Overview

This document provides a compilation of Release Notes that have been published by Industrial Scientific. Table 1. Document Summary provides a list of version numbers, release dates, and a brief overview of each Release Notes document. Following Table 1, you will find a copy of the complete version of each document.

Document Summary

Table 1. Release Notes Document Summary

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<th>Instrument</th>
<th>Version</th>
<th>Release Date</th>
<th>Summary of Features Added and Issues Addressed</th>
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<tr>
<td>Ventis MX4</td>
<td>v4.3</td>
<td>08/29/2017</td>
<td>New low battery warning and revised critical battery alarm</td>
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<td></td>
<td>v4.2</td>
<td>04/15/2016</td>
<td>Reduce amount of time to enable IrDA port; improve sensor warm-up process; reduce amount of time the Apply Gas screen displays.</td>
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<td></td>
<td>v4.1</td>
<td>02/09/2015</td>
<td>Update firmware to address datalog period recording error; update firmware to address residual gas from a manual bump test causing an alarm event.</td>
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<td></td>
<td>v4.0</td>
<td>08/14/2014</td>
<td>Accommodates new CO/H2 Low sensor; Option to disable instrument shut down while in alarm; Option to disable Ventis audible alarms when docked; Accommodate manual bump fail status in Ventis datalog; Accommodates Rev E data flash; Eliminate the ability to clear the STEL and TWA values by Zeroing the O2 sensor; Update firmware to further address instrument communications errors.</td>
</tr>
<tr>
<td></td>
<td>v3.96</td>
<td>05/20/2014</td>
<td>Accommodates new revision instrument microprocessor.</td>
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|            | v3.90.02| 07/18/2013   | Allow over-range LEL sensor to be reset by a button press rather than instrument restart; update firmware to address
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<tr>
<th>Version</th>
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<tr>
<td>v3.80.01</td>
<td>01/16/2013</td>
<td>Update firmware to address O2 sensor bump failures on docking station.</td>
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<td>v3.70.06</td>
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<td>Update firmware to add manual calibration and bump log; update event log from 24 to 60 events; add Always On option for Ventis MX4.</td>
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<td>v3.60.04</td>
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<td>Update firmware to address incompatibility with new Rev C microprocessor; minimize potential 410 error codes.</td>
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<td>v3.6</td>
<td>02/23/2012</td>
<td>Update firmware to address potential issue with event log; update firmware to address connection issue seen in manufacturing; address pump fault.</td>
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<td>v3.5</td>
<td>01/26/2012</td>
<td>Update firmware to address temperature compensation issue identified in Ventis firmware v3.4 only.</td>
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<tr>
<td>v3.2</td>
<td>08/22/2011</td>
<td>Update firmware to address an inaccuracy in the LEL autozeroing function; address multiple data periods with the same number; address Error 417.</td>
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<tr>
<td>v3.1</td>
<td>07/14/2011</td>
<td>Update firmware to address an inaccuracy in the LEL autozeroing function; address multiple data periods with the same number; address Error 417.</td>
</tr>
<tr>
<td>v1.1</td>
<td>05/03/2011</td>
<td>Update firmware to acknowledge successful bump tests on the DS2; ensure LEL sensor damaged from a drop is immediately indicated on the display.</td>
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</table>
Ventis MX4

v4.3 – released August 29, 2017
Upgrade Recommendation – Optional

Upgrade Methods
This firmware upgrade can be completed using a DSXi Docking Station in approximately 8-10 minutes, or contact your local Industrial Scientific Service Center for assistance.

What Enhancements are in Ventis MX4 v4.3?

(MXFQA-061) The low battery warning will begin to display when the battery has approximately one hour of run time remaining and should be charged. The instrument will beep every 60 seconds to remind the user that the battery is low.

(MXF-1638) The critical battery alarm occurs when there is not enough battery run time remaining for continued operation. The instrument will go into high alarm for approximately 10 minutes before powering off. The instrument is not detecting gas at this time, as indicated by the dashes in place of gas readings.

v4.2 – released April 15, 2016
Upgrade Recommendation – Recommended

Upgrade Methods
This firmware upgrade can be completed using a DSXi Docking Station in approximately 8-10 minutes, or contact your local Industrial Scientific Service Center for assistance.

