SECTION I
INSTRUMENTS, TESTERS & MONITORS
Edgcumbe HVD

High Voltage Detectors (HVDs) are widely used throughout the electricity industry to determine that high voltage lines are de-energised prior to work being carried out, thus ensuring safety of personnel. Designed to comply with relevant IEC standards, HVDs are available for use on system voltages up to 275kV. Each HVD standard kit comprises: High Voltage Detector (HVD), contact electrodes (Y and Hook), rod adapter and polymer cleaning kit.

HVDs are battery operated electronic contact devices that give clear indication of the status of the line under test both visually, by means of super-bright LEDs, and audibly with a high intensity buzzer. All detectors have the facility to self check before and after use. To distance the detector away from any source of interference four sizes of electrode extension are available in lengths of 100, 250, 650 and 1000mm. In addition to the self test facility an external battery operated proving unit is available to check the completely assembled kit (threshold voltage dependent).

KP High Voltage Tester

The KP-Test 5L capacitive voltage detector is for use on medium voltage overhead lines. It indicates the presence of operating voltage when brought into contact with the conductor. The KP-Test 5L voltage detector is distinguished by its compact design and maximum user safety.

- Class L as defined in IEC 61243-1. Can be used in rain and snow
- Integrated audible signal for reliable voltage tests even in a noisy environment
- Extremely bright LEDs in clear layout to prevent confusion
- Extensive self-test functions at switch-on
- Nominal frequency 50 Hz, nominal voltage 6.6 to 33kV. Other voltage ranges available on request
- Overall device length without insulating poles - 345mm
- Supplied with soft carry case and adapter to fit on to top section of operating rod

Voltage Detectors

The Villbek range of voltage detectors is used for indicating presence of operating voltage on overhead power lines. Extremely lightweight and compact units, indication is given by an audible signal and flashing LED. Supplied with straight probe, Y probe and hook for contact on to a range of equipment. Packaged in plastic carry case. All detectors are CE marked, manufactured and tested to IEC EN 61243-1. All units have self test feature.

<table>
<thead>
<tr>
<th>CAT NO</th>
<th>RATED VOLTAGE</th>
<th>MAX VOLTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>VKP-36M</td>
<td>6.6 - 36kV</td>
<td>40.5kV</td>
</tr>
<tr>
<td>VKP-120</td>
<td>120kV</td>
<td>145kV</td>
</tr>
</tbody>
</table>

Field Strength Detector

CAT NO: VKP-D-35

When working in proximity to live conductors the Field Strength Detector gives a warning signal (audio and flashing LED) when the line is approached. The closer to live equipment the wearer gets the more frequent the intermittent sound signal can be heard. Supplied complete with strap to easily fix to hard hat. Rated voltage range 10 - 35kV, rated frequency 50Hz.

<table>
<thead>
<tr>
<th>RATED VOLTAGE</th>
<th>DISTANCE SIGNAL IS ACTIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>10kV</td>
<td>1 to 2.5m</td>
</tr>
<tr>
<td>20kV</td>
<td>1.5 to 5m</td>
</tr>
<tr>
<td>35kV</td>
<td>2 to 5.5m</td>
</tr>
</tbody>
</table>
CARL Crossarm Leakage Detector

**CAT NO: CARL-1000**

The CARL Crossarm Leakage Detector has been designed in the UK for the purpose of checking leakage current on crossarms or metalwork on unearthed overhead line systems up to 11kV. With the attachment of standard operating rods the CARL can easily be hooked on to a crossarm to enable a safe means of ascertaining if the metalwork is energised due to leakage current through breakdown of the line insulators.

The CARL instrument consists of:

- A 910mm long foam filled fibreglass test rod with two screened banks of resistors and two 11kV switching relays. The test rod has a 250mm aluminium hook with a 180mm opening to accommodate all sizes of crossarm or metalwork. The test rod incorporates a male socket. It can also be used on sub-station busbars.
- An 18 metre length of coaxial cable with one female and one male socket. The cable is insulated to withstand 15kV for 3 metres of its length from the female socket.
- A 2 metre length of earthing cable with a male socket one end and a heavy duty clamp on the other.

Full operating instructions are provided with each instrument.

Edgcumbe 11kV Crossarm Leakage Detector Kit

**CAT NO: LLT-F0256B**

The Edgcumbe Live Line Tester Crossarm Leakage Kits have been specifically designed to perform leakage measurements on unearthed pole crossarms on systems up to 15kV. The kit can also be used on busbars in sub-stations.

Made from high quality fibreglass rods and polycarbonate mouldings, suitable for outdoor use.

Tester is scaled 0 – 15kV. Effective scale resolution from approximately 200V to 15kV.

Complies with IEC1243 Part 2.

Readings displayed on an analogue meter, the housing of which can be rotated through 240°.

A battery operated proving unit allows the equipment to be tested before and after measurements have been made.

The kit includes a live line tester with handle and earth lead, overhead line adapter, proving unit with batteries, polymer cleaning kit, instruction manual, operating rod adapter with 1.2m earth lead and hard carry case.
Fault Locator for Low Voltage ABC Conductor

**CAT NO: VKP-LZK04**

Used to locate faults on low-voltage insulated ABC conductor. The set includes a transmitter unit and receiver with an adapter for use with insulated operating rods. The transmitter’s electrodes are connected on to the load point of the faulted cable (phase-neutral or phase-phase).

The transmitter unit is powered from the low-voltage network. It generates a signal that is transmitted down the cable. The signal is extra-low voltage and does not affect the consumer supply. The receiver unit and ‘U’ shaped antenna are applied to the line using the operating rods.

The user searches for the fault location on the cable by sliding the receiver down the line. The receiver unit gives a visual and audible signal. When the receiver unit passes over the fault, it falls silent and its LED does not flash, indicating the location of the fault.

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Live Working Break Indicator

The device is used for monitoring the presence of voltage on the 11kV network during live working. The instrument gives a flashing green light when the system voltage is present. If there is a fault causing loss of power, the instrument gives an audible alarm and flashes red, warning the linesman of the interruption.

