

Plantweb Insight™ Valve Health Application



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Section 1: About the Valve Health Application

The Plantweb Insight™ Valve Health application is an on-site software that reads live variables and alerts from digital valve controllers to generate a health index and repair urgency. The analytics uses current and historical valve performance data to provide repair guidance based on Emerson valve expertise.

Valve Health Application

- Read-only access to connected digital valve controllers and positioners
- Prioritize maintenance on a fleet of valves
- View current status and historical trends of valve health
- View valve device alert explanations and recommended actions
- Generate valve fleet health summary reports
- Compatible with DVC2000, DVC6000, DVC6200, DVC7K

1.1 About this Guide

This instruction manual contains details about the various dashboards, screens, reports and clickable features of the application. For installation instructions, please refer to the Quick Start Guide (D104784X012).

1.2 For Technical Support

If you have problems or questions that you cannot resolve while using the Valve Health Application guides, Plantweb Insight software technical assistance is available.

Support Directory

For Valve Health Application Technical Support, contact your [Emerson sales office](#).

Software Updates

For software updates, log into your MyEmerson account to download the latest version of Plantweb Insight and the Valve Health Application.

1.4 Related Documents

- Plantweb Insight Valve Health Application Quick Start Guide ([D104784X012](#))
- Plantweb Insight Valve Health Application Bulletin ([D104780X012](#))
- Plantweb Insight Quick Start Guide ([00825-0100-4541](#))
- Plantweb Insight Manual ([00809-0100-4541](#))
- AMS Device Manager Version 14.5 FP2 Planning and Installation Guide (June 2023) ([D104780X012](#))
- Emerson Wireless Gateway Reference Manual ([00809-0600-4410](#))
- Best Practices for use of Emerson THUM Adapter with FIELDVUE Digital Valve Controllers ([D104235X012](#))
- FIELDVUE Planning Guide ([D103278X012](#))
- FIELDVUE DVC6200 Digital Valve Controller HART Field Device Specification Instruction Manual Supplement ([D103639X012](#))
- HART Field Device Specification - DVC6000 and DVC6200 HW1 Digital Valve Controllers Instruction Manual Supplement ([D103649X012](#))
- HART Field Device Specification - FIELDVUE DVC2000 Digital Valve Controller Instruction Manual Supplement ([D103639X012](#), [D103649X012](#), [D103783X012](#))

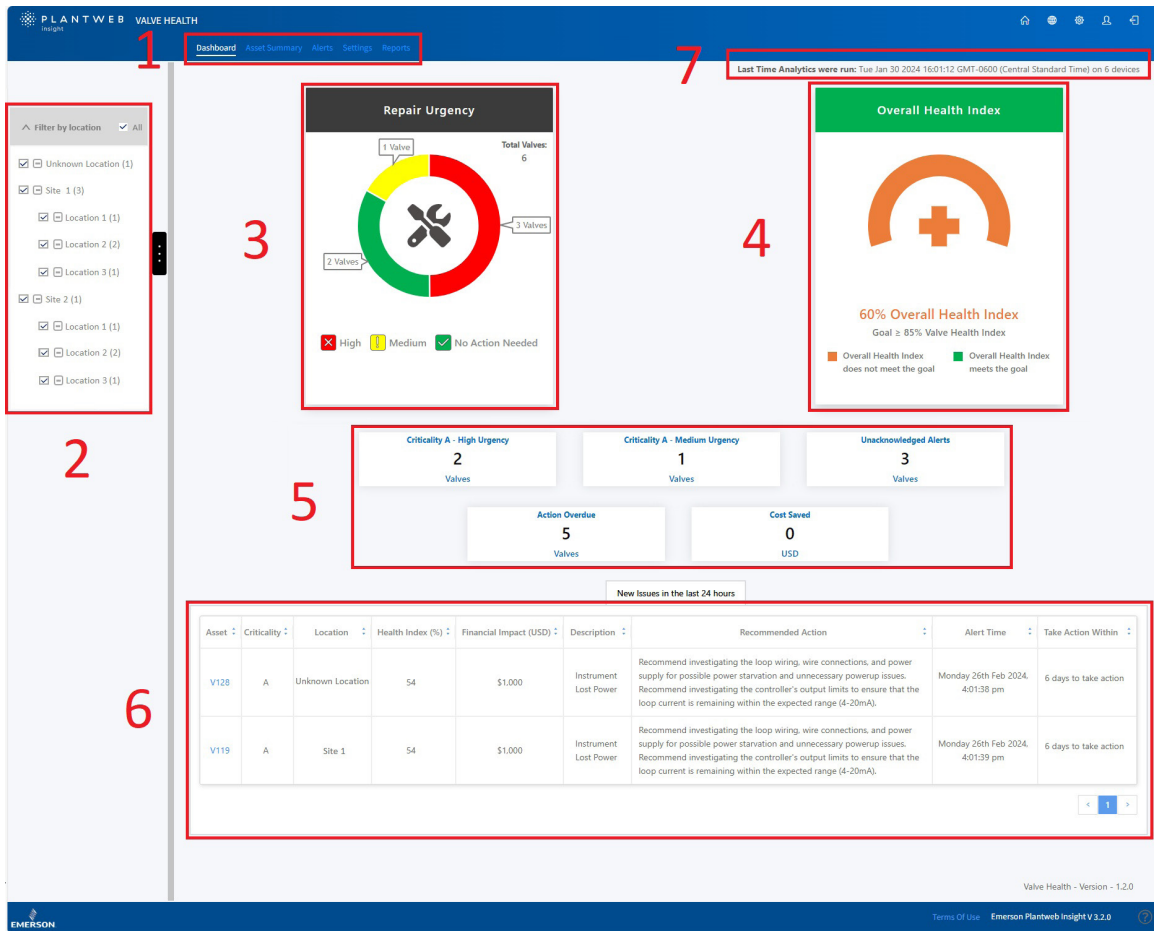
Section 2: Dashboard

When launching the Valve Health Application, the first page that appears is the dashboard. The dashboard provides a fleet-wide view of all connected assets.

NOTE

There are two user profiles, ADMIN and USER. All screens and features are available for the ADMIN role. The ADMIN can change configurable items that affect application settings and the analytics that are performed on the valves. The USER role is read-only and cannot change site settings.

Figure 1. Dashboard



1. Valve Health Application Navigation Bar:
 - Dashboard: Current view
 - Asset Summary: Click to open a summary list of all connected assets.
 - Alerts: Click to open a summary list of all assets with the details of active alerts.
 - Reports: Click to open the Reports screen summarizing the repair status of the assets.
 - Health: Click to open a historical trend of the fleet-wide health index.
 - Settings (ADMIN profile only): Click to open the application Settings screen.
2. Location: Click to select the locations that are to be displayed. By default, all locations will be displayed when first launching the application.
3. Repair Urgency: Shows the fleet of valves in three levels of urgency: High, Medium or No Action Needed. Each level is clickable and opens the Alerts screen, filtered by the selected urgency.

4. Overall Health Index: Shows the current calculated Health Index of all assets filtered by the selected location. The color of the graphic changes depending on if the fleet is above or below the Goal (configurable in Settings). Click the image to go directly to the Health screen.
5. Tiles:
Show valve information filtered by the following aspects:
 - Criticality A – High Urgency: Shows the number of valves defined as the highest criticality (configurable in Settings), that currently have a high repair urgency. Click to go directly to the Alerts screen filtered by these criteria.
 - Criticality A – Medium Urgency: Shows the number of valves defined as the highest criticality (configurable in Settings), that currently have a medium repair urgency. Click to go directly to the Alerts screen filtered by these criteria.
 - Unacknowledged Alerts: Shows the number of valves that have at least one unacknowledged alert. Click to go directly to the Alerts screen filtered by this criteria.
 - Action Overdue: Shows the number of valves that have at least one alert that has exceeded the recommended time to take action. Click to go directly to the Alerts screen filtered by this criteria.
 - Cost Saved: This value is a running total of all of the individual valves that have dropped to a 94% or lower health index (medium or high repair urgency), and then recovered back to greater than 94% (no action needed). Each asset can be configured, based on user defined settings, on the Asset Details page with a financial impact for that specific valve, should it fail.
6. New Issues in the Last 24 Hours: Displays a table with all valves that received alerts within the last 24 hours (configurable in Settings).
7. Last Time Analytics Were Run: Displays the last time analytics were updated. By default, analytics are run every 24 hours (configurable in Settings).

