

835 VQM™ Release Notes for 835400 Revision E

These release notes are for the Rev E Release of the 835 Vacuum Quality Monitor System. The Viewer application software version is 3.2.2.38 for Part Number 835400 Revision E.

The product manual, 835000, is installed as part of the software installation and can also be found at <http://www.mksinst.com>.

This revision corrects an error seen in the software when run on European language packages or regional settings where the decimal point is indicated by a comma where the analog in voltage was not translated to total pressure. This defect affected the 835 Viewer application and the 835 API and is corrected in revision E. In addition, one of the C++ API samples for unmanaged C++ was expanded.

835 VQM™ Release Notes for 835400 Revision C & D

These release notes are for the Rev C release of the 835 Vacuum Quality Monitor System. The Viewer Application software version is 3.2.2.36 for Part Number 835400 Revision C. Revision D was a BOM change to remove the creation of a separate CD for the product manual.

The product manual 835000 is installed as part of the software installation for Rev C and can also be found at <http://www.mksinst.com>.

For 835 VQM customers, here is a list of the new Software Features for the 835 VQM. More information can be found in chapter 8 of the Instruction Manual.

1. The directory structure for the installed software and the logs has changed to a flatter structure.
2. The leak detection user interface and algorithm has been improved.
3. The Auto Tune function now has an express auto tune mode and an EM only adjustment mode that allow for quicker and more frequent tuning of the gain. The Auto Tune feature also allows selection of the gain adjustment from standard, long life or high sensitivity.
4. A method is provided for adding total pressure gauges to the list of gauges supplied in the software.
5. An editor is provided to add gases to the list of gases fit by the software and to make adjustments for the vacuum environment.
6. A method for customizing the resolution limits used in peak finding and the high mass AMU is provided.
7. The software overpressure limit maximum has been increased and will turn the scanning back on when the overpressure returns to the previous maximum of 1E-5 Torr.
8. Voltages that are not adjusted frequently are no longer displayed on the control screen but are available on the CTRL tune screen.
9. Post data averaging has been added for further flexibility in averaging.
10. The VQI™ Screen provides the ability to use analog in voltage in VQI equations and provides the ability to invert the meaning of the digital in signal in VQI equations.
11. The software provides the ability to zoom in the graphs in both x and y directions.
12. The data log files are now binary and much smaller but can still be played back in the Viewer Application. From there a csv file can be created if necessary.
13. The Instruction Manual (835000) provides and expanded troubleshooting section.
14. The identification of possible sources for AMUs on the histograms was expanded.

15. A utility application was added to help diagnose software installation problems, to provide controller firmware update capability, and to change firmware settings necessary for using gauge cable greater than 3 meters.
16. The software attempts to prevent the host computer on Windows 7 from going to sleep when connected to the VQM. When the controller is disconnected from the software the user sleep settings are resumed.

835 VQM™ Release Notes for 835400 Revision B

The 835 Viewer Application software version is 3.2.1.14 for Part Number 835400 Revision B.

The product manual 835000 is not intended to be on the CD and can be found at <http://www.mksinst.com>.

For 835 VQM customers, here is a list of new Software Features for the 835 VQM. More information can be found in chapter 8.3 of the Instruction Manual.

1. The installer options have been simplified.
2. The VQM Software now works with non-English decimal formats including German, French and simplified and traditional Chinese.
3. The log folders for system and user logs and configuration files have been moved to mitigate user permission problems. Standard users should not receive file I/O errors from the Viewer Application when using these default folders.
4. A correction was made to Auto Tune function to allow gauges operating with an EM Bias less negative than - 925 to Auto tune.
5. The LabVIEW VIs for development of custom applications are now installed as a zip file see Programmers Reference Manual for instructions on where to move the included files after unzipping.
6. LabVIEW developers who open the "83x API get Scan Example.vi" will no longer see warnings.

For 830 VQM customers, here is a list of new Software Features for the 835 VQM. More information can be found in chapter 8.4 of the Instruction Manual.

1. Software API (Applications Programmers Interface) allows other programs to access VQM data either on the same computer or over Ethernet. A Programmers Reference Manual can be found in the <install directory>\Documentation.
2. LabVIEW VIs provide LabVIEW customers with access to VQM functions.
3. There is a new Auto Tune function which determines the best gauge settings for optimum performance.
4. The VQI (Vacuum Quality Index) screen provides a way to create up to two equations that can control alarms, a digital output, or the start of data logging.
5. The Viewer Application screen can now be resized.
6. In addition to the 390802 and 360/370, the following Granville-Phillips gauges can be used as a total pressure source: 307/350, 354015, 354019, 354075, 358.
7. The histogram display also displays partial pressures in addition to normalized.
8. There is a new audible sound for leak detection.
9. One PC can run the Viewer Application on up to 4 VQM controllers at the same time, based on CPU power.
10. Standard scan range is 1-145 amu with 1-300 amu available as an option.
11. The amu scan range can now be shortened on the Settings screen. Limiting the scan range provides faster response time and can be used to avoid scanning the biggest peak allowing the electron multiplier gain to be increased without saturating the electrometer for better dynamic range.
12. The data analysis algorithms of the Viewer Application have been improved to find some of the smaller peaks in the spectrum providing greater dynamic range.
13. There is a Standby mode which can be used to outgas the filament or keep the gauge warm and ready for use without degrading the electron multiplier.
14. The 390802 total pressure gauge units can be changed to display Pascal, MBar or Torr.

