SEAWARD

Experts in what we do.

The new Clare HAL Series. Keeping electrical products safe.

CLARE HAL SERIES, FROM SEAWARD

Tested by time.

For over 70 years, manufacturers of electrical products have relied on Seaward technology to ensure that their products comply with all required performance and safety standards. Literally millions of products are tested every day with a Clare Safety Tester from Seaward.

The new Clare range from Seaward combines comprehensive electrical safety and functional testing with flexibility and genuine value for money.

Incorporating specialist expertise from Seaward, the Clare HAL Series offers innovative solutions and the highest levels of quality.

Safety and Versatility
The Clare HAL Instruments are designed for simple manual testing and automatic mode for large volume applications in the most demanding environments. They are designed for use in manufacturing, laboratory, maintenance and high speed production environments either as a stand-alone test instrument or as an integrated part of a production line system. The full range of enclosures and accessories enable users to quickly and economically meet all common international safety requirements.

Meeting the Standard
With five versions of the Clare HAL customers can select the instrument that best meets their own particular requirements. Instruments are available as single function units such as the Clare HAL100, for Ground Bond Testing, through to the fully comprehensive Clare HAL 104, providing the full range of electrical safety tests together with load leakage and power factor.
This version is the ideal solution for safety and functional testing.

With the ever changing demands of international standards, the new Clare HAL Series meets a wide range of product compliance requirements including:

IEC/EN 60598. For testing luminaires and light fittings, industrial lighting, domestic lighting, street lighting, metal halide, mercury vapour, halogen and fluorescent sodium lamps and LEDs.

IEC/EN 60950. For IT equipment such as PCs, telecoms equipment, satellite receivers and printers.

IEC/EN 60335. For household and similar electrical appliances such as washing machines, spin dryers, fridges, microwave cookers and electric cookers.

BS EN 60745. For hand-held electric tools such as electric drills, orbital sanders, circular saws, jigsaws and electric screwdrivers.

IEC/EN 61010. For electrical equipment, test and measurement equipment, DMMs, Oscilloscopes and laboratory equipment.

Traceability and production line control
Clare HAL is so much more than a test instrument range. It's an integrated system designed for test traceability. The first in the world to store results, it can be programmed with suitable test sequences which are applied automatically on your production line.

The advanced automation technology of the range gives your operation dramatic improvements in both productivity and production line efficiency.

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CLARE HAL SERIES

Five individual test units for different jobs, each with results memory.

The Clare HAL range is one of the most advanced designs available with outstanding levels of flexibility, functionality and user safety. With a simple intuitive user interface the Clare HAL can be used as a simple manual tester with the push of a button. Alternatively the full power of this unique instrument can be used to automate the testing sequence for fast performance on the most demanding of production lines.

A large, clear, full graphic display presents information either in a numerical or analogue format. Tests can be started and stopped by simply pushing the large buttons on the front of the instrument or choose from a variety of pre-selected automated configurations, including remote PCs, PLCs or interlocks.

The advanced electronic design allows the operator to select either 50 or 60 hertz HiPot and Ground Bond Testing, making the instrument truly international in its application.