Section 3: Asset Summary

Figure 2. Asset Summary

Select All	Asset	Criticality	Location	Financial Impact (USD)	Repair Urgency	Health Index (%)	Status Duration	
<input type="checkbox"/>	V128	A	Unknown Location	1000	!	68	4 days	
<input type="checkbox"/>	V127-a	A	Site 1	1000	!	68	2 days	
<input type="checkbox"/>	V120	B	Site 1	1000	!	72	2 days	
<input type="checkbox"/>	V119	A	Site 1	3000	✖	54	2 days	
<input type="checkbox"/>	V020	A	Site 1 / Location 1	1500	✓	100	2 days	
<input type="checkbox"/>	V002	A	Site 1 / Location 2	1500	✓	100	2 days	
<input type="checkbox"/>	D-30	A	Site 1 / Location 2	1500	✓	100	6 days	
<input type="checkbox"/>	D-29	A	Site 1 / Location 3	1500	✓	100	6 days	
<input type="checkbox"/>	D-28	A	Site 2	1500	✓	100	6 days	
<input type="checkbox"/>	D-27	A	Site 2 / Location 1	1500	✓	100	6 days	
<input type="checkbox"/>	D-26	A	Site 2 / Location 2	1500	✓	100	6 days	
<input type="checkbox"/>	D-22	A	Site 2 / Location 2	1500	✓	100	6 days	
<input type="checkbox"/>	D-21	A	Site 2 / Location 3	1500	✓	100	6 days	

The asset summary page shows a list of all valves that are currently connected or have been previously connected and are not decommissioned. Asset names that are blue are currently licensed and are collecting data. Clicking on those assets will open the asset details page. Asset names that are black are not currently licensed, no data is being collected and clicking on the tag name will not open the asset details page. Clicking on the column headers will sort by that column.

1. Asset Configuration Buttons

- **Bulk Edit:** Multiple valves with identical settings can be edited together. First, select the valves to be edited by selecting the checkbox in the left column. Then, select the "Bulk Edit" button. A dialog box appears which allows bulk configuration of Criticality, Site, Location and Financial Impact.
- **Import File:** Multiple valves can be edited with unique settings by uploading a .csv file with the detailed configuration. Selecting this button will provide an option to download a .csv file in the correct format. Once the valve settings are populated and saved, the .csv file can be uploaded into the application.

2. Asset Summary Table

- **Select All:** Multiple assets can be selected for bulk editing.
- **Asset:** This is the valve tag name. Clicking on a licensed valve will open the asset details page.
- **Criticality:** Different valves in the fleet may have different criticalities. This is configured in the asset details page.
- **Site:** Each asset can be assigned a site. This is configured in the asset details page.
- **Location:** Each asset can be assigned a location. This is configured in the asset details page.
- **Financial Impact:** Different valves in the fleet may have different cost impact to the facility if the valve were to fail. This is configured in the asset details page.
- **Repair Urgency:** This is automatically calculated by the analytics within the application.
- **Health Index:** This is automatically calculated by the analytics within the application.
- **Status Duration:** Shows the running time since the valve transitioned into its current repair urgency status.
- **Flag:** Click to mark key assets for simple sorting. The flag can be toggled on and off.

3. Page Tools

- **Search Icon:** Type to find specific information on the page.
- **Refresh Icon:** Click to refresh the page.
- **Select Columns:** Columns in the table can be hidden.
- **Export File:** Click to export the displayed information into a .csv file.

Section 4: Asset Details

The details of any licensed asset can be accessed by clicking on the asset name. This will open the Valve Report by default.

Figure 3. Asset Details - Valve Report

The screenshot displays the 'Valve Report' for asset V124. The interface includes a navigation bar with 'Valve Report' selected, and a summary card with the following data:

Asset Tag	Location	Financial Impact	Last day without health issues	Last Data Received	Total continuous days with health issues	Health Index	Repair Urgency Current Status
V124	Site 1 / Location 1	8,000	2023-11-02	01/2/2024 4:02 pm	117	41%	3 months ago

Configuration details are provided for three components:

- Valve Body:** Manufacturer: Baumann, Model: 24588C, Size: 1, Style: Sliding Stem, Packing: TFE / Single, Serial Number: F000929165
- Instrument:** Manufacturer: Fisher Controls, Device Type: DVC6200, Tier: 1, Device Rev: 5, HART Rev: 5, Unique ID: [blank], Zero Power Condition: Valve Closed, Serial Number: [blank]
- Actuator:** Manufacturer: Baumann, Model: 32, Size: Spring and Diaphragm, Style: [blank], Nominal Supply Pressure: 18, Serial #: F000929208, Max Casing Pressure (alert point): 35

The 'Current Alerts' table is as follows:

NE 107 Status	Description	Recommended Action	Alert Start Time
Out of Specification	Drive Signal Alert	Inspect the valve assembly for mechanical issues that would prevent the valve from operating over the full travel range. Inspect the I/P converter for plugging or flapper wear.	2023-12-18 02:02
Out of Specification	Travel Deviation	Investigate this valve assembly for positioner output air leaks, or plugging, including the tubing, accessories, and actuator seals. Examine travel feedback hardware for misalignment. Investigate the valve assembly for sources of excessive friction.	2023-12-18 02:02
Out of Specification	Low Supply Pressure (Analyzer)	Check that the instrument supply pressure is above the minimum operating pressure needed to fully stroke the valve. Check for tubing leaks. Check for plugging of the pneumatic passages.	2024-01-17 04:02
Unknown	Diagnostic Data Available	Upload the diagnostic data to ValveLink Software and review the results.	2023-12-18 02:02
Unknown	Instrument Time is Approximate	Check the loop wiring for intermittent power. Reset the instrument clock to the current time. If ValveLink Software is connected, enable the instrument clock synchronization in Preferences/Diagnostics.	2023-12-18 02:02
	Low Supply Pressure (Device)		2023-12-09 08:15
Out of Specification	Seat Obstruction, Plugging or Calibration Shift - Low End of Travel	Inspect the valve and actuator for obstructions that prevent the internal trim parts from reaching the seat.	2023-11-02 05:01

1. Valve Report: Shows a summary of the valve configuration and active alerts.
2. PDF: The PDF button will download the report in .pdf format.

Details (ADMIN Role Only)

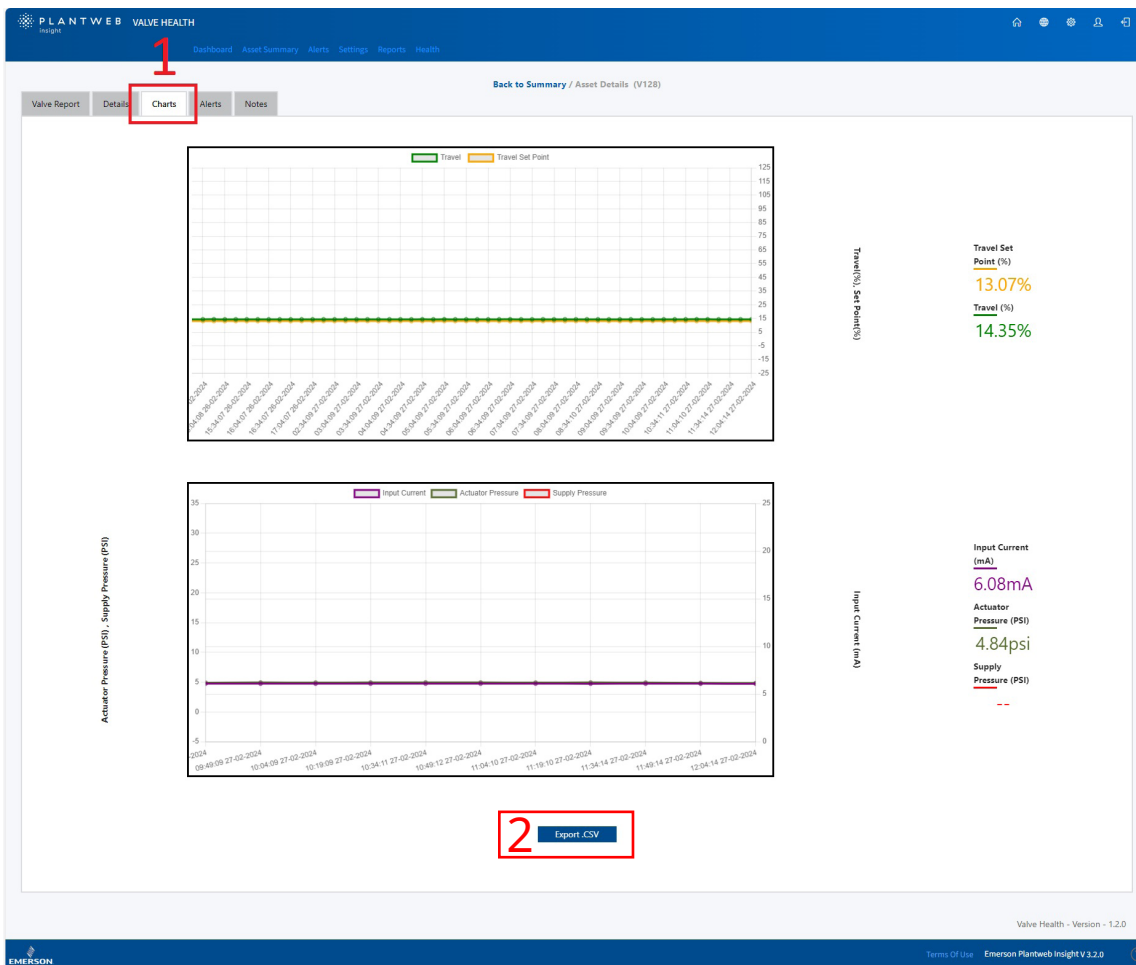
This screen is only visible to users logged in as ADMIN.

