Electrical test equipment for high and low voltage systems
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Web: www.seaward.co.uk
Leading the world in electrical test equipment for high and low voltage systems

At Seaward Group, we have over 70 years’ experience in the design and manufacture of innovative electrical test instrumentation.

Today, our first-class range of industrial test and measurement equipment serves a wide variety of testing and precision measurement applications meeting many international standards for both low and high voltage electrical installations.

Customers worldwide rely on the quality of our low voltage and high voltage test tools to assure the safety and performance of the whole electrical system from distribution and overhead cables, right down to the domestic plug socket in your house or business premises.

The range includes multi and single function installation testers, high voltage indicators and phasing units, soft discharge rods, ammeters and a host of accessories.

An international service and calibration operation and free technical support line mean that our customers are offered a complete solution to their test and measurement needs.
PowerTest 1557
Multi-Function installation tester with integral probe

The PowerTest 1557 is a robust multi-function installation tester with integral probe, allowing the instrument to be held and the results to be read at the same time for both safety and convenience.

The PowerTest 1557 is also very fast, performing non-trip earth loop, line loop, PFC and PSC tests with one press of a button in under 5 seconds.

The lightweight, handheld and battery powered PowerTest 1557 is supplied in a durable carrying case with a 2 year warranty, 6 x AA alkaline batteries, test lead set, shrouded safety plugs, shrouded safety test probes and a red cordless shrouded safety test probe.

Key Features:
- Fast non-trip loop test in 5 seconds
- Measures earth loop, line loop, PFC and PSC with one press of a button
- Integral probe makes reading results easy and safe
- Auto RCD test
- Robust with long battery life

Ideal for:
- Electrical Contractors
- Training Institutions
- Electrical Engineers
- Power System Engineers

Part No: 328A910

Find out more:
www.seaward.co.uk/powertest1557
Tel: +44 (0) 191 587 8741
### Technical Specification

#### TESTS

**Earth Continuity**
- **Test Current**: >200mA
- **Display Range**: 0.00ohm - 199ohm
- **Resolution**: 0.01ohm maximum
- **Test Lead Compensation**: Null lead resistance 0.00ohm - 10.00ohm
- **Live Circuit Detection**: Test inhibit if >30V detected

**Insulation Resistance**
- **Test Voltage**: 100V, 250V, 500V
- **Display Range**: 0.05Mohm – 199Mohm
- **Resolution**: 0.01ohm maximum
- **Live Circuit Detection**: Test inhibit if >30V detected

**Loop/Line Impedance**
- **Supply Voltage**: 195 - 253V/340-440V, 45Hz-65Hz
- **Test Current**: 15mA (non tripping for RCD protected circuits)
- **Display Range**: 0.01ohm - 2000ohm
- **Resolution**: 0.01ohm maximum
- **Loop Impedance**: Phase to Earth
- **Line Impedance**: Phase to Neutral/Phase to Phase
- **PFC/PSC Range**: 0 – 26kA

**RCD Trip Time**
- **Supply Voltage**: 195 – 253V, 45 – 65Hz
- **Test Currents**: 10, 30, 100, 300, 500mA
- **Trip Time Ranges**: 0ms – 2000ms at 1/2 IΔn
  - 0ms – 300ms at IΔn general
  - 0ms – 500ms at IΔn selective
  - 0ms – 40ms at 5x IΔn
- **Auto Test**: Auto sequence for 1/2 IΔn, IΔn and 5x IΔn at 0° and 180°
- **RCD Type**: General (G), Selective (S), Pulsed (A), AC (AC)

**RCD Trip Current (Ramp Test)**
- **Supply Voltage**: 195 – 253V, 45 – 65Hz
- **Test Currents**: 10, 30, 100, 300, 500mA
- **Ramp Current Range**: 1/2 IΔn to 1.1 IΔn

#### Voltage/Frequency Measurement
- **Display Range**: 0 – 440V
- **Resolution**: 1V
- **Frequency Measuring Range**: 45 – 65Hz

#### ADDITIONAL INFORMATION
- **Compliance**: IEC 61010-1 300V CAT III, EN 61557
- **Weight & Dimensions**: 0.95kg / 26cm x 10cm x 5.5cm
- **Power Supply**: 6 x AA Alkaline Batteries (supplied)
  - 6 x AA NiMh Rechargeable Batteries (optional)

#### ACCESSORIES
- **Hardware**: PowerCheck 1557 (369A910)
IRT 1557

Insulation resistance and continuity tester

The IRT 1557 is a handheld insulation resistance and continuity tester with an easy to use rotary switch for selecting tests.

The IRT 1557 measures earth continuity insulation resistance at 250V, 500V and 1000V and voltages up to 10000V AC or DC.

The insulation resistance measurement features automatic discharge of capacitive circuits and provides an automatic warning if accidentally connected to live circuits.

The IRT 1557 includes voltage measurements up to 1000V AC or DC and has a safety rating of 600V CAT III / 1000V CAT II. It is supplied as standard with one each of 1.5m black and red test lead, one each of black and red crocodile clip, and a carry case.

