Louisiana
Department of Transportation
and
Development

Traffic Control Standard
Number 1

Traffic Signal Head Assemblies

2/16/2023

Revised 2/16/23

DESCRIPTION

This specification sets forth the requirements for traffic signal housings with terminal blocks and wiring, visors, and backplates.

TRAFFIC SIGNAL CONFIGURATIONS FOR SPAN WIRE INSTALLATION - Figure 1

Product ID 54410 – 1-Section
Product ID 54411 – 3-Section
Product ID 54412 – 4-Section Vertical
Product ID 54413 – 4-Section Cluster
Product ID 54414 – 5-Section Cluster

Configurations for Span Wire installations must include the following:

- One (1) cap visor and hardware per section
- One (1) six (6) position terminal block per section

TRAFFIC SIGNAL CONFIGURATIONS FOR MAST ARM INSTALLATION - Figure 2

Product ID 54415 – 3-Section
Product ID 54416 – 4-Section Vertical
Product ID 54417 – 4-Section Cluster
Product ID 54418 – 5-Section Cluster

Configurations for Mast Arm installations must include the following:

- One (1) cap visor and hardware per section
- One (1) six (6) position terminal block per section
- One (1) backplate and hardware per complete configuration

HOUSING

Housings, doors, and LED module holders, shall be constructed of either die cast aluminum or polycarbonate. Housings must be supplied with an adequate amount of stainless steel machine screws (and/or non-corrosive hardware) for the attachment of the visor(s), LED module(s), and backplate (as applicable). Self-tapping screws are not allowed.

Housing sections must be securely fastened to each other and weather tight. To prevent breakage from shock, the portion of the housing that will be adjacent to the mounting bracket shall be reinforced.

Housing doors must be designed to accommodate the installation of any manufacturer's 12-inch LED module. Doors shall be hinged and held securely to the body of the housing by a stainless steel locking device. Locking device shall be operable without the use of tools. Hinge pins shall

prevent the housing door from accidentally disconnecting from the housing when it is opened, regardless of the signal position.

Each signal section must be capable of being rotated 360° about its mounting axis and shall be capable of locking at 5° intervals. Locking must be accomplished by the engagement of serrations in adjacent signal sections and the mounting bracket assembly.

A weather-resistant, mildew-proof neoprene or silicone rubber sponge gasket shall be provided between the body of the housing and the door to prevent dust and moisture from entering the assembly.

Both the top and the bottom of each traffic signal housing configuration must be able to accommodate 1.5 inch pipe brackets via 2 inch diameter opening. To prevent the entry of foreign material (e.g. dust, insects, and moisture) into the housing, each opening must be provided with removable plugs.

Aluminum housings shall be constructed of die cast aluminum, must meet the requirements of ASTM B-85 or B108, have a minimum tensile strength of 17,000 pounds per square inch (lbs/in^2) and finished on the outside, with a black powder coating or high-grade black enamel that is peel and chip resistant. The aluminum housings shall be pre-drilled and threaded for the machine screws that will be used to attach the visor, LED module, and backplate (as applicable).

Polycarbonate housings shall be constructed of one (1) piece black injection molded resin. The polycarbonate housings shall have metal inserts that have been threaded for the machine screws that will be used to attach the visor, LED module, and backplate (as applicable).

TERMINAL BLOCKS AND WIRING

Each section of a traffic signal configuration shall be provided with a six (6) position terminal block which includes a minimum of three (3) quick connect tabs. The terminal blocks must be installed with two (2) mounting screws and one (1) mechanical ground lug. Assemblies shall be wired with either a 14 or 16 AWG wire. Housings shall be ready for field installation by wiring the configuration in a series through each terminal block in each signal indication.

VISORS

Product ID No. 10948: Aluminum Cap Visor
Product ID No. 10949: Aluminum Tunnel Visor
Product ID No. 50641: Polycarbonate Cap Visor
Product ID No. 50642: Polycarbonate Tunnel Visor

Each housing/section of a signal head configuration shall be provided with a cap type visor made of the same material as the housing and the appropriate quantity of stainless steel machine screws (and/or non-corrosive hardware) that will be used to affix the visor to the housing section. Visor shall attach to the housing/section in a manner that makes the light filtration between the door and the visor imperceptible. Once installed, the visor must be capable of supporting the entire weight

of the traffic signal. Visor must tilt approximately 2-4° downward from the horizontal and shall measure 10 to 12 inches in depth from the face of the lens.

