

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
SOLID-STATE FLASHING BEACON CONTROLLER AND CABINET

SIG:EMS

1 of 2

APPR:HLO:NJB:04-29-20
FHWA:APPR:05-06-20

a. Description. This work consists of furnishing and installing a solid-state flashing beacon controller and cabinet, as shown on the plans, including mounting brackets, surge protection, hardware, fittings, wiring, grounding, conduits, and any associated material necessary to complete the installation.

b. Materials. Provide material in accordance with sections 918 and 921 of the Standard Specifications for Construction and this special provision.

1. Flasher Controller. The flasher controller must:

A. Provide one of the following *NEMA* type controllers to accommodate the operation as shown on the plans:

(1) *NEMA Type 1* - 20 Amperes (A), single-circuit,

(2) *NEMA Type 2* - 10A, dual-circuit, or

(3) *NEMA Type 3* - 15A, dual-circuit;

B. Have nominal dimensions not exceeding 8.25 inches long, 1.9 inches wide and 4.2 inches high;

C. Integrate with a *NEMA* flasher socket Cinch-Jones Type S-406-SB, Beau-Vernitron Type S-5406 or approved equal;

D. Operate at 120 volts alternating current (VAC) at 60 hertz (Hz);

E. Supply power to the output circuit and to the flasher logic from the input source; and

F. Provide 50 to 60 flashes per minute, with an on period of 45 to 55 percent.

2. Cabinet. Provide a cast aluminum cabinet enclosure as shown on the plans, for advance warning flashing beacon type installations or other applications where the conduit feed into the cabinet is 2 inches or less. Provide a cabinet with nominal dimensions of 13¹¹/₁₆ inches high, 10¹³/₁₆ inches wide, and 6²¹/₃₂ inches deep.

3. Equipment Box. Provide an equipment box enclosure as shown on the plans, for intersection overhead flashing beacon installations (with dual displays, illuminated case sign), advance warning sign flashing beacon installations (school or fire station type with radio

assemblies), or other applications where the conduit feed into the cabinet is greater than 2 inches (3 inches typical).

A. Fabrication. Ensure the equipment box has nominal dimensions of 16 inches high, 14 inches wide, and 12 inches deep. Ensure the equipment box is fabricated from 1/8 inch thick aluminum meeting *ASTM B209, 5052-H32*, with a nominal 1/2 inch lip formed around the opening to allow the equipment box door gasket to seal out dust and moisture. Ensure the equipment box has four standoffs mounted on the inside to accommodate a back-panel.

B. Coating. Ensure the inside of the equipment box is painted white; with the exterior finished with a durable and weather-resistant protective coating having a total dry film thickness of not less than 1.5 mils; and the final coating aluminum in color with a total dry film thickness of not less than 0.75 mils.

C. Door. Ensure the door of the equipment box is equipped with a neoprene sponge rubber type gasket approximately 5/8 inches wide by 3/16 inches deep. Ensure the door is attached to the enclosure with a heavy-duty stainless steel continuous hinge. Ensure the door is fitted with a lock and lock cover to prevent dust and moisture from entering the lock assembly. Provide two Corbin Type Blank 04266 keys, Pelco type long keys No. SM-0200, or approved equal.

D. Back-Panel. Ensure the equipment box has a 1/8 inches thick aluminum back-panel with nominal dimensions of 15 inches by 11½ inches, attached to the back-panel standoffs with four 1/2-inch, 10-32 stainless steel Phillip head/star type screws and four lock washers. The panel may have no other holes drilled in it except those necessary to attach the panel to the standoffs.

4. Packing and Marking. Package each solid-state flashing beacon controller and cabinet individually in a manner acceptable to common carriers, and to ensure that the contents are not damaged or defaced during transportation to the final destination. Ensure each package is legibly marked with the content description, order number, and vendor's name.

5. Warranty. Provide a manufacturer's warranty, transferable to the MDOT, that the supplied materials will be free from all defects in materials and workmanship. Furnish the warranty and other applicable documents from the manufacturer, and a copy of the invoice showing date of shipment, to the Engineer prior to acceptance.

c. Construction. Complete this work in accordance with sections 819 and 820 of the Standard Specifications for Construction and as directed by the Engineer. Install the solid-state flashing beacon controller and cabinet, as shown on the plans, including mounting brackets, surge protection, hardware, fittings, wiring, grounding, conduits, and any associated material necessary to complete the installation.

d. Measurement and Payment. The completed work, as described, will be measured and paid for at the contract unit price using the following pay item:

Pay Item	Pay Unit
Flsh Beacon, Controller and Cabinet, Solid State	Each