

Sneak Preview: Siemens Controller Firmware X.58

Siemens Traffic Controller firmware 3.58 ad 4.58 will be available in May of 2017. Here are some of the new features.

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Sneak Preview – Siemens Firmware X.58

Siemens has defined a firm controller firmware update schedule. A new firmware set will be released each spring. A maintenance release for the new firmware will be released each quarter.

The next firmware release – X.58 (3.58 [ECOM version] and 4.58 [NTCIP version]) – will be available in May of 2017.

The following are some of the benefits of the Siemens X.58 Firmware Set?

1. Emergency Vehicle Preemption – Coordinated Operation during Preemption

Consider a railroad preemption scenario. The train is sitting on the tracks for a long time. With X.58 firmware, the traffic signal returns to coordinated operation during the Dwell/Cycle Interval of preemption with the train still present. This will be a substantial improvement in applications involving a railroad track running parallel to a busy arterial.

2. Emergency Vehicle Preemption – Get Back to Coordination Plan faster

Do you have a critical intersection that is regularly interrupted by emergency vehicle preemption? X.58 firmware will maintain the traffic signal coordination timer operating continually in the background, rather than turned off as the coordination timer had been in earlier firmware versions. X.58 firmware will exit from the preemption routine directly into the active coordination phase window running in the background. Prior to X.58, the intersection typically took four to five phase cycles to get back into step with the coordination plan (typically ten minutes). With X.58, the preempt routine can exit directly to the open, active coordination window (immediate return to the active phase window of the coordination plan). When the preempt demand exits – bam! – Immediately back to running the coordination plan for the intersection.

3. Service Emergency Vehicles more quickly

Prior to servicing the emergency vehicle preemption, do you require that the active pedestrian flashing Don't Walk clear normally or in part? In X.58 firmware we have the capability of choosing to push the pedestrian clearance of the exiting signal display through all or a portion of the vehicle

clearance times (yellow and all red). Thus we can rotate the green more quickly to the preemption vehicle and still maintain the minimum clearances we believe favor safe transitions.

4. Improve Side Street Operation in evening plans

Does your 8-phase intersection maintain a coordinated plan in the evening hours? A common concern is when a lone vehicle enters the left turn lane on the side road and it is required to wait an extended period of time to get a green light. What may have happened is that the controller closed the left turn green window just before the vehicle arrived. A green window remains open for the side road through, but no longer for the side road left turn phase. X.58 firmware adds the capability for calling any phase combination from any detector channel. You now have the ability for the side road protected-permissive left turn detector channel to call to the through phase and the left turn phase at the same time. Give that night-time driver a faster green ball to reduce a potential complaint.

5. Crossing Guard Walk and Flashing Don't Walk Timing

Do you have an intersection where a crossing guard helps children cross? You now have the option to program two phase banks in the controller. Program Phase Bank 1 to include normal pedestrian timing that will work well for one or two pedestrians demanding a Walk signal. Program Phase Bank 2 to include special pedestrian timing – longer crossing times called by time-of-day command that allow the crossing guard extra time to safely cross the children.

6. Substitute the Siemens Traffic Signal Controller for any NEMA controller – Even with FYA

When Flashing Yellow Arrow control was authorized in the MUTCD, each controller manufacturer defined their own input/output control for FYA support in their traffic signal controller cabinet. In X.58 firmware, Siemens has made their controller input/output file so flexible that the Siemens controller can now be programmed to support any manufacturer's cabinet setup –including their FYA support.

7. Locking Detectors on Non-Locking Phases – Bike Detectors

Some of our customers have been asking for Locking Bike Detectors on non-locking detection phases. The X.58 firmware will now allow the user to define any of the controller's 80 detector channels as a locking detector. So the user can designate a phase as non-locking and overlay any

number of detector channels onto a phase. Some of those detector channels may be locking while others are non-locking. The choice is yours.

8. Slick Detector Diagnostics

The Siemens controller has long had detector diagnostics – the controller monitors detector inputs and qualifies them as valid or failed. Siemens has already had two detector diagnostics plans – a daytime plan and a night time plan. Many customers expressed concern that the response to a detector that was listed as failed – constant detector call – was too harsh and created unnecessary maintenance responses. Therefore customers did not use detector diagnostics very often. In X.58, the detector diagnostics fail response is a user decision - from Max call to no call for a failed detector. In between, the user can define the form of controller-generated call to the phase (for how many seconds during the green phase?). So detector diagnostics should be something the customer always uses! Monitor detector health; respond at the level you deem helpful for a failed detector condition.

