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**Engineering Specification
 MANUAL CONFLICT MONITOR TESTER
 MODEL MMT 900**

- 1.0 The Manual Monitor/MMU Tester (MMT) shall be designed to apply test conditions to and indicate the responses from various types and makes of traffic signal conflict monitor units and malfunction management units. The Vendor shall supply the Tester with the conflict monitor cables selected below:
 - NEMA TS1 3 Channel NEMA TS2 8 Channel System 170 16/18 Channel
 - NEMA TS1 6 Channel NEMA TS2 16 Channel System 2070 16 Channel
 - NEMA TS1 12 Channel
- 2.0 The MMT shall be packaged in a durable, high-impact, suitcase-style ABS plastic case. The enclosure shall measure approximately 21 in X 14 in X 7 in. and include a compartment for storage of cables. The unit shall require 120 VAC 60 Hz, and weigh less than 18 lb.
- 3.0 The MMT shall include a 2 X 16 character LCD display which displays the timing interval as set by the operator. An array of pushbuttons shall allow the operator to set the timing interval and begin a timed test. The MMT shall utilize a bank of 3-position toggle switches to allow the operator to apply test conditions to the monitor. The MMT shall provide suitable connection points for the operator to monitor test voltages with an appropriate true-RMS DVM. The DVM is not a part of the MMT hardware to be supplied.
- 4.0 The MMT shall include all hardware, software, cables as specified in Section 1.0 above, and Operating Manual to fully utilize the features of the tester. The MMT shall be warranted against defects in construction and performance for a period of 12 months from the date of purchase.
- 5.0 The MMT shall be capable of applying the following test conditions:
 - 5.1 Any combination of un-timed conflicts, redfails, dual indication, single channel failure, DC input failures, watchdog input failures, incandescent lamp failures, and red-enable input failures.
 - 5.2 Timed fault conditions: Power Interrupt, Redfail, Conflict (Y/G/W), Dual Displays, Red-enable, Low-DC input, CVM Input, Watchdog Input.
 - 5.3 Voltage threshold detection: Monitor power failure, Red/Y/G/W signal recognition for sine and half-wave voltages, Red-enable input, 24 VDC monitors, CVM input, and DC monitoring inhibit input.
- 6.0 The MMT may require the use of a "True-RMS" voltmeter capable of accurately measuring half-wave AC input voltages. This capability is sometimes called "AC + DC" by meter manufacturers.

7.0 Operating Specifications:

INPUT TYPE	RANGE	UNITS
DC Voltages	1.25 – 30.0	Volts, DC (VDC)
Red Enable	0.0 – 140.0	Volts, AC (VAC)
Red Signals (18)	0.0 – 140.0	Volts, AC (VAC) sine
Red Signals (18)	0.0 – 98.0	Volts, AC (VAC) -half, +half
Y/G/W Signals (18)	0.0 – 140.0	Volts, AC (VAC) sine
Y/G/W Signals (18)	0.0 – 98.0	Volts, AC (VAC) -half, +half
Monitor Power	0.0 – 140.0	Volts, AC (VAC)
Watchdog frequency	5	Hertz (Hz)
Transition timing	25 – 9992	milliseconds (mSec)*

*Timing increments are 8.33 mSec, as established by the AC line frequency applied to the tester.