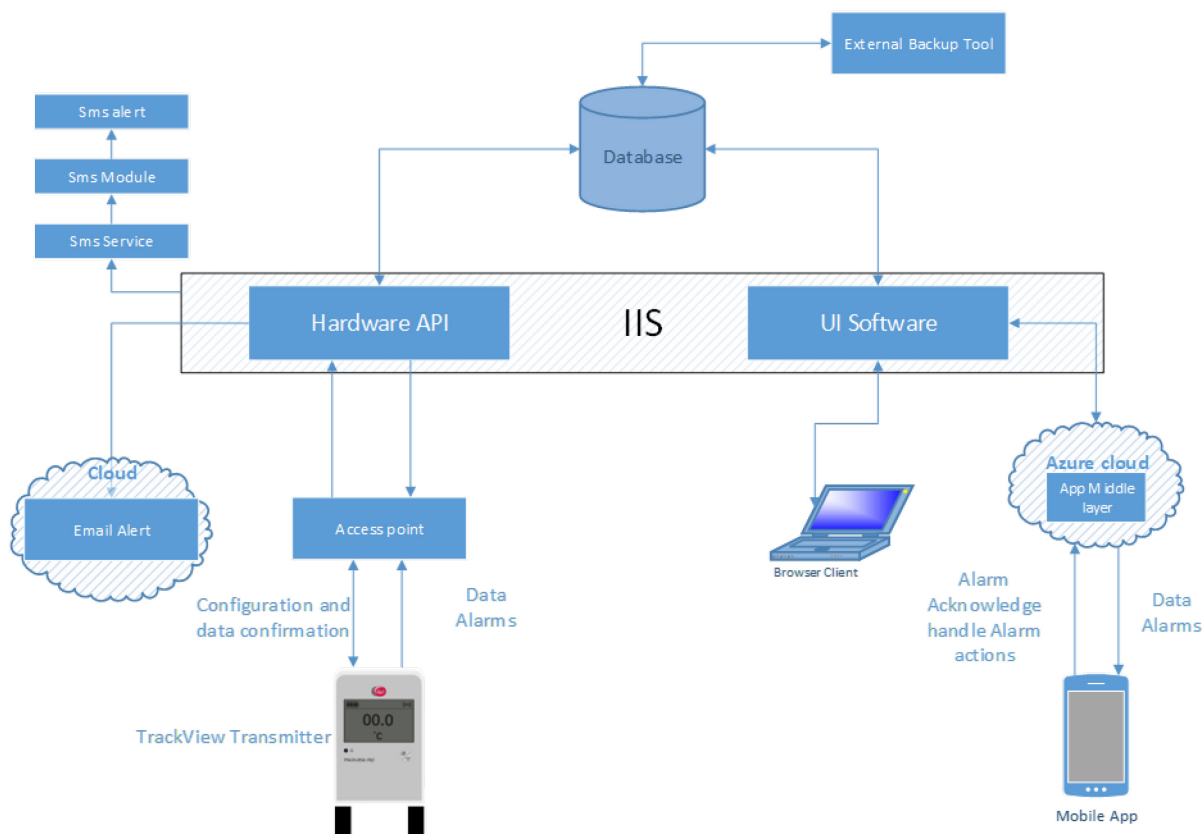
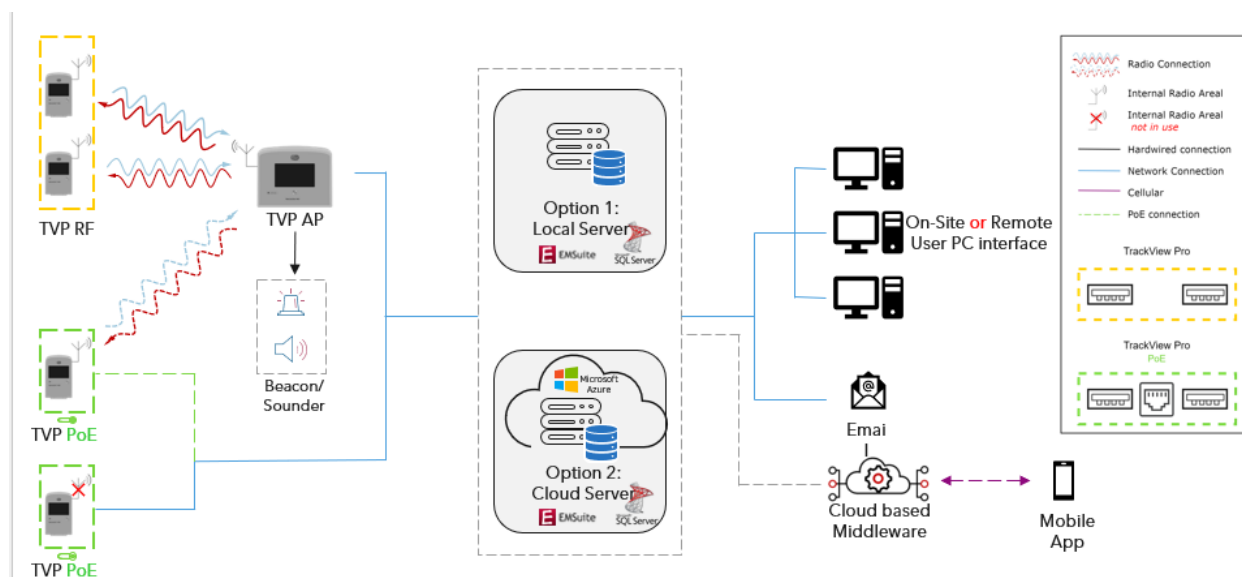


Figure 4



This diagrams above show how all of the EMSuite System components connect together into one software platform and illustrate all options for data collection.

Users can view data in the following ways:

- On a local PC
- On any PC with internet access
- On a tablet
- On a mobile device
- Via the Mobile Alarm App
- Alarms by email or text

1.2. EMSuite Access - Basic Concepts

EMSuite uses the concepts of Sites, Zones and Channels as the primary routes to manage, access and identify data.

1.2.1. Sites

Sites are the main access points to EMSuite System Data.

- Each Site represents a single physical Site where **TrackView Pro Access Point** receiving devices are sited along with **Track View Pro Transmitters** and their connected **Smart Sensors**.
- An unlimited number Sites can be shown on the **Dashboard Graphical View** at any one time. Sites can also be viewed in the **Sites window**.

1.2.2. Zones

Zones are used to logically group Sensors.

- Such a logical grouping could include all Sensors of a specific type or all of the Sensors in a particular area.
- For example, a Zone could be called '*RH-T Sensors*' which contains all the humidity and temperature Sensors or *First Floor Sensors* which contains Sensors of different types but all on the first floor.

1.2.3. Channels

Channels represent the different inputs accepted by **TVP-Transmitters** connected to EMSuite

Each **TVP-Transmitter** can have up to four Inputs, with each input connected to an individual sensing device. Each Input is known as a Channel.

Note: Some Smart Sensors have more than one Channel/Input.

1.2.4. Groups

1.2.4.1. Sensor Groups

EMSuite has the capability to group Sensors of the same type together into Sensor Groups.

- Sensors in a Sensor Group can be located on different Sites.

For example:

For a series of rooms where temperature and humidity is being measured, the Sensors measuring these parameters can be brought together into one group.

- Once grouped, the Sensor Group can be set to show an average value for all of the Sensors in that group.

Note: A Sensor Group is only visible to the User who created it and cannot be shared with or made visible to other Users.

1.2.4.2. User Groups

Setting up **User Groups** is only possible if EMSuite is setup with **Windows Active Directory**; you can then add a group of Users from Active Directory.

- It is not possible to create User Groups in EMSuite other than those created in Windows Active Directory.
- A number of Users can be assigned to the same role (regardless of using Windows Active Directory or the EMSuite login system).

2. Ellab Service

2.1. Ellab Service

Please contact your local Ellab sales representative for the proper service center location. Contact information can be found at www.ellab.com.

When contacting Ellab for support, please have the following information available:

- Model Number
- Serial Number
- Voltage
- Complete description of the problem
- EMSuite Software Version

3. EMSuite Installation - Software Pre-Requisites

3.1. Software Pre-Requisites

Overall System requirements are outlined below.

