Installation Guide

TrackView Pro & EMSuite

Version 2.0

Introduction

With our monitoring solution EMSuite you will be able to ensure optimal environmental conditions by continuously monitoring your assets. Our monitoring solution allows you to set precise temperature alarms, receiving alerts in case of deviations allowing you to take proactive measures and prevent damage before it occurs.
In addition to temperature, our solution monitors other critical metrics such as humidity and pressure.

Our platform, EMSuite, is designed to be intuitive and user-friendly, allowing for effortless configuration to meet your specific requirements.
EMSuite is configured with the TrackView Pro hardware components. The software will track and log all data transferred from the hardware.

A wireless “handshake” between the TrackView Pro transmitter and the Access Point provides confidence that all data is transmitted without loss, ensuring data integrity.
The software can be installed on premise or on a cloud-based solution.

1. Initial Installation

Defining Communication Solution

The customer shall define their IT solution for installing EMSuite prior to the installation, and this is detailed in the IT Pre-requisites for both Cloud and On-Premise.

For quoting purposes:
EMSuite On-premise is named “EMSuite Purchase”.
EMSuite Cloud based is named “EMSuite SaaS”.

On-premise (EMSuite Purchase) installation is defined by using a local host which the customer should provide details for using the IT-Prerequisites.
Cloud based (EMSuite SaaS) installation will be defined by a dedicated and individual URL received from Ellab A/S. The cloud-based solution will require an Microsoft Azure Tenant, either provided by Ellab A/S or the customer.
Licensing systems are defined by validated or non-validated versions and have the definition of EMSuite compliant and EMSuite Essential.
The license key is generated by Ellab A/S and issued to the customer or Ellab Sales representative.
EMSuite Compliant is a Validated software solution which is handled with use of IQ and OQ protocols.
EMSuite Essential is a non-validated installation and the IQ and OQ protocols are not a part of the solution.
Upgrade and Downgrade of the EMSuite software version or channel size requires a new license, and a new license key installation – both for On-premise and Cloud installations.

Initial Set Up - Requirements

Installation and configuration of EMSuite requires various programs, these are listed in the description below and downloaded via dedicated USB drive or folder provided by Ellab A/S.
Before installing EMSuite it is required that the logged in Windows user must have local administrator permission, and ports need to be configured in the network firewall.

On-Premise

- ✔ EMSuite version 1.x.x.x
- ✔ TrackViewCustomer App
- ✔ EMSuiteLicenseApp
- ✔ License activation key (distributed from Ellab A/S only)

Firewall

The following firewall settings must be enabled to establish communication with the software.

- ✔ Enable inbound rule: Port 44303 which allows access to the server of other PCs on the network.
- ✔ Enable Inbound Rule: Port 44394 which allows communication with the access point

Cloud-based installation

- ✔ EMSuite version 1.x.x.x (installed by Ellab A/S)
- ✔ TrackView Customer App

Firewall

The following firewall settings must be enabled to establish communication with the software.

- ✔ Enable inbound and outbound rule: Port 443 which allows access to the cloud server

Mobile App

This feature is a part of both EMSuite Essential and EMSuite Compliant.
Requires a yearly update to be fully functional.

Requires

- ✔ Android 8
- ✔ iOS 13

Firewall

The following firewall settings must be enabled to establish communication with the mobile app.

- ✔ Enable outbound rule: Port 443 which allows access to the cloud server

Definitions

For successful installation of EMSuite there will be terms and definitions that are required to understand.

Term	Definitions
DHCP	Dynamic Host Configuration Protocol – Assigns IP addresses dynamically
EMSuite	Software for data collecting
EMSuite Purchase	Software for On-premise
EMSuite SaaS	Software for Cloud based
EMSuiteLicenseApp	Software tool; activating license key (only on-premise)
EllabConnect	Software tool; connecting with OPC-UA and Modbus
Firewall	Inbound ports rules, requires enabled
Firmware	Electronic hardware update
IP address	Internet Protocol address – IP address used for routing data across networks
IT pre-requisites	Document exchange between customer and Ellab A/S – describes IT requirements
License key	License key for activating EMSuite on premise
Modbus	Software protocol for communication with 3rd party particle counters
OPC-UA	Software protocol for communication with SCADA or LIMS systems
Port	Numerical identification number to differentiate between network protocols/services
URL	Server address/website, to access EMSuite
TrackView Pro (TVP)	Monitoring equipment paired with EMSuite
TrackView Pro Customer App	Software tool; firmware update and configuration of Hardware

2. Defining Hardware Solution

Defining the hardware solution is imperative to collect data and get started with EMSuite. Only authorized equipment is allowed in the software EMSuite, TrackView Pro hardware enables data transmission into EMSuite

Required hardware is listed in the description below and purchased from Ellab A/S.

- ✔ Access Point
- ✔ Wireless Radio Frequency (RF) Transmitter
- ✔ Wireless Radio Frequency with Direct Power (RF-DC) Transmitter
- ✔ Power over Ethernet (PoE) Transmitter
- ✔ TrackViewPro (TVP) Sensors

EMSuite uses the concepts of Sites, Zones and Channels as the primary routes to accessing and identifying data through the software solution.