<table>
<thead>
<tr>
<th>CAT NO</th>
<th>RATED VOLTAGE</th>
<th>MAX VOLTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>VKP-FAM-35</td>
<td>6 - 35kV</td>
<td>40.5kV</td>
</tr>
</tbody>
</table>

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Radio Phasing Set Incorporating Voltage Detection

The radio phasing set is used for phase comparison on networks up to 38kV. The device set consists of a transmitter and a receiver unit with radio frequency communication. The receiver unit gives information via different light and sound signals whether the phase detected is the same or differs from the one detected by the transmitter. The comparison is continuous, there is no time limit. The communication distance of the two units is 10 - 15m. Single unit can be used as a voltage detector.

<table>
<thead>
<tr>
<th>CAT NO</th>
<th>RATED VOLTAGE</th>
<th>MAX VOLTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>VKP-RFA-638-SET</td>
<td>6 - 38kV</td>
<td>40.5kV</td>
</tr>
</tbody>
</table>
AMPSTIK  High Voltage Ammeter
Slips on and off the conductor with ±1% accuracy. Measures amps 1 - 5000A. Open CT rejects stray magnetic fields. Sample and hold measurements. High voltage rated 500kV.

AMPSTIK PLUS  High Voltage Ammeter
Slips on and off the conductor with ±1% accuracy. Open CT that rejects stray magnetic fields. Single button operation. Flame resistant housing. Sample and hold four unique measurements. Measures amps 1 - 5000A.

OHMSTIK  Live Line Ohmmeter
Measure exact resistance. Measures up to 9 sets of readings. Measures resistance and displays both amps (1 - 1400A) and micro-ohms (5 - 2500µΩ). Simple to use one button operation.

QUALSTIK PLUS  Power Quality Meter
Slip over a high voltage conductor and collect four power quality measurements. Measures total harmonic distortion (THD). Measures leading or lagging power factor. Measures amps. Indicates direction of current flow.

RADIO AMPSTIK  Radio Linked - Multiple Reading Ammeter
Mount the display on the hotstick or hold in your hand. Records up to four readings. Operates in the 900mHz non licensed frequency band. Remote read out up to 50 feet away. Measures amps 1 - 5000A.

VOLTSTIK  Distribution Voltmeter
Safely & accurately measure the primary voltage 0 - 37kV. Non-conductive meter case & universal adapter. Remote display for instant confirmation of the reading & holds up to four unique readings. Take Phase-to-Phase & Phase-to-Ground measurements via single stick operation.

AMCORDER  Recording Ammeter
Collect and analyse load profiles. Patented open CT sensor with ±1% accuracy. Easily clamps to the line in seconds. Recorded data quickly downloads into the user’s PC.

VARCORDER  Amp, Power Factor & Var Recorder
Collect and analyse load & power profiles. Easily clamps to the line in seconds. Infrared communication with no annoying cables to connect.

Find videos and additional resources for this product at www.horizonutilitysupplies.com
Greenlee 5kV Megohmmeter

With its ability to test up to 5000 volts, the Greenlee® Megohmmeter detects potential problems that standard megohmmeters may miss. That makes this powerful performer the perfect choice for non-destructive insulation tests.

It features four test voltages: 500V, 1000V, 2500V, and 5000V plus resistance measurement range up to 500GΩ. Measurement category Cat III, 600V per IEC 61010-1. Extra-large analogue display for easy viewing. Accessories included: test leads, 4 x 1.5V D batteries, integrated carrying case, snap-on test lead pouch.

<table>
<thead>
<tr>
<th>CAT NO</th>
<th>TEST VOLTAGE</th>
<th>RANGE</th>
<th>VOLTAGE TEST RANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>5990</td>
<td>500, 1000, 2500, 5000V</td>
<td>500k to 500GΩ</td>
<td>600V AC/DC</td>
</tr>
</tbody>
</table>

Megger BM15 5kV Insulation Tester

CAT NO: BM15

The Megger BM15 is a compact 5kV insulation tester. The BM15 is very simple to use and provides a quick and accurate reading of insulation resistance using an analogue display with a maximum reading of 20GΩ. It features four test voltages: 500V, 1kV, 2.5kV and 5kV, and a wide measuring range: 100kΩ to 20GΩ. Battery powered with a large single scale analogue display. Voltage range to 600V and a unique scale overlay for pass/fail bands. Range down to 100kΩ ideal for go/no-go testing.

Megger MIT300 Series 1kV Insulation Testers

The MIT300 range of insulation and continuity testers from Megger is durable and easy to use. The testers also incorporate a comprehensive set of features designed to ensure operator safety, even under conditions of accidental misuse.

The range includes four models, ensuring an exact match for the needs of every user, all of which offer automatic discharge of the circuit after testing, audible and visual warning if the test probes are applied to a live circuit and a test inhibit feature which operates automatically under live circuit conditions. The units also conform fully to IEC 61010-1 for use in Category III 600V applications and provide all of the facilities needed to meet insulation testing requirements relating to the current edition of the IEE Wiring Regulations.

<table>
<thead>
<tr>
<th>CAT NO</th>
<th>NOMINAL TEST VOLTAGE</th>
<th>MEASURING RANGE</th>
<th>ACCURACY (AT 20°C)</th>
<th>VOLTAGE RANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIT300</td>
<td>500V, 250V (DC)</td>
<td>10kΩ - 999MΩ</td>
<td>±3%, ±2 digits up to 1MΩ, ±5% up to 100MΩ, ±30% up to full scale</td>
<td>0 - 600V AC (50/60Hz) or DC</td>
</tr>
<tr>
<td>MIT310</td>
<td>1000V, 500V, 250V (DC)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MIT320</td>
<td>1000V, 500V, 250V (DC)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MIT330</td>
<td>1000V, 500V, 250V (DC)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

MIT400 Insulation & Continuity Tester

CAT NO: MIT400

Industrial maintenance insulation and continuity tester.

