

EXPECTED IMPLEMENTATION JULY 2015

684 NETWORK DEVICES. (REV 11-14-14) (FA 1-6-15) (7-15)

SUBARTICLE 684-2.2.6 is deleted and the following substituted:

684-2.2.6 Electrical Specifications: Verify that all wiring meets applicable NEC requirements and that the device server operates using a nominal input voltage of 120 volts alternating current (V_{AC}). If the device requires nominal input voltage of less than 120 V_{AC} , furnish the appropriate voltage converter. Verify that the maximum power consumption does not exceed 12 watts.

Ensure that the device server has diagnostic LEDs, including link, TX, RX, and power LEDs.

SUBARTICLE 684-2.3 is deleted and the following substituted:

684-2.3 Installation Requirements: Mount the device server securely in a location in the equipment cabinet that allows the unit to be fully accessible by field technicians. Ensure that all unshielded twisted pair/shielded twisted pair Ethernet network cables are compliant with the EIA/TIA-568-B standard.

SUBARTICLE 684-3.2.6.1 is deleted and the following substituted:

684-3.2.6.1 Hardware-based Decoder: Provide a hardware-based decoder that has a minimum of one video output. Use a DVD that has a minimum of one data interface for configuration functions. Use a DVD that includes an Ethernet interface for connection to IP networks.

SUBARTICLE 684-3.2.8 is deleted and the following substituted:

684-3.2.8 Video Specifications: Ensure that composite video inputs and outputs utilize BNC connectors. Ensure analog video inputs and outputs support 1 volt peak-to-peak (V_{p-p}) NTSC composite video. Ensure that the DVE and DVD operate with both color and monochrome video, and that DVEs allow the user to select and adjust video resolution. Ensure that the DVE and DVD support resolutions that include, but are not limited to, those defined in Table 3.1. Ensure that the DVE and DVD are capable of delivering color and monochrome video at 30 fps regardless of resolution.

Table 1 – Resolution Requirements

Format	Resolutions
MPEG-2	352 x 240, 352 x 480, 720 x 480
H.264	176 x 120, 352 x 240, 720 x 480

EXPECTED IMPLEMENTATION JULY 2015

Note: The resolutions attained depend on the data transmission rate.

D SUBARTICLE 684-3.2.9 is deleted and the following substituted:

684-3.2.9 Serial Interface: Ensure that hardware-based DVEs provide a minimum of one serial data interface that supports EIA/TIA-232 and TIA-422. Ensure that the serial ports support data rates up to 115 kbps; error detection procedures utilizing parity bits (i.e., none, even, and odd); and stop bits (1 or 2).

R Ensure that hardware-based DVEs provide a TCP/IP interface to their serial port using a network socket connection with configurable IP address and port number. Serial interface ports may utilize RJ-45 connectors, D-sub connectors, or screw terminals.

SUBARTICLE 684-3.2.11 is deleted and the following substituted:

684-3.2.11 Front Panel Status Indicators: Provide DVEs and DVDs that have LED displays, liquid crystal displays (LCDs), or similar illuminated displays to indicate status for power and data activity.

A SUBARTICLE 684-3.2.13 is deleted and the following substituted:

684-3.2.13 Mechanical Specifications: Ensure equipment is permanently marked with manufacturer name or trademark, part number, date of manufacture and serial number.

Do not use self-tapping screws on the exterior of the assembly.

Ensure that equipment intended for installation in a roadside cabinet uses parts made of corrosion-resistant materials, such as plastic, stainless steel, anodized aluminum, brass, or gold-plated metal.

Ensure that the dimensions of the DVE accommodate the unit's installation in a control cabinet as specified in the plans.

F SUBARTICLE 684-3.2.14 is deleted and the following substituted:

684-3.2.14 Electrical Specifications: Provide equipment that operates on a nominal voltage of 120 volts alternating current (V_{AC}). If the device requires operating voltages of less than 120 V_{AC} , supply the appropriate voltage converter.

SUBARTICLE 684-3.2.15 is deleted and the following substituted:

T **684-3.2.15 Environmental Specifications:** Ensure DVEs and DVDs installed in roadside cabinets perform all required functions during and after being subjected to the environmental testing procedures described in NEMA TS2, Sections 2.2.7, 2.2.8, and 2.2.9.

EXPECTED IMPLEMENTATION JULY 2015

Ensure that a hardware DVD installed in a climate-controlled environment, such as a TMC computer room, has an operating temperature range of 32 to 104°F.

SUBARTICLE 684-3.3 is deleted and the following substituted:

684-3.3 Installation Requirements: Ensure that the DVE is shelf- and/or rack-mountable, and designed for use in roadside control cabinets without climate control. Ensure that front panel status indicators remain unobstructed and visible. Ensure that all unshielded twisted pair/shielded twisted pair network cables are compliant with the EIA/TIA-568-B standard.

ARTICLE 684-6 is deleted and the following substituted:

684-6 Method of Measurement.

The Contract unit price for each MFES, device server, DVE, DVD, or media converter furnished and installed, will include furnishing, placement, and testing of all equipment and materials, and for all tools, labor, hardware, operational software packages and firmware, supplies, support, personnel training, shop drawings, documentation, and incidentals necessary to complete the work.

Provide software-based decoders at no additional cost when furnished in conjunction with DVEs.

A software-based DVD provided individually shall be paid under the pay item below.