Access Point

The access point is configured with dedicated URL and IP/DHCP address to establish communication between the transmitter and EMSuite. Depending on the buildings' construction, the access point can facilitate communication with up to 32 transmitters. Thick concrete walls or metal surfaces can pose obstacles and affect communication with transmitters. In this case, providing multiple Access points will ensure stable communication. In the event of power outage, the Access Point is equipped with a backup battery to ensure uninterrupted functionality.

Power for Access Point

- ✔ 12-24V DC power plug w. multiple country wall plug adapter (included with initial purchase)

- ✔ Back-up battery, NIMH 7 AAA Cell (included with initial purchase)

Wireless Radio Frequency (RF) transmitter

The transmitter can accommodate up to two Smart sensors and eight distinct measurement types within each Smart sensor and serves the purpose of transmitting accurate data into the software with two-way communication to the Access Point for full data integrity. The RF transmitter is powered by 2x1,5V Energizer batteries. Battery life depends on the number of connected sensors, as well as the sample and transmit rate. The RF transmitter has a minimum of 60 seconds sample rate.

Power for RF

- ✔ 2x 1,5V Energizer battery (included with initial purchase)

Wireless Radio Frequency and Direct Power (RF-DC) transmitter

The transmitter can accommodate up to two Smart sensors and eight distinct measurement types within each Smart sensor and serves the purpose of transmitting accurate data into the software with two-way communication to the Access Point for full data integrity. The RF-DC transmitter is powered directly through 12-24VDC AC/DC power supply, with multiple country-specific wall plug adapters included. This setup allows the batteries to function as backup power in the event of a power failure, while the direct power supply serves as the primary power source. The RF-DC transmitter has a minimum of 60 seconds sample rate.

Power for RF-DC

- ✔ 2x1,5V Energizer battery (included with initial purchase)

- ✔ 12-24V DC power plug w. multiple country wall plug adapter (included with initial purchase)

Power over Ethernet (PoE) transmitter

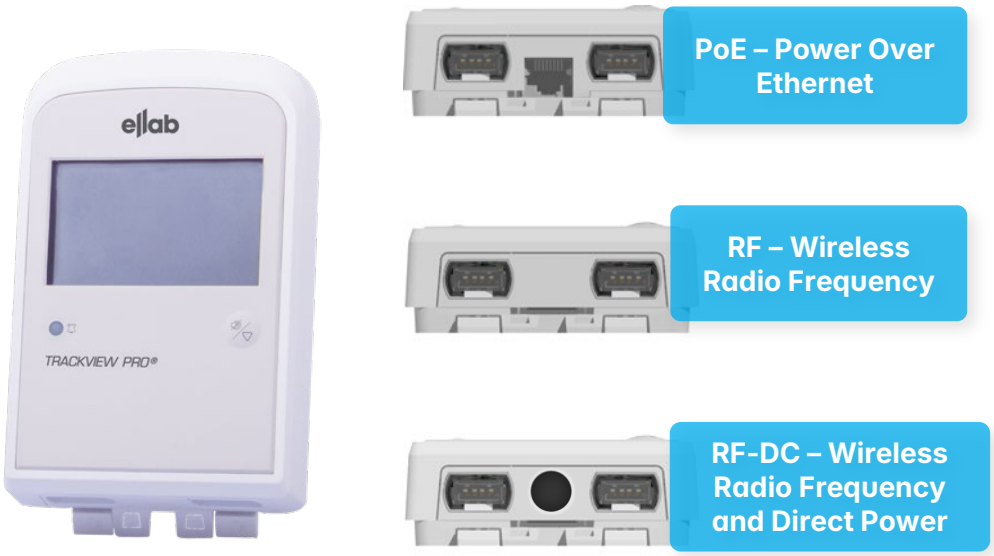
The PoE transmitter is configured with dedicated URL and an IP/DHCP address to establish communication to EMSuite and does not require an access point. The PoE transmitter can accommodate up to two Smart sensors and eight distinct measurement types within each Smart sensor which serves the purpose of transmitting accurate data into the software through direct Ethernet plug. The PoE is connected via Power over Ethernet, which provides both network connectivity and power to the transmitter. The batteries serve as backup power in the event of a power failure. The PoE transmitter has a minimum of 1 second sample rate.

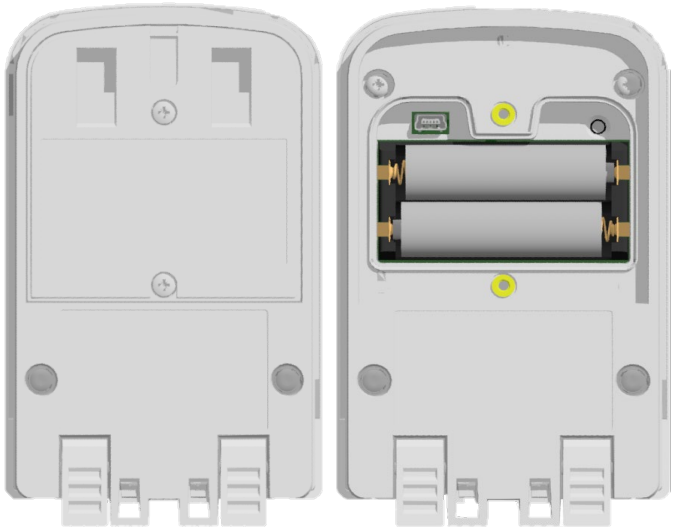
Power for PoE

- ✔ 2x1,5V Energizer battery (included with initial purchase)