Key Features:
- Handheld with integral probe for easy and safe results reading
- Automatic discharge of capacitive circuits
- Dual safety rating
- Continuous test mode
- Robust with long battery life
- Clear large LCD display

Ideal for:
- Electricians
- Telecomms Engineers
- Power System Engineers
- Electrical Contractors

Part No: 365A910

Find out more:
www.seaward.co.uk/irt1557
Tel: +44 (0) 191 587 8741
## Technical Specification

### TESTS

#### Insulation Resistance

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Display Range</td>
<td>0.001Mohm - 1999Mohm</td>
</tr>
<tr>
<td>Analogue Bar Graph</td>
<td>0ohm - infinity</td>
</tr>
<tr>
<td>Test Voltage</td>
<td>250v; 500v; 1000v</td>
</tr>
<tr>
<td>Nominal Current</td>
<td>1mA minimum per EN 61557</td>
</tr>
<tr>
<td>Audible/Visible Warning</td>
<td>Inhibited if 30 V AC or DC at inputs</td>
</tr>
</tbody>
</table>

#### Continuity

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Display Range</td>
<td>0.00ohm - 19.99ohm</td>
</tr>
<tr>
<td>Open Circuit Test Voltage</td>
<td>4V DC nominal</td>
</tr>
<tr>
<td>Test Current</td>
<td>200mA</td>
</tr>
<tr>
<td>Audible and Visible Warning</td>
<td>Inhibited if 30 V AC or DC at inputs</td>
</tr>
</tbody>
</table>

#### Resistance

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Display Range</td>
<td>0ohm - 2000ohm</td>
</tr>
<tr>
<td>Test Current</td>
<td>25µA nominal</td>
</tr>
<tr>
<td>Audible and Visible Warning</td>
<td>Inhibited if 30 V AC or DC at inputs</td>
</tr>
</tbody>
</table>

#### Voltage

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Display Range</td>
<td>0V - 1000V DC/AC to 400Hz</td>
</tr>
<tr>
<td>Analog Bar Graph</td>
<td>0 - 1000V</td>
</tr>
<tr>
<td>Audible/Visible Warning</td>
<td>30 V AC or DC at inputs</td>
</tr>
</tbody>
</table>

### ADDITIONAL INFORMATION

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety Rating</td>
<td>IEC 61010-1, 600V CAT III / 1000V CAT II</td>
</tr>
<tr>
<td>Weight &amp; Dimension</td>
<td>0.8kg / 26cm x 10cm x 5.5cm</td>
</tr>
<tr>
<td>Compliance</td>
<td>EN 61557-1, -2, -4, -10</td>
</tr>
</tbody>
</table>

### ACCESSORIES

#### Hardware

- PowerCheck 1557 (369A910)
The ERT 1557 is a versatile professional instrument, ideal for testing earth systems and lightning protection installations at the time of installation or periodically. Earth measurements can be made using ground spikes or a combination of current clamps making the ERT 1557 ideal for a multitude of applications; including measuring earth resistance, the resistance of individual earthing rods, lightning grounding installations and determining soil resistivity.

The ERT 1557 has advanced electronic measuring circuitry which offers accurate measurement even in situations where high levels of external noise can influence readings.

Earth resistance measurement is carried out using 2, 3 and 4-wire methods or a combination of current clamps.

The ERT has an internal memory for 500 test results which you can download to your PC. Its user-friendly features include a large rotary dial for test selection, large LCD and simple push button test activation. The unit is supplied with four earth spikes and full test lead set. The ERT is one of the most competitive earth resistance testers on the market.

It is supplied as standard with one each of 5m black and green test lead, one each of 20m red and blue test lead, USB to MiniDIN Lead Assembly and 4 x test spikes.

**Key Features:**
- Current clamp measurement
- 2, 3 and 4-wire measurement methods
- Earth resistance and soil resistivity measurement
- Internal memory for 500 test results for data management

**Ideal for:**
- Telecomms Engineers
- Power Systems Engineers
- Electricians
- Electrical Contractors

Part No: 362A910

**Find out more:**

www.seaward.co.uk/ert1557
Tel: +44 (0) 191 587 8741
Technical Specification

TESTS

**Earth Resistance 2, 3 and 4 wire method**
- Display Range: 0.00ohm - 50.0kohm
- Measuring Frequency: 125 Hz +/- 1 Hz
- Measuring Current: <20mA effective
- Measuring Voltage: <50V effective sine wave

**Earth Resistance using current clamp**
- Display Range: 0.0ohm - 2.00kohm
- Measuring Frequency: 125 Hz +/- 1 Hz
- Measuring Current: <20mA effective
- Measuring Voltage: <50V effective sine wave

**Specific Earth Resistance (ρ)**
- Display Range: 0.00ohm – 1999kohm
- Measuring Frequency: 125 Hz +/- 1 Hz
- Measuring Current: <20mA effective
- Measuring Voltage: <50V effective sine wave

ADDITIONAL INFORMATION

- Weight & Dimensions: 0.8kg / 26cm x 10cm x 55mm
- Memory: 500 memory locations
- Communication: USB
- Compliance: EN 61557-1, -5, IEC61010-1, 300V CAT II

ACCESSORIES

- ERT Current Clamp (278A923)
PowerCheck 1557

Advanced comprehensive verification checkbox

The PowerCheck 1557 is an extremely rugged and comprehensive verification checkbox suitable for use with all multi-function and single function installation and portable appliance testers.