NOTE: Cap visors shall be detached from the traffic signal during shipment. DOTD employees will attach visors to the traffic signal prior to installation.

Tunnel type visors shall fully encompass approximately 300° of the lens circumference.

Aluminum visors must have a minimum thickness of 0.050 inches and must be finished both inside and out with a black powder coating or high-grade black enamel that is peel and chip resistant.

Polycarbonate visors must have a minimum thickness of 0.100 inches and shall be constructed from one (1) piece of injection molded black polycarbonate.

BACKPLATES

Backplates shall be from the same manufacturer as the traffic signal. All mast arm traffic signal configurations shall be provided with the appropriate shape backplate and stainless steel machine screws (and/or non-corrosive hardware) that will be used to affix the backplate to the traffic signal configurations. The backplate must securely mount behind the faces of the traffic signal configuration without obstructing any of the door openings nor a mounting assembly. Backplates will be acceptable with or without louvers.

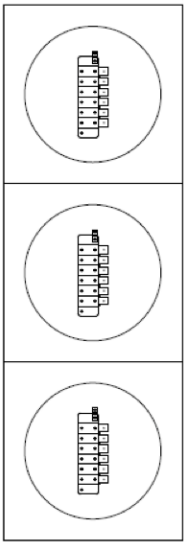
The border of the backplate shall be 5 inches (+/- 0.5) wide with a 2 – 3 inch wide Type VIII or XI prismatic yellow reflective sheeting strip installed around the front outside edge of the backplate border. Reflective sheeting must meet the requirements of ASTM D4956 and be listed as an approved product on the LADOTD Approved Materials List for Reflective Sheeting, Type VIII, Permanent (1015M00139) or Reflective Sheeting, Type XI, Permanent (1015M00241). See **Figure 3** for details.

Backplates shall be constructed of either a minimum 0.120 inch thick plastic, a minimum 0.060 inch thick aluminum, or aluminum composite sheet. Aluminum backplates shall be finished, with a black powder coating, a high-grade black enamel that is peel and chip resistant, or a fluoropolymer based black paint.

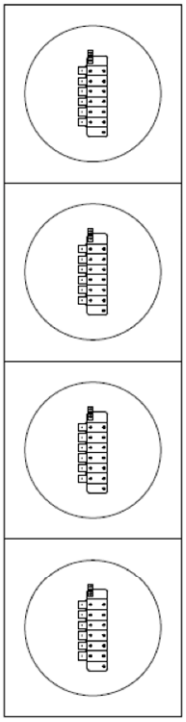
For installation purposes, backplates must be capable of supporting the entire weight of the signal assembly.

