

**STATE OF NEW JERSEY  
DEPARTMENT OF TRANSPORTATION  
TRENTON, NEW JERSEY 08625**

**SPECIFICATIONS FOR PHOTOELECTRIC CONTROL (PEC) UNIT**

N.J. Specification No. EB-PEC-1

Effective Date: July 1, 2001

New Jersey Department of Transportation Specifications for a Photoelectric Control (PEC) Unit.

The purpose of these specifications is to describe minimum acceptable design and operating requirements for Photoelectric Control (PEC) Unit.

**GENERAL - I**

1-1 Photoelectric control units shall conform to the current EEI-NEMA standards for physical and electric interchangeability of light sensitive control devices.

**CONSTRUCTION - II**

2-1 Photoelectric control (PEC) unit shall be a 3-terminal twist-lock unit. It shall be weatherproof and not affected by moisture, vibrations or changes in temperature.

2-2 PEC housing shall be high impact acrylic, fabricated for suregrip handling, with acrylic window and ultraviolet inhibitor.

2-3 Mounting hardware shall be provided to allow unit to be installed in whatever type of location is required in the contract documents (or bid documents).

2-4 Mounting hardware shall include an all-weather locking type receptacle, with 3-#10 color-coded 18 inch long conductors. The receptacle shall have a 3/4 inch threaded conduit bottom hub. The mounting hardware shall also include an aluminum mounting "L" bracket.

**ELECTRICAL - III**

3-1 PEC control unit shall be rated for control of lighting circuit voltages indicated in the contract documents (or bid documents).

3-2 PEC unit shall be rated for a load of at least 1,800 volt-amperes.

3-3 PEC cell shall have a minimum operating range level of 1 to 3 footcandles. Turn-on shall be 1 footcandle  $\pm$  .2 footcandle. The ratio between the turn-on level to the turn-off level shall be one to three or one to four.

3-4 Dielectric strength between any current carrying part and metal mounting surface shall be 5 kilovolts minimum.

- 3-5 Each unit shall be equipped with the following:
- A. The lightning surge protection shall be an enclosed type arrester with a 2.0 kilovolt spark over minimum and 10,000 amps follow through.
  - B. A fail safe feature that will allow lighting circuits to remain on in the event of PEC unit failure.
- 3-6 A time delay of approximately 15 seconds shall be basic to the design of the PEC cell to prevent false switching due to temporary changes in light intensity, i.e. vehicle headlights or lightning.
- 3-7 PEC unit shall be rated for operation over a temperature range of -58 °F to +140 °F.
- 3-8 PEC unit shall have a life at a rated load of 5,000 on-off operations minimum.

#### **INSTRUCTIONS AND GUARANTEE - IV**

- 4-1 Upon request, one wiring diagram and installation manual for the PEC unit shall be supplied with each unit furnished.
- 4-2 No changes or substitutions in these requirements will be accepted unless authorized in writing. Inquiries regarding this specification shall be addressed to the Manager, Office of Traffic Signal and Safety Engineering, New Jersey Department of Transportation, 1035 Parkway Avenue, P.O. Box 613 Trenton, NJ 08625.
- 4-3 The PEC unit shall carry a one year guarantee from the date of delivery against any imperfections in workmanship and material.
- 4-4 The company agrees upon the request of the Manager, Office of Traffic Signal and Safety Engineering to deliver to the Office, a sample of the unit to be supplied in compliance with these specifications for inspection and test before acceptance. After completion of the test the sample shall be returned.
- 4-5 The company shall furnish any and all other equipment which they deem necessary for safe and reliable field operation of the PEC unit.