

AUTO TEST & SELF-DIAGNOSTIC



DESCRIPTION

The Aimlite Auto-Test and Self-Diagnostics option incorporates an advanced microprocessor based controller to accurately perform fully automated monitoring and testing. The system continuously monitors normal unit status and automatically performs battery discharge tests at scheduled intervals. The testing improves unit reliability by exercising the batteries and insuring functional emergency operation. The self-diagnostic logic circuits monitor for battery and charger malfunctions, transfer circuit problems and emergency lamp circuit failure. Failure of these functions is signalled by a dedicated, tri-colour LED indicator. The fault indication remains latched in the system until cleared by either correcting the problem or resetting the system.

CIRCUITRY

- 120/347VAC 60Hz Input, field selectable
- 6VDC, 12VDC or 24VDC emergency power output versions (as specified)
- Fully automated, microprocessor based controller
- Momentary push button test switch
- Pilot LED for CHARGE
- Tri-colour, flashing and steady state indicator LED for system STATUS
- 10 minute time delay of transfer back to AC power once power is restored (allows for HID lighting to warm-up and restrike)
- High efficiency, rapid recovery, precision control charging system
- Fully automatic, current limited charger
- Line latched, low voltage protection
- Solid state design and construction
- Brownout and short circuit protection
- Temperature compensated
- Large magnum terminal screw type connectors for remote load connection
- Extremely sensitive to remote LED load

VISUAL INDICATION

The Aimlite Auto-Test and Self-Diagnostics option utilizes a tri-colour LED indicator to visually signal the operational condition of the unit. By combining this function into a single LED, Aimlite has greatly simplified the process of determining unit status. Additionally, the 3 colour system is highly intuitive and simple to understand: red for critical faults, yellow for functional faults and green for normal operation. Indication is further enhanced by appropriately flashing the indicated colour versus a steady state illumination. This "RED-YELLOW-GREEN" stoplight approach greatly simplifies trouble recognition by maintenance staff thereby speeding repairs and enhancing equipment reliability.



NORMAL OPERATION

- Status indicator is steady green.
- Unit is functioning normally and successfully completed the most recent battery discharge test



LAMP FAULT

- Status indicator is steady yellow.
- The lamp circuit has been disconnected or the lamps have burnt out



BATTERY OR CHARGER FAULT

- Status indicator is either steady red or flashing red.
- The batteries are disconnected or the charger has failed (flashing)
 - The unit failed the most recent battery discharge test (steady)

AUTO TEST & SELF-DIAGNOSTIC

OPERATION

Initialization

- 1) The Auto-Test can be reset or initialized by first disconnecting the batteries and then turning off the AC power supply. Reconnect the batteries and turn on AC power to complete the reset.
- 2) Upon power-up all automated timers are reset to zero and all status indicators will clear.
- 3) A unit operational status test will be initiated. The STATUS indicator may flash green during this test.
- 4) After successfully completing the test, the STATUS indicator will light steady green.
- 5) Any operational faults will result in the STATUS indicator lighting/flashing in another colour.

AUTOMATED TEST

- 1) The internal timer will initiate the appropriate discharge test once every 30 days.
- 2) The test will be delayed by 24 hours if a manual test or power interruption had occurred in the previous 24 hours.
- 3) The CHARGE indicator will turn off and any connected load/lamps will illuminate for 5 or 30 minutes depending on the test scheduled.
- 4) After successfully completing the test, the STATUS indicator will light steady green.
- 5) Any operational faults will result in the STATUS indicator lighting/flashing in another colour.

MANUAL TEST

- 1) To manually initiate an operational test, press and release the TEST push-button.
- 2) The CHARGE indicator will turn off and any connected load/lamps will illuminate.
- 3) The STATUS indicator may briefly flash then go illuminate a steady green.
- 4) The connected load will remain on for 10 mins. (automatic re-transfer delay) and then turn off.
- 5) The CHARGE LED will illuminate steady or flash depending on the required battery recharge.
- 6) After successfully completing the test, the STATUS indicator will light steady green.
- 7) Any operational faults will result in the STATUS indicator lighting/flashing in another colour.

