



Brüel & Kjær Vibro

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Release Notes

VC-8000 Machine Protection System

MPS 2025

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Release Notes - VC-8000 Machine Protection System

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1 MPS 2025

1.1 SAM (Main) Firmware (8.02.9018)

The following enhancements have been made to SAM (Main) firmware:

- (New) Channel Relay Bypass added to Modbus Map

1.2 SAM (CMS) Firmware (8.05.378)

The following enhancements have been made to SAM (CMS) firmware:

- Resolved issue where Hardware Info Screen would not use available space, and could “cut off” some rows from view
- Resolved issue with long Module Names being cut off in RAG view
- Add visual indicators in Maintenance app for Recip Segment measurements for clarified alarm severity responsibility

1.3 UMM Firmware (8.02.9021)

The following enhancements have been made to UMM firmware:

- (New) Channel Relay Bypass added to Modbus Map
- (New) Magnetic Flux channels can now use sensors that are not AC coupled
- Resolved issue where Waveforms would continually collect with no or underspeed Phase Trigger signal
- Resolved issue with Static Pressure Measurement
- Resolved issue where phase alarms could clear when crossing the 360 / 0 degree boundary

1.4 TMM Firmware (8.02.9015)

The following enhancements have been made to TMM firmware:

- (New) Channel Relay Bypass added to Modbus Map



1.5 MPS Software (8.05.378)

The following enhancements have been made:

- (New) Report Service for export of configuration parameters
- (New) Smart Modbus Map Exporter
- (New) Module Cloning
- (New) Channel Cloning
- (New) Ability to Copy and Paste Relay Blocks (individual and grouped)
- Increased standard Rack-Wide Relay Block limit
- Shared Input Blocks can supply logic to Shared Output Blocks, provided that they do not create a circular logic loop
- Resolved issue regarding inconvenient location of Relay Block when added
- Resolved issue with Relay Block type text in Maintenance Relay Channel View
- Resolved visual issue on Relay Blocks due to differing screen resolutions
- (New) Advanced Configuration View options: Hydro Trigger Levels, All Channel View, Group Line counter
- (New) Ability to pause/resume MPS Software validations during configuration
- Resolved issue where Validation Errors would not appear on the Maintenance app Change Alarm grids
- Added Slot Number indicator to Relay Block validation errors to assist in troubleshooting configuration issues
- Adjust Validation logic when not connected to rack – to presume newest hardware/firmware
- Misc. improvements to Validation Engine and Validation logic
- (New) Magnetic Flux channels can now use sensors that are not AC coupled
- (New) Process Variable UMM Transducer (-18V to +18V)
- Resolved visual issue with MinOK/MaxOK values in the Process Variable Channel View
- Resolved issue with Discrete Input Channels causing exception in configuration time
- (New) Indicator on file Title Bar text when the currently open file has had modifications
- Resolved issues that would cause configurations to appear modified, prompting modified configuration popup when exiting application or opening new configuration, despite no changes having been made
- Resolved issue where certain measurements could be deleted, but could not be re-added
- Channel Name has been added to Analog Output view
- Improved Out Of Band/In Band Phase Setpoint Configuration, including both improved logic and improved visual configuration indication
- (New) Maintenance App will show Rack Time when connected
- (New) Ability to select 5-digit addresses for Modbus Map Import
- Resolved issue with long Module Names being cut off in Maintenance RAG view
- Add visual indicators in Maintenance app for Recip Segment measurements for clarified alarm severity responsibility
- Improve “Enable Hardware” process to prevent inadvertent issues with file locking
- Resolved issue where old configurations using Smax Channels with Custom Averaging Enabled would encounter errors
- Resolved occasional issue with SAM Firmware upgrade
- Resolved issue where uninstall would not remove user settings

- Fix miscellaneous issues with menus showing items out-of-order
- Improved and resolved issues with Scrollbar performance in Setup App
- Prevent issue where multiple simultaneous configuration commits can be initiated
- Updated default Simulator and PDC configuration files to prevent warnings/Errors on open
- Setup app will enter a protected mode when a broken configuration is encountered

1.6 Known Issue

The new reporting feature requires Microsoft Excel to be installed. If Excel is not installed, an error message will be generated stating that the user needs to install Microsoft Excel to proceed.



2 MPS 2024 R2

2.1 SAM (Main) Firmware (8.01.9062)

The following enhancements have been made to SAM (Main) firmware:

- (New) Support for Online Adjustments.
- Resolved issues with importing certain measurements with the custom map.
- Notification now provided if a UMM or TMM has issues transferring high resolution static data or waveforms.

2.2 SAM (CMS) Firmware (8.02.411)

The following enhancements have been made to SAM (CMS) firmware:

- Resolved issue with the rack name change when using a remote connection.
- Support for firmware upgrade over a remote connection.
- Renamed indicators for SD to avoid potential confusion of meaning.
- Voltage displays now indicate + or -.
- Text for a bypassed channel now states "Manually Bypassed".
- New list view for bias and gap voltages.
- Startup view is now configurable.
- Resolved some issues with port 8001 connections.
- Resolved issue where some configuration parameters were lost when connecting over a remote connection.

2.3 UMM Firmware (8.01.9057)

The following enhancements have been made to UMM firmware:

- (New) Support for Online Adjustments.
- (New) Ability to configure Smax channel with no phase trigger requirement.
- (Recommended for all users) Resolved noise issue with high pass filters lower than 10 Hz in specific circumstances.
- Improved calculation of i-ness on a waveform to include variations in measurements over the entire period of a waveform.
- Resolved issues that in rare circumstance would result in a UMM rebooting before finishing processing a new configuration.
- Resolved issue when there were multiple channels with recip segments being used for relay logic.

