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Release 100
February 2023
## Revision History

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<tr>
<th>Revision</th>
<th>Date</th>
<th>Description</th>
</tr>
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<tr>
<td>1.0</td>
<td>February 2023</td>
<td>Release version for Experion EHM</td>
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1. Experion EHM Overview

Experion® Equipment Health Monitoring (EHM) solution is based on proven Experion HS platform and can be used by plant managers and reliability engineers in process manufacturing facilities to monitor the health of rotating equipment. This enables maximizing equipment availability and reliability. Built on the proven Experion HS platform, it is reliable, flexible, easy to use, and scalable for any plant setup. Honeywell EHM solution enables collection, contextualization, and visualization of health-related parameters of industrial equipment.

Key features of Experion EHM solution include:

- Secure connectivity to Honeywell Versatilis Transmitters over MQTT.
- Supports LoRaWAN® communication technology through Industrial standard Gateways.
- Configure sensor devices with corresponding Assets in a Plant hierarchy.
- Sensor parameters data visualization using Birds Eye view and Drilldown device dashboards.
- Live and historical trends of Sensor parameters to troubleshoot issues.
- Displays equipment health alarms/ events when an alert payload is received.
- Quick deployment and requires minimal engineering efforts.
- ISO 10816 standard based Vibration alarm indications.
- Secure solution including User and Asset based Security.

2. Architecture Overview

Experion EHM solution uses proven Experion HS SCADA functionality to store and organize the data received from Honeywell Versatilis™ Transmitters. Experion EHM connects to the LoRaWAN provider’s application server using secure MQTT interface. EHM uses web-clients for visualization of health data where the collected data is represented in the context of industrial equipment it is connected to. Web-clients ensure zero client deployment cost where any existing nodes within the network on customer’s enterprise or OEM system can be used to access data on the go.

The collected Equipment health data can also be shared with existing supervisory control system and other enterprise level Management Information System (MIS) for improved decision making, thanks to open yet secure interfaces supported by Experion platform.
3. Solution Components

The Experion EHM solution has three major solution components:
1. Honeywell Versatilis Transmitter measures Surface temperature, Humidity, Ambient Pressure, Ambient Temperature, 3 Axis Vibration, and Acoustics of the equipment.
2. Secure communication gateway and provider supporting LoRa wireless technology & LoRaWAN stack, connecting Versatilis Transmitters to Honeywell EHM SCADA
3. Experion EHM SCADA for visualization, web-based clients with intuitive visualization of equipment health parameters, live and historical health trends

3.1. Honeywell Versatilis™ Transmitter (HVT)

Honeywell Versatilis™ Transmitter is a multi-variant sensing offering based on the latest LoRaWAN® protocol communication technology. Its inherently low power compact design coupled with quick and easy installation and commissioning help manufacturers to deploy them at scale with the lowest CAPEX and negligible OPEX.

The Honeywell Versatilis Transmitter offers multiple mounting options such as Screw, Magnetic, and Adhesive mount to suit the mounting surface of the target machine to ensure good bonding and accurate measurement. Following measurement types are supported in the current R100 HVT release:
- Equipment – Vibration 3 axis, Audio Acoustics and Surface Temperature
- Environment – Environment Humidity, Ambient Pressure and Ambient Temperature

Find more details of Honeywell Versatilis™ Transmitter in the HVT Specification document, 34-VT-03-01.

3.2. Industrial LoRaWAN Gateways & Provider

Honeywell EHM solution uses certified LoRaWAN gateways which wirelessly receive data from the battery-operated Honeywell Versatilis Transmitters. The gateways support both OTAA and ABP activation modes for connecting with devices providing the required security and flexibility of project deployments. The gateways manage the device communications, aggregate the device data and provide data to LoRaWAN provider.
Alongside the LoRaWAN certified gateways, Experion EHM solution requires LoRaWAN provider that includes LoRaWAN Network and Application Server, enabling management for gateways, applications, devices, users, and then providing the HVT device data to Experion EHM SCADA platform for visualization over MQTT protocol. The provider can be provided as Virtual machine running in VMWare virtualization environment or installed directly in a PC on the network. Use of LoRaWAN and MQTT protocols greatly enhance the communication security and data integrity.

