Test Equipment Catalogue

Martindale • Metrohm® • Drummond

MARTINDALE ELECTRIC

Contents

METROHM

DRUMMOND

OTHER PRODUCTS

• features in our Best Sellers range ◆ special terms apply

Overview

Martindale Electric, founded in 1928, also incorporates Edgcumbe Instruments Metrohm® low voltage products and the John Drummond range of test lamps.

Martindale Electric's products help electricians and maintenance engineers carry out portable appliance testing, check fixed wiring and safely prove dead. They measure everything from light and sound levels to microwave leakage and power consumption.

The Martindale name is one of the most trusted brands for electrical safety testing and the company has a reputation for providing innovative and time-saving solutions for electricians and service professionals.

Industry firsts include:

- **Safe Isolation** – the definitive voltage indicator and proving unit
- **Insulation testing** – the first tester for hazardous environments
- **Test tools** – the first low cost fuse finder and the first self-proving non-contact voltage indicator
- **Socket testers** – the first ring main socket tester and the first advanced socket tester as defined by the Health & Safety Executive
- **Loop testing** – the first non-trip, plug-in loop tester, with automatic testing for all PE, PN, PFC & PSC measurements
- **PAT testing** – the smallest and lightest handheld PAT

If you have a question or would like to discuss your requirements in more detail with our experienced technical advisors:
call **01923 441717** or email **sales@martindale-electric.co.uk**.

Full technical specifications, the latest product information and application notes are available at **www.martindale-electric.co.uk**. All products have a 2 year warranty excluding leads, fuses and consumables and are supplied with batteries where applicable.

Martindale products are available from electrical wholesalers, national catalogues and online distributors. All the national chains and most independent electrical wholesalers have accounts with Martindale. We carry large stocks and operate a standard next day delivery service, excluding outlying areas. So even if your favourite wholesaler doesn't have the product you want in stock, they can get it the next business day providing they order it by 3.00pm.

Certified System
SAI GLOBAL
ISO 9001
Quality

JAS-ANZ

GAMBICA

FOLLOW US

https://www.youtube.com/user/MartindaleElectric

https://twitter.com/MartindaleElec

https://www.facebook.com/MartindaleElectric

CAT II 300V | CAT II 600V | CAT II 1000V
CAT III 300V | CAT III 600V | CAT III 1000V
CAT IV 300V | CAT IV 600V | CAT IV 1000V

Measurement category (see page 73)

FREE VC — **Free verification certificate**

TRUE RMS — **True RMS**

DRUMMOND

Metrohm®

New products

T10 -T80
17th Edition Certification Pads
Updated to Amendment 3
Page 5

ET4500 PRO
Downloading multifunction 17th Edition installation tester with memory, download and upload capability and 3 wire earth tester built-in
Page 5

CM55, CM57, CM79, CM69
Clamp Meters
New AC, AC/DC and leakage clamp meters
Page 49-51

CM95
High resolution AC Flex Meter
Page 52

VI-15000
1000V Voltage Indicator

Also available in kits:
VIPD150 with proving unit and carry case
LOKVIPD150 with proving unit and Lockout kit
Page17

TEK101
Non-contact single pole voltage indicator. Optimised for use when wearing PPE gloves and gauntlets
Page 26

LOK6
Universal Cartridge Fuse Isolation Lock
Page 15

Multifunction Installation Testers

	ET4000	ET4500
Insulation Resistance at 50/100/250/500/1000V	✓	✓
Continuity Testing at 200mA and 8.5mA	✓	✓
Loop Resistance and PFC dual display	✓	✓
Auto RCD and Ramp Test 10/30/100/300/500/1000mA (AC, A, F, S)	✓	✓
TRMS Voltage, Frequency and Phase Sequence	✓	✓
Slimline remote start probe	✓	✓
Graphical display for multiple readings and help	✓	✓
300V CAT IV, 600V CAT III safety rating	✓	✓
Mains Rechargeable with in-car option	✓	✓
Three wire Earth Resistance Testing		✓
Memory and download for documenting results with ET-Link PC software		✓

The new ET4000 series multifunction installation testers carry out all the tests needed to verify the safety of electrical installations in domestic, commercial and industrial wiring installations in accordance with the very latest Amendment 3 changes to the BS7671 17th Edition Wiring Regulations.

Everything about the new ET Series has been designed to save time and make testing easier, from the capability to display all results from an RCD autotest on one screen to the inclusion of useful Help menus at the press of a button. Even the soft carry case has been designed to enable testing without having to unpack and repack the instrument every time.

On connection, the testers carry out an automatic polarity and wiring check identifying potentially dangerous wiring faults in advance of any testing.

Fast, reliable high current and non-trip loop testing comes as standard together with a high level of input protection and a CAT IV safety rating. Both models include phase sequence indication and TRMS voltage measurement ready for every job.

In addition the ET4500 can be used to carry out 3 wire earth testing and has on board memory to store and download all installation test results for fast reliable documentation. Both models are also supplied with low loss AA rechargeable batteries which can be easily recharged in the tester with the mains adaptor or from a car or van using the optional in-car charger.

Standard accessories include Martindale test leads with clips and prods all terminated with industry standard 4mm plugs and the slimline Martindale remote start probe with test button allowing one handed measurement in those areas that are hard to reach.

Easy selection of tests and on-screen help

Pass/fail testing to the latest third amendment values

4mm sockets for standard Martindale lead sets. USB for downloading.

17th Edition Testing

Multifunction Installation Testers

BUILT-IN
Amendment 3: 2015
17TH EDITION
BS7671: 2008

Features ET4000 / ET4500

- Red and green LED indicators for instant pass/fail results
- Built-in new third amendment Zs loop impedance tables and help screens
- Automatic polarity and wiring check on connection
- Test and Go soft carry case, no need to unpack and repack
- Auto RCD and ramp test with all results on one screen
- TRMS voltage measurements and phase rotation on all models
- Fast, reliable high current and non-trip loop testing
- Low discharge rechargeable batteries and mains charger

Additional features ET4500

- On-board storage and download for documenting results
- ET-Link software to upload site installation details to the tester and download results onto a PC
- Optional ET-Link Pro, to autofill, print, manage and archive Amendment 3 certificates
- Three wire earth resistance testing

The new ET4000 and ET4500 multifunction testers simplify 17th edition testing by having the latest amendment 3 fuse tables for Zs values built-in together with red and green LED indicators for instant pass/fail confirmation.

Included Accessories (ET4000 / ET4500)

MARTL36 MFT 3 lead set RBG
TL207 MFT mains lead set RBG
TL180 Remote start probe
Soft carry case and strap
Quick start plus full user guide on CD
Calibration verification certificate
Low discharge rechargeable batteries
Mains charger

ET4500 only

ET-Link Software
USB Cable

Find out more about how the ET4000 Series make testing to Amendment 3 easy at **bit.ly/3rdamendmentweb**

ET4000/ ET4500

Insulation test:
50VDC,
100VDC,
250VDC,
500VDC,
1000VDC

Ranges:
19.99MΩ / 99.9MΩ /199.9MΩ

Continuity test:
Short circuit current > 200mA

Ranges: 19.99Ω /199.9Ω / 1999Ω

RCD test:
10mA, 30mA, 100mA, 300mA, 500mA, 1000mA.

Type AC, A, F, S

0.5, 1, 5 x I auto and ramp test

Ranges: 40.0ms / max time

Loop Test: Dual display (Loop Resistance of PFC)

High Current L-L L-N, Non-trip L-PE

Ranges:
9.99Ω / 99.9Ω / 999Ω / 9.99kΩ

Voltage:
TRMS 0-550V
Frequency 9.99Hz / 499.9Hz
Phase rotation

Earth Resistance 3 wire Ranges (ET4500): 19.99Ω / 199.9Ω / 9999Ω

Memory (ET4500):
On screen recall
PC download / upload via USB

Complies with: BS EN61010
CAT III 600V CAT IV 300V
BS EN61557,
BS 7671 Amend 3:2015
BS EN 61326-1

Dimensions: 230 x 103 x 115mm

Weight: 1.3kg approx.