Figure 4. Asset Details - Details

1. Details: Allows the ADMIN role to add or modify the detailed configuration items. For best performance of the analytics, complete the fields. This information is typically available from the control valve specification sheet, valve nameplate or serial record.
2. Analyzer Configuration: This is used for the control range analytics. Typical settings for the LoLo/Lo/High values are as follows:
 - Sliding Stem, Standard: 5/10/80
 - Rotary, Standard: 10/20/70
 - Rotary, Segmented Ball: 5/15/80
 - Rotary, Control Disc: 5/15/80
 - Rotary, Eccentric Plug: 5/15/70
 - Rotary, Full/Reduced Port Ball: 15/20/60
 - Rotary, Butterfly: 20/30/50
3. Run Analyzer: This button will immediately run the in-app analytics for that valve.

Charts

Figure 5. Asset Details - Charts



1. Charts: Graphs a historical time plot of the Travel Set Point, Travel, Input Current, Actuator Pressure and Supply Pressure. Depending on the capabilities of the connected asset, not all these variables will be available.
2. Export.csv: Historical data points for the collected variables can be exported for further analysis and data visualization.

Alerts

Figure 6. Asset Details - Alerts

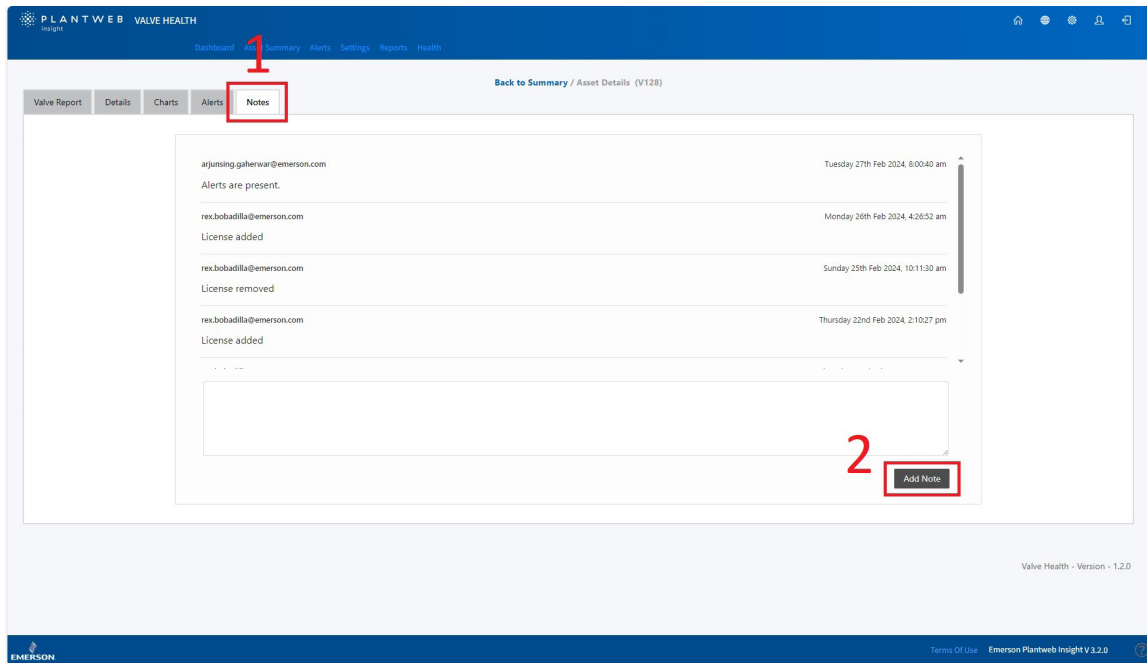
The screenshot displays the 'Alerts' section of the Valve Health application. The interface includes a navigation bar with 'Alerts' highlighted (1). Below the navigation bar, there are tabs for 'Active Alerts' (2) and 'Past Alerts' (3). The main content area shows a table of alerts with the following columns: NE 107 Status, Description, Recommended Action, Alert Time, Take Action Within, and Acknowledged (4). The table contains six rows of alert data.

NE 107 Status	Description	Recommended Action	Alert Time	Take Action Within	Acknowledged
Out of Specification	Drive Signal Alert	Inspect the valve assembly for mechanical issues that would prevent the valve from operating over the full travel range. Inspect the LP converter for plugging or flapper wear.	Monday 18th Dec 2023, 2:02:17 pm	Immediate 64 days out of range	<input checked="" type="checkbox"/>
Out of Specification	Travel Deviation	Investigate this valve assembly for positioner output air leaks, or plugging, including the tubing, accessories, and actuator seats. Examine travel feedback hardware for misalignment. Investigate the valve assembly for sources of excessive friction.	Monday 18th Dec 2023, 2:02:17 pm	Immediate 41 days out of range	<input checked="" type="checkbox"/>
Out of Specification	Low Supply Pressure (Analyzer)	Check that the instrument supply pressure is above the minimum operating pressure needed to fully stroke the valve. Check for tubing leaks. Check for plugging of the pneumatic passages.	Wednesday 17th Jan 2024, 4:02:42 pm	Immediate 40 days out of range	<input checked="" type="checkbox"/>
Unknown	Diagnostic Data Available	Upload the diagnostic data to ValveLink Software and review the results.	Monday 18th Dec 2023, 2:02:17 pm	Immediate 64 days out of range	<input type="checkbox"/>
Unknown	Instrument Time is Approximate	Check the loop wiring for intermittent power. Reset the instrument clock to the current time. If ValveLink Software is connected, enable the instrument clock synchronization in Preferences/Diagnostics.	Monday 18th Dec 2023, 2:02:17 pm	Immediate 41 days out of range	<input type="checkbox"/>
Out of Specification	Seat Obstruction, Plugging or Calibration Shift - Low End of Travel	Inspect the valve and actuator for obstructions that prevent the internal trim parts from reaching the seat.	Thursday 2nd Nov 2023, 5:01:28 pm	Immediate 87 days out of range	<input type="checkbox"/>

1. Alerts: Shows all the alerts the valve has received while being licensed in the application.
2. Active Alerts: Shows the list of currently active alerts.
3. Past Alerts: Shows the list of past alerts that are no longer active.
4. Acknowledged: Indicates if the alert has been manually acknowledged within the application. A check mark indicates that the alert is acknowledged. Selecting the box will toggle the acknowledgement on and off.

Notes

Figure 7. Asset Details - Notes



1. Notes: Shows all the comments that have been added during the life of the valve in the system.
2. Add Note: New notes can be added to the asset. A date stamp and user ID is automatically applied. Notes cannot be removed once added.

Section 5: Alerts

This page shows all assets and any active alerts with their highest priority maintenance recommendation.

