



3000/E Controller Firmware v3.6.3

In response to issues in the v3.6.2 firmware release, Quixote Traffic is now releasing Version 3.6.3 firmware for the 3000 and 3000E traffic controllers. This release includes all of the new overlap, double-clearing overlap, and preemption improvements of the v3.6.2 firmware, with the addition of repairs to several issues that existed in that firmware.

Product..... **Firmware for 3000 and 3000E Traffic Controllers**
Version **Version 3.6.3**
Release Date **1/13/06**

Product Compatibility

This firmware is designated part number 8216A Version 3.6.3, and is released for use in all field and production 3000 and 3000E Traffic Controllers that have been designated NEMA TS 2 units, or TS 2/NTCIP units. It should not be installed in units that communicate via Protocol-90. It can be used to update earlier versions of series 8216A firmware and also series 5921 firmware.



Note If this update is used to replace 5921 firmware, the controller will no longer be compatible with the Smartways software. Also, be aware that an update from the 5921 firmware requires that all Special and Restricted Menu settings be cleared before the update is applied.

Full compatibility with this release requires version 2.6.1 or higher of **CLMATS**. The firmware will work with version 2.6 of CLMATS, however the new comm port setup values for RTS>CTS timing can be overwritten by an upload and download operation from CLMATS v2.6. The firmware should not be used with versions of CLMATS older than v2.6. The firmware is not compatible with **Smartways**®, nor does it support a 3000E controller that is operating under a 3800EL Master controller in 7 bit mode.

Delivery Methods

This firmware can be delivered to the controller in one of two ways: either as two binary files that can be burned to the controller's EPROM memory chips, or as a single binary file that can be loaded into Flash memory via the controller's Port 2 serial port. This latter option is only available on 3000E controllers that are designated 'Flash Memory Enabled'.

If you are using the first method, i.e. updating EPROM chips that will be placed into your 3000 or 3000E controller, the proper checksums for the two binary files are listed in **Table 1**.

Table 1 – Checksums and file names for v3.6.3 TS-2 3000 and 3000E firmware (Build 371)

EPROM	Checksum value (hex)	File	Label for EPROM
0	CD25	b371-0.bin	'3.6.3 EPROM 0'
1	4E7B	b371-1.bin	'3.6.3 EPROM 1'

Table 2 – Filename of firmware file to install v3.6.3 on flash-able TS-2 3000 and 3000E controllers

Firmware	File name
3.6.3	8216A 3.6.3 build 371.pfw

The process to update a controller to a new firmware is described in detail in Chapter 2 of the 3000 Series Operating Manual (p/n 8204C, rev 3 or higher.)