This rugged unit fully checks the earth continuity, insulation resistance, RCD trip time, RCD trip current, loop, PE conductor current, touch current and flash tests of your test instrumentation to ensure accurate measurement and correct operation between calibration intervals.

This simple to use instrument is built into a rugged enclosure capable of withstanding the most demanding use and conditions and is supplied with comprehensive guidance and record keeping sheets.

Suitable for use on earth continuity or earth bond testers up to 25A, the PowerCheck 1557 also verifies loop impedance or RCD testers on RCD protected circuits - without tripping the RCD.

Key Features:
- Rugged and robust portable unit
- Does not trip building RCDs
- Compatible with all installation and PAT testers
- Confirms the performance of testers between calibration intervals

Ideal for:
- Electricians
- Service Engineers
- Electrical Contractors

Part No: 369A910

Find out more:

www.seaward.co.uk/powercheck1557
Tel: +44 (0) 191 587 8741
Technical Specification

TESTS

Earth Continuity Verification
Test Current: In >200mA indication
Test Voltage: 4V < Un > 24V indication
Test Resistances: 0.5ohm and 2ohm

Insulation Resistance Verification
Open Circuit Test Voltage:
- 250V < Un < 375V indication
- 500V < Un < 750V indication
- 1000V < Un < 1500 indication
Test Current: In >1mA into 1000ohm/V
Max Test Current: Ik <2mA
Test Resistances: 0.25Mohm, 0.5Mohm, 1.0Mohm

Earth Loop Verification
Test Values: Loop, Loop+1ohm, Loop+180ohm

RCD Verification
Trip Current: 10mA, 30mA, 100mA
Trip Times: 20ms, 40ms, 500ms
Test Current multiplier: 1/2Δn, Δn and 5 Δn verification

Voltage Verification
Test Voltage: 240V AC rms test output

PAT FUNCTIONS

Earth Continuity Verification
Test Resistances: 0.2ohm and 2ohm

Insulation Resistance Verification
Test Resistances: 500kohm, 1Mohm and 2Mohm

PE Conductor Current
Test Currents: 0.1mA, 0.25mA and 0.5mA

Flash Test current
Test Currents: 0.5mA, 1mA and 1.5mA

ADDITIONAL INFORMATION
Power Supply: 230V AC ±10%
Weight & Dimensions: 1kg / 21cm x 14.5cm 8.5cm
DO7

Rugged digital microhmmeter for low resistance measurement

The DO7 digital microhmmeter is a practical instrument for low resistance measurement, ideal for use in the workshop, field or test facilities of the utilities industry. It is of rugged construction, contained in a sealed ABS plastic case with lid and carrying handle.

The DO7 digital microhmmeter features rechargeable batteries for real portability and more than one hour of continuous operation at the lowest ranges (10A), and twenty hours for all others. In addition, the internal charger will boost charge to 90% of full charge, switching automatically to a trickle maintenance charge.

It is supplied as standard with one set of test leads and a mains cord.

Key Features:
- High accuracy from 600 microhms to 60ohms ranges
- 10A measuring current
- LED display for daylight viewing
- Mains / rechargeable battery operation

Part No: 930119

Find out more:
www.seaward.co.uk/do7
Tel: +44 (0) 191 587 8741
**Technical Specification**

### Range
<table>
<thead>
<tr>
<th>Range</th>
<th>Resolution</th>
<th>Typical Current</th>
<th>Accuracy at 20°C ±5°C, 1 Year</th>
<th>Temp Coefficient/°C</th>
</tr>
</thead>
<tbody>
<tr>
<td>60Ω</td>
<td>10mΩ</td>
<td>1mA</td>
<td>±(0.15% Rdg +0.05% FS)</td>
<td>40ppm Rdg + 30ppm FS</td>
</tr>
<tr>
<td>6Ω</td>
<td>1mΩ</td>
<td>10mA</td>
<td>±(0.15% Rdg +0.05% FS)</td>
<td>40ppm Rdg + 30ppm FS</td>
</tr>
<tr>
<td>600mΩ</td>
<td>100μΩ</td>
<td>100mA</td>
<td>±(0.15% Rdg +0.05% FS)</td>
<td>40ppm Rdg + 30ppm FS</td>
</tr>
<tr>
<td>60mΩ</td>
<td>10μΩ</td>
<td>1A</td>
<td>±(0.15% Rdg +0.05% FS)</td>
<td>40ppm Rdg + 30ppm FS</td>
</tr>
<tr>
<td>6mΩ</td>
<td>1μΩ</td>
<td>10A</td>
<td>±(0.2% Rdg +0.01% FS)</td>
<td>40ppm Rdg + 30ppm FS</td>
</tr>
<tr>
<td>600μΩ</td>
<td>0.1μΩ</td>
<td>10A</td>
<td>±(0.2% Rdg +0.2% FS)</td>
<td>40ppm Rdg + 250ppm FS</td>
</tr>
</tbody>
</table>

### Calibration
- Digital, security key protected

### Battery
- Sealed lead acid, rechargeable cells giving a minimum of 1 hour of continuous measurement on the lowest 10 amp ranges and 20 hours on all other ranges. Internal charger with battery state indicator

### Average
- Automatic average and display of measurement with forward and reverse current

### Additional Information

#### Measurement
- 4 Terminal Kelvin / Thomson principle eliminates errors due to lead resistance. Open circuit measurement voltage = 2V dc