3.1.1. *Installation Pre-requisite Software (Included in the Installation)*

- IIS 7 or newer (Windows Server 2008)
- ASP.NET Core Runtime 3.1.23
 - MS .Net Core 3.1.23 - Windows Server Hosting
 - MS .Net Core Runtime - 3.1.23
 - MS ASP.NET Core 3.1.23 - SharedFrameWork

3.1.2. *EMSuite Server Specifications*

Ellab recommends that an EMSuite System employs two Servers:

- x1 Database Server
and
- x1 Application Web Server

3.1.2.1. Operating System Requirements - Database Server

- **Operating System:**
 - Microsoft Windows Server 2019 or newer/Windows 10/Windows 11
- **RAM:**
 - 8 GB
 - 16 GB (if the Database Server and Application Server are on the same machine)
- **Hard Disk Space:**
 - Minimum 20 GB or more
- **Database:**
 - SQL Server 2017 or newer (Default installation will be Microsoft SQL 2019 Express (x64))

- **Pointing Device/Keyboard:**
 - MS-Mouse compliant
 - MS-Keyboard compliant

3.1.2.2. Operating System Requirements - Application Web Server

- **Operating System:**
 - Minimum Microsoft Windows Server 2019
- **RAM:**
 - 8 GB RAM / 16 GB RAM (if the application server and database server are the same)
- **Hard Disk Space:**
 - Minimum 20 GB or more
- **Pointing Device/Keyboard:**
 - MS-Mouse compliant
 - MS-Keyboard compliant

3.1.3. EMSuite Access Point Ports

3.1.3.1. On Site

Hardware API: 44394

Website: 44303

Note: On-Site systems need to open the correct Ports on the Server and Network firewalls.

3.1.3.2. Cloud

Hardware API: 443

Website: 443

Note: Port 443 is normally open and the communication blends into the normal internet traffic; no firewall configuration is necessary.

3.1.4. *EMSuite App*

3.1.4.1. Minimum Operating System Requirements:

- Android 8
- iOS 13

3.2. Licensing System

3.2.1. *Basic Version:*

Default number of TVP Transmitters = 25

3.2.2. *Pro Version:*

- Default number of TVP Transmitters = 25
- Contains, in addition to Basic Version:
 - Audit Trial
 - Strict FDA Security Protocol
 - Mean Kinetic Temperature (MKT) Report
 - Limit Report - Threshold Limits
- **Additional features:**
 - App Licence

For both license types, additional licenses can be purchased for:

- The Mobile APP
- Additional TVP Transmitters

4. TrackView Pro Hardware

4.1. Introduction

Ellab's proprietary wireless communication protocol ensures that data is totally secure.

The wireless handshake between the **Track View Pro (TVP) Transmitter** and the **Access Point** provides confidence that all data is transmitted without loss.

All data is captured and communicated securely with complete integrity, which is a cornerstone to TrackView Pro achieving FDA CFR Part 11 compliance.

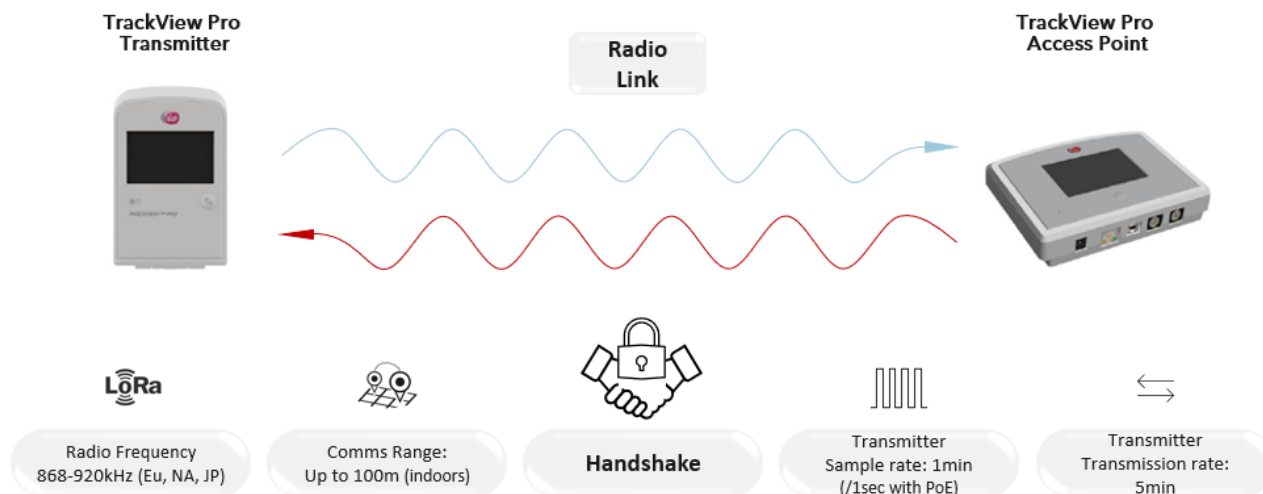
With **Track View Pro (TVP) Transmitters** capable of wireless transmission, Ellab has optimised wireless communication, with signal ranges of over 100m+ providing an optimal system infrastructure.

4.1.1. *Hardware Communication*

- **Secure Internet Protocol** which removes the needs to define an IP Address.
- Only need to specify a Server Name (URL) when configuring the Access Point, which is carried out locally.
- **Auto-Discovery**
TVP Transmitters periodically broadcast a message to 'inform' any nearby Access Points of their presence. Access Points 'Auto-Discovered' in this way are displayed in EMSuite as a list of connected Access Points, detailing which Transmitters the Access Points can 'see'.
- **Handshake** - See Figure 5 below:

Figure 5

TrackView Pro **wireless** communication



4.1.2. Smart Sensors (Probes)

Data input to the EMSuite System, is provided by the following Smart Sensor types:

4.1.2.1. SMART Sensor Specifications

SMART Sensors (Probes) (Separate purchase)	TrackView Pro	PoE TrackView Pro
SMART Temperature	-20.to +60°C and/ or -200.to.+250°C	
Relative Humidity	0-100%RH	
CO2	0.to.+20%	
Differential Pressure	±50Pa or ±1250Pa	
Analog Input	4-20mA or 0-10V	4-20mA or 0-10V
Digital Input	To be driven by Relay	
Digital Output	O	P
Door Switch	3m Cable	

4.1.2.2. Temperature Sensors



Technical Specification	Ellab Smart Sensor with integrated PT1000 Temperature probe 33068700	Ellab Smart Sensor PT1000
Operating Temperature, sensor interface	-20°C to +60°C	-20°C to +60°C
Measuring Range Temperature	-20°C to +60°C	-196°C to +125°C
Accuracy, Temperature	-20°C to +60°C	-200°C to -90°C (±5.0°C) -90°C to -40°C (±0.6°C) -40°C to +80°C (±0.2°C) +80°C to +125°C (±0.4°C) +125°C to +250°C (±1.5°C)
Calibration data	EEPROM in sensor	EEPROM in sensor

Technical Specification	Ellab Smart Sensor with integrated PT1000 Temperature probe 33068700	Ellab Smart Sensor PT1000
Sensor Response Time T-63% & T-90%	TBD	TBD
Sensor diameter	2.5mm	4mm
Sensor length	N/A	71mm
Cable diameter	N/A	3.3mm
Cable length	0m (40cm wire roll out for Dry Block calibration)	3 and 5 meters
Sensor Technology	PT1000	PT1000 (4-Wire principle)
Traceability	Each Sensor is marked with a unique Serial Number	
Material	Logger interface: Polyamide Sensor housing: POM	Logger interface: Polyamide Cable: PFA insulated

4.1.2.3. Relative Humidity (RH) Sensors



Technical Specification	Ellab Smart Sensor with integrated T & RH probe 33068400	Rotronic HC2 RH/T Probe 33281500	EE07 RH/T Probe
Measuring Principle - RH	Capacitive	Capacitive	Capacitive
Operating Temperature, sensor interface	0 - 40°C	-20°C to +60°C	-20°C to +60°C
RH Accuracy Non-condensing 0-100%, 0-40°C	±3%	According to Rotronic Datasheet	According to E+E Datasheet
RH Accuracy Non-condensing Calibrated range: 10-90% @22.5°C	±2%		
RH Resolution	0.01%RH		
RH Response Time: RH (typ.)	TBD		
Temp. Measuring Element	PT1000		
Temp. Measuring Range	0 - 60°C		
Temp. Calibrated Range	5 – 40°C		
Temp. Accuracy	TBD		
Temp. Resolution	0.1°C		
Temp. Response Time: T-63%	TBD		
Calibration data	EEPROM in sensor	Inside manufacturer sensor	Inside manufacturer sensor
Traceability	Each Sensor is marked with a unique Serial Number		
Cable length	N/A	Direct mount with connector (33067474) and with optional: 2m (33285702) or 5m (33285805) cable	Direct mount with SMART connector (33261400) and with optional: 1m (33284201) 3m (33284203) or 5m (33284205) cables

