HAL Series

Versatile range of production line testers.

The HAL comprehensive safety testers offer outstanding levels of flexibility and functionality to dramatically improve the quality and productivity of production line safety testing.

With a range of different tests and functionality, the HAL series provides a solution for any production line testing requirement from low volume manual testing through to high volume automated test programmes. The large display and simple push-button operation makes the process of testing straightforward and fast, ensuring your production line continues to efficiently meet the demands of any number of quality and safety standards.

A choice of automatic, manual or direct PC modes offer maximum flexibility for use and control of the HAL series.

Automatic mode provides a structured, repeatable route to testing through storing complete test sequences in the internal memory of the instrument, making it ideal for the production line environment.

For environments where flexibility of test parameters and diagnostic checks are required, a manual mode enables individual tests to be performed easily.

For those wanting a fully automated approach, simple command protocols can be used in order for the HAL series tester to be controlled via a PC or other device.

The HAL 104 can communicate with a PLC (programmable logic controller) to aid automated test processes, including remote start/stop and pass/fail outputs.

UK and international variants available.

Key Features
- Fully configurable automatic test sequences
- Compatibility with label printer and barcode scanner
- Unlock advanced automation features with Safety e-Base software
- Ideal for mid to high volume production line testing

Electrical Test Functions
- Earth Bond Test
- AC Dielectric Strength Test
- DC Dielectric Strength Test
- Insulation Resistance
- Earth Leakage
- Power Test
- Power Factor Test
- ARC Detection

HAL Series Users
Designed for greater productivity, the HAL series is best suited for mid to high volume production lines.

- Production and Manufacturing Engineers/Managers/Directors
- Quality Managers/Directors
- Operations Managers/Directors

▶ HAL 104

The flagship product in the HAL series, the HAL 104 is designed to dramatically improve the efficiency and productivity of production line testing and features:

Advanced integration options

- Analogue inputs allow testing to be recorded on the HAL from external devices e.g. recording the speed of a motor whilst in operation
- Digital outputs enable control of external devices using relay control e.g. switching matrices
- Compatibility with PowerSmart and SwitchSmart for advanced automation

Full complement of electrical safety tests

- Power/leakage measurement for operational, safety and quality checks.

▶ HAL LED

The HAL LED has been designed with a reduced power measurement range with greater resolution than the HAL 104, making it ideal for the testing of low power electronics such as LED lighting.

The HAL LED is ideal for testing LED lighting

▶ HAL 103

The HAL 103 is a comprehensive tester capable of performing dielectric strength, earth/ground bond and DCIR tests.

▶ HAL 102

The HAL 102 is a dielectric strength and DCIR tester with 5 channel scanner, enabling up to 5 tests to be performed in sequence on either the same product or a group of products, without any need for human intervention.

▶ HAL 101

The HAL 101 is a simple dielectric strength and DCIR tester, enabling one test point or product to be tested at any one time.

SEAWARD

▶ **System Integration -
Total solutions for increased efficiency**

Whatever your system integration needs, Seaward has the answer. With a number of smart modules designed to improve the functionality of your HAL tester as well as a host of accessories and consumables to improve the productivity and traceability of your production line testing regime.

Seaward provides its customers with a total solution approach to electrical safety testing, and also supplies a range of accessories to help you meet EN50191, the European standard governing the safe erection and operation of electrical test installations; including enclosures, beacons and hand switches, contact us or visit our website to find out more.

▶ **Safety e-Base - Production line productivity software**

Safety e-Base Pro has been designed to ensure production line testing is not only fast and simple, but also reliable and fully customisable to meet the unique needs of any given production environment.

Used in conjunction with a HAL series safety tester, Safety e-Base Pro delivers supreme productivity, enabling totally customisable test sequences to be set up and operated via a PC from any safe, convenient location, even away from the production line if required.

Intuitive user-interface is taken a step further with the ability to provide user prompts in text or picture format – operators can be guided step-by-step on what to do next, saving time and reducing the risk of human error.

Total traceability of results is made possible through virtually unlimited storage, with results being stored on a PC or network drive.