#### Display
- 0.8” LED 6000 count with automatic decimal point and polarity indication

#### Ranges
- 6 push button selected with LED indication

#### Terminals
- 6mm binding posts accept spade tags and 4 mm banana plugs

#### Working Temperature
- 0°C to 40°C rel. humidity 80% max. non-condensing

#### Storage Temperature
- -20 to +50°C

#### Mains Supply
- 100 / 120 / 220 / 240 Volts
- +10% - 13% 47Hz to 63Hz, max 80VA

#### Safety
- EN 61010-1 Protective Class 1

#### Dimensions
- 343mm x 327mm x 152mm (W D H) approx

#### Mass
- 8kg approx

#### Protection
- 415 Vrms maximum at input terminals

### DO7 Options
- DO7-RS: Remote start plug
- HS01: Duplex handspikes with 3 metre lead length
- HS01-RS: Duplex handspikes with 3 metre lead length with remote start button
- HS02: Duplex handspikes with 3 and 15 metre lead length
- HS02-RS: Duplex handspikes with 3 and 15 metre lead length with remote start button
- LS03: Lead set with 3 metre leads terminated in large Kelvin clips type KC3
- LS04: Lead set with 3 metre and 15 metre lead length terminated in large Kelvin clips type KC3
- LS05: Lead set with 4 x 1 metre leads terminated in banana plugs, 4 x crocodile clips, 4 x test probes and 2 x Kelvin clips type KC1 in miniature Kelvin clips type KC2
- MTS2: Calibration standard
- RSL01: RS232 cable
DO7 Plus

Rugged digital microohmmeter for low resistance measurement with data logger and temperature compensation

The DO7Plus is a 10A microohmmeter, which provides outstanding levels of accuracy and versatility. Suitable for a wide range of uses in manufacturing maintenance, power utilities and motor rewind applications where a cooling curve is required to plot peak resistance. Sealed in an IP67 case (when closed or IP53, lid open) it is ruggedly constructed to ensure durability.

This microohmmeter has a display length of 60,000 counts and auto averaging of forward and reverse measurement which removes thermal emf differences. A large LCD display provides full detail of measurement and the operator can control measurements and store test results using the sealed QWERTY keypad. Test results can be displayed on the screen or downloaded to a PC for further analysis.

It is supplied as standard with a power supply unit, support and driver CD-Rom, calibration certificate, standard lead pack LS05, USB lead and RS232 lead.

Key Features:
- Full cooling curve facilities built in
- Rugged, durable and easily portable
- Real time graphical plotting
- Storage of 1,000 tests downloadable via USB or RS232

Part No: 551A910

Find out more:

www.seaward.co.uk/do7plus
Tel: +44 (0) 191 587 8741
Technical Specification

**ADDITIONAL INFORMATION**

**Measurement**
4 terminal Kelvin / Thompson principle eliminates errors due to lead resistance

**Display**
60,000 count + sign LCD graphics panel with backlight select display value of °C or °F

**Ranges**
7 resistance ranges

**Terminals**
4mm safety sockets

**Working Temperature**
0 deg C to 40 deg C

**Storage Temperature**
-20 deg C to +50 deg C

**Safety**
Conforms to EN 61010-1:2001 50V Cat 3

**Dimensions**
358mm X 269mm X 155mm (W D H) approx

**Mass**
6kg (instrument only)

**Calibration**
Digital password protected, manual or via remote interface

**Battery**
Internal, fixed NiMh battery pack, Gas gauge circuits to monitor battery capacity. Internal automatic FAST / TRICKLE battery charger. DC input from 9V to 36V.

<table>
<thead>
<tr>
<th>Range</th>
<th>Current</th>
<th>Resolution</th>
<th>FSV</th>
<th>Uncertainty</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.0000 mΩ</td>
<td>10 A</td>
<td>100 nΩ</td>
<td>60 mV</td>
<td>0.05% Rdg +0.01%FS</td>
</tr>
<tr>
<td>60,000 mΩ</td>
<td>1 A</td>
<td>1 µΩ</td>
<td>60 mV</td>
<td>0.05% Rdg +0.01%FS</td>
</tr>
<tr>
<td>600.00 mΩ</td>
<td>100 mA</td>
<td>10 µΩ</td>
<td>60 mV</td>
<td>0.05% Rdg +0.01%FS</td>
</tr>
<tr>
<td>6.0000 Ω</td>
<td>10 mA</td>
<td>100 µΩ</td>
<td>60 mV</td>
<td>0.05% Rdg +0.01%FS</td>
</tr>
<tr>
<td>600.00 Ω</td>
<td>1 mA</td>
<td>1 mΩ</td>
<td>60 mV</td>
<td>0.05% Rdg +0.01%FS</td>
</tr>
<tr>
<td>6.0000 kΩ</td>
<td>100 µA</td>
<td>10 mΩ</td>
<td>600 mV</td>
<td>0.05% Rdg +0.01%FS</td>
</tr>
</tbody>
</table>

**Mains Supply**
External mains psu 90V – 253V, 47Hz to 63Hz with interchangeable plugs.

**DO7 PLUS OPTIONS**

- **LS03-P**
  Lead set with 3 metre leads and terminated with large Kelvin clips type KC3

- **LS04-P**
  Lead set with 3 metres and 15 metres lead length terminated in large Kelvin clips type KC3

