Honeywell

Honeywell Versatilis™ Transmitter

R110

Equipment Health Monitoring (EHM)

Installation and User's Guide

34-VT-25-01
September 2024

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CHAPTER

1

ABOUT THIS GUIDE

This guide provides information to assist you in the installation and configuring the Honeywell Versatilis Equipment Health Monitoring solution.

Revision history

Revision	Date	Description
A	February 2023	The initial release of the document for R100.
B	September 2024	R110 release features: • Introduced Epoxy mounting option. • FFT over LoRa. • Additional Vibration Parameters. • Alarms over BLE interface. • Audit trail. • Device Licensing (Basic and Advanced). • NAMUR NE 95, Marine, and FM Approvals (USA) certifications.

Related documents

Document Name	Document Number
Honeywell Versatilis™ Connect App User's Guide	34-VT-25-03
Honeywell Versatilis™ Transmitter Technical Specification	34-VT-03-01
Experion EHM User's Guide	34-VT-25-05

Terms and abbreviations

Terms	Definitions
ATEX	Appareils destinés à être utilisés en Atmosphères Explosives
BLE	Bluetooth® Low Energy
CCoE	Chief Controller of Explosives
CAPEX	Capital Expenditures
ESIS	Experion Software Installation Server
FFT	Fast Fourier Transform
iOS	iPhone Operating System
IIoT	Industrial Internet of Things
LoRa	"Long Range" Radio Communication Technique
LPWA	"Low Power, Wide Area" networking protocol
MES	Microelectronic Spectroscopy
OEM	Original Equipment Manufacturer
OPEX	Operational Expenditure
UI	User Interface
UOM	Unit of Measure
PTH	Pressure, Temperature, and Humidity

CHAPTER 2

INSTRUCTIONS AND SAFETY MEASURES

Precautions

The following precautions must be exercised to use the Honeywell Versatilis™ Transmitter safely and effectively:

- Honeywell will not provide any guarantee, if the Honeywell Versatilis™ Transmitter is disassembled.
- The battery may present a potential electrostatic ignition hazard when dissembled.
- Improper use may lead to battery fluid leakage, excessive heat, ignition, or explosion.
- Honeywell will not be liable for any hazard that might be caused due to negligence in handling the Honeywell Versatilis™ Transmitter.
- Care should be taken to protect this Honeywell Versatilis™ Transmitter from impact or abrasion if located in a Zone 0/ Class I Div 1 environment.
- It is the responsibility of the end user to verify that the Honeywell Versatilis™ Transmitter has the necessary approvals required for the intended area of use.
- Verify that the operating environment of the Transmitter is consistent with the appropriate hazardous location's certification.

Hazardous locations

Honeywell Versatilis™ Transmitter is available with IECEx, ATEX, UKCA Ex, North America Class I Div I & CCoE approvals.

For more details, see certifications and the same information is also available in *Honeywell Versatilis™ Transmitter Technical Specification* document.

Best practices

Table 2-1: Best practices - DOs

DOs	
✓	Ensure there is adequate space to access the Honeywell Versatilis™ Transmitter before selecting an installation position.
✓	It is recommended to install the Honeywell Versatilis™ Transmitter vertically perpendicular to the rotating shaft.
✓	Pay special attention in case of necessity to install the Honeywell Versatilis™ Transmitter horizontally on the target machine.
✓	While using a magnetic mounting adapter, the vibration measurement frequency band drops. Ensure the target surface is free from greasy, corrosion, abrasion, and uneven surfaces so that the magnetic adapter attaches firmly to the target, thereby improving the measurement of frequency response.
✓	While using a magnetic mounting adapter, the surface temperature accuracy may vary, if the surface is not clean enough. Ensure the target surface is free from greasy, corrosion, abrasion, and uneven surfaces so that the magnetic adapter attaches firmly to the target, thereby improving the accuracy of surface temperature.
✓	Ensure there are no damages, pigments, dents, or contortion to the surface of the Honeywell Versatilis™ Transmitter base. Any such deformations or pigments may affect performance and measurement accuracy.
✓	Perform suitable adjustments to align the x-axis, y-axis, and z-axis to the desired orientation on the target machine.
✓	Dispose the transmitter and battery according to the local laws and regulations.
✓	Installation in an explosive environment must be under the appropriate local, national, and international standards,

DOs	
	codes, and practices.

Table 2-2: Best practices - DON'Ts

DON'Ts	
	Do not remove the Honeywell Versatilis™ Transmitter enclosure without written consent from Honeywell. The Honeywell Versatilis™ Transmitter is packaged with battery and sensitive electronics, that may be damaged without proper care. Pay attention to don’ts when the Honeywell Versatilis™ Transmitter enclosure is removed: • Do not short-circuit. • Do not disassemble or change • Do not expose to heat or fire.
	Avoid using bare hands while installing the magnetic adapter on the target machine.

CHAPTER

3

HONEYWELL VERSATILIS TRANSMITTER OVERVIEW

Honeywell Versatilis™ Transmitter (HVT) is a multi-variant sensing platform based on the latest LoRaWAN® protocol communication technology. It's inherently low power compact design coupled with quick and easy installation and commissioning help customers to deploy them at scale with the lowest CAPEX and negligible OPEX.

- Honeywell Versatilis™ Transmitter
  Intrinsically safe certified Honeywell Versatilis™ Transmitter assembly powered by Lithium battery.

Figure 3-1: Honeywell Versatilis™ Transmitter

Key features

The key features of Honeywell Versatilis™ Transmitter are:

Table 3-1: Key features of Honeywell Versatilis™ Transmitter

	Based on the latest LoRaWAN® protocol communication technology for large area coverage.
	Built-in battery lasts for years.
	Quick and easy installation & commissioning.
	Robust, and intrinsically safe. Built-in environmental compensation.
	Access real time and historical data visualization.
	• Configurable sensor parameters, and data update frequency rate. • Advanced Vibration parameters (Kurtosis, Crest Factor, Skewness).
	FFT and Sub-band energy over LoRa.
	Multiple mounting options available.
	Alarm support on BLE interface.

Illustrations and dimensions

The physical dimensions of the Honeywell Versatilis™ Transmitter are shown below:

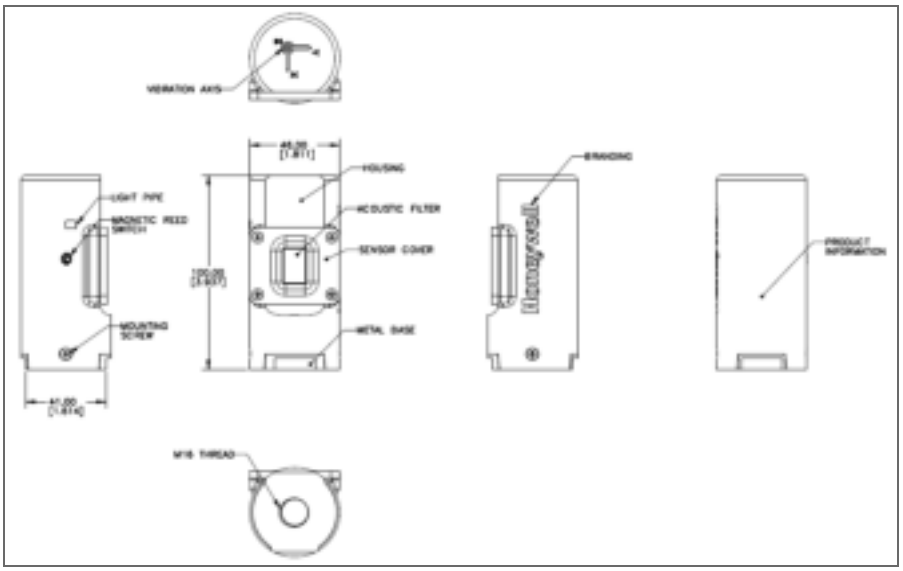

Figure 3-2: Honeywell Versatilis™ Transmitter dimensions

CHAPTER 4

SPECIFICATIONS

Hardware Specifications

The hardware specifications of Honeywell Versatilis™ Transmitter are:

Table 4-1: Honeywell Versatilis™ Transmitter - Hardware Specifications

Parameters	Description
Measurement parameters	Surface Temperature, Ambient Temperature, Ambient Pressure, Humidity, Vibration, and Audio Acoustics.
Communication	LoRaWAN® Class-A. For information on Honeywell Versatilis Transmitter LoRaWAN® Frequency and Channel details, see *Honeywell Versatilis Transmitter Technical Specification.*
	2.4 GHz Bluetooth Low Energy
Battery life	• Up to 3 years with 5 minutes sensor measurement interval and 30 minutes LoRaWAN update. • Up to 5[1] years with 10 minutes sensor measurement interval and 30 minutes LoRaWAN update.
Battery voltage	3.6V DC
Honeywell Versatilis™ Transmitter LED status	For more information, see LED states.
Operating temperature	-40°C to +80°C (-40°F to +176°F)
Dimensions	Honeywell Versatilis™ Transmitter: W 46 mm (1.81 Inches) x H 100 mm (3.93

Parameters	Description
	Inches).
Weight	Honeywell Versatilis™ Transmitter: 180 grams.
Mounting adapters	Magnetic, Screw, Adhesive mount, and Epoxy mount adapters. For more details, see Mounting options.
[1] Change in default parameters will affect the battery life accordingly.	

Environmental conditions

The following table provides the operating conditions of Honeywell Versatilis™ Transmitter:

Table 4-2: Environmental conditions of Honeywell Versatilis™ Transmitter

Information	Value
Tamb range	-40°C to +80°C (-40°F to +176°F)
Relative Humidity	5% to 100%
Usage	Indoor and Outdoor

For more information, see *Honeywell Versatilis™ Transmitter Technical Specification* sheet.

CHAPTER

5

SETTTING UP THE HONEYWELL VERSATILIS™ TRANSMITTER

Unpacking the contents

The Honeywell Versatilis™ Transmitter comes in a cardboard shipping container as shown in the following figure.

Figure 5-1: Unpacking the Honeywell Versatilis™ Transmitter[1]

Figure 5-2: Tamper label

NOTE: After unpacking the Honeywell Versatilis™ Transmitter, it is recommended to check for any visible damage to the filter on the front of the Transmitter. If the filter is damaged then the sensor will not function as intended. In such cases of damaged filter, contact HPS Technical Support through your local Customer Contact Center.

[1]The packaging design and information included in this document are related to the proposed prototype, and is yet to be finalized.

The magnetic and adhesive mount adapters are supplied as kits along with Honeywell Versatilis™ Transmitter, if chosen the same while ordering.