Technical Specification	Ellab Smart Sensor with integrated T & RH probe 33068400	Rotronic HC2 RH/T Probe 33281500	EE07 RH/T Probe
Material	TVP Transmitter interface: Polyamide Sensor housing: POM	TVP Transmitter interface: Polyamide Sensor housing: According to Rotronic datasheet	TVP Transmitter interface: Polyamide Sensor housing: According to OEM datasheet

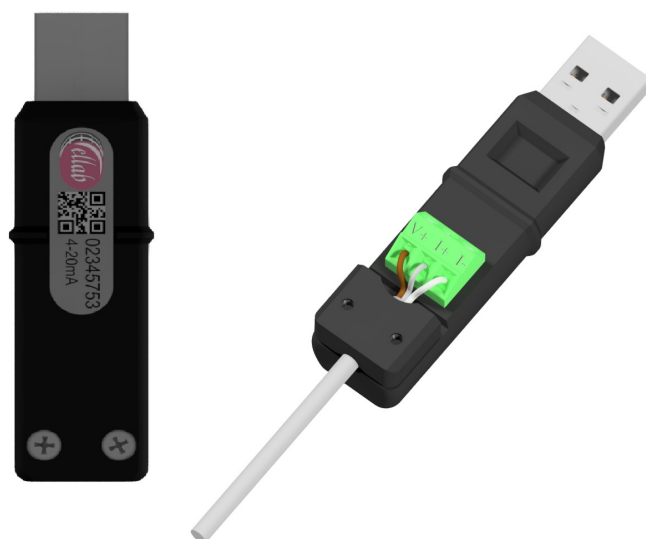
4.1.2.4. Analog Input 0 - 10V Sensor



Technical Specification	Analog Input 0-10V 33062410
Operating Temperature, sensor interface	-20 to +60°C
Input Range	0 - 10V
Measurement accuracy, Calibrated	±10mV
Input impedance	~76Ω
Output Voltage	24VDC ±5% (only with POE connected)
Output Power	Max 1W

Technical Specification	Analog Input 0-10V 33062410
Calibration Data	EEPROM in sensor
Connector, maximum wire size	1mm ² / AWG16
Material	TVP Transmitter interface: Polyamide Sensor terminal: Polyamide

4.1.2.5. Analog Input 4 - 20mA Sensor



Technical Specification	Analog Input 4-20mA 33062420
Operating Temperature, sensor interface	-20 to +60 °C
Input Range	4 - 20mA
Measure accuracy, Calibrated	±20µA
Input impedance	~76Ω
Output Voltage	24Vdc ±5% (only with POE connected)
Output Power	Max 1W
Calibration data	EEPROM in sensor

Technical Specification	Analog Input 4-20mA 33062420
Connector, maximum wire size	1mm ² / AWG16
Material	TVP Transmitter interface: Polyamide Sensor terminal: Polyamide

4.1.2.6. CO₂ Sensor



Technical Specification	Vaisala CO ₂ sensor (Contact Ellab for Part Number)
Operating Temperature, Sensor interface	-20 to +60°C
Measuring Range	0-5%, 0-10%, 0-20%
Accuracy	According to OEM datasheet
Calibration data	EEPROM in sensor
Cable length	1.5m, 3m. 5m for 0 - 5% and 0 - 10% options only
Communication Interface	MODBUS
TVP Transmitter Dependency	Needs a power source (PoE or else)

Technical Specification	Vaisala CO ₂ sensor (Contact Ellab for Part Number)
Material	TVP Transmitter interface: Polyamide Sensor Housing: According to OEM datasheet

4.1.2.7. Differential Pressure Sensors



Technical Specification	Smart Sensor with Differential Pressure ± 50 Pa 33063750	Smart Sensor with Differential Pressure ± 1250 Pa 33063712
Operating Temperature, sensor interface	-20 to +60°C	-20 to +60°C
Measuring Range	± 100 Pa	± 1250 Pa
Calibrated range @22.5°C	0 to ± 50 Pa	0 to ± 1250 Pa
Accuracy	± 1 Pa (0°C to +30°C)	± 6.75 Pa (0°C to +50°C)
Resolution	± 0.4 Pa	± 1 Pa
TVP Transmitter demands	Only work with PoE TVP Transmitter	
Calibration data	EEPROM in sensor	
Pressure connector	LEMO type: PKG.A0.1GZ.ZG	
Material	TVP Transmitter Interface: Polyamide Sensor Housing: POM	

4.1.2.8. Digital Input Sensor



Technical Specification	Digital Input 33063400
Operating Temperature, sensor interface	-20 to +60 °C
Drive	Drive from customer relay
Current inflow	<1mA (internal pull-up resistor)
Connector, maximum wire size	1mm ² / AWG16
Material	TVP Transmitter Interface: Polyamide Sensor Terminal: Polyamide

4.1.2.9. Digital Output Sensor



Technical Specification	Digital Output 33063600
Operating Temperature, sensor interface	-20 to +60 °C
Drive	Galvanic isolated bipolar solid-state Relay
Voltage Output	Max 32V
Power Output	Max 1W
Contact impedance	Typ. 10Ω
Connector, maximum wire size	1mm ² / AWG16
TVP Transmitter dependency	Needs PoE
Material	TVP Transmitter interface: Polyamide Sensor terminal: Polyamide

4.1.2.10. Door Switch Sensor



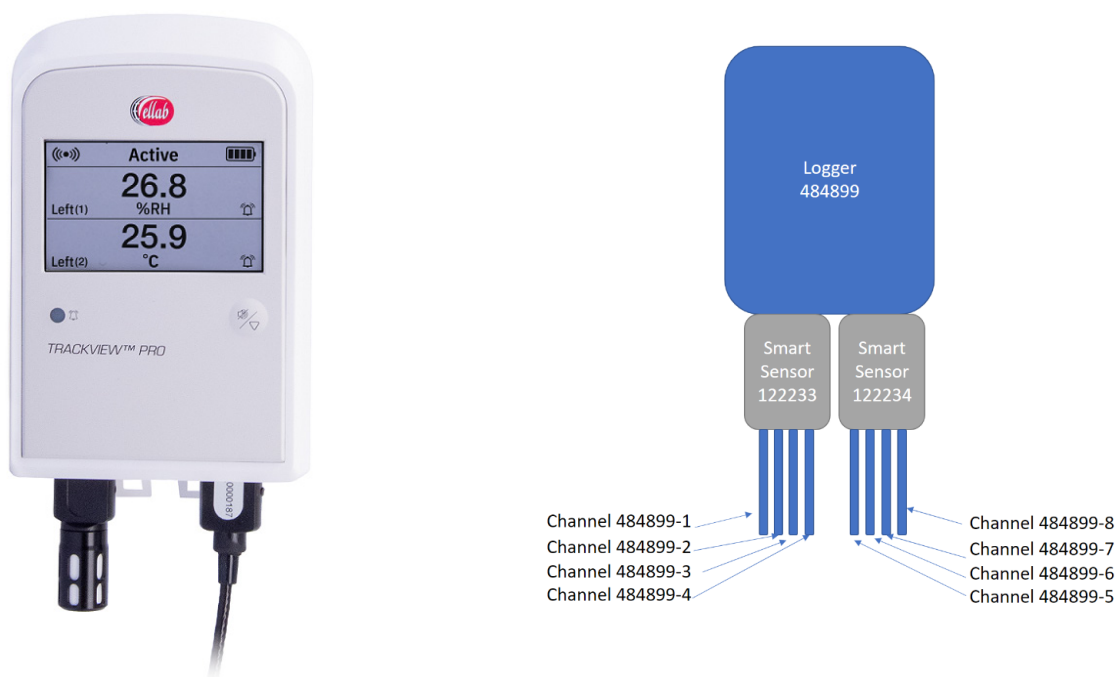
Technical Specification	Digital Door contact 33063303
Operating Temperature, sensor interface	-20 to +60 °C
Length of Switch Sensor Cable	3 meters
Switch type	REED relay NO
Dimension, wired part	30 x 20 x 7mm
Dimension, magnet part	30 x 20 x 7mm
Material	TVP Transmitter interface: Polyamide Sensor housing: Polypropylene

4.1.3. TVP Transmitter (Transmitter-Sensors)

TVP Transmitters store data received from connected **Smart Sensors** and send the data to the EMSuite Application either via an **Access Point** or, where **Power over Ethernet (PoE) TVP Transmitter** are employed, directly via a Local Network/Ethernet connection.

