

## MMU 516L-E LCD with Ethernet

### FEATURES

- Meets and exceeds all TS2 specifications
- High speed internal data transfer and communications via an SDLC port
- High speed external data transfer via an RS-232 or Ethernet port
- Full LCD Screen w/ Menu-Driven, Easy to Use Software
- LED indicator lamps for operation analysis
- Removable program card
- High performance machine tooled sockets for integrated circuit mounting

The **Naztec Model MMU 516L-E Malfunction Management Unit** is an enhanced MMU that monitors up to 16 traffic signal indications (channels) for conflict, improper sequencing, incorrect timing, and improper signal voltage levels. The MMU 516L-E is fully compliant with NEMA Standard TS2-2003. The MMU 516L-E is also capable of operating in older TS1 type cabinets, and is compatible with 12-channel Conflict Monitor Units conforming to the NEMA Standard TS1-1989.

All connectors, indicators, and operator controls are located on the front panel of the MMU 516L-E. Channel and control input signals and relay output connections are made through two MIL-C-26482 connectors, and the SDLC Port is an A-size, 15 contact, D shell connector. The MMU 516L-E is equipped with a 10/100 Ethernet Port and a RS232 Port, which are excellent for tracking important phase output, status, and logging data back to the controller or to a PC for logging. The programming card and the AC line fuse are easily accessed from the front panel.

The MMU 516L-E provides a Reset Timeout feature to prevent a broken switch or accidental wiring fault from holding the unit in the reset state for an extended period of time. LED indicators, in addition to the TS2 specified indicators, include Dual Indication Fault, Yellow+Red Clearance Fault, Programming Card Ajar, Field Check (active channels do not match SDLC message from controller) Fault, and LEDs for two +24VDC input faults and CVM input faults. Status indicators provided include: AC Line Power, Type 12 Indicator, SDLC Transmitter Active, and SDLC Msg Received.

For added safety, the MMU516L-E performs continuous diagnostic tests during all operating modes. All memory elements, the microprocessor, operating voltages, and critical circuitry are checked.



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### PROGRAMMING

- Minimum flash; 0-16 seconds
- Short yellow per channel
- Programmable sequence monitor
- Latch selectable options

### INDICATIONS

- Conflict LED
- Red Fail LED
- 24 V-1
- 24 V-2
- Controller Voltage Monitor
- Red+Yel Clearance
- Clearance
- Diagnostics
- Port 1 Fault, Tx, Rx
- Program Card Ajar
- Indication Fail LED
- Field Check
- Power LED
- Type 12 Mode

### ENVIRONMENTAL

- Operating Temperature: -34° C to +74° C
- Storage Temperature: -45° C to +85° C
- Humidity: Less than 95% non-condensing to +43° C

### DIMENSIONS

- Height: 10.5 inches
- Width: 4.5 inches
- Depth: 10.9 inches

### NEMA + FEATURES

- Meets and exceeds TS2-1992 Specifications
- Operates in TS1 Cabinets
- EPROM Memory
- No batteries
- Menu Driven LCD Display
- Machine tooled socket I.C.'s
- Programmable Minimum Flash Time
- Latch 24 V failures
- Latch CVM Failure
- Enhanced Monitoring
- Flashing Yellow Protected/Permissive
- 10/100 Ethernet

### ELECTRICAL

#### Power

- Line Voltage: 75 to 150 VAC, RMS
- Line Frequency: 57 to 63 Hz, 60Hz nominal
- Power: 10 watts, typical
- Fuse, Front Panel: 0.5A Slow Blow

#### Monitoring Voltage

- Pickup: 96 +/- 2.5 Volts AC, RMS
- Dropout: 91 +/- 2.5 Volts AC, RMS
- Hysteresis: 4 +/- 1.0 Volts AC, RMS

