

# Operating Instructions

## Spectron Electronics

All models ordered with the Self-Diagnostic/Self-Testing feature provide:

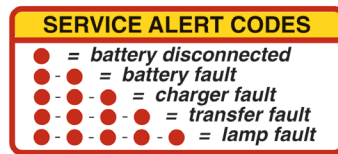
- ❑ Visual indication of AC power status
- ❑ Visual Indication of all self-diagnostic test cycles
- ❑ Visual indication of unit malfunctions including:
  - Battery fault
  - Charger fault
  - Transfer fault
  - Lamp fault
- ❑ User initiated test cycles of 1, 5, 30 or 60 minutes
- ❑ 15 minute retransfer delay

## LED Indicators

Two Status LED indicators, one red and one green are provided on the control panel of all models equipped with the Self-Diagnostic/Self-Testing option

### Red Service Alert LED

Under normal operating conditions, the Service Alert LED indicator will remain off. In the event the Self-Diagnostic/Self-Testing Controller detects a malfunction, the Service Alert LED will blink at a 1 Hz. rate based on the following table:



| Service Alert Codes   | Description            |
|-----------------------|------------------------|
| One blink ON/pause    | Battery not connected  |
| Two blinks ON/pause   | Battery fault          |
| Three blinks ON/pause | Charger fault          |
| Four blinks ON/pause  | Transfer circuit fault |
| Five blinks ON/pause  | Lamp fault             |

### Green Operating Status LED

The green Operating Status LED serves as both an AC power and a self-test indicator. During normal operation, the Operating Status LED will be illuminated indicating the presence of AC power. During all automatic or manual self-test cycles, the Operating Status LED will blink at a 1 Hz. rate.

**operating status**  
**on = ready**  
**off = ac off**  
**blinking = test in process**

### Manual Tests

Using the unit test switch, users can initiate different duration test cycles based on the following table:

| Initiating Action         | Test Cycle |
|---------------------------|------------|
| Press test switch once    | 1 minute   |
| Press test switch twice   | 5 minute   |
| Press test switch 3 times | 30 minute  |
| Press test switch 4 times | 60 minute  |

**NOTE:** Pressing test switch at any time after a test cycle has begun cancels remainder of test and returns unit to normal operation.



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## *Operating Instructions (Cont.)*

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### **Operation**

Self-Diagnostic/Self Testing electronics operation is fully automatic. Accidental discharge of the unit battery prior to energization is prevented by an AC lockout circuit. The unit's green Operating Status LED, located on the Self-Diagnostic/Self-Testing display panel, illuminates to indicate the presence of AC power. The unit's red Service Alert LED will blink after application of AC power if the battery connection is not completed. During normal operation, the unit's charging circuit maintains the battery at full capacity and the Self-Diagnostic/Self-Testing Controller constantly monitors charger performance. Should the terminal voltage vary from design parameter values, the unit's red Service Alert LED will blink, indicating a malfunction of the battery or charger. Upon interruption of normal AC power, or brownout condition, the Self-Diagnostic/Self-Testing Controller automatically switches the emergency lighting load to the battery. Emergency power will be provided for a minimum of 90 minutes. During emergency operation, the battery is protected from deep discharge by a low voltage battery disconnect circuit. Upon return of normal AC power, a 15 minute retransfer delay holds the unit in emergency operation mode allowing

utility voltage to stabilize prior to reconnection. The charger will then begin a recharge cycle. Exit signs utilize constant current type chargers which require no temperature compensation to maintain the unit's Nickel-Cadmium batteries. Chargers will bring the unit battery to full capacity within acceptable U.L. time standards. The Self-Diagnostic/Self-Testing Controller automatically initiates a one minute discharge/diagnostic test every 28 days  $\pm$  3.5 hours and a 30-minute discharge/diagnostic test every 6 months  $\pm$  1 day. These tests exercise the unit's battery to optimize its capacity and allows the Self-Diagnostic/Self Testing Controller to analyze emergency operation performance. Any malfunction of the unit's transfer circuit or emergency lamps will cause the red Service Alert LED on the unit's display panel to blink. During normal operation, all red Service Alert LED blinking indications of unit malfunction remain latched until corrected and retested. A manual test switch allows a user programmable 1, 5, 30 or 60-minute diagnostic/discharge test at any time. During all automatic and user initiated self-tests, the unit's green Operating Status LED will blink to indicate a diagnostic cycle in process.