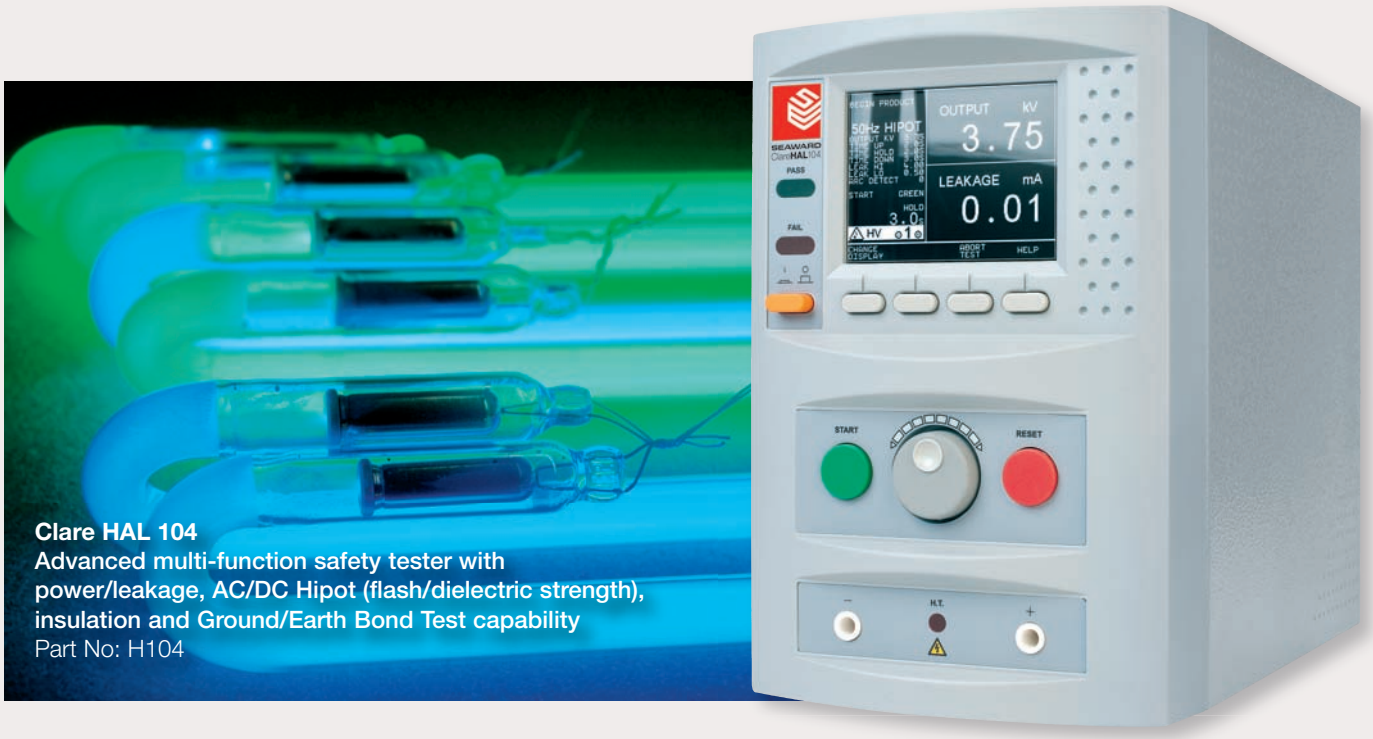
Features such as arc detection and the ability to set maximum and minimum thresholds all combine to enhance the quality of the testing process.

In addition to the Clare HAL's internal memory, which will record up to 6000 test results, the instruments can be interfaced with a variety of accessories ranging from bar code scanners through to label printers.

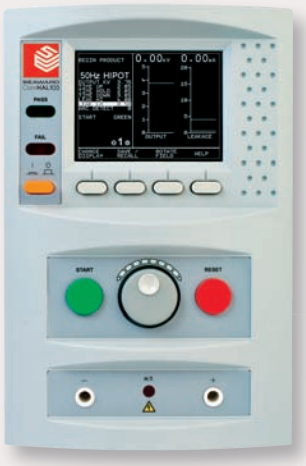
The fully comprehensive Clare HAL 104 combines all the electrical safety tests with the functional testing of load leakage and power factor. These features are particularly beneficial to organisations where energy consumption and efficiency are becoming a more important aspect of a product's design.

Select the Clare HAL unit which suits your requirements

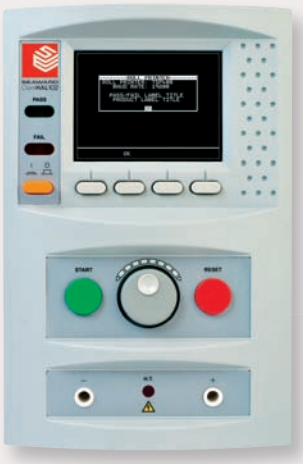
Features	100	101	102	103	104
Earth/Ground Bond	■			■	■
AC Flash/Hipot		■	■	■	■
DC Flash/Hipot		■	■	■	■
DC Insulation Resistance		■	■	■	■
ARC Detection		■	■	■	■
Leakage					■
Load Power					■
Power Factor					■
Results Memory	■	■	■	■	■
Automation Option	■	■	■	■	■
Barcode scanner/printer Option	■	■	■	■	■
Internal scanner			■		



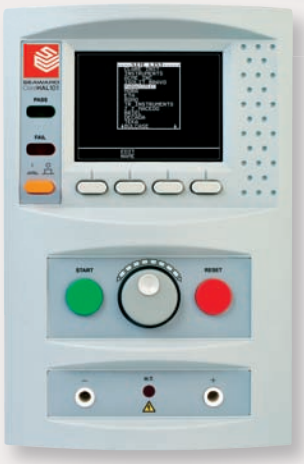
Clare HAL 104
Advanced multi-function safety tester with power/leakage, AC/DC Hipot (flash/dielectric strength), insulation and Ground/Earth Bond Test capability
Part No: H104