2.4 TMM Firmware (8.01.9063)

The following enhancements have been made to TMM firmware:

- (New) Support for Online Adjustments.
- Resolved issue with incorrect units on PV channels.

2.5 MPS Software (8.02.411)

The following enhancements have been made:

- (New) Support for Online Adjustments.
- (New) New unit type of foot (ft) allowed for PV measurements.
- (New) USB driver support for Windows 11.
- (New) Ability to configure Smax channel with no phase trigger requirement.
- SAM (CMS) firmware upgrade now available over remote connection.
- During software installation, only shortcut for Setup is installed on the desktop.
- Renamed indicators for SD to avoid potential confusion of meaning.
- Transducer properties are preserved when they can be on a change of channel type.
- Only affected monitors will be rebooted when the “Enable Hardware” button is selected.
- Add notification to inform and warn user when the “Enable Hardware” button is selected.
- Resolved issue where some warnings would appear when a simulated phase trigger is being used.
- Resolved issue where the Tag order was not showing correctly in some circumstances.
- Resolved issue where default Diff Exp Comp Input channel type would cause a transducer range error.
- Resolved issue where only having setpoints on non-primary measurements would cause a validation error on relay Input Blocks.
- Resolved issue with text alignment in the property side pane.
- Phase measurements are restricted to only have In-band and Out-of-band setpoint types.
- Validation to prevent duplicate Recip Throw names.
- Setting password is no longer permitted when using a remote connection.
- Resolved some issues with remote connection menu options.
- Resolved issue with cultural settings when using a comma as a decimal separator.
- Prevent download of configurations to SIL racks from standard software.
- Save As will make a distinct version of the configuration.
- Speed enhancements during a configuration send.

2.6 Known Issue

In order to use the new Online Adjustment features, the SAM (Main) firmware must be upgraded to 8.01.9062. Failure to do so will result in the SAM toggling the rack fault relay any time a UMM or TMM processes an Online Adjustment.



3 MPS 2024

3.1 SAM (Main) Firmware (8.00.9040)

The following enhancements have been made to SAM firmware:

- (New) Support for Magnetic Flux channel type.
- (Recommended for all users) Resolved issue where updating SAM Metadata was not always reported to software.
- (Recommended for all users) Resolved some issues with SD/HD diagnostic data.

3.2 SAM (CMS) Firmware (8.01.70)

- (Recommended for all users) Resolved some issues with SD/HD diagnostic data.
- (Recommended for all users) Under certain circumstances with adaptive i-ness enabled, some synchronous waveforms could be dropped when a machine was moving through a transient.
- (Recommended for all users) Resolved issue where message to indicate that the SD card was write-protected would not display correctly.

3.3 UMM Firmware (8.00.9028)

The following enhancements have been made to UMM firmware:

- (New) Support for Magnetic Flux channel type.
- (New) Airgap channel type now supports averaging.
- (Recommended for all users) Resolved issue where the Airgap channel type would not report a fault condition if the sensor was disconnected.
- (Recommended for all users) Resolved issue where if there were multiple Airgap channels configured on a single UMM, if one sensor went invalid it would result in no profile waveforms being collected for any of the Airgap channels.

3.4 TMM Firmware (7.11.9034)

There have been no changes since the last release.

3.5 MPS Software (8.01.70)

The following enhancements have been made to MPS Software:

- (New) Support for Magnetic Flux channel type.
- (New) Airgap channel type now supports averaging.
- (New) PV Channel types show transducer OK limits.
- (New) New warning if the rack time is not set when HD/SD is being used.
- (New) Eccentricity alarms are disabled by default.
- (New) New icon to save a configuration with timestamp.
- (Recommended for all users) Remote Configurations will now provide a warning if the passwords are not set.
- (Recommended for all users) Resolved an issue where incorrect min/max values could be set for an Axial Position channel if there were no enabled setpoints.
- (Recommended for all users) Reduced the number of dialog boxes that could be produced when changing setpoint values in a multi-state configuration in certain conditions.
- (Recommended for all users) Resolved issue where the Rack Name property would be cleared in certain circumstances when a configuration was saved.
- (Recommended for all users) Resolved issue where in certain circumstances the 2-channel Case Expansion would generate a validation error due to rounding.
- (Recommended for all users) Removed duplicate transducers from Hydro RV Channel type.
- (Recommended for all users) Resolved some issues when configuring asset ordering.
- (Recommended for all users) Resolved issue where the Hydro RV Smax measurement could not have a HP filter corner less than 1Hz.
- (Recommended for all users) Notifies the user if they are connecting via MPS Remote Access and the front panel version is too low to support the rack's current configuration.

Known Issue:

- When doing firmware upgrades over the remote MPS connection, there are certain situations where the firmware upgrade will be considered a failure when it has in fact been completed successfully. Please reestablish the remote connection to verify that all firmware has been correctly upgraded.



4 MPS 2023 R2

4.1 SAM Firmware (7.11.9065)

The following enhancements have been made to SAM firmware:

- (New) Support for new Recip Adjacent Segments relay block.
- (Recommended for all users) Improved rack response to NTP time changes.
- (Recommended for all users) Removed some spurious events on start up in some circumstances.

4.2 UMM Firmware (7.11.9061)

The following enhancements have been made to UMM firmware:

- (New) Segmented analysis is now an addable measurement on Recip Accel and Recip Rod Position channel types.
- (New) Recip Adjacent Segments relay block. This block allows relay logic for segmented analysis.
- (Recommended for all users) Improved config processing to prevent failures in certain circumstances during a configuration download.

Note, older v1 UMMs are no longer receiving new features. They will continue to receive critical bug fixes.

4.3 TMM Firmware (7.11.9034)

The following enhancements have been made to TMM firmware:

- (Recommended for all users) Improved config processing to prevent failures in certain circumstances during a configuration download.

