

Project Special Provisions (Version 06.3) Signals and Intelligent Transportation Systems

1.1. MATERIALS – NEMA TS-1 DETECTORS

Furnish NEMA TS-1 single-channel or multi-channel detectors.

Provide multi-channel detectors that sequentially scan each of its channels. Ensure that the multi-channel detectors can turn a channel off and disable its operation from the front panel.

Provide channels with a minimum of eight sensitivity levels.

Ensure detector units meet the requirements of NEMA TS-1 Specifications except as follows:

- Class 2 vehicle output is maintained for a minimum of 4 minutes, and
- Class 3 vehicle output is maintained for a minimum of 30 minutes, maximum 120 minutes.

Where required, furnish detectors equipped with required timing features. Provide a delay that is settable in one-second increments (maximum) over the range of zero to thirty seconds. Provide an extend that is settable in 1/4 second increments (maximum) over the range of 0 to 15 seconds. Provide detectors that can set both delay and extend timing for the same channel. If both timings are set, ensure the delay operates first. After the delay condition has been satisfied, ensure that the extend timer operates normally and that it is not necessary to satisfy the delay timing for an actuation arriving during the extend portion.

Ensure detectors register a permanent call during tuning operations, as a result of a loop fault, and when power is removed. Ensure detectors completely self-tune within 10 seconds after application of power or restoration of interrupted power and within 10 seconds after correction of a loop fault.

Provide detectors that monitor the loop for fault conditions on each channel. Upon detection of a fault condition, even if the condition is subsequently corrected, ensure the detectors provide an indication of the occurrence and maintain the indication until a manual reset. The fault conditions are:

- An open-circuited loop system;
- A short to ground; and
- A 25 percent reduction in inductance.

Ensure a two-channel detector operates normally with the same loop connected to both channels.

Provide lightning and surge protection that is incorporated into the design of the detector. Ensure that each channel operates properly when used with the loop detector surge protector.

In addition to NEMA TS-1 Specifications, ensure each channel is capable of tuning to and operating on any loop system inductance within the range of 50 to 2,000 μ h. Ensure that the channel will operate properly even on a loop system that has a single-point short to earth ground.

Provide detectors with a durably finished nonferrous housing. Ensure that the removal of the housing can be accomplished by using simple hand tools. Ensure each printed circuit board has a moisture resistant coating and that the components are readily accessible with the housing removed.

Provide a wiring harness with a minimum length of 6 feet for each detector. Ensure each wire is permanently labeled, numbered, or color-coded.