Issues Addressed in this Release

Table 3 — Issues addressed in this release

Issue	Resolution	Issue ID (ECR#)
The pedestrian permissive window for coordinated phases was not closing correctly when Ped Override Mode was used and the ped time was greater than the phase allocation and a Not PED Overlap is used.	The root of the problem was in the coordinator, rather than the overlap code. A small change was made to the ped permissive calculation in the coordinated phases to correct these problems.	1396, 2004
Some half-duplex narrow band radio systems used as communications for 3000E controllers stopped operating with the v3.6 firmware.	This was related to the RTS/CTS configuration of the port. This setting now lets the operator fine tune the operation of the port to support these radios.	1454
Preemption limited cycle coordination.	The firmware was modified to allow coordination to run during Cyclic intervals. When a preempt call occurs, the coordinator is set Free. When it gets to a cyclic interval, it transitions to coordination.	1489
Not Ped Overlap in Yellow with Walk active.	Setup: OL A = 2, 6, not ped = 2. Rest in 6 green by itself with OL A green, then place a ped 2 call, with the result that Phase 2 goes green/walk and OL A yellow. The walk should not turn on until OL A is red. The walk now does not come on until the overlap is red. This is now fixed.	1850
Not clearing active overrides. The controller no longer responded to pressing the one (1) button to clear Active Circuit Overrides.	The alternate method to clear the Active Overrides is to navigate to 3->2->9->1-> Toggle Central Override, and then to press ENTER. However, the capability to press 1 on the status screens to clear active circuit overrides has been added back to the firmware.	1861
Programmed Max times were not being obeyed.	The code that determines the max time was corrected. The operation of the Max timer has been tested and verified.	1888
Pedestrian detector assignments were not stored when enter was pressed. However, it worked correctly if the cursor keys were used to load the data.	This has been corrected so that values are stored when either the enter key or the cursor keys are used to 'accept' the new value.	1907
The preemption setting "Use interval data for overlaps" would not work when set to No.	The logic to apply this database parameter was incomplete. This has been corrected.	1910
A ring stalled in red when the controller was cycling.	This was caused by an error in the function that stops a ring in red. The ring is supposed to be stopped in red if a conflicting overlap is "on". This function was corrected to prevent unnecessary stalling in red.	1911
Fast Flash was not available during preemption.	The firmware was modified so that it works this way: Fast Flash always works unless a Flash Plan is applied to that phase and the phase's value is not "normal". Note that it is not possible to Fast Flash during normal operation and go steady during preemption. It is possible to use overlaps only for preemption and apply fast flash.	1912
The version 3.6.2 firmware was slow to coordinate on a hardwire interconnected system that didn't use interrupter pulses. (It should have coordinated on the first sync pulse.)	The timer used for the receipt of pulses was not accurate enough. Because of this, it could miss a sync pulse. When there were no interrupter pulses, the probability of missing a pulse increased and the adverse effects are magnified as evidenced by the slow syncing. A more accurate timer is now used to track these pulses.	1999
Overlap Greens were not available in a preemption run's "Entry Options and Min Times". The controller could not terminate the phase immediately if the associated overlap was timing its green interval.	The original intent was to use the "preempt entry green time" for the phases and overlaps. However, there was a problem with the implementation of this. (See ECR1910.) The overlaps now use the preemption entry green time if they are timing green (but not double-clearing green.)	2000
The TOD Master Cycle Timer zeroed at 18:12:16 every day	The parameter holding the master cycle timer value was too small, and was thus rolling over before the end of the reference period. This has been corrected.	2003
The Time Clock was drifting back two seconds after the controller's power was cycled.	The problem was due to the resolution of the real-time clock (RTC) versus the time as derived from the 60Hz line frequency. The RTC resolution is in whole seconds and the time of day derived from the 60Hz signal is in tenths of seconds. When powering down, the time is written to the RTC. If the next second is about to roll over when the write occurs, the RTC can lose up to 0.9 seconds. When powering up, the same thing can occur when doing the "RTC read" operation. The fix was to not read or write to the RTC until the seconds rolled over. This fix was tested 50 times and the clock did not drift.	2005
Preemption flash plans were working only with phases. The entries for peds, overlaps, ped overlaps, and preemption outputs were not working.	There are five flash masks for the five entries for a flash plan: phase, ped, o/l, ped o/l, preempt output. The phase flash mask was inadvertently being applied to all five of these parameters. This has been corrected.	2057
Numerous problems were encountered with keyboard selection of either restart or Diagnostics mode. The controller hung, terminated only one ring, wouldn't wait for ped overlaps to finish timing before dropping CVM or restarting, etc.	This was fixed by using the flash transition machine that drives the controller into UCF/Soft Flash to drive the controller to the all-red state, and then perform the Restart or enter Diagnostic Mode.	2058
A change was requested on how multiple preemptions are serviced when one of them has an assigned delay.	The firmware was modified so that a preemption with a timing delay does not hinder service to subsequent preemption calls for runs that do not have a timing delay. This is true even if the preemption with the delay has a higher priority setting.	2083
In was detected in beta testing of the v3.6.3 firmware that when the controller was programmed to start in Red for X number of seconds, this starting interval was being skipped.	'All Red' startup intervals are now being handled correctly at startup.	2100

Additional Guidance on the 3000/E Traffic Controllers

Additional Documentation

These documents provide useful information about 3000 Series controllers and other products often used along with them:

Table 4 – Additional Documentation about 3000 Series traffic controllers

Document	Part Number
<i>3000 Series Operating Manual</i>	8204C
<i>3000 Series TS1 Firmware (8216B) Release Notes</i>	99-331
<i>3000 Series Protocol-90 Firmware (8216F) Release Notes</i>	99-371
<i>CLMATS Installation Manual</i>	81-858
<i>CLMATS Operating Manual</i>	81-883
<i>CLMATS Release Notes</i>	99-275
<i>CLMATS Preemption Management Module Release Notes</i>	99-365
<i>Double Diamond MMU Operating Manual</i>	8314B
<i>M3000 Operating Manual</i>	5928
<i>M3000 Firmware Release Notes</i>	99-329
<i>Tech note: Modem Setup Instructions for UTC Devices</i>	99-385

Additional information is also available at the Quixote Traffic website: <http://www.quixtraffic.com/>.

Technical Support

This contact information will connect you with the technical support staff of Quixote Traffic Corporation, should you require additional help concerning 3000/E traffic controllers.

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