Note, older v1 TMMs are no longer receiving new features. They will continue to receive critical bug fixes.

4.4 MPS Software (7.19.162)

The following enhancements have been made to MPS Software:

- (New) Recip Accel and Crankcase Velocity channel types can now be associated with a Recip Throw. This allows for crank angle plots in Setpoint CMS.
- (New) Segmented analysis is now an addable measurement on Recip Accel and Recip Rod Position channel types.
- (New) Recip Adjacent Segments relay block. This block allows relay logic for segmented analysis.
- (New) Maintenance and Front Panel display enhancements to handle segmented measurements.
- (New) Alarm settings for multi-state configurations simplified by removing fields unused fields.
- (New) Added BK Vibro Airgap sensors.
- (New) PV channel types now have the pressure unit of mH₂O (meters of water).
- (New) Dynamic Pressure channel type can now use the BN 165855 sensor.
- (New) The Hardware Info screen in the Maintenance application will now indicate if you have a v1 or v2 UMM or TMM.
- (New) Grid headers can now be copied with cells into Excel using the Copy With Headers right click option.
- (New) Row in the Setup application will now be dimmed when the measurement or channel for that row is inactive.
- (New) For PV channel types a custom alarm hysteresis can now be specified for scenarios when the default 1.5% was too large.
- (Recommended for all users) Fixed issues with copy and paste of transducer scale factors.
- (Recommended for all users) Measurement names can now be copied and pasted.
- (Recommended for all users) Updated SAM DCS IP configuration name to SAM (MODBUS) IP.
- (Recommended for all users) Improved Horizontal Scroll bar on front panel display screens so it is easier to access.
- (Recommended for all users) Enveloped measurements now allow units other than “g” to be selected.
- (Recommended for all users) Custom averaging times for velocity measurements can now be set higher than 1 second.
- (Recommended for all users) Hydro RV with Smax channel types can now have a low pass filter corner up 4kHz.
- (Recommended for all users) Resolved issue where re-exporting a MODBUS map resulted in the units being text instead of standard abbreviations.
- (Recommended for all users) Resolved issue with mapped shortcut key F4 not retrieving the configuration from the rack.
- (Recommended for all users) Resolved issue with Remote Connect that would not work if the “User (View Only) Password” was empty.
- (Recommended for all users) Improved sorting columns in the grid views of VC-8000 Setup.
- (Recommended for all users) Resolved issue where connecting remotely to a VC-8000 rack would cause waveforms not to be saved to SD/HD/XC/PI.



Known Issue:

- Under certain circumstances a validation error can occur on dual channel measurements, i.e. Case Expansion (2ch), for the scale factors not matching. This is most likely to occur in configurations with a large number of configured channels. To resolve this issue either adjust the transducer scale factor for each channel or change the channel type to a different type (i.e. Radial Vibration) and then back to the desired dual channel measurement.

5 MPS 2023

5.1 SAM Firmware (7.10.9047)

The following enhancements have been made to SAM firmware:

- (New) Support for Static Pressure measurement in MODBUS map.
- (New) Redundant SAMs can now have serial MODBUS enabled. A limitation still exists that custom MODBUS maps cannot be used if redundant SAMs are configured.

5.2 UMM Firmware (7.10.9028)

The following enhancements have been made to UMM firmware:

- (New) Support for increased number of group lines. Newer UMMs can support up to 25 group lines.
- (New) Relay “Not” block, Shared Input and Shared Outputs have been added to assist with more complex relay logic.
- (New) Dynamic Pressure channel type now has an addable static pressure measurement.
- (New) Feature that will allow users to create linearization curves for Axial, Differential Expansion and Differential Expansion Complimentary Input channel types.

5.3 TMM Firmware (7.10.9021)

The following enhancements have been made to TMM firmware:

- (New) Support for increased number of group lines. Newer TMMs can support up to 19 group lines.
- (New) Relay “Not” block, Shared Input and Shared Outputs have been added to assist with more complex relay logic.



5.4 MPS Software (7.15.892)

The following enhancements have been made to MPS Software:

- Single VC-8000 software installer for all supported languages.
- (New) Ability to change language preference without re-installing VC-8000 software.
- (New) Improved software performance when preparing to send a configuration to the rack.
- (New) Dynamic Pressure channel type now has an addable static pressure measurement.
- (New) Relay “Not” block, Shared Input and Shared Outputs have been added to assist with more complex relay logic.
- (New) Support for increased number of group lines. Newer UMMs can support up to 25 group lines while newer TMMs can support up to 19 group lines.
- (New) Improved notifications when working with old SAM hardware.
- (New) Automatically paired Radial Vibration channel types can now be unpaired.
- (New) Date and Time display format can now be configured in software.
- (New) Channel Input blocks in the relay editor will now automatically be set for the current monitor slot. Additionally each Channel Input will now display the user configured channel name.
- (New) Feature that will allow users to create linearization curves for Axial, Differential Expansion and Differential Expansion Complimentary Input channel types. This increases the CPU load on the UMM and may result in a reduction of available channel types allowed on the UMM.
- (New) Redundant SAMs can now have serial MODBUS enabled. A limitation still exists that custom MODBUS maps cannot be used if redundant SAMs are configured.
- (Recommended for all users) Fixed issue where configurations could not be sent to racks that did not have a CMS SD license.
- (Recommended for all users) Fixed unit conversion error for Phase Below Minimum Amplitude threshold.
- (Recommended for all users) Fixed issue where channel list displayed in a relay For All block would sometimes contain invalid entries.
- (Recommended for all users) Fixed issue where event lists would not show new events as they were added.
- (Recommended for all users using CMS SD) Fixed issue where the SD Card would generate a “Not Installed” event in certain cases when the SD card was full.
- (Recommended for all users) Removed Axial with Sync channel type as it is now obsolete. Any configurations using this channel type will be migrated to use the standard Axial channel type.
- (Recommended for all users using a remote display) Fixed issue where if the simulator was connected to a rack, it will no longer attempt to collect waveform data. This would result in the actual waveform data not being stored to CMS SD, CMS HD, CMS XC or CMS PI.
- (Recommended for all users) Fixed issue where monitors in relay editor selection list would in certain circumstances not be in order.
- (Recommended for all users) Fixed issue where state indicator was not always showing correctly in software.