- **HS01-P**
  2 x Duplex handspike with 3 metre lead length

- **HS02-P**
  Duplex handspikes with 3 and 15 metre lead length

- **CH01**
  Concentric handspikes 3M lead length

- **CO2**
  1 metre cable clamp with metal base for the precise measurement of 1 metre cable samples 0.1...100mm²

- **CO2A**
  1 metre cable clamp with metal base for the precise measurement of 1 metre cable samples 1...1000mm²

- **PT02-DO7 Plus**
  PT100 temperature probe with 1 metre lead
HV Indicators

Portable, neon and digital potential indicators for confirming voltage on earthed neutral systems

The KD1E range of high voltage indicators confirm the presence of voltage on earthed neutral electrical systems. Conforming to the G9 recommended creepage and safety standards, each model features high-grade PVC tubing and incorporates encapsulated resistor chains. For additional safety and peace of mind, each unit is compatible for use with a PH3 proving unit for checking the voltage indicator before and after it is used.

Available with either digital readout or neon indication and the option of flat or domed contact electrodes.

The KD1E units are supplied as standard with a carry case and operating instructions. The KD1E/15D and KD1E/33D also include a battery charger and proving unit.

Key Features:

**Digital Readout**
- Use as a potential indicator to determine presence of voltage or as a voltmeter
- Robust display housing
- No switches
- Provides direct reading of voltage measurements
- Low battery indicator
- Supplied with battery charger
- Specifically designed carrying case for unit and accessories

<table>
<thead>
<tr>
<th>Unit</th>
<th>System Voltage*</th>
<th>Features</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>KDIE/15D</td>
<td>15KV max</td>
<td>Resolution-10V</td>
<td>109A910</td>
</tr>
<tr>
<td>KDIE/33D</td>
<td>33KV max</td>
<td>Resolution-100V</td>
<td>109A911</td>
</tr>
</tbody>
</table>

*Earthed neutral system

**Neon Indication**
- Duplicate neon indicators within shock resistant sleeves
- Permanently connected earth cable
- Hand guards on all elements
- Direct access to vertical or horizontal metal clad switch gear
- UK Electricity Council Approval list G9

<table>
<thead>
<tr>
<th>Unit</th>
<th>System Voltage*</th>
<th>Features</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>KDIE</td>
<td>1kv - 11.5KV</td>
<td></td>
<td>113A916</td>
</tr>
<tr>
<td>KDIE/KAD</td>
<td>1kv - 11.5KV</td>
<td>KAD Audio Alarm</td>
<td>113A915</td>
</tr>
<tr>
<td>KDIE/19</td>
<td>1.5KV - 19KV</td>
<td></td>
<td>113A914</td>
</tr>
<tr>
<td>KDIE/19S</td>
<td>1.5KV - 19KV</td>
<td>AC Voltage only</td>
<td>113A913</td>
</tr>
<tr>
<td>KDIE/22</td>
<td>3KV - 22KV</td>
<td></td>
<td>113A912</td>
</tr>
<tr>
<td>KDIE/33</td>
<td>3KV - 33KV</td>
<td></td>
<td>113A911</td>
</tr>
</tbody>
</table>

Find out more:

www.seaward.co.uk/hvindicators
Tel: +44 (0) 191 587 8741
# Technical Specification

## TESTS

<table>
<thead>
<tr>
<th>Indicator Type</th>
<th>Neon Indicator</th>
<th>Digital Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicator Type</td>
<td>KD1E</td>
<td>KD1E/19</td>
</tr>
<tr>
<td>Maximum System Voltage</td>
<td>11kV</td>
<td>19kV</td>
</tr>
<tr>
<td>Maximum Voltage to Earth</td>
<td>6.6kV</td>
<td>11kV</td>
</tr>
<tr>
<td>Threshold Voltage</td>
<td>300V</td>
<td>300V</td>
</tr>
<tr>
<td>Measuring Range</td>
<td>0.00kV-8.6kV</td>
<td>0.00kV-19.0kV</td>
</tr>
<tr>
<td>Resolution</td>
<td>10V</td>
<td>100V</td>
</tr>
<tr>
<td>Sensitivity</td>
<td>AC/DC</td>
<td>AC/DC</td>
</tr>
<tr>
<td>Circuit Current (IEC 61234-2)</td>
<td>2.3mA nominal @ 6.6kV</td>
<td>0.7mA nominal @ 11kV</td>
</tr>
<tr>
<td>Dielectric Leakage Current (IEC 61234-2)</td>
<td>7µA nominal @ 13.8kV</td>
<td>11µA nominal @ 22.8kV</td>
</tr>
<tr>
<td>Length (mm)</td>
<td>330</td>
<td>330</td>
</tr>
<tr>
<td>Handle Length (mm)</td>
<td>105</td>
<td>105</td>
</tr>
<tr>
<td>Hand Guard Height (mm)</td>
<td>23.5</td>
<td>23.5</td>
</tr>
<tr>
<td>Contact Electrode Type</td>
<td>Domed</td>
<td>Flat</td>
</tr>
</tbody>
</table>