DIAGNOSTICS

Battery Condition

Should the batteries become disconnected, the STATUS indicator will flash red. If the batteries fail to provide the required power during a discharge test, the STATUS indicator will light steady red.

Battery Charger

Charger output is continuously monitored. Should output fail to meet the design parameters, the STATUS indicator will flash red.

Battery Transfer

Should the system fail to transfer to battery power during an AC power failure, the STATUS indicator will flash red.

Lamps/Connected Load

Should the lamp heads become disconnected or lamps burn out, the STATUS indicator will flash yellow.

CODE COMPLIANCE

The automated testing performed by the AimLite Auto-Test system has been designed to comply with all of the requirements of the National Fire Code. Every month a 5 minute discharge and diagnostic test checks the operational status of the unit. Every 6 months this test is extended to the full 30 minute, Code required duration. Additionally, following every other 6 month test (or once a year) the unit will repeat the same test 24 hours following the first test. This insures that the battery charger is recharging the battery in accordance with Code requirements as follows:

National Fire Code of Canada - 2010

Section 6.7 Emergency Power Systems and Unit Equipment for Emergency Lighting

6.7.1.6. Inspection of Equipment

- ...3) After completion of the test required in Clause (2)(b), the charging conditions for voltage and current and the recovery period shall be tested to ensure that the charging system is functioning in accordance with the manufacturer's specifications.

AUTO TEST & SELF-DIAGNOSTIC FOR RM SIGNS



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The Aimlite Auto-Test and Self-Diagnostics option incorporates an advanced microprocessor based controller to accurately perform fully automated monitoring and testing. The system continuously monitors normal unit status and automatically performs battery discharge tests at scheduled intervals. The testing improves unit reliability by exercising the batteries and insuring functional emergency operation. The self-diagnostic logic circuits monitor for battery and charger malfunctions, transfer circuit problems and emergency lamp circuit failure. Failure of these functions is signalled by a dedicated, tri-colour LED indicator. The fault indication remains latched in the system until cleared by either correcting the problem or resetting the system.

CIRCUITRY

- 120/347VAC 60Hz Input, field selectable
- Fully automated, microprocessor based controller
- Momentary push button test switch
- Tri-colour, flashing and steady state indicator LED for system STATUS
- High efficiency, rapid recovery, precision control charging system
- Fully automatic, current limited charger
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- Solid state design and construction
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The Aimlite Auto-Test and Self-Diagnostics option utilizes a tri-colour LED indicator to visually signal the operational condition of the unit. By combining this function into a single LED, AimLite has greatly simplified the process of determining unit status. Additionally, the 3 colour system is highly intuitive and simple to understand. Indication is further enhanced by appropriately flashing the indicated colour versus a steady state illumination. This "RED-ORANGE-GREEN" stoplight approach greatly simplifies trouble recognition by maintenance staff thereby speeding repairs and enhancing equipment reliability.

LED indicator



Test switch

RED	AC ON
Flashing RED	AC problem
Flashing ORANGE	LED board problem
Flashing GREEN	Battery or low voltage problem
GREEN/RED	Self-testing mode

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OPERATION

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- 2) Upon power-up, all automated timers are reset to zero and all status indicators will clear.
- 3) A unit operational status test will be initiated. The LED indicator may flash green/red during this test.
- 4) After successfully completing the test, the LED indicator will light steady red.
- 5) Any operational faults will result in the LED indicator flashing.

Automated Test

- 1) The internal timer will initiate the appropriate discharge test once every 30 days.
- 2) The test will be delayed by 24 hours if a manual test or power interruption had occurred in the previous 24 hours.
- 3) The CHARGE indicator will turn off and any connected load/lamps will illuminate for 5, 90 or 120 minutes depending on the test scheduled.
- 4) After successfully completing the test, the LED indicator will light steady red.
- 5) Any operational faults will result in the LED indicator flashing.