Known Issue:

- When using a language preference other than English, the date and time format strings will still be using English characters, e.g. dd-MMM-yyyy or hh:mm:ss.

6 MPS 2022 SP1

6.1 SAM Firmware (7.09.9030)

The following bugs have been fixed:

- An issue where if NTP was selected as the SAM time source would result in the SAM becoming non-operational. This could occur either from a firmware upgrade where NTP was already selected or from a configuration being sent that changed the time source to NTP.

6.2 UMM Firmware (7.09.9020)

The following enhancements have been made to UMM firmware:

- None

The following bugs have been fixed:

- None

6.3 TMM Firmware (7.08.9009)

The following enhancements have been made to TMM firmware:

- None

The following bugs have been fixed:

- None

6.4 MPS Software (7.12.416 EN, 7.12.418 RU)

The following enhancements have been made to MPS Software:

- None

The following bugs have been fixed:

- None



7 MPS 2022

7.1 SAM Firmware (7.09.9020)

The following enhancements have been made to SAM firmware:

- Add Multi-States Support for redundant SAM
- Add support for Smax Measurement Averaging to reduce the stochastic nature of the signal and provide a more predictable signal, and thus a more reliable tripping mechanism.
- Add support for customizable Below Minimum Averaging (BMA) threshold for nX Phase measurements

The following bugs have been fixed:

- None

7.2 UMM Firmware (7.09.9020)

The following enhancements have been made to UMM firmware:

- Add support for Smax Measurement Averaging to reduce the stochastic nature of the signal and provide a more predictable signal, and thus a more reliable tripping mechanism.
- Add support for customizable Below Minimum Averaging (BMA) threshold for nX Phase measurements
- Added support for customizable measurement averaging time

The following bugs have been fixed:

- Fixed issue where reverse rotation measurement status would be inconsistent in some scenarios
- Fixed issue where reverse rotation was not correctly keeping max probe separation at 90/M degrees as stated in the manual
- Added firmware check for a valid speed ratio (cannot be zero or less)

7.3 TMM Firmware (7.08.9009)

The following enhancements have been made to TMM firmware:

- None

The following bugs have been fixed:

- None

7.4 MPS Software (7.12.416 EN, 7.12.418 RU)

The following enhancements have been made to MPS Software:

- Add Multi-States Support for redundant SAM
- Add support for Configurable Averaging Parameters for Measurements
- Add support for Smax Measurement Averaging to reduce the stochastic nature of the signal and provide a more predictable signal, and thus a more reliable tripping mechanism.
- Add support for customizable Below Minimum Averaging (MBA) threshold for nX Phase Measurements
- Modified validation Info/Warning/Error message and display
- Add support for new transducer for VC-8000: VSI MEMS-based Velocity Sensors
- Increased Relay Block Limitation

The following bugs have been fixed:

- Fixed issue where copying Input Source in States configuration did not function as intended
- Fixed issues relating to the saving of the HD configuration on the Front Panel when Setpoint CMS connects to retrieve and/or modify the configuration.
- Fixed issue regarding reference data removal in HD
- Fixed minor issue regarding incorrect unit display in certain validation errors
- Added validation for making sure the event ratio of phase trigger channels is greater than 0.
- Fixed issue regarding missing “Direction of Rotation” setting for Simulated Phase Trigger
- Fixed issue regarding configuration change for I-Factor % (i-ness threshold) not taking effect without restarting Front Panel
- Modified labeling in States for better clarification
- Modified Channel Name defaults to avoid validation error
- Fixed issue regarding improper flagging of 90 Degree Probe Orientation validation error in certain configurations
- Modified Custom Modbus Map Import Success message
- Modified some transducer names for increased clarity
- Fixed crashing issue regarding copy/paste of measurement configurations
- Fixed crashing issue in which context menu would either not appear or cause application crash in specific scenario
- Fixed issue in which MPS Simulator was unable to handle rack password
- Fixed issue where file name would not be reset when creating new setup (File → New)
- Fixed Translation Error/Lack of Translation for various properties
- Fixed improper validation error wording relating to certain scenarios of incomplete/broken machine configurations
- Modified Channel Naming Convention in Modbus Map for better clarity
- Fixed issue where modified (custom) Modbus map would not import in certain scenario
- Fixed issue where Recip Cylinder would not properly clear previous information
- Fixed minor UI glitch on Measurements Page when resizing the application window
- Prevent issue where upgrading certain versions of SAM hardware to latest SAM (CMS) Firmware would make SAM non-operable. Using the **Write SD** button in MPS Maintenance application will prevent this scenario.



The following are known issues with VC-8000 Setup software:

- When sending configuration changes to a VC-8000 the software can take a significant amount of time during the Prepare to Send step if there is a significant amount of relay logic configured. This is a known issue and does not have a solution at this time.
- When channel or module types are changed this can cause significant slowdown when sending configuration changes to VC-8000. This is a known issue. To mitigate this, save the configuration and restart the application. Re-open the saved configuration and send it to VC-8000.

8 MPS 2021 R2

8.1 SAM Firmware (7.08.9144)

The following enhancements have been made to UMM firmware:

- Implement SAM failover functionality such that a SAM in slot 3 may operate as the primary SAM in the event that the primary SAM in slot 2 fails for any reason.
- Minor changes to support MPS SW enhancements for "locking" of SIL/Functional Safety racks.