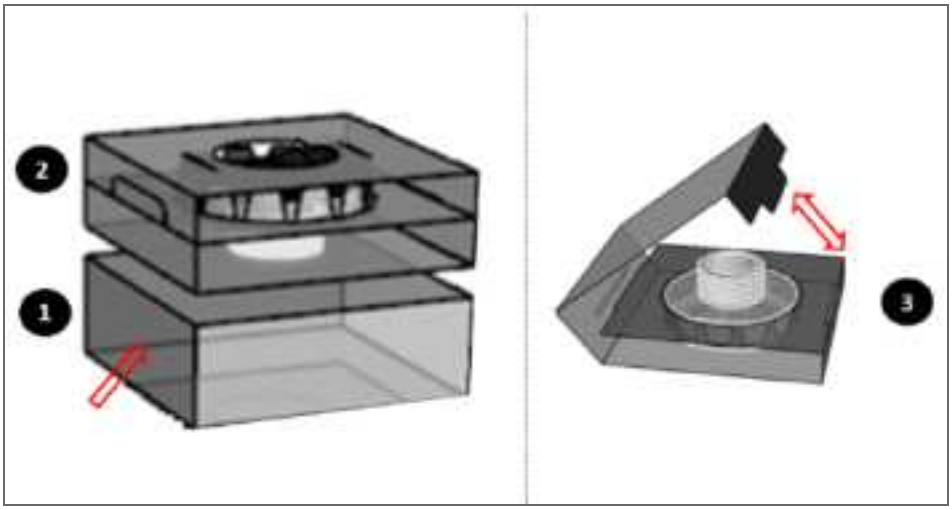

Figure 5-2: Unpacking mounting adapters

The following table provides the contents of the shipping package, while ordering the Honeywell Versatilis™ Transmitter with each adapter variants:

For Honeywell Versatilis™ Transmitter ordered with adapter variants	Contents in the package	Accessories/ Tools (To be handy with users)
Screw Mount	Honeywell Versatilis™ Transmitter fitted with Screw Mount (Default option)	• M6 Screw and M6 Nut (based on target machine requirements). • Allen key for M6 socket head cap screw, size: 5mm. • The spanner recommended for the Honeywell Versatilis™ Transmitter's

For Honeywell Versatilis™ Transmitter ordered with adapter variants	Contents in the package	Accessories/ Tools (To be handy with users)
		base is 41mm, and for the Adapter is 32mm.
Magnetic Mount	Honeywell Versatilis™ Transmitter, Magnetic mounting adapter	The spanner recommended for the Honeywell Versatilis™ Transmitter's base is 41mm, and for the Adapter is 32mm.
Adhesive Mount	Honeywell Versatilis™ Transmitter, Adhesive mounting adapter	The spanner recommended for the Honeywell Versatilis™ Transmitter's base is 41mm, and for the Adapter is 32mm.
Epoxy Mount	Honeywell Versatilis™ Transmitter Epoxy Mount Adapter. Additionally, the following items are supplied as separate kits: • 3M™ Scotch-Weld™ DP100 clear duo-pak cartridge • 3M™ Epoxy Applicator	

ATTENTION: For disposing off the recyclable Transmitter and packaging materials, it is recommended to first remove the battery from the Honeywell Versatilis™ Transmitter. Then dispose it separately as per the manufacturer's recommendations, in compliance with the concerned laid down regulations.

Mounting Honeywell Versatilis Transmitter

The Honeywell Versatilis™ Transmitter offers multiple mounting options such as Magnetic Mount, Adhesive Mount, Screw Mount, and Adhesive Mount (Epoxy compatible) to suit the mounting surface of the target machine to ensure good bonding and accurate measurement.

NOTE: Users need to select the suitable mounting adapter while placing an order.

The following table includes the list of recommended tools that are required for installation/ replacement scenarios:

Tool	Size
Spanner (for firmly holding the base of Honeywell Versatilis™ Transmitter while tightening the mounting adapter to it).	41 mm
Spanner (for tightening the mounting adapter to the base of the Honeywell Versatilis™ Transmitter)	32 mm
Allen Key and Spanner (for firmly holding the M6 socket head cap screw while tightening with the M6 nut, respectively)	Allen key size: 5mm; and its respective spanner size: 10mm.

Pre-installation Considerations

A. Applying anti-seize lubricant on the threads of the adapter before fitting it to the HVT base helps to ensure the safe and easy dissembling of the adapter with the HVT base. Follow the below guidelines while using anti-seize lubricant:

   i. Before applying anti-seize, ensure that the threads are clean and free from dirt, rust, or old lubricants. You can use a wire brush, rag, or appropriate solvent to clean the threads thoroughly. Make sure the threads are dry before applying the anti-seize.

   ii. Using a brush, applicator stick, or your fingers (if wearing gloves), apply a thin, even coat of anti-seize to the threads. Be careful not to over-apply, as excessive anti-seize can lead to messy application and waste. The goal is to cover the threads evenly without excess buildup.

   iii. If necessary, use a brush or applicator to ensure the anti-seize is evenly distributed across all the threads. This helps maximize its effectiveness in preventing corrosion and seizing.

   iv. Once the anti-seize is applied, proceed to assemble the HVT as usual. Be cautious not to cross-thread or damage the threads during assembly.

   v. After assembly, wipe away any excess anti-seize that may have squeezed out during tightening. This helps maintain a clean appearance and prevents the accumulation of dirt or debris.

Magnetic Mounting

Follow the below procedure to install the magnetic mounting on the target machine:

> **ATTENTION:** Do not use bare hands while installating, as the magnet is powerful and can pinch the skin/ fingers if not handled properly.

1. Screw-in the magnetic mount adapter into the threaded hole provided on the base of the Honeywell Versatilis™ Transmitter.
2. Firmly hold the base of the Honeywell Versatilis™ Transmitter using a spanner (of size 41mm), and tighten the adapter to the base using another spanner (of size 32mm).
   Ensure a Torque of 3.5 to 4 Nm is applied for tightening.

3. Attach the Honeywell Versatilis™ Transmitter fitted with a magnetic mount adapter to the target machine, with the magnetic pull force.

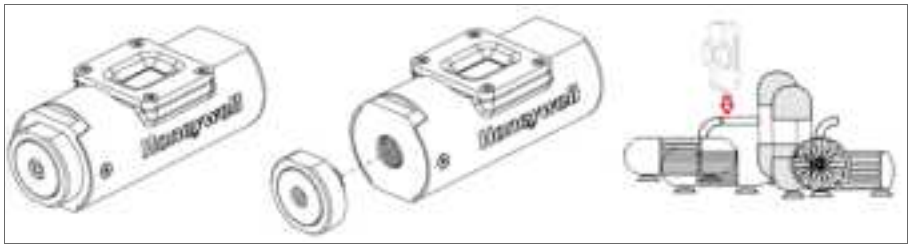

Figure 5-3: Magnetic mounting

Adhesive Mounting

Perform the below instructions for adhesive mounting on the target structure:

Prerequisite: Remove oil, moisture, and dirt from the intended mounting surface of the target structure on which the Honeywell Versatilis™ Transmitter will be mounted. If the dirt is strong, remove it with isopropyl alcohol.

> **ATTENTION:** Use the adhesive mounting adapter, preferably on a flat surface. As there is a potential risk of falling down of the Honeywell Versatilis™ Transmitter if it is mounted on uneven, rough, or curved surfaces, due to lack of sufficient bonding area.

1. Screw-in the adhesive mount adapter into the threaded hole provided on the base of the Honeywell Versatilis™ Transmitter.
2. Firmly hold the base of the Honeywell Versatilis™ Transmitter using a spanner (of size 41mm), and tighten the adapter to the base using another spanner (of size 32mm). Ensure a Torque of 3.5 to 4 Nm is applied for tightening.
3. Remove the protective film from adhesive face of the adapter.
4. Stick the Honeywell Versatilis™ Transmitter fitted with an adhesive adapter onto the target machine. Apply adequate pressure on the Honeywell Versatilis™ Transmitter after it is mounted, to ensure proper bonding of the pressure-sensitive adhesive with the mounting surface.

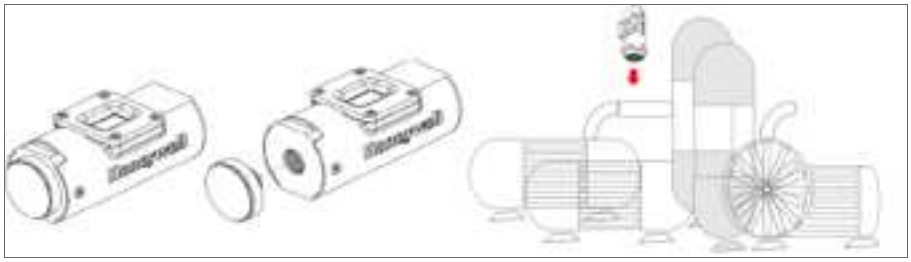

Figure 5-4: Adhesive mounting

Screw Mounting

Perform the below instruction for screw mounting on the target structure:

1. Insert the M6 socket head cap screw into the hole provided on the screw-mount adapter (where the head of the screw sits inside the adapter and the shank protrudes outwards).
2. Insert the protruding M6 socket head cap screw (with adapter) into the hole provided on the target structure/bracket, and then secure the adapter with M6 nut (on the other side of structure/bracket) using the Allen key and spanner (of 10mm). Ensure a Torque of 16 N-m or 140 in-lbs is applied for tightening. Or, If there is an existing M6 tapped hole on the target structure, then you just need to insert the protruding M6 socket head cap screw (with adapter) into that hole provided on the target structure/bracket, and tighten with Allen key (of required size).
3. Fit the Honeywell Versatilis™ Transmitter onto the secured adapter.
   Firmly hold the secured adapter using a spanner (of size 32mm) and tighten the base of the Honeywell Versatilis™ Transmitter to the adapter using another spanner (of size 41mm). Ensure a Torque of 3.5 to 4 Nm is applied for tightening.

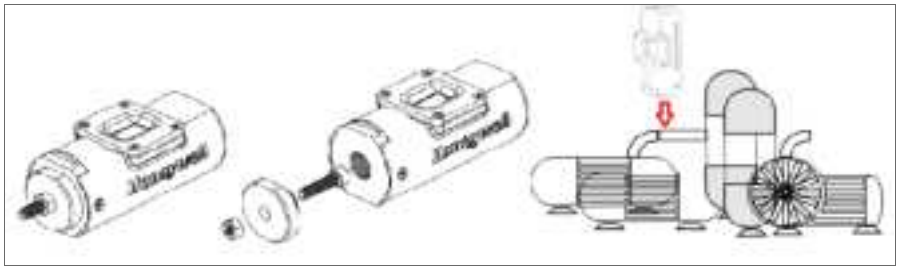

Figure 5-5: Screw mounting

Epoxy Mounting

Perform the below instructions for epoxy mounting on the target structure:

Precaution: Do not handle until all safety precautions have been read and understood. For more information, refer to the Safety Data Sheet of the 3M™ Scotch-Weld™ DP100 clear duo-pak cartridge.

