Plantweb Insight™ Valve Health Application

The Plantweb Insight Valve Health application is an on-site application that generates health indicators by verifying if a plant's valves are in a medium or high repair urgency status. This is calculated using a health index score and a status algorithm that considers the same factors experienced Emerson experts would, such as application knowledge and device historical data.

With this application, you can view trends of past valve health, valve problem explanations, recommended actions, time frames to take action, and financial impact estimates. You are able to monitor valves in near real time and track the impact set against key performance objectives.

The application accesses data from sources such as the Emerson THUM™ Adapter, Emerson 1410/1420 Wireless Gateway, and AMS to continuously determine valve status. This includes, in addition to identifying the urgency levels, a detailed description of the issues or alerts received by the valves individually.

Plantweb Insight Valve Health Application

Features

- **Reduce Costs—** The Valve Health application allows new time-based analytics to identify valve health issues. This helps create proactive maintenance planning and the reduction of expediting repair costs due to unexpected valve failure.

- **Prevent Unplanned Downtime—** The Valve Health application sends predictive alerts on critical valves and repair urgency. This allows you to intelligently manage and schedule needed maintenance.

- **Improve Efficiency—** Establish a fleet-wide view of connected valves to prioritize repairs. Receive maintenance action recommendations/timing and valve reports summarizing needed repairs.

- **Suite of Plantweb Insight Applications—** The Valve Health application joins a suite of established and growing subscription applications available from Emerson's Plantweb Insight solutions suite. Subscription availability minimizes investment costs and ensures availability to new application enhancements

- **Easy to Use—** The Valve Health application offers an intuitive interface with actionable alerts and recommendations. A dashboard view highlights valves needing further investigation and a health index monitors overall valve health trends.

Table 1. Specifications[1]

On-Premise Host System	Plantweb Insight Framework:
Virtualization Software: ■ Vmware® Virtual Hardware Version16 or higher, ■ Microsoft Hyper-V® Configuration version 8.0 or higher	v3.2.0 or higher
Hardware Requirements: ■ Processors = 16 dedicate cores[2], ■ Memory = 32 GB RAM, ■ Hard drive = 512 GB of free space	**Web Client** **Browsers (recent versions supported):** ■ Google Chrome™, ■ Microsoft Edge, ■ Mozilla Firefox®

1. Plantweb Insight is delivered as a fully developed virtual machine (e.g. ova file) and applications are installed once the virtual machine is deployed.
2. Most PC operating systems (i.e. Windows®, Linux®, and Mac™) will use 1 to 2 cores.

Table 2. Communication Specifications

Inputs (Data Sources)	Software Revision
Emerson Wireless 1410/1420 Gateway with Emerson THUM Adapter	Plantweb Insight v3.2.0
AMS Device Manager with Data Server	Plantweb Insight v3.2.0 AMS v14.5 FP2

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Dashboard

The dashboard provides a consolidated view of the status of all valves connected to the system, which helps users to quickly identify the health status of each valve based on its urgency level for repair. This allows users to prioritize valves that require attention and make informed decisions based on the actionable information presented.

In addition, the dashboard also provides users with the Overall Health Index of the entire fleet of valves, providing an easy way to evaluate the overall status of the valve fleet and understand its level of degradation based on the score obtained. The dashboard also allows users to quickly identify the level of deterioration of the most critical valves, providing complementary information about the valve fleet, such as the number of valves outside the time frame to take action, and unrecognized alerts.

After identifying problems and taking action, the dashboard can display an estimate of how much money users have saved over time. The dashboard displays a list of the latest alerts received in the last 24, 48, and 72 hours, which helps users take proactive measures to address issues quickly and detect problems that can have a significant impact on plant productivity.