Figure 8. Alerts

Asset	Criticality	Location	Repair Urgency	Health Index (%)	Description	Financial Impact (USD)	Recommended Action	Take Action Within
V128	A	Unknown Location	!	68	Instrument Lost Power	1000	Recommend investigating the loop wiring, wire connections, and power supply for possible power starvation and unnecessary powerup issues. Recommend investigating the controller's output limits to ensure that the loop current is remaining within the expected range (4-20mA).	2 days to take action
V127-a	A	Site 1	!	68	Instrument Lost Power	1000	Recommend investigating the loop wiring, wire connections, and power supply for possible power starvation and unnecessary powerup issues. Recommend investigating the controller's output limits to ensure that the loop current is remaining within the expected range (4-20mA).	5 days to take action
V120	B	Site 1	!	72	Instrument Lost Power	1000	Recommend investigating the loop wiring, wire connections, and power supply for possible power starvation and unnecessary powerup issues. Recommend investigating the controller's output limits to ensure that the loop current is remaining within the expected range (4-20mA).	5 days to take action
V119	A	Site 1	X	54	Instrument Lost Power	3000	Recommend investigating the loop wiring, wire connections, and power supply for possible power starvation and unnecessary powerup issues. Recommend investigating the controller's output limits to ensure that the loop current is remaining within the expected range (4-20mA).	5 days to take action
V020	A	Site 1 / Location 1	✓	100		1500		
V002	A	Site 1 / Location 2	✓	100		1500		
D-30	A	Site 1 / Location 2	✓	100		1500		
D-29	A	Site 1 / Location 3	✓	100		1500		
D-28	A	Site 2	✓	100		1500		
D-27	A	Site 2 / Location 1	✓	100		1500		
D-26	A	Site 2 / Location 2	✓	100		1500		
D-22	A	Site 2 / Location 2	✓	100		1500		
D-21	A	Site 2 / Location 3	✓	100		1500		

1. Repair Urgency Filters: Click to show or hide valves in the table according to their level of repair urgency.
2. Alerts Table
 - Asset: This is the valve tag name. Clicking on a licensed valve will open the asset details page.
 - Criticality: Different valves in the fleet may have different criticalities. This is configured in the asset details page.
 - Site: Each asset can be assigned a site. This is configured in the asset details page.
 - Location: Each asset can be assigned a location. This is configured in the asset details page.

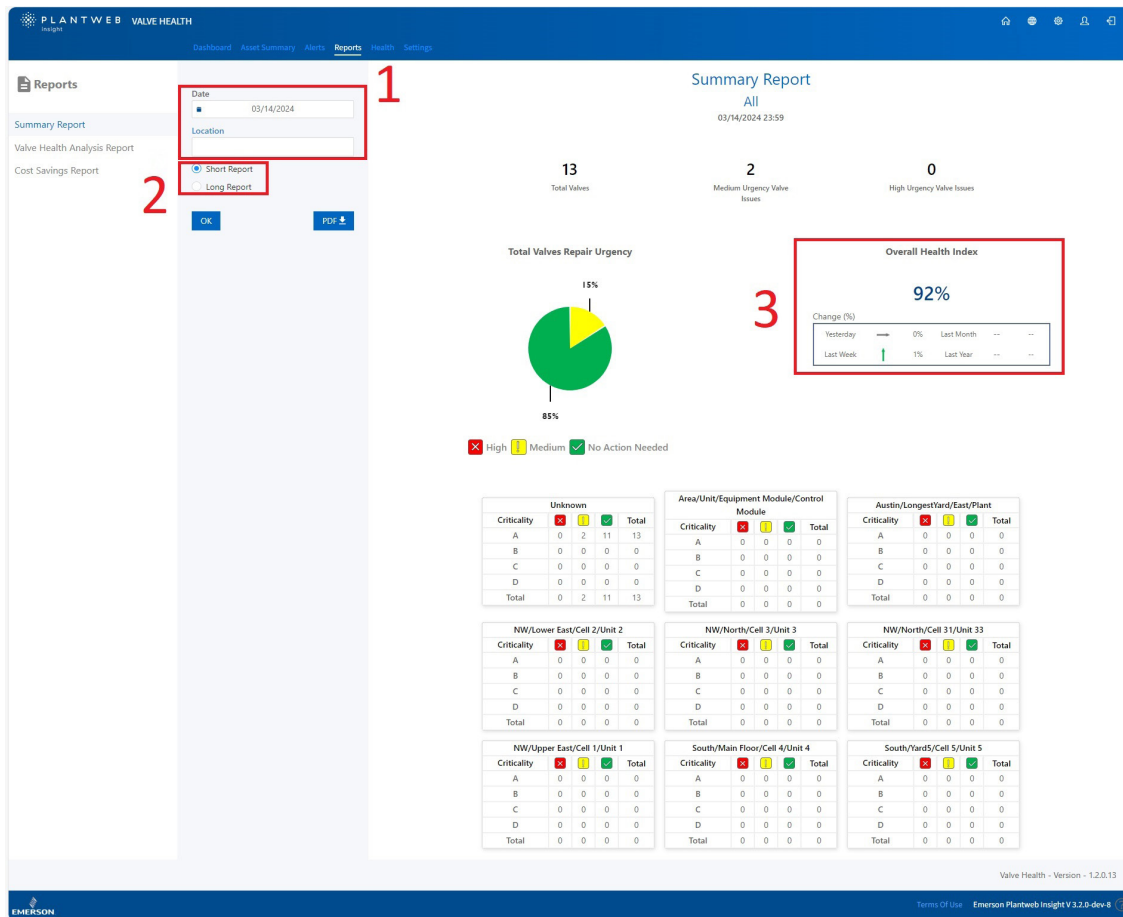
- Repair Urgency: This is automatically calculated by the analytics within the application.
 - Health Index: This is automatically calculated by the analytics within the application.
 - Description: Shows an explanation of the highest priority active alert. If the asset has multiple active alerts, a number above the description will identify how many additional alerts are active. To access these additional alerts, select the valve asset name to go to the asset details page and then navigate to that valve's alerts page.
 - Financial Impact: Different valves in the fleet may have different cost impact to the facility if the valve were to fail. This is configured in the asset details page. It also shows the currency amount the plant could lose if the valve is not fixed (user defined).
 - Recommended Action: Shows the sequence of actions to fix the valve alert.
 - Take Action Within: Shows the suggested timeframe to fix the valve alert. Once an alert becomes active, the number of days to take action will continue to count down until the alert is cleared. If no action is taken within the recommended time, the field will indicate "Immediate" and the number of days out of the recommended repair range increase ("X days out of range") until the alert is cleared.
 - Bell: Red color indicates that the valve has at least one unacknowledged alert. Gray color indicates that all alerts for that asset have been acknowledged. Clicking on the icon will open the Active Alerts page in the asset details.
3. Page Tools
- 24 Hours: Click to show the new valve issues that have appeared in the last 24 hours.
 - 1 Week: Click to show the new valve issues that have appeared in the last week.
 - 1 Month: Click to show the new valve issues that have appeared in the last month.
 - 1 Year: Click to show the new valve issues that have appeared in the last year.
 - Search Icon: Type to find specific information on the page.
 - Refresh Icon: Click to refresh the page.
 - Select Columns: Columns in the table can be hidden.
 - Export File: Click to export the displayed information into a .csv file.

Section 6: Reports

Report Summary

The Valve Health Application will automatically generate reports showing the current status of all connected valves.

Figure 9. Reports - Summary Report



1. The Date field allows reports to be created at any point in the past. The Location field will filter the data and create a report only for the valves assigned to that location. These reports can be exported in .pdf format.
2. The Short Report summarizes the number of valves within the three levels of urgency, filtered by the selected Location and Date and broken down by valve Criticality. The long report includes all the same information from the Short Report, but adds a table of active alerts, filtered by the configured Date and Location.
3. The Overall Health Index shows the index as of the date of the report along with the changes over the previous day, month, week and year.

Valve Health Analysis Report

Figure 10. Reports - Valve Health Analysis Report

The screenshot displays the 'Valve Health Analysis Report' interface. On the left, a sidebar (1) lists report types, with 'Valve Health Analysis Report' selected. The main area (2) shows the report title and date range (All, From: 1/01/2024, To: 2/26/2024). The report is categorized into 'Maintenance Performed' (2) and 'Emerging Problems' (3). The 'Maintenance Performed' section lists valves that have improved from High or Medium urgency to No Action Needed. The 'Emerging Problems' section lists valves that have degraded from No Action Needed or Medium urgency to High urgency. The report includes columns for 'Valves', 'Valves with all Alerts Acknowledged', and 'Valves with at least one Unacknowledged Alert'.