Prerequisite:

- Ensure all the substrates are clean, dry, and free of paint, oxide films, dust, mold release agents, and all other surface contaminants.
- The amount of surface preparation directly depends on the bond strength and environmental resistance desired by the user.
- Ensure a mix ratio of 1:1 by volume or 1:1 by weight using the 1:1 Shared Plunger in the Epoxy Applicator.

1. Insert the epoxy adhesive (3M™ Scotch-Weld™ DP100 clear duo-pak cartridge) in the Epoxy Applicator (3M™ Scotch-Weld™ EPX Manual Applicator).

Figure 5-6: Epoxy Applicator with Epoxy-Based Adhesive

2. Remove the cap from the epoxy adhesive cartridge.
3. Dispense and discard a small amount of epoxy adhesive to ensure an even ratio and free flow.
4. Apply the epoxy adhesive on the flat face of the epoxy mount adapter.

Figure 5-7: Applying adhesive on the flat face of the epoxy mount adapter

5. Stick the flat face of the adapter on which epoxy adhesive is applied, to the target machine, and secure it until the adhesive sets.

> **NOTE:** Once you are done using the epoxy adhesive, remove the cartridge from the epoxy applicator, screw on the cap, and store the cartridge in an upright position.

6. Remove the excessive epoxy adhesive around the adapter to clean-up the surrounding surface.

Figure 5-8: Clean-up excess adhesive

7. Follow the below recommendation for proper curing of the epoxy adhesive:
   a. Ensure 5-minute work life and 20-minute set time @ 24 °C.
   b. Ensure 24 to 48 hours @ 24 °C for full curing. For speed curing heat up to 93 °C.
8. Assemble the Honeywell Versatilis™ Transmitter over the adapter, i.e. the base of the HVT is to be fitted to the adapter that is bonded to the target machine.
9. Firmly hold the adapter using a spanner (of size 32 mm), and tighten the base of the HVT using a spanner (of size 41 mm), Ensure a Torque of 3.5 to 4 Nm is applied for tightening.

Battery Replacement

To replace the battery in the Honeywell Versatilis™ Transmitter, contact Honeywell TAC team.

CHAPTER

6

CONFIGURATION

The following figure and table provide information about the complete solution architecture designed and implemented for Honeywell Versatilis™ Transmitter. This information helps the user to understand the various process involved, right from the configuration of the Honeywell Versatilis™ Transmitter to access the analytic solutions.

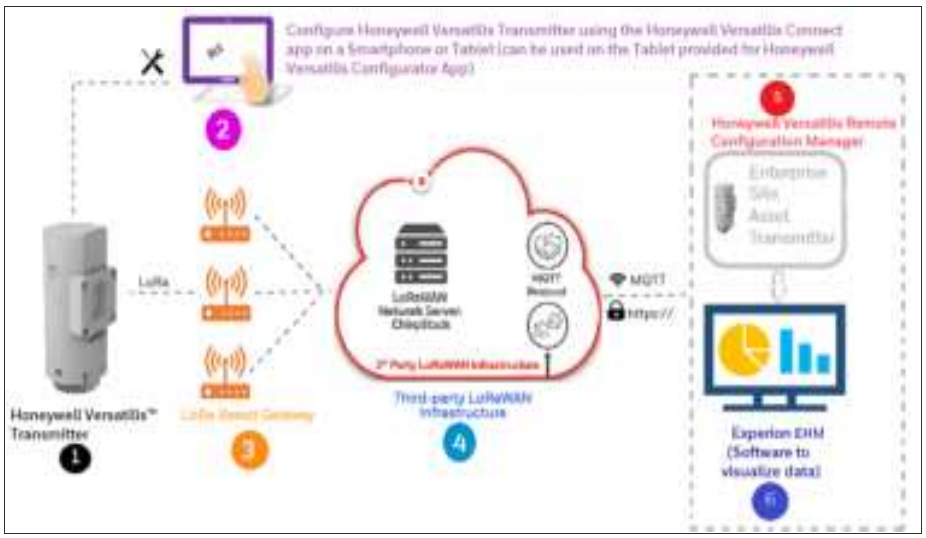

Figure 6-1: Architecture of Honeywell Versatilis™ Transmitter

Table 6-1: Description of architecture flow

Item	Integration	Description
1	Honeywell Versatilis Transmitter	The Honeywell Versatilis™ Transmitter measures six parameters on the target machine, which are as follows: • Surface temperature • Ambient Humidity • Ambient temperature • Ambient pressure • Vibration

Item	Integration	Description
		• Audio acoustics
2	Honeywell Versatilis Connect App	The Honeywell Versatilis Connect App enables user to connect to the Honeywell Versatilis™ Transmitter through bluetooth using a tablet, or smartphone. It helps user to configure the end Transmitter's sensor parameters, view live data, update firmware, etc.
3	LoRa Gateway	The third-party LoRa based gateways acts as a medium to push the sensor data from the Honeywell Versatilis™ Transmitter to the LoRaWAN infrastructure in a secured way
4	LoRaWAN Infrastructure	The third-party LoRaWAN Infrastructure applies the payload formatter to decrypt the incoming data from the LoRa gateways, and securely transfer it through the MQTT protocol to the Experion EHM.
5	Honeywell Versatilis Remote Configuration Manager	The Honeywell Versatilis™ Remote Configuration Manager is installed as one of the solution components from the ESIS or DVD/media. It allows users to configure the measurement parameters, retrieve data, and visually display the data on the Experion EHM dashboard. It helps users to create, modify, and add sites, assets, and transmitter details. The hierarchy of adding and configuring a transmitter is as follows: 1. Creating an Enterprise 2. Creating a Site 3. Adding an Asset 4. Adding the Transmitter

Item	Integration	Description
6	Honeywell Experion EHM	The Honeywell Experion EHM software provides the platform to visualize the transmitted sensor data and provide useful insights to monitor and track the health of the target machines.

Installation of the Honeywell Versatilis Connect app

The Honeywell Versatilis™ Connect app provides flexibility to install on Smartphone or Tablet, that supports Android or Microsoft Windows platform. Users can also use the Tablet (if any) provided with Honeywell Versatilis Configurator App to install and run the Honeywell Versatilis™ Connect app with ease.

Figure 6-2: Honeywell Versatilis™ Connect app installed on "Honeywell Versatilis Configurator Tablet"

Prerequisites:

Table 6-2: Prerequisites of Honeywell Versatilis™ Connect app

Tablet / Smartphone Specifications	Windows	Android	iOS
Operating System	Windows 10 Enterprise 22H2.	Android 10, 11, 12 and 13.	iOS 15 and 16.
Process and Speed	64-bit, 1.6GHz or faster	ARM V7 or V8, 1.6GHz or faster	-
RAM	Minimum: 8GB	Minimum: 4GB Recommended: 8GB	-
Storage space	Higher than 64GB is recommended	Higher than 64GB is recommended	Higher than 64GB is recommended

To download and install the Honeywell Versatilis Connect app, follow the procedure described below:

> **NOTE:** Enable the location permission on your Windows/Android/iOS Smartphone/Tablet before installing the app.

Table 6-3: Installation procedure of Honeywell Versatilis™ Connect app

For Windows Platform	For Android Platform	For iOS Platform
1. Open the **Microsoft Store** app, and search for **Honeywell Versatilis Connect**. Or	1. Open the **Google Play Store** app, and search for **Honeywell Versatilis Connect**. Or Click the link: Honeywell Versatilis	1. Open the **App store** app, and search for **Versatilis-Connect**. 2. Tap **Get.**

For Windows Platform	For Android Platform	For iOS Platform
Click the link: Honeywell Versatilis Connect Windows app. 2. Tap **Get.** 3. After successful installation, tap **Open**.	Connect Android app. 2. Tap **Install**. 3. After successful installation, tap **Open**. 4. A permissions dialog to access the device's camera appears, tap **While using the app**.	3. After successful installation, tap **Open**. 4. A message stating **Honeywell Versatilis Connect would like to access the camera** appears, tap **OK**.

When the user launches the Honeywell Versatilis™ Connect App for the first time, the app gives a tour of its overall features.

For more information on how to configure Honeywell Versatilis™ Transmitter, see *Honeywell Versatilis Connect App User's Guide.*

Resetting passcode for the Honeywell Versatilis™ Connect app:

In case you forgot your changed passcode, you can reset your current passcode to the default passcode using the reed switch provided on the Honeywell Versatilis™ Transmitter.

Perform the below instructions to reset your current passcode to the default passcode:

> **NOTE:** This activity must be performed within the predefined time period of 15 seconds.

1. Bring a magnet closer to the reed switch location on the Honeywell Versatilis™ Transmitter. The LED blinks red light whenever you bring the magnet closer to the reed switch.
2. Repeat step 1. A red light blinks at the reed switch location for the second time.
   Repeat the second swipe within 15 seconds.

3. The LED blinks green light twice after the predefined time period of 15 seconds, returning to the normal state, and thereby indicating a successful reset of the current passcode to the default one.

> **NOTE:** After successful reset to the default passcode, you can use the Honeywell Versatilis Connect app to further change the default passcode as required. For more information, see *Honeywell Versatilis Connect App user's guide, 34-VT-25-03*.

Configure LoRa Gateway

LoRaWAN Gateways acts as communication bridge between the Honeywell Versatilis™ Transmitter and LoRaWAN application.

Configure the LoRaWAN Gateway in packet forwarder mode to transfer the LoRaWAN packets to the LoRaWAN server through the LoRaWAN IP address and server settings.

For the list of Honeywell recommended gateways, see Recommended Gateways.

> **NOTE:** There are many LoRaWAN based Gateway manufacturers in the market. Choose the LoRaWAN gateway best suited for your needs. For more information on how to set up the LoRaWAN Gateway, refer the respective manufacturer's product documentation.

> **NOTE:** Gateway connectors differ according to the gateway brand and model you choose to utilize for your Experion EHM solution.

> **NOTE:** Gateway must be installed at an elevated height for better signals.

> **NOTE:** Limit the number of devices on the gateway based on the device data publish rate and available channels on the gateway. Loss of data may happen due to the network load and data collisions.

The below figure illustrates the connections of the Multitech Conduit gateway to power and other communications.

Figure 6-3: Multitech Conduit Gateway rear view connectors illustration

Table 6-4: Callouts of Multitech Conduit Gateway rear view connectors illustration screen

Items	Description
1 (Connect the gateway to the local network)	a. Through Wi-Fi, if it is supported by your gateway. Connect the white Wi-Fi antenna connector at the respective position shown in figure 4-2. b. Identify the E-NET on the back pane of the gateway and connect it to the LAN/WAN using a UTP CAT 5 AT 6 cable. **ATTENTION:** Do not connect the E-NET to any public telecommunication network.
2 (USB Host)	Allows you to connect to multiple devices/ peripherals. High-speed, standard USB 2.0 Type-A connector. 500mA maximum current draw.
3 (RF)	Connect the black antenna to receive the long-range radio frequencies.
4 (Power Cord)	9.32 V DC power receptacle for the provided power cord. After connection, the power LED on the gateway front pane should display

Items	Description
	solid green, indicating the gateway is receiving power.
5 (USB Device)	Utilized for file sharing with high speed. User-defined, high-speed 480 Mbps, and standard USB 2.0 Micro B Connector.