3.3. **Experion EHM SCADA**

Experion EHM SCADA solution uses proven Experion HS platform to store and organize the data received from HVT devices through LoRaWAN provider using secure MQTT interface. The collected Equipment health data is arranged and presented using EHM web-clients for visualization and represented in the context of the connected industrial equipment. Web-clients ensure zero client deployment cost where any existing nodes on customer’s enterprise or OEM system can be used to access data on the go.
4. Model Numbers

4.1. Honeywell Versatilis™ Transmitter (HVT)

<table>
<thead>
<tr>
<th>KEY NUMBER</th>
<th>Honeywell Versatilis Transmitter</th>
<th>Honeywell Versatilis Transmitter - Equipment Health Monitor</th>
<th>Honeywell Versatilis Signal Scout - Emissions Detector</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selection</td>
<td>HVT 100</td>
<td>HVT 100</td>
<td>HVT 100</td>
</tr>
</tbody>
</table>

**TABLE I** Measuring Parameters
- Ambient Temperature
- Acoustics
- Valve Position
- Surface Temperature and Vibration

**TABLE II** Energy Harvesting
- No Energy Harvesting
- Yes Solar
- Yes TEG

**TABLE III** Housing and Mounting
- Standard Housing (P67, Poly carbonate)
- Emission Detection Housing (P66, Poly carbonate)

**TABLE IV** Agency Approvals (see data sheet for Approval Code Details)

<table>
<thead>
<tr>
<th>IS Approvals</th>
<th>Agency Approvals</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSA/ATEX/IECEx/UNI-97, Intrinsically Safe, Non-incendive, &amp; Dustproof</td>
<td>1</td>
</tr>
<tr>
<td>CCIE Intrinsically Safe &amp; Non-incendive</td>
<td>2</td>
</tr>
<tr>
<td>NEPS Intrinsically Safe &amp; Non-incendive</td>
<td>3</td>
</tr>
<tr>
<td>SAE Intrinsically Safe &amp; Non-incendive</td>
<td>4</td>
</tr>
<tr>
<td>IEMETRO Intrinsically Safe &amp; Non-incendive</td>
<td>5</td>
</tr>
<tr>
<td>KOSHA Intrinsically Safe &amp; Non-incendive</td>
<td>6</td>
</tr>
<tr>
<td>EAC Intrinsically Safe &amp; Non-incendive</td>
<td>7</td>
</tr>
</tbody>
</table>

**TABLE V** Wireless Communication
- LoRa Band
- 860MHz – Europe, India, Africa, Russia, UK, Parts of Middle East
- 915MHz – North and South America, Canada
- 410Mhz to 420Mhz – Australia, Japan, Malaysia, Indonesia, Korea
- 470MHz to 510MHz – China

**TABLE VI** Manufacturing Specials

**FIELD INSTALLABLE ACCESSORY KITS (HVT)**
- Honeywell Versatilis Tx Mounting Kit
- Honeywell Versatilis Tx Filter Replacement Kit

**FIELD INSTALLABLE ACCESSORY KITS (HVSS)**
- Honeywell Versatilis Tx Mounting Kit
4.2. LoRaWAN Gateway & Provider

Experion EHM uses industrial grade LoRaWAN Gateway & Provider that are commercially available. Below specification covers the minimum specification. End users can procure commercially off the shelf (COTS) available certified LoRaWAN Gateway & Provider and deploy.

<table>
<thead>
<tr>
<th>System Configuration</th>
<th>LoRaWAN Gateway</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purpose</td>
<td>Bridge between HVT devices and LoRaWAN provider</td>
</tr>
<tr>
<td>Example Hardware</td>
<td>Multitech MTCDTIP-L4G1, Cisco Wireless Gateway for LoRaWAN</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>System Configuration</th>
<th>LoRaWAN Provider</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purpose</td>
<td>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</td>
</tr>
<tr>
<td>Supported Interface with Experion EHM SCADA</td>
<td>MQTT</td>
</tr>
<tr>
<td>Example Software</td>
<td>ChirpStack</td>
</tr>
<tr>
<td>Example Virtual Machine resource requirements when deployed in VMWare Workstation Pro</td>
<td>2 CPU cores 4GB RAM 20GB Hard disk</td>
</tr>
</tbody>
</table>

4.3. Experion EHM SCADA

Experion EHM SCADA R100 is provided as a Virtual Machine and can be easily deployed on VMWare hypervisor platform. Below details cover the procedure to order Experion EHM.