1. The Valve Health Analysis Report can also be filtered by a date range and location to summarize the change in repair urgency that the valves have undergone.
2. Valves that have improved their health index by moving from High or Medium urgency will be listed in the Maintenance Performed section.
3. Valves that have degraded in health by moving from No Action Needed or Medium urgency will be listed in the Emerging Problems section.

Cost Savings Report

Figure 11. Reports - Cost Savings Report

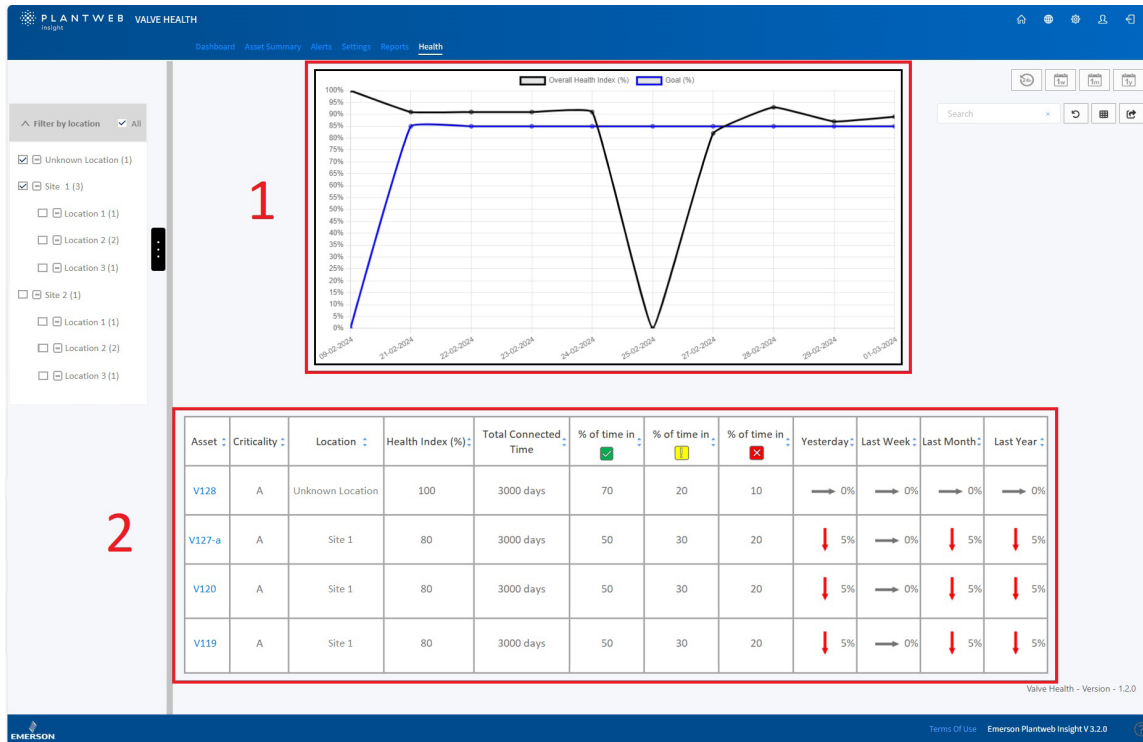
The screenshot shows the 'Cost Savings Report' interface in the Plantweb Valve Health application. The interface includes a sidebar with 'Reports' and 'Cost Savings Report' highlighted. The main area displays a report for the period 2/26/2024 - 2/27/2024, showing a total cost saved of \$20,000 for asset V129. The 'Days to Repair' filter is highlighted with a red box and a '2' next to it.

Asset	Criticality	Location	Last Known Repair Urgency	Issue Date	Fixed Date	Cost Saved
V129	A	Site 1 / Location 1	✘	2/26/2024	2/27/2024	\$20000

1. The Cost Savings Report provides the ability to filter based on start and end dates, location, valve criticality and last known repair urgency.
2. The Days to Repair filter is the number of days that the valve was in a degraded health state. The application stores the date that the valve first transitioned below 94% health index, as well as the date the valve recovered back above 94% health. This is defined as the Days to Repair. For example, entering "7" in this field will show all the valves that were repaired within a week.

Section 7: Health

Figure 12. Health

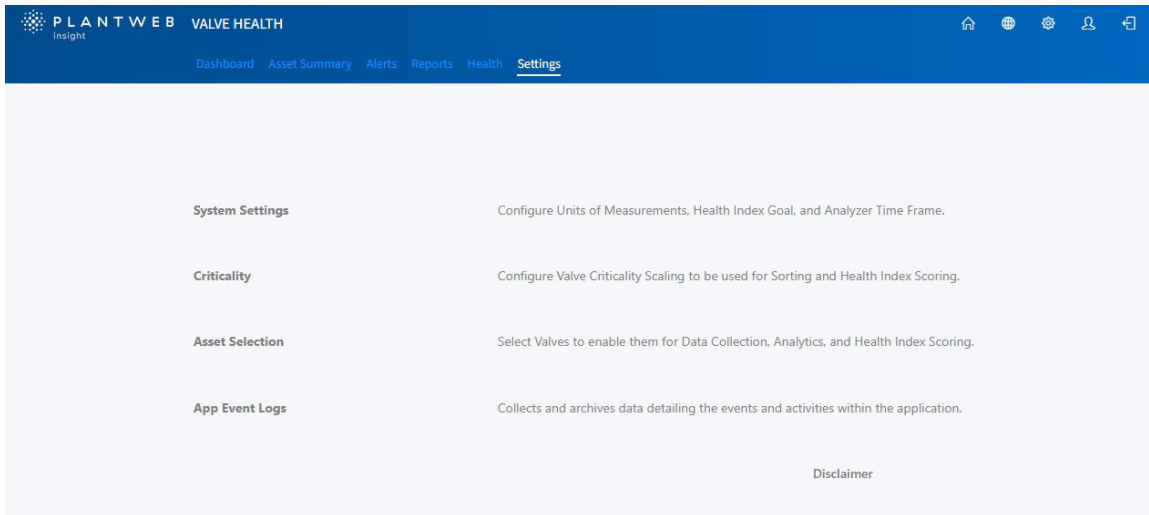


1. The graph shows the Health Index in the vertical axis, versus time (in days) on the horizontal axis. The black line is the calculated index on that date and the blue line is the health index goal for that date.
2. The table lists all connected and licensed assets with their corresponding health index along with trends from the previous day, week, month and year. The table also displays the total time that each asset has been connected as well as the time each asset has been in each repair urgency category.

Section 8: Settings (ADMIN Role Only)

This screen is only visible to users logged in as ADMIN.

Figure 13. Settings Main



The Settings page allows the ADMIN role to modify the system settings within the Valve Health Application.

System Settings

Figure 14. Settings - System Settings

Back to Settings / System Settings

1 HEALTH INDEX GOAL
GOAL: 85 %

2 HOURS FOR RECENT ALERTS
HOURS: 24

3 ANALYZER TIME FRAME
FREQUENCY: DAILY
SCHEDULE START TIME: 02/27/2024 4:01 PM

4 REPORT TIME FRAME
FREQUENCY: DAILY
SCHEDULE START TIME: 02/27/2024 5:10 PM

5 COST SAVED START DATE
CURRENCY: USD
PERIOD FOR DASHBOARD DISPLAY: 02/21/2024 1:24 PM

SAVE CANCEL

Valve Health - Version - 1.2.0

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1. Health Index Goal: This number is displayed on the dashboard and is compared with the calculated health index to indicate if the assets are above or below the goal.
2. Hours for Recent Alerts: This setting filters the most recent active alerts that will be displayed on the Dashboard. Configuration options are 24 hours, 48 hours and 72 hours.
3. Analyzer Time Frame: This setting defines how often and at what time the system will run the analytics on the connected valves. The frequency can be Hourly, Daily or Weekly. The Scheduled Start Time can be defined down to the second.
4. Report Time Frame: Allows users to define the frequency (in hours) that the system will update the reports information for all of the valves connected to the platform.
5. Cost Saved Start Date: Defines the currency displayed on the dashboard. The Period for Dashboard Display defines the date at which the Cost Saved tile on the dashboard starts the running total of the financial impact of valves that have been repaired.