- CAT IV 600V applications. Insulation testing to 1000V and to 200GΩ
- TRMS and DC voltage measurement. Continuity testing at 200mA down to 0.01Ω
- Analogue and dual digital display. Insulation and continuity limit alarms
- PI/DAR and timer function. Test result storage. Bluetooth wireless data transfer
Earth Ground Resistance & Soil Resistivity Tester

Megger’s popular 4-terminal ground testing instrument family includes four basic models with different kit variants for each that include select accessories for greater testing flexibility. The DET4TD2 is a dry-cell battery powered basic 4-terminal tester.

The basic kit includes the test leads, stakes, batteries and calibration certificate, delivered in a tough polypropylene carry case – everything you need to start testing in one package. All models are rated to IP54, making them truly outdoor instruments. They are designed to meet stringent safety standards and are rated CAT IV 100V. The ground testers have been designed to be easy to use – a large selector switch makes selection of 2, 3 or 4 pole tests easy with gloved hands – and the design makes the fitting of shorting links to perform 2-pole tests a thing of the past.

Wire Loop Tester

CAT NO: LTW325

The new Megger two wire earth loop testers verify the loop impedance of a live electrical circuit, without the need to disconnect the power supply.

Features: two wire non-tripping loop tester, 50V to 440V operation, 110V centre-tap loop testing, CAT IV installation testing, auto start operation, 0.01 Ω resolution.

Cable Fault Indicator

CAT NO: T631

The ultimate hand-portable cable test tool for CAT V, CCTV and coaxial cable. Also provides a useful test method for contractors to demonstrate that connectors, taps and other cable work meet international standards. At 3 metres it combines the shortest distance with a highly practical 12 kilometre long range. Faults and high reflective features are evaluated by a unique Return Loss Measurement function.

High Voltage Test Set

CAT NO: PT18-10

The PT18-10 high voltage DC test set is designed to perform tests on installed cable and jointing systems. The unit has a variable output voltage with a maximum of ±18kV DC or ±30kV DC. The instrument has a maximum charging capability of 10mA. A zero-volt interlock is fitted that prevents the output being switched on unless the output control is at zero.

Power Load Recorder

CAT NO: 1735

The Fluke 1735 is one of the most popular power logging instruments available. The power meter is one of the best instruments for conducting energy studies and basic power quality logging activities. It has the ability to automatically detect and capture voltage events, including flexible current probes that require no external power or batteries. The rugged design allows it to log RMS voltage, RMS current, phase angle, voltage events, voltage and current THD in any working environment.
Silvertronics Phase Rotation Meter

For use in the installation and operation of 3 phase equipment. Easy to see rotating disc indicating the phase sequence clockwise or anti clockwise. Fitted with Silvertronics GS 3B fused leads new colours as standard. Unique meter box adapter and breaker box adapter available. Robust housing incorporating wrist strap. Supplied in own carry case.

<table>
<thead>
<tr>
<th>CAT NO</th>
<th>MEASUREMENT CATEGORY</th>
<th>STANDARD</th>
</tr>
</thead>
<tbody>
<tr>
<td>135033</td>
<td>1000V Cat III / 600V Cat IV</td>
<td>IEC 61010 / 031-2002</td>
</tr>
</tbody>
</table>

Greenlee Phase Sequence Indicator

Identifies L1, L2, L3 phases and indicates rotation of the motor before installation. Clockwise and anticlockwise indication via neon lamps.

<table>
<thead>
<tr>
<th>CAT NO</th>
<th>MEASUREMENT CATEGORY</th>
<th>LIVE PHASE INDICATORS</th>
<th>MOTOR ROTATION INDICATORS</th>
</tr>
</thead>
<tbody>
<tr>
<td>5702</td>
<td>Cat III, 600V per UL 3111-1</td>
<td>3 neon lamps</td>
<td>2 neon lamps</td>
</tr>
</tbody>
</table>

Greenlee Motor Rotation Indicator

Tests unenergised 3 phase motor to determine phase sequence for desired rotation. Two red LEDs indicate rotation direction and green LED indicates if instrument is switched on.

<table>
<thead>
<tr>
<th>CAT NO</th>
<th>MOTOR ROTATION INDICATORS</th>
</tr>
</thead>
<tbody>
<tr>
<td>5123</td>
<td>2 LEDs</td>
</tr>
</tbody>
</table>

Transformer and Capacitor Tester

CAT NO: 6793

- Used to test the condition of transformers and capacitors before placing them into service. Test new transformers and capacitors, plus trouble shoot in-service units.
- Provides operating personnel a safe and reliable method to verify that transformers or capacitors are not shorted or open prior to energising.
- Detects failures in equipment before loading and transporting to the job site. Eliminates the blowing of cutout fuses to determine the condition of equipment.
- Magnetized back allows hands to be free to install and remove cables and clips. Lightweight. Has built in push button test feature prior to applying it to equipment. Four bright LED lights signal the condition of the equipment being tested.
- Tester can be used to verify that secondary services are not shorted prior to energising the transformer. The T&C tester is powered by a 9V battery.
- Can be used to -40° C. Housing is weatherproof, high-impact resistant plastic.
Drummond Test Lamp

CAT NO: MTL10

The new Drummond MTL10 test lamp offers safe voltage indication from 50 - 500V AC/DC. The robust design meets the recommendations of the Health and Safety Executive in their guidance notes on the electrician’s test lamp (GS38) as well as complying with BS EN 61243-3 and BS EN 61010, CAT III 1000V and CAT IV 600V.

Both the lamp housing and the probe have a finger shield and insulated probe tip with only 4mm of exposed metal. A two layer double insulated cable with white inner insulation gives a clear warning of abrasion that might compromise the user’s safety and is resistant against heat and oil. To enable use in most circumstances, a right angled probe tip is supplied in addition to the two straight tips. For maximum ease of use the right angled probes can be rotated through 90°, 180° and 270°.