For information on establishing connection between gateway and PC, gateway setup, refer to the *Honeywell Versatilis™ Experion EHM User's Guide, 34-VT-25-05.*

Configure LoRaWAN Network (Chirpstack)

LoRaWAN is a Low Power, Wide Area (LPWA) networking protocol based on LoRa radio modulation technique.

The payload formatter within the third-party LoRaWAN Infrastructure formats the incoming data from LoRa gateways and securely transfers it through the MQTT protocol to the Experion EHM.

> **NOTE:** There are many LoRaWAN service providers in the market. Choose the LoRaWAN service best suited to your needs. For more information on how to configure Honeywell Versatilis™ Transmitter and LoRa Gateway in the LoRaWAN service provider application, refer to the respective service provider's product documentation.

LoRa Network server (LoRaWAN) Setup

Prerequisite: The following is the list of actions a user needs to do on their own to set up the LoRa network server on-premise:

- A physical PC with the required *specifications*.
- A LoRaWAN network service or Enterprise version from the LoRaWAN service provider of your choice.
- The latest Ubuntu iso file downloaded to your PC. For more information, see the Download Ubuntu iso file.
- Network server configuration of the LoRaWAN service provider on Ubuntu. For more information on how to configure the LoRa network server (LoRaWAN), refer to the corresponding user documentation on the portal of your LoRaWAN service provider.

Download Ubuntu iso file

1. From the web browser, open the Ubuntu releases page (https://releases.ubuntu.com/jammy).
2. Search for the latest Ubuntu iso file and download it to your PC.

LoRaWAN (Chirpstack) Installation

Follow the below procedure for LoRaWAN installation:

1. Click the link: Honeywell Versatilis Transmitter.
2. Go to the **Support** tab and click **LoRaWAN Network Server Download Datasheet**. A PDF is downloaded.
3. Open the PDF and click the **LoRaWAN Network Server** link. A zip file is downloaded.
4. To unzip the file, right-click and select **Extract All**.
   The zip file consists of the following files:
   a. LoRaWANinstallation.sh
   b. Readme.pdf

For more information on installation, refer *Readme.pdf*.

For detailed information on Hyper-V setup and Chirpstack network server configuration, refer to the *Honeywell Versatilis™ Experion EHM User's Guide, 34-VT-25-05*.

LoRaWAN Payload Format

Payload formatters process data going to and received from the end devices, converting binary payloads to human readable fields, or for doing any other kind of data conversion on uplinks and downlinks.

> **NOTE:** Maximum payload that device application can send in one packet to LoRaWAN network depends on data rates and region. Best practices for LoRaWAN stationary devices recommend to use ADR (Adaptive Data Rate) mechanism which helps LoRaWAN network server to manage data rates for each devices based on network conditions.

LoRaWAN payload format types

LoRaWAN payload transfers the data in following format types:

Periodic sensor data

It contains all sensor values. For more details on the list of parameters, refer to the *LoRa Decoder*.

Transferring high energy FFT peaks

Transmitter finds the top peaks in the entire FFT spectrum and published periodically (configurable). The amplitude and frequency values are scaled for both acceleration and velocity.

The frame usage messages are sent as confirmed message type on LoRaWAN protocol.

Transferring energy band values

Transmitter calculates the RMS value of sub-band energy by dividing the entire FFT spectrum into 10 equal parts.

Band 1 range: 5 to 250 Hz RMS value,

Band 2 range: 251 to 500 Hz RMS value,

..so on

Band 10 range: 2251 to 2500 Hz RMS value.

Configuration Frame(s)

The total configuration is divided into two frame types namely device basic info and alarm configuration.

Transmitter will send configuration frames during below cases:

1. Restart or power ON.
2. Configuration changes from the BLE app.
3. On request from LoRaWAN host.

LoRaWAN Uplink Payload

The uplink messages are sent by end devices to the Network Server relayed by one or many gateways. If the uplink message belongs to the Application Server or the Join Server, the Network server forwards it to the correct receiver.

The LoRaWAN uplink payload periodically transmits all the sensor values and the rate at which these packets are sent as user-configurable.

For more information, refer to LoRaWAN payload format.

To access the LoRaWAN uplink payload,

1. Click the link: LoRaWAN Payload Formats.
2. Navigate to the **Support** tab and click **LoRaWAN Payload Formats**. A PDF is downloaded.

LoRaWAN Downlink Payload

The downlink message is sent by the Network Server to only one end device and is relayed by a single gateway. This includes some messages initiated by the Application Server and the Join Server too.

The encode downlink function is called when a downlink message with decoded payload is scheduled to be sent to the end device.

There are 2 types of downlink commands:

1. Sensor Basic Configuration.
2. Sensor Alarm Configuration.

Remote Configuration

The HVT remote configuration tool allows the user to configure the measurement parameters, retrieve data, and visually display the data on the Experion EHM dashboard.

Honeywell Versatilis Remote Configuration Manager

The Honeywell Versatilis Remote Configuration Manager helps the user to create, modify, and add sites, assets, and transmitters details.

The Honeywell Versatilis Remote Configuration Manager is installed as one of the solution component from the ESIS or DVD/media.

The hierarchy of adding and configuring a transmitter is as follows:

1. Create an Enterprise
2. Create a Site
3. Add an Asset
4. Add the Transmitter

> **NOTE:** Ensure the name assigned for the Enterprise, Site, Asset, and Transmitter must not be the same as Experion asset or other point names in Experion.

The following screen shows an instance of the sites, assets, and devices included under an enterprise.

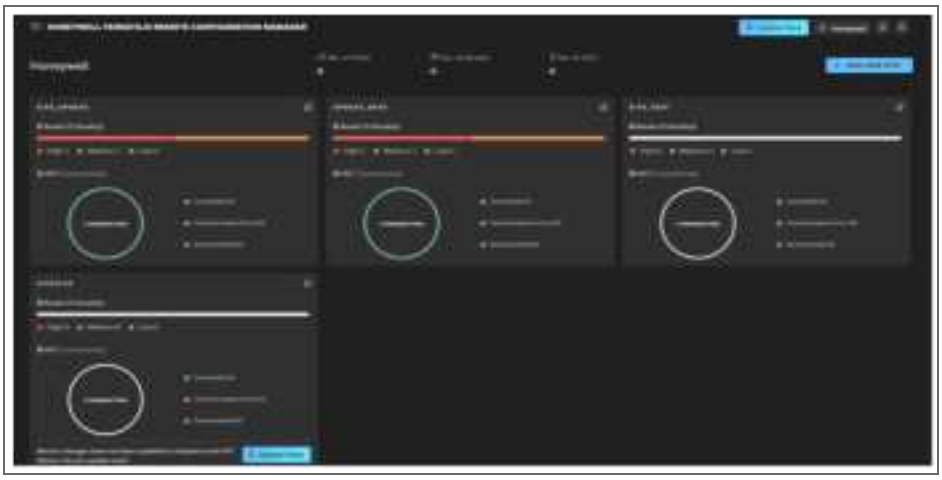

Figure 6-4: Enterprise level dashboard

For more information on how to configure a transmitter, see *Remote Configuration* section in *Experion EHM User's Guide, #34-VT-25-05*.

Honeywell Experion EHM

The Honeywell Experion EHM software provides the platform to visualize the transmitted sensor data and provide useful trends to monitor and track the health of the target machines.

System requirements

The PC specifications to host the Experion EHM solution are:

For Experion EHM Machine

System Configuration	Experion EHM Specs	
	For Smaller Systems (up to 500 devices)	For Larger Systems (500 to 4000 devices)
Operating system	Windows 10 Enterprise LTSC 2019 Edition	Windows Server 2019 64-bit
Storage space	250 GB SSD/HDD	500 GB SSD/HDD
RAM	16 GB	32 GB
Processor	2.1 GHz Hexa core or greater	2.5 GHz Octa-core or greater
Networking	1GBps or 100 MBPS Ethernet	1GBps or 100 MBPS Ethernet

Recommended Gateways

Gateway Provider & Usage	Gateway Model	Region	Description
Multitech (Indoor)	MTCDT-L4G1-247A-868.R3-WW	Global	LTE Cat 4 mPower Programmable Gateway 8-channel, 868 MHz, Global GNSS+Wi-Fi/BT w/MTAC-003E00 mCard and Accessory Kit[1](AT&T,

Gateway Provider & Usage	Gateway Model	Region	Description
			Verizon, EU, UK, AU)
	MTCDT-L4G1-247A-915.R3-WW	Global	LTE Cat 4 mPower Programmable Gateway 8-channel, 915 MHz, Global GNSS+Wi-Fi/BT w/MTAC-003U00 mCard and Accessory Kit[1] (AT&T, Verizon, EU, UK, AU)
Multitech (Outdoor)	MTCDTIP-L4G1-267A-868.R3	Global	LTE Cat 4 mPower Conduit IP67 Base Station 8-channel, 868 MHz, GNSS+Wi-Fi/BT with MTAC-003E00 and Accessory Kit[2]
	MTCDTIP-L4G1-267A-915.R3		LTE Cat 4 mPower Conduit IP67 Base Station 8-channel, 915 MHz, GNSS+Wi-Fi/BT with MTAC-003U00 and Accessory Kit[2]

[1] Power supply with regional-specific blades (US, EU, GB, AU/NZ), appropriate

Gateway Provider & Usage	Gateway Model	Region	Description
antennas, Ethernet cable, USB cable and quick-start guide. GNSS Antenna sold separately [2] Mounting bracket kit, 1 LoRa antenna, 2 cellular antennas, GNSS antenna, Wi-Fi/BT antenna.			

LoRaWAN Provider

System Configuration	Experion EHM Specs
Purpose	Enabling management for gateways, applications, devices, users, and then providing the HVT device data to Experion EHM SCADA. Supports LoRaWAN Network server and Application server.
Supported Interface with Experion EHM SCADA	MQTT
Example Software	Chirpstack
Example resource requirements when deployed	2 CPU cores
	6 GB RAM
	50 GB Hard disk

Experion EHM Web Client

System Configuration	Experion EHM Specs
Purpose	To visualize the Experion EHM displays connecting to Experion EHM PC.
Web browsers supported	Google Chrome version 110.0.5464.0 or later, Microsoft Edge version 108.0.1462.15 or later.
Minimum Recommended Display resolution	1280 x 1024

Installation of Experion EHM

Prerequisites:

1. Ensure supported Windows OS is installed on your system. See System Requirements.
2. Ensure the latest Microsoft Updates have been applied to the Windows installation.
3. The clocks of the Experion EHM, LoRaWAN provider server, and LoRaWAN gateways must be synchronized using NTP or similar time/clock synchronization protocol. See Change time zone.
4. Ensure the local machine name and IP address are in the Windows hosts file ("C:\Windows\System32\drivers\etc\hosts"). See Add host name to host file.
5. Non-default administrator account created and you are logged in under that account.
6. The Experion license file with the required EHM options is available on your PC.