Criticality

Figure 15. Settings - Criticality

Back to Settings / Criticality

CRITICALITY

ADD A LINE

	CRITICALITY	WEIGHTING	REMOVE LINE
1st	A	70 %	
2nd	B	90 %	X
3rd	C	95 %	X
4th	D	100 %	X
5th	E	100 %	X

SAVE

Valve Health - Version - 1.2.0

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Valves within the application can be classified according to their level of criticality or importance to the facility. The Criticality and Weighting fields are editable. By default, all valves in the system are configured with the first level of criticality. In the Asset Details page, the criticality setting of each valve can be individually classified according to this table. For further information regarding the use of Criticality in this application, see Appendix C: Health Index.

Asset Selection

This screen provides the mechanism to enable or disable data gathering for each asset in the system. All connected valves will show up on this screen.

Asset Selection

Figure 16. Settings - Asset Selection

The screenshot displays the 'Settings - Asset Selection' interface. At the top, there is a navigation bar with 'PLANTWEB VALVE HEALTH' and 'Insight' logos, and a menu with 'Dashboard', 'Asset Summary', 'Alerts', 'Settings', 'Reports', and 'Health'. Below the navigation bar, the page title is 'Back to Settings / Asset Selection'. The main content is a table with the following columns: 'Assets', 'Criticality', 'Last Data Received', 'Decommission', and 'Selected/Max'. The table lists 16 assets, with the first 11 having 'Selected' checkboxes checked and the last 5 having 'Decommission' buttons. A red box labeled '1' highlights the 'Selected/Max' column, and another red box labeled '2' highlights the 'Decommission' buttons for assets D-20 through D-15. At the bottom of the table, there is a pagination control showing '[11]/[16]' and a '1' button. Below the table are 'Export CSV' and 'Save' buttons. The footer contains 'EMERSON', 'Terms of Use', and 'Emerson Plantweb Insight V 3.2.0'.

Assets	Criticality	Last Data Received	Decommission	Selected/Max
V128	A	Tue Feb 27 2024 12:04:14 -0600		<input checked="" type="checkbox"/>
V127-a	A	Tue Feb 27 2024 12:04:15 -0600		<input checked="" type="checkbox"/>
V120	B	Tue Feb 27 2024 12:04:12 -0600		<input checked="" type="checkbox"/>
V119	A	Tue Feb 27 2024 12:04:10 -0600		<input checked="" type="checkbox"/>
D-30	A	Mon Feb 26 2024 16:01:38 -0600		<input checked="" type="checkbox"/>
D-29	A	Mon Feb 26 2024 16:01:37 -0600		<input checked="" type="checkbox"/>
D-28	A	Mon Feb 26 2024 16:01:37 -0600		<input checked="" type="checkbox"/>
D-27	A	Mon Feb 26 2024 16:01:36 -0600		<input checked="" type="checkbox"/>
D-26	A	Mon Feb 26 2024 16:01:36 -0600		<input checked="" type="checkbox"/>
D-22	A	Mon Feb 26 2024 16:01:36 -0600		<input checked="" type="checkbox"/>
D-21	A	Mon Feb 26 2024 16:01:35 -0600		<input checked="" type="checkbox"/>
D-20	A	Fri Feb 9 2024 02:34:30 -0600	Decommission	<input type="checkbox"/>
D-19	A	Fri Feb 9 2024 02:34:30 -0600	Decommission	<input type="checkbox"/>
D-18	A	Fri Feb 9 2024 02:34:30 -0600	Decommission	<input type="checkbox"/>
D-17	A	Fri Feb 9 2024 02:34:30 -0600	Decommission	<input type="checkbox"/>
D-15	A	Fri Feb 9 2024 02:34:30 -0600	Decommission	<input type="checkbox"/>
[16]				[11]/[16]

1. Depending on the tag count of the license that was purchased, assets can be enabled and disabled up to the maximum tag limit.

NOTE

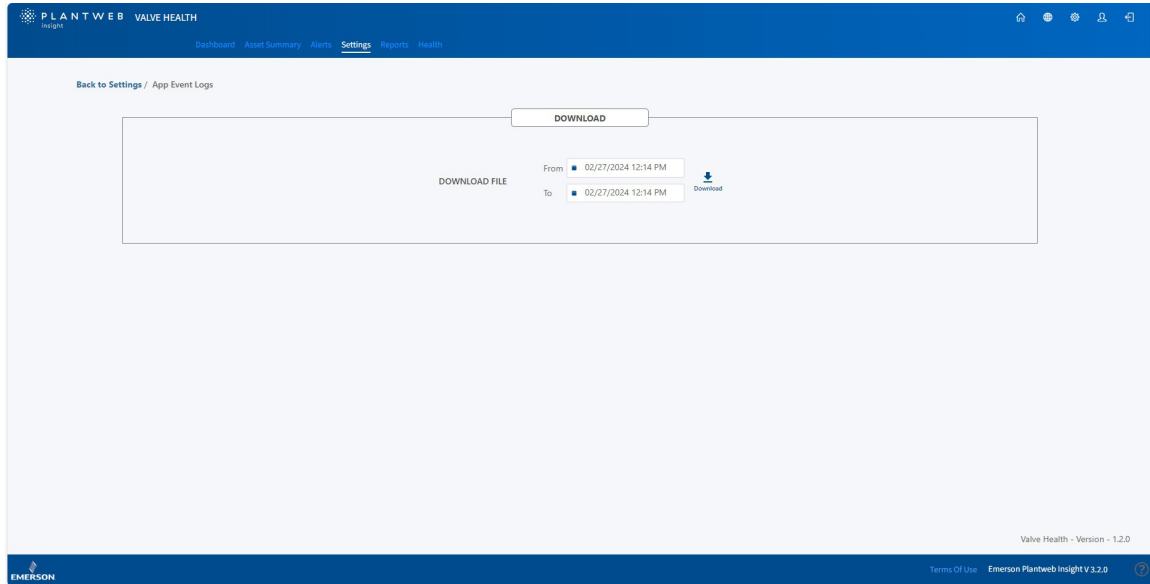
Assets can be selected and deselected at any time. Only selected assets will gather data to enable the analytics in the application. It is advisable to keep assets licensed continuously so that the time series data can be gathered for analysis.

2. Any assets that have been disconnected, or are no longer communicating to Plantweb Insight, will show a "Decommission" option. Clicking on this button will remove the asset from all screens and free up an asset license. Previously gathered data will be restored if the asset is reconnected.

App Event Logs

For technical assistance, a log file can be downloaded into .csv format. The duration of the log file (From/To) cannot exceed 24 hours.

Figure 17. Settings - App Event Log



Appendix A: In-App Analytics

The Valve Health Application processes live variables and alerts from the connected assets and processes them to provide additional valve diagnostics. Depending on the connectivity of the assets to the Valve Health Application, different analytics will be available. The following table summarizes the differences between data source connections and illustrates the live variable information required to run each analytic.

NOTE

Not all analytics are available with all device types. If an asset type does not support a required variable, the analytic cannot be run. These capabilities will vary by device type and manufacturer.

