

**Product: MMU1600, MMU1600D, and MMU1600G**

Release Date: November 5, 2008

Scope: This bulletin applies to the dash 1 and dash 2 versions of the MMU-1600 series of monitors.

A dash 1 monitor (MMU1600) can be identified by having 12 option DIP switches and the RESET button is just above the DB9 Comm Port connector.

A dash 2 monitor (MMU1600D or MMU1600G) can be identified by the RESET button being above all of the field status LEDs.

Issue: When upgrading to 01.07.07 firmware, some user options may be unexpectedly enabled.

Symptom: When upgrading the monitor to 01.07.07 firmware, if the user selected Use Program Card for initial settings, the monitor may enable all front panel options.

Root Cause: Firmware 01.07.07 used a new format for storing data on the Program Card EEPROM. The monitor should have reformatted any Program Card not in the new format, before using any data stored on it. Since the record was just lengthened to add additional settings, these additional settings would have whatever value happened to be already saved on the card.

Operational Issues: The monitor would usually trip to flash with a CVM/WD fault after upgrading if this issue had occurred. After setting all settings back to their original values, the monitor would operate correctly. **The options that were enabled do not disable any normal fault monitoring so this issue will not cause an actual fault to be missed.**

Corrective Action: Upgrade to firmware version 01.07.08 or greater.

Issue: Dual Indication faults on Pedestrian Channels.

Symptom: When Dual Indication monitoring is enabled for pedestrian channels in Type 16 mode of operation, Dual Indication faults may occur during the transition from Pedestrian Clearance to solid Don't Walk.

Root Cause: Some controllers were found to have an issue when transitioning from Pedestrian Clearance to solid Don't Walk. The Pedestrian Clearance output (load switch yellow) was not turned off correctly at the end of the Pedestrian Clearance interval. This is not a monitor issue, but the Dual Indication fault time for a Yellow and a Red on at the same time was changed from 600ms to 800ms to help



customers deal with this controller issue as the Pedestrian Clearance output is not usually used.

Operational Issues: This is a controller issue. Until it is resolved, the agency would not have been able to enable Dual Indication monitoring for pedestrian channels without this adjustment.

Corrective Action: Upgrade to firmware version 01.07.08 or greater or Upgrade controller with firmware that no longer has this issue.

Issue: **Monitors fail SDLC testing using ATSI SLNK-3000 SDLC Port Tester adapter.**

Symptom: When testing a monitor using an ATSI SLNK-3000 SDLC Port Tester adapter, monitors may fail the test.

Root Cause: The SDLC port of the monitor was incorrectly configured for the clock signal polarity.

Operational Issues: The monitor would still operate correctly in a TS2 cabinet, but would not pass on the ATSI tester.

Corrective Action: Upgrade to firmware version 01.07.08 or greater.

Issue: **Short Yellow or Short Clearance faults after the Load Switch Flash bit was set and then cleared through the SDLC link.**

Symptom: If a controller sent a Load Switch Flash bit to the monitor, cycled to different phases and then cleared, the monitor would show a Short Yellow or Short Clearance fault.

Root Cause: The monitor did not clear all Short Yellow and Short Clearance timers on activation of the Load Switch Flash bit.

Operational Issues: Monitor would trip to the fault condition when the controller cleared the Load Switch Flash bit if the active phases were different from the phases active at the setting of the Load Switch Flash bit.

Corrective Action: Upgrade to firmware version 01.07.08 or greater.

Issue: **Intermittent Diagnostic Faults when Transitioning from Flash Operation to Normal Operation.**

Symptom: When the monitor transitions from the fault state to normal operation, a diagnostic fault may occur.

Root Cause: If the fault was cleared while the monitor was in the routine that prints the current fault on the display, the monitor would no longer be able to identify the fault it was about to print and have an error.



Operational Issues: Intermittent diagnostic faults that may occur regularly during power interruptions lasting more than 500 milliseconds.