Download ESIS zip file

Download the ESIS zip file from the SoftCo distribution. For more details on how to order Experion EHM software license, refer to the Honeywell marketing web channel or contact your regional sales manager.

Clean Installation using ESIS zip file

Follow the below-mentioned procedure to install the Experion EHM software:

1. Navigate to the downloaded ESIS zip file, then right-click and select **Extract All**.
2. In the ESIS folder, select and double-click the **Setup.exe** file to run the installer application.
3. An **Experion HS Software Installation Server** dialog appears.

   If installation from a network share, enter the required details for connecting to the network share, and click **Next**.

Figure 6-5: ESIS network share details screen

NOTE: If there are any features that are not available on your system such as .NET 3.5, a pop-up to **download and install this feature** appears, click **Yes**.

NOTE: Restart your system after installing the required features.

4. If a feature (.NET) installation is carried out, repeat steps #1 to #3 otherwise proceed with step #5.
5. A welcome screen appears, click **Next**.

Figure 6-6: ESIS welcome screen

6. A **Migration/Clean Install Selection** screen appears, select the **Install Clean** radio button and click **Next**.

Figure 6-7: Clean Install selection screen

7. A **Honeywell Experion HS - DialogManager** dialog appears, click **Yes**.

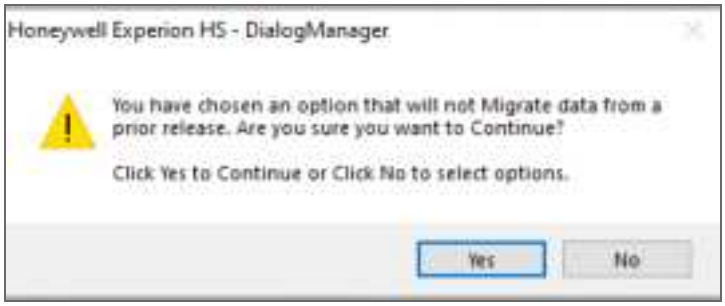

Figure 6-8: Experion HS DialogManager warning

8. A **License Agreement** dialog appears, read the license agreement carefully and select the **I accept the terms in the License agreement** radio button then click **Next.**
9. A **Setup type of Node to Install** dialog appears, select the Experion HS product node type **SCADA Server (ESV)** to install and click **Next.**

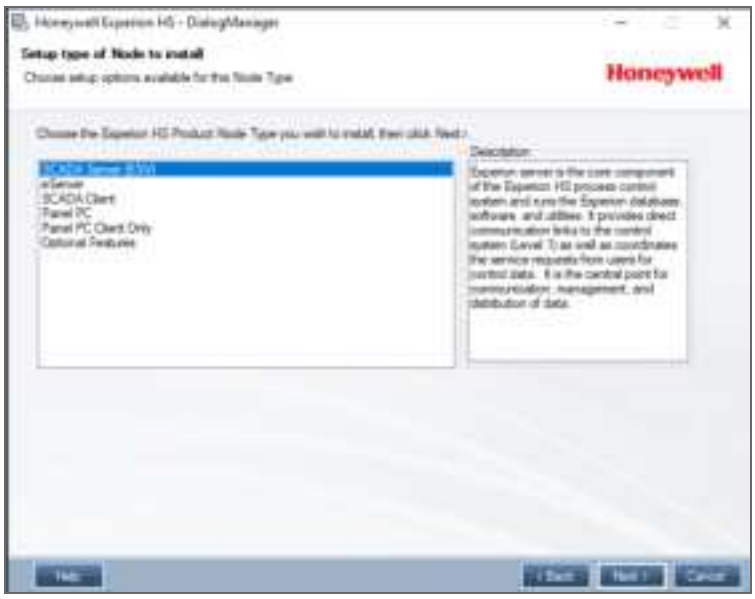

Figure 6-9: Experion HS product node type selection screen

10. A **User and License Information** dialog appears, enter the below details and click **Next**.

Figure 6-10: Experion user and license information screen

Field	Details
Customer Information	Name
	Company Name

Field	Details
License File to import	1. Click **Browse**. 2. Navigate to the Experion license file from your local drive which is provided by the Honeywell team. 3. Select the license file and click **Open**.

11. A **Installation Path(s) Selection** dialog appears, click **Next**.

> **ATTENTION:** The **Installation Path(s) Selection** does not support changing the default installation paths.

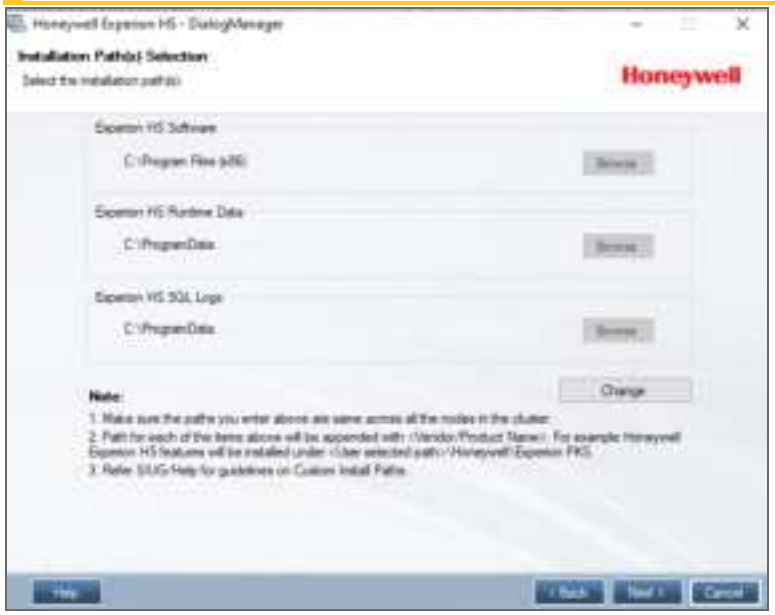

Figure 6-11: Experion HS product node type selection screen

12. An **Experion Network Selection** dialog appears to accept default network selection, click **Next** to accept the default network selection.
13. A **Feature and Options Selection** dialog appears, click the **Custom** radio button and then ensure to select the check-boxes of the below-mentioned options only.
    a. Server Browser HMI Components.
    b. Server ID Provider.

> **NOTE:** Ensure the **PRP Network and HSR Network Drivers** options are not checked.

Figure 6-12: Features and Options selection screen

Click **Next**.

14. A **Security Password Entry** dialog appears, and you are prompted to type a password and confirm password. Enter the password and click **Next**.

> **NOTE:** Security password must be used to protect the secured data during the installation and will be discarded after completing the installation.

15. An **Experion Account Password Entry** dialog appears as shown below, enter secure passwords for the Experion user accounts and click **Next**.

> **NOTE:** It is recommended to set strong password that meets the complexity requirements. See Password Complexity.

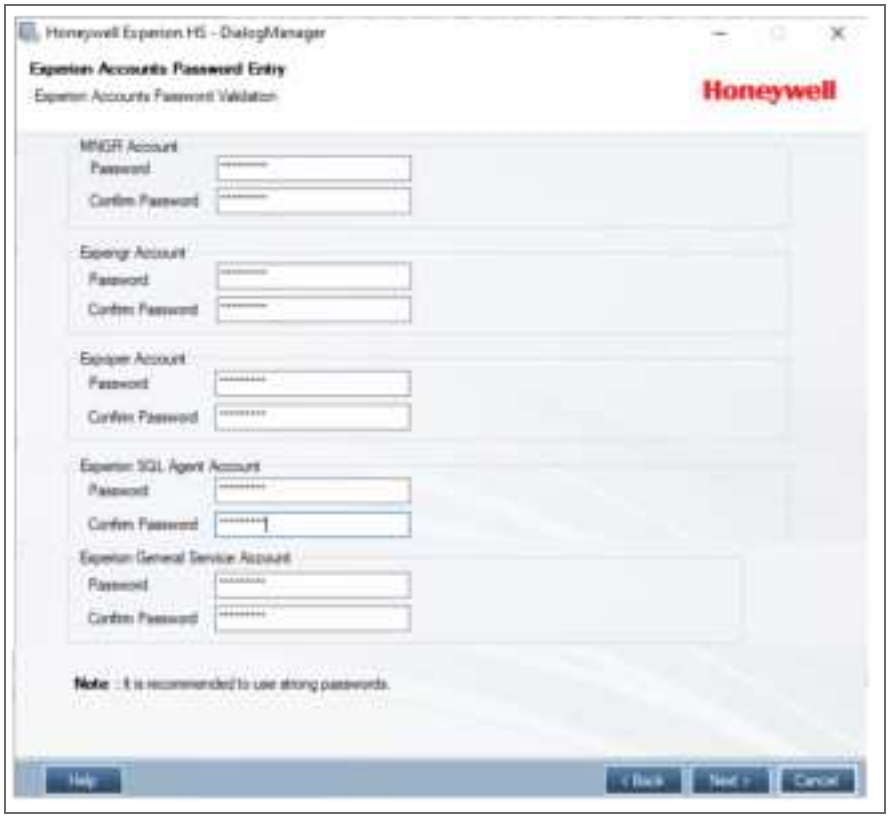

Figure 6-13: Experion Accounts Password Entry screen

16. A **Summary** dialog with Experion HS Software Installation Settings appears. Review the installation settings and click **Install** to initiate the installation process.
17. The installation begins and the following screen appears showing the component's installation status.

