

TRAFFIC CONTROLLER ACCESSORIES – DATA INTERFACE MONITORING SYSTEM.

(REV 5-1-18)

ARTICLE 678-2 is deleted and the following substituted:

678-2 Materials.

Use traffic controller accessories listed on the Department’s Approved Product List (APL), with the exception of the data interface monitoring system (DIMS), which must meet the requirements of 678-2.2. Ensure that all traffic controller accessories are permanently marked with the manufacturer’s name or trademark, model or part number, and serial number.

Traffic controllers must meet the following applicable industry standards:

NEMA TS1 Conflict Voltage Monitor	NEMA TS-1-1989, Section 6
.....	
NEMA TS2 Malfunction Management Unit	NEMA TS-2-2003, Section 4
.....	
Load Switch	NEMA TS 2 2003, Section 6.2
Flasher	NEMA TS 2 2003, Section 6.3
Flash Transfer Relay	NEMA TS 2 2003, Section 6.4
210 Conflict Monitor (Model 210)	
.....	CALTRANS TEES, 2009
Power Supply Module (Model 206)	
.....	CALTRANS TEES, 2009
Power Distribution Assembly	
.....	CALTRANS TEES, 2009 6.4.3
Flash Transfer Relay (Model 430)	
.....	CALTRANS TEES, 2009 6.4.5.1.5
Input File	CALTRANS TEES, 2009 6.4.4
Current Monitor (Model 208)	
.....	CALTRANS TEES, 2009 3.7.2

Ensure all traffic controllers perform all specified functions during and after being subjected to the environmental testing procedures described in NEMA TS-2, Sections 2.2.7, 2.2.8, and 2.2.9.

678-2.1 Time Switch: Ensure the time switch is a 24-hour timer which controls the daily switching operation of circuit contacts at preselected times.

Type 1 time switches must contain a single circuit contact and a solid state timer with at least 48 programmable on and off times.

Type 2 time switches must contain two circuit contacts and a solid state timer with at least three independently programmable on and off times per circuit.

Type 3 time switches must contain three circuit contacts and a solid state timer with at least three independently programmable on and off times per circuit.

678-2.1.1 Timing: Solid state timing must be accomplished by digital circuits utilizing the power line 60 Hz frequency as the normal timing reference. Time-of-day must be settable and displayed in maximum increments of one minute.

678-2.1.2 Programming: Programming for selection of contact openings or closures must be provided in maximum increments of one minute for Types 1 through 3 time switches.

A day omit device or circuit must be provided with Types 1 through 3 time switches to omit the programmed switching operation for any combination of up to three days of the week. A positive means of indicating the day of the week must be provided with Types 1 through 3 time switches.

678-2.1.3 Reserve Power: Type 1, Type 2, and Type 3 solid state time switches must be provided with a battery backup circuit which maintains time during a power failure of up to 10 hours. The timing accuracy of battery backup circuits during a power failure must be plus or minus 0.5 seconds.

678-2.1.4 Output Circuit Contacts: Each output circuit contact must be rated for a 3A, 115 V_{AC} load. The output circuit contact must have 115 V_{AC} present when the timer turns the circuit on.

678-2.1.5 Construction Requirements: Time switches must be enclosed in durable sheet aluminum or approved alternate housing. A terminal strip or screws must be provided with the time switch for AC power and all output circuit contacts.

678-2.2 Data Interface Monitoring System (DIMS): Provide end-to-end data acquisition, transmission, and alert system for NEMA TS-1, NEMA TS-2, Type 170 or Type 2070 traffic signal controllers.

The DIMS must provide real-time connectivity to the traffic signal controller using a software application to remotely monitor the traffic signal operation and associated field devices. Users must be authenticated to gain access. The system must not affect the operation and the configuration of the traffic signal controller.

The DIMS must be capable of performing wireless remote firmware updates.

678-2.2.1 NEMA, Type 170 and Type 2070 Traffic Controller Adapter: Install the adapter in series between the traffic controller and the cabinet.

For NEMA TS-1 controllers, use an input/output interface conforming to the requirements of NEMA TS1-1989 Section 13. For NEMA TS-2 controllers, use an input/output interface conforming to the requirements of NEMA TS2-2003 Section 3.3. For Type 170 or Type 2070 controllers, use an input/output interface conforming to the requirements of CALTRANS TEES, 2009.

Furnish all required wiring harnesses. Provide safe failover pass-thru functionality in the event of a power loss.

678-2.2.2 Data Interface Unit: Provide a minimum of four copper ports unless otherwise shown in the Plans. All copper ports must be Type RJ-45 with the capability to auto-negotiate speed and duplex.

678-2.2.3 Data Requirements: Provide detector, controller, and alarm state at a frequency of at least 10 times per second. The DIMS must acquire field device, cabinet power, UPS system, digital input/output signals configured as an alert, vehicle and pedestrian signals, detectors, and pre-emption telemetry data.

ARTICLE 678-4 is deleted and the following substituted:

678-4 Method of Measurement.

The Contract unit price for each DIMS, furnished and installed, will include furnishing, placement, and testing of all equipment and materials, and for all tools, labor, and incidentals necessary for a complete and accepted installation.

678-5 Basis of Payment.

With the exception of DIMS, no separate payment will be made for traffic controller accessories. Include the cost in the Contract unit price for the traffic controller assembly.

For DIMS, price and payment will be full compensation for all work specified in this Section

Payment will be made under:

Item No. 918-678- Data Interface Monitoring System - each

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