ECcom
Signal Monitor Communication Software
- Overview -

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Eberle Design Inc.
3510 E Atlanta Avenue
Phoenix, AZ  85040

| | |
|---|---|
| Telephone | 480-968-6407 |
| Fax | 602-437-1996 |
| e-mail | support@EDItraffic.com |
| web site | www.EDItraffic.com |

| | |
|---|---|
| Scott Evans | Chief Technology Officer |
| Jon Muilenberg | National Sales Manager |

## ECcom Overview

- The signal monitor has three important tasks to perform:
  - *Detect* improper signals / voltages
  - *Display* cabinet status and fault status
  - *Diagnose* with accurate information

- The ECcom software brings state-of-the-art advancements to the tasks of displaying and diagnosing malfunction events.
- Maintenance incident documentation is easy, complete, and accurate.

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Signal Monitors have taken on more responsibilities in their job to help ensure safe and reliable operation of traffic control cabinets. Not only is detecting a malfunction critical, but assisting the signal technician in diagnosing the failure is also equally important. A technician should have a high confidence level that the repair made was actually the necessary fix to the problem to eliminate the possibility of a call-back.

With the advanced capabilities of the EDI signal monitor products including full RMS voltage reporting and event logging, a wealth of information is stored in the monitor that can assist the technician in diagnosing and documenting the cabinet problem.

A full complement of event logging capabilities as well as the Signal Sequnece History display helps present and document accurate status information about the events occurring at the intersection. This information is vital to the technician in repairing a cabinet malfunction and ensuring that the repair corrected the real cause of the malfunction.

Because of the high costs of malfunction maintenance calls and the increased exposure to liability, trouble shooting exercises must be done quickly and effectively. Traffic is not moving efficiently while the intersection is in flash.

# ECcom Overview

- ECcom interfaces a PC to the Signal Monitor and uses the PC display to show real time status of field signals and cabinet control signals as well as historical event data.
- EDI Signal Monitors with ECcom port:
  - MMU2-16LE (ip) *SmartMonitor*
  - MMU-16LE (ip) *SmartMonitor*
  - MMU-16E
  - SSM-LE (ip)
  - NSM-E
  - 2010ECL (ip)
  - 2018ECL (ip)
  - 2018KCL (ip)
  - 210ECL
  - ITS CMU-212 (ip)
  - ATC CMUip-2212
- EIA-232 or Ethernet Port

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The ECcom software runs on any Microsoft Windows XP, 7, or 8 based personal computer. It provides a full windowed graphical user interface (GUI) to the signal monitor and gives a user the capability to retrieve, display, store, and print real-time status and historical data from the monitor.

No matter what cabinet configuration you are using, there is an EDI signal monitor for the job that provides the ECcom software interface.

> NEMA TS-2:   MMU2-16LE & MMU-16LE SmartMonitor, MMU-16E
>
> NEMA TS-1:  SSM-LE
>
> 33X with 2070 ATC: 2010ECL, 2018ECL, 2018KCL
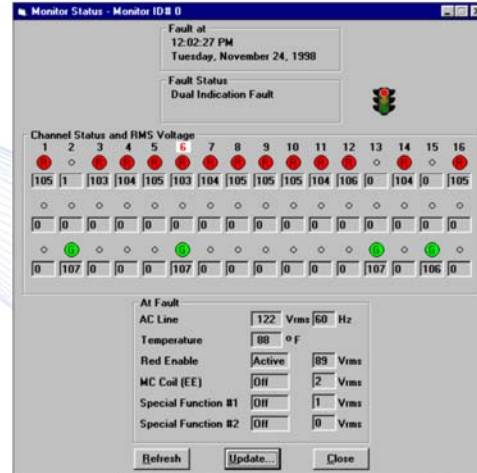>
> 33X with 170: 2010ECL, 2018ECL, 2018KCL or 210ECL
>
> ITS Cabinet:  CMU-212
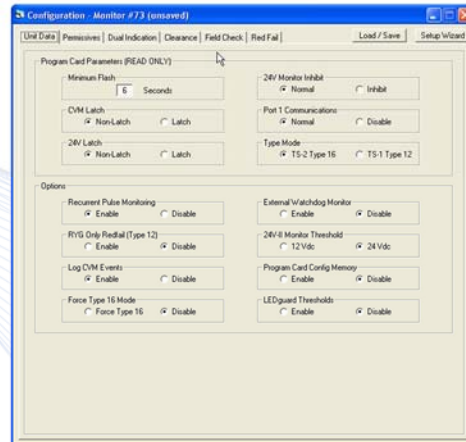>
> ATC Cabinet: CMUip-2212-HV, CMUip-2212-LV

View a display that graphically displays signal On/Off states as well as the RMS voltage at each field terminal and at the AC Line input. It is like having a 48+ channel digital voltmeter connected to the cabinet 24 hours a day, 365 days a year.