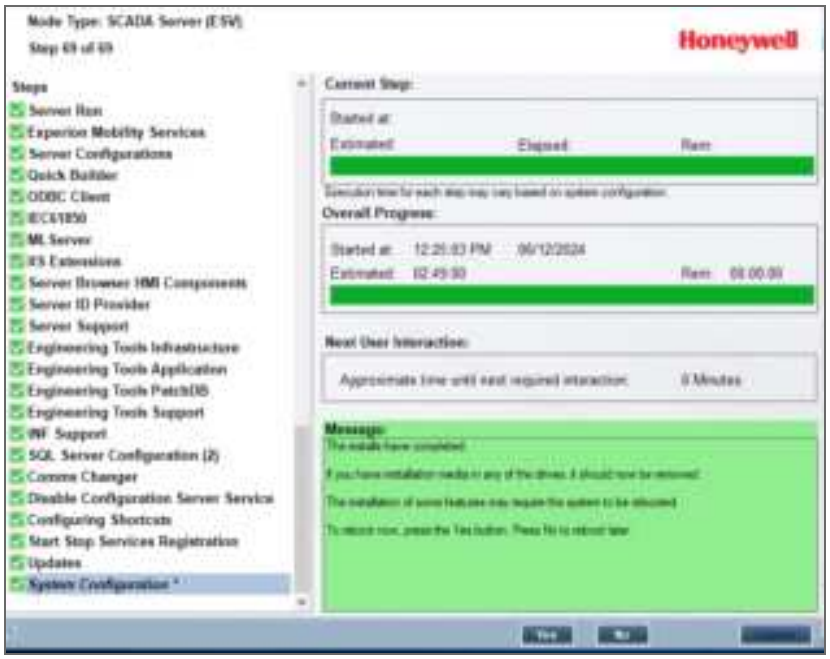

Figure 6-14: Experion EHM Installation status display

> **NOTE:** If the installation reboots and does not automatically login, then login using the local 'HPSInstall' account using the 'Security Password Entry' (password entered earlier). If the Installation application does not automatically start then run the 'setup.exe' again to continue the installation until installation application reaches the screen above with message 'The installs have completed'.

18. Login with a non-default administrator account and add the logged-in account to the Product Administrator and Local Engineers group. See Add users to Windows group.

    After changing the group membership, you must log-out and login again under that account for the new group membership to apply to the current session.

19. As and when instructed, click **Yes** to reboot the system to complete the installation.
20. Start **IIS Manager** and bind the "<Machine name>Server" certificate to the **HVTConfigAPI** and **HVTConfigApp** websites. See Binding certificates.

21. Create a new user and add it to the local engineers group. See Create a new user.

    Then, log off and log in with the newly created user.

22. From the **Start** menu, search and open the **Configuration Studio** and perform the following steps:
    a. Add a new server with the hostname.
    b. Configure a new asset and load it to the server.
    c. Enable components in Configuration studio.

The Experion EHM installation is completed proceed with configuring the HVT device. See Remote Configuration.

> **NOTE:** If the Experion EHM is already installed on your machine and if you need to reinstall the package, uninstall all the existing Experion EHM packages and start the installation procedure.

Binding certificates

Follow the below steps to bind your certificates to HVT configuration application.

1. From the Start menu, search and open **Internet Information Services (IIS) Manager**.
2. Navigate to your Windows account > **Sites > HVTConfigAPI**.
3. The **HVTConfigAPI** Home screen appears, click **Features View**.
4. Select **Site Bindings > Edit**. The **Edit Site Bindings** screen appears.
5. From the **SSL certificate** drop-down, select your Windows server (example: win-xxx0xxxx00k server) and then click **OK**.

Figure 6-15: HVTConfigAPI certificates binding

Repeat the steps for **HVTConfigAPP** to bind the certificates.

Then, from the right pane of the IIS manager screen, navigate to **Manage Website** and select **Restart** to set the changes into effect.

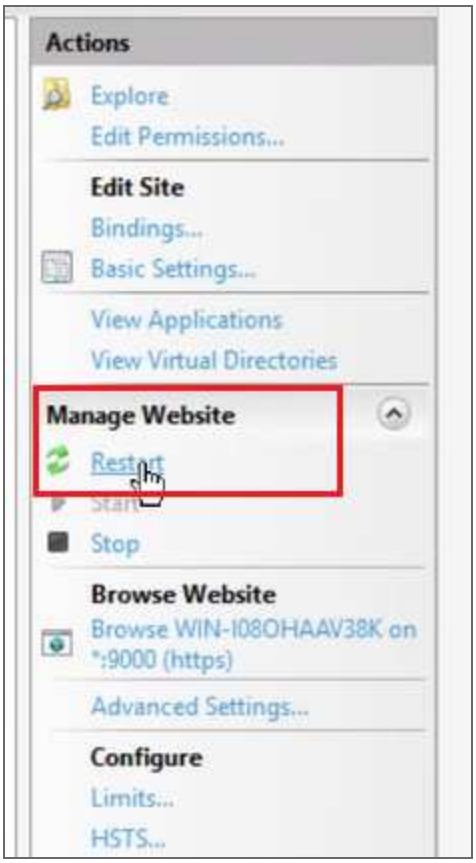

Figure 6-16: HVTConfigAPI certificates binding

NOTE: It is strongly recommended to use certificates issued by a trusted third-party certificate authority.

Add user to Windows group

To add a user account to a Windows group, follow the below steps:

1. From the **Start** menu, search and open **Computer Management** > **Local Users and Groups** > **Users**.
   The existing users list appears.
2. Select the user you wish to add to a group > right-click > **Properties**.
   The user's properties dialog appears.

3. Navigate to **Member Of > Add > Advanced > Find Now**.

   The search results appear, select **Product Administrators**, and then click **OK, and OK** until returning to the Computer Management user list.

The user account is added as a member of the Product Administrator group.

Repeat the steps and add the user account as a member of the Local Engineers group.

Log off and log on again to apply for the new group membership for the user.

Add hostname to the hosts file

From the Windows search, open the command prompt as administrator and run the following command:

Command: `notepad %SYSTEMROOT%\system32\drivers\etc\hosts`

Press **Enter**. The hosts file opens.

Ensure that there is an entry in the file that maps the machine's hostname to its configured IPv4 IP address.

Example: A PC with hostname "EXPEHM" and IPv4 address of 10.0.0.12

```
10.0.0.12 EXPEHM
```

Stop and Start the Experion Services

To stop the Experion services:

From the **Start** menu, search and open the **Experion PKS Services Control Panel**

The Experion PKS Services Control Panel window appears, select the **Stop All Services** radio button and click **OK**.

The Experion Services will stop running.

To start the Experion services:

From the **Start** menu, search and open the **Experion PKS Services Control Panel**.

The Experion PKS Services Control Panel window appears, select the **Start All Services** radio button and click **OK**.

The Experion Services will start running.

Create a new user

To create a new user on your Windows device:

1. Click the **Start** menu button on your PC.
2. Click **Settings > Accounts > Other Users > Add someone else to this PC**.
3. Click **Add a user without a Microsoft account**.
4. **Create an account for this PC** screen appears, follow the instructions to finish setting up the account.
5. Follow the steps to add users in the Experion EHM. See User Management.

Add a new server in Enterprise model

Follow the below procedure to configure a server:

1. From the Windows search bar, search and click to open **Configuration Studio**.

   The Configuration Studio home page appears.
2. From the **Connect** pane, select your **Experion System** from the list of available systems and then click **Connect**.
3. The **SystemName** screen appears, select **Server Tasks > Add a server to this system**. The **SYSTEM:SERVER Block parameters** screen appears, enter the details:
   a. Alias: Assign a name for the server.
   b. Node Information:
      i. Node Name: Enter the hostname of your machine/PC.
      ii. Network type: Select Single/FTE from the drop-down.
   c. Under **System Wide Event Configuration**, select **Server publisher System Wide Events and Server subscribes to System Wide Events** check boxes.

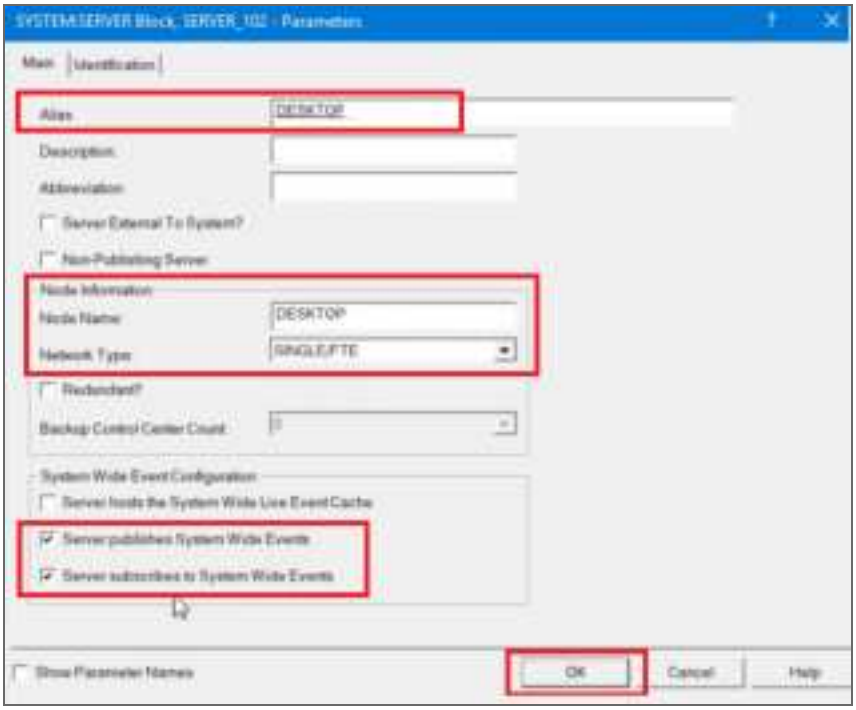

Figure 6-17: Adding a new server in Configuration Studio

Click **OK**.

4. A dialog stating **Do you wish to continue having these server update messages displayed for this session of Configuration Studio?** appears, click **Yes**.
5. A **Migration of Asset Model/Alarm Groups** dialog appears, select the **Overwrite if duplicate entity found in database** check box and click **Continue** to confirm.

Figure 6-18: Migration pop-up

6. The migration starts and a success message appears, click **OK**.

A new server is added to the Experion system.

Configure a new asset

Follow the below procedure to configure a new asset:

1. From the Windows search bar, search and double-click to open **Configuration Studio**.
   The Configuration Studio home page appears.
2. From the **Connect** pane, select your **Experion System** from the list of available systems and then click **Connect**.
3. The **SystemName** screen appears, select **System Tasks > Configure Assets for this system**.
4. The **Enterprise Model Builder - Asset** window appears, select **Assets** > right-click > **New Asset**.
5. The Asset details entry window appears, enter **TagName** (specify a name for your asset for identification) and click **OK**.