- ✔ Power over Ethernet cable (not included)

Transmitter type overview

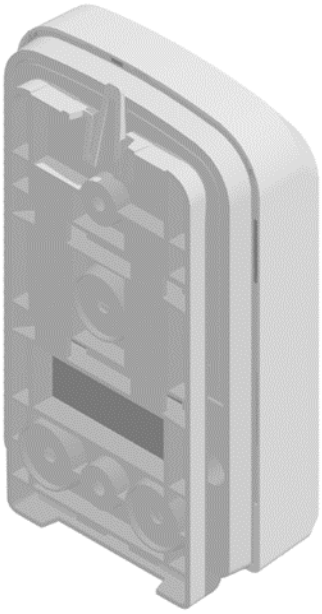




Transmitter bracket

Mounting the transmitter onto a wall or a refrigerator has never been easier. Utilizing dedicated brackets, available both with and without magnets, allows for seamless installation of the transmitter.

Mounting bracket with magnets



Mounting bracket without magnet

TrackView Pro Sensors

To retain data, it is imperative to connect a sensor to the transmitters (RF, RF-DC or PoE). These sensors will be listed as channels in the software and will display with a unique serial number followed by a hyphen and the location of the plugged-in sensor.
The sensors collect the data, which is then securely stored in the transmitter, and transferred to the EMSuite software via a secure protocol. In the event of an alarm the configured transmit rate is automatically overridden, ensuring the alarm is immediately transmitted to EMSuite for prompt alarm acknowledgement.

Hot-Swapping sensors

EMSuite provides the capability for hot-swapping sensors, allowing the replacement of one sensor with another of the same measurement type without needing to shut down the Transmitter. This advanced feature proves beneficial in the event of a malfunction, changing monitoring parameter, or removing a sensor for external calibration.

Sensor types

Various types of sensors can be purchased and connected to the transmitter for data retention.

Temperature	-200 °C to +200 °C
Relative Humidity (RH)	0 °C to 60 °C and 10 % to 90 %
Analog	0-10 V and 4-20 mA
CO2	0-20 %
Differential Pressure	0 to ±100 Pa and 0 to ±1250 Pa
Airflow	0-5m/s, 0-10m/s and 0-20m/s
Digital input	Custom/switch
Digital output	Custom/relay
Door Switch sensor	Open/closed

Accessories

Various accessories may be necessary to meet operational requirements and installation needs. The accessories includes backup batteries, alarm relay cables, brackets and a wide range of additional accessories to support a flexible system operation.

Mounting Brackets	With magnets or without magnets
Alarm Relay cable (for Access Point)	Digital Output to 3rd party Digital input
LEMO DP tube connector	Requires 6mm Outer diameter and 4mm Inner diameter tubing
Batteries	NIHM 7 AAA back up battery for Access Point Energizer 1.5V Lithium for Transmitter
Differential Pressure Wall Plate	For installation of DP sensor tubing
Power Supply for Access Point and RF-DC transmitter	Output voltage 12V DC

Alarm Beacon	Red blinking light, with sound or without sound
Light Tower	Custom light and color
Firmware Dongle	Updating transmitters with either new/different firmware

***Note**: See datasheets for more information on sensors and accessories. For pricing, please see latest version of the TrackView Pro & EMSuite pricelist.*

3. Installation

Once the customer has selected a solution for both hardware and software, the software needs to be installed on either a local computer/server or the Microsoft Azure Cloud Tenant, and the hardware must be installed at the customer site.

This section refers to the software installations specified on page 4 under “Defining Communication Solution”.

Cloud-based (EMSuite SaaS)

Cloud-based solution is installed in a customer Microsoft Azure hosted or Ellab Microsoft Azure hosted Tenant by an Ellab employee, and hardware is configured after the deployment of EMSuite. The cloud-based solution does not require installation and activation of a license key.

On-premise (EMSuite Purchase)

Software installation link is provided by dedicated link or USB drive from Ellab A/S or Ellab responsible. On-premises solution requires the installation of the EMSuite License activation key for activating and launching EMSuite software.