Figure 1 – Signal Configurations for Span Wire Installation

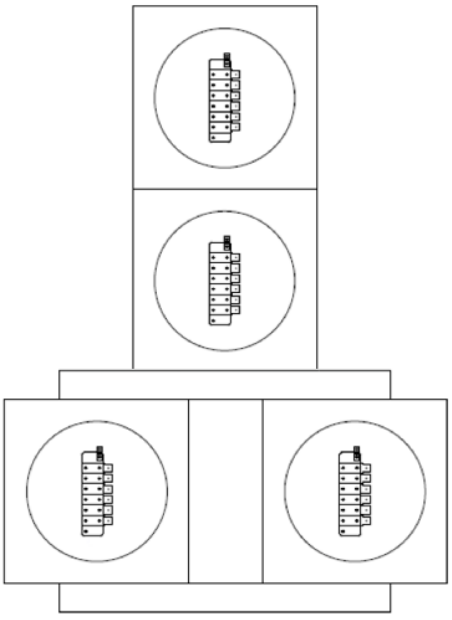
3-Section
Product ID 54411



4-Section Vertical
Product ID 54412



4-Section Cluster
Product ID 54413



5-Section Cluster
Product ID 54414

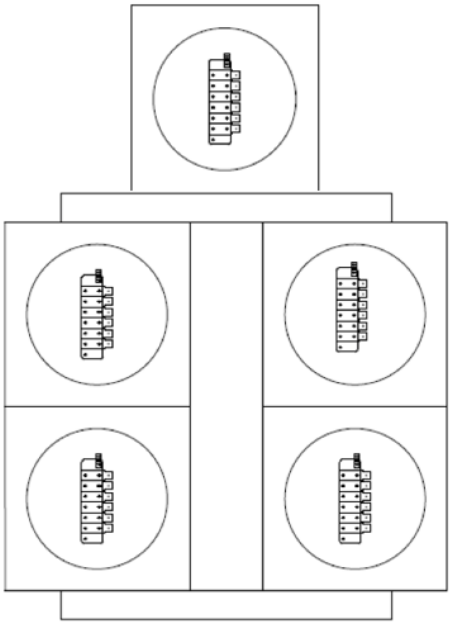
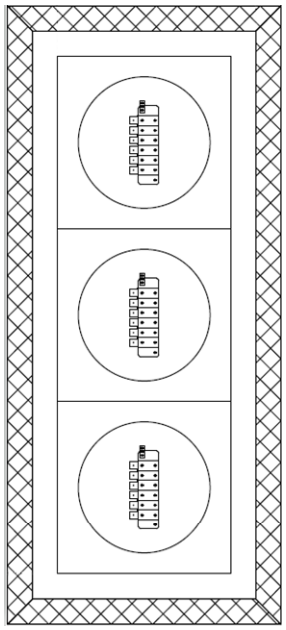
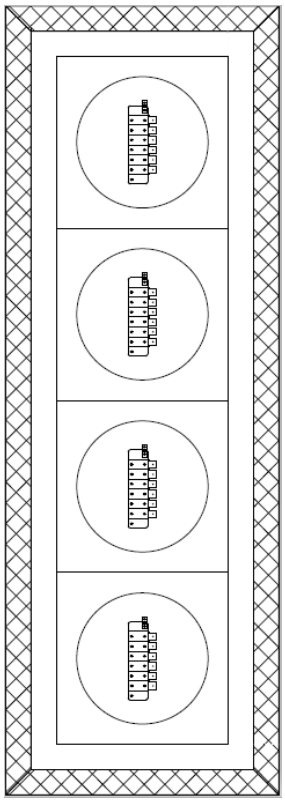


Figure 2 – Signal Configurations for Mast Arm Installation

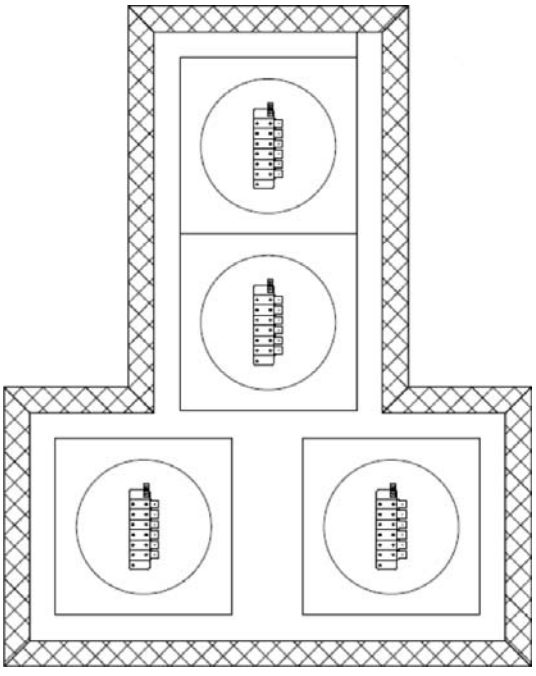
3-Section
Product ID 54415



4-Section Vertical
Product ID 54416



4-Section Cluster
Product ID 54417



5-Section Cluster
Product ID 54418

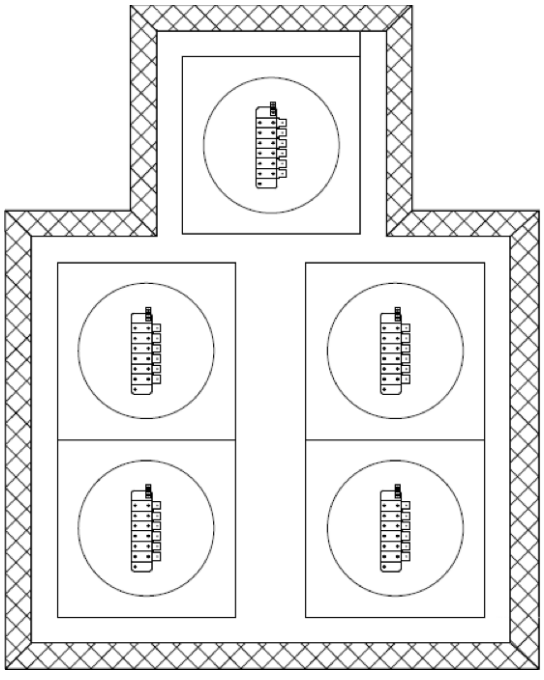


Figure 3 – Backplate and Terminal Block Details