Includes: MARTL36 3 lead set RBG, TL207 mains lead set RBG, TL180 Remote probe , soft carry case and strap, quick start plus CD, calibration verification certificate, 6x1.5V AA low-loss rechargeables, mains charger

ET4500 only: ET-Link Software, USB Cable

ACCESSORIES

ER2KIT/S	3 wire earth test kit
TL78	50m R2 continuity lead
SB13	Safebreak mains socket adaptor
TL52	Fused test leads
PSUHPAT12	In-car 12V charger

See pages 68-70

FREE VC | TRUE RMS | CAT III 600V | CAT IV 300V

ET4500 PRO Multifunction Installation Tester Kit

Martindale's ET4500 PRO package is the most comprehensive 17th Edition Amendment 3 bundle available. Based around the class leading ET4500 multifunction installation tester with built in Amendment 3 loop impedance limits, rechargeable batteries and 3 wire earth test capability, the kit includes essential Martindale test tools and accessories for working on-site. The new bundle includes ET-Link Pro PC software for auto filling of the latest 17th Edition Amendment 3 certificates from the tester via USB connection. The software is unique in being able to upload client, location, distribution board and circuit information from a PC to the tester, simplifying testing and saving of results on-site.

Additional Martindale accessories include the BZ1010 socket tester, 3 wire earth testing set, car charger, 50m continuity lead reel and safebreak socket test adaptor.

All the essential test tools and accessories needed to verify the safety of electrical installations to the 17th Edition Amendment 3: 2015 Wiring Regulations in one kit.

ET4500 PRO

ET4500 Downloading Multifunction Tester

ET-Link PRO PC software with Amendment 3 Certification

PSUHPAT12 in-car charger

BZ101 socket tester

SB13 safebreak socket test adaptor

ER2KIT/S three wire earth test set

TL78 50m continuity extension lead

Certification pads

UPDATED
Amendment 3: 2015
17TH EDITION
BS7671: 2008

With the new system of certificates, it's easier to understand which certificates need to be used together. There is one set for New Installations and one set for Existing Installations and within each set there is an option for up to 100 A supply and one for greater than 100 A supply.

Cert no.	Description
T10	Electrical Installation Certificate for up to 100A Supply
T20	Minor Works
T30	Electrical Installation Condition Report for up to 100A
T40	Electrical Installation Condition Report for greater than 100A
T50	Schedule of test results up to 12 Way
T60	Schedule of test results greater than 12 Ways
T70	Observation Record Sheet
T80	Electrical Installation Certificate for greater than 100A Supply

The 8 new pads contain approximately 80 pages of carbonless copy forms and a card divider and are based on the model forms in BS7671.

17th Edition Testing

Insulation Tester (500V)

FREE VC

CAT III 600V

The IN2101 is a compact, hand-held insulation tester which performs fast and accurate testing at 500V with automatic discharge after test.

Manufactured from durable ABS, the IN2100 Series insulation testers are designed to withstand the toughest on-site environments. All models feature a large, clear, backlit LCD display for testing in poorly lit locations with both digital and analogue readings.

The large rotary switch and readily accessible test buttons make it easy to select the required function, even when wearing gloves. Features include an internal battery check facility, auto hold, continuity buzzer and auto null function.

ACCESSORIES

TC2A	calibration
TL57	optional fused test leads
TL78	50m R2 continuity lead

IN2101

Insulation: 0.200MΩ-1000MΩ at 500V in 4 ranges
Accuracy: ± (3% rdgs + 5 dgt)
Continuity:
Range: 0.01Ω-40Ω
Resolution: 0.01Ω
Short circuit current: >200mA
Accuracy: ± (3% rdgs + 5 dgt)
Buzzer: <30Ω
Resistance: 0.1Ω -1999kΩ
Accuracy: ± (3% rdgs + 5 dgt)
Voltage range: 600V AC/DC
Voltage warning indicator: >30V
Accuracy: ± (3% rdgs + 5 dgt)
Backlight, auto hold, auto zero
IP rating: IP44
Complies with: BS EN61557 & BS 7671 (17th Edition) and BS EN61010 CAT III 600V
Dimensions: 90 x 210 x 54mm
Includes: batteries, manual, carry case (TC57) & test leads (TL47)

Insulation Tester (250V / 500V / 1000V)

FREE VC

CAT III 600V

The IN2102 includes additional test voltages for testing at 250V, 500V and 1000V and has extended insulation resistance ranges up to 5GΩ.

In common with all models in the IN2100 Series, insulation test features include auto-discharge, an insulation test lock and auto-hold function to capture completed readings on the display. For continuity testing there is an auto-null function for lead resistance compensation and when working in office environments, it's possible to disable the buzzer to avoid causing a disturbance.

There is an auto power off function to extend battery life which can be disabled if required.

ACCESSORIES

TC2A	calibration
TL57	optional fused test leads
TL78	50m R2 continuity lead

IN2102

250V: 4/40/400/1000MΩ
500V: 4/40/400/4000MΩ
1000V: 4/40/400/5000MΩ
Range: 0.200MΩto 5000MΩ
Short circuit current: <1.5mA
Accuracy: ± (3% rdgs + 5 dgt)
Continuity:
Range: 0.01Ω to 40Ω
Resolution: 0.01Ω
Short circuit current: >200mA
Accuracy: ± (3% rdgs + 5 dgt)
Resistance: 0.1Ω-1999kΩ
Accuracy: ± (3% rdgs + 5 dgt)
Voltage range: 600V AC/DC,
Voltage warning indicator: >30V
Accuracy: ± (3% rdgs + 5 dgt)
Backlight, autohold, auto zero, APO disable
Dimensions: 90 x 210 x 54mm
Standards compliance: As IN2101
Includes: batteries, manual, carry case (TC57) & test leads (TL47)

Insulation Tester (50V/100V/250V/500V/1000V) with Clamp

TRUE RMS

CAT III 1000V

CAT IV 600V

A unique combined insulation tester and clamp meter for the inspection and maintenance of electrical equipment and installations. The high specification CMi210 can perform insulation tests to 6G Ohms with 5 test voltages from 50V to 1000V. The clamp enables True RMS measurement of AC current to 1500A and DC current to 2000A.

Additional functionality includes AC/DC voltage to 1000V, resistance, continuity, capacitance, frequency, inrush current and temperature. For more details see page 54.

ACCESSORIES

TC2B	calibration
TL55	optional fused test leads
TL180	optional switching insulation probe

CMI210

50V: 0.3/3/30/300/1000MΩ
100V: 0.6/6/60/600MΩ
250V: 1.5/15/150/1500MΩ
500V: 3/30/300/3000MΩ
1000V: 6/60/600/6000MΩ
Range: 0.05MΩ to 6000MΩ
Short circuit current: <1.5mA
Accuracy 250-1000V:
± (1.5% rdgs + 5 dgt)
Voltage warning: > 30V
Continuity range: 0.01Ω to 40Ω
Resolution: 0.1Ω
Accuracy: ± (1% rdgs + 5 dgt)
Resistance: 0.1Ω-60MΩ
Accuracy to 600kΩ:
± (1% rdgs + 5 dgt)
Voltage range: 750V AC, 1000V/DC
Accuracy: ± (2% rdgs + 8 dgt)
Dimensions: 326 x 108 x 53mm
Includes: batteries, manual, case, test leads (TL45), type K thermocouple

EZ2500

Nominal voltage rating:
220-240V Ac

Voltage range for wiring error detection: 30-275V

Open loop indication: If open PE or PN Loop is detected, no Impedance Measurement takes place

Voltage range for impedance

Measurement: 198-264V

Frequency: 50Hz

PE loop impedance ranges:
0-8.99Ω, 9.0-89.9Ω, 90-899Ω, 900-1699Ω, 1700-3000Ω

PE loop impedance accuracy:
0-8.99Ω ± 4% ± 0.05Ω*
9.0-89.9Ω ± 5% ± 0.5Ω*
90-899Ω ± 5% ± 5Ω*
900-1699Ω ± 5% ± 30Ω*
1700-3000Ω indicative

PFC & PSC test

PN loop impedance ranges:
0-8.99Ω, 9.0-89.9Ω, 90-899Ω, 900-1699Ω, 1700-3000Ω

PN loop impedance accuracy:
0-8.99Ω ± 4% ± 0.05Ω*
9.0-89.9Ω ± 5% ± 0.5Ω*
90-899Ω, ± 5% ± 5Ω*
900-1699Ω± 5% ± 30Ω*
1700-3000Ω indicative

Frequency accuracy: ± 4 %

Voltage accuracy: ± 4%

Temperature range:
-10° to 40° C at max
80 % Relative Humidity
(Non-Condensing)

Power supply: from mains

Power consumption: < 1.6W

Pollution degree: 2

Complies with: BS EN61010, BS EN61557 & BS 7671 (17th Edition)

Weight: 240g approx.

Dimensions: 145 x 85 x 53mm

Includes: carry case (TC210), mains lead & manual

* Note: measurement accuracy can be affected by highly inductive or capacitive components distributed on the supply

E-Ze Test Non-trip Earth Loop Impedance Tester

Smart and easy

Switch free operation

Battery free operation

P-E, P-N, PFC, PSC on one display

This non-trip earth loop impedance tester provides safe, switch-free operation for domestic and industrial applications. The simple and smart auto test sequence makes it ideal for both 17th Edition testing and applications where confirmation of adequate earthing is required. With the E-Ze 2500 there is no risk of making the wrong connections or carrying out the wrong test, it's all done for you.

