

EBERLE DESIGN INC.

## 2018KCL Signal Monitor

170 / 179 / 2070

- Overview -



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## 2018KCL Main Features

- An industry standard Data Key totally eliminates the Diode Card, Jumpers, and DIP switches.
- Full Intersection Display
- Full Event Logging Capability
- MonitorKey programming software provides a Set-up Wizard
- Ethernet Port option (2018KCLip)
- 18 channel capacity



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## Data Key Programming

- The Data Key provides an interchangeable "program card" function without the concern for mechanical issues. (safety)
- Less opportunity for technician changes to configuration, both unintended and devious. (safety)
- Only technicians with access to the MonitorKey programmer can change the Data Key contents. (security)



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## Data Key Programming

- The Data Key is a nonvolatile memory device, so programming detail is much higher than DIP switches. (operational)
- New or special functionality can be designed by adding *data params* to the Data Key without affecting the monitor hardware. (operational)
- No DIP switches. (maintenance)



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## EDI MonitorKey Software

- The EDI MonitorKey programming tool provides a form based PC tool for developing the monitor program parameters and programming the Key.
- A Set-up Wizard is provided to quickly and accurately program the monitor.



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## 2018KCL series Overview

- Super Enhanced “Caltrans 210” monitor
  - Exceeds all Caltrans TEES 2009 requirements
  - Adds Red Monitoring, Dual Indication Monitoring, Sequence (Clearance) Monitoring
- 2070 Controller Compatible
- RMS-Engine™ DSP Coprocessor
- Full RYG Intersection Display
- ECcom™ Windows based software
  - Event Logging & Signal Sequence Log



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## 2018KCL series 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 EDI 2018KCL signal monitor brings state-of-the-art advancements to all 3 tasks



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## Detect Improper Signals / Voltages

- EDI RMS-Engine™ DSP Coprocessor
  - Over samples each AC input at 1920S/sec using a precision Analog to Digital converter and DSP algorithms to calculate True RMS.
  - Signal detection is virtually unaffected by changes in phase, frequency, or sine wave distortion.
  - On / Off status is replaced with actual voltages.
  - Accurate signal detection reduces nuisance triggering of the monitor.



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## Display Cabinet Status

- Full R-Y-G Intersection Display
  - Front panel Red, Yellow, and Green LEDs display the full status of the intersection simultaneously.
  - Review previous fault data without a PC.
  - ECom software on a PC displays signal and control RMS voltages in real time.
- Ethernet option or serial communications enables remote access capabilities



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## Diagnose with Accurate Information

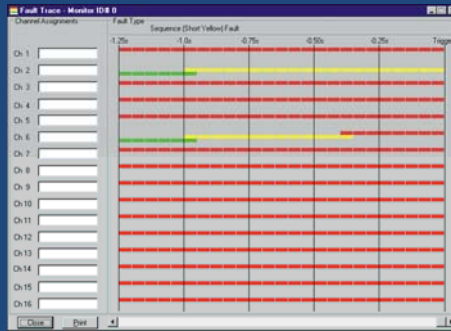
- Four Historical Event Log Types
  - Previous Failures (25)
  - Monitor Reset Events (25)
  - AC Line Events (40)
  - Configuration Change Events (10)
- Chronological sort of event types by time and date



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## Diagnose with Accurate Information

- Signal Sequence History Display
  - Graphically display signal states for 30 seconds prior to fault trigger.



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## 2018KCLip Ethernet Port

- Networking to traffic cabinets using Ethernet has opened many new doors for technicians
  - Get Monitor/Cabinet status remotely before dispatching personnel
  - Dispatch the correct personnel and spare equipment
  - Get immediate help from shop personnel while trouble-shooting in the field.
  - Accurate record keeping



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## 2018KCL Functions

- Fully compatible with the 2070 CU and LADOT Cabinet Specification (332L)
- Red Cable Monitoring
  - Ensures Red Cable is always connected for full fault coverage
- Flashing Yellow Arrow (FYA) Support
  - Two modes, FYA and FYAC (compact)
- LEDguard™ better matches the failure modes of LED signals



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## 2018KCL Functions

- Minimum Flash for 2070 Compatibility
  - 6 seconds of hardware flash following power-up, short interrupt, or brownout restore
  - Emulates NEMA brownout algorithm
- 98 Volt AC Line brownout threshold
  - Transfers to flash above FTR worst case pull-in voltage and instead of WDT monitor disabled at low AC Line
- Cabinet Temperature



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## 2018KCL Functions

- Recurrent Pulse Detection
  - Detects intermittent or pulsing signal conditions which may not meet the requirements of typical continuous fault detection algorithms.
- Output relay option to operate with 332 cabinet wired with FTRs and Contactor relay energized for signals (NEMA style)
- 18 channel capability



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## EDI Model 2018KCL, 2018KCLip

Setting the Standard  
for  
Quality and Reliability

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