Figure 1. Dashboard Overview
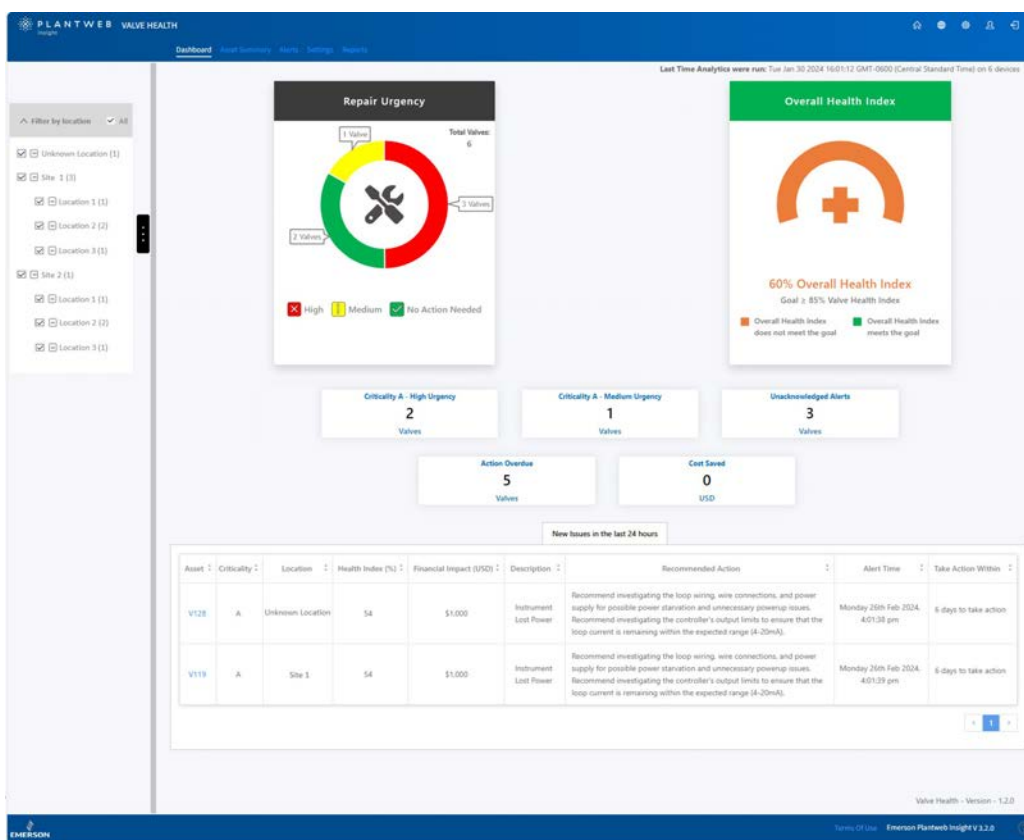
Repair Urgency

■ Quick identification of the health status of all valves

■ Urgency levels associated with each color: red, yellow, and green

■ Address with one click to see where the issue is

Figure 2. Urgency Display
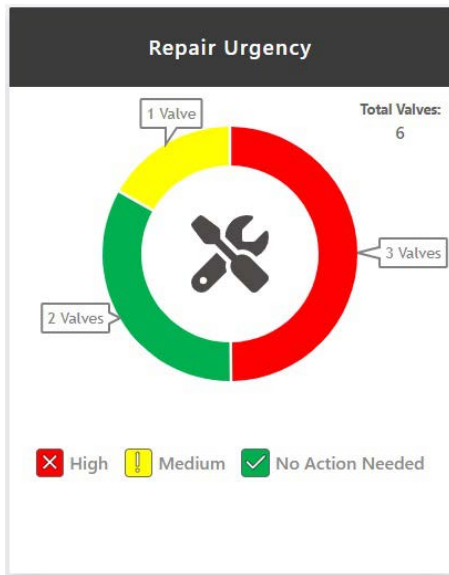
Overall Health Index

■ Visualization of the health index of the entire fleet of valves

■ Valve fleet health trend over time

Figure 3. Overall Health Index

Tiles

- Relevant information that could influence the plant process summarized in five tiles

- 5 tiles: Criticality A High Urgency; Criticality A Medium Urgency; Action Overdue; Unacknowledged Alerts; and Cost Saved

- Address with one click to see the content

Figure 4. Tile List Breakdown

Criticality A - High Urgency
The most important valves that require a higher level of repair urgency. The criticality level is defined by the user.

Criticality A - Medium Urgency
The most important valves that are in a medium level of repair urgency. The criticality level is defined by the user.

Action Overdue
Valves the user has not fixed within the recommended time to take action.

Unacknowledged Alerts
Valves that have at least one unacknowledged alert.

Cost Saved
This functionality allows the user to observe the savings projected after repairing one or more valves. The application will capture an estimated savings from the moment the valve goes from a High or Medium Repair Urgency to No Action Needed.

New Issues Table

- This section shows a sortable table with new alerts that have become active in the last 24, 48, and 72 hours

Figure 5. New Issues Table

Health

This screen allows the user to visualize the performance of the valve fleet by comparing it with the goal, the cumulative repair urgency status, connection hours, and percentage variations of the fleet compared to the previous day, the previous week, the last month, and the last year.