A unique feature of this new Drummond test lamp are the four distinctive bands of illumination, with a 360° viewing angle, providing indication of voltages above 50V, 100V, 200V & 400V, even in bright sunlight. This allows for accurate identification of potentially lethal voltages at 50V and enables the user to distinguish between 110V, 230V and phase to phase voltages in a 3 phase system.

RB1 Test Bulb

CAT NO: RB1

The RB1 has been designed to replace pigmy filament bulbs in voltage detectors such as the Drummond range of voltage indicators. The pigmy bulb indication is by varying brightness of the filament for different voltages. The RB1 displays its voltage levels by different intensities and different arrays and colours of LEDs. The RB1 has been designed for use with a 2000Ω resistor in series with it. A special high-integrity resistor is included with each RB1.

Cyclim Voltage Test Lamp

CAT NO: CYCLIM-TM

Voltage level across the probes is indicated by brightness of the test bulb. Easy access with slender moulded-in stainless prods. Angled probe end available for difficult corners. Robust construction for industrial & domestic use. Lightweight (215g) & pocket sized (235 x 100mm). Supplied with carrying wallet and user instructions.

In the event of test bulb failure, a warning safety neon glows avoiding wrong indication on a ‘live’ contact. 500mA HRC fuse in each probe. Lead is rubber insulated and sheathed 1.5mm². Tester mouldings in flame-retardant, self extinguishing nylon.

Seaward TriTester

CAT NO: TRITESTER

Intrinsically safe 2-pole voltage and continuity tester, designed for use under the most arduous industrial conditions with complete safety. One of the most durable test lamps available. Capable of voltage indication 50V – 200V, 300V – 600V AC/DC.

Junior Testoscope

CAT NO: J847

Operates on 100/7500V AC/DC. Makes over 30 of the most important tests, including live conductors, correct earthing, polarity, leakage, continuity and earth etc.
Proving Units

PD690 Proving Unit

CAT NO: PD690

The PD690 proving unit produces 690V AC/DC to enable voltage indicators to be fully checked. This unit is suitable for indicators with 230V and 415V / 440V AC or DC detection ranges. The PD690 is one of the few proving units to check indicators with ranges above 250V. It can also check Drummond and other filament lamps due to its output being sufficient to illuminate the bulb.

PD430 Proving Unit

The Martindale PD430 is a 440V AC proving unit, designed to enable voltage indicators to be fully checked in compliance with Health & Safety recommendations.

The PD430 features a low 50V check as well as a high 440V check. This model is suitable for use with any two pole voltage tester, with LED or LCD indication. The PD430 can also check Drummond and other filament test lamps as its output is sufficient to illuminate the bulb. This model is not designed for use with multimeters.

<table>
<thead>
<tr>
<th>CAT NO</th>
<th>OUTPUT VOLTAGE</th>
<th>OPERATING TEMPERATURE</th>
<th>BATTERIES</th>
<th>WEIGHT</th>
</tr>
</thead>
</table>
| PD430  | First output: 50V nominal  
Second output: 440V nominal | -10°C to +40°C at max 70% RH | 6 x LR6 / MN1500 1.5V | 400g |

Seaward PP24A Proving Unit

CAT NO: PP24A

The Seaward PP24A is a lightweight, compact proving unit providing a nominal 240V output at a nominal 2 millamps. This device is ideal for a wide range of voltage indicators including LED, LCD and multimeters.

Powered by 1 x PP3 alkaline cell.

Seaward PP1 Proving Unit

CAT NO: PP1

The Seaward PP1 Proving Unit is a highly portable, 230V DC battery powered proving unit. Ideal for checking that voltage indicators and voltmeters are functioning before and after use. Neon indication when output voltage is active. A self-test indicates output condition.
DM-25


<table>
<thead>
<tr>
<th>CAT NO</th>
<th>VOLTAGE MEASUREMENT</th>
<th>RESISTANCE</th>
<th>MEASURING CATEGORY</th>
</tr>
</thead>
<tbody>
<tr>
<td>DM-25</td>
<td>600V AC/DC</td>
<td>&lt;2MΩ</td>
<td>CAT III 600V</td>
</tr>
</tbody>
</table>

DM-45

The Greenlee DM-45 is a multi-purpose meter for most electrical requirements. It measures AC/DC voltage and AC/DC amperage, auto/manual ranging, temperature measurement, audible continuity and diode test, ETL and CE approved. Large, easy-to-read ratings on back-lit screen. Includes test leads, one 9V battery, protective boot, type K thermocouple, 392°F (250°C) maximum. Rugged rubberised housing. Greenlee Limited Lifetime Warranty.

<table>
<thead>
<tr>
<th>CAT NO</th>
<th>VOLTAGE MEASUREMENT</th>
<th>CURRENT MEASUREMENT</th>
<th>RESISTANCE</th>
<th>MEASURING CATEGORY</th>
<th>TEMPERATURE MEASUREMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>DM-45</td>
<td>600V AC/DC</td>
<td>10A AC/DC</td>
<td>&lt;40MΩ</td>
<td>CAT III 600V</td>
<td>Type K</td>
</tr>
</tbody>
</table>

DM-210A

Digital multimeter. Features automatic and manual range selection, a large, backlit LCD display, automatic stop. Analogue-bargraph and optical and acoustic warning in the event of incorrect handling. Supplied with TSG-3 temperature probe, test leads, protective covering, 2 x 1.5V AAA batteries.

<table>
<thead>
<tr>
<th>CAT NO</th>
<th>CAPACITY</th>
<th>VOLTAGE MEASUREMENT</th>
<th>CURRENT MEASUREMENT</th>
<th>RESISTANCE</th>
<th>FREQUENCY</th>
<th>MEASURING CATEGORY</th>
<th>TEMPERATURE MEASUREMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>DM-210A</td>
<td>60.00nF - 3000µF</td>
<td>0 - 1000V AC/DC</td>
<td>0.1µA - 8A AC/DC</td>
<td>&lt;60MΩ</td>
<td>5Hz - 1,000MHz</td>
<td>CAT II 1000V, CAT III 600, CAT IV 300</td>
<td>-50°C - 1000°C</td>
</tr>
</tbody>
</table>

GT-220

Electrical tester. Trouble-free, automatic measurement of voltage and resistance. Low impedance rules out measurement of stray voltage, automatic range selection ensures fast measurements. Features measurement of direct and alternating voltage, contactless voltage check for determining current-carrying lines, longer battery service life due to automatic shut-off, display of low battery charge, resistance measurement, acoustic continuity check and data hold function for recording measurement.