The EZ2500 performs non-trip P-E and P-N loop impedance tests, PFC and PSC checks and lists all of the results on the clear backlit LCD display. A voltage check and confirmation of correct wiring are also performed.

The tester is supplied with a 13A plug mains lead for testing at 13A socket outlets but an additional 3 wire test lead can be purchased for testing at light fittings and fused connection units.

A soft carry case and comprehensive manual are also included.

CAT III 300V

ACCESSORIES

TC2A	calibration
TL88	3-way fused test leads

17th Edition Testing

Loop Tester

The LP2000 is a fast and accurate high current, auto-ranging loop tester. It will perform P-E and P-N testing and will automatically show PSCC readings up to 19.99kA on the large LCD display.

This compact, hand-held tester is supplied with a mains test lead, a wander lead for testing bonded metalwork, manual and a soft carry case.

This supersedes the Metrohm 16L240

ACCESSORIES

TC2A	calibration
TL88	3-way fused test leads

CAT III 300V

LP2000

Supply voltage: 200 to 260V rms, 50/60Hz

Test current: 24A, rms, for two half cycles at 240V

Loop range:
0 to 15Ω nominal in steps of 0.01Ω
15 to 199.9Ω in steps of 0.1Ω

Accuracy: ±2% of reading, ±2 digit

Temperature coefficient: ± 0.1%/°C

Ipsc range: 0 to 19.99kA in steps of 0.01kA

Fuse: 5A, HBC, Anti-Surge ceramic, DIN 5 X 20mm

Transient protection: VDR at input

Thermal protection: electronic delay

Overvoltage: CAT III 300V

Complies with:
EMC: To BS EN50081-1
BS EN50082-1
LVD: To BS EN61010-1

Weight: 400g approx.

Dimensions: 190 x 90 x 54mm

Includes: carry case (TC57), mains test lead (TL205), green wander lead (TL61) & manual

RCD Tester

A fast and easy way to test RCDs from 6mA to 500mA. The RCD rating (IΔn) is set using the rotary switch and three different test current modes are available (1/2, Full & Fast Test) at either 0° or 180° (positive/negative cycle).

There are 6 different RCD rating (IΔn) test options which unlike most multi-function testers, will cover all common RCDs. The RC2000 is supplied with mains test lead, manual, batteries and soft carry case.

This supersedes the Metrohm 16R240A

ACCESSORIES

TC2A	calibration
TL88	3-way fused test leads

CAT III 300V

RC2000

Supply voltage: 240 Volts AC, 50/60Hz

RCD ratings (IΔn): 6mA, 10mA, 30mA, 100mA, 300mA and 500mA
Half trip settings (½xIΔn): 3mA, 5mA, 15mA, 50mA, 150mA and 250mA
Fast trip settings: 150mA (for IΔn=6, 10 and 30mA only)
Test polarity: 0° and 180°

Test current
Accuracy: ± 3% at 240V AC supply voltage rising linearly to ±9% at ± 6% of 240V supply voltage

Timing range: 0-1999ms (resolution of 1ms)
Timing accuracy: ±2% of reading ±1 digit
Duration of test current:

½	2 seconds
I	0.5 or 2 seconds selectable
FAST	0.05 seconds

Complies with EMC: Meets BS EN 50081-1, BS EN 50082-1, LVD: Meets BS EN 61010-1
Weight: 350g approx.
Dimensions: 190 x 90 x 54mm
Includes: carry case (TC57), mains test lead (TL205) & manual

E3511

Insulation resistance range: 100kΩ to 100GΩ
Insulation range accuracy: ±1.5% of scale length
Insulation range temperature Coefficient: <0.04% of scale length/°C
Voltage range: 1000 volts AC or DC
Voltage range accuracy: ±1.5% of scale length
Test voltages: 500V, 1kV, 2.5kV, 5kV DC
Test voltage accuracy: ±5% at 10MΩ
Break point current: 0.5mA nominal
Short circuit current: 1.2mA nominal
Ripple voltage: <10V peak to peak (R<10MΩ)

Housing: yellow ABS, black polycarbonate

Weight: 4kg approx. (incl batteries)
Dimension: 330 x 263 x 144mm
Includes: 2m test leads (DFK0075/A) & croc clips, earth lead (DFH0366), mains power lead (TL205), accessory bag and manual

5kV Insulation Tester

Having both battery and mains operation and four selectable DC test voltages (500V, 1kV, 2.5kV & 5kV), this tester measures insulation resistance from 100kΩ to 100GΩ. The large, clear analogue scale also displays AC or DC voltage up to 1000V. A latching test switch allows hands-free testing.

The E3511 includes a guard terminal to minimise surface leakage errors.

With full overvoltage and overcurrent protection for measurements and up to 16 hours operation from re-chargeable NiMH batteries, the E3511 comes complete in a rugged carry case. Standard accessories include locking 2m test leads with probes and clips.

ACCESSORIES

TC2D	calibration
DFK0075/A	2m test lead
DFK0075/C	10m test lead
DFK0094	kelvin lead set

FREE VC

CAT III 1000V

E1612

Measuring ranges: Earth resistance: 2Ω/20Ω/200Ω/2kΩ
Earth voltage: 0-300V AC
Measurement frequency: 820 Hz
Earth resistance resolution:
2Ω range: 0.01Ω
20Ω range: 0.1Ω
200Ω range: 1Ω
2kΩ range: 0.01kΩ
Earth voltage resolution: 1V
Accuracy:
Earth resistance: ± 2% rdg ± 3dgts
Earth voltage: ± 2% rdg ± 3dgts
Temperature & humidity:
Operating: 0°C ~ 50°C ≤ 80% R.H
Storage: -10°C ~ 60°C ≤ 80% R.H
Altitude: up to 2000m
Power: 8 x 1.5V LR6/AA batteries
Auto off time: 2¼ minutes approx.
Dimensions: 250 x 190 x 110mm
Weight: 1550g approx. (incl batteries)
Safety: conforms to BS EN 61010-1 CAT IV 300V Class II Double Insulation
Pollution degree: 2
Test Leads supplied conform to BS EN 61010-031 CAT III 600V, 2A
EMC: conforms to BS EN 61326
Includes: test leads (red 15m, black 10m, yellow 10m and green 5m), earth spikes, manual, carry case, batteries.

Earth Tester - 4 Wire

The Metrohm E1612 is a compact 4 pole Earth Resistance tester for accurate measurement of earth resistance and soil resistivity.

The tester, including batteries, weighs less than 1.5kg making it ideal for the mobile approach required when performing earth testing. This microprocessor controlled unit benefits from advanced safety features and displays the test results on a large LCD screen.

The E1612 is supplied as a kit and includes batteries, 4 earth spikes with connecting cables and a manual. The manual includes simple illustrated instructions of how to carry out earth testing with 2 and 3 spikes and how to measure soil resistivity using 4 spikes. A shoulder strap completes the kit which is enclosed in a tough, durable case.

ACCESSORIES

TC2D	calibration
DFK0075/C	10m test lead
DFK0094	kelvin lead set

CAT IV 300V

Specialist Testers

Milliohm Meter

The Metrohm E1622 Milliohm meter uses a four wire system to ensure accurate low resistance measurements. Applications fall into two main areas:

Firstly the testing of electrical bonding in areas as diverse as mines, aircrafts, ships, railways and domestic and industrial electrical installations;

Secondly the measurement of electrical resistance in areas such as the winding resistance of motors, generators and transformers. Other low resistance measurement applications include ring main continuity and the resistance of electronic components such as PCB tracks, switches and relays.

Metrohm®

ACCESSORIES
TC2C calibration

E1622

Measuring ranges: 200mΩ/2000mΩ/20Ω/200Ω/2000Ω
Resolution:
200mΩ range: 0.1mΩ
2000mΩ range: 1mΩ
20Ω range: 10mΩ
200Ω range: 100mΩ
2000Ω range: 1Ω
Accuracy: ±0.5% of reading ±2 digits over the operating temperature range (-15°C to + 55°C) with the supplied test leads.
Test current:
20Ω / 200Ω ranges - 10mA
200mΩ / 2000mΩ ranges - 100mA
2000Ω range - 1mA
Accuracy ± 1%

Protection fuses: 0.5A 5 x 20mm DIN

Weight: 1.563kg
Dimensions: 110 x 250 x 190mm

Safety Standards: BS EN61010-1, BS EN 61326-1

Includes: 4 lead set, batteries and manual.