- The Power over Ethernet (PoE) version of the **TVP Transmitter** offers the possibility of faster communication with the EMSuite software and Database, without the need for an intermediate **TrackView Access Point**. This allows for faster sample rates (1 second as opposed to 1 minute for an RF **TVP Transmitter** plus the 5 minute rate for the TVP Access Point).
- Each **TVP Transmitter** can host up to two Smart Sensors and each Smart Sensor can have 1 - 4 Data Input Channels (ie. 1 - 8 Sensor Channels in total for each **TVP Transmitter**). See Figure 6 below:

Figure 6
TrackView Pro Logger Sensors/Channels

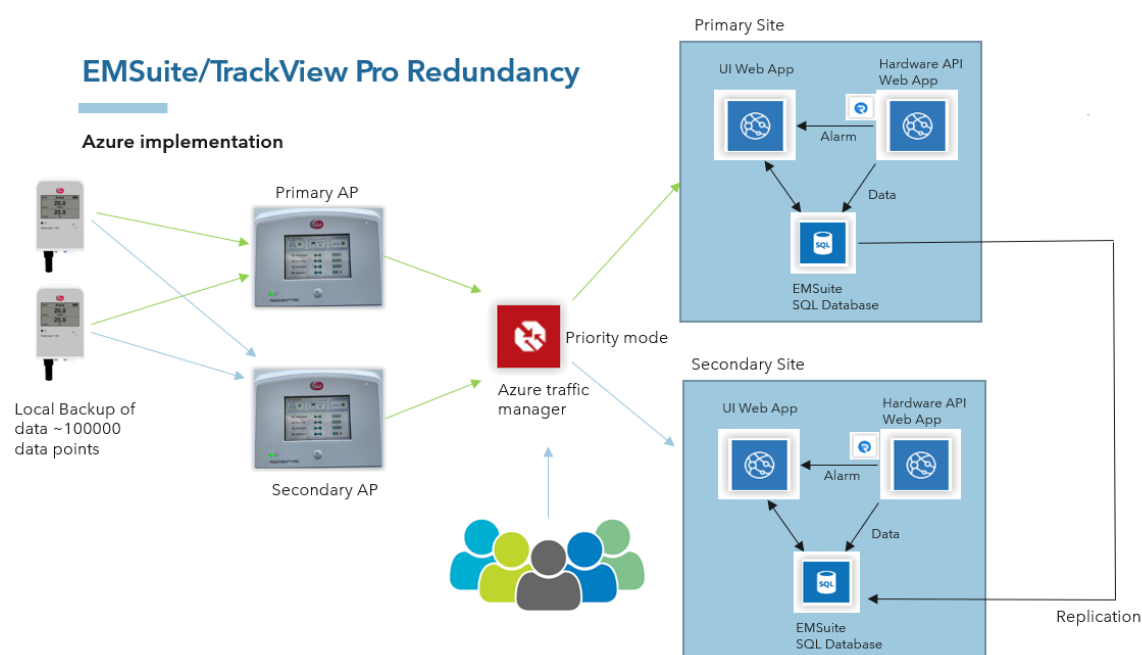


- With Ellab's standard configuration, 1min sample rate and 5 min transmission rate, a **TrackView Pro (TVP) Transmitter** can store up to 95,000 Datapoints from a single Channel.
 - If the TVP Transmitter is receiving inputs from more than one Channel the number of Datapoints that can be stored will decrease; for example, with a two Channel input 69,000 Datapoints can be stored.

- The stored data serves as a backup if the connection to the EMSuite Data Server is temporarily lost.
 - Stored data is backfilled to the EMSuite Data Server when the connection is re-established.

See Figure 7 below:

Figure 7



Note: Data Backfill - The European Telecommunications Standards Institute (ETSI) regulations require each device to be limited to an Aggregated Transmit Duty Cycle of 1% (ie. 36 seconds per hour). This limits the amount of data being sent and reduces the backfill capability.

4.1.4. Alarm Thresholds

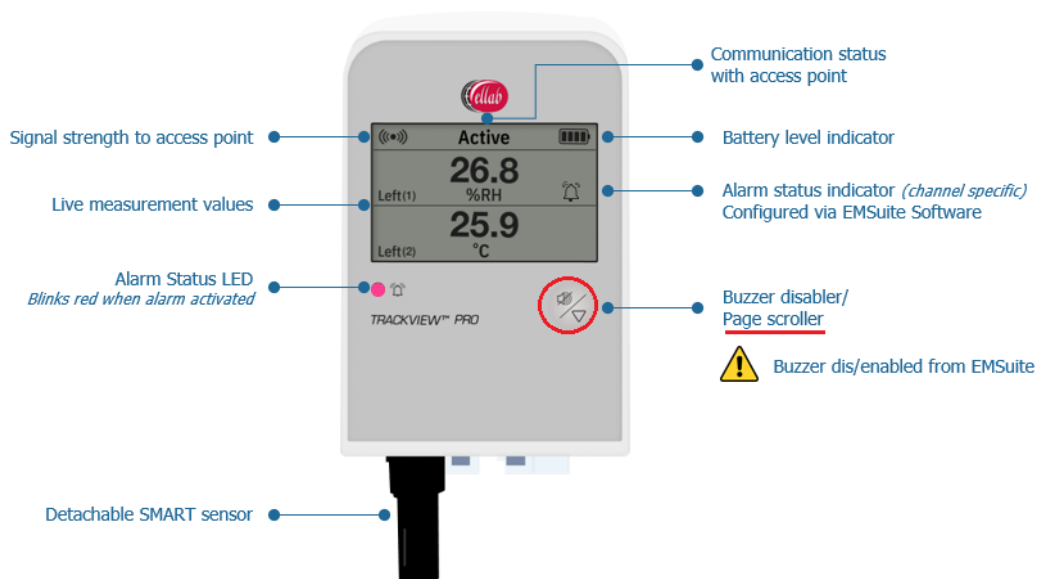
Alarm Thresholds can be set on individual Channels.

- Alarm Thresholds are written to the TVP Transmitter(s), which ensures that Alarms are activated directly from the hardware.

4.1.5. TVP Transmitter Data Display

The initial Data Display screen on the **TrackView Pro (TVP) Transmitters** shows the following information. See Figure 8 below:

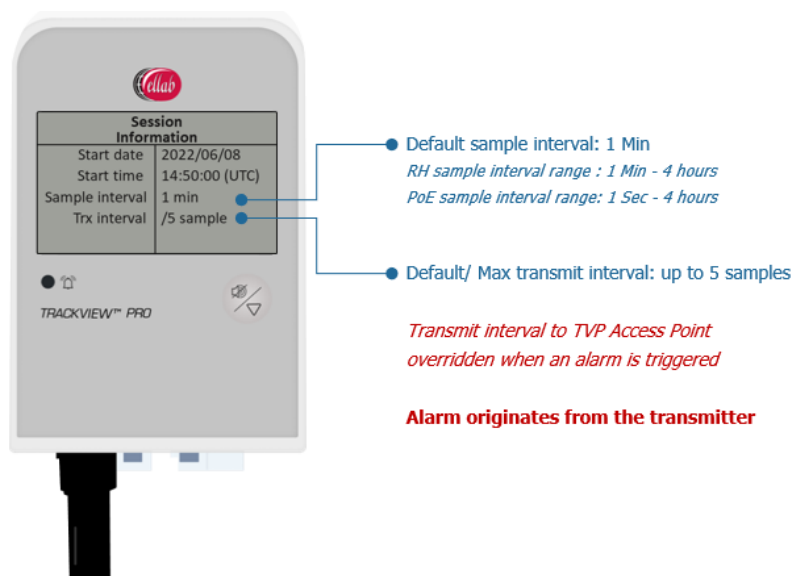
Figure 8



Clicking on the Page Scroller button (see Figure 8 above) scrolls through the following screens:

4.1.5.1. Session Information Screen

Figure 9



4.1.5.2. Transmitter Static Information Screen

Figure 10

Logger Information	
SN	5029345
HW version	1.6
FW version	68.1
Production date	2021/01/01

● Serial Number
● Hardware Version
● Firmware Version
● Production Date

4.1.5.3. Smart Sensor - General Information Screen

Figure 11

Smart Sensor 1 (left) General information	
Type	T/ RH
SN	2322213
HW version	0.2
Production date	2020/12/18
Fact. cal. date	2021/01/01

● Sensor Type
● Sensor Serial Number
● Hardware Version
● Sensor's Production Date
● Sensor's Factory Calibration Date

4.1.5.4. Smart Sensor Channel Names Screen

Figure 12

Left Smart Sensor Channel Names	
1st channel	Left(1)
2nd channel	Left(2)

4.1.5.5. Smart Sensor User Calibration Dates Screen

Figure 13

Left Smart Sensor User calibration dates	
1st channel	2021/01/01
2nd channel	2021/01/01

Buzzer

Sounds when preset **Alarm Thresholds** have been exceeded.