### Extension Rods

<table>
<thead>
<tr>
<th></th>
<th>1.5m Straight</th>
<th>90°</th>
<th>120°</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum System Voltage</td>
<td>33kV</td>
<td>15kV</td>
<td>33kV</td>
</tr>
<tr>
<td>Dielectric Leakage Current</td>
<td>140µA nominal @ 40kV</td>
<td>50µA nominal @ 18kV</td>
<td>130µA nominal @ 40kV</td>
</tr>
<tr>
<td>Length</td>
<td>150cm</td>
<td>78cm</td>
<td>78cm</td>
</tr>
<tr>
<td>Diameter</td>
<td>2.5cm</td>
<td>2.5cm</td>
<td>2.5cm</td>
</tr>
<tr>
<td>Contact Electrode Type</td>
<td>“V” form</td>
<td>Domed</td>
<td>Domed</td>
</tr>
</tbody>
</table>

## ACCESSORIES

### Unit

**PHB**

- Proving unit for proof testing high voltage indicators
- High voltage output
- 1200V - 1500DC
- Self test facility
- Avoids use of known supply points or bulky test equipment

- Part No.: 112A913 (domed)
- Part No.: 112A921 (flat nose)

### Bent End Adaptors

- 90° or 120°

- Part No.: 141A900 – 90°
- Part No.: 141A912 – 120°

### Extension Rod

- 1.5m extension rod for use on overhead lines
- Suitable for use with KD1E/15D, KD1E/33D, PR15D and PR33D

- Part No.: 141A901
HV Phasing Units

Phasing rods for use on systems up to 3kV, 11kV or 15kV

The PR11 provides a means of phase comparison at the point of paralleling two circuits, without the interposition of voltage transformers or secondary wiring earthed neutral systems. A neon type instrument, it is designed for use on earthed neutral systems up to 11kV. It is supplied as standard with a carry case and operating instructions.

The PR15D / PR33D units enable phase angle comparison on earthed neutral systems up to 15kV and 33kV respectively.

The digital reading instruments provide voltage measurements and are supplied with a detachable earth lead, allowing the digital leg to be used as a voltage indicator, independently from the phasing leg.

The PR15D and PR33D are supplied as standard with a PH3 proving unit, PSU100 battery charger, 2 x 1.5m straight extension rod, 3m earth lead and a carry case.

Key Features:

**PR15D / PR33D**

- Provides a means of phase angle comparison and indication of phase angle voltage at the point of intended paralleling of two circuits on neutral earthed systems. Both units are digital instruments.
- Chart provides a means of checking phase angle difference of circuits paralleled.
- Kit comprises two elements with resistor chains, one with digital indicator and the second a phasing rod.

<table>
<thead>
<tr>
<th>Unit</th>
<th>Voltage*</th>
<th>Features</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PR15D</td>
<td>15kV max</td>
<td>Resolution-10V</td>
<td>109A912</td>
</tr>
<tr>
<td>PR33D</td>
<td>33kV max</td>
<td>Resolution-100V</td>
<td>109A913</td>
</tr>
</tbody>
</table>

*Earthed neutral system

**PR11**

- For use on 1kV to 11.5kV systems
- PVC hand guards on handles of elements
- Neon indicator enclosed in shock resistant sleeve
- Direct areas possible to all types of switch gear
- Complies with UK Electricity Council Engineering recommendation G9

Part No: 113A910

Find out more:

www.seaward.co.uk/phasingunits
Tel: +44 (0) 191 587 8741
Technical Specification

TESTS

<table>
<thead>
<tr>
<th>Indicator Type</th>
<th>Neon Indication</th>
<th>Digital Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicator Type</td>
<td>PR11</td>
<td>PR15/D Digital Leg</td>
</tr>
<tr>
<td>Maximum System Voltage</td>
<td>11kV</td>
<td>15kV</td>
</tr>
<tr>
<td>Maximum Voltage to Earth</td>
<td>6.6kV</td>
<td>8.6kV</td>
</tr>
<tr>
<td>Threshold Voltage</td>
<td>300V</td>
<td></td>
</tr>
<tr>
<td>Measuring Range</td>
<td></td>
<td>0.00kV - 8.6kV</td>
</tr>
<tr>
<td>Resolution</td>
<td></td>
<td>10V</td>
</tr>
<tr>
<td>Sensitivity</td>
<td>AC/DC</td>
<td></td>
</tr>
<tr>
<td>Circuit Current (IEC 61234-2)</td>
<td>0.9mA nominal @11.5kV</td>
<td>0.5mA nominal @15kV</td>
</tr>
<tr>
<td>Dielectric Leakage Current (IEC 61234-2)</td>
<td>25μA nominal @13.58kV</td>
<td>7μA nominal @ 19kV</td>
</tr>
<tr>
<td>Length</td>
<td>33cm</td>
<td>60cm</td>
</tr>
<tr>
<td>Diameter</td>
<td>2.5cm</td>
<td>2.5cm</td>
</tr>
<tr>
<td>Handle Length</td>
<td>10.5cm</td>
<td>23.5cm</td>
</tr>
<tr>
<td>Hand Guard Height</td>
<td>23.5cm</td>
<td>23.5cm</td>
</tr>
<tr>
<td>Contact Electrode Type</td>
<td>Domed</td>
<td>Domed</td>
</tr>
</tbody>
</table>

ACCESSORIES

- 1 x Proving unit
- 1 x Battery charger
- 2 x Overhead line extensions (1.5m)
- All leads and instructions
- Supplied with carrying case
Halo Hook
Ammeter for overhead powerlines on systems up to 36kV

The Halo hook is a portable open core current transformer for accurately measuring high voltage conductor current flow in a range of 0 to 2000 amps and is suitable for use on system voltages of up to 36kV.

