

# HAL LED

The production line safety test solution for LED lighting manufacturers in accordance with EN 60598



The **HAL LED** is designed to ensure maximum productivity and efficiency when safety testing on LED and other luminaire production lines; while the high resolution power measurement allows for greater quality control measures to be implemented. The HAL LED tests in accordance with UL 1598, UL 8750.

## 200mVA Resolution Power Measurement

LED lighting is fast becoming the choice for 'green' conscious consumers; manufacturers are striving to produce more efficient lighting solutions for a competitive market.

With 200mVA resolution, the HAL LED is designed so that manufacturers can measure the output of every product manufactured to ensure it falls within acceptable power limits. This gives the manufacturer peace of mind that correct components, such as LED drivers, were fitted at time of manufacture.

The HAL LED is appropriate for medium-large scale electrical manufacturers: LED lighting manufacturers, LED lighting importers, QA and product auditing departments and manufacturers of low powered equipment.



## Key Features

- > Safety test solution for LED lighting manufacturers in accordance with UL 1598, UL 8750
- > Greater accuracy for low power verification - 1000VA power measuring range with 200mVA power resolution.
- > Flexible parameters allow for worldwide product testing to meet IEC/EN/UL international standards.
- > Barcode scanner support enables fast, accurate data entry.
- > Can be used standalone, with software or remote controlled. Complete flexibility no matter the application.

To see the **HAL LED** for yourself, request your live online demonstration today at [seaward.com/HALLED](http://seaward.com/HALLED)

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## Traceable Results

With quality systems placing more pressure on manufacturers to provide traceable, accurate results the HAL LED eliminates the pressure of manually logging test results

Date and Time stamps are applied to each product tested along with an optional field a product identifier such as a serial or batch number. A large memory capable of storing 6000 tested products will capture the daily results of even the busiest production line.

## Flexible User Configurable Test Sequences

The HAL LED can store up to 50 test sequences in its automatic mode configuration. Each test sequence can comprise of up to 5 individual test (not including repeats).

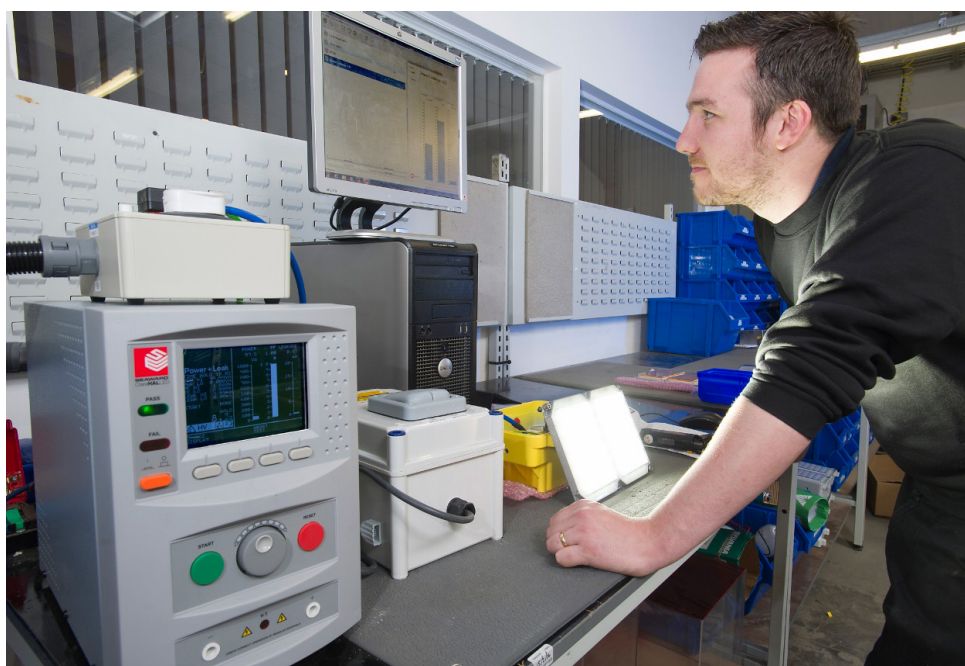
Once configured, automatic mode provides a structured and repeatable method of testing, ensuring that the required test parameters and timings are adhered to during end-of-production-line test requirements.

## Designed with Safe Testing Practices in Mind

In order to aid compliance with safe test area requirements (EN 50191) the HAL LED utilises a number of safety features.

Isolated test outputs when performing Flash (HiPot) and Insulation resistance tests reduce the potential for shock.

The built-in guard switch enables automatic disconnection of test voltages if opened, ideal for ensuring safety if a person accidentally enters the test area during a potentially hazardous test. That coupled with a 'plug and play' style beacon port enables clear identification when high voltage testing is being performed.



## Electrical Test Functions

- > Power/Functional Test (From Line Power or 50/60Hz 80 -250V via External Supply).
- > Protective Conductor Current Test (Leakage).
- > Touch current test.
- > 50Hz Flash/HiPot/Dielectric Strength Test.
- > 60Hz Flash/HiPot/Dielectric Strength Test.
- > DC Flash/HiPot/Dielectric Strength Test.
- > Earth/Ground Bond test.
- > Insulation Resistance Test.

## Additional Products/Services

- > Extended Warranty / Service Packages.
- > Training
- > On Site Calibration
- > UKAS/ ISO Calibration

Please Call to discuss your requirements for service, training and calibration.