Safety Insulation Tester

In service for over 50 years in mines, on petrol sites and in hazardous areas e.g. in the presence of methane, ammonia and hydrocarbons.

This well proven design is a solution to carrying out electrical safety testing in hazardous environments. Use of this instrument in such environments should be considered only by a suitably qualified and knowledgeable person.

While this product does not qualify for Atex approval, safety officers must evaluate the risks of failing to perform adequate electrical safety testing.

The product is now only available for sale where the intended place of use is outside the EU.

Metrohm®

ACCESSORIES
TC2B calibration
DFK0113 test lead
PA24249A carry case

7A501

Insulation range: 0-50MΩ
Test voltage: 500V DC±10% across 1MΩ
Short circuit current: <2mA
Accuracy: ±1.6mm of scale arc length
Continuity
Range: 0-50Ω
Test voltage: nominal 200mV
Short circuit current: <26mA
Accuracy: ±1.6mm of scale arc length
Complies with: BS 1259
Supply: batteries 1.5V AA IEC R6B
Housing: shatterproof ABS case
Weight: 600g approx.
Dimensions: 132 x 82 x 60mm
Includes: case, leads (METDFK0113) & safety tool to remove battery cover.

PC15250

For use on systems from 50V to 600V phase to phase, 40Hz to 60Hz.

Operating temperature: -10°C to 50°C

Overvoltage: CAT IV/600V

Complies with: GS38 and BS EN61557-7

Weight: 354g approx.

Dimensions: 116 x 69 x 25mm

Connections: integral one fused crocodile clip & two integral fused probes with retractable shrouds

Includes: manual

Phase Rotation & Continuity Indicator

Quickly and simply prove the presence of all three live phases (or identify which are faulty) and show the sequence of phase rotation when all three phases are confirmed as present.

The PC15250 gives a fast, effective, battery free method of identifying unmarked cables and ensures that 3-phase outlets and machines are wired correctly.

The retractable GS38 probe shrouds make it easy to choose between long exposed tips, for difficult to reach contacts, and shorter tips for increased safety without the need for fiddly caps.

- Bright LED indication of phase rotation
- Proves continuity
- Identification of faulty lines
- No batteries required
- High quality colour coded leads and clips

ACCESSORIES

TC2A	calibration
TC68	carry case

CAT IV 600V

PSI4000

Measurement principle is static induction

Input voltage: 75V-1000V 3-Phase AC

Frequency range: 45-65Hz

Conductor size: 2.4mm-30mm diameter

Operating temperature & humidity: -10°C to 50°C, Max. 80% RH

Battery current consumption: 15mA

Cable length: approx. 800mm

Power source: 1.5V X 4 (AA or LR6) alkaline batteries

Auto-off: After 5 mins of non activity

Low battery warning: Power LED flashes below 4.6V DC battery voltage

Safety standard: BS EN 61010-1 CAT III 1000V, CAT IV 600V. EN 61326-1. Class II ⧈

Weight: 370g approx. (incl batteries)
Dimensions: 118 x 69 x 38mm

Includes: soft case (TC54), batteries and manual.

Non-contact Phase Sequence Indicator

A unique non-contact phase rotation indicator that carries out measurements via inductive crocodile clips.

The increased safety design of this phase rotation tester allows for use on both insulated and non-insulated conductors with a buzzer and bright LED's giving clear indication of clockwise or anti-clockwise phase rotation. There is also an Enhanced Brightness switch for clear indication in strong ambient light.

The Martindale PSI4000 is supplied with 4 x AA batteries, soft carry case and manual.

Also available:
model PSI4300 for anti-clockwise indication

ACCESSORIES

TC2A	calibration

CAT III 1000V CAT IV 600V

Continuity Testers

Continuity Tester with Audible Indication

The TEK402 is a compact continuity tester with audible indication. The tough construction makes it ideal for industrial and commercial environments including low voltage signalling, process control and training or educational applications.

The loud 85dB buzzer makes it suitable for use in noisy environments where many continuity buzzers, multimeters or 17th Edition multifunction testers cannot be heard.

There is a convenient belt clip and the TEK402 is supplied with TL49 test leads.

ACCESSORIES
TC2A calibration

TEK402

Probe voltage: 9V DC

Test current: 5mA

Continuity range (audible): Up to 10kΩ nominal

Audible output level: 85dB minimum at 30cm with zero continuity resistance

Power supply: 9V, MN1604/PP3 alkaline battery

Complies with: BS EN 61010-2001 CAT I 50V peak

Fuse rating: 50mA, 250V, fast acting ceramic fuse, 20mm x 5mm ref: FUSE50250X3 (Pack of 3)

Overvoltage: 50V AC/DC

Do not use in CAT II, III or IV environments

Weight: 265g approx (incl leads & battery)

Dimensions: 150 x 64 x 31mm

Includes: test leads (TL49), battery and manual

CAT III Continuity Tester with Audible & Visual Indication

The TEK404 can be used for the same low voltage applications as the TEK402 with the added benefit that it's also suitable for use in CAT II and CAT III environments. There is an additional safety feature which pulses to alert the user when connected to live circuits >30V AC.

The loud 85dB buzzer makes it ideal for use in noisy environments where many continuity buzzers, multimeters or 17th Edition multifunction testers cannot be heard.

There is a convenient belt clip and the TEK404 is supplied with CATIII 600V rated TL47 test leads.

ACCESSORIES
TC2A calibration

CAT III 600V

TEK404

Probe voltage: 9V DC

Test current: <50 microAmp (across short circuit)

Continuity range: 0Ω to 2.2kΩ

Audible output level: 85dB minimum at 30 cm with 0Ω continuity resistance

Buzzer and LED intensity reduce with increasing continuity resistance

Alarm function: Pulsed buzzer and LED indication if unit is connected to live circuit voltage >30V AC/DC ± 20V

Compliance: BS EN 61010-2001 CAT III 600V, BS EN 61326-1, EMC

Do not use in CAT IV environments

Operating temperature range: -10 to 40°C at max 70% RH

IP rating: IP40

Power supply: 9V, MN1604/PP3 alkaline battery

Weight: 290g approx

Dimensions: 150 x 64 x 31mm

Includes: CAT III 600V test leads (TL47), insulated croc clips, battery and manual

Safe Isolation and Voltage Indication

Six simple steps to safe maintenance

Disconnect all loads.

Locate the source of supply.

Isolate the source of supply.
Lock off and place warning signs.

Prove your voltage indicator using a proving unit.

Test the supply is isolated.

Re-prove the voltage indicator using a proving unit.

Safe Isolation and Voltage Indication

Lock-out Kit

The LOKKIT1 is a comprehensive lock out kit to be used as part of a safe isolation procedure. The set of locking devices is compatible with all distribution boards. Additional individual pieces are available to order separately.

The kit comprises of 7 different locking devices for simple fitting to MCBs, RCBOs and fuse holders. There is a plastic body padlock with a 6mm hardened steel shackle for securing the locking devices and a steel safety hasp which allows multiple padlocks to be used. The kit is completed with 5 warning tags, a marker pen and a durable case with space for storing additional accessories.

LOKKIT1 includes: 7 locking devices, 5 warning tags, padlock, hasp, marker and case.

Essential for compliance with Electricity at Work Regulations for safe working.

Warning Tags

TAG2

These packs of 10 replacement warning tags allow you to use a new, dated and named tag every time locking off is required. 80 x 140mm.

TAG4

Padlock

Plastic body padlock with 6mm hardened steel shackle. Designed for use with Martindale lock out devices and compatible with most other safety lock out products.
Padlock body width - 38mm.
Vertical shackle clearance - 38mm.
Also available in yellow and blue.

PAD10R (red)
PAD10B (blue)
PAD10Y (yellow)

Padlock with Insulated Shackle

PAD20R

Plastic body padlock with 6mm hardened insulated shackle. Designed for use with Martindale lock out devices and compatible with most other safety lock out products.
Padlock body width - 38mm.
Vertical shackle clearance - 38mm.

Safe Isolation and Voltage Indication

Cartridge Fuse Isolation Lock

The LOK6 is a universal locking off device for fuse carriers. Designed to restrict finger access and prevent the reinsertion of a fuse whilst maintenance is in progress, the LOK6 is ideally suited to Red Spot and other similar style fuse holders. It's easily adjustable to fit fuse holders from 20A to 100A, providing a "one size fits all solution."

LOK6

PAD20R not included.

Hasp

LOKHASP25

This 25mm steel lock out hasp is used to secure an isolated energy source and prevent reconnection. Once secured, the hasp can hold up to six padlocks to keep it securely fixed enabling several operators to work safely on one circuit at the same time.