The following bugs have been fixed:

- Add system event to indicate when power to the redundant power input on the RCM is restored.
- Support for older SAM boards (1-bit ECC) has been dropped
- Fixed issue with SD card statuses and MODBUS

8.2 UMM Firmware (7.08.9115)

The following enhancements have been made to UMM firmware:

- Minor change to facilitate SAM Failover functionality

The following bugs have been fixed:

- Resolved issue with Speed Direction State Input with really slow ramp rates
- Resolved issue where all channels that were using Speed Direction State input used different delta RPM configurations. Note, will require re-download of configuration after firmware upgrade.
- Resolved issue with Shaft Absolute measurements
- Resolved issue with Max X/Y and different scale factors

8.3 TMM Firmware (7.08.9009)

The following enhancements have been made to TMM firmware:

- Increased check for Critical Hardware Failure when no RTDs are connected to TMM
- Minor change to facilitate SAM Failover functionality



8.4 MPS Software (7.10.333 EN, 7.10.335 RU)

The following enhancements have been made to MPS software:

- Support of Failover SAM functionality
- PV Channel now supports units of Volts

The following bugs have been fixed:

- Improved use of trip multiply validation checks against sensor range
- Allow increased trip multiply values for integrated measurements
- Multi state Speed Direction input now uses Phase Trigger Delta speed for all channels on the machine. Configuration will need to be re-downloaded after UMM firmware upgrade.
- Fixed issue where not all System Events would be retrieved if monitors were rebooting while MPS was connected.
- Fixed issue where More view of SD card status would result in a status of INVALID
- Fixed issues where MPS Remote connection would still indicate it was connected to the rack when the ethernet connection in reality had been lost
- Fixed issue with Simulator running in some situations
- Fixed issue where different MODBUS maps were exported depending on if you were connected to a rack
- Fixed issue where editing Recip Cylinder Throws would clear Cylinder configuration in some cases
- Fixed issue where hitting the More button in the SD Details view could cause the application to crash
- Fixed issue where lower Full Scale Range limit was not being calculated correctly
- Improved Copy/Paste feature to handle different number delimiters based on region
- Fixed issue where clearing latched alarm and relays from the software would not always result in all latched relays from being cleared.

9 MPS 2021

9.1 UMM Firmware (v1: 7.07.9009; v2: 7.07.9009)

The following enhancements have been made to UMM firmware:

- (New) Support for multi-state hardware alarming
- (New) Support for non-linear velocity sensors
- (Recommended for all users) Resolved bypass issue with Discrete Input channels used as contacts.

9.2 TMM Firmware (v1: 7.01.9012; v2: 7.01.9014)

- No enhancements.

9.3 SAM Firmware (7.07.9008)

The following enhancements have been made to SAM firmware:

- (New) Support for multi-state hardware alarming
- (New) Support for Modbus import/export features to support state measurements and setpoints
- (Recommended for users with a SAM in slot 3) Resolved issue that would result in the SAM in slot 3 losing communication with the rack and no longer sending data out over MODBUS.



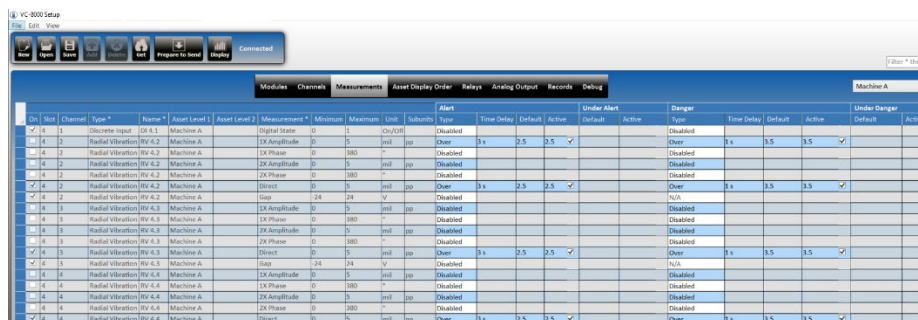
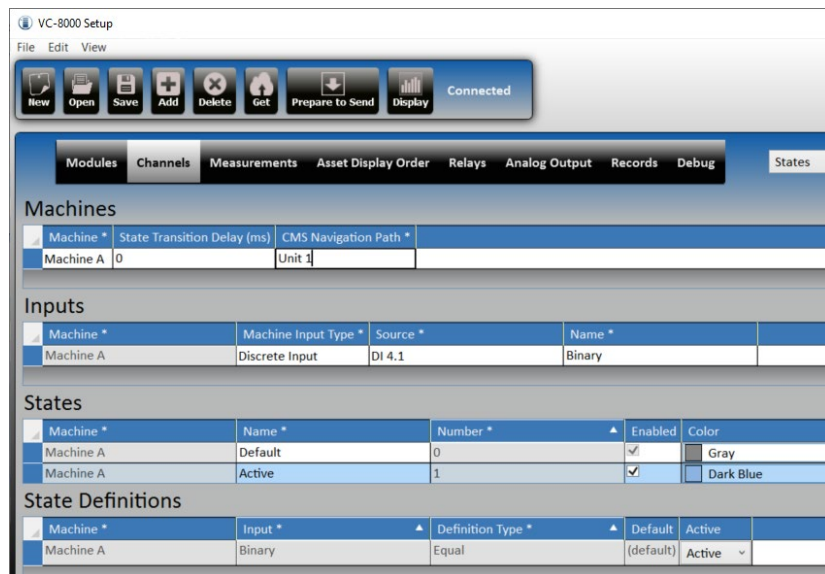
9.4 MPS Software (7.07.356 EN, 7.07.355 RU)

The following enhancements have been made to MPS software:

- (New) Support for multi-state hardware alarming

This release introduces multi-state hardware alarming. The definition of each machine state is defined in the MPS software in the Channels-States view. VC-8000 can support up to 32 machines and each machine can have up to 15 unique, user-defined states. A machine state can be defined by the criteria of Discrete Input channels, Phase Trigger speed ranges or direction of change of speed. Each machine state can be configured with alarming criteria.