Figure 6. Health Screen View
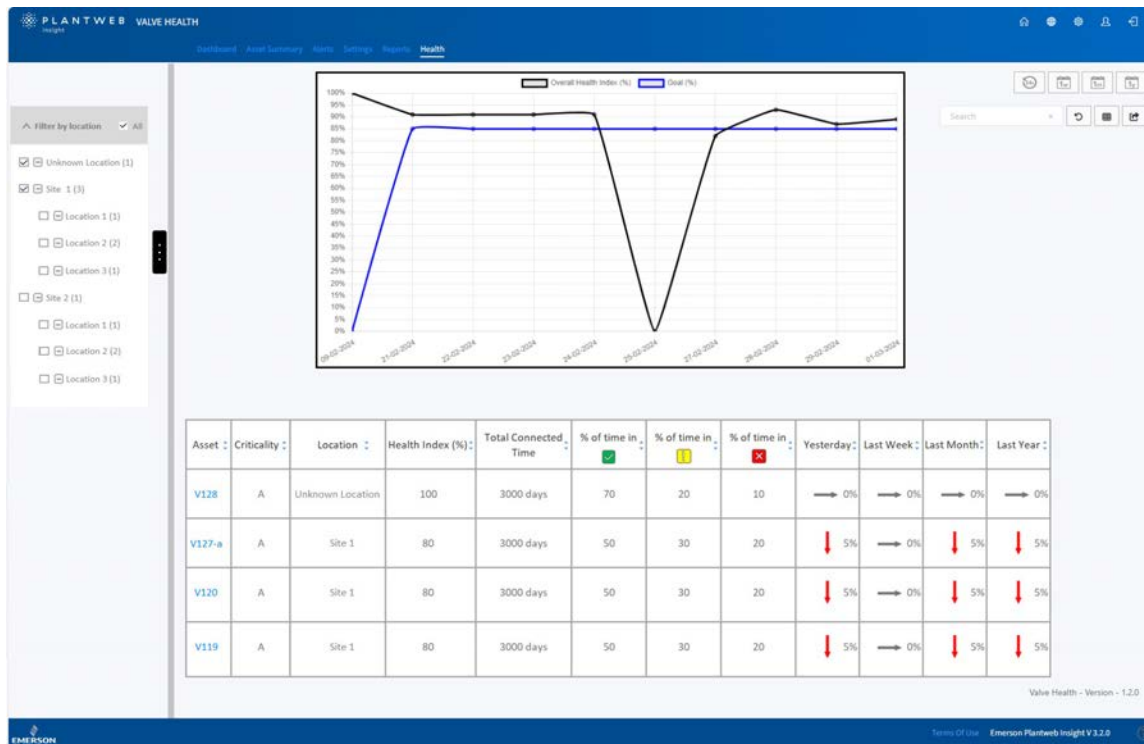
Asset Summary

The asset summary page is a tabular view of all assets being monitored. These details include asset, location, critically, and user-defined financial impact for each individual asset.

Also displayed are calculated insights such as repair urgency status, health index, and status duration.

This page is fully sortable, searchable, and filterable for quick prioritization and identification. The asset summary page can also be exported via CSV or Excel for reporting.

Figure 7. Asset Summary View

Asset Details

Asset Details - Valve Report

■ Individual valve reports can be viewed in the application and/or exported into a .pdf file

Figure 8. Asset Details Valve Report
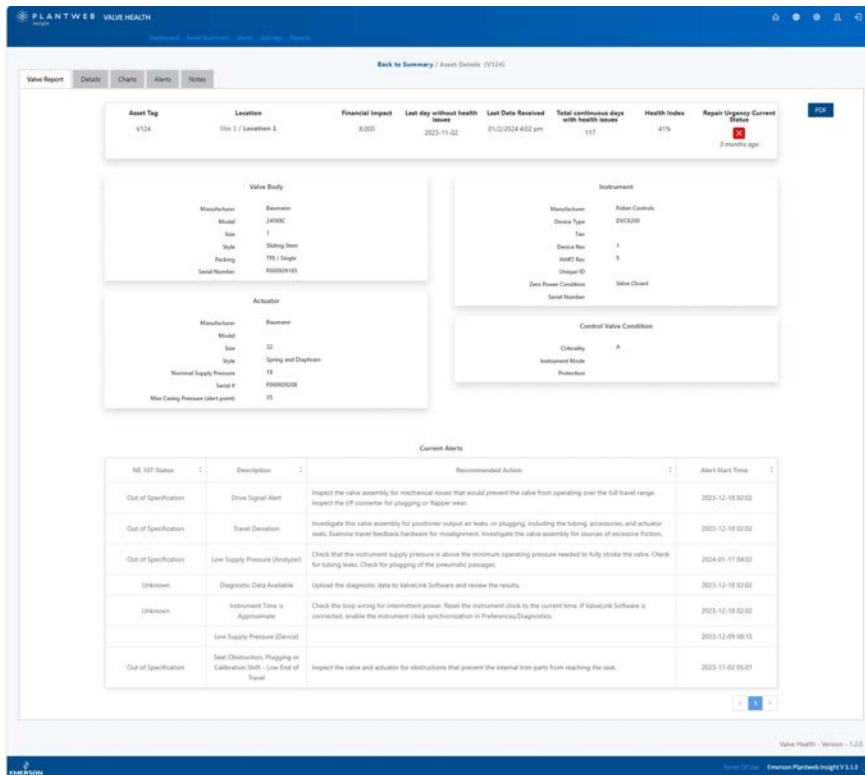
Valve Report