Battery

- > 1 year battery life for RF Transmitter at 1 minute Sample Rate and 5 minute Transmit Rate.
- The Transmitter is designed to be powered by specific Energizer Lithium Primary battery cells.
- When the Transmitter powers up, the User is prompted (locally - not via EMSuite) to choose whether a new set of batteries have been inserted, or if the Transmitter is running on the batteries in use before the Transmitter was powered down.

4.1.6. TVP Transmitter Clock (Internal)

- The time registered by the TVP Transmitter is regularly synchronized with the Windows PC's time.
- Once the TVP Transmitter's time has been adjusted to the Windows PC's time, the TVP Transmitter's internal clock takes over.
 - The maximum deviation of the TVP Transmitter 's internal clock is ± 2 seconds per 24 hours at 23°C.

4.1.7. Other Details

- Internal radio antenna (to allow for connection to both PoE and RF Transmitters).
- 2-way communications between Transmitter-Sensor and Access Point/EMSuite.
- QR Code of Smart Sensor's Serial Number to enhance traceability.
- Self-contained Calibration Data (In EEPROM).
- Notched Connector to prevent accidental removal of connecting cable; see page15.
- Dimensions: 132mm(W) x 80mm(H) x 31mm(D).

4.1.8. Access Points

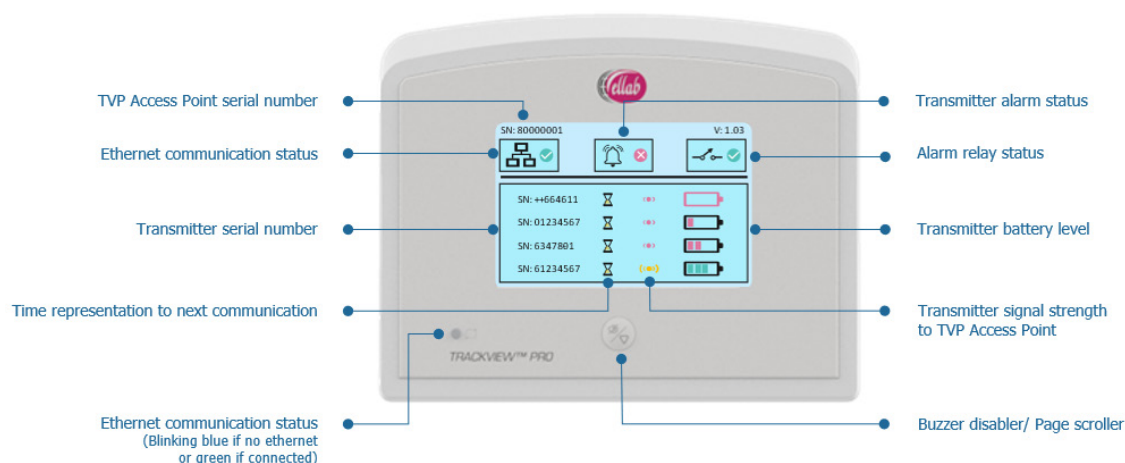


- **TrackView Pro Access Points** can connect to and receive data wirelessly from up to 32 TrackView Pro (TVP) Transmitters.
- An unlimited number of Access Points can be added to an EMSuite System

4.1.9. Data Display

The TrackView Pro Network Access Point's colour HMI display can show the following Data information. See Figure 14 below:

Figure 14

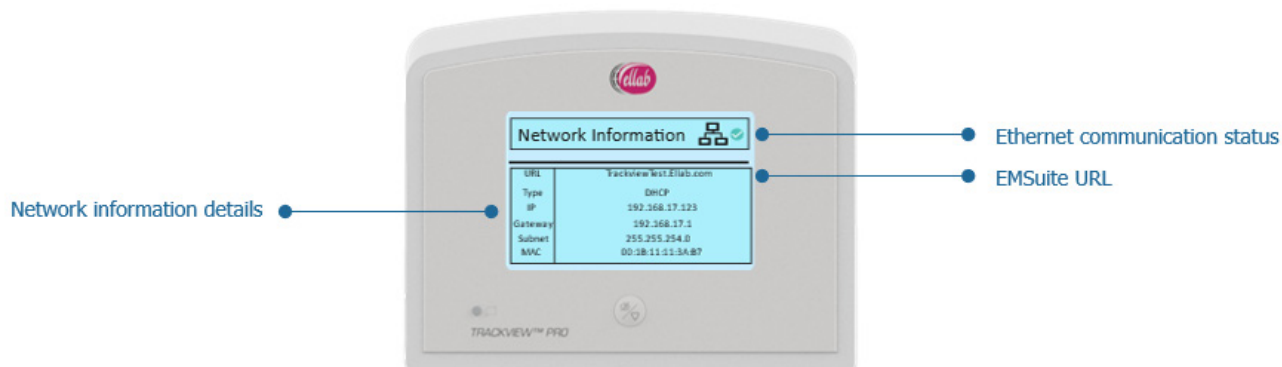


Press the Page scroller button (see Figure 14 above) to move to the Network Information Display screen. See Figure 16 below:

4.1.10. Network Information Display

The TrackView Pro Network Access Point's colour HMI display can show the following Network information.

Figure 15



Press the Page scroller button (see Figure 14 above) to move back to the Data Display screen. See Figure 15 above.

4.1.11. Trackview Pro Access Point (Internal)

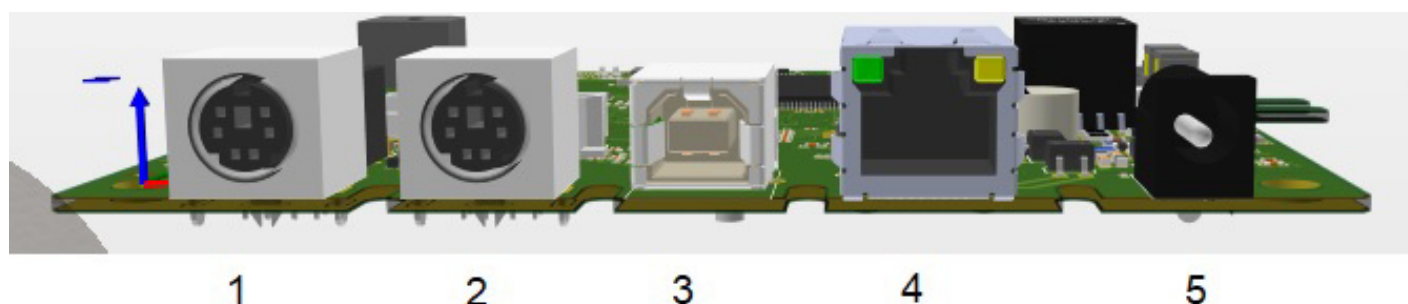
The EMSuite software will regularly synchronize the PC's (Windows) time clock with the Trackview Pro Data Logger.

- Once the time has been adjusted to the PC's time, the Data Logger's internal clock takes precedence with a maximum deviation of ± 2 sec per 24 hours at 23°C.