Technical Specifications

HAL 104 / LED / 103 / 102 / 101

Earth/Ground Bond Test – 104, LED, 103, 100

Test Voltage:	Nominal 6V AC
Frequency:	50 or 60 Hz (Independent of supply)
Display Range and Accuracy:	0-1500mΩ ±2% ±5 Counts
Display Resolution:	1 mΩ
Compliance Test Ranges:	
Current/Time*	4A - 110 secs
	25A - 60 secs
	40A - 30 secs

*Test Duration limited Pro-Rata between 4A and 40A

Settable Output Current Range:	0.1A-40.0A
Selectable Range of Pass/Fail Levels:	0-1500mΩ

Insulation Resistance Test – 104, LED, 103, 102, 101

DC Output Voltage:	0.10kV-6.00kV
	(10V/Step when manually adjusted)
	(50V/Step in test sequence program)
Display Range :	0.01MΩ-500MΩ
Display Range / Accuracy:	0.03MΩ-350MΩ ± 5% ± 5 Counts
	350MΩ-500MΩ Indication Only
Display Resolution:	0.01MΩ
Pass/Fail Level:	0.00MΩ-500.0MΩ

AC Dielectric Strength Test – 104, LED, 103, 102, 101

Programmable Voltage Range:	0.10kV-5.00kV
	(10V/Step when manually adjusted)
	(50V/Step in test sequence program)
Frequency Independent of Supply:	50 or 60 Hz
Voltage Display Range and Accuracy:	0.10kV-5.00kV ±1% ± 5 Counts
Voltage Display Resolution:	0.01kV
Current Display Range and Accuracy:	0.01mA-20.00mA ±1% ± 5 Counts
Current Display Resolution:	0.01mA
Selectable Range of Pass/Fail Levels:	0.01mA-20.00mA
Maximum Current Output:	20.00mA @5kV
Optional Arc Detection:	9 Levels

DC Dielectric Strength Test – 104, LED, 103, 102, 101

Programmable Voltage Range:	0.10kV-6.00kV
	(10V/Step when manually adjusted)
	(50V/Step in test sequence program)
Voltage Display Range and Accuracy:	0.10 kV-6.00kV ±1% ± 5 Counts
Voltage Display Resolution:	0.01kV
Current Display Range and Accuracy:	0.01mA-10.00mA ±1% ± 5 Counts
Current Display Resolution:	0.01mA
Selectable Range of Pass/Fail Levels:	0.01mA-10.00mA
Maximum Current Output:	10.00mA
Optional Arc Detection:	9 Levels

Power and Leakage Test – 104 and LED

Power Output Rating

Test Voltage:	110V – 230V AC
	20A nominal (Vin-Vout)
Maximum Power Output:	Up to 5.0kVA (dependant on mains supply rating)

Output Power Measurement - 104

Single Phase Power Measurement

Display Range and Accuracy:	0.02kVA-5.00kVA ±2% ±0.02kVA
Selectable Range of Pass/Fail Levels:	0.001kVA-5.000kVA

Output Power Measurement - LED

Single Phase Power Measurement:

Display Range and Accuracy:	+/-5% +/- 2 digits
	000.0 to 999.9 VA
Selectable Range of Pass/Fail Levels:	000.2 -1000 VA

Single Phase Power Factor Measurement - LED

Display Range	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:	0.10mA-20.00 mA ± 1% ±5 Counts
Display Resolution:	0.01mA
Selectable Range of Pass/Fail Levels:	0.01mA-20mA

Touch Current Measurement

Display Range and Accuracy:	0.02mA - 5.00 mA ± 1% ±5 Counts
Display Resolution:	0.01mA
Selectable Range of Pass/Fail Levels:	0.02mA-5.00mA
Measuring Device:	IEC/EN 60990 Fig 4
	(IEC/EN 60990 Fig 3 or Fig 5 Upon Request)

General Specifications

Case Dimensions and Weight

Case Dimensions:	200W x 300H x 370D mm
Weight:	15kg approx
Operating Voltage Range:	Selectable 115V-230V AC RMS, 50/60Hz
EN50191:	Compliant when used with appropriate accessories

Standard Accessories

Instruction manual
Power Cord
Guard Plug
Comms cable
Test probes and clips dependent on model – contact us for details.

Optional Accessories

A range of optional accessories are available to compliment the HAL – contact us or visit www.seaward.co.uk/hal-series for details

Services

1 year warranty subject to product registration with Seaward, visit www.seaward.co.uk/register-product

Service and calibration by Calibrationhouse

Part Number

Varies dependent on model – contact us for details.

Thank you for reading this data sheet.

For pricing or for further information, please contact us at our UK Office, using the details below.

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