What Enhancements are in Ventis MX4 v4.2?

(MXF-1612) Shorten the time when the instrument is off and docked to enable Ventis IrDA communications.
When a Ventis MX4 is first docked, the IrDA port is activated to initiate communication. The amount of time between when the instrument is docked and when the IrDA port is enabled has been reduced.

(MXF-1625) Optimize the warm-up time when the instrument is docked.
To shorten the time from docking until the green light displays indicating that bump testing, calibration, data transfers, and other tasks have been completed, improvements have been made to the sensor warm-up process.

(MXF-1625) Reduce the amount of time the Apply Gas screen will display.
The Apply Gas screen displays when the Ventis MX4 is waiting for calibration gas to be applied. The amount of time the instrument will wait for gas has been reduced from five minutes to one minute.
v4.1 – released February 9, 2015
Upgrade recommendation – Recommended

What’s new in Version 4.1?

1. Update firmware to address datalog period recording error

Customers using the ‘Always On’ option may lose datalog periods based on docking and undocking (this includes docking on docking/calibration stations and charger/datalinks) the unit prior to the full datalog being downloaded. This firmware update addresses this issue. (MXF-1345)

2. Update firmware to address residual gas from a manual bump test causing an alarm event

The timeout after a manual bump test has been increased to allow residual gas from the bump test to dissipate; this will avoid false alarm events from the residual gas when the instrument returns to the normal reading mode. (MXF-1368)

Other Tickets Addressed

MXF-1354

Related Products

- Docking Stations – No impact
- Desktop Software – No impact

Ventis Upgrade Methods

- iNet DS – This firmware upgrade can be completed on the iNet DS in approximately 8-10 minutes
- ISC Service Center – Please contact your local ISC Service Center for upgrade details

v4.0 – released August 14, 2014
Upgrade recommendation – Recommended

What’s new in Version 4.0?

1. Accommodates new CO/H2 Low sensor

A new Carbon Monoxide with low Hydrogen cross-interference (CO/H2 low) sensor for the Ventis MX4 was released in conjunction with the version 4.0 firmware. The CO/H2 low sensor will be differentiated
on the instrument display as a COL in all Ventis units that have v4.0 or later firmware versions. (MXF-1276)

2. Option to disable instrument shut down while in alarm

If enabled, this option will prevent a user from shutting down an instrument that is currently in a gas alarm state. The instrument will need to be removed from high gas area and out of alarm before it may be turned off. [Factory default allows instruments to be shut down while in alarm*] (MXF-1096) - Note: See “Related Products” section of these release notes.

*If using a Ventis v4.0 monitor with V-Cal calibration station, upon docking the Ventis monitor, the V-Cal will always automatically disable instrument shut down when in alarm (instrument will not be able to be shut down in alarm). This is regardless of the version of Industrial Scientific Accessory Software (ISAS) installed. There are pending V-Cal firmware updates to change this behavior.

3. Option to disable Ventis audible alarms when docked

This option allows the user to select whether they would like the instrument audible alarm to sound when on the DS2 docking station, iNet DS docking station, or V-Cal calibration stations. [Factory default sets Ventis audible alarm to off when docked*] (MXF-1129) - Note: See “Related Products” section of these release notes.

*If using a Ventis v4.0 monitor with V-Cal calibration station, upon docking the Ventis monitor, the V-Cal will always automatically disable the audible alarm when docked (unit will not audibly alarm on V-Cal). This is regardless of the version of ISAS installed. There are pending V-Cal firmware updates to change this behavior.

4. Accommodate manual bump fail status in Ventis datalog

The Ventis datalog will now display a failed bump status in both the Industrial Scientific Accessory Software (ISAS) and Docking Station Server Admin Console (DSSAC). (MXF-893) - Note: See “Related Products” section of these release notes.