<table>
<thead>
<tr>
<th>CAT NO</th>
<th>VOLTAGE MEASUREMENT</th>
<th>RESISTANCE</th>
<th>MEASURING CATEGORY</th>
</tr>
</thead>
<tbody>
<tr>
<td>GT-220</td>
<td>&lt;1000V</td>
<td>&lt;6MΩ</td>
<td>CAT IV, 1,000V</td>
</tr>
</tbody>
</table>
GT-12

Contactless voltage tester 50 - 1000V. Features fast, easy, contactless voltage testing, clear LED and acoustic warning signal indicates presence of voltage, ON/OFF switch provides longer battery service life. It is a handy pen format which fits easily into a jacket or tool pocket with a rubber-coated comfort handle. Fast, easy replacement of batteries, automatic self test and auto off function after 5 mins of inactivity. Supplied with 2 x 1.5V AAA batteries.

<table>
<thead>
<tr>
<th>CAT NO</th>
<th>FREQUENCY RANGE</th>
<th>VOLTAGE RANGE</th>
<th>MEASURING CATEGORY</th>
</tr>
</thead>
<tbody>
<tr>
<td>GT-12</td>
<td>50 - 500Hz</td>
<td>AC 50 - 1000V</td>
<td>CAT IV, 1,000V</td>
</tr>
</tbody>
</table>

GT-16

With all the features of the GT-12 but with a range of 5 - 1000V and the additional benefit of being adjustable to safely detect power and low voltage in outlets, lighting fixtures, wires and cables.

<table>
<thead>
<tr>
<th>CAT NO</th>
<th>FREQUENCY RANGE</th>
<th>VOLTAGE RANGE</th>
<th>MEASURING CATEGORY</th>
</tr>
</thead>
<tbody>
<tr>
<td>GT-16</td>
<td>50 - 500Hz</td>
<td>AC 5 - 1000V</td>
<td>CAT IV, 1,000V</td>
</tr>
</tbody>
</table>

GT-55E

Bipolar voltage tester with LED display. Features display of AC and DC voltage, bipolar rotary field testing, unipolar phase testing, optical and acoustic, continuity check - optical and acoustic, diode test, polarity display, loud beeper, unique measuring point illumination for working in poor lighting conditions, IP64 - splash water proof and dust tight. Supplied with 2 x 1.5V AAA batteries.

<table>
<thead>
<tr>
<th>CAT NO</th>
<th>VOLTAGE RANGE</th>
<th>FREQUENCY</th>
<th>MEASURING CATEGORY</th>
</tr>
</thead>
<tbody>
<tr>
<td>GT-55E</td>
<td>6 - 690V AC/DC</td>
<td>0 - 65Hz</td>
<td>CAT III 1000V; CAT IV, 600V</td>
</tr>
</tbody>
</table>

Test Mate VVD-12 Vibrating Volt Tester

May be used to find a break in a wire or detect the presence of voltage at outlets, light fixtures, circuit breakers, wires and cables, etc. Detects AC voltage (90 - 1000V), uses non-contact method of voltage testing, totally insulated, no exposed metal or conductive parts. Checks for AC voltages without necessity of disconnecting the electrical system. CAT III 1000V. Small size - clips securely and batteries are included. IP65, LED and vibrates.

<table>
<thead>
<tr>
<th>CAT NO</th>
<th>VOLTAGE RANGE</th>
<th>MEASURING CATEGORY</th>
</tr>
</thead>
<tbody>
<tr>
<td>VVD-12</td>
<td>90-1000V</td>
<td>CAT III 1000V</td>
</tr>
</tbody>
</table>
CM-410

The CM-410 clamp meter features a narrow, compact design for measuring in tight spaces. Jaw opening 27mm, measurement of resistances up to 20MΩ, data hold function for recording important measurement results, automatic device shut-off, continuity test. Supplied with test leads, durable carry case and 2 x 1.5V AAA batteries.

<table>
<thead>
<tr>
<th>CAT NO</th>
<th>DISPLAY</th>
<th>VOLTAGE MEASUREMENT</th>
<th>CURRENT MEASUREMENT</th>
<th>RESISTANCE</th>
<th>MEASUREMENT CATEGORY</th>
<th>JAW OPENING</th>
</tr>
</thead>
<tbody>
<tr>
<td>CM-410</td>
<td>3 ½-character LCD (display range 2000)</td>
<td>&lt;600V AC/DC</td>
<td>&lt;400A AC, &lt;600A DC</td>
<td>&lt;20MΩ</td>
<td>CAT III, 600V</td>
<td>27mm</td>
</tr>
</tbody>
</table>

CM-950

The CM-950 clamp meter features true RMS for the most precise measurements if harmonic oscillation is present. Jaw opening of 35mm. Current measurement AC/DC, alternating voltage, frequency and resistance, dual reverberation sensor, backlit display, Peak Hold and Data Hold function, MIN/MAX function, analogue bar chart, automatic zero-point setting, automatic shut-off. Supplied with durable carry case & battery 9V, TSG-3, test leads.

<table>
<thead>
<tr>
<th>CAT NO</th>
<th>DISPLAY</th>
<th>VOLTAGE MEASUREMENT</th>
<th>CURRENT MEASUREMENT</th>
<th>RESISTANCE</th>
<th>FREQUENCY</th>
<th>MEASUREMENT CATEGORY</th>
<th>JAW OPENING</th>
</tr>
</thead>
<tbody>
<tr>
<td>CM-950</td>
<td>LCD (display range 4000)</td>
<td>&lt;600V AC/DC</td>
<td>&lt;600A</td>
<td>&lt;400Ω</td>
<td>0.400kHz</td>
<td>CAT III, 600V</td>
<td>35mm</td>
</tr>
</tbody>
</table>

CM-1550

The CM-1550 clamp meter features true RMS for the most precise measurements if harmonic oscillation is present. Jaw opening 51mm. Current measurement AC/DC, alternating voltage, frequency and resistance, dual reverberation sensor, backlit display, Peak Hold and Data Hold function, MIN/MAX function, analogue bar chart for checking fast changes, acoustic continuity check. Supplied with durable carry case, battery 9V, TSG-3, test leads.