Support for states in CMS will be available in versions greater than 7.6.



- (Recommended for all users) The default settings for Hydro RV nX amplitude measurements are Disabled.
- (Recommended for all users) Resolved speed reporting for tachometer with events-per-rev configuration.
- (Recommended for all users) Resolved inconsistency with showing redundant SAM in MPS rack display.
- (Recommended for all users) Resolved Properties view configuration for Recip Impact measurements.
- (Recommended for all users) Prevent the Front Panel display from going into sleep mode.
- (Recommended for all users) Resolved Asset Level issues in the Asset Display Order view.
- (Recommended for all users) Resolved missing/invalid Phase Trigger associations in legacy configurations.
- (Recommended for all users) Resolved issue of downloading custom Modbus maps to redundant SAMs.
- (Recommended for all users) Added password validation when HD is enabled to allow remote connection.
- (Recommended for all users) Enhanced the display for the Discrete Input channel.
- (Recommended for all users) Corrected the Discrete Input channel units in Customize Transducer View.
- (Recommended for all users) Added validation for paired channels and CMS Navigation path.
- (Recommended for all users) Updated product link in MPS updates screen.
- (Recommended for all users) Updated group line validations for relay logic with the machine state features.
- (Recommended for all users) Updated help screens for XY pair relay logic.
- (Recommended for all users) Resolved issue with XY pairing of unrelated channel types in relay logic.
- (Recommended for all users) Resolved issue with MPS Remote connection.
- (Recommended for all users) Enhanced config send process to ensure rack wide config synchronization.



10 MPS 2019 SP1

10.1 UMM Firmware (v1: 7.03.9013; v2: 7.03.9013)

The following enhancements have been made to UMM firmware:

- (New) Support for the Max X/Y measurement for Velocity, Acceleration and RV channels.

10.2 TMM Firmware (v1: 7.01.9012; v2: 7.01.9014)

- No enhancements.

10.3 SAM Firmware (7.03.9019)

The following enhancements have been made to SAM firmware:

- (New) Support for the Max X/Y measurement for Velocity, Acceleration and RV channels.

10.4 MPS Software (7.03.52 EN, 7.03.53 RU)

The following enhancements have been made to MPS software:

- (New) Explicit X/Y Channel Pairs for Acceleration, Velocity, and Radial Vibration channels.

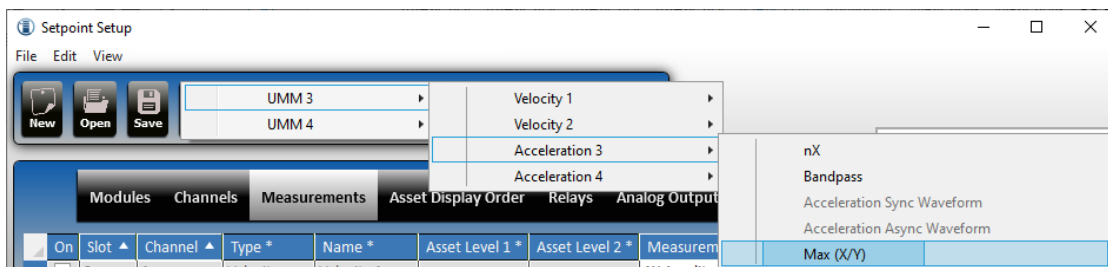
This release introduces a new Channel Pairing feature that provides support for explicit channel pairs allowing the ability to pair the channel types: Radial Vibration, Diagnostics Proximity, Velocity, Diagnostics Velocity, Acceleration & Diagnostics Acceleration. The explicit pairing is provided through a new Channel Pair column in the Channels-Summary view in MPS. Channels 1,2 & 3,4 can be paired.

Explicit pairs for Velocity and Acceleration and any other pair not otherwise having matching Phase Triggers will not produce orbits in CMS. Support for orbits in CMS will be provided for these scenarios in future releases for versions greater than 7.5.

On	Slot	Channel	Channel Type *	Channel Pair	Transducer	Name *
<input checked="" type="checkbox"/>	3	1	Velocity	<input checked="" type="checkbox"/>	SV6300 Piezoelectric Velocity Sensor	Velocity 1
<input checked="" type="checkbox"/>	3	2	Velocity	<input checked="" type="checkbox"/>	SV6300 Piezoelectric Velocity Sensor	Velocity 2
<input checked="" type="checkbox"/>	3	3	Acceleration	<input checked="" type="checkbox"/>	B&K AS-063 / ASA-063 Accel	Acceleration 3
<input checked="" type="checkbox"/>	3	4	Acceleration	<input checked="" type="checkbox"/>	B&K AS-063 / ASA-063 Accel	Acceleration 4
<input checked="" type="checkbox"/>	4	1	Radial Vibration	<input checked="" type="checkbox"/>	B&K ds82x.ds10xx	Radial Vibration 1
<input checked="" type="checkbox"/>	4	2	Radial Vibration	<input checked="" type="checkbox"/>	B&K ds82x.ds10xx	Radial Vibration 2

- (New) Max X/Y measurement for Acceleration, Velocity and Radial Vibration channel pairs.

This release introduces a new Max X/Y measurement. This measurement is a dual channel measurement that reports the maximum value from the two possible input channels. This measurement can drive a 4-20mA output and is reported via MODBUS. The Max X/Y is an addable measurement. For any channel pairs that exists, channels 1 or 3 may be used from this pair to add the addable Max X/Y measurement to the channel. The measurement will report the maximum value from the two paired channels.