4.1.12. Access Point Connections

TvP Access Points have the following connectors located on their base. See Figure 16 below:

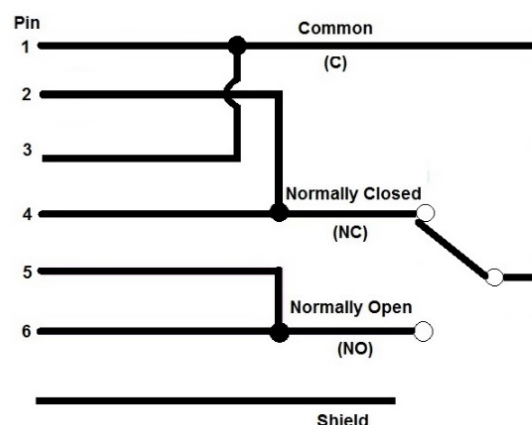
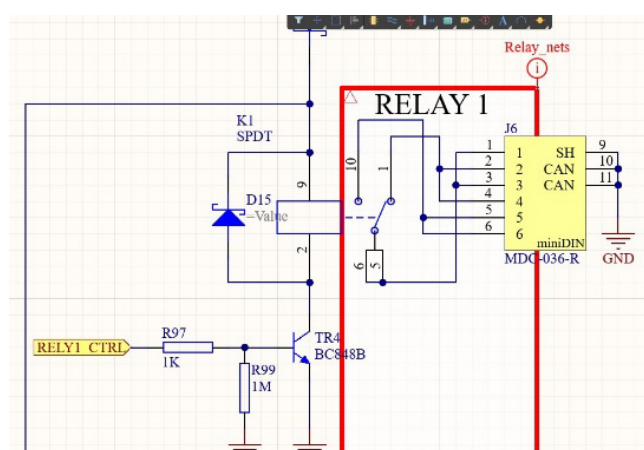
Figure 16



1. Relay 1 - Alarm Relay:

Connector type part number: MDC-036-R. See Figure 17 below:

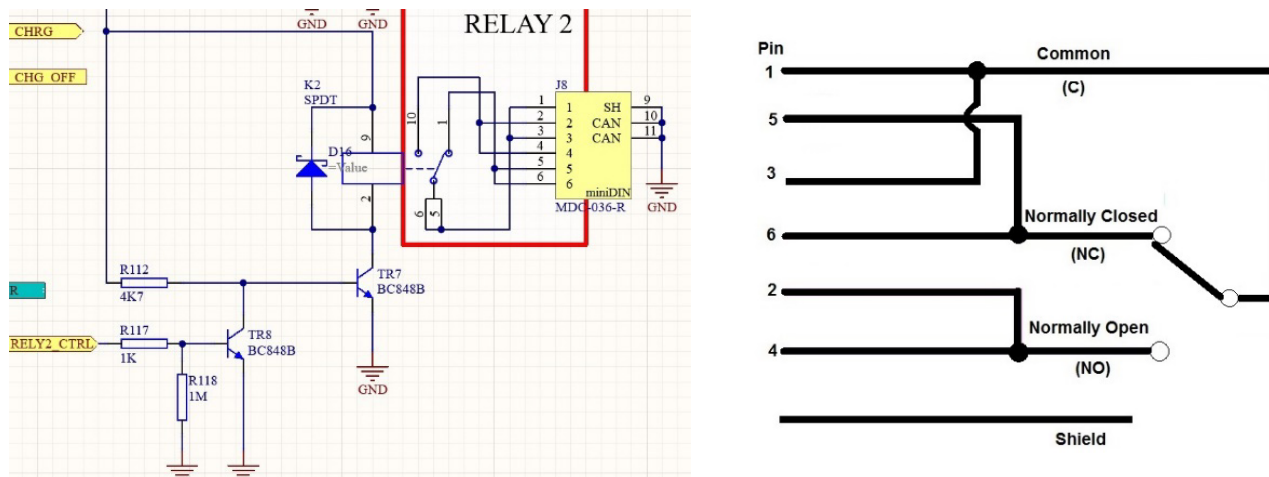
Figure 17



2. **Relay 2 - Power/LAN Relay:**

Connector type part number: MDC-036-R. See Figure 18 below:

Figure 18



- Relay 2 is closed when the Access Point is not powered, is running off its battery or if a LAN fail is detected and it is unable to connect to EMSuite.

3. **USB Connector:**

Type B USB connector, used for:

- AP Network configuration.
- AP API configuration.
- AP firmware update.

4. **Ethernet Connector:**

Used for network communications and POE supply:

➤ **POE supply:**

The Access Point uses a Class 3 PoE application:

PoE	IEEE 802.3af	12.95 W
-----	--------------	---------

Manufacturer's Part Number: SI-52008-F.

5. **12V DC Jack Connector:**

12V DC power connector input - 2.1mm PCB mount DC power socket

Manufacture's Part Number: RAPID 20-0970.

5. Physical Installation

5.1. Track View Pro (TVP) Transmitters

Figure 19
TrackView Pro(TVP) Transmitters



5.1.1. TrackView Pro (TVP) Transmitters - Connection to Access Points

5.1.1.1. Wireless (RF) TrackView Pro (TVP) Transmitters

EMSuite automatically detects new hardware connected to an **Access Point**. by using its **Auto Discovery** functionality.

5.1.1.2. Power over Ethernet (PoE) TrackView Pro (TVP) Transmitters

Power over Ethernet (PoE) TrackView Pro (TVP) Transmitters are connected to Access Points via their Ethernet sockets and Ethernet cables. See Figure 20 below:

Figure 20



5.1.2. TrackView Pro (TVP) Transmitters - Mounting

When selecting a position for a TrackView Pro (TVP) Transmitter, please follow the guideline below to prevent a degradation if its signal strength and radio range.

- **DO NOT** mount a TrackView Pro (TVP) Transmitter on a metal surface or with its antenna touching a metal surface.
 - There should be no metallic objects within 20cm of any part of the Hanwell Pro Repeater's antenna.
- **DO** mount the TrackView Pro (TVP) Transmitter vertically, with the power socket pointing downwards and the Antenna vertical and pointing upwards.
- If possible, mount the TrackView Pro (TVP) Transmitter in an open area, rather a tightly enclosed space (e.g. small cupboard).
- Under normal operation Transmit and Receive LEDs will be illuminated, blinking off periodically as signals are received and re-transmitted.

5.1.3. TrackView Pro (TVP) Transmitters - Connection to Smart Sensors

TVP Transmitters have a latch incorporated in them which engages with a notch on the **TVP SMART Sensors**, securely locking them into the TVP Transmitter's case (with a 'click') as they are inserted into the TVP Transmitter's USB socket.

To remove a SMART Sensor from a TVP Transmitter it is necessary to squeeze/push up the lever on the back of the transmitter to release the SMART sensor.

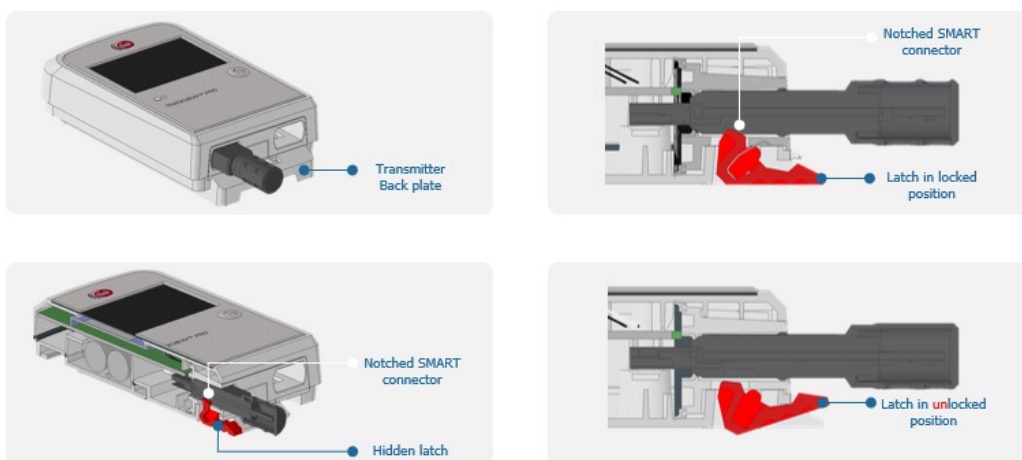
Note: The USB Sensor latch can only be released when the TVP Transmitter is removed from its mounting wall bracket/cradle; when mounted in the wall bracket/cradle, the USB Sensor latch is not accessible. This removes the likelihood of accidental disconnection of the Sensor.