Appliance Plug Lock-out

PL13

The PL13 is a universal lock out device for UK BS1363 13A mains plugs. Simple and compact, the PL13 prevents appliances and electrical equipment from being plugged in during maintenance and can be used to restrict the use of hazardous or faulty equipment.

PAD20R not included.

Industrial Plug Lock-out

PL8

Completely encloses plugs to prevent accidental reconnection. Once the plug is inserted, the lock out device should be locked with a secure padlock and completed with a warning tag. Suitable for use with most plugs up to and including 32A. Internal dimensions: 80mm Ø x 150mm (h).

MCB Isolation Locks

These locks are for use with MCBs on domestic and industrial distribution boards for isolation purposes.

Set of 5 **LOKMCB (LOK1 -5)**

LOK1

LOK2

LOK3

LOK4 (For BS38 fuse carriers)

LOK10

LOK11

LOK15

LOK5 (For MCB & main switches)

LOK7 (Slimline for MCBs)

Safe Isolation and Voltage Indication

600V Safety Voltage Indicator without Fuse

The VI-13800 provides instant visual AC and DC voltage indication in four stages from 50V to 400V. The bright long life LED indicators give clear and immediate display of the voltage level range. It has retractable probes, heavy duty finger guards and a two layer double insulated cable with a white inner core to give clear indication of damage that might compromise the user's safety.

It complies with EN61243-3 2010 which came into force in May 2013. This standard prohibits the use of fuses in 2 pole voltage indicators so the new model has the fuse replaced by a high wattage resistor in the probe that will limit the current in the event of damage to the cable.

Safety through simplicity, no ranges, switches or batteries required.

Meets Latest Standard

ACCESSORIES
TC2A calibration

CAT III 1000V CAT IV 600V

VI13800

Voltage range: 50-600V AC/DC

LED Indication: ±50, 100, 200, 400V

AC/DC voltage detection: automatic

Range detection: automatic

Response time: <0.1s

Frequency range: DC, 1-400Hz

Test Current: 3.5mA max at 600V AC/DC

Duty ratio: 30s ON / 240s OFF

Temperature range: -10°C to + 55°C ≤ 85% RH

Pollution degree: 2

IP rating: IP54

Power: from circuit under test

Weight: 130g approx.

Dimension: 205 x 67 x 27mm

Safety: BS EN 61243-3:2010, GS38, CAT IV 600V Class II double insulation

Voltage Indicator & Proving Device

The Martindale package of VI-13800 Voltage Indicator and PD440 Proving Device is an essential safety aid for electricians and comes with a carry case (TC69).

VIPD138

ACCESSORIES
TC2B calibration

CAT IV 600V

Lock-out Kit with VI and Proving Device

Recommended kit

VIPDLOK138

Includes everything you need for proving dead and working safely. The lock-out kit allows you to safely isolate the supply and the proving device lets you confirm that the voltage indicator you use to prove dead is really working.

Contains VIPD138 and LOKKIT1 (page 14)

ACCESSORIES
TC2B calibration

CAT IV 600V

Safe Isolation and Voltage Indication

VI-15000

Voltage range: 50 - 1000V DC/ AC rms

LED Indication: ± 50, 120, 230, 400, 690 V DC/AC rms

AC/DC voltage detection: automatic

Range detection: automatic

Response time: < 0.1s
Frequency range: DC, 1 - 400 Hz

Test current: < 3.5mA at 1000V DC/AC rms

Duty ratio: 30s ON / 240s OFF

Temperature range: -10°C to 55°C ≤ 85% RH

Pollution degree: 2

IP rating: IP54

Power: from circuit under test

Weight: 130g approx.

Dimensions: 205 x 67 x 27mm

Safety: BS EN 61243-3:2010, GS38, CAT IV 1000 V Class II double insulation

1000V Safety Voltage Indicator without Fuse

The new VI-15000 extends Martindale's range of indicators into higher voltage applications.

The new VI-15000 has a 1000V CAT IV safety rating and LED indication for AC/DC voltages from 50V to 690V and above making it suitable for safe working in all EN61010 installation categories. It's the simplest and most reliable way to ensure circuits have been de-energised and properly isolated prior to maintenance and modifications.

The tester features bright LEDs to clearly identify the voltage present in five levels with thresholds of up to 690V. The indicator, which requires no batteries, will identify both AC and DC sources and show polarity. The heavy duty, double insulated cable with white inner core, large finger guard and a retractable, lockable prod sheath make this the safest, most durable and reliable instrument of its type.

Meets Latest Standard

ACCESSORIES
TC2A calibration

CAT III 1000V

CAT IV 1000V

Voltage Indicator & Proving Device

VIPD150

Nothing is more dangerous than trusting a defective voltage indicator to test for a dead circuit. Safe electrical work requires the use of a voltage indicator that has been proved with a proving device before and after use.

The Martindale VIPD150 contains the VI-15000 voltage indicator and the PD690 proving device, enabling you to comply with health and safety recommendations for safe working.

ACCESSORIES
TC2B calibration

CAT IV 1000V

Lock-out Kit with VI and Proving Device

Recommended kit

VIPDLOK150

The complete solution for safe isolation in CAT IV 1000V environments, the Martindale VIPDLOK150 Lock Out Kit contains the VI-15000 voltage indicator, PD690 proving device, along with a complete lock out kit, supplied with soft carry cases.

Contains VIPD150 and LOKKIT1 (page 14)

ACCESSORIES
TC2B calibration

CAT IV 600V

Safe Isolation and Voltage Indication

Test Lamp with 360° viewing angle

CAT III 1000V CAT IV 600V

DRUMMOND

One of the most trusted tools for safe voltage indication, the original John Drummond test lamp has been fully updated to include high intensity LED illumination over 4 discrete voltage bands, 50, 120, 230 and 400V, enabling easy identification of hazardous voltages and differentiation between 110V, 230V and phase to phase voltages. The LEDs ensure a 360° viewing angle even in bright sunlight and a long lifetime. The new design is supplied with detachable straight and right angled probe tips which can be rotated and locked to ensure easy access for all measurements.

Drummond test lamps conform to the latest safety standards including the HSE GS38 Guidelines, BS EN61243-3 and BS EN 61010-1. Safety features include a double insulated, heat and oil resistant cable with contrasting inner sheath to easily identify abrasion, finger guard and insulated probe tips.

- Rugged design with high intensity LEDs
- 360° viewing in bright sunlight
- Four discrete voltage bands
- Wide range of accessories
- Conforms to latest standards

MTL10

Maximum working voltage: 500VAC, 750DC

Voltage ranges: 50, 120, 230, 400V AC/DC

Range detection: automatically

Response time: <0.1s

Frequency range: DC, 40-65Hz

Test current: <3.5mA at 500V AC, 750V DC

Temperature range: -10°C – +55°C

Humidity: max. 85% rel.H.

Measurement CAT: CATIV 600V

Pollution degree: 2

IP rating: IP64
Weight: 0.32kg
Dimensions: 213 x 112 x 72mm

ACCESSORIES

TC2A	calibration
TC2B	calibration (MTL10PD)
TC69	carry case
MTL2103	30mm straight probe
MTL2104	62mm straight probe
MTL2105	62mm L shaped probe
MTL2106	130mm straight probe
MTL2107	130mm angled probe

Test Lamp with low impedance function

DRUMMOND

The MTL20 is a dual impedance voltage indicator, designed to make it easy to differentiate between phantom voltages due to capacitive coupling and true hazardous voltages. In addition to all the features of the MTL10, the MTL20 incorporates two test buttons, one on the body of the unit and one on the probe. Simultaneous depression of both switches enables the unit to draw a high current and dissipate phantom voltages. In order to prevent this being done accidently, both buttons must be depressed to activate this feature. If there is any doubt as to whether a voltage indication is hazardous live or interference / phantom after using a dual impedance tester then alternative tests should also be performed.

ACCESSORIES

TC2A	calibration
TC2B	calibration (MTL20PD)
TC69	carry case
MTL2103	30mm straight probe
MTL2104	62mm straight probe
MTL2105	62mm L shaped probe
MTL2106	130mm straight probe
MTL2107	130mm angled probe

CAT III 1000V CAT IV 600V

MTL20

Maximum working voltage: 500VAC, 750DC

Voltage ranges: 50, 120, 230, 400V AC/DC

Range detection: automatically

Response time: <0.1s

Frequency range: DC, 40-65Hz

Test current: <3.5mA with switches depressed 28mA @ 240VAC, 60mA @ 500VAC

Temperature range: -10°C – +55°C

Humidity: max. 85% rel.H.