- (Recommended for all users) Resolve failures when configuring Recip Impact properties.
- (Recommended for all users) Resolve formatting issues with the CMS Navigation Path.
- (Recommended for all users) Resolve missing module names in rack displays.
- (Recommended for all users) Resolve situation where HD is enabled without a view password.
- (Recommended for all users) Resolve failures with duplicate Asset Display Order entries.
- (Recommended for all users) Resolve missing Asset Display Order entries.
- (Recommended for all users) Resolve incorrect default Hydro RV alarm type defaults.
- (Recommended for all users) Prevent the Front Panel display from going into sleep mode.
- (Recommended for all users) Prevent locking the screen when progress dialogs are visible.
- (Recommended for all users) Prevent invalid configurations for Analog Output measurements.
- (Recommended for all users) Improve Tachometer stability for multiple EPR at high frequency.



INFO

Rv with Smax must be added to channels 1,2 or 3,4. Attempts to add this channel type in any other configuration may produce unexpected results and should be avoided.



11 MPS 2019

11.1 UMM Firmware (v1: 7.01.9068; v2: 7.01.9064)

The following enhancements have been made to UMM firmware:

- (New) Support for waveforms up to 32,768 samples.

11.2 TMM Firmware (v1: 7.01.9012; v2: 7.01.9014)

- No enhancements.

11.3 SAM Firmware (7.01.9064)

The following enhancements have been made to SAM firmware:

- (New) Support for waveforms up to 32,768 samples.
- (Recommended for all users) Performance improvements to prevent loss of condition monitoring data when using fully loaded racks.
- (Recommended for all flight recorder users) resolve defect with CMS client connection retrieving data from SD instead of HD.
- (Recommended for all ESAM users) Resolve issue with display not connecting to rack.

11.4 MPS Software (7.0.791 EN, 7.0.792 RU)

The following enhancements have been made to MPS software:

- (New) Support for waveforms up to 32,768 samples.
- (New) Phase measurements available for hydro radial vibration and hydro velocity channels.
- (Recommended for all users) Resolve various issues with configuration send failing.
- (Recommended for all users) Resolve failures while applying rack capabilities upgrade key.
- (Recommended for all users) Resolve software crash when editing channel properties.
- Allow m/s² for peak stretch measurements.

12 MPS 2018 SP1

This release resolves key customer defects and enhancements.

12.1 Setup And Maintenance Software (6.50.48 EN, 6.50.49 RU)

The following changes have been made for this release:

- Support for 4 channels of hydro radial vibration, and hydro velocity on a given monitor.
- Remove 1000 Hz limitation when events per revolution is not 1.
- 512 or 1024 samples per revolution for reciprocating applications.
- Support orbits for hydro radial vibration channels.
- Fix to support all necessary units for air gap channels.
- Fix to allow mix of single and double acting cylinders for reciprocating compressors channels.

12.2 UMM Firmware (6.50.9012)

The following changes have been made for this release:

- Support orbits for hydro radial vibration channels.
- Better filtering for DC noise at low RPM for SMAX measurements.
- Fix for configuration changes and firmware upgrades not always persisting in flash.

12.3 TMM Firmware (6.50.9005)

The following changes have been made for this release:

- Fix for configuration changes and firmware upgrades not always persisting in flash.

12.4 SAM Firmware (6.50.9003)

The following changes have been made for this release:

- Resolve issues with remote configuration changes not updating clients.
- Prevent spurious front panel display reboots while configuration is being changed.



13 MPS 2018

13.1 MPS Remote Access

Remote Access allows MPS clients to connect to a Setpoint MPS rack over the Ethernet. In order to successfully connect the rack has to be ordered with MPS remote access, have an administration password, and have remote MPS access enabled.

Two levels of access are available to the rack: Administrator, and Remote User Access. Each account has its own password. If a password is blank the account is disabled and users are given a warning when sending a configuration change to the rack.

When connected via Remote User Access the user is unable to remotely send configurations, update firmware, enable channel bypass, reboot the SAM, enable hardware features, or set time. They can acknowledge events, and force boost data collection. NOTE: Remote User Access account will also be used to provide CMS client access to HD data.

When connected with the Administrator account the user may access all capabilities of the setup and maintenance software except for enabling hardware features.

When connecting to a previously used rack the rack name is presented in addition to the IP address.

Connections are made through the Setup application's file menu. Recently used connections are listed with the rack name to allow for easy re-connection to racks.

When connected to a rack the rack name is displayed on the screen for reference.

A capability on the info screen should identify SAM modules that are capable or enabled for remote access.

TCP Port 8004 provides remote MPS access.

Window Communication Foundation (WCF) is used to provide transport security and windows authentication. This is suitable for an intranet environment.

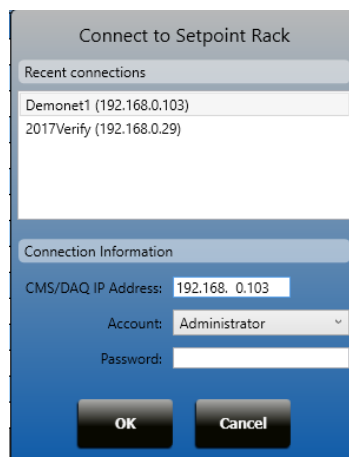


Figure 13-1: Remote Access Connection Dialog

13.2 Bypass Votes True

Channel Boolean logic blocks now allow bypass to vote true. This allows bypassed channels to be removed from logic, such that and logic may still vote true.

