



ESC Model 3800 Leakage Detector



3800-1 Module

3800-2 Module

Description

The Model 3800 Leakage Detector is a life-safety device that is intended to be installed in electrically-powered vehicles (such as trolley busses) running on rubber tires, and powered from 600VDC overhead lines.

Its purpose is to generate a warning to the driver when the integrity of the electrical insulation of the vehicle has been compromised, resulting in the chassis of the vehicle becoming electrically charged, a potentially lethal condition. It is designed for both new and upgrade installations.

The Model 3800 provides additional safety and failsafe features and can be used as an electrical replacement for our earlier Models 4804, 3614 and 3624.

The detector consists of 3 main components – the 3800-1 high voltage module, the 3800-2 detector module, and a remote control / display panel that is provided by the vehicle manufacturer.

Enhanced Features

- **2 Module Construction** – Splits the high voltage and low voltage circuitry. This allows the 3800-2 module containing setup/service adjustments to be installed in a low voltage compartment of the vehicle, and the high voltage module may be located on the roof near the base of the overhead poles.
- **Small Size** – The 3800-2 detector module measures only 3.7" x 7.1" x 2.3". The 3800-1 high voltage module measures 5.5" x 4.5" x 0.8".
- **Weatherproof Housing and Wiring Harness Connector** – The 3800-2 detector module is encased in a NEMA 4 rated polycarbonate box complete with a 24-pin dust and moisture resistant automotive style connector. The 3800-1 high voltage module is cast in epoxy and is completely waterproof.
- **Additional Isolation Level with Failsafe Operation** – The output circuits leading to the drivers display console are wired through dry contacts of relays that de-energize in the event of a power failure to ensure failsafe operation. A permanently operated remote reset switch does not prevent audible or visual alarm indicators.

- **Ground Reference Integrity Monitor** – The connections to the overhead rails are monitored and will cause an alarm if disconnected. This ensures that the detector has a ground reference point in order to measure leakage current. A relay output is provided to light an indicator at the driver’s console, and an input is provided to disable this monitor when the trolley is running on battery power.
- **Isolated Ground Leakage Monitor** – To accommodate double insulation requirements of new vehicles an additional detection circuit to monitor the intermediate ground is provided. Separate sensitivity and time delay adjustments are provided.
- **Compensation Feature** – The trip level of the detector varies to compensate for voltage drops occurring on the overhead lines.
- **Power On Indicator** – A power indicator as well as all alarm and fault lights are including in the 3800-2 detector module and may be viewed through a tinted black transparent lid.

Standard Features

- **Extended Operating Voltage** – The 3800 leakage detector operates in vehicles with either 12 or 24 volt battery systems.
- **Remote Display Outputs and Remote Test and Reset Inputs** – The vehicle manufacturer wires his dashboard controls and indicators to these points.
- **Status Indicators, Test and Reset Buttons** – The 3800-2 detector module includes 7 indicator lights and 3 test buttons. The indicators show instantly if a leakage, a warning or an audible alarm condition exists. The test and reset buttons allow a field service technician to test and calibrate the delay times of the detector.
- **Alarm Response Delay Adjustments** – Individual delay adjustments are provided for both alarm warning circuits and for the audible device located at the driver’s console.
- **Sensitivity Adjustments** – In field calibration adjustments are provided to set the sensitivity of the leakage detection circuits for both the coach body detector and the isolated ground detector.
- **Delay Reduction Circuitry** – Preset alarm response time delays are reduced based on the severity of leakage that exists on the coach body.

Block Diagram

A simple block diagram of the 3800 Leakage Detector.