Measurement CAT: CATIV 600V

Pollution degree: 2

IP rating: IP64

Weight: 0.35kg

Dimensions: 213 x 112 x 72mm

SMKIT5

Includes:

TEK101 specification: see page 26

VT7 specification: see page 22

MTL10 specification: see page 18

PD440 specification: see page 21

SMKIT10

Includes:

TEK101 specification: see page 26

VT7 specification: see page 22

MTL10 specification: see page 18

PD440 specification: see page 21

BZ101 specification: see page 40

ACCESSORIES
TC2B calibration

Smart Metering Kit

The complete solution to enable safe working practices during the installation of Smart Meters. The SMKITs contain all the test tools needed to ensure safe isolation procedures can be implemented during the installation process.

The comprehensive kits include, a Buzz-It check plug for checking the wiring on 13A sockets (SMKIT10 only), a non-contact voltage indicator with probe tip for identifying phase and neutral lines and a single pole contact voltage tester suitable for use when wearing protective gloves and gauntlets. For CAT IV supply side safe isolation testing there is a Drummond test lamp with proving device. A soft carry case is included for the whole kit.

Kit includes:

1 x BZ101	Buzz-It Check Plug with Sounder for UK 13A Sockets (SMKIT10 only)
1 x TEK101	Non-contact voltage indicator with built in proving device
1 x VT7	Single Pole Contact Voltage Tester suitable for use when wearing PPE
1 x MTL10	Drummond AC/DC Test Lamp 600V CAT IV
1 x PD440	Proving Device
1 x TC70	Combination soft carry case

MTL10 Test Lamp with Proving Device

Recommended kit

MTL10PD

The Martindale MTL10PD contains the Drummond MTL10 test lamp and the PD440 proving device, enabling you to comply with health and safety recommendations for safe working. It is an essential safety aid for electricians and comes with a carry case (TC69).

ACCESSORIES
TC2B calibration

CAT III 1000V | CAT IV 600V

MTL20 Test Lamp with Proving Device

Recommended kit

MTL20PD

The Martindale MTL20PD contains the Drummond MTL20 test lamp with low impedance functions and the PD440 proving device. It is an essential safety aid for electricians and includes a combination carry case (TC69).

ACCESSORIES
TC2B calibration

CAT III 1000V | CAT IV 600V

Safe Isolation and Voltage Indication

Proving Devices

Martindale is the market leader in proving devices with a product for every need.

Safe electrical working requires the use of a voltage indicator that has been proven with a suitable proving device before and after use to ensure the instrument is working correctly. Martindale offer a range of compact, portable devices for proving two pole voltage indicators and multimeters with voltage detection ranges up to 700V AC and DC.

It is regarded as good practice to match the output voltage of the proving device with the voltage range of the instrument to be proved.

Devices capable of indicating to 690V should be proved at a nominal 700V. For voltage indicators with a 690V AC range, we recommend the use of a PD690 or PD700. For instruments designed for measuring single and three phase supplies up to 440V AC we recommend the use of the PD430 or PD440.

The PD430 and PD700 feature an initial low 50V output which is followed by the full test voltage to prove the complete voltage range of the instrument. The test at 50V is to ensure the indicator works at the threshold where voltages are deemed to be dangerous.

Some indicators e.g. the Drummond MTL20 have the ability to safely draw high currents to suppress phantom voltages. The PD700 is able to test that the high current draw feature of these indicators is working.

The PD710 is also available with a 700V DC output.

All Martindale proving units are designed to ensure long battery life and most include low battery indicators and external power supply options.

240V Proving Device

The PD240 is a compact low voltage proving device, ideally suited to test equipment being used for measurements up to 240V with combined AC/DC voltage measurement. This handy proving unit produces a 240V DC output which is current limited to 2mA making it suitable for use with multimeters and voltage detectors with an input impedance greater than 120kΩ. The PD240 has a long battery life and is fitted with a belt clip.

For higher voltage and low impedance compatible proving units see our PD430-PD710 range opposite.

PD240

Output voltage: 240V DC

Output current: 2mA max across 120kΩ, 3.5mA max

Short circuit protected

Battery: 6LR61/MN1604/PP3 (included)

Shut-off below 5V

Body: flame retardant ABS

Weight: 180g (incl battery)

Dimensions: 144 x 63 x 31mm

Proving Devices for low and high impedance testers up to 700V

PD430 - PD710

Operating Temperature: -10°C to +40°C at max 70% RH

Power: 6 x 1.5V AA alkaline batteries (IEC LR6 NEDA 15A) (included)

Body: flame retardant ABS

Dimensions: 143 x 84 x 50mm

Weight: 400g approx incl batteries

PD430

PD440

PD690

PD700

PD710

ACCESSORIES
TC2A calibration

PD comparison table

	Low Voltage	High Voltage	Low Voltage LED	High Voltage LED	Low Battery LED	High / Low Z Compatible	Suitable for
PD240	–	240V DC	–	✓	–	–	Digital multimeters & 2 pole voltage testers (>120kΩ)
PD430	50V AC	440V AC	✓	✓	✓	✓	Multimeters, voltage testers & Drummond test lamps
PD440	–	440V AC	–	✓	✓	✓	Multimeters, voltage testers & Drummond test lamps
PD690	–	700V AC	–	✓	✓	✓	Multimeters, voltage testers & Drummond test lamps
PD700	50V AC	700V AC	✓	✓	✓	✓	Multimeters, voltage testers & Drummond test lamps
PD710	–	700V DC	–	✓	✓	✓	Multimeters, voltage testers & Drummond test lamps

External power supply options available.
PSUHPAT12 (in-car)
PSUPD230 (UK mains)

Safe Isolation and Voltage Indication

Single Pole Voltage Tester optimised for use with PPE

A single pole contact voltage indicator which detects AC voltages of 50V-600V with bright LED indication.

This ergonomically designed voltage tester has a self-test function and is IP54 rated, for indoor and outdoor use. The tester is of durable construction making it suitable for both industrial and domestic applications.

This unit can be used when wearing protective gloves and gauntlets. Potentially unsafe direct contact with a finger or hand can be avoided and existing safe working practices requiring the use of Personal Protective Equipment (PPE) can be adhered to.

ACCESSORIES
TC2A calibration

CAT III 600V

CAT IV 300V

VT7

Electrical

Audible and visual indication
Voltage range: 50V-600V AC rms
Frequency range: 50-60Hz
Test current: <5µA

Environmental
Temperature (Operating & Storage): -10°C to 55°C
Humidity (Operating & Storage): ≤ 85% RH
Altitude: up to 2000m

General
Power: 9V, PP3 alkaline battery (IEC 6LR61, NEDA 1604A)
Current consumption: 34mA max

Safety
Conforms to BS EN 61010-1
Pollution degree: 2
IP rating: IP54
Water resistant

EMC
Conforms to BS EN 61326-1

Weight: 120g approx (with batteries)

Dimensions: 236 x 44 x 33mm

Includes: 9V PP3 battery and manual

Two Pole Voltage Tester

The VT12 is a two pole Voltage Indicator & Continuity tester with automatic AC/DC detection up to 690V and continuity testing with optical and acoustic indication up to 500k Ohms.

The bright LED indicators provide immediate display of the voltage range and the VT12 is supplied with probe caps for GS38 compliance.

It is ergonomically designed and durable enough for both industrial and domestic use. Constructed in accordance with the latest safety standards.

Adds 2 pole AC and DC detection

CAT III 690V

CAT IV 300V

ACCESSORIES
TC2A calibration
TC2B calibration (VT12PD)

Also available VT12PD with a VT12 and a PD690 in a carry case (TC70)

Meets Latest Standard

VT12

Voltage range: 12-690V AC/DC

LED indication: ±12, 24, 50, 120, 230, 400, 690V

AC/DC voltage detection: automatic

Range detection: automatic

Frequency range: DC, 0-65Hz

Continuity test: optical/acoustical

Continuity range: 0-500kΩ

GS 38 caps: removable

Standard & regulations:
BS EN 61243-3 2010

Weight: 130g approx.

Dimension: 205 x 67 x 27mm

Includes: battery and manual

Safe Isolation and Voltage Indication

VT25

Voltage range: 12-690V AC/DC
Frequency range DC: 16-400Hz

LED indication: ±12, 24, 50, 120, 230, 400, 690V

Single Pole Phase Test: 100-690V
Frequency range DC: 50-60Hz

Phase Rotation Test: 120-400V
Frequency range DC: 50-60Hz

Continuity Range: 0-500kΩ

GS38 caps: removable

Standard & Regulations:
BS EN 61243-3 2010

Cable length: 1.2m

IP rating: IP64

Auto power off

Torch light: White LED

Power: 2 x 1.5V AAA

Weight: 130g (with batteries)

Dimensions: 205 x 67 x 27mm

Includes: battery and manual

Two Pole Voltage Tester

The VT25 is a compact voltage tester which measures continuity, phase rotation and voltages between 12V and 690V. This compact tester complies with the latest version of EN61243-3 2010 and is supplied with removable probe caps for GS38 compliance. It is ergonomically designed and of durable construction for both industrial and domestic applications. The 1.2m cable is double insulated with a black outer and contrasting inner core to give visual warning of damage to the cable.