5. Accommodates Rev E data flash

Firmware was updated to ensure compatibility with the Rev E data flash. (MXF-1275)

6. Eliminate the ability to clear the STEL and TWA values by Zeroing the O2 sensor

A user may no longer inadvertently clear a STEL or TWA alarm by Zeroing the O2 sensor. Since Zeroing the O2 sensor is a calibration of the O2 sensor and STEL and TWA values are cleared by calibrating a sensor, the act of Zeroing an O2 sensor was unintentionally clearing the STEL and TWA alarms. (MXF-1268)
7. Update firmware to further address instrument communications errors

Firmware was updated to further address Ventis communication errors. These errors have primarily been indicated by 420/422 error codes. The communication errors have also been linked to deeply discharged instruments experiencing a reset issue on the instrument charger. (MXF-1206, MXF-1241, MXF-1183, MXF-1095)

Other Tickets Addressed

MXF-977, MXF-1131, MXF-1289

Related Products

In addition to updating the Ventis firmware, to take advantage of the enhancements noted as items 2, 3, and 4 above; user must update the following items depending on whether they are using their Ventis monitors with a DS2 docking station or V-Cal calibration station. No updates beyond the Ventis firmware are required for these enhancements if user is using their Ventis monitors with an iNet DS docking station.

DS2 docking station users must update:

- DS2 docking station firmware to v9.2
- Docking Station Server (DSS) to v9.2
- Docking Station Server Admin Console (DSSAC) to v9.2

V-Cal calibration station users must update:

- Industrial Scientific Accessory Software (ISAS) to v9.3

Ventis Upgrade Methods

- iNet DS – This firmware upgrade can be completed on the iNet DS in approximately 8-10 minutes
- ISC Service Center – Please contact your local ISC Service Center for upgrade details

DS2 docking station firmware, Docking Station Server (DSS), and Docking Station Server Admin Console (DSSAC) Upgrade Methods

- Contact your local ISC Technical Service representative for upgrade assistance

v3.96 – released May 20, 2014

Upgrade recommendation: Not Recommended – Firmware upgrade is for manufacturing and not recommended or required for fielded units

What’s new in Version 3.96?
1. Accommodates new revision instrument microprocessor

The current revision of the microprocessor used in the Ventis MX4 has been discontinued and replaced by a new revision. A Ventis MX4 firmware update was required to accommodate this new revision microprocessor. This firmware update is compatible with the new revision microprocessor and is compatible with prior revision microprocessors. (MXF-979)

**Other Tickets Addressed**

No other tickets were addressed in this release.

**Related Products**

- Docking Stations – No impact.
- Desktop Software – No impact.

**Upgrade Methods**

- Firmware upgrade is for manufacturing and not recommended or required for fielded units.

**v3.90.02 – released July 18, 2013**

Upgrade recommendation – Recommended

**Enhancements**

1. Allow over-range LEL sensor to be reset by a button press rather than instrument restart

In Ventis firmware v3.8 and earlier, when the LEL sensor of the Ventis went into an over-range condition, the LEL sensor was automatically turned OFF to avoid sensor damage. The only way to turn the sensor back ON was to restart the monitor. With v3.9, users can now press the enter button (1 second press) to turn ON the LEL sensor. This will turn off the latched alarm indicators and after a warm-up period of approximately 30 seconds an LEL reading will display. Please note that the instrument may immediately alarm again if the environment did not change. With this new feature, restarting the instrument for an over-range LEL sensor is no longer required. (MXF-1071)

**Issues Addressed**

1. Update firmware to address 404 checksum errors

During the normal operation of the Ventis MX4 certain instrument parameter values are written to and read from the instrument memory. If the microprocessor is interrupted by another required function during a write, it is possible that the instrument parameters may be incorrectly recorded which could result in a 404 checksum error. Ventis firmware v3.9 addresses this issue and will minimize these potential 404 errors. (MXF-978)
2. Update firmware to address display cycling ON/OFF on instruments with deeply discharged battery

It has been found that deeply discharged lithium-ion batteries may cause the instrument to repeatedly reset and cycle the display ON and OFF. This has been primarily seen with Ventis monitors with the integral pump. Ventis firmware v3.9 addresses this issue. (MXF-1082)

3. Update firmware to address units going into Configuration mode

Using the 6-Unit V-Cal with a monitor equipped with less than four sensors and frequent/ intermittent contact between monitor and charging pins may cause the monitor to go into configuration mode.