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## Accessories

### Standard Accessories:

- 1x Output Box for Connections (477A675)
- 1x Earth Bond Probe with Remote Start Switch (01520/1)
- 1x Flash/HiPot Clip (H-5003)
- 1x HiPot Probe (03919/2)
- 1x Guard Switch for EN50191 Compliance (DCS317)
- 1x 19 Way I/O connector
- 1x 12 Way I/O Connector
- 1x Mains Power Lead (39044)
- 1x Manual
- 1x Data Cable (H-5014)

### Optional Accessories

#### Productivity Accessories:

- Earth Bond Clip (01521/1)
- Non-contact CCD Barcode Scanner (194A922)
- Desk Test n Tag Label Printer (312A912)
- Safety E-Base (482A910)
- Printer Ink Ribbon (312A952)

### Printer Labels:

- White (312A951)
- Orange (312A954)
- Red (312A961)
- Green (312A962)
- Yellow (312A956)
- Blue (312A957)

### Safe Test Area Accessories: (EN 50191 Compliance)

- Safety Warning Beacon (H-5017)
- Rubber Matting (Call to Discuss - IRM001)
- Hand Guard Switch (CON965)

### Verification Accessories

- PAT Checkbox - Daily Check Box (227A910)
- Earth/Flash Fault Simulator (Y300)

### Integration Accessories

- SwitchSmart - (462A910)

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## Technical Specification:

### AC Flash / HiPot Test

Programmable Voltage Range	0.10 kV-5.00 kV (10V/Step Resolution)
Frequency Independent of Supply	50 or 60 Hz
Voltage Display Range and Accuracy	0.10 kV - 5.00 kV $\pm 1\% \pm 5$ Counts
Voltage Display Resolution	0.01 kV
Current Display Range and Accuracy	0.01 mA-20.00 mA $\pm 1\% \pm 5$ Counts
Current Display Resolution	0.01 mA
Selectable Range of Pass/Fail Levels	0.01 mA-20.00 mA
Maximum Current Output	20.00 mA @5kV
Optional Arc Detection	9 Levels

### DC Flash / HiPot Test

Programmable Voltage Range	0.10 kV-6.00 kV (10V/Step resolution)
Programmable Voltage Range	0.10 kV-6.00 kV $\pm 1\% \pm 5$ Counts
Voltage Display Range and Accuracy	0.01 kV
Voltage Display Resolution	0.01 mA-10.00 mA $\pm 1\% \pm 5$ Counts
Current Display Range and Accuracy	0.01 mA
Current Display Resolution	0.01 mA-10.00 mA
Selectable Range of Pass/Fail Levels	10.00 mA
Maximum Current Output	9 Levels
Optional Arc Detection	

### Insulation Resistance Test

DC Output Voltage	250V, 500, or 1000V Selectable
Display Range	0.01 M $\Omega$ -500 M $\Omega$
Display Range/Accuracy	0.03 M $\Omega$ - 350 M $\Omega$ $\pm 5\% \pm 5$ Counts
	350 M $\Omega$ -500 M $\Omega$ Indication Only
Display Resolution	0.01 M $\Omega$
Pass/Fail Level	0.00 M $\Omega$ -500 M $\Omega$

### Earth / Ground Bond Test

Test Voltage	Nominal 6V AC
Frequency	50 or 60Hz (Independent of supply)
Display Range and Accuracy	0-1500 m $\Omega$ $\pm 2\% \pm 5$ Counts
Display Resolution	1 m $\Omega$

### Compliance Test Ranges

Current/Load Resistance/Time	5A - 1000 m $\Omega$ - Continuous 10A - 500 m $\Omega$ - Continuous 25A - 200 m $\Omega$ - Continuous 30A - 150 m $\Omega$ - 60 Secs 40A - 100 m $\Omega$ - 30 Secs
Settable Output Current Range	0.1A - 40.0A
Selectable Range of Pass/Fail Levels	0-1500 m $\Omega$

### Power and Leakage Test

Power Output Rating	
Test Voltage	80V - 300V AC 20A nominal (Vin-Vout)
Maximum Power Output	999.9VA

### Output Power Measurement

Single Phase Power Measurement	
Display Range and Accuracy	$\pm 5\%$ $\pm 2$ Digits (200mVA). 000.0 to 999.9 VA
Selectable Range of Pass/Fail Levels	000.2 - 1000 VA
Measurement Circuit Characteristics	
Crest Factor:	
Maximum Crest Factor = 2 Harmonic Content: Accuracy degradation is directly proportional to % harmonic content.	

### Single Phase Power Factor Measurement

Display Range and Accuracy Ratio	0.000-1.000*
Selectable Range of Pass/Fail Levels	0.000-1.000
	*Displayed value for indication only

### Leakage Current Measurement

Display Range and Accuracy	0.10 mA-20.00 mA $\pm 1\% \pm 5$ Counts
Display Resolution	0.01 mA
Selectable Range of Pass/Fail Levels	0.01 mA-20 mA

### Touch Current Measurement

Display Range and Accuracy	0.02 mA-5.00 mA $\pm 1\% \pm 5$ Counts
Display Resolution	0.01
Selectable Range of Pass/Fail Levels	0.02 mA-5.00 mA
Measuring Device	IEC/EN 60990 Fig 4



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