The instrument is applied using appropriate insulated operating poles, which quickly and simply affix to the base of the instrument with a ‘universal spline’ attachment. Hooking the Halo around the conductor, the peak reading of the rms current can be stored on a large clear LCD display and retained until reset.

Typical applications include spot load surveys, phase balancing on primary and secondary circuits and monitoring of current flow through high voltage fuses to establish their integrity. The rugged design makes this instrument ideal for field use and is used by power utilities throughout the world. Padded carrying case and full instructions included.

Key Features:
- Lightweight 1.28 kg
- Take spot checks quickly and easily
- Moulded plastic head for conductors up to 5.8cm in diameter
- For use on overhead or underground applications
- Peak hold and track modes
- Auto-ranging LCD display
- True RMS reading
- Display 3.5 digit LCD
- Max. Amperes: 1999 Min. Amperes: 0.1
- Display response time: 3 seconds to full scale
- 3% off reading ± 1 digit accuracy:
- Temperature Range: 0°F – 122°F (-18°C - 50°C)
- Auto shut off
- Operating humidity range: 80% RH at 120°F
- Maximum voltage: 36kV AC (phase to phase)
- Replaceable 9V alkaline battery - 40+ hours continuous operation
- Membrane type, tactile response control panel
- Dimensions core opening: 5.8cm x 9.4cm

Part No: 205A910

Find out more:
www.seaward.co.uk/halohook
Tel: +44 (0) 191 587 8741
Type L Plus

Large jaw clamp meter with continuous readout and store function

The lightweight Type L Plus large jaw current clamp meter is designed for the measurement of current in large diameter conductors and fuses. Its 100mm jaw opening allows for use in most difficult situations, and is suitable for porcelain fuse carriers in distribution systems.

It has high levels of insulation providing maximum safety and protection to the user. It has a measurement range of 0A to 2000A and values are shown on the large 3.5 digit LCD display.

The unit is easily controlled with two functional buttons and an OFF button. The TRACK button enables a continuous readout, whilst STORE holds the current value by freezing the display, making it ideally suited for monitoring maximum demand in electrical distribution networks.

It is supplied as standard with a carry case and operating instructions.

Key Features:

- 3.5” digit LCD display with 1.2cm high characters
- 0 – 2000 amps measurement range
- 50 – 600 volts AC 50 HZ voltage range
- 10cm x 14cm internal jaw dimensions
- 0°C - +40°C operating temperature range
- -20°C - +60°C storage range
- 9 volt PP3 IEC number 6LF22 battery
- 3% accuracy of full scale on all ranges for a conductor positioned at the centre of the jaws

Part No: 275A910

www.seaward.co.uk/typelplus
Tel: +44 (0) 191 587 8741
SDR 11 HV Discharge Rod

Portable device used for the safe damp discharge of cables or equipment under test

This instrument will allow you to conduct the safe damp discharge of the residual charge on the cable / equipment by limiting the discharge current.

Each model features high grade glass fibre tubing and incorporates encapsulated resistor chains.

It is supplied as standard with earthing wire (10 sq.mm x 5mtr), yellow green wire and carry case.

Key Features:
- Safe HV discharge rod for soft damp discharge of cables and / or equipment under test
- Supplied with flexible cable with heavy duty brass clamp for easy earth connection
- Robust single pole device
- No switches
- Suitable for voltages to 11kV
- Supplied with cushion soft carrying case

Technical Specifications
- Discharge Voltage: 11kV AC/DC max
- Peak Discharge Current: 1.1A for 100ms
- Voltage Safety Factor: > 75% of Max
- Bleeder Resistance: 10k ohm
- Discharge Capacitance: 10 µF
- Leakage Current at 35 KV AC: <50 µA
- Discharge Energy: 3675J
- Cooling: Neutral
- Total Size: 32mm x 750mm
- Weight: 2.2 kg (Net)
- Safety: IEC/EN-61010-32, IEC 1230, EMC Not Applicable
- Temperature: -5°C to 70°C

Part No: 401A912

Find out more:

www.seaward.co.uk/sdr11
Tel: +44 (0) 191 587 8741
SDR 35 HV Discharge Rod

Portable device used for the safe damp discharge of cables or equipment under test

This instrument will allow you to conduct the safe damp discharge of the residual charge on the cable / equipment by limiting the discharge current.

Each model features high grade glass fibre tubing and incorporates encapsulated resistor chains.

It is supplied as standard with earthing wire (10 sq.mm x 5mtr), yellow green wire and carry case.