Displays:

■ Asset tag

■ Site

■ Location

■ Financial impact

■ Last day without health issues

■ Total continuous days without health issues

■ Valve Health Index

■ Urgency repair status

■ Assembly construction details

1. Valve body

2. Actuator

3. Instrument

■ Control valve condition

1. Criticality

2. Instrument mode

3. Prioritization

■ Active alerts table

Asset Details - Alerts

Active Alerts:

- Status

- Description

- Recommended action, take action within

- Acknowledged

Past Alerts:

- Status

- Description

- Recommended action

- Alert start time

- Alert end time

Figure 9. Asset Details Alerts

Asset Details - Charts

- Shows graphical history of the variables of travel, travel set point, input current, and actuator pressure

Figure 10. Asset Details Charts
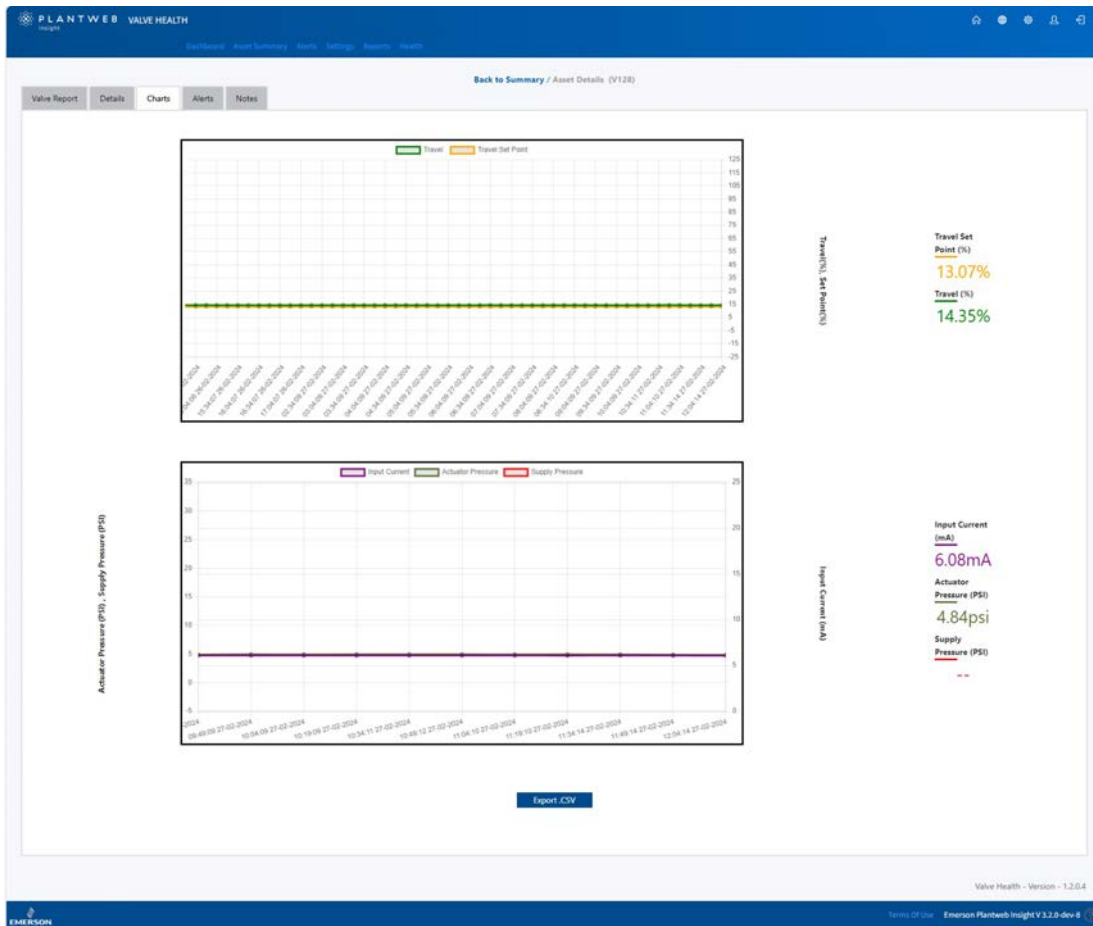
Asset Details - Charts: Data Points