Clare HAL 103
AC/DC Hipot (flash/dielectric strength) and Insulation and Ground/Earth Bond Tester
Part No: H103

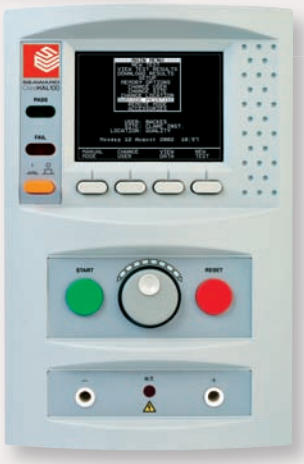


Clare HAL 102
AC/DC Hipot and DC Insulation Tester with built-in scanner switching matrix
Part No: H102



Clare HAL 101
AC/DC Hipot and DC Insulation Tester

Part No: H101



Clare HAL 100
40A Ground/Earth Bond Tester

Part No: H100

CLARE HAL SERIES

A clever design makes compliance, integration and traceability very easy to achieve.

Because traceability is such an important aspect of any safety programme, the Clare HAL incorporates an internal memory which records the results of all tests. The instrument can therefore operate in a stand-alone mode storing the result ready for download to an external database. The instrument also incorporates various input and output ports which allow the test to be mechanised when connected to a suitable safety enclosure or initiated from external controls or a bar code scanner.

The Safety E Base software package provided by Seaward runs on a host PC and provides remote control of the Clare HAL instrument. In addition, control protocols are available to allow the test instrument to be integrated into a manufacturing system where the host system takes total control of the Clare HAL safety/functional testing.

A variety of optional accessories are available including a label printer which can be driven directly from the Clare HAL. Upon completion of each test sequence a label can be printed which provides the PASS information or a FAIL label should the item under test fail to comply with the test requirements.

Whatever the testing requirement, the Clare HAL instruments have the flexibility to give any organisation the level of control and traceability which suit their own requirements.

System Integration

PLC Control

The option of a PLC can be easily accommodated to control the Clare HAL when the instrument forms part of a larger automated system.

Computer

Comprehensive Remote Control Software can fully automate the testing and results storage process. Optimise efficiency whilst ensuring that all testing is performed in accordance with the relevant standards.

Desk Test n Tag

The Seaward Desk Test n Tag system is the perfect tool for automatically producing quality PASS / FAIL labels.

ClareHAL 104

Safety Enclosures

Enclosures ensure the safety of operator working in the vicinity of the test system. Interlocks enhance safety and improve overall efficiency.

Barcode Reader

Barcode readers remove the need to manually input data and allow the use of pre-printed test codes for quick and simple configuration of the Clare HAL.

Switching Matrix

The Switching Matrix enables multiple test points to be connected for automatic sequencing.

SPECIFICATIONS: Clare HAL 104, 103, 102, 101, 100

Power Requirement

AC Voltage	Selectable 115 or 230 VAC RMS
Frequency	50/60 Hz

Mechanical Specification

Size (HxWxL)	300mm-200mm-370mm
Weight	15kg Approx

Ground Bond Test – 104, 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/Load Resistance/Time	5 A-1000mΩ - Continuous 10 A-500mΩ - Continuous 25 A-200 mΩ - Continuous 30 A-150 mΩ - 60 secs 40A-100 mΩ - 60 secs
Settable Output Current Range	0.1A-40.0A
Selectable Range of Pass/Fail Levels	0-1500mΩ

Insulation Resistance Test – 104, 103, 102, 101

DC Output Voltage	250V, 500V, or 1000V Selectable
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 Flash / Hipot Test – 104, 103, 102, 101

Programmable Voltage Range	0.10kV-5.00kV (10V/Step Resolution)
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 Flash / Hipot Test – 104, 103, 102, 101

Programmable Voltage Range	0.10kV-6.00kV (10V/Step Resolution)
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 only

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

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

Single Phase Power Factor Measurement

Display Range and Accuracy	Ratio 0.000 -1.000 ± 0.030
Selectable Range of Pass/Fail Levels	0.000-1.000

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)

SEAWARD SAFETY ENCLOSURES

The safest testing environment around.