Analytic Name	Description	Recommended Action	Source		Variables Used							
			Gateway	AMS	Setpoint	Travel	Supply Pressure	Input Current	Drive Signal	# of Powerups	Temperature	
Command 48 Device Status (alerts)	Vendor-specific alert(s) originating from the device	Varies based on the active alert(s)	x	x								
Abnormal Travel Deviation	The travel deviation has exceeded the normal travel deviation for this valve for over a week.	Investigate this valve assembly for positioner output air leaks or plugging, including the tubing, accessories and actuator seals. Examine travel feedback hardware for misalignment. Investigate the valve assembly for sources of excessive friction.	x	x	x	x						
Calibration Shift - High End of Travel	The valve travel is not reaching its target high end.	Inspect the valve and actuator for obstructions that prevent travel at the high end.	x	x	x	x						
Calibration Shift - High End of Travel - Over Travel	The valve travel is moving beyond the maximum expected end of travel.	Recalibrate the instrument.	x	x	x	x						

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Analytic Name	Description	Recommended Action	Source		Variables Used							
			Gateway	AMS	Setpoint	Travel	Supply Pressure	Input Current	Drive Signal	# of Powerups	Temperature	
Seat Erosion or Calibration Shift - Low End of Travel	The valve travel is moving beyond the minimum expected end of travel.	Inspect the valve for seat erosion.	x	x	x	x						
Seat Obstruction, Plugging or Calibration Shift - Low End of Travel	The valve travel is not reaching its target low end.	Inspect the valve and actuator for obstructions that prevent the internal trim parts from reaching the seat.	x	x	x	x						
Controllability / Out of Range - Seat Damage Possible (abnormal)	The valve is operating in a range that is close to a travel stop for this product design. This can reduce controllability and significantly impact remaining life of the valve.	Confirm that this is the desired behavior of this valve and if not, investigate valve resizing to operate in a more desirable range.	x	x	x							
Controllability / Out of Range - Seat Damage Possible (critical)	The valve is operating in a range that is close to a travel stop for this product design. This can reduce controllability and significantly impact remaining life of the valve.	Confirm that this is the desired behavior of this valve and if not, investigate valve resizing to operate in a more desirable range.	x	x	x							
Controllability / Out of Range - Operating Too High (abnormal)	The valve is operating in a range that is close to a travel stop for this product design. This can reduce controllability and significantly impact remaining life of the valve.	Confirm that this is the desired behavior of this valve and if not, investigate valve resizing to operate in a more desirable range.	x	x	x							

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Analytic Name	Description	Recommended Action	Source		Variables Used							
			Gateway	AMS	Setpoint	Travel	Supply Pressure	Input Current	Drive Signal	# of Powerups	Temperature	
Controllability / Out of Range - Operating Too High (critical)	The valve is operating in a range that is close to a travel stop for this product design. This can reduce controllability and significantly impact remaining life of the valve.	Confirm that this is the desired behavior of this valve and if not, investigate valve resizing to operate in a more desirable range.	x	x	x							
Controllability / Out of Range - Operating Too Low (abnormal)	The valve is operating in a range that is close to a travel stop for this product design. This can reduce controllability and significantly impact remaining life of the valve.	Confirm that this is the desired behavior of this valve and if not, investigate valve resizing to operate in a more desirable range.	x	x	x							
Controllability / Out of Range - Operating Too Low (critical)	The valve is operating in a range that is close to a travel stop for this product design. This can reduce controllability and significantly impact remaining life of the valve.	Confirm that this is the desired behavior of this valve and if not, investigate valve resizing to operate in a more desirable range.	x	x	x							
Controllability / Out of Range - Out of Normal (abnormal)	The valve is operating in a range that is close to a travel stop for this product design. This can reduce controllability and significantly impact remaining life of the valve.	Confirm that this is the desired behavior of this valve and if not, investigate valve resizing to operate in a more desirable range.	x	x	x							

-continued-

Analytic Name	Description	Recommended Action	Source		Variables Used							
			Gateway	AMS	Setpoint	Travel	Supply Pressure	Input Current	Drive Signal	# of Powerups	Temperature	
Controllability / Out of Range - Out of Normal (critical)	The valve is operating in a range that is close to a travel stop for this product design. This can reduce controllability and significantly impact remaining life of the valve.	Confirm that this is the desired behavior of this valve and if not, investigate valve resizing to operate in a more desirable range.	x	x	x							
Low Supply Pressure	Active if the supply pressure falls below the nominal supply pressure setting.	Check that the instrument supply pressure is above the minimum operating pressure needed to fully stroke the valve. Check for tubing leaks. Check for plugging of the pneumatic passages.	x	x			x					
High Supply Pressure Exceeds Maximum for this Actuator	Active if the supply pressure exceeds the maximum actuator casing pressure.	Investigate the instrument supply pressure regulator for incorrect setting or failure.	x	x			x					
Supply Pressure Higher than Recommended	Active if the supply pressure exceeds the nominal supply pressure setting.	Investigate the instrument supply pressure regulator for incorrect setting or failure.	x	x			x					
Input Current Supply Above Maximum	Active if the power to the instrument is above 24 mA.	Investigate the analog output current from the control system for incorrect output settings.	x	x				x				

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Analytic Name	Description	Recommended Action	Source		Variables Used							
			Gateway	AMS	Setpoint	Travel	Supply Pressure	Input Current	Drive Signal	# of Powerups	Temperature	
Input Current Supply Below Minimum	Active if the power to the instrument is insufficient to control the valve.	Investigate the loop wiring, wire connections and power supply for possible power starvation.	x	x					x			
Instrument Temperature Slightly Elevated	The ambient temperature is slightly outside of the rated temperature of the instrument.	Inspect soft parts (O-ring and diaphragms) for damage. Consider remotely mounting the instrument away from the heat source if possible. Recommend repairing the positioner by upgrading the elastomers to Extreme temperature type.	x	x								x
Instrument Temperature Significantly Elevated	The ambient temperature is significantly outside of the rated temperature of the instrument.	Investigate if the positioner electronics have been damaged by the extreme temperatures. Recommend repairing the positioner by upgrading the elastomers to extreme Temperature type. Recommend replacement of the positioner at the earliest convenience.	x	x								x
Drive Signal Slightly Out of Normal Range - High	The instrument is experiencing reduced performance possibly due to heat, vibration or contaminated air.	Recommend thoroughly inspecting and cleaning the I/P inlet screen and the fixed orifice as they may be obstructed. Recommend replacement of the positioner's I/P Convertor and the filter element within the regulator/airset.		x	x					x		

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Analytic Name	Description	Recommended Action	Source		Variables Used							
			Gateway	AMS	Setpoint	Travel	Supply Pressure	Input Current	Drive Signal	# of Powerups	Temperature	
Drive Signal Slightly Out of Normal Range - Low	The instrument is experiencing reduced performance possibly due to heat, vibration or contaminated air.	Recommend thoroughly checking and cleaning the I/P converter and nozzle, as the low control signal could be indicative of a blockage due to foreign material contamination in the instrument air supply. Recommend replacement of the positioner's I/P Convertor and the filter element within the regulator/airset.		x	x					x		
Drive Signal Significantly Out of Normal Range - High	The instrument is experiencing reduced performance possibly due to heat, vibration or contaminated air.	Recommend replacement of the positioner's I/P Convertor and the filter element within the regulator/airset.		x	x					x		
Drive Signal Significantly Out of Normal Range - Low	The instrument is experiencing reduced performance possibly due to heat, vibration or contaminated air.	Recommend replacement of the positioner's I/P Convertor and the filter element within the regulator/airset.		x	x					x		
Intermittent Instrument Power	The instrument is experiencing intermittent power.	Recommend investigating the loop wiring, wire connections and power supply for possible power starvation and unnecessary powerup issues. Recommend investigating the controller's output limits to ensure that the loop current is remaining within the expected range (4 to 20 mA).		x							x	

Appendix B: Device Alerts

The Valve Health Application processes device alerts as reported by the connected asset. Therefore, each asset must be configured properly. Consult the appropriate manufacturer's documentation for proper device alert setup. The following table shows the list of device alerts that the Valve Health Application supports.

NOTE

Depending on the device type and manufacturer, not all alerts from this table will be supported. See the manufacturer's field device specification for alert capabilities.

Description	Detailed Description	Recommended Action
Critical NVM Failure	There is a failure of the NVM (non-volatile memory) used for configuration data critical for instrument operation.	Restart the instrument. If the alert persists, replace the main electronics.
Drive Current Failure	The drive current from the instrument's main electronics board to the I/P converter is not flowing as expected.	Check the connection between the I/P converter and the main electronics. Remove and reinstall the I/P converter. If the alert persists, replace the main electronics.
Electronics Failure	A problem is detected with the instrument electronics or firmware.	Restart the instrument. If the problem persists, replace the electronics.
I/P Module Failure	A problem is detected with the instrument hardware.	Restart the instrument, if the problem persists, replace the faulty component.
Minor Loop Sensor Failure	The instrument's minor loop feedback sensor reading is outside the valid range.	Restart the instrument. If the alert persists, replace the main electronics.
No Free Time	The microprocessor on the instrument detects a fault in the firmware execution period.	Restart the instrument. If the alert persists, replace the main electronics.
Offline / Failed	A shutdown alert has put the instrument in a failed state.	Review and address all active alerts. If this alert persists, replace the main electronics.
Output Circuit Error	The output circuit wired to the instrument's OUT terminals is not responding.	Recommend investigating the loop wiring, wire connections and power supply for possible power starvation.
Pneumatic Module Failure	A problem is detected with the instrument hardware.	Restart the instrument, if the problem persists, replace the faulty component.