Key Features:
- Safe HV discharge rod for soft damp discharge of cables and / or equipment under test
- Supplied with flexible cable with heavy duty brass clamp for easy earth connection
- Robust single pole device
- No switches
- Suitable for voltages to 35kV
- Supplied with cushion soft carry case

Technical Specifications
- Discharge Voltage: 35kV AC/DC max
- Peak Discharge Current: 3.5A for 100ms
- Voltage Safety Factor: > 75% of Max
- Bleeder Resistance: 10K ohm
- Discharge Capacitance: 6µF
- Leakage Current at 35 KV AC: <50 µA
- Discharge Energy: 3675J
- Cooling: Neutral
- Total Size: 32mm x 950mm
- Weight: 2.2 kg (Net)
- Safety: IEC/EN-61010-32, IEC 1230, EMC Not Applicable
- Temperature: -5°C to 70°C

Part No: 401A910

Find out more:

www.seaward.co.uk/sdr35
Tel: +44 (0) 191 587 8741
AGL 5

Voltage detector designed for use on systems up to 5kV including offshore, remotely operated vehicles and airfield ground lighting systems

The AGL-5 is a two pole voltage detector designed specifically for use on offshore systems, remotely operated vehicles (ROV) or airfield ground lighting (AGL) systems up to 5kV. The instrument indicates the presence of voltages greater than 50V AC/70V DC and up to 5000V AC or DC.

The unit is totally encapsulated in a high impact rugged enclosure and is IP64 rated. The ultra-bright high intensity red LED indicators and a polarising filter making it clearly visible in all working environments.

The AGL-5 is supplied as standard with a PH3-LLT proving unit for proof testing before and after use and a protective carry case.

Key Features
- Suitable for system voltages up to 5kV
- High visibility indicators

Technical Specifications
AGL-5 Two-Pole Voltage Detector
- Working Voltage 5000V DC max
- Threshold Voltage 50V AC/70V DC
- Circuit Current <3.5mA
- Indicator 2 ultra-bright red LED
- Compliance IEC 61243-2 and IEC 61243-3

PH3-LLT Proving Unit (included)
- Output Voltage 500V DC nominal
- Output current 0.45mA into 2kohm
- Two non-touchable terminals
- Neon ‘active’ indicator
- Compliance BS EN 61010-1

Part No: 374A910

Find out more:
www.seaward.co.uk/agl5
Tel: +44 (0) 191 587 8741
The Seaward LLT live line tester is a voltage detector ideal for live line testing on systems up to 1100V DC, and is encapsulated in a high impact rugged enclosure with high-visibility cable. The unit is fitted with high-intensity red LED indicators and a polarising filter making it clearly visible, even in direct sunlight.

Designed specifically for live line applications, the LLT high voltage indicator ensures conductor rails have been isolated from the power supply before maintenance or inspection work commences on rail track systems.

**Key Features**
- Suitable for live line testing up to 1100V DC
- High intensity LED indication
- Compliance BS EN61243-3

**Technical Specification**
- Working Voltage 1100V DC max
- Threshold Voltage 200VAC/300VDC
- Circuit Current <10mA
- Indicator 3 ultra-bright red LED
- Compliance BS EN61243-3

LLT Part No: 114A922

**PH3-LLT Proving Unit**

(optional accessory)
- Output Voltage 500V DC nominal
- Output current 0.45mA into 2kohm
- Two non-touchable terminals
- Neon ‘active’ indicator
- Compliance BS EN61010-1

PH3-LLT Part No: 112A925

The LLT and PH3-LLT proving unit are approved by NetworkRail – Certificate of Acceptance No. PA05/03345.

It is supplied as standard with a carry case and operating instructions.

Find out more:

www.seaward.co.uk/llt
Tel: +44 (0) 191 587 8741
Proving Units

Compact proving units for potential indicators, test lamps and multimeters

The PH3 is a highly portable, battery powered unit for proving high voltage indicators, live line testers and digital potential indicators. This proving unit produces a DC output voltage for confirming the operation of voltage indicators before and after use. Designed for use with the KD1E series, or other instruments with domed or flat contact electrodes.

It is supplied as standard with carry case and operating instructions.

PH3

Key Features
- Nominal 1500V DC output
- Neon indicator to show output is active
- Very portable and compact
- Powered by 1 x PP3 9V cell (not included)

PH3 for domed electrodes
Part No: 112A913
PH3 Flat Nose Part No: 112A921
PH3-LLT Part No: 112A925

PPX and PP1

Key Features
- Nominal 240V DC output
- Supplied with rugged carry case
- PPX supplied with convenient belt clip
- Powered by 4 x AA alkaline cells (not included)
- It is supplied as standard with carry case and operating instructions.

PPX Part No: 112A910
PP1 Part No: 112A911

The PPX and PP1 are compact proving units provide a nominal 240 volt DC output at approximately 20 milliamperes. These instruments are ideal for all types of voltage indicators including LCD, LED and filament bulb type. Supplied with a rugged carrying case with the PPX incorporating a belt clip. These proving units are simple and convenient for use in the field and are powered by 4 x AA alkaline cells.

Find out more:

www.seaward.co.uk/provingunits
Tel: +44 (0) 191 587 8741
World Leading Electrical Test Solutions

Seaward Group provides electrical test and measurement instruments and services. Our products meet the demands of all types of safety legislation and standards. We are an international market leader in a number of highly technical market sectors. We pride ourselves on high quality product design and manufacturing.

We believe in putting you, the international customer, at the heart of everything we do. Our multi-lingual customer services department, overseas technical support centres and global distribution network all help us to excel.

Rigel Medical, a Seaward Group company, currently holds The Queen’s Award for Enterprise, one of the most prestigious awards that a UK-based company can achieve.

Our six brands operate to the same high standards; innovating and enhancing electrical safety testing in their individual markets.

www.seaward-group.com