4.3.1. Select Experion EHM Bundle

One of the below EHM bundles can be selected depending on the quantity of Honeywell Versatilis Transmitters (HVTs). Approximately 70 Experion SCADA points are required per HVT device.

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXPEHMLIC0040</td>
<td>Experion EHM that supports 40 HVT devices</td>
</tr>
<tr>
<td>EXPEHMLIC0100</td>
<td>Experion EHM that supports 100 HVT devices</td>
</tr>
<tr>
<td>EXPEHMLIC0250</td>
<td>Experion EHM that supports 250 HVT devices</td>
</tr>
</tbody>
</table>
Below table summarizes key Experion EHM SCADA capacity and features offered in R100 release.

<table>
<thead>
<tr>
<th>Feature/Capacity</th>
<th>EXPEHMLIC0040</th>
<th>EXPEHMLIC0100</th>
<th>EXPEHMLIC0250</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum number of HVT devices supported</td>
<td>40</td>
<td>100</td>
<td>250</td>
</tr>
<tr>
<td>Maximum number of EHM SCADA Points</td>
<td>3,000</td>
<td>8,000</td>
<td>16,000</td>
</tr>
<tr>
<td>Maximum number of EHM Web Clients</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

Experion EHM is delivered as a Virtual Machine in USB Flash drive.
*More HVT devices and SCADA points can be added to Experion EHM solution based on project requirement. Please connect with your Honeywell contact for more details.

### 4.4. Experion EHM Server Machine Requirements

Experion EHM SCADA server node is distributed as ready to deploy virtual machine compatible with VMWare Workstation Pro. Below are the key resource requirements for the Experion EHM SCADA server machine.

**System Configuration** | **Experion EHM SCADA Server (Virtual Machine)**
--- | ---
Purpose | Experion EHM Server in Virtualization environment
Operating System | Windows Server 2019 Datacenter
Memory | 16GB RAM for small-mid size configurations
CPU | 4 cores
Disk Space | 220GB or higher hard disk
Virtualization Hypervisor | VMWare Workstation 17 Pro or higher

Below are the key requirements for the Experion EHM Host Physical PC:

**System Configuration** | **Experion EHM Host Machine Specs (Physical)**
--- | ---
Purpose | To host Experion EHM Server VM and optionally LoRaWAN provider stack VM in Virtualization environment
Operating System | Windows 10 Enterprise LTSC 2019 Edition, or equivalent Windows 10 OS
Memory | 32GB RAM for small-mid size configurations
CPU | Single or multiple Intel 2.5GHz, Octa Core processor or greater
Network Interface | Single or dual 1 Gbps or 100 Mbps Ethernet
Disk Space | 500GB or higher hard disk or SSD
Virtualization Hypervisor | VMWare Workstation 17 Pro or higher
Below are the key requirements for the Experion EHM Web Client:

<table>
<thead>
<tr>
<th>System Configuration</th>
<th>Experion EHM Web Client Specs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purpose</td>
<td>To visualize the Experion EHM displays connecting to Experion EHM Server</td>
</tr>
<tr>
<td>Web browsers supported</td>
<td>Google Chrome and Microsoft Edge, November 22 update or later</td>
</tr>
<tr>
<td>Minimum Recommended</td>
<td>1280 x 1024</td>
</tr>
<tr>
<td>Display resolution</td>
<td></td>
</tr>
</tbody>
</table>

4.5. Experion EHM Sample BOM

4.5.1. Sample 1

Requirement:
- 110 qty of Honeywell Versatilis Transmitters (HVTs)
- 2 Experion EHM web client users

Selected EHM bundle:
- In this scenario, the user selects EXPEHMLIC0250 Experion EHM bundle.
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For More Information

Learn more about how Honeywell’s Experion HS can improve your HMI and SCADA experience, visit process.honeywell.com > Products > Field Instruments > Honeywell Versatilis Transmitter or contact your Honeywell Account Manager, Distributor or System Integrator.

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