License Activation Key

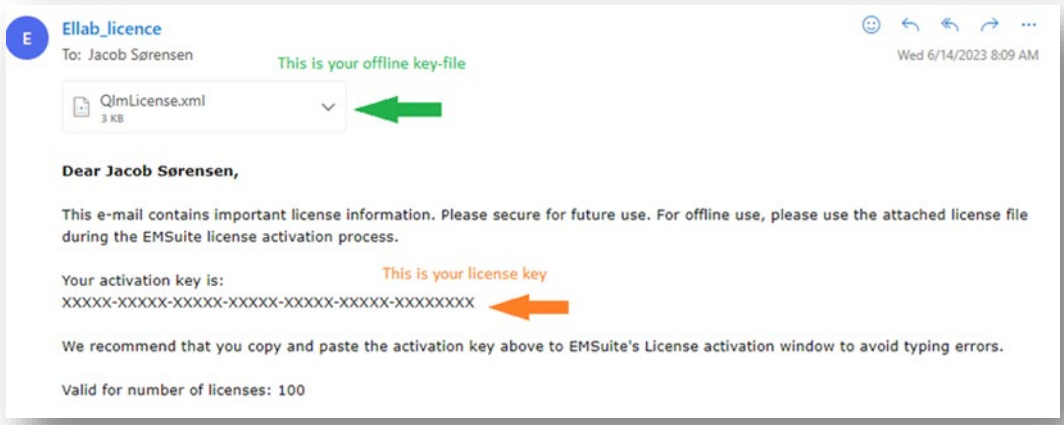
Download and install “EMSuiteLicenseApp” from the dedicated folder or USB drive to activate the license key.
When running EMSuite, the application contacts the license server to validate the key and check the number of valid channels purchased. However, if internet access is not available on the device running, the application will not start. To make sure EMSuite functions as expected without internet access, download the QlmLicense.xml file and install it using the ”Offline Key” button.

If the PC has permanent access to the internet please use the online key activation, without saving the QmlLicense.xml attachment.

Guide to activate license key

Open the email from “Ellab License” containing license key, this email includes an Qlm License which are used for activation of an on premise solution of EMSuite (EMSuite Purchase). Save the attachment on a USB drive for an offline PC and use the license key noted in the email for online PC.

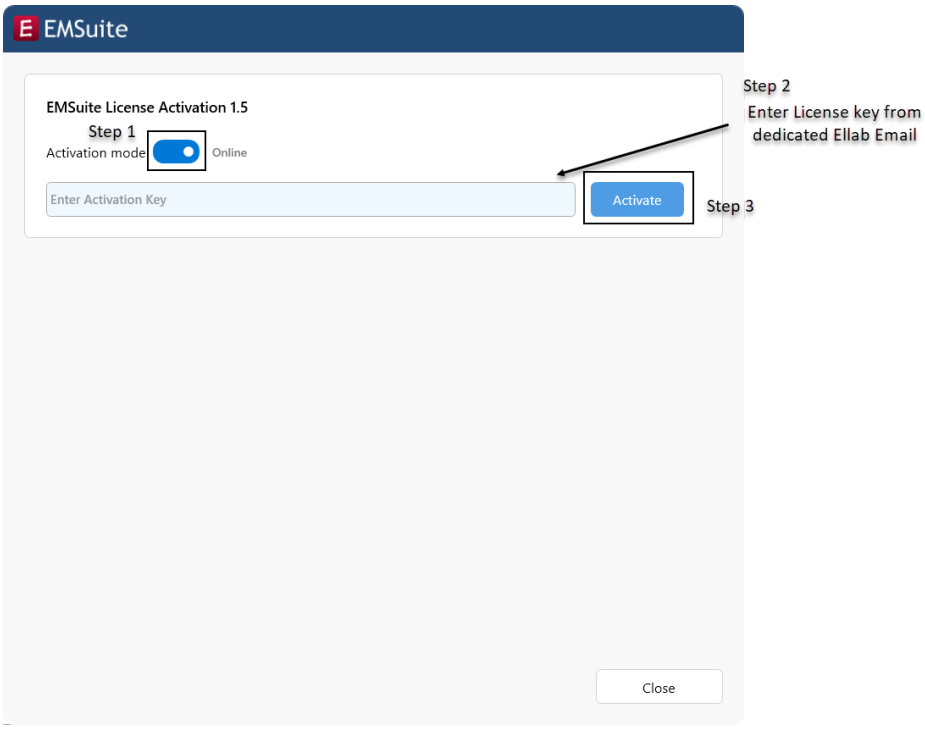
- **Offline key:** QlmLicense.xml attachment from Email
- **Online key**: Key noted in dedicated Email from Ellab A/S



Online PC

Download and open the EMSuiteLicenseApp and dedicated Ellab Email with the license key.

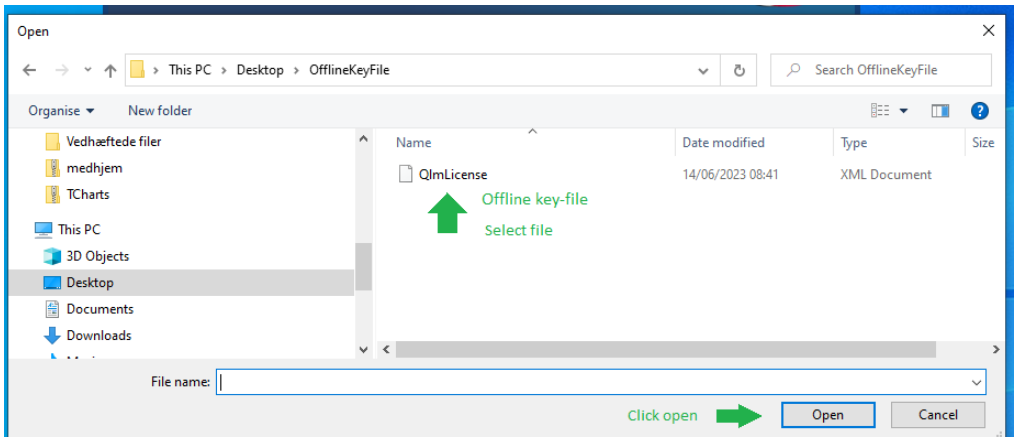
- Enable Activation mode for Online key
- Enter the online license key
- Click “Activate”