<table>
<thead>
<tr>
<th>CAT NO</th>
<th>DISPLAY</th>
<th>VOLTAGE MEASUREMENT</th>
<th>CURRENT MEASUREMENT</th>
<th>RESISTANCE</th>
<th>FREQUENCY</th>
<th>MEASUREMENT CATEGORY</th>
<th>JAW OPENING</th>
</tr>
</thead>
<tbody>
<tr>
<td>CM-1550</td>
<td>LCD (display range 4000)</td>
<td>&lt;1,000V AC/DC</td>
<td>&lt;1,000A</td>
<td>&lt;400Ω</td>
<td>0.400kHz</td>
<td>CAT III 750V AC/100V DC, CAT IV 600V</td>
<td>51mm</td>
</tr>
</tbody>
</table>

CSJ-100

The CSJ-100 is an open jaw type meter for current measurement AC/DC, voltage, frequency and resistance up to 20MΩ, acoustic continuity test and diode test, alarm and LED for contactless voltage detection, automatic shut-off. Data Hold for recording the measured values, 3 ½-place LCD display (counter value with maximum 1999 points). Supplied with durable carry case, 2 x 1.5V AAA batteries, test leads fixed to the device.

<table>
<thead>
<tr>
<th>CAT NO</th>
<th>DISPLAY</th>
<th>VOLTAGE MEASUREMENT</th>
<th>CURRENT MEASUREMENT</th>
<th>RESISTANCE</th>
<th>MEASUREMENT CATEGORY</th>
<th>JAW OPENING</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSJ-100</td>
<td>LCD (display range 2000)</td>
<td>&lt;1,000V AC/DC</td>
<td>&lt;200A</td>
<td>&lt;20MΩ</td>
<td>CAT II 1000V, CAT IV 600V</td>
<td>16mm</td>
</tr>
</tbody>
</table>

TSGF Fused Test Leads

Measuring cable set with fuses CAT IV 1000V. Suitable for Greenlee clamp meters and digital multimeters. Features double insulated silicone conductors with two coatings, superfine stranded copper cable, highly flexible 1.2 metre cable.
Classic Tone and Probe Kit

For identifying individual conductors or cables in the communications industry. Features a talk battery supply, tone generator with crocodile terminals and RJ-11 plug, 3-colour LED display (identifies WS call voltages), weather-resistant design, tone generator with interchangeable tips, selectable wobble tone, polarity test, continuity test. Supplied with high power tone generator 77HPCE, inductive amplifier 200 EP, bag and battery 9 V.

<table>
<thead>
<tr>
<th>CAT NO</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>701K-CE</td>
<td>Classic Tone and Probe Kit</td>
</tr>
</tbody>
</table>

Infrared Thermometers

The contactless temperature measurement offered by the TG-1000 and TG-2000 is safer and faster than other measuring methods. The neat hand-held infra-red devices are ideally suited to the determination of surface temperature of circuit breakers, motors, busbars, machines, etc. The radiated, transmitted and reflected thermal energy is transformed into a temperature value that is displayed onto the large, backlit LCD display. A temperature sensor can be connected to the gun for direct contact temperature measurements (TG-2000 only). Backed by the Greenlee Limited Lifetime Warranty.

<table>
<thead>
<tr>
<th>CAT NO</th>
<th>FEATURES</th>
<th>OPTICAL RESOLUTION</th>
<th>TEMPERATURE MEASUREMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>TG-1000</td>
<td>Laserpoint for indication of the measuring range</td>
<td>12:1</td>
<td>-60 to +550°C</td>
</tr>
<tr>
<td>TG-2000</td>
<td>Dual laser for indication of the diameter of the measuring range</td>
<td>16:1</td>
<td>-60 to +625°C</td>
</tr>
</tbody>
</table>

Temperature Probe

Temperature probe for temperatures of -40° C to +500° C. Suitable for measurement of flat or bevelled surfaces.

<table>
<thead>
<tr>
<th>CAT NO</th>
<th>ACCURACY</th>
<th>SENSOR LENGTH</th>
<th>TEMPERATURE MEASUREMENT</th>
<th>THERMOCOUPLE</th>
<th>THERMOCOUPLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>TPFSC</td>
<td>0.75% or ±2.2°C (4°F)</td>
<td>120mm ±5mm (4.72” ±0.2”)</td>
<td>-40° C to +500° C (40°F to 932°F)</td>
<td>Type K</td>
<td>Type K</td>
</tr>
</tbody>
</table>

FishFinder Plus

CAT IV rated optical cable for troubleshooting around energised circuits. Inspect near energised circuits with 4’ (1.2m) CAT IV 600V; CAT III 1000V optical cable, water tight optical cable for submerged inspections, built-in memory for capturing over 2000 pictures, image download capability and RCA video output, 180° image rotation for easy viewing. Uses 4 x AA batteries. Supplied in rugged carry case.

<table>
<thead>
<tr>
<th>CAT NO</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>FF200</td>
<td>FishFinder Vision System Plus</td>
</tr>
<tr>
<td>56270</td>
<td>48” 14mm replacement optical cable</td>
</tr>
</tbody>
</table>
The Suparule Cable Height Meter is a handheld meter for measurement of cable sag, cable height distance and overhead clearance of conductors. It is an alternative to telescopic measuring poles. The Suparule Cable Height Meter utilises ultrasonic signals to determine the height of overhead cables up to 23m (75ft).