Ventis firmware v3.9 addresses this issue. (MXF-1083)

4. Ventis with the new ‘Always On’ feature enabled does not always automatically turn ON when docked in the OFF position

Ventis firmware v3.7 introduced a new ‘Always On’ feature for the Ventis. This feature requires a passcode to turn the instrument OFF. It was discovered that when the instrument was turned OFF and then docked, the instrument was not always turning ON upon undocking, despite the ‘Always On’ feature being enabled. This issue has been addressed in v3.9 and the instrument will always turn ON upon undocking if the ‘Always On’ feature is enabled. (MXF-1085)

Upgrade Methods

- iNet DS – This firmware upgrade can be completed on the iNet DS in approximately 8-10 minutes
- ISC Service Center – Please contact your local ISC Service Center for upgrade details

v3.80.01 – released January 16, 2013

1. Update firmware to address O2 sensor bump failures on docking station

While bump testing a Ventis using a docking station, an instrument communication error can result in a failed bump test. In this instance, the docking station software will show a reading of 20.9% O2 and fail the bump test, but a subsequent forced bump test will pass. Ventis firmware v3.8 addresses the intermittent communication issue within the instrument.

v3.70.06 – released April 17, 2013
Ventis MX4 Firmware v3.70.06 includes:

1. Update firmware to add manual calibration and bump log

This firmware update allows the Ventis MX4 to store a log of up to 250 calibrations or bump tests that were performed manually. The stored data is then uploaded to iNet Control or DSSAC the next time the instrument is docked on either the iNet DS or DS2 docking station. This ensures that all the data is available in iNet Control or DSSAC should a manual calibration or bump test be required.

NOTE: This feature is only for manual calibrations and bump tests. Calibrations and bump tests performed using a V-Cal calibration station will not be uploaded to DSSAC or iNet Control upon docking the monitor on the iNet DS or DS2 docking station.

2. Update firmware to increase event log from 24 to 60 events

The Ventis MX4’s date- and time-stamped event log will record data should the instrument go into alarm. The Ventis was originally released with the ability to record 24 of these alarm events. This firmware update changes the quantity of recordable alarm events to 60.

3. Update firmware to add an Always On Option for the Ventis MX4

If the Always On Option is enabled the user cannot turn off the instrument without entering a security code.

NOTE: A security code other than 000 must be set for this feature to be enabled. If a user attempts to power off the unit while this feature is enabled, they will be prompted for the 3-digit security code to allow shutdown of the instrument.

4. Update firmware to allow calibration days to be viewed as Days Since Last Calibration or Days Until Next Calibration

This firmware update allows users the option to configure the calibration days to be viewed as Days Until Next Calibration in addition to the current Days Since Last Calibration.

5. Update firmware to allow both beep AND flash confidence indicators to be enabled

The Ventis MX4 currently allows the option of the confidence indicator to be a beep OR a flash. This firmware update allows users to configure the confidence indicator to be both a beep AND a flash.

6. Update firmware to minimize potential 420 and/or 422 error codes

420 and 422 error codes are indicative of a communication error between electrical components on the circuit board.
v3.60.04 – released September 10, 2012

1. Update firmware to address incompatibility with new Rev C microprocessor

Ventis v3.60.04 adds compatibility with the revision C microprocessor now provided by our vendor. The firmware is backwards compatible with the prior revision B microprocessor.

2. Update firmware to minimize potential 410 error codes

A 410 error code is indicative of Previous Shutdown Not Normal.

v3.6 – released February 23, 2012

Manufacturing and Service Note Only:

Ventis MX4 firmware v3.6 is designed to work only with the Revision B microprocessor used in the Ventis monitor.

Ventis MX4 Firmware v3.6 includes:

1. Update firmware to address potential issue with event log

The Ventis monitor has an event log that records the last 24 events. It was discovered that v3.5 was susceptible to the event log losing data in certain conditions. Firmware v3.6 eliminates the possibility of any events being lost during these conditions.

2. Update firmware to address connection issue seen in manufacturing

During the manufacturing of v3.5 Ventis instruments, intermittent IrDa connection issues resulted in delays in configuring instruments. This issue has been addressed in v3.6.

Note: This was only a manufacturing issue and is not an issue for any fielded instruments.