See Figure 21 and Figure 22 below:

Figure 21



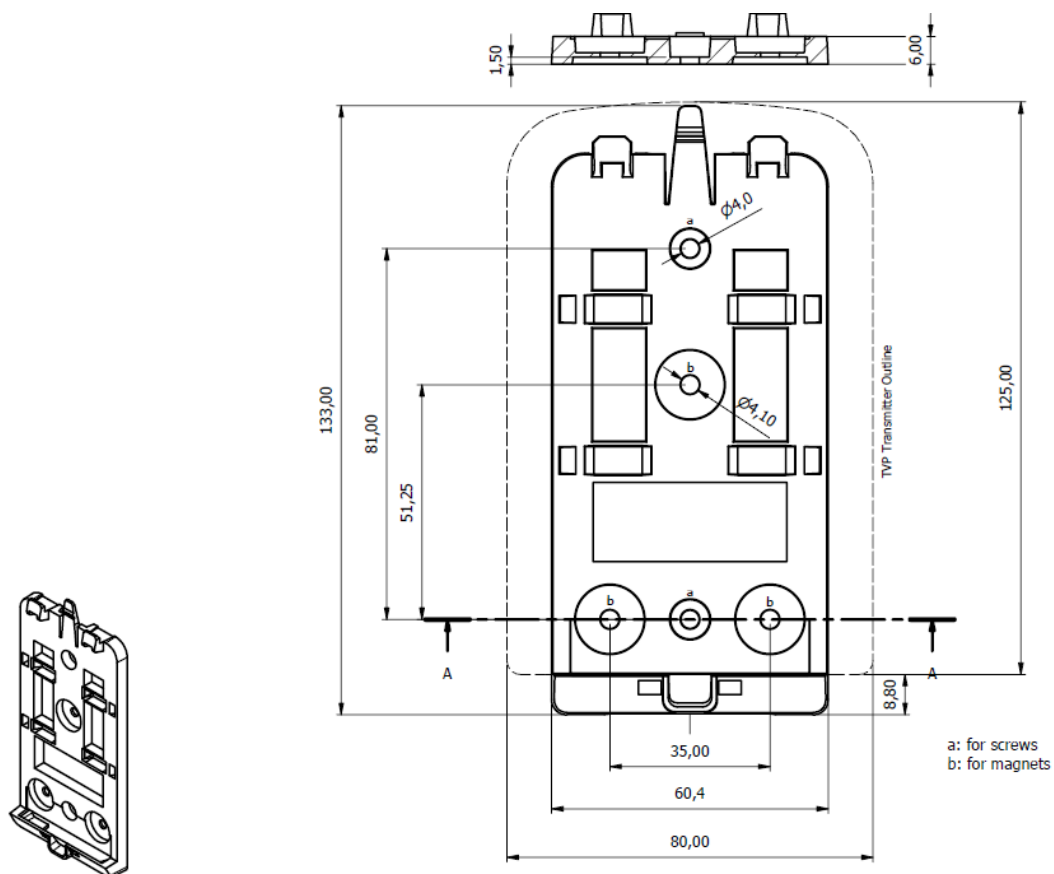
Figure 22



Note: The SMART Sensors will not 'talk' to a standard USB port as they use a different communication architecture.

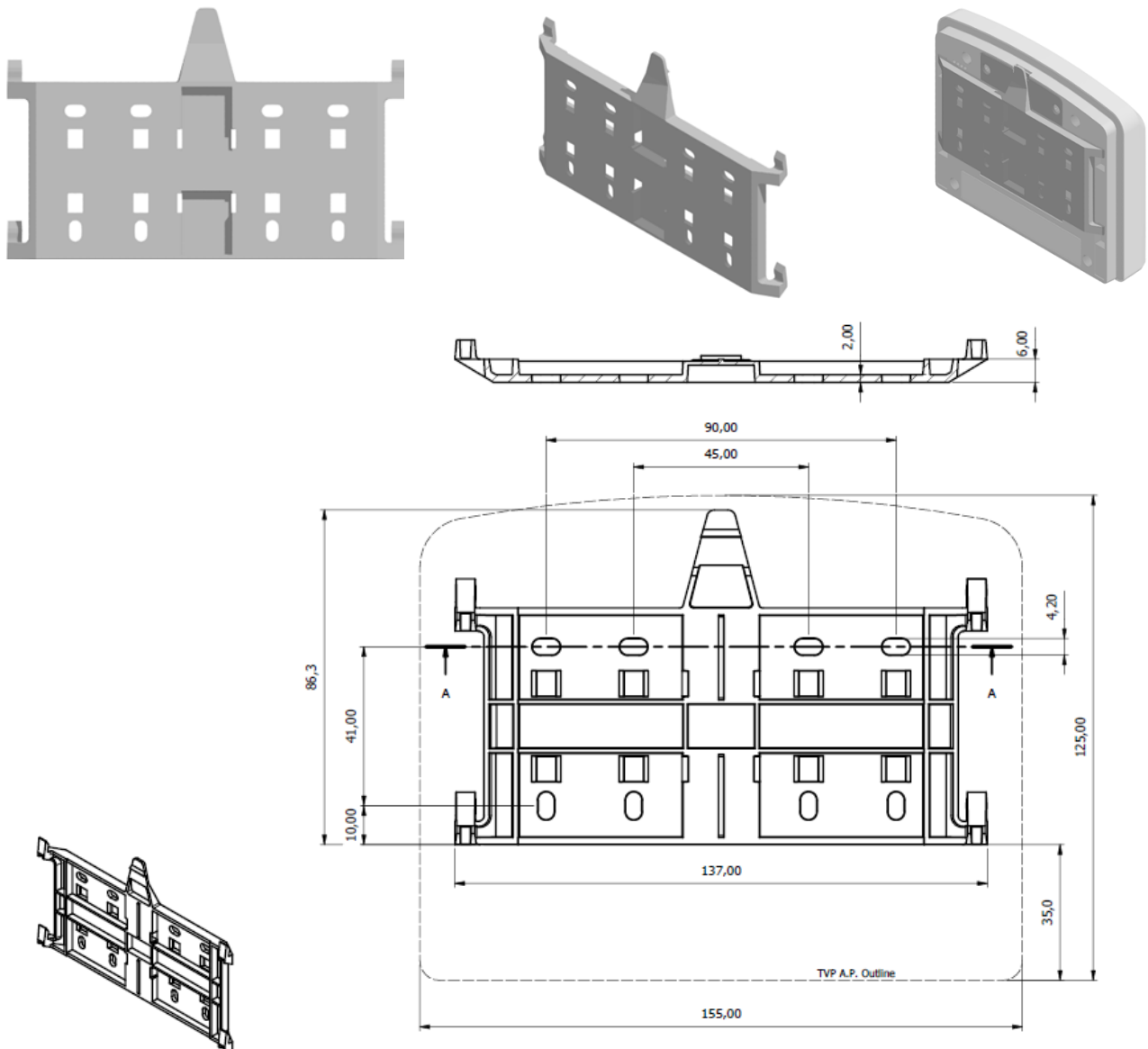
5.1.4. Track View Pro (TVP) Transmitters - Battery Access and Mounting

Figure 23



5.2.1. Access Point - Mounting

Figure 1. The effect of the number of trials on the number of correct responses.





5.2.2. Access Point - Connections

5.2.2.1. Power Supply

12V DC power connector input - 2.1mm PCB mount DC power socket

5.2.2.2. Auto-Discovery - RF

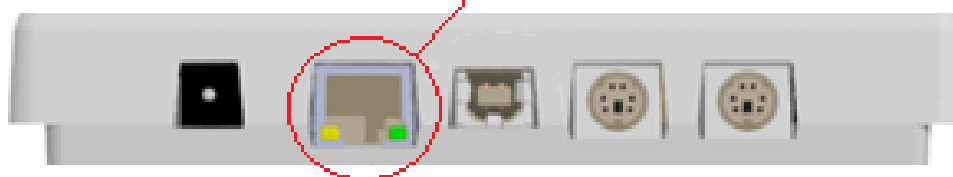
EMSuite automatically detects new hardware connected to an **Access Point**, by using its **Auto Discovery** functionality.

5.2.2.3. Ethernet - PoE

Power over Ethernet (PoE) TrackView Pro (TVP) Transmitters are connected to Access Points via its Ethernet socket and Ethernet cables. See Figure 25 below:

Figure 25

Ethernet Connection



6. Hot-Swapping Sensors

6.1. Hot-Swapping Smart Sensors

A Smart Sensor can be replaced by another Smart Sensor, of the same or a different **Measurement Type**, by **Hot-Swapping**, that is replacing one Smart Sensor with another, without shutting down the EMSuite System.