15. Gauge settings can be saved to a file and retrieved for later use. This is helpful for cases where one controller is used to drive multiple gauges by moving the cable from one gauge to another.
16. Log files can be viewed in the Viewer Application.
17. Raw log files can be played back in the Viewer Application.
18. Averaging can be controlled on the Tune and VQI screens in addition to the Summary and Trend screens.
19. The Save command also saves the analog spectrum (curve) and trend information for all gases.
20. Right clicking the mouse over a peak on the histogram display shows the possible gases at that amu based on the predefined gas library.

Known Issues

Viewer Application

- **Issue:** The product must be installed by someone with administrator privileges on the computer.
- **Issue:** After a fresh install the computer needs to be rebooted or administrator privileges used to start the services of the application or Viewer Application will not be able to successfully connect.
- **Issue:** Some USB 3.0 port implementations do not reliably support USB 2.0 for communication between the controller and the computer.
Workaround: Follow computer manufacturer instructions to set the USB 3.0 port back to 2.0.
- **Issue:** Use of the controller's front panel Mass Spec and Scan buttons may cause issues while using the Viewer Application. Similarly, use of External Trigger Mode is not supported while using the Viewer Application.
Workaround: Use the controls in the Viewer Application to turn on and off MS gauge power and to turn on and off scanning. External Triggering is a standalone procedure. Do not use the Viewer Application while using External Triggering. You may write a custom application to use external triggering.
- **Issue:** A scan error while running Auto Tune may result in a reported failure. This same issue can manifest for the API user who runs Auto Tune.
Workaround: Retry the Auto Tune procedure. This reported failure could occur during any phase of the Auto Tune process and will be reported as a failure to tune one of the parameters (EMBias, Repeller, Exit Plate/EM Shield). Navigate to the <public documents directory>\VQM\System\AutotuneLogs and open the most recent file with Notepad or WordPad. If the failure is due to a scan error, the message "Exhausted retries (scans timed out 101 times.)" will appear in the log.
- **Issue:** Extremely large log files (greater than 1Gbyte) may have viewing issues when displaying them in the viewer application.
Workaround: Keep log files manageable by increasing the scan interval or by logging for a shorter duration.
- **Issue:** Occasionally, the software can lock up and lose communication with the MS gauge controller after scanning for a while. The Viewer Application error log shows several "5001 This request operation sent to net.pipe://localhost/835SeriesController1 did not receive a reply within the configured timeout (00:01:00)... " This can be an indication that the Windows Communication Foundation (WCF) has been corrupted or has stopped responding.
Workaround: Applying the Microsoft hotfix available at <http://support.microsoft.com/kb/2504602>. may fix the issue.
- **Issue:** If the user attempts to connect before the services are started the connection will be unsuccessful and may hang the service.
Workaround: The services are on automatic delayed start so that they do not delay the boot up process, however, an administrator can change them to automatic start to ensure they are ready when the boot up appears complete.

Custom Applications Using the API

- **Issue:** While using the API, if you clear the averaging buffer while scanning (which can happen if you change the number of averages or the averaging mode), some of the values in the averaging buffer could be cleared during the current update while some will be cleared after the update.
Workaround: Avoid scanning while changing the number of averages or the averaging mode.
- **Issue:** If the filament burns out during scanning, the controller times returned by GetScanData will "freeze". The status will indicate a filament burnout.
Workaround: Either check the status every time or check the status if the times freeze. If this condition occurs, stop scanning and remove power from the gauge.

- **Issue:** A .NET exception VQM_800_ERROR may occur the first time GetScanData is called after starting scanning.
Workaround: Sleep for a second between changing the gauge state to SCAN and calling GetScanData the first time. This delay gives the Service time to see the state change on the controller.
- **Issue:** Responses from the API may be delayed. These may be associated with the Windows Indexing Service if it is enabled.
Workaround: Disable the Indexing Service. On XP, you can do this through the Administrative Tool for Services. On Windows 7, go to Control Panel, Programs and Features. From the left pane, click the shortcut for disabling Windows Features. Uncheck the Indexing Service checkbox.
- **Issue:** The .NET services required to communicate with the API do not run automatically after a new software installation until the computer is rebooted.
Workaround: Prior to making API calls, reboot the computer after the software installation or run 800SeriesServiceRestart.cmd from <install directory>\utilities.

General

- **Issue:** Some computers have USB sleep mode set to go to sleep after a period of time this causes a loss of communication with the VQM.
Workaround: Make sure any computer or USB sleep modes are disabled in the computer power setting screen or the computer's BIOS.
- **Issue:** Using the Intel SpeedStep in the performance setting of the host bios reduces the clock speed on the host such that commands to the 835 controller are delayed and return data is missed.