

# 2010ECL

## Type 170 / 179 / 2070 Signal Monitor

### INTRODUCING A NEW STANDARD OF SAFETY AND DIAGNOSTIC CAPABILITIES IN TYPE 170 / 2070 ENHANCED SIGNAL MONITORS

The EDI model 2010ECL Signal Monitor is designed to upgrade the capabilities of the basic 210 monitor used in Type 170 / 179 Output Files. The unit is fully compatible with the requirements of the 170, 179, and 2070 Controller Units. The 2010ECL Signal Monitor utilizes enhanced monitoring functions to increase cabinet fault coverage, providing additional assurance that cabinet equipment malfunctions will be detected and diagnosed properly.

#### Model Options:

2010ECL	16 channel capability with EIA-232 Port
2010ECLip	16 channel capability with 10/100 Ethernet Port
2018ECL	18 channel capability with EIA-232 Port
2018ECLip	18 channel capability with 10/100 Ethernet Port
2018KCL	18 channel capability with Datakey Programming



### 2010ECL FEATURES

#### Enhanced 210 Monitoring Functions:

The 2010ECL meets all requirements of the Caltrans "TSCE Specifications 1/89". Basic fault coverage includes Conflict, 24Vdc, and CU Watchdog monitoring. Red Monitoring senses the absence of signals on a channel. Dual Indication Monitoring detects simultaneous active signals on a channel. Clearance Monitoring ensures sequencing of signals with a proper minimum yellow clearance interval. AC Line Monitoring detects and responds to low AC Line voltages as well as interruptions with a minimum flash interval.

#### Event Logging:

The 2010ECL monitor maintains a 100 record nonvolatile event log which contains records of fault events showing the complete intersection status as well as AC Line events, configuration changes, monitor resets, cabinet temperature and true RMS voltages. A real time clock time stamps each log event with time and date.

#### RYG Full Intersection Display:

The Full Intersection display uses Red, Yellow, and Green LEDs to show active colors of all channel inputs simultaneously for real-time intersection status.

#### EDI RMS-Engine™:

A DSP coprocessor converts ac input measurements to True RMS voltages, virtually eliminating false sensing due to changes in frequency, phase, or sine wave distortion.

#### Recurrent Pulse Detection:

Recurrent Pulse Detection works in conjunction with the RMS-Engine to detect faults that are pulsing or intermittent in nature.

#### LEDguard™:

This EDI innovative signal thresholding technique is used to increase the level of monitoring protection when using LED based signal heads.

#### Communications to Laptop PC or Remote Traffic Management Center:

An EIA-232 or optional 10/100Mbps Ethernet port provides access by a local PC or remote TMC running ECom™ Windows based software for status, event log review, and archival.

#### Signal Sequence History Display:

Five Signal Sequence History logs stored in nonvolatile memory each graphically display 30 seconds of signal status prior to each fault event. The resulting display eases diagnosing of intermittent and transient faults by viewing the exact signal states that the monitor sensed.

#### Configuration Monitor:

Detects potentially unsafe programming changes and Red Interface cable problems.

#### Flashing Yellow Arrow PPLT:

Two operational modes are built-in for support of the MUTCD Flashing Yellow Arrow PPLT operation depending on the number of load switches in the cabinet.

ECom, LEDguard, and RMS-Engine are trademarks of Eberle Design Inc.

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