Corrective Action: Upgrade to firmware version 01.07.08 or greater.

Feature: Added Configuration CRC Values

Purpose: The monitor will calculate a CRC (Cyclic Redundancy Check) value for configurations. This value can be used to ensure that a replacement monitor has been configured correctly. Simply record the current CRC of the monitor before replacing it. After replacing it and configuring it, compare its CRC to the recorded CRC. If the match, they are configured exactly the same.

User Interface: The CRC value can be displayed by entering the diagnostic display mode (press and hold the Reset button until the monitor beeps once). Then at the AC line voltage display, press and hold the Reset button until the monitor beeps twice. You will see a series of three screens. First, is the text "CRC". Followed by the first two digits of the CRC and then the last two digits with a lower case "h". The sequence then repeats.

Interactions: None

Implemented: Firmware version 01.07.08

Feature: Added Diagnostic Display mode to View IP Address

Purpose: Allow viewing of the IP address of a monitor even if the monitor does not have a text display.

User Interface: The IP Address can be displayed by entering the diagnostic display mode (press and hold the Reset button until the monitor beeps twice). You will see a series of five screens. First, is the text "IP". Followed by the digits of each of the four sections of the IP address. The sequence then repeats.

Interactions: None

Implemented: Firmware version 01.07.08

Feature: Added Field Check information to the Real Time & Latched field voltage display screens

Purpose: Provide additional information to the user to aid in fault troubleshooting.

User Interface: The field voltages displayed on the Real Time & Latch status screens will be displayed in inverse if the state of that input does not match the state desired by the controller.



Interactions: None
Implemented: Firmware version 01.07.08

Feature: **Added Disable of Yellow Field Check of a channel if it is configured as a pedestrian display channel in Type 16 mode of operation**

Purpose: Allows the Yellow driver portion of a pedestrian load switch to be used for purposes not controlled by the controller.

User Interface: Using RaeComM or the front panel user interface (MMU1600G only), identify the channels that you do not want to have the yellow driver field checked as pedestrian displays.

Interactions: If Flashing Don't Walk Monitoring is enabled, the red of any channel identified as a pedestrian display will have a flashing red checked for conflicts as if it were a walk.

Implemented: Firmware version 01.07.08

Feature: **Added a Configuration Wizard (MMU1600G Only)**

Purpose: Allows for quick configuration of the monitor for intersection using phasing based on the standard dual ring implementation.

User Interface: On the Fault Monitoring Menu the item "Wizard" has been added. Follow the on screen instructions or press HELP for more detailed instructions for each screen of the wizard.

Interactions: None

Implemented: Firmware version 01.07.08

Feature: **Remove Walk from Red Fail Test in Type 12 Operation**

Purpose: Allows Red Fail testing for just the vehicle displays (Red, Yellow, and Green) when operating in Type 12 mode. This allows the monitor to identify a dark display condition for the vehicle display even though a walk may be active.

User Interface: On the Config Settings Menu the item "Ped Monitoring" has replaced "Flashing DW". The per channel settings are now identified as "Channels with Ped Displays". When operating in Type 12 mode, any channel marked as a channel with a pedestrian display will have its walk display removed from the red fail test for that channel.

Interactions: If Flashing Don't Walk Monitoring is enabled, the red of any channel identified as a pedestrian display will have a flashing red checked for conflicts as if it were a walk. The Flashing Don't Walk



Monitoring feature should never be used in Type 12 operations as the Don't Walk displays are not connected to the monitor.

Implemented: Firmware version 01.07.08

Feature: **Added Short Yellow and Short Clearance checks for FYA displays**

Purpose: Allows a Flashing Yellow Arrow (FYA) to be monitored for Short Yellow and Short Clearance faults. Since the FYA display is in a separate channel from the solid yellow arrow that is used to terminate it, special logic was added to the monitor to correctly monitor the clearance of the FYA display.

User Interface: None

Interactions: None

Implemented: Firmware version 01.07.08