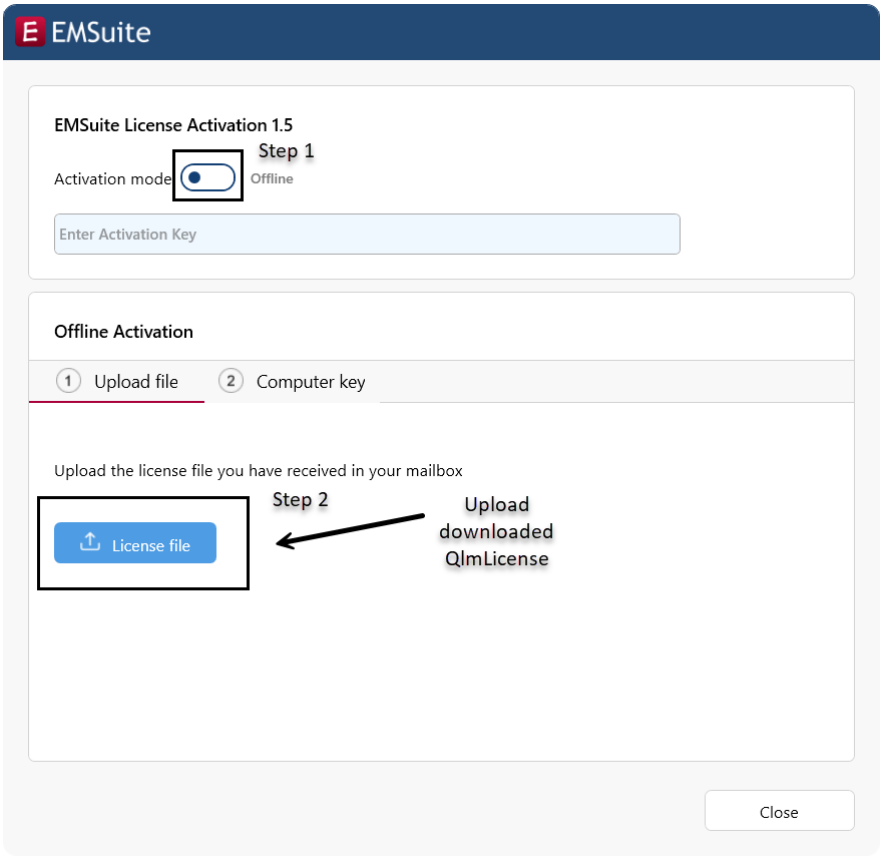


Offline PC

Download and open EMSuiteLicenseApp and dedicated Ellab Email with the license key.

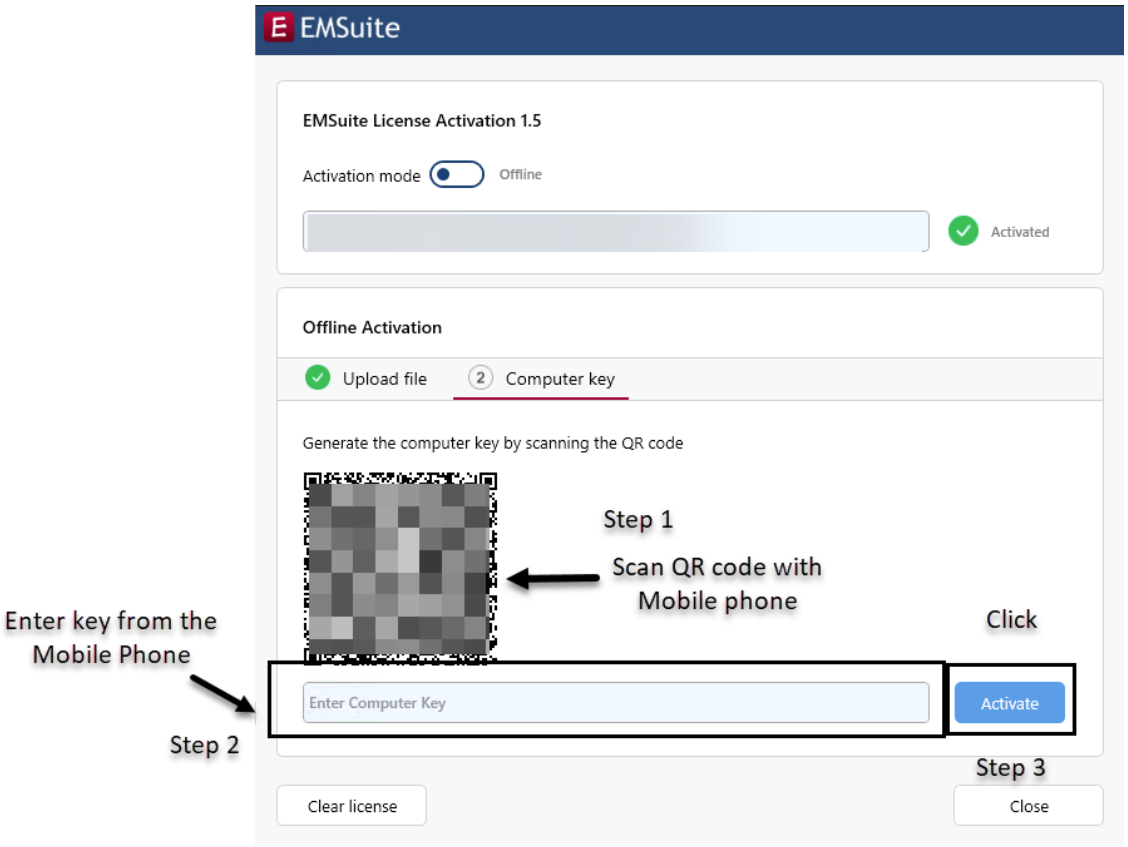
- ✔ Save the QmlLicense.xml attachment on the PC
- ✔ Enable Activation Mode for Offline key
- ✔ Upload QlmLicense file