Figure 6-19: Assets details entry

6. The new asset is added to the system. Select the asset and then click to load the asset model to the Experion server.

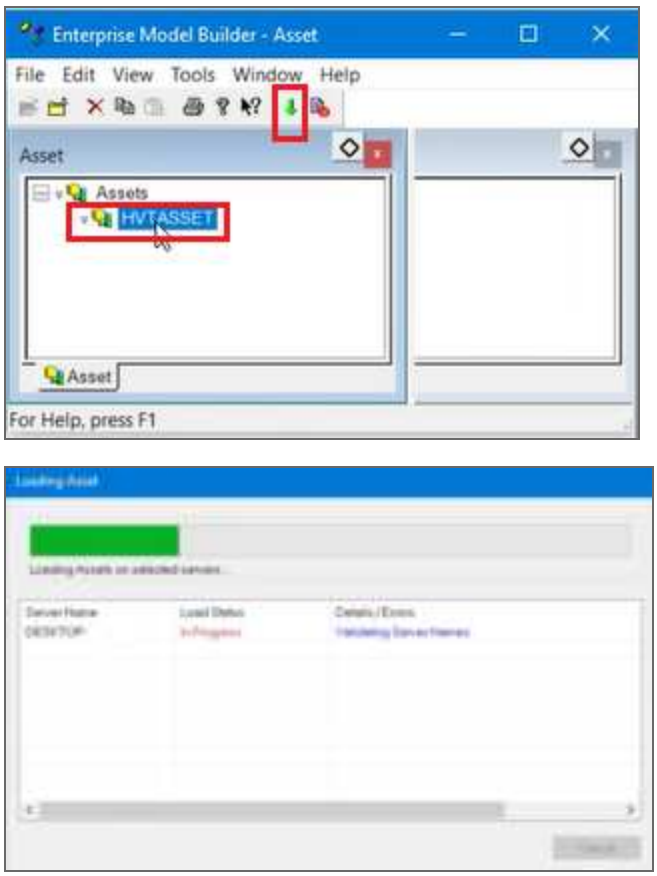

Figure 6-20: Loading Asset to Experion Server

The asset starts loading and the status is shown, click **Close** after the loading is completed successfully.

Enable components in Configuration Studio

1. From the Windows search bar, search and double-click to open **Configuration Studio**.

   The Configuration Studio home page appears.

2. Select **Server > Control Strategy > SCADA Control > Build Channels** option.
3. In the enable Components dialog, enable the following components and then click **OK**:
   a. Enron Modbus
   b. Modbus
   c. OPC UA
   d. UserScan Task

4. Wait until the **Quick Builder** tab appears, and then close the Configuration Studio.

> **WARNING:** You must not upload and download the hardware and all points into the Quick Builder. Many points and hardware are managed by the system and uploading/downloading these through Quick Builder may corrupt the configuration.

Change time zone

Change time zone settings by below procedure:

Click **Windows** > open **Command Prompt** as Administrator and type **tzutil /g** then press Enter which displays the current standard time details. Type **tzutil /l** then press enter which displays all available time zones.

To set the time zone with daylight saving time, you need to write tzutil /s “Time Zone” on the command line and press Enter.

For example, to set the time zone (UTC+05:30) Chennai, Kolkata, Mumbai, New Delhi. Enter the command **tzutil /s “India Standard Time”** and press Enter.

Post installation steps (Mandatory)

Configure session idle timeout

> **NOTE:** The default session idle timeout is 5 minutes, user can change the timeout as per the requirements without exceeding 60 minutes.

The session idle timeout is configurable by updating the settings.json file located in the **C:\ProgramData\Honeywell\Experion PKS\Server\Cuneus** folder. Add a new property “sessionidletimeout” and time in minutes ("30") as shown in the below syntax and save.

> **NOTE:** Ensure to add comma(,) at the end of the previous syntax before adding a new property i.e., sessionidletimeout.

```
{
    "publichost": "https://experionehm",
    "plexushost": "experionehm",
    "clientid": "2a7dfadd-7ef8-42e9-b2f4-e86882d244ad",
    "sessionidletimeout": "30"

}
```

Open the **Command Prompt** as administrator and run the following commands to apply the change in *sessionidletimeout*:

```
plexus -stop

plexus -start
```

CHAPTER 7

SECURITY

The security mechanisms implementation rely on the well tested and cryptographic algorithms which are analyzed by the cryptographic community, NIST approved and widely adopted as a best security for constrained nodes and networks.

Security features

The secure features of the Honeywell Versatilis™ Transmitter are:

- Secure firmware update.
- Device lock to prevent memory access by authorized users.
- Authentication on the BLE security using passcode.
- Communication encryption as per BLE 5.0 version.
- Supports LoRaWAN® Class-A security using OTAA/ ABP activation mode.

Physical security

Keys are persistently stored in the Honeywell Versatilis™ Transmitter and their protection depends on the Honeywell Versatilis™ Transmitter's physical security.

For information on support and reporting, see Notices.

Audit Trail

Audit trail records the user activities and details when the device is activated.

- An audit trail records the occurrence of an event and the time at which it occurred.
- The audit trail fixed size is 100 and is saved in FIFO.
- Users can read the audit trails and export them in PDF format to the local drive on their devices using the BLE app.

View the audit details in the following table:

Event Name	Description	Event ID	Field Value
Passkey Change	This event is logged when the user changes the passkey.	1	0
Configuration Change - Customer Information	This event is logged when the customer information is modified.	2	0
Configuration Change - Parent Asset	This event is logged when the parent asset information is modified.	3	0
Configuration Change - Sensor Parameters	This event is logged when there is change in sensor parameters configuration.	4	Recording Interval
Configuration Change - Manufacturing Parameters	This event is logged when there is change in manufacturing parameters configuration	5	0
Configuration	This event is	6	0

Event Name	Description	Event ID	Field Value
Change - Alarm	logged when there is change in alarm configuration.		
Wrong Passkey Entry	This action is logged when the user enters wrong passkey.	7	0
MAG Swipe	This event is logged when the user tries magnetic swipe.	8	0
Module Restart	This event is logged when the device is restarted.	9	0
Device Activated	This action is logged when the device is activated.	10	0
Device Deactivated	This event is logged when the device is deactivated.	11	0
BLE Auto Disconnect	This event is logged when the BLE is disconnected automatically.	12	0
Battery % left	This event is logged when the battery is changed.	13	Battery % value
Battery % reset	This event is logged to show the battery percentage is	14	% reset value

Event Name	Description	Event ID	Field Value
	reset.		
FFT uplink rate interval change	This event is logged when there is change in FFT uplink rate interval.	15	Time in hours
Energy band interval change	This event is logged when there is change in energy band interval.	16	Time in hours
Recording interval change	This event is logged when there is change in recording interval.	17	Time in minutes/ hours
Periodic Sensors uplink rate change	This event is logged when there is change in periodic sensor uplink rate.	18	Time in minutes/ hours
Firmware update done	This event is logged when there is major update in firmware.	19	Major version number
Firmware update done	This event is logged when there is minor update in firmware.	20	Minor version number
Firmware update done	This event is logged when there is change in firmware revision.	21	Revision version number

CHAPTER 8

MAINTENANCE

Replacement of Honeywell Versatilis Transmitter

The modularized design of the Honeywell Versatilis™ Transmitter allows the user to disassemble from current target machine and to mount on other target machine with ease, or to replace the currently fitted mounting adapter with some other adapter to suit change in mounting surface.

Perform the below instructions to replace the Honeywell Versatilis™ Transmitter:

1. Detach the Honeywell Versatilis™ Transmitter from the target structure:
   - In case of screw-mount: Remove the M6 nut securing the Honeywell Versatilis™ Transmitter onto the target machine.
   - In case of magnetic mount: Remove the Honeywell Versatilis™ Transmitter from the target machine manually.
   - In case of adhesive mount: Cut through the adhesive layer (sticking the adapter to the target structure) using a blade.
   - In the case of adhesive mount (epoxy compatible): It is not recommended to remove the adapter from the target machine as the epoxy-based adhesive has very strong bonding to the surface and any practice to separate it from the surface could potentially result in damage to the respective surface.
2. Firmly hold the base of the Honeywell Versatilis™ Transmitter using a spanner (of size 41 mm), and unscrew the adapter from the base of the Honeywell Versatilis™ Transmitter using another spanner (of size 32 mm) till it's completely disassembled.

   In the case of adhesive mount (epoxy compatible): Firmly hold the adapter using spanner (of size 32mm), and unscrew the base of the Honeywell Versatilis™ Transmitter using another spanner (of size 41mm) till it's completely disassembled.
3. Install the Honeywell Versatilis™ Transmitter with the required mounting adapter. For more information on mounting procedure of Honeywell Versatilis™ Transmitter with various adapter types, see Mounting options.

Firmware update

The Honeywell Versatilis™ Connect app has the provision to update to the latest firmware available for the Honeywell Versatilis™ Transmitter. For more information, see the *Honeywell Versatilis Connect App User's Guide.*

Device logs

User has the provision to download the log files and save it to the local drive using Honeywell Versatilis™ Connect app.

For more information on how to download the Honeywell Versatilis™ Transmitter's logs using Honeywell Versatilis™ Connect app, see the *Honeywell Versatilis™ Connect app User Guide.*

CHAPTER 9

LED STATES

The following table provides various states of Signal Scout's LEDs and their associated status based on different scenarios.

Table 9-1: LEDs States

Probable Scenarios	Honeywell Versatilis™ Transmitter - Energy Harvested status	LED
On inserting the battery at the factory.	Power ON	(1. Blinks once) (2. Blinks twice) After 19 seconds: (3. Blinks thrice)
	Power ON failure	No visual indication on LED
Connecting to the Honeywell Versatilis™ Transmitter - Energy Harvested using Bluetooth scan in Honeywell Versatilis Connect app.	Successful pairing	(Blinks

Probable Scenarios	Honeywell Versatilis™ Transmitter - Energy Harvested status	LED
		once)
User selects the Honeywell Versatilis™ Transmitter - Energy Harvested from the list of "Available Devices" displayed on the Honeywell Versatilis Connect app.	Unsuccessful pairing	(Blinks once)
	Not recognizing	No visual indication on LED.
Connecting to the Honeywell Versatilis™ Transmitter - Energy Harvested using QR code scan in the Honeywell Versatilis Connect app.	Successful pairing	(Blinks once)
Scanning QR code imprinted on the Honeywell Versatilis™ Transmitter - Energy Harvested, flashes the Transmitter's summary in the Honeywell Versatilis Connect app.	Unsuccessful pairing	(Blinks once)
	Not recognizing	No visual indication on LED.
User activates the Honeywell Versatilis™ Transmitter - Energy Harvested to start measuring parameters, or pushing configurations to the Transmitter as required from the Honeywell Versatilis Connect app.	During configuration	

Probable Scenarios	Honeywell Versatilis™ Transmitter - Energy Harvested status	LED
On successful configuration of the Honeywell Versatilis™ Transmitter - Energy Harvested.	Configuration successful	(Blinks thrice)
Configuring the Honeywell Versatilis™ Transmitter - Energy Harvested using "Offline Template".	Configuration failure	(Blinks thrice)
Activate/ Deactivate through Connect App.	On activation	(Blinks thrice)
	Deactivate	No visual indication on LED.
Passcode reset using reed switch	Successful	(Blinks twice)
	Unsuccessful	No visual indication on LED.
Firmware update	While downloading/ updating	(Blinks for

Probable Scenarios	Honeywell Versatilis™ Transmitter - Energy Harvested status	LED
		every 10 seconds)
	Successful updating, and restarting	(1. Blinks once) (2. Blinks twice) After 19 seconds: (3. Blinks thrice)
	Unsuccessful	

CHAPTER 10

CERTIFICATIONS

Hazardous location certifications

Honeywell Versatilis™ Transmitter is certified for various Hazardous location standards and requirements.