- Auto detect AC/DC voltage
- Single pole phase test
- Phase rotation test
- Continuity test – LED and buzzer
- Auto power off
- White LED torch light

Adds phase rotation and torch

Also available as VT25PD with a VT25 and a PD690 Proving Unit in a carry case (TC70)

ACCESSORIES	
TC2A	calibration
TC2B	calibration (VT25PD)
CAPVT25	spare GS38 caps

CAT III 1000V CAT IV 600V

VT28

Voltage range: 12-690V AC/DC
Frequency range DC: 16-400Hz

LED indication: ±12, 24, 50, 120, 230, 400, 690V

LCD Display:
Range: 10V-690V (DC, 16Hz-400Hz)
Resolution: 0.1V
Accuracy: ± (3% + 5 dgts)

Single pole phase test:
100-690V AC RMS
Frequency range DC: 50-60Hz

Phase rotation test:
120-400V AC RMS
Frequency range DC: 50-60Hz

Continuity range: 0-500kΩ

GS 38 caps: removable

Standard & regulations:
BS EN 61243-3 2010

Cable length: 1.2m

IP rating: IP64
Auto power off

Torch light: White LED
Power: 2 x 1.5V AAA

Weight: 130g (with batteries)

Dimensions: 205 x 67 x 27mm

Includes: battery and manual

Two Pole Voltage Tester with LCD Display

The VT28 shares the same useful functions as the VT25 but has the additional benefit of an LCD display. All voltage, continuity and phase rotation indications have the same bright LED indication but the VT28 also displays the measured voltage reading on the 25mm x 15mm LCD display.

Adds 4 digit LCD display

Also available as VT28PD with a VT28 and a PD690 in a carry case (TC70)

Meets Latest Standard

ACCESSORIES	
TC2A	calibration
TC2B	calibration (VT28PD)
CAPVT25	spare GS38 caps

CAT III 1000V CAT IV 600V

Safe Isolation and Voltage Indication

Non-contact Voltage Tester

The VT2 is a non-contact voltage tester for accurately detecting the presence of AC voltages between 200V and 1000V. When voltages are detected, the VT2 will automatically illuminate its tip by use of a bright red LED, giving quick and clear indication. It will indicate approximately 4mm from a conductor at 240V AC, making it ideal for tracing live circuits within cable containment and for voltage detection in sockets and junction boxes. On/off switch for maximum battery life. The pen-shaped design with clip makes it ideal for carrying in a pocket or tool belt when working at height or in difficult to access locations.

ACCESSORIES
TC2A calibration

CAT III 1000V

VT2

Indication range: 200V-1000V AC, 50Hz-60Hz

Voltage sensitivity: indicates 4mm approx. from a conductor at 240VAC

Supply: 2 x AAA batteries (included)

Weight: 48g (incl battery)

Dimensions: 170 x 19mm

Conforms to: BS EN 61010-1

Non-contact Voltage and Magnetic Field Tester

The VT3 is a non-contact voltage and magnetic tester for accurately detecting the presence of AC voltages between 200V and 1000V. When voltages are detected, it will automatically illuminate its tip with a bright red LED, giving quick and clear indication. On/off switch to stop battery consumption.

In addition to its voltage detection capabilities, it shows the presence of a magnetic field by illuminating a green LED in the tip section.

ACCESSORIES
TC2A calibration

CAT III 1000V

VT3

Indication range: 200V-1000V AC, 50Hz-60Hz

Voltage sensitivity: indicates 4mm approx. from a conductor at 240VAC

Magnetic sensitivity: >10mT

Supply: 2 x AAA batteries (included)

Weight: 48g (incl battery)

Dimensions: 170 x 19mm.

Dual Sensitivity Non-contact Voltage Tester with Torch

This IP64 rated non-contact voltage tester has two sensitivity ranges for accurately detecting the presence of AC voltages. The first will detect voltages between 50V and 1000V and the second will indicate voltages between 12V and 1000V.

The VT4 indicates voltage by illuminating the tip section with a red LED and a buzzer. The pen-shaped design with clip makes it ideal for carrying in a pocket or tool belt when working at height or in difficult to access locations. There is also a useful LED torch which illuminates the area in front of the tip.

ACCESSORIES
TC2A calibration

CAT IV 1000V

VT4

Indication Ranges:
12V-1000V AC
50V-1000V AC
50Hz-400Hz AC

Supply: 2 x 1.5V AAA batteries (included)

IP rating: IP64 to BS EN 60529

Dimensions: 155mm length, approx. 25mm diameter

Weight: 55g

Non-Contact Voltage Tester Comparison Table

	AC Voltage Range	Magnetic Field Detection	Frequency Range	LED Indication	Audible Indication	Self-Test	High Resolution
VT2	200-1000V	–	50-60Hz	✓	–	–	–
VT3	200-1000V	>10mT	50-60Hz	✓	–	–	–
VT4	12-50V 50-1000V	–	50-400Hz	✓	✓	–	–
TEK100	100-600V	–	45Hz-1kHz	✓	✓	✓	–
TEK101	180-600V	–	45Hz-1kHz	✓	✓	✓	✓
TEK200	100-600V	>10mT	45Hz-1kHz	✓	✓	✓	–

TEK100

Voltage range: 100 to 600V AC

Frequency range: 45Hz-1kHz

Temperature: -5 to 40°C

Integrated self test proving function

Sensitivity: registers at 3mm for 110V, 50Hz, 23mm for 240V, 50Hz (distances are from the tip of the device to a flat PVC twin core and earth cable suspended in free space)

Indication: visual: LED (red) and audible tone (3kHz) - voltage present. LED (green) - battery ok

Overvoltage: CAT III 1000V
CAT IV 600V

Power: 9V alkaline battery, MN1604 or equivalent (included)

Housing: flame retardant ABS

Weight: 120g approx. (incl battery)
Dimensions: 205 x 36 x 25mm
Includes: 9V PP3 battery, instructions

Safety: BS EN 61010-1
CAT IV 600V (TEK100 & TEK100/YE)
CAT IV 1000V (TEK101)
Class II, double insulation
BS EN 61326-1

Non-contact Voltage Indicator

The Pocket sized TEK100 is simple to use and can detect AC voltages without requiring physical contact with the conductor. The presence of any voltage between 100V and 600V AC will generate an audible tone, together with a red LED visual indication.

It has a unique built-in proving device which improves safety and saves time on-site. The integral self-test activates the sensor in the tip of the tester at 50Hz as well as checking the battery and LED, testing the entire circuit, not just the indicator LED.

The TEK100 is packaged in a tough ABS housing and is suitable for a wide range of residential, commercial and industrial applications

The only non-contact detectors with a built-in proving device that really proves the entire circuit.

ACCESSORIES
TC2A calibration

CAT IV 600V

Safe Isolation and Voltage Indication

Non-contact Voltage Indicator - High Resolution

The Martindale TEK101 is a simple to use non-contact voltage indicator with both audible and visual warnings and an extended probe tip for access to confined spaces. Optimised for identifying energised conductors at voltages within the range 180V to 600V AC, it incorporates a unique built-in 50Hz proving unit which tests the sensor operation, battery and LED.
The TEK100 Series of voltage indicators are the only non-contact voltage detectors with a built-in proving device that really proves the entire circuit is fully functional avoiding the need for a separate proving unit.

The tip design and optimised sensitivity make it possible to discriminate between adjacent live conductors where standard non contact voltage indicators struggle. The high resolution capability of the TEK101 improves safety and saves time on-site. The pocket sized design conforms to CAT IV 1000V safety regulations.

ACCESSORIES
TC2A calibration

CAT IV 1000V

TEK101

Voltage range:
180V to 600V AC rms

Frequency range: 45Hz to 1kHz

Temperature: -10°C to 40°C.

Humidity (Operating & Storage): ≤ 85% RH

Sensitivity: Typical Sensing Distances for Energised Cables at 50Hz

Cable Type at 230V
Flat 1mm² twin & earth - 3mm
Flat 2.5mm² twin & earth - 3mm
Round 1.5mm² - 2mm

Indication: visual: LED (red) and audible tone (3kHz) - voltage present. LED (green) - battery ok

Power: 9V, PP3 alkaline battery (IEC 6LR61, NEDA 1604A) included

Weight: 120g (incl battery)

Dimensions: 205 x 36 x 25mm

Safety: BS EN 61010-1
CAT IV 600V (TEK100 & TEK100/YE) CAT IV 1000V (TEK101)
Class II, double insulation
BS EN 61326-1

Non-contact Voltage & Magnetic Field Tester

Detects the presence and polarity of magnetic fields produced by indicators, relays, solenoids and transformers.