A QR code is generated in the EMSuiteLicenseApp

- ✔ Scan QR code with a mobile phone
- ✔ Navigate to new key on the mobile phone (Computer key)
- ✔ Enter key
- ✔ Click “Activate”



The key is now activated
Restart PC or the IIS (Internet Information Services) and download the EMSuite version 1.X.X.X.

EMSuite Installation

After restarting the PC or the IIS download and install dedicated version of EMSuite, the software edition should always follow the hardware firmware edition (Software and Hardware editions is located on the extranet or Ellab bording portal)

On-premise: launch EMSuite application from dedicated PC desktop and follow the steps.
Cloud-based: launch EMSuite by using dedicated URL (website address) provided by Email from Ellab A/S.

TrackViewPro Customer App

To establish communication with the hardware, it is required to configure Access Point or PoE with use of the TrackViewPro Customer App.

Download and install the tool TrackViewPro Customer App that will necessitate the configuration of TrackView Pro Transmitters and Access Points. Additionally, should there be a need to update the firmware of the hardware, this application can facilitate this process.

Radio Channel

If communication with the hardware becomes unstable, there may be excessive interference on the current radio channel. The TrackViewPro Customer App provides an option to change the radio channel of the hardware, allowing communication to continue with an alternative channel.

ellab TrackView Pro App

Received hardware

Before configurating the Access point or PoE transmitter it is necessary to check the firmware version. The firmware version of the hardware is required to follow the software version to establish communication.

- ✔ Remove battery tag from the transmitter
- ✔ Confirm if batteries are old or new by pressing the front button of the transmitter
- ✔ Check the firmware edition by pressing the front button on the hardware displaying firmware edition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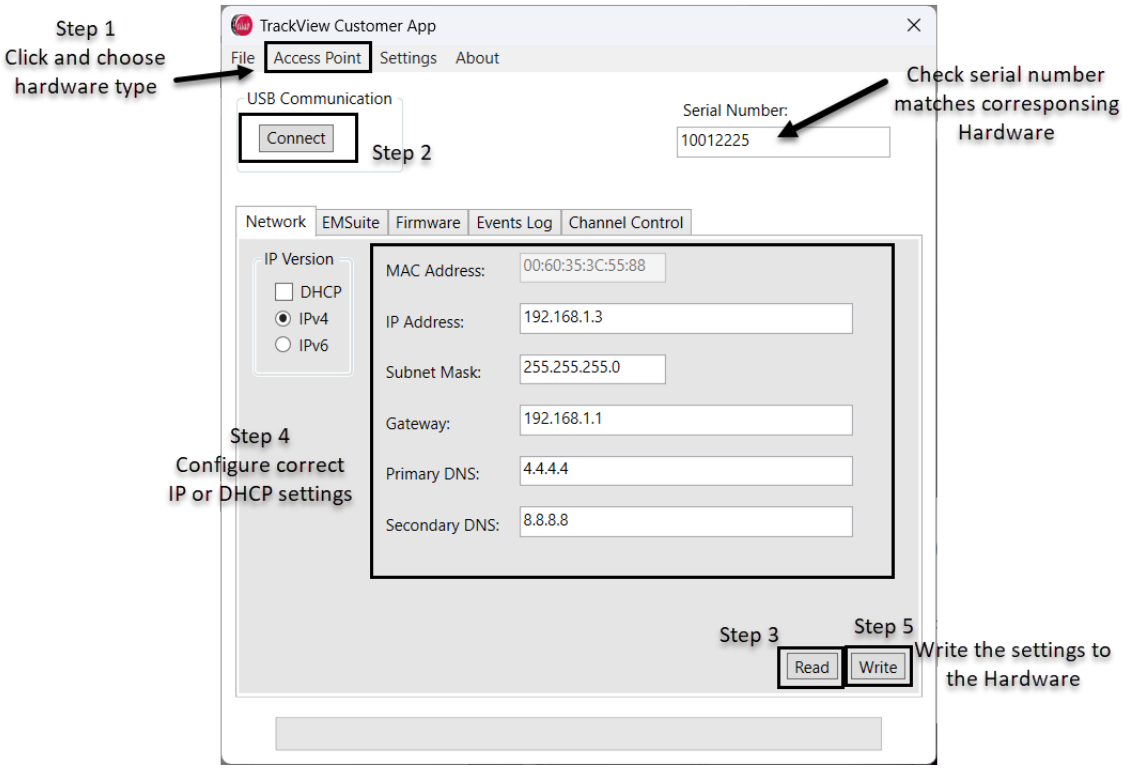
4. Configuration of Hardware

The TrackViewPro Customer App is a software tool used for firmware update and configuration of the hardware with IP/DHCP and URL.
To establish communication with the software EMSuite it is imperative that IT specific details such as IP address or DHCP and URL are provided from the local IT department or Ellab A/S, with use of the EMSuite IT-prerequisites, depending on whether the solution is on premise or cloud based.