Used by line operators within the utilities industries, eg electricity and telecommunications, the CHM190 measures the height of a single wire, the CHM300 and CHM300E measure up to 3 wires, while the CHM600 and CHM600E models measure up to 6 wires.

How It Works

The Cable Height Meter emits short bursts of sound which originate from the cone-shaped transmitter. The microprocessor in the instruments calculates the elapsed time for the bursts of sound to be reflected from the cable back to the instrument. The result can be displayed in either imperial or metric format.

To account for the fact that speed of sound varies with temperature, a temperature sensor, mounted at the front of the instruments, senses the actual air temperature and automatically compensates.

Applications

Applications include height measurement of distribution lines, transmission lines, street lighting, telephone lines, sag (lowest point to ground) and clearances on construction sites and roads.

The Cable Height Meters offer an easy way to check whether the device has remained in calibration since its purchase date. Switching to ‘CAL’ mode also allows the instruments to be used indoors.

Features and Benefits

- Quick measurement - saves time and money
- Inherently safe – no physical connection to cables or wires required to obtain measurement
- Extremely Accurate – measures to accuracy of 0.5%
- Simple, three-button operation - ensures fast, effective measurements with a minimum of operator training
- Compact size – its lightweight and hand-held portability allows easy transportation
- Multiple measurements
- Maintenance-free - proven reliability in the field, no adjustments required

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Accuracy</strong></td>
<td>0.5% ± 2 digits</td>
</tr>
<tr>
<td><strong>Resolution (&lt;10m)</strong></td>
<td>5mm</td>
</tr>
<tr>
<td><strong>Resolution (&gt;10m)</strong></td>
<td>10mm</td>
</tr>
<tr>
<td><strong>Min Gap Between Wires</strong></td>
<td>150mm</td>
</tr>
<tr>
<td><strong>Operating Temperature Range</strong></td>
<td>-10 °C to 40 °C</td>
</tr>
<tr>
<td><strong>Battery Life</strong></td>
<td>50,000 measurements</td>
</tr>
<tr>
<td><strong>Dimensions</strong></td>
<td>205mm x 100mm x 70mm</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>0.5kg (1.1lb)</td>
</tr>
</tbody>
</table>
Horizon are the European Distributor for Hanco International, a trusted supplier to power companies, independent test labs and rubber goods manufacturers since 1943. Specialising in the design and manufacture of a complete line of high voltage rubber goods PPE testing equipment, turn key test labs, rubber goods washing, drying and cleaning products to your exact requirements.

**Rubber Goods Test Equipment**

**Glove/Sleeve Testers**
Hanco's glove and sleeve test units are designed for the ultimate in convenience, efficiency and performance. Each unit can test gloves Class 00 to Class 4 and is equipped to test sleeves using either the hammock method or the straight dip dielectric fluid method. Available with 2 to 28 test positions, these units are completely wired and assembled at the factory. An automated direct data acquisition system is optionally available with software for accurately measuring and recording voltage and milliamp leakage readings required for record keeping by OSHA and HSE.

**Blanket Testing Equipment**
Hanco's blanket test units are modular in design and offer total flexibility in setting up your test facility. Blanket testers are available in models with one to four drawers. The unit tests blankets Class 0 to Class 4. All drawers are mounted on ball bearing slides. They are available with their own power/control panel, or they can be operated by the glove test unit. Electrode lifting mechanisms are operated pneumatically and take only seconds for changing electrodes. All drawers and doors are equipped with a safety interlock system.

**Linehose/Hood Test Equipment**
Models are available with a power/control panel or can be slaved to an existing tester. The units will test Class 2 to Class 4 linehose in 3', 4½', or 6' lengths. Hood test electrodes are made with a foam material which completely fills all voids inside and outside of the hood or cover.

**Glove/Sleeve/Blanket Combination Tester**
Where space is limited, combination testers are available. These units are equipped with 2, 4, or 6 glove/sleeve test positions, and either 1 or 2 blanket drawers. You can select either 36" or 46" size blanket drawers based on the largest blanket used by your organisation.

**Linehose/Hood/Stick Combination Tester**
Low profile style unit available in 14 or 21 foot maximum stick lengths. Available with a power/control panel or it can be slaved to another test unit. Capacity is 2 sticks or 4-6 hoses or hoods. Sticks can be tested wet or dry (as required by current standards).

**Washing & Drying Equipment**
Hanco manufactures a full line of washers and dryers to meet your individual requirements including a full line of electronic, tumble-style washers with various capabilities manufactured and engineered for long lasting industrial applications.

**Automated Washers for Rubber Goods**
Washing machines have been engineered to clean rubber goods, especially the extra long line hose. With a single door on the top of the cabinet and a dual door access to the drum, for easy loading of line hose.

**Linehose Washers**
Increase your productivity by eliminating difficult manual labour. This unit scrubs the inside of linehose in less than 3 minutes!

**Rubber Goods Dryers**
Hanco manufactures dedicated rubber goods dryers as well as carrying electronic tumble style dryers manufactured and engineered for long-lasting industrial applications.
The TattleTale™ alarm system is the world's first and only transportable cellular security system with high performance wireless sensors. The system is completely do-it-yourself and can be unpacked, activated and armed within minutes of purchase. TattleTale™ is designed and engineered so that customers can self-activate the system (with optional accessories) and then protect virtually any asset up to 4 miles from TattleTale's self contained tamper proof base unit. Most important, TattleTale™ makes calls to a telephone line using cellular wireless transmission to report an alarm event. The TattleTale™ has been reviewed by outside industry and technical experts and is overwhelmingly preferred to alternative asset protection solutions.

The TattleTale™ is a great solution for job site protection. Equipped with Halo Advanced Technology and Military Grade Security Thresholds, the TattleTale™ has an undefeated protection record.

Completely self-contained in a heavy duty shell, the TattleTale™ has PIR motion sensor, a cellular radio, alarm panel, siren/strobe, and a backup battery. If that isn’t enough, the patented Rattlesnake™ tamper proof technology will trigger an instant alarm if the TattleTale™ is disturbed during an entry delay. The TattleTale™ will control up to 48 additional Plug ‘n Protect sensors on 8 programmable alarms zones for endless combinations of our unique indoor and rugged outdoor protection (see page I17).