When a fault is detected the real-time status is latched as a snap-shot of the cabinet status at the time the fault was detected. The fault type is displayed with the time and date of the event. Channels involved with the fault are also directly identified.

Sometimes it is not good enough to determine the monitor programming visually by checking the Program Card and front panel switches. The Monitor Configuration display will show the complete programming of the monitor including all Program Card parameters as well as switches and internal option jumpers.
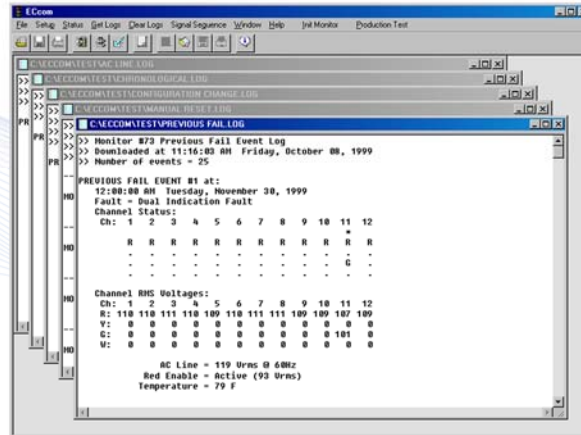
The Configuration Check Value is a mathematically produced number that is based on all programming parameters of the Program Card, front panel switches, and internal option jumpers.

If the Configuration Check Value displayed by the monitor does not compare with a known value for that cabinet, the monitor is not programmed exactly as desired.

If a monitor is swapped out for repair or test, a quick check of the Configuration Check Value can provide a high confidence that the replacement unit is identically programmed.

*Diagnose* with Accurate Information

- Four Event Log Types
  - Previous Failures (25)
  - Monitor Reset Events (25)
  - AC Line Events (40)
  - Configuration Change Events (10)
- Chronological sort of event types by time and date

It is important to use the tools available to the technician to find the cause of a malfunctioning cabinet quickly, and then repair the problem with a high level of confidence that the true cause was found. Call-backs for repeated problems only multiply the effect of the problem. Besides being a source of detailed and accurate information about the state of the intersection at the time of the fault, the event logs can also help provide accurate documentation about the malfunction.

Four Event Log Types (100 records total)

The Previous Failure log contains a record of the field signal voltages, control signal voltages, and cabinet temperature, all time-stamped with the time and date of the event.

The Monitor Reset log time-stamps when the intersection was cleared from the fault flash by a monitor reset. The entry to flash and exit from flash are now documented.
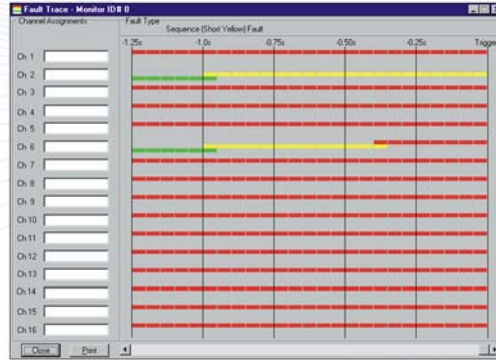
The AC Line log records any event on the AC Line which causes the monitor to transfer to flashing operation (power-down, short interrupt, or brownout), and records the actual line voltage. This helps in trouble shooting intermittent cabinet problems related to power service problems.

The Configuration Change log records any change to the monitor programming including the conflict matrix, switches, or jumper selections.

All events are then sorted according to time and date to view them in the real time line they occurred.

Ever wonder what the signals did prior to a fault?

Did the controller execute an improper sequence to get a clearance problem or did a field malfunction cause it?

The Signal Sequence History feature of ECcom will show all field signal states graphically for as much as 30 seconds prior to the monitor trigger point with 50 millisecond resolution.

This information is critical to diagnose signal sequence faults and intermittent flickering or blinking of field signals resulting in faults.

The example above shows a short amber clearance (600 ms) on channel 6 producing the fault.

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Your inputs and comments are highly appreciated.