Disclaimer: While EMSuite/TVP Transmitters allow the customer to connect any Smart Sensor to a TVP Transmitter, it is the customers own responsibility to ensure this data is transmitted properly following the swapping of Smart Sensors.

Ellab accepts no responsibility for a customer sensor not transmitting data or any damage done to a TrackView Pro device from this use.

6.2. Permissions

In order for the User to accept conditions when swapping, the User should have allocated, as a minimum, the following **Permissions**:

- **Hardware - Auto-Discovery**
- **Channel configuration - Allow Decommission**
- **System messages - Allow View**

6.2.1. Hot-Swapping Sensors

If the new Sensor is the Same Sensor Type as the existing Sensor:

Note: In this instance, '*Same Sensor Type*' means the same number of Channels, measuring the same parameter(s).

This will lead to the following:

- Data will continue to be recorded in the same dataset.
- If the new Smart Sensor is not already authorised on another TVP Transmitter, no further User action is required, but the change is registered in the **Audit Trail**.
- If the new Smart Sensor is authorised on another TVP Transmitter, the User will need to use **Auto-Discovery** to detect the new Smart Sensor.

6.2.2. *Hot-Swapping Sensors*

If the new Sensor is a Different Sensor Type to the existing Sensor (e.g., T to RH)

This will lead to the following:

- Data will stop being recorded in the existing dataset.
- Discontinuation (Decommissioning) of previous **Dataset** and a new **Dataset** started.
- The User will need to use **Auto-Discovery** to detect the new Smart Sensor..
- The User will need to accept **Decommissioning** of old data.
 - Decommissioning will remove Channels from
 - ❖ **Zones**
 - ❖ **Logical zones**
 - ❖ **Reports**
 - ❖ **Scheduled reports**
 - ❖ **Alarm templates**

7. Safety, Warnings and Caution

7.1. Safety Information

Use TrackView (TVP) Pro Hardware only as specified in this manual. Otherwise, the protection provided by the equipment may be impaired.

The following definitions apply to the terms **Warning** and **Caution**.

- **Warning** identifies conditions and actions that may pose hazards to the user.
- **Caution** identifies conditions and actions that may damage the equipment being used.

7.2. Warnings

Disclaimer: Ellab manufactures equipment intended for use in factory monitoring.

Equipment used for applications other than above is used at the discretion and sole responsibility of the customer.

Ellab cannot accept any responsibility for the use of equipment for any purpose other than a monitoring application.

7.2.1. Electrical Hazards

These following guidelines must be followed to ensure that the safety mechanisms in the equipment will operate properly:

- Equipment, where applicable, must be plugged into a 115 VAC ($\pm 10\%$) or 230 VAC ($\pm 10\%$) 50/60 Hz electrical outlet, as indicated on the label.
- Mains power is supplied by an 12V AC/DC and 5A adaptor which can be plugged directly into a socket which must be installed in accordance with local Codes and Ordinances.

7.3. Cautions

- Only operate Trackview Data Transmitters and Trackview Pro Access Points at temperatures between -20°C to 60°C .
- **DO NOT** operate this equipment in an excessively wet, oily, dusty, or dirty environment.
- TrackView Pro Hardware components are sensitive, precision instruments. Although they been designed for optimum durability and trouble-free operation, they must be handled with care as they can easily be damaged. Always handle these devices with care; do not allow them to be dropped, struck, stressed or overheated.

7.4. Directives

7.4.1. *European Radio Equipment (RED) Directive 2014/53/EU*

7.4.1.1. Article 10.2

This equipment has been designed, manufactured and tested in accordance with the European Radio Equipment Directive (RED) Article 10.2 to ensure that it complies with the applicable requirements in the **Harmonised Standard EN 300.220-2 V3.2.1**, regarding the use of the **868MHz** radio spectrum. As a result, it can be operated in at least one Member State without infringing these requirements.

We are confident that this equipment will provide reliable and efficient service, whilst ensuring protection of both the electromagnetic spectrum and the safety of users.

7.4.1.2. Article 10.10

This equipment has been designed, manufactured and tested in accordance with the European Radio Equipment Directive (RED) Article 10.10, to minimize electromagnetic emissions and prevent interference with other equipment. As a result, there are no restrictions on operating this equipment with regards to electromagnetic emissions or interference.

To ensure compliance with the RED Directive Article 10.10, we recommend that you follow the guidelines outlined in this manual to ensure proper installation and use of the equipment.

- If you have any questions or concerns about compliance with the RED Directive, please contact our Technical Support team for assistance.

7.4.2. *European Electromagnetic Compatibility Directive (EMC Directive)*

Ellab equipment has been tested to meet the **European Electromagnetic Compatibility Directive (EMC Directive, 2014/30/EU)**.

The Declaration of Conformity for your instrument lists the specific standards to which the Unit was tested.

7.4.3. *Low Voltage (Safety)*

Ellab equipment complies with the **European Low Voltage Directive (LVD 2014/35/EU)**.

Ellab equipment has been designed to meet the **EN 61010-1 standard**.

7.4.4. *Waste Electrical and Electronic Equipment*



All products supplied after February 1st, 2003 meet the requirements of **EU Directive 2012/19/EU** on Waste from Electrical and Electronic Equipment (WEEE).

This means that all Ellab products, which must be recycled or handled separately, are marked with the WEEE label in accordance with **EU Directive 2012/19/EU Waste from Electrical and Electronic Equipment**.

In addition, Ellab A/S accept scrapped equipment from customers and sort it for waste disposal. Used equipment returned to Ellab A/S for service may also be scrapped in accordance with the Directive. However, it is not legal to ship waste products across country borders for disposal; Ellab distributors are obliged to register waste in accordance with their national legislation, which may also require them to accept scrapped equipment from end users and dispose of it according to their national laws.

This Declaration of Conformity is issued under the sole responsibility of the manufacturer, pursuant to **ISO/IEC 17050**. It does not affect the warranty obligations of the Supplier. We reserve the right to exceed the standards as part of our product development program.

8. Declarations of Conformity

8.1. Declaration of Conformity FCC

Declaration for Class B Devices

Important Notice Regarding Ellab TrackViewPro Equipment

FCC ID: XUS -TVPTX1; FCC ID: XUS -TVPAP1

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This 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.

Note: This equipment has been tested and found to comply with the limits for a **Class B Digital Device**, pursuant to **Part 15** of the **FCC Rules**. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Re-orient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Applicable to TrackViewPro Access Point

To comply with FCC RF exposure requirements this device with its antennas must be installed and operated with a min separation distance of 20 cm to any human body.

8.2. Declarations of Conformity ISED (English)

Declaration

Innovation, Science and Economic Development (ISED) Canada

Important Notice Regarding Ellab TrackViewPro Equipment

IC: 8758A-TVPTX1; IC: 8758A-TVPAP1

CAN ICES-3 (B) / NMB-3(B)

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

1. This device may not cause interference;
2. This device must accept any interference, including interference that may cause undesired operation of the device.

ISED Applicable to TrackViewPro Access Point

To comply with ISED RF exposure requirements this device with its antennas must be installed and operated with a minimum separation distance of 20cm to any human body.

8.3. Declarations of Conformity ISED (French)

Declaration

Innovation, Science and Economic Development Canada (ISED)

(Innovation, Science et Développement Économique Canada)

Avis important concernant l'équipement Ellab TrackViewPro

IC: 8758A-TVPTX1; IC: 8758A-TVPAP1

CAN ICES-3 (B) / NMB-3(B)

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

1. L'appareil ne doit pas produire de brouillage;
2. L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

ISED Applicable to TrackViewPro Access Point

Pour se conformer aux exigences d'exposition RF ISED, cet appareil avec ses antennes doit être installé et utilisé avec une distance de séparation minimale de 20 cm par rapport à toute personne corps.

8.4. Declarations of Conformity ARIB

Declaration

ARIB



Ellab TrackViewPro equipment has been tested to comply with the requirements in the Japanese standard ARIB STD-T66 (Low-Power Data Communication System/Wireless LAN System).

9. Document History

Version Number	Issue Date	Changes	By
1.0	14 th October 2022	Initial Issue	IR
1.1	1 st February 2023	Updates to information on Directives Minor corrections	IR
1.2	16 th February 2023	Correction to Figure 25 Change to title of FCC Declaration	IR



Validation & Monitoring
Solutions