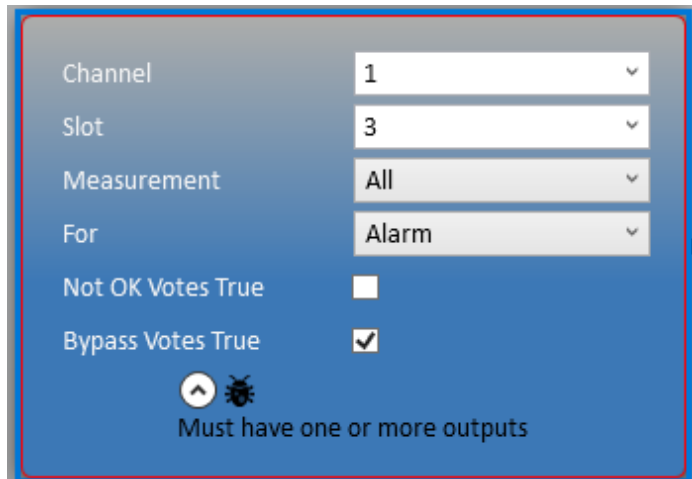


Figure 13-2: Bypass Votes True

13.3 Rack Information

CMS, HD, and SD statuses have pop up displays with additional information about each status including remaining storage capacity, network bandwidth, and more.





13.4 MPS Large Value Display

The rack front panel display has been enhanced to show large values that can be seen from a greater distance from the rack. This allows replacement of external tachometer displays for some customers.



13.5 Air Gap Channel

Air gap monitoring is now available refer to the hydro Solutions manual (S000004001) for more information.

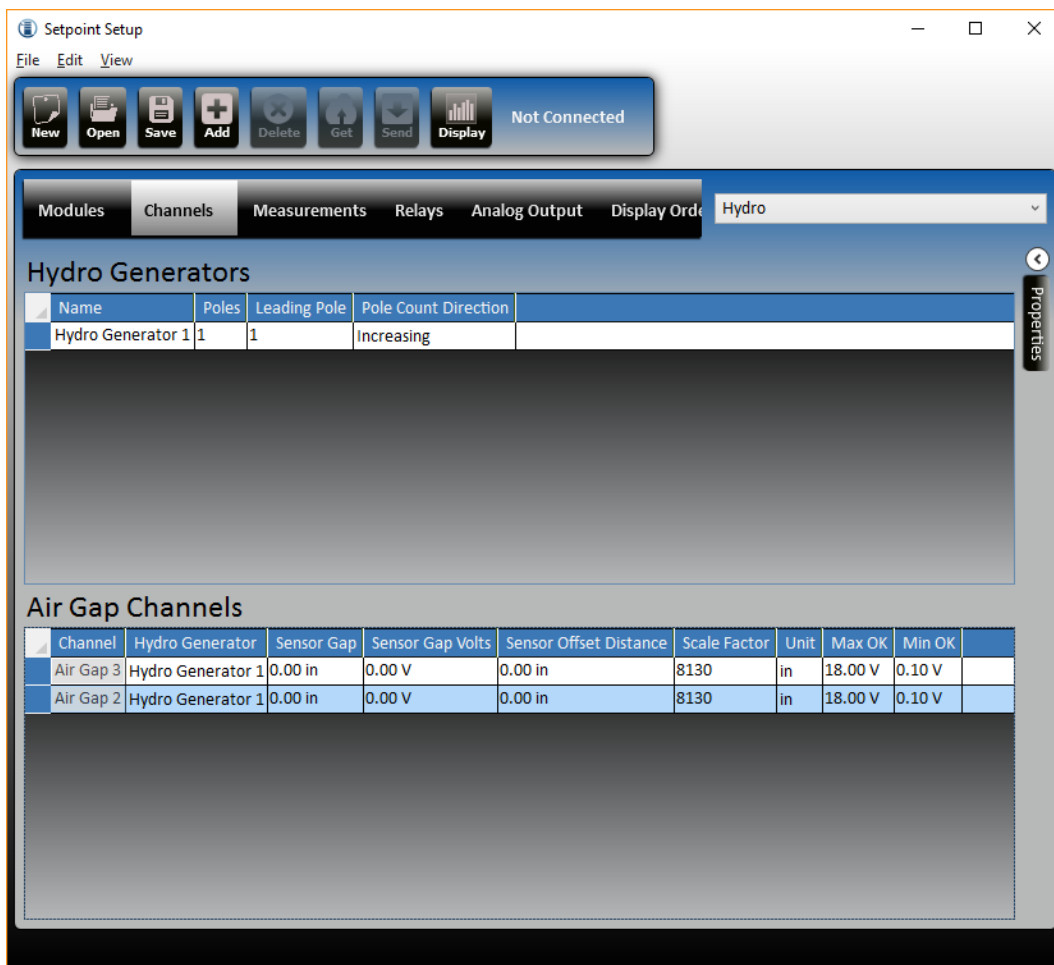


Figure 13-3: Air Gap Configuration



13.6 Defects and Enhancements

The following defect fixes and enhances have been made for MPS:

- A new channel (Tracking REB Acceleration) may provide REB fault frequency measurements
- A new channel that can provide SMAX measurements
- A list of 3 diagnostic channels optimized for portable data collection have been added to MPS
- Adaptive Inness has been fixed to properly handle various error conditions that can drive excessive data collection.
- MPS setup can save a configuration as a simulator file.
- Issue with hardware info screen not always loading has been fixed
- Ability to remove a channel from a collection group
- No Pulses, and Triggering error statuses are now displayed on the front panel display
- CMS File may be replayed as a simulator to drive realistic data into a PI System for demonstration and test purposes
- Dynamic Collection Percent threshold is now used as minimum threshold when using adaptive Inness
- V2.50 SAM could not be configured with previous release, but may now be configured
- Some Voltage values were not showing on pop up display

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