Configuration of IP or DHCP

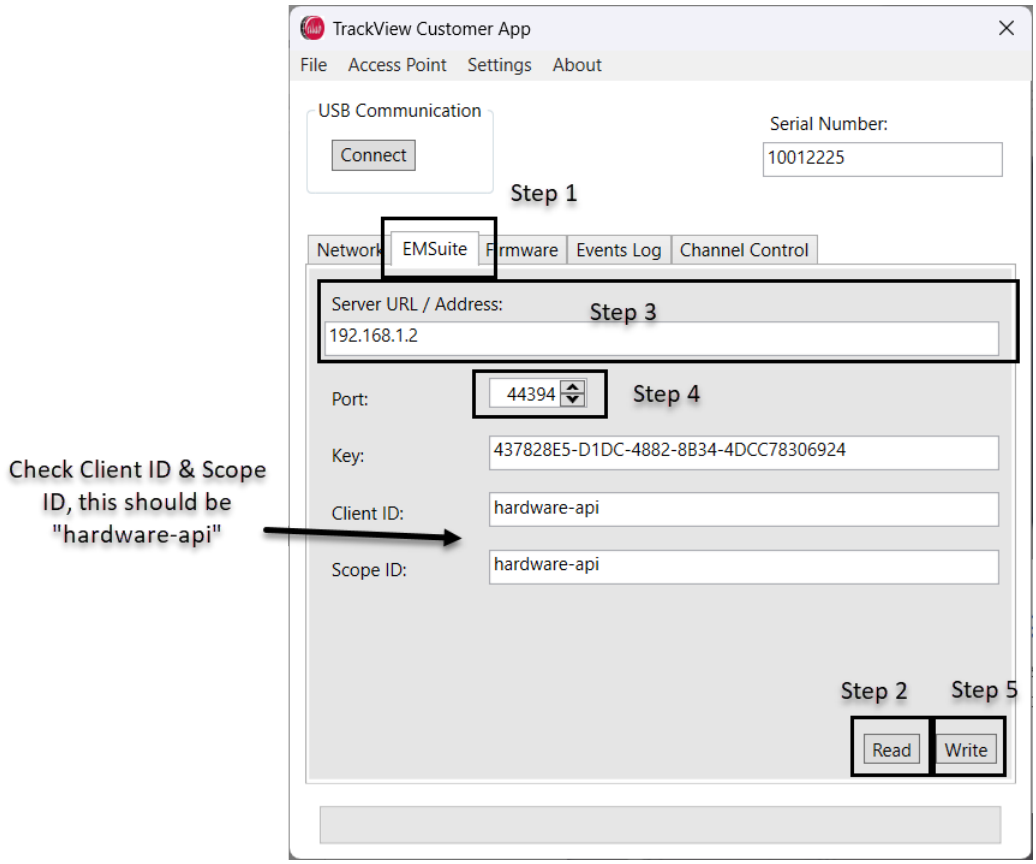
- Connect Access Point To direct Power supply
- Connect Access Point or PoE Transmitter using a USB cable to PC
- Launch TrackViewPro Customer App
- Choose corresponding hardware
- Check Serial number
- Click “Read” to see current settings
- Add IP address or DHCP
- Click “Write” and wait for the pop-up message to indicate that the process is finish
- To check settings, click “Read” again



Configuration of server URL/Adress

To connect to EMSuite the URL/address and port is configured.

- ✔ Click “EMSuite”
- ✔ Click “Read” to check settings
- ✔ Define “Server URL/Adress”
- ✔ Define port (cloud or on-premise)
- ✔ Check “Client ID” and “Scope ID” for “hardware-api”
- ✔ Click “Write” and wait for the pop-up message to indicate that the process is finish



For **Cloud-based configuration** the URL will be accessible on mobile devices when using a cloud solution. The default URL format will be app-emsuite-xxx-api.azurewebsites.net, where the XXXXX is an abbreviation of the customer's name.
Port 443 is assigned to the hardware when configuring it.