3. Update firmware to address potential pump fault issue

It was discovered that instruments built with v3.5 firmware could potentially stay in a pump fault alarm condition and not recover to the normal reading screen as designed. Firmware v3.6 addresses this potential issue.
Note: An extremely limited number of Ventis with pump units were built with firmware v3.5.

**v3.5 – released January 26, 2012**

Note:
Ventis MX4 firmware v3.4 was released to production on December 22nd, 2011. This firmware version (v3.4 only) was recently identified to have an issue related to temperature compensation. Ventis firmware v3.5 corrects this issue.

**Ventis MX4 Firmware v3.5 includes:**

1. Update firmware to address temperature compensation issue identified in Ventis firmware v3.4 only.

**v3.2 – released August 22, 2011**

Note:
Ventis MX4 firmware v3.1 was released to production but then retracted and the firmware version was downgraded to v3.0 in production. It was discovered that v3.1 appeared to cause the LEL sensors to sporadically go into overrange during Ventis assembly in production. This issue was seen exclusively in the Ventis with pump monitors. Firmware v3.20 has been released and addresses the four issues listed below that were fixed in v3.1, but it has additionally been tested to ensure that the LEL overrange issue introduced in v3.1 has been eliminated.

**Ventis MX4 Firmware v3.20 includes:**

Issues Fixed in v3.1 and available in v3.2

1. Update firmware to address an inaccuracy in the LEL autozeroing function
   
   Autozeroing function was incorrectly recording the autozero baseline as the normal baseline. The normal baseline should only update after a full standard zeroing is successfully completed, not an autozeroing. This firmware change fixes this issue.

   Note: This bug should not be causing inaccurate readings as there are two other checks before the normal baseline is referenced in the code.

2. Update firmware to address multiple data periods with the same number

   Instrument datalogs downloaded to ISAS were showing that several sessions had periods with the same number. Firmware was updated to ensure that the period numbers are properly incremented.
3. Update firmware to address numerous instances of Error 417 in the Ventis

Docking a Ventis in a Datalink or DS2 while the instrument is powered off will store an Error 417 in the instrument error log (Vibrating Motor error). Firmware was updated to significantly minimize this occurrence by changing the checks and resistance limits used in the code.

4. Update firmware to address Overrange LEL readings not being recorded as 100% LEL in the datalog

A Ventis LEL sensor in overrange is recording a reading of approximately 35% LEL in the instrument datalog instead of being correctly recorded as 100% LEL. This firmware change fixes this issue.

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v3.10 – released July 14, 2011

Issues Fixed
1. Update firmware to address an inaccuracy in the LEL autozeroing function

Autozeroing function was incorrectly recording the autozero baseline as the normal baseline. The normal baseline should only update after a full standard zeroing is successfully completed, not an autozeroing. This firmware change fixes this issue.

Note: This bug should not be causing inaccurate readings as there are two other checks before the normal baseline is referenced in the code.

2. Update firmware to address multiple data periods with the same number

Instrument datalogs downloaded to ISAS were showing that several sessions had periods with the same number. Firmware was updated to ensure that the period numbers are properly incremented.

3. Update firmware to address numerous instances of Error 417 in the Ventis

Docking a Ventis in a Datalink or DS2 while the instrument is powered off will store an Error 417 in the instrument error log (Vibrating Motor error). Firmware was updated to significantly minimize this occurrence by changing the checks and resistance limits used in the code.

4. Update firmware to address Overrange LEL readings not being recorded as 100% LEL in the datalog

A Ventis LEL sensor in overrange is recording a reading of approximately 35% LEL in the instrument datalog instead of being correctly recorded as 100% LEL. This firmware change fixes this issue.

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v1.1 – released May 3, 2011

Issues Fixed
1. Update firmware to acknowledge successful bump tests on the DS2
In the iQuad v1.0 firmware, if an instrument is successfully bump tested on the DS2, it will not update the last bump time for the sensor. The time will be updated correctly if the iQuad is bumped on an MX-Cal, V-Cal, or manually.

The iQuad firmware v1.1 addresses this issue so that DS2 bump tests are detected correctly by the instrument and the instrument updates the last bump time of the sensors accordingly.

2. Update firmware to ensure that an LEL sensor damaged from a drop is immediately indicated on the display.

Firmware was updated to incorporate similar checks as those used in the MX6, M40, iTX, and Ventis.