Manual Test

- 1) To manually initiate an operational test, press and release the TEST push-button.
- 2) The indicator will turn off and any connected load/lamps will illuminate.
- 3) The indicator may briefly flash green/red.
- 4) After successfully completing the test, the LED indicator will light steady red.
- 5) Any operational faults will result in the LED indicator.

DIAGNOSTIC

Battery Condition

Should the batteries become disconnected, the LED indicator will flash green. If the batteries fail to provide the required power during a discharge test, the LED indicator will light flash in green.

Input Condition

Should input fail to meet the design parameters, the LED indicator will flash green.

LED Board Condition

Should the LED become disconnected or burn out, the LED indicator will flash orange.

CODE COMPLIANCE

The automated testing performed by the Aimlite Auto-Test system has been designed to comply with all of the requirements of the National Fire Code. Every month, a 5 minute discharge and diagnostic test checks the operational status of the unit. Every 6 months, this test is extended to the full discharge, Code required duration. Additionally, following every other 6 month test (or once a year), the unit will repeat the same test 24 hours following the first test. This insures that the battery charger is recharging the battery in accordance with Code requirements as follows:

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TROUBLESHOOTING GUIDE

CHECKLIST

1. What is the model and serial number?
2. Ensure AC power is on
3. Ensure battery is connected
4. Has the unit in question been on charge for 24hrs?
5. What LEDs are ON?
6. What colours are the LEDs?
7. Are any of the LEDs flashing?

STOP LIGHT ANALOGY

1. If only one green solid LED is ON, this indicates AC is present and the battery is fully charged ready to use
2. If one green solid LED is ON and one yellow solid is ON this means a lamp is burnt out
3. If one LED is a solid or flashing red this means the battery is disconnected or the charger or battery failed the last test

START FROM THE BEGINNING

1. Turn Power OFF
2. Disconnect battery
3. Wait 5 minutes
4. Ensure load properly connected
5. Reconnect battery
6. Turn on AC
7. Wait 10-15 mins for AC power to be released to charger board
8. AC on will be indicated by led illuminating on charger board green along with red charger indicator at same time
9. Wait 24hrs for batteries to fully charge
10. Turn off breaker to units to ensure units meet 30 mins discharge
11. Turn AC breaker back ON after 30 mins
12. Units will remain ON for an additional 10-15 mins depending on how loaded units are
13. After a maximum of 15-20 mins the green and red LEDs will normally turn ON
14. If other colours or flashing are indicated refer to the catalogue page provided and call factory for assistance

BUILT-IN TIME DELAY

ATD boards have a built-in digital counter which will not allow power to chip for 10 mins upon AC restoration.

After 10 mins, the "charge" LED will be a steady green which will blink for no more than 24 hours. The "status" LED will be steady green indicating "normal operation" and AC input (on initial AC, the time delay is not triggered. This occurs when the AC line is cut). If after 10 min, the LED indicator does not illuminate, refer to the "Re-setting the ATD board" section.

TO CHECK BATTERIES

1. Disconnect positive and negative battery leads
2. Hook up remote load directly to batteries
3. Use a volt meter on DC to take reading. If below 10VDC (if the battery is 12V and the AT board is for 12V), the batteries are dead and need replacing
4. If the batteries hold voltage above 10VDC (if the battery is 12V and the AT board is for 12V) with load, leave disconnected and see below

RE-SETTING THE ATD BOARD

1. Remove battery leads from circuit board
2. Turn off AC power to unit
3. Wait 15 minutes until all power is drained from circuit board
4. Re-attach battery wires, observing polarity (red + black -)
5. Turn AC back on
6. When power is restored, there will be a green "Status" LED indicator
7. If batteries are drained, the "Charge" led indicator will be on (this is normal)
8. Wait 24 hours before testing