



Self-testing/self-diagnostic electronics provide increased reliability and decreased maintenance



Spectron Electronics

All models ordered with the Spectron (I) self-testing/self-diagnostic electronics system 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


Features

- Meets UL standards for self-testing/self-diagnostic models
- Provides automatic self-diagnostic monitoring and testing of unit operation
- Automatically performs routine maintenance and assures operational readiness at all times
- Monitors charger and lamp operation
- Emergency lamps and transfer circuit monitored during self-test cycles and power failures
- Routine discharge cycles insure optimum battery performance and maximum useful life
- Automatic 1-minute self-test every 28 days and 30-minute self-test every 6 months
- Automatic low voltage disconnect battery protection
- Automatic unit transfer in brownout conditions
- Automatic AC lockout circuit
- Automatic 15 minute re-transfer delay (units only)
- Flashing LED indication of unit malfunction or test cycle
- All detected malfunctions retained in memory until corrected and retested
- Test switch allows a programmable 1, 5, 30 or 60-minute system check at any time
- Supports exit sign flashing options

LED Indicators

Models ordered with the Spectron (I) self-testing/self-diagnostic electronics system are supplied with two LED indicators, one red and one green.

Red Service Alert LED

● = battery disconnected	 service alert
● - ● = battery fault	
● - ● - ● = charger fault	
● - ● - ● - ● = transfer fault	
● - ● - ● - ● - ● = lamp fault	
SERVICE ALERT CODES	

Under normal operating conditions, the red Service Alert LED indicator will remain off. In the event of a detected malfunction, the red Service Alert LED will blink at a one cycle per second rate based on the following table:

Service Alert Code	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 (LED strip)

Green Operating Status LED



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

Manual Test

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

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



Operation

Spectron 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 Status LED located on the Spectron display panel illuminates to indicate the presence of AC power. The unit's red Status 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 Spectron Controller constantly monitors charger performance. Should the terminal voltage vary from design parameter values, the unit's red Status LED will blink, indicating a malfunction of the battery or charger. Upon interruption of normal AC power, or brownout conditions exceeding a 20% drop from nominal voltage, the Spectron 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. The charger will then begin a recharge cycle. The charger will bring the battery to full capacity within acceptable UL time standards. The Spectron 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 Spectron Controller to analyze emergency operation performance. Any malfunction of the unit's transfer circuit or emergency lamps will cause the red Status LED on the unit's display panel to blink. During normal operation, all red Status 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 Status LED will blink to indicate a diagnostic cycle in process.

Suggested Specifications

Spectron electronics operation shall be fully automatic. Accidental discharge of the unit battery prior to energization will be prevented by an AC lockout circuit. The unit's green Status LED located on the Spectron display panel will illuminate to indicate the presence of AC power. The unit's red Status LED will blink after application of AC power if the battery connection is not completed. During normal operation, the unit's charging circuit will maintain the battery at full capacity and the Spectron Controller shall constantly monitor charger performance. Should the terminal voltage vary from design parameter values, the unit's red Status LED will blink, indicating a malfunction of the battery or charger. Upon interruption of normal AC power, or brownout conditions exceeding a 20% drop from nominal voltage, the Spectron Controller shall automatically switch the emergency lighting load to the battery. Emergency power will be provided for a minimum of 90 minutes. During emergency operation, the battery shall be protected from deep discharge by a low-voltage battery disconnect circuit. The charger shall then begin a recharge cycle. The charger will bring the battery to full capacity within acceptable UL time standards. The Spectron Controller will automatically initiate 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 will be designed to exercise the unit's battery and allow the Spectron Controller to analyze emergency operation performance. Any malfunction of the unit's transfer circuit or emergency lamps will cause the red Status LED on the unit's display panel to blink. Under normal operation, all red Status LED blinking indications of unit malfunction shall remain latched until corrected and retested. A manual test switch will allow 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 Status LED will blink to indicate a diagnostic cycle in process.

NOTE: Self-testing, self-diagnostic models with over 80 watts of capacity require a minimum load of 35 watts for accurate lamp failure indications.