

## Cable Sizing and Overcurrent Protection

### Problem 3

#### Stand-Alone Lighting System

Array Size: 4, 12-volt, 64-watt modules;  $I_{sc} = 4.0$  amps,  $V_{oc} = 21.3$  volts

Batteries: 200-amp-hours at 24 volts

Load: 60 watts at 24 volts

#### Description

The modules are mounted at the top of a 20-foot pole with the metal-halide lamp. The modules are connected in series and parallel to achieve the 24-volt system rating. The lamp, with an electronic ballast and timer/controller, draws 60 watts at 24 volts. The batteries, disconnect switches, charge controller, and overcurrent devices are mounted in a box at the bottom of the pole. The system is grounded as shown in Figure E-3.

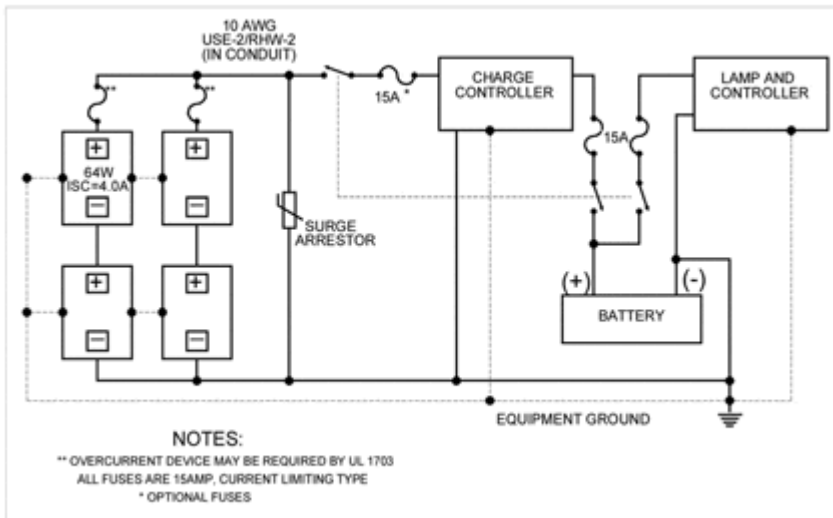


Figure E-3. Stand-Alone Lighting System

What do we do?