The below tables gives the summary on the same:

Table 10-1: Hazardous location certifications

Certification	Standards	Approval/ Rating
IECEx	IEC 60079-0/COR1: 2020; Edition 7.0; 2017-12 IEC 60079-11: Edition 6.0; 2011-06	Ex ia IIB T4 Ga Tamb: -40°C to +80°C
CE - ATEX (2014/34/EU)	EN 60079-0: 2018 EN 60079-11: 2012	II 1 G - Ex ia IIB T4 Ga Tamb: -40°C to +80°C
UKCA Ex	EN 60079-0: 2018 EN 60079-11: 2012	II 1 G - Ex ia IIB T4 Ga Tamb: -40°C to +80°C
North America	CAN/CSA C22.2 No. 61010-1-12 + UPD1: 2015, UPD2: 2016, AMD 1-18 CAN/CSA C22.2 No. 60079-0: 19 CAN/CSA-C22.2 No. 60079-11: 14 (R2018)	Class I Division 1, Group C, D Ex ia IIB T4 Ga Class I Zone 0, AEx ia IIB T4 Ga Tamb: -40°C to +80°C

Certification	Standards	Approval/ Rating
	ANSI/UL 61010-1-2018 Third Edition ANSI/UL 913-2019 Eighth Edition ANSI/UL 60079-0-2020 Seventh Edition ANSI/UL 60079-11-2018 Sixth Edition	
FM Approvals™ (USA)	FM 3600: 2022; ANSI/ UL 60079-0: 2020 FM 3610: 2021; ANSI/ UL 60079-11: 2018 ANSI/UL 61010-1: 2012	Intrinsically Safe for: Class I, Division 1, Groups C and D, T4 Ta = -40°C to +80°C Zone 0, AEx/Ex ia IIB T4 Ga Ta = -40°C to +80°C FM Canada Certificate number FM23CA0071X FM US Certificate number FM23US0107X
CCoE	IS/IEC 60079-0: 2017 IS/IEC 60079-11: 2011	Ex ia IIB T4 Ga Tamb: -40°C to +80°C

Specific conditions of use:

- The nonmetallic enclosure parts of this equipment may become a spark ignition hazard in the presence of static electricity. The enclosure shall be cleaned only with a damp cloth, and the equipment shall be mounted to avoid building static electric charge from non conductive process flow, strong air currents, or other potential charging through friction.

- The aluminum enclosure may be capable of producing incendive sparks when impacted. This equipment must be mounted and/or physically guarded such that it is not subjected to impact or friction.

WARNING: DO NOT REPLACE BATTERY IN EXPLOSIVE ENVIRONMENT.
Battery or device stored in extreme temperatures may have trouble powering up because of the Li chemistry freeze and needs to be brought back to ambient temperature for a smooth start up.

AVERTISSEMENT: NE REMPLACEZ PAS LA BATTERIE DANS UN ENVIRONNEMENT EXPLOSIF ENVIRONNEMENT. Utilisez uniquement une batterie remplaçable Numéro de pièce Honeywell: 50183649; Tension: 3,6 V DC.

ATTENTION: Use only replaceable battery pack
Honeywell part number: 50183649; Voltage: 3.6V DC.

Marine Approvals

Table 10-2: Marine certifications

Certification
DNV, ABS, and BV*
*Certification is in progress.

NAMUR Certificate

Type tested according to NAMUR NE 95.

CE (Conformance to Europe)

Honeywell Versatilis™ Transmitter is compliant with all the Directives that are applicable as per CE certification requirements.

The below tables gives the summary on the same:

Table 10-3: CE certification requirements

Certification	Standards	Directive/ Regulation
CE	EN 61326-1: 2013 EN 61326-2-3: 2013 EN55011: 2009 + A1: 2010 EN 61000-4-2: 2009 EN 61000-4-3: 2006+A1+A2 EN 61000-4-8: 2010	Electro Magnetic Compatibility (EMC) Directive; 2014/30/EU
CE	ETSI EN 300 328 ETSI EN 300 220-1 V3.1.1 (2017-02) ETSI EN 300 220-2 V3.1.1 (2017-02) ETSI EN 301 489-1: 2019 ETSI EN 301 489-3: 2021 ETSI EN 301 489-17: 2020	Radio Equipment Directive (RED); 2014/53/EU
CE	EN 61010-1: 2010/A1: 2019	Low Voltage Directive (LVD); 2014/35/EU
CE	EN 50581: 2012	Restriction of use of Hazardous Substances (RoHS) in Electrical and Electronic equipment; 2011/65/EU; 2017/2102 amendment
CE	EN 50385: 2017	Minimum health and safety

Certification	Standards	Directive/ Regulation
		requirements regarding the exposure of workers to the risks arising from physical agents (Electromagnetic fields); 2013/35/EU

UKCA (United Kingdom Conformity Assessed)

Honeywell Versatilis™ Transmitter is compliant with all the Regulations that are applicable as per UKCA certification requirements.

The below tables gives the summary on the same:

Table 10-4: UKCA certification requirements

Certification	Standards	Directive/ Regulation
UKCA	EN 61326-1: 2013 EN 61326-2-3: 2013 EN55011: 2009 + A1: 2010 EN 61000-4-2: 2009 EN 61000-4-3: 2006+A1+A2 EN 61000-4-8: 2010	Electro Magnetic Compatibility (EMC) Regulations 2016
UKCA	ETSI EN 300 328 ETSI EN 300 220-1 V3.1.1 (2017-02) ETSI EN 300 220-2 V3.1.1 (2017-02)	Radio Equipment Regulations 2017

Certification	Standards	Directive/ Regulation
	ETSI EN 301 489-1: 2019 ETSI EN 301 489-3: 2021 ETSI EN 301 489-17: 2020	
UKCA	EN 61010-1: 2010/A1: 2019	Electrical Equipment (Safety) Regulations 2016
UKCA	EN 50581: 2012	Restriction of the Use of Certain Hazardous Substances (RoHS) in Electrical and Electronic Equipment Regulations 2012
UKCA	EN 50385: 2017	The Control of Electromagnetic Fields at work Regulations 2016

FCC & IC Certifications

Honeywell Versatilis™ Transmitter is complaint with all the requirements that are applicable as per FCC & IC certification specifications.

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.

The below tables gives the summary on the same:

Table 10-5: FCC and IC certification requirements

Certification	Standards	Approval/ Rating
FCC	47 CFR Part 15 [10-01-20 Edition] ANSI C63.4: 2014	Compliance as per Subpart B & Subpart C FCC ID: S5751490045 BLE FCC ID: 2APD9-RSL10SIP
IC	ICES-003 Issue 7: 2020 ICES-Gen Issue 1: 2018+A1: 2021 RSS-247 Issue 2 Equipment Certification	Compliant for Wireless requirements IC ID: 573W-51490045 BLE IC ID: 23763-RSL10SIP

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

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 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:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Consult the dealer or an experienced radio technician for help.

NOTE:
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:

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

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:

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

CAUTION: To maintain compliance with the FCC's RF exposure guidelines, place the unit at least 20cm from nearby persons.

Wireless Certifications & Approvals

Honeywell Versatilis™ Transmitter has LoRaWAN & BLE Wireless communication technologies. Required certifications and approvals have been attained for this product.

The below tables gives the summary on the same:

Table 10-6: Wireless certification and approvals

Certification	Standards/ Specification	Approval
LoRaWAN	LoRaWAN 1.0.4	End Device certification Requirements for all regions: Version 1.4
Bluetooth Low Energy (BLE)	Bluetooth Specifications	Bluetooth SIG Listed

CHAPTER

11

TROUBLESHOOTING

The following table provides various troubleshooting scenarios in the case of error or unexpected behavior, and their corresponding troubleshooting tips:

Table 11-1: Troubleshooting Information

Scenarios	Honeywell Versatilis™ Transmitter Status	LED	On Screen	Troubleshooting Tips
User selects the Honeywell Versatilis™ Transmitter from the list displayed on the Honeywell Versatilis™ Connect.	Unsuccessful pairing.	(Blinks once.)	A pop-up window prompts to try again.	• Retry pairing. • Verify the passcode specified for Honeywell Versatilis™ Connect authentication.
	Not recognizing.	No visual indication on LED.		Ensure that the device is in within the BLE range.
Scanning QR code imprinted on the Transmitter, flashes the Honeywell Versatilis™ Transmitter 's summary.	Unsuccessful pairing.	(Blinks once.)	A pop-up window prompts to try again.	• Re-scan the QR code. • Connect manually through BLE app.
	Not recognizing.	No visual indication on LED.	NA	

Scenarios	Honeywell Versatilis™ Transmitter Status	LED	On Screen	Troubleshooting Tips
Firmware update	Unsuccessful	(Blinks thrice.)	A pop-up window with error message appears.	• Check the BLE signal strength. Ensure that device is connected to the Connect app. Re-try firmware update. • Ensure the required firmware file is downloaded from authenticated location. • Contact Honeywell TAC team.
Higher vibration alarms during asset start-up in batch operations can trigger a false alarm to Experion EHM solution (this is because of asset	NA	NA	NA	• Ignore the alarm. • Alarm status will get updated with current outstanding alarms if any, during its regular alarm publish rate of 8hrs

Scenarios	Honeywell Versatilis™ Transmitter Status	LED	On Screen	Troubleshooting Tips
generating higher vibration signatures during start-up conditions).				
Diagnostic fault indication.	Battery low.	No visual indication on LED.	Honeywell Versatilis™ Connect app shows with battery indication. screens and Experion EHM.	Honeywell Versatilis™ Transmitter replacement.
	Sensor interface failure.		Status indicator at sensor level as well as on the Diagnostic page of Honeywell Versatilis™ Connect and Experion EHM.	• Restart Honeywell Versatilis™ Transmitter. • Replace Honeywell Versatilis™ Transmitter.
	LoRa communication status.		Communication fault indication on the Diagnostic page of Honeywell Versatilis™ Connect and Experion EHM.	• Install the Gateway within the reachable range of the device as per the LoRaWAN standard. • Ensure the device is

Scenarios	Honeywell Versatilis™ Transmitter Status	LED	On Screen	Troubleshooting Tips
				configured in the LoRaWAN server with valid keys (for ABP/OTAA method). • Ensure the device is configured in Honeywell Versatilis™ Connect with valid keys (for ABP/OTAA method). • Ensure the keys specified in Honeywell Versatilis™ Connect and LoRaWAN server are the same. • Ensure valid LoRa reporting interval is set in Honeywell Versatilis™ Connect. • Restart Honeywell Versatilis™ Transmitter.

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