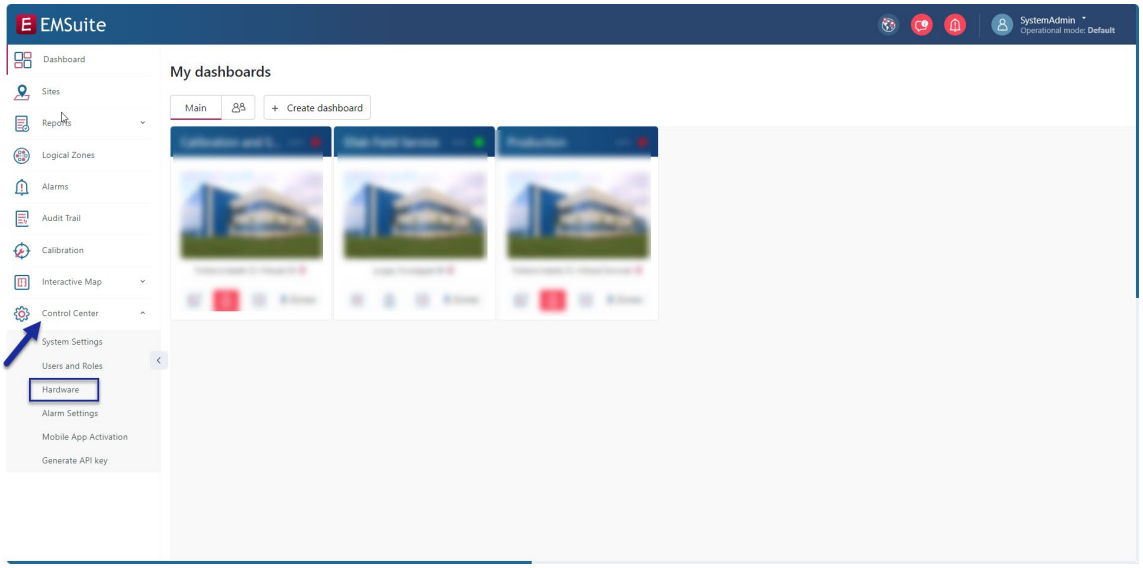
For **On-premise configuration** the default URL format will be the server's name where the installation is located on, and then followed by port number 44303, example "customerserver:44303". To change the URL name the local IT department will have to add the desired website name to the domain name system for the server. The URL will be accessible on mobile devices when using the dedicated network.
Port 44394 is assigned to the hardware when configuring it.

5. Configuring Software

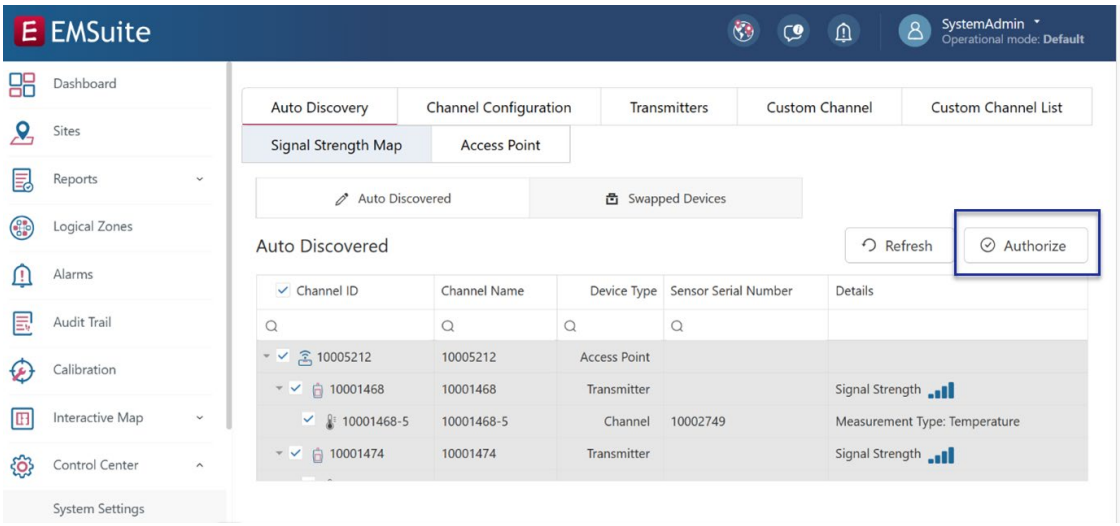
To gain access to data and for pairing the hardware with dedicated software, launch EMSuite and log in by using administrator rights.
EMSuite uses the auto discovery function in the Control Center to discover hardware, this way it becomes more intuitive and a lot quicker to discover dedicated hardware.

Pairing hardware with software

For adding the TrackView Pro hardware into the software click “Control Center” and select “Hardware”.



The **Access Point** discovers nearby transmitters and displays these in the “Auto Discovery” section, making it easy to authorize hardware.
The **PoE – Power over Ethernet** transmitter will populate in the “Auto Discovery” section, for easily authorization of the hardware.



After authorizing dedicated hardware, the access point will display communication to the transmitters.

Transmitters will display an active mode when connected to EMSuite.

Successful hardware configuration

Transmitters – RF, RF-DC, and PoE – Power over Ethernet

For a successful connection to EMSuite, the transmitter will display “Active” in the screen once discovered in the software.

Access Point

For a successful connection to EMSuite confirm that the LED on the access point is illuminated solid green. Confirm on the LCD display on the top left corner that there is a green checkmark in the network connection area.

The hardware (Access Point, PoE and RF/RF-DC Transmitter) screen will exhibit the settings upon depressing the front button.

The configuration has been successful, and the system is ready to monitor your assets.