- Shows all the points through which the graph passes the variables of travel, travel set point, input current, and actuator pressure

Figure 11. Data Points

Asset Details - Notes

- Notes allow users to add and store valve notes and file attachments
- When the user finishes writing the note they click "ADD," and the new note will be added

Asset Details - Details
Location Detail

- Read field
  1. Asset tag
- Read / Write fields
  1. Site
  2. Location
- Write fields
  1. Valve criticality
  2. Financial impact

Figure 12. Asset Details Location Detail

Valve Body Detail

- Read / Write field
  1. Manufacturer
  2. Model
  3. Size
  4. Style
  5. Packing
  6. Serial number

Figure 13. Asset Details Valve Body

Actuator Detail

■ Read / Write field

1. Manufacturer

2. Model

3. Size

4. Style

5. Serial number

■ Read field

1. Supply pressure

Instrument Detail

■ Read / Write field

1. Zero power condition

■ Read fields

1. Manufacturer

2. Device Type

3. Tier

4. Device revision

5. HART revision

6. Unique D

7. Serial number

Figure 14. Asset Details Actuator

Figure 15. Asset Details Instrument

Device Variables

- Read / Write field

  1. Valve travel

  2. Travel set point

  3. Input current

  4. Actuator pressure A

Alert Configuration

- Free form numerical fields

  1. Travel accum, high point

  2. Cycle counter, high point

  3. Supply pressure, high point

Alerts

The Alerts dashboard can be sorted by any of the displayed fields and is filterable by location, severity, and time period. Information includes the asset tag and details such as asset criticality, site, location, repair urgency, health index, and user- defined financial impact, as well as the alert description, recommended actions, and recommended time frame in which to act.

Figure 16. Alerts

Reports

Several kinds of reports can be generated by the Valve Health application for different audiences. A summary report gives a higher level view of the overall fleet and

is available in shorter or longer versions. A maintenance report shows more details available in the application that are more of interest to Maintenance.