New Features of SEPAC X.58

Here is a list of some of the new features available in X.58.

1. Phase Data

- a. Adds a Phase Bank Copy Function
- b. Places Dynamic Max into Phase Data Menu – easy to use
- c. Large changes in detector section
 - i. All choices for a detector channel placed onto a single screen
 - ii. Each detector channel can call to any and all phases 1 to 16 at the same time.
 - iii. Locking detectors
 - 1. User can specify a non-locking phase, as usual
 - 2. User can then pick individual detector channels that place locking calls to non-locking phases.
 - iv. Detector Diagnostics Revised.
 - 1. User defines the level of the constant call for a failed detector
 - a. Constant call – as original
 - b. No call to a failed detector
 - c. Call for a defined number of seconds while phase is green
 - v. Additional Queue Detector option
 - vi. Define detector channels that contribute to Added Initial for the phase

2. Unit Data

- a. Revised Overlaps
 - i. Now easier to define
 - 1. Flashing Yellow Arrow overlap
 - 2. Standard overlap

- 3. Pedestrian overlap
- 4. Trailing overlap
- b. Flexible Channel Output Mapping
 - i. Can assign outputs from phases, overlap, etc. to any loadswitch pin on the backpanel
 - ii. Works with any NEMA controller backpanel
 - iii. You can replace any manufacturer's controller with the SIEMENS controller – even FYA formats which are manufacturer specific.
- c. Peer-to-Peer input/response control
 - i. Define if-then statements
 - ii. If this happens at controller A, then this occurs at controller B
- d. Unit Data Banks
 - i. Similar to Phase Banks in Phase data
 - ii. User can swap out Unit data sets on the fly by time-base or peer-to-peer control
 - iii. Allows changing peer-to-peer plan by time of day or active conditions

3. Preemption Data

- a. Adds field for user to define any one of 6 preemption detectors and 80 vehicle detector channels to call the preempt routine
- b. Adds option to define how the flashing Don't Walk of the select interval exits for each preemption routine – gets to preemption vehicle earlier.
 - i. FDW ends at end of green
 - ii. At end of yellow
 - iii. At end of red
 - iv. With minimum MUTCD Buffer interval
- c. Coordinator stays alive during preemption
 - i. Faster return to coordinated operation
 - ii. Begin coordination reorganization immediately upon preempt exit
- d. If Dwell interval operates as CYCLE
 - i. Controller operates in the active coordination plan during CYCLE
 - ii. Controller still ignores the phases the user excludes during the Dwell/Cycle interval
 - iii. An arterial parallel to a railroad track can operate normally while a train parks, blocking the track leg.

- e. Exit to Coordination plan – no transition needed.
 - i. User must specify no exit phases for the preemption Exit interval.
 - ii. Upon preemption call ending, controller chooses the next open coordination window. Controller chooses those phases next.
- f. Left turn Trap Protection for Five-section Lefts and FYA lefts during Preemption interval transition. [SRMOD feature]
- g. Increases the number of preemption routines from 6 to 12
- h. Re-orders preemption routines so preempt # is menu # for easier programming

4. Priority data

- a. 4 Priority Banks activated by time of day or peer-to-peer control
- b. Increases the number of preemption routines from 6 to 24

Conclusion

X.58 includes many new features newest Siemens firmware set. The new firmware will operate on existing M52 controllers and Siemens M60 controller firmware.

If you have interest in utilizing the new firmware for an existing controller, MoboTrex can quote you small volume pricing. If you would want to upgrade all of your existing controllers, Siemens offers annual service agreements to cover firmware upgrades for all traffic signal controllers in your entire agency at a reduced unit cost. We invite you to call your regional sales rep or the Davenport office @ (563) 323-0009.

SEPAC / SEMARC 180 Services

- Annual software maintenance price to ensure your controller firmware is up to date with all latest releases for maintenance, updates and upgrades.
- Access to the most up-to-date version of controller firmware at all times, with one annual fee.
- Prorated based on the number of controllers / intersections in your agency.



SEPAC

Siemens 360 Software Services

- Package combining TACTICS software support service and SEPAC 180 / SEMARC 180 software support services.
- One annual fee to receive SEPAC updates and upgrades and TACTICS updates and upgrades to ensure latest versions as they are released.
- No more issues of incompatibility.



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