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Description	Detailed Description	Recommended Action
Pressure Sensor Failure	One or more of the instrument's pressure sensor readings are outside the range of 24% to 125% of the calibrated pressure for more than 60 seconds.	Ensure that the instrument air supply pressure is within the specified range. If the alert persists, replace the main electronics.
Reference Voltage Failure	There is a failure associated with the internal voltage reference in the instrument.	Restart the instrument. If the alert persists, replace the main electronics.
Travel Sensor Failure	The valve position feedback signal is outside the range of 25.0% to 125.0% of calibrated travel.	Recalibrate the instrument. If the alert persists, replace the travel feedback sensor or main electronics.
Flash Integrity Failure	There is a failure associated with flash ROM (read only memory) in the instrument.	Restart the instrument. If the alert persists, replace the main electronics.
Temperature Sensor Failure	The instrument temperature sensor has failed or the sensor reading is outside of the range of 60 to 100 °C / 76 to 212 °F.	Ensure that the instrument is operating within the specified maximum and minimum temperature range. If the alert persists, replace the main electronics.
Output Pressure Limiting	The instrument's pneumatic output A has exceeded the configured limit.	Investigate the instrument supply pressure regulator for incorrect setting or failure.
Power Starvation	The loop power to the instrument is insufficient to control the valve.	Investigate the loop wiring, wire connections and power supply for possible power starvation.
Cycle Counter High Alert	The running count of cycles has exceeded the cycle count alert point.	Examine the valve packing for leakage. Replace if necessary.
Non-Critical NVM Alert	There is a failure of NVM (non-volatile memory) used for data not critical for instrument operation.	Restart the instrument. If the alert persists, replace the main electronics.
NVM Protective Mode	Active when excessive NVM (non-volatile memory) writes are detected and further writes to NVM are rejected (to avoid NVM wearout).	Identify the source of HART commands that are constantly writing to the instrument. Replace the main electronics
Pneumatic Module Alert	A problem is detected with the instrument hardware.	Restart the instrument, if the problem persists, replace the faulty component.
Temperature Compensation Data Integrity Error	The microprocessor on the instrument detects a fault in its temperature compensation data. Valve positioning accuracy may be degraded.	Restart the instrument. If the alert persists, replace the main electronics.

-continued-

Description	Detailed Description	Recommended Action
Transmitter Open Circuit	Alert is active when the output transmitter is enabled but no loop current is detected.	Recommend investigating the transmitter wiring, wire connections and power supply for possible power starvation.
Travel Accumulator High Alert	The accumulated travel has exceeded the travel accumulator alert point.	Examine the valve packing for leakage. Replace if necessary.
End Point Pressure Deviation Alert	The instrument is controlling to an actuator pressure output and is not achieving the set point within the configured deviation allowance.	Investigate the valve assembly for positioner output air leaks or plugging, including the tubing, accessories and actuator seals.
Low Supply Pressure (Device)	The instrument supply pressure is below the supply pressure low alert point in the instrument.	Check that the instrument supply pressure is above the minimum operating pressure needed to fully stroke the valve. Check for tubing leaks. Check for plugging of the pneumatic passages.
Port A Overpressurized Alert	Alert is active if the pressure leaving Port A has exceeded the configured alert point.	Investigate the instrument supply pressure regulator for incorrect setting or failure.
Supply Pressure High	The supply pressure exceeded the supply pressure high alert point in the instrument.	Investigate the instrument supply pressure regulator for incorrect setting or failure.
Temperature High	Alert is active when instrument temperature is higher than the Temperature High Alert Point.	Inspect soft parts (O-rings and diaphragms) for damage. Consider remotely mounting the instrument away from the heat source if possible. Recommend repairing the positioner by upgrading the elastomers to Extreme Temperature type.
Tripped by the LCP	The instrument is in the tripped position as a result of someone pressing the trip button on the LCP (local control panel).	Investigate the reason for the safety shutdown. Reset the safety device per plant procedures.
Device Misconfigured	Alert is active if the device has detected misconfiguration.	Run the setup wizard and calibrate the device.
Drive Signal Alert	The instrument's internal drive signal has exceeded target limits (<10% or >90%) for more than 20 seconds when not in cutoff condition.	Inspect the valve assembly for mechanical issues that would prevent the valve from operating over the full travel range. Inspect the I/P converter for plugging or flapper wear.
Integrator Saturated High	The instrument integrator is attempting to reduce the error between the travel readback and the travel setpoint and is saturated at the high extreme.	Inspect the valve for sources of friction or obstruction. Check for tubing leaks and reduction of air supply pressure.

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Description	Detailed Description	Recommended Action
Integrator Saturated Low	The instrument integrator is attempting to reduce the error between the travel readback and the travel setpoint and is saturated at the low extreme.	Inspect the valve for sources of friction or obstruction. Check for tubing leaks and reduction of air supply pressure.
Pressure Fallback Active Alert	The instrument detected a problem with the travel feedback sensor and disabled it. The valve control performance is likely degraded because the instrument is operating like an I/P transducer.	Inspect the travel feedback hardware for damage or misalignment. Recalibrate the instrument. If the alert persists, replace the travel feedback sensor.
Stroke Close Time	Alert is active when the stroke time is faster or slower than the baseline stroke time and exceeds the fast or slow trip point.	Investigate this valve assembly for positioner output air leaks or plugging, including the tubing, accessories and actuator seals. Investigate the valve assembly for sources of excessive friction.
Stroke Open Time	Alert is active when the stroke time is faster or slower than the baseline stroke time and exceeds the fast or slow trip point.	Investigate this valve assembly for positioner output air leaks or plugging, including the tubing, accessories and actuator seals. Investigate the valve assembly for sources of excessive friction.
Temperature Low	Alert is active when instrument temperature is lower than the Temperature Low Alert Point.	Inspect soft parts (O-rings and diaphragms) and electronics for damage. Consider methods to increase the ambient temperature around the valve and instrumentation. Recommend repairing the positioner by upgrading the elastomers to Extreme Temperature type.
Travel Deviation	The difference between the travel target and the travel readback has exceeded the travel deviation alert point for more than the configured allowable travel deviation time.	Investigate this valve assembly for positioner output air leaks or plugging, including the tubing, accessories and actuator seals. Examine travel feedback hardware for misalignment. Investigate the valve assembly for sources of excessive friction.
Diagnostic Data Available	Diagnostic data has been collected and is being stored in the instrument.	Upload the diagnostic data to ValveLink Software and review the results.
Instrument Time is Approximate	The instrument has been powered down since the last time the instrument clock was set.	Check the loop wiring for intermittent power. Reset the instrument clock to the current time. If ValveLink Software is connected, enable the instrument clock synchronization in Preferences/Diagnostics.

Appendix C: Health Index and Repair Urgency

Health Index

Each asset reports a health index based on its active device alerts. Each alert has an assigned impact on the Health Index that is based on the type of alert and the criticality of the valve. An algorithm is used to determine a reduced health index when multiple device alerts are active.

The health index also includes the Valve Criticality in its algorithm. Each asset can be assigned its own criticality level. The top three criticality levels will derate the health index of a given asset by the weighting factor as defined in the Criticality Settings page. The default settings are shown below. Any additional criticality categories from level 4 and beyond will be weighted 100%. All Criticality labels and Weighting factors are configurable. All new assets that join the network will default to the first criticality level.

Level	Criticality	Weighting
1 st	A	85%
2 nd	B	90%
3 rd	C	95%
4 th	D	100%

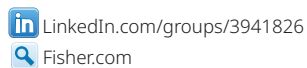
Repair Urgency

The Repair Urgency is a visual indication of the health of an asset and is simplified into three categories.

Green: The calculated health of that asset is greater than 94% (>94%).

Yellow: There are 1 or more active device alerts, or the in-app analytics have detected an abnormality. The calculated health of that asset is greater than 55% and less than or equal to 94% (>55% to 94%).

Red: There are 1 or more active alerts on the device, or the in-app analytics have detected an abnormality. The calculated health of that asset is less than or equal to 55% (<=55%).



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