Electrical safety testing can be a hazardous process to provide maximum safeguard for an operator and comply with the recommendations of EN50191 which specifies working conditions of electrical testing. The use of safety test enclosures is a convenient, practical way of minimising the hazards.

Over the last 70 years, Seaward has produced many thousands of test enclosures for a wide range of industrial applications.

Seaward can supply and design safety test enclosures to meet the particular applications of any organisation and our skilled and experienced engineers are able to liaise with customers to identify their particular applications.

The new range of visor safety enclosures has been introduced to provide a practical and cost effective way of supplying a standard range of safety test enclosures, with a flexible pallet system to accommodate different types of fixtures.

The visor enclosure with its stylish and ergonomic design gives operators a wide, clear field of view, simple access to the equipment being tested and minimises the impact on the operator's working area. Constructed using durable non-conducting material, this new range of enclosures is available in two sizes and is simple to install and interface with electrical safety test instruments.

Sizes	Width	Height	Depth
ENC 7	600mm	475mm	560mm
ENC 6	300mm	240mm	280mm

ENC 7 Part No: 73B240
ENC 6 Part No: 73B239


SEAWARD | ClareENC6

CLARE HAL OPTIONS

Customising your test station's never been easier with additional peripherals.

Clare Switch Matrix

Clare HAL Scanner is designed to operate with the Clare HAL 101,103 and 104. The unit operates in parallel with the Clare HAL and provides the facility to switch the High Voltage and Ground Bond measuring terminals to multiple positions on the equipment under test. The unit incorporates eight HiPot channels and eight Ground Bond channels. A display on the front of the Clare HAL Scanner unit provides clear indication of which points are being tested at any particular time.

Part No: 485A910

Clare HAL Checkbox

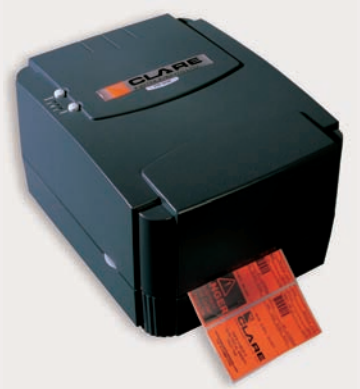
It is advisable to test any electrical safety tester at regular intervals to ensure that it is performing in line with specification and expectations. The Check Box is a simple (precision load) which can be connected to the Clare HAL and quickly confirm that measurements are within the performance level expected. The Check Box provides a load for a Bond, Hipot, Installation and leakage measurements.

Part No: 481A910

Safety e-Base

A versatile software package designed to run with the Clare HAL to provide remote control and database management. Safety e-Base runs on any PC running XP or Windows 7.

Part No: 482A910



Desk Test n Tag

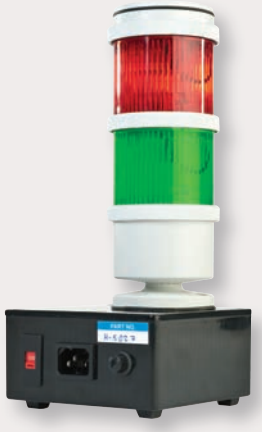
Any of the Clare HAL range will directly control the Desk Test and Tag printer to produce PASS or FAIL labels. The printer uses a thermal transfer process, eliminating the possibility of label fade and the material is highly durable and tear resistant.

Part No: 312A912

Labels

A variety of colours of this almost indestructible label material are available.

Part No:
312A954 - Orange Labels
312A951 - White Labels
312A954 - Printer Ribbon
312A956 - Yellow Labels
312A957 - Blue Labels
312A961 - Red Labels
312A962 - Green Labels
312A952 - Printer Ribbon



Warning Beacons

Warning Beacons can be configured to work with any of the Clare HAL range to provide clear indication of the operating condition.

Part No: DCS276

Part Number	Hardware
194A922	Barcode scanner
483A910	Power Smart Single Phase 50A
484A910	Power Smart Three Phase 63A
H-5014	Data Cable
G2/5001	H103 Class I Output Socket Box
H-5009	H101 Class I Output Socket Box
H-5022	H101 Class II Output Socket Box
H-5008	Foot Guard Switch
DCS317	Guard Switch
01521/1	Earth Clip
01520/1	Earth Probe
03919/2	HT Probe - Yellow
03918/2	HT Probe – Red
H-5017	Status Beacon
H-5003	HT – Clip
H-5030	Printer lead (Desk Test ‘n’ Tag)

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