

**Product: 2018-LED**

Release Date: January 24, 2006

Scope: This bulletin applies only to the LED version of the 2018.

Issue 1: Diagnostic Error During Boot Corrected with Reset

Symptom: Some diagnostic faults during the boot process could be cleared by pressing the front panel reset button even though the fault could still exist.

Root Cause: Not all hardware diagnostic tests were performed after a reset even though the faults were cleared.

Operational Issues: If the monitor had a hardware diagnostic failure at boot and the user pressed the front panel reset, the monitor could return to normal operation with a hardware fault. The tests that were not rerun were Front Panel LED shift registers, Program Card Reader shift registers, and PCB DIP Switch shift registers. If the Front Panel LED was the fault, the monitor will still identify faults correctly but may have invalid displays. If the Program Card Reader or PCB DIP Switch was the fault, the monitor will still identify faults correctly but may show that it has a pending configuration change due to the incorrect reading of the Program Card or PCB Dip Switches.

Corrective Action: Upgrade to 2018 Firmware version 1.2.0 or greater.

Issue 2: Yellow Disable Jumpers do not Function as Expected

Symptom: After installing Yellow Disable jumpers for any channels, the Yellows still show up in conflicts.

Root Cause: There was a misinterpretation of the specification for how the Yellow Disable jumpers should function. This resulted in the Yellow Disable jumpers being implemented the same way that Minimum Yellow Change Disable jumpers are implemented in NEMA monitors.

Operational Issues: It was impossible to remove a yellow from the conflict test. There was no safety issue as the NEMA implementation is more restrictive than the 210 implementation

Corrective Action: Upgrade to 2018 Firmware version 1.2.0 or greater.



Issue 3: Power Up with Reset Pressed in 2010 Mode of Operation

Symptom: Powering up the monitor with the front panel reset switch pressed did not bypass the need to have the watchdog input change states five times before coming out of flash.

Root Cause: Minimum flash time was bypassed on power up with a front panel reset, but not the external watchdog requirements.

Operational Issues: Worse case, would cause the intersection to stay in flash for an additional 5 seconds on power up with the front panel reset switch pressed. With a typical 10Hz watchdog input, the delay would be 250 milliseconds.

Corrective Action: Upgrade to 2018 Firmware version 1.2.0 or greater.

Issue 4: AC Power Thresholds in 210 Mode of Operation

Symptom: Monitor always used the 2010 voltages and timings for determining valid and invalid power.

Root Cause: This was by design in the original firmware, as it could not support different power thresholds.

Operational Issues: Monitor always used the 2010 thresholds, which are more restrictive than the 210 thresholds.

Corrective Action: Upgrade to 2018 Firmware version 1.2.0 or greater.

Issue 5: Red Enable Fault

Symptom: With the Force Red Enable (RED EN) jumper installed, the monitor would have a red fail fault if the Red Enable input were no longer active. The intent of this feature was to require the user to have the Red Interface cable plugged in before the intersection will operate normally. The cable can be installed and not have the Red Enable input be active.

Root Cause: This worked as per the original design specification. The feature was changed to include the reds of channels 1 through 16. If all of the reds are off and the Red Enable input is not active, we can then assume that the Red Interface cable is not plugged in.

Operational Issues: New mode of operation allows normal use of the Red Enable input while still requiring that the Red Interface cable be plugged in.

Corrective Action: Upgrade to 2018 Firmware version 1.2.0 or greater.

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Feature 1: Added Special Function 2 Enable

Purpose: The Special Function 2 input is now defaulted to the disabled condition. The user must now specifically enable the Special Function 2 input. Many agencies do not use the Special Function 2 input and want a way to disable it.

User Interface: The RaeComM windows software is used to change the state of the Special Function 2 Enable. It is located in Monitor Configuration / Electronic Options / Software Options.

Interactions: Red Fail testing is disabled while Special Function 2 is active. The active state is determined by the setting of the SF2 INV Option DIP switch on the PCB. If it is OFF, an RMS voltage of greater than 70V will be seen as active, If it is ON, an RMS voltage of less than 50V will be seen as active.

Implemented: 2018 Firmware version 1.2.0

Feature 2: Added Viewing of Programming Card Permissives

Purpose: Allow the user to view the permissives that the monitor is currently configured to use. The user will be able to confirm that there are no bad diodes on the programming card and that the permissives on the programming card are as intended.

User Interface: The viewing of the permissives is accomplished through the Diagnostic Display mode. The Diagnostic Display mode is entered by pressing and holding the front panel reset switch for between 1.25 seconds and 3 seconds (the buzzer will chirp once). Then press the front panel reset switch one time so that the display shows "C1". Now press and hold the front panel reset switch for 3 seconds to 5 seconds (the buzzer will chirp two times). The display will now show "P1" indicating that you are now viewing the permissives for channel 1. Pressing the front panel reset switch will advance the channel being displayed, rolling over at the last channel (16 or 18 depending on the program card installed). The green, yellow, and red LEDs for all permissive channels will be on solid. The channel being displayed will have the green, yellow, and red LEDs flashing. Press and hold the front panel reset switch for 3 seconds to 5 seconds (the buzzer will chirp two times) to exit the permissive display mode and return to the "C1" display.

Interactions: None

Implemented: 2018 Firmware version 1.2.0

**Feature 3: Added Viewing of Co-Channel Childs**

Purpose: Allow the user to view the Co-Channel Child programming that the monitor is currently configured to use. The user will be able to confirm that the Co-Channels are programmed as intended.

User Interface: The viewing of the Co-Channel Childs is accomplished through the Diagnostic Display mode. The Diagnostic Display mode is entered by pressing and holding the front panel reset switch for between 1.25 seconds and 3 seconds (the buzzer will chirp once). Then press the front panel reset switch twice so that the display shows "C2". Now press and hold the front panel reset switch for 3 seconds to 5 seconds (the buzzer will chirp two times). The display will now show "c1" indicating that you are now viewing the Co-Channel Childs for channel 1. Pressing the front panel reset switch will advance the channel being displayed, rolling over at the last channel (16 or 18 depending on the program card installed). The green LED for any active child will be on. If the Co-Channel Childs Include Yellow is active then the yellow will be on as well. The channel being displayed will have the green, yellow, and red LEDs flashing. Press and hold the front panel reset switch for 3 seconds to 5 seconds (the buzzer will chirp two times) to exit the permissive display mode and return to the "C2" display.

Interactions: None

Implemented: 2018 Firmware version 1.2.0

Feature 3: Setting to Default Baud Rate

Purpose: Allow the user to force the monitor to communicate at a known baud rate.

User Interface: Press and hold the front panel reset switch for 10 seconds (the buzzer will chirp ten times). At this point the communications settings to talk to the monitor are a baud rate of 57,600, no parity, 8 data bits, and 1 stop bit.

Interactions: None

Implemented: 2018 Firmware version 1.2.0



Feature 3: Display of a Configuration Fault

- Purpose:** Since there is not a separate LED for a configuration fault, the fault must be displayed on one of the existing fault LEDs.
- User Interface:** The PC AJAR fault LED will flash at a 4Hz rate if the fault is a configuration fault.
- Interactions:** None
- Implemented:** 2018 Firmware version 1.2.0