Exclusive Halo Advanced Technology provides an unprecedented 600m (2,000ft) of instant-invisible perimeter protection. And if 600m isn’t enough, our boosters will get you unlimited range from the base unit so that no matter what your security solution is, you know you’re protected from the outside-in. The Halo’s long range wireless radiates from the unit in every direction so any Plug ‘n Protect sensor activated within the Halo communicates wirelessly, seamlessly and instantly.

- takes only 6 seconds to send text alert messages
- alarms can be sent to control centres, mobile phones, police etc
- no phone line required (100% wireless), this also means that intruders can not disconnect the system by cutting the landline
- totally portable, just requires 240V supply for base unit
- outdoor sensors are totally self-powered. 4-year battery life

TattleTale™ is an easy to install, wireless security system, designed to protect electrical sub-stations and other locations from copper theft, vandalism, or other kinds of wrongdoing. Each TattleTale™ system can be configured to meet the particular needs of the sub-station or secure area.

Triggered alarms are also configurable for alerting local police or personnel. Customise perimeter and internal alarm monitoring. Alarms can be programmed to send SMS and emails, plus trigger lights and alarms.

STOP COPPER THEFT WITH TATTLETALE
WIRELESS SECURITY SYSTEMS

HOW IT WORKS
Borderguard

The Borderguard is designed to protect the exterior of a building or fence. Borderguard is a PIR (passive infrared motion detector) which detects the heat energy emitted by humans. The detector utilises dual beams that project 12m (40') from each side of the unit and is best mounted at a height of 90cm - 120cm (36" - 48''). Both beams must be blocked at the same time to activate the detector. This feature eliminates the potential of false alarms caused by animals in the outdoor environment.

Outdoor Motion Detector

The high powered motion detector is used in cases where you need a stronger signal between the accessory and the TattleTale™ unit. The dual-detection outdoor motion detector can be placed up to 600m (2000') from the TattleTale™ unit depending on structures and objects in between the detector and the TattleTale™. It is sensitive to moving heat (infrared radiation) and has an adjustable coverage area. The maximum coverage area is 12m (40') in a 90° arc.

Rattler

The Rattler can be placed up to 600m (2000') away from the TattleTale™ base unit depending on the objects and structures between the Rattler and the base unit. The Rattler is sensitive to movement and vibration. The Rattler unit can be placed on top of the item(s) to be protected. It can also be attached to any metal object with the integrated magnets. Ideal for protecting vehicles, plant and machinery.

The Loop

The LOOP is a sensor device that can be used indoors and outdoors, ideal for drums of conductor. You can think of it as an electronic bike lock that you can use to tie up your tools and equipment (such as backhoes, generators, ladders, etc). If the LOOP is cut or disconnected when the TattleTale™ alarm unit is armed, an instant alarm signal will be transmitted. The LOOP can be placed up to 600m (2000') away from the alarm unit. Standard cable lengths of 3m (10') and 6m (20'), other lengths available upon request.

High Mount Borderguard

The dual-detection high mount Borderguard motion detector can be placed up to 600m (2000') away from the TattleTale™ alarm unit depending on objects and structures between the detector and the TattleTale™. It is sensitive to moving heat (infrared radiation) and has an adjustable coverage area. The maximum coverage area is 24m (80') long x 1.8m (6') wide, mounted between 2.4m (8') – 3m (10') off the ground.

High Mount Outdoor Motion Detector

The dual-detection high mount outdoor motion detector can be placed up to 600m (2000') away from the TattleTale™ alarm unit depending on objects and structures between the detector and the TattleTale™. It is sensitive to moving heat (infrared radiation) and has an adjustable coverage area. The maximum coverage area is 12m (40') in a 90° arc mounted between 2.4m (8') – 3m (10') off the ground.

Wireless Signal Booster

Double the range of your wireless protection! The signal booster is used to increase the range of the wireless accessories. Use multiple signal boosters to create a super long range wireless security network.

External Siren & Strobe

The remote siren & strobe allows you to place the warning right where you want it. Direct police anywhere on your site to shorten response time. This accessory is triggered when the TattleTale's siren and strobe go off.
Our range of portable multi-gas detectors from BW Technologies ensure the highest protection for personnel working in potentially hazardous environments. All the detectors feature continuous LCD displays showing real time gas concentrations and an automatic calibration procedure using the BW MicroDock II test and calibration station. Full function self-test of sensor, battery status, circuit integrity and audible/visual alarms on start up. Bright, wide-angled visual alarm bars, built-in concussion-proof boot and water resistant.

**GasAlert MicroClipXT**

Simple one-button operation offers ultimate ease of use and significantly reduces time spent training the user. With the addition of Intelliflash™, this multi-gas detector offers continuous confirmation of detector operation and compliance. Equipped with internal vibrating alarm for high noise areas.

**GasAlert Max XT II**

Reliably monitors up to four hazards, straightforward one button operation with robust, motorised pump for intelligent, remote sampling making it ideal for confined spaces. Equipped with standard data logging and event logging.

**GasAlert Quattro**

Rugged and reliable, four-gas detector with large LCD display with easy to identify icons that indicate operational information, such as bump test and calibration status for simplified on-site auditing. Field proven SureCell sensors offer unprecedented performance in even the harshest environments.

**GasAlert Micro 5**

Simultaneously monitor and display up to five atmospheric hazards. Available in three models: Toxic/Electrochemical, PID (for VOCs) or IR for Carbon Dioxide. Rapidly switch from diffusion mode to the optional integrated pump in the field. The new Generation 2 Pump features visible integrated filter.

**MicroDock II**

For the most cost effective way to manage the calibration and bump testing of the BW portable gas detectors, the MicroDock automated test and calibration system is fully portable and expandable. One base station with one AC outlet supports up to six modules to suit your application. Automatically verifies performance of audible and visual alarms.