Figure 17. Reports
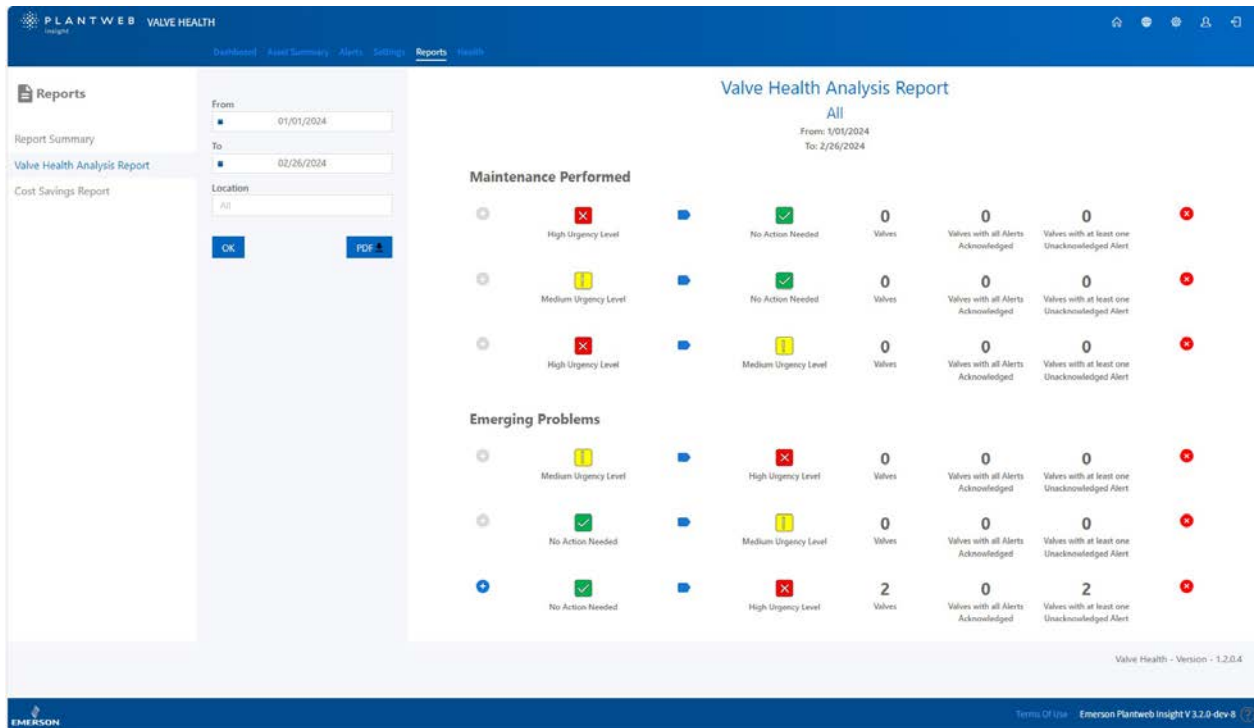
Ordering Information

Ordering and Installation Process

1. Ensure prerequisites are in place (see Specifications, table 1).

2. Place a Valve Health application order through your [Emerson sales office](#).

3. Download the Plantweb Insight Framework and Valve Health application from MyEmerson.

4. Install the applications.

5. Launch the application and request the Valve Health application software activation license (requires order information and computer fingerprint code).

6. Install the license key and proceed with the application setup.

License Key

The Plantweb Insight applications require a valid license key to be used. License keys are delivered upon placing an order for a subscription order code and submitting a locking ID from the software. Plantweb Insight license keys are provided as a file.

Table 3. Subscription Duration and Assets

Description
90-Day trial for up to 25 assets
1-Year subscription for up to 25 assets
1-Year subscription for up to 50 assets
1-Year subscription for up to 75 assets
1-Year subscription for up to 100 assets
2-Year subscription for up to 25 assets
2-Year subscription for up to 50 assets
2-Year subscription for up to 75 assets
2-Year subscription for up to 100 assets
3-Year subscription for up to 25 assets
3-Year subscription for up to 50 assets
3-Year subscription for up to 75 assets
3-Year subscription for up to 100 assets
Subscription for >100 assets also available

Figure 18. Life Cycle of a License with One Year Validity
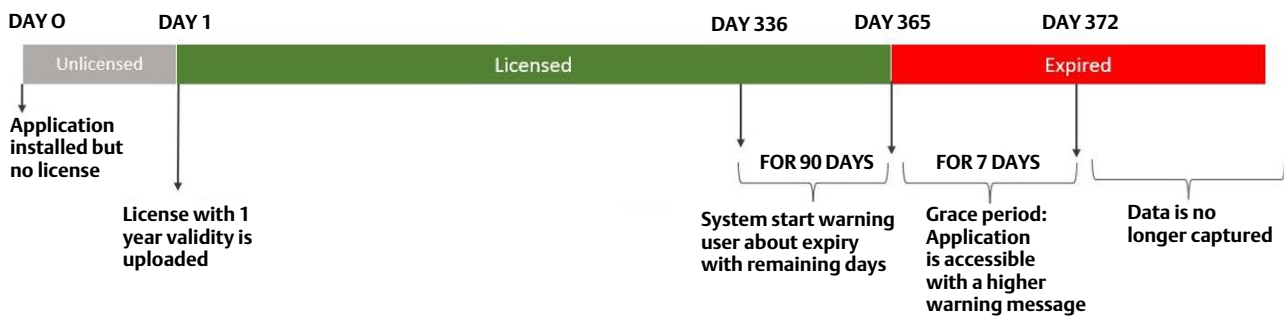
Note

The Repair Urgency statuses, Overall Health Index, and recommendations presented in the Valve Health application consider only what is known to Emerson relative to a limited collection of risk factors with no consideration of the processes under control, the application/configuration of the system in which a valve operates, or the actual actions taken locally to mitigate the identified risks. Valve health can be influenced by a variety of factors, and no product or software can guarantee full and continuous operability or performance. The Valve Health application is expected to assist users in monitoring and maintaining the health and performance of its valves. However, it is only a portion of an overall strategy for monitoring and maintaining the health and performance of your valves, and Emerson does not warrant that the Valve Health application or its use of will protect your valves from experiencing health or performance degradation.

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