The integral self-test activates the sensor in the tip of the tester at 50Hz as well as checking the battery and LED. This proves that the unit is fully functional and avoids the need for a separate proving unit.

In addition, this unit incorporates all the capability of the TEK100 voltage indicator detailed overleaf, producing a versatile instrument in a slim and ergonomic ABS housing.

ACCESSORIES
TC2A calibration

CAT IV 600V

TEK200

Voltage range: 100 to 600V AC

Frequency range: 45Hz-1kHz

Sensitivity: registers at 3mm for 110V, 50Hz, 23mm for 240V, 50Hz (distances are from the tip of the unit to a flat 1mm² PVC twin core and earth cable suspended in free space)

Magnetic sensitivity: 10mT

Frequency range: 0 to 30kHz

Self test proving function Indication:
LED (green) and audible tone (3kHz) - South Pole Magnetic
LED (red) and audible tone (3kHz) - North Pole Magnetic

Operating temperature: -5°C to 40°C

Overvoltage: CAT III 1000V
CAT IV 600V

Power: 9V alkaline battery, MN1604 or equivalent (included)

Housing: flame retardant ABS

Weight: 120g approx. (incl battery)

Dimensions: 205 x 36 x 25mm

PAT Tester Selection Guide

	HPAT500	HPAT600	EPAT1600	EPAT2100	MPATPLUS	E3640 FLASH
Class I /II Test	✓	✓	✓	✓	✓	–
Lead Test	✓	✓	✓	✓	With accessory	–
Pass / Fail Indication	✓	✓	–	–	Auto Test inhibit on fail	–
Test values displayed	✓	✓	✓	✓	✓	✓
Selectable Limits	–	✓	–	–	✓	
Test mode	Auto	Auto / Manual	Manual	Manual	Auto / Manual	Auto / Manual
Run Test	–	Simulated	✓	✓	✓	–
Earth Continuity test current	200mA	200mA	200mA / 8A / 25A	200mA / 8A / 25A	200mA / 25A	–
110V Appliances	With accessory	With accessory	✓	✓	✓	–
Flash Test	–	–	–	1.5kV / 3kV	1.5kV / 3kV	Up to 4kV
Memory	–	200 results for on-screen recall	–	–	1000 results for download	–
Power Supply	Rechargeable or Mains with charger	Rechargeable or Mains with charger	230V	230V / 110V	230V / 110V	230V / 110V

HPAT500

EPAT1600

MPATPLUS

Whether it's a simple one button automatic battery powered tester for checking appliances in commercial premises, leisure facilities and care homes, or a mains powered PAT with high current bond test capability for industrial applications, Martindale testers make it easy to get the job done quickly and safely in accordance with the 4th Edition of the Code of Practice.

The HPAT Series are rechargeable handheld testers designed for maximum portability and ease of use.

Capabilities of the EPAT Series include on-site testing of 110V appliances and flash testing for tool hire and workshop repair applications.

The MPAT includes the same functionality plus fast pre-programmed test codes and memory with download capability to industry standard software for traceability and management of testing schedules.

All Martindale PATs include simple instructions on the tester and a soft carry case with essential accessories. For the full range of accessories see pages 32-34.

More information on the 4th Edition of the Code of Practice and Martindale training courses is available at: bit.ly/code-of-practice

Portable Appliance Testing

Handypat Series - Simple Handheld PAT Testers

The HPAT Series of rechargeable handheld PAT testers can be used for testing all types of portable appliances. They are designed for ease of use with one button automatic testing and ultimate portability. The small lightweight design is ideal for testing in all locations, whether under a desk or testing a wall mounted monitor. Rechargeable batteries and mains operation mean low running costs and no down time on-site.

- Simple one button automatic testing
- Pass/Fail indicator with full test results
- Class I, Class II & Lead Test
- 200mA Earth Bond - IT Safe
- 500V Insulation Test
- Rechargeable and mains operation
- Soft carry case

HPAT600 additional features

- Automatic and manual testing
- Lead Test with adjustable limits
- 250V / 500V Insulation Test
- Backlit display with on-board help
- Memory with on-screen recall
- Simulated load test

The 250V test option on the HPAT600 is ideal for surge protected devices and adjustable test limits allows for long leads. A comprehensive range of optional adaptors are available for testing 110V appliances and equipment fitted with 3 phase plugs.

ACCESSORIES

TC2B	calibration
TL157	110V adaptor lead to test 110V appliances
EX331	adaptor lead to test 110V extension leads

FREE VC

HPAT500/HPAT600

Earth continuity
Test current: 200mA DC
Range: 0-19.99Ω
Resolution: 0.01Ω
Accuracy: ± (5% reading + 2 dgt)
Fixed pass limits (HPAT500):
≤ 0.10Ω / ≤ 0.20Ω
Insulation Default Test Voltage
500V default: >500V DC at 1mA
Test current: 1.5mA
Ranges: 2.00MΩ, 20.0MΩ, 200MΩ
Resolution: 0.01MΩ
Accuracy:
<100MΩ ± (5% reading + 2 dgt)
>100MΩ ± (10% reading + 2 dgt)
Default pass level:
Lead: ≥ 1.0 MΩ
Class I: ≥ 1.0 MΩ
Class II: ≥ 2.0 MΩ
Fuse test
Voltage: 4V DC (open circuit)
Current: 200mA DC (short circuit)
Pass level: >2mA
General
Overload protection: 300V AC/DC
Complies to BS EN61010 : 2001
Temperature range: -10 to 40°C
Power supply: 6 x 1.2V AA NiMH rechargeable batteries 1800mAh
Dimensions: 90 x 210 x 54mm
Weight: 700g (inc batteries & leads)
Includes: carry case (TC57), manual, mains charger, rechargeable batteries, IEC lead, (EX332), earth bond probe (TL67)
HPAT600 adds car charger, null adaptor

HPAT600 additional functions
Earth continuity
User selectable pass levels: 0.1Ω to 0.9Ω in 0.1Ω steps
Insulation
User selectable: 250V / 500V DC
Test current: 1.5mA
User selectable pass levels:
0.3MΩ to 1MΩ in 0.1MΩ steps
1MΩ to 10MΩ in 1MΩ steps
Simulated load test
Voltage: 4V DC (into open circuit)
Current: 200mA DC (short circuit)
Accuracy: ± (5% reading + 2 dgt) (referenced to 230V)
Memory: 200 tests can be stored for on-screen recall

Handypat600 Kit

This advanced PAT testing kit includes the HPAT600, pass and fails labels, a record book plus a socket tester and a non-contact voltage indicator.

FREE VC

ACCESSORIES

TC2B	calibration
TL157	110V adaptor lead to test 110V appliances
EX331	adaptor lead to test 110V extension leads

HPAT600KIT1

Includes:

HPAT600 specification: see above
CP501 specification: see page 40
VT2 specification: see page 24

Pass labels (500)
Fail labels (100)
PAT register booklet
Batteries
230V lead adaptor (EX332)
Mains charger (PSUHPAT230)
Null pin on key fob (TL178)
In-car charger (PSUHPAT12)

EPAT1600

Insulation test
Test voltage:
500V DC -0% +20% at 0.5MΩ
Short circuit current:
1.5mA DC nominal
Display range: 0-19.9MΩ
Accuracy of indication:
±5% of reading ±1 digit

Earth continuity (8A & 25A)
Test voltage: 6V AC nominal with no load
Test current: 25A AC nom @ 0.1Ω, 8A AC nom @ 0.1Ω

Display range: 0-1.99Ω
Accuracy of indication:
±10% of reading ±2 dgt

Earth continuity (200mA)
Test voltage:
130mV DC nominal open circuit
Test current:
200mA DC nominal constant current
Range: 0-1.99Ω
Accuracy of indication:
±10% of reading ±2 digit

Fuse test
Test voltage: 6V AC nominal
Overrange threshold: 10kΩ nominal
Zero range threshold: 800kΩ nominal

Leads
Mains: 1.7 metre fixed lead, with a 13A moulded plug
Earth continuity: 3 metre long, detachable lead, heavy duty shrouded crocodile clip.
230V IEC adaptor: 13A BS 1363 plug to IEC320 connector, 230mm long.

Sockets
Mains: 230V 13A to BS 1363
110V 16A to BS 4343
Lead test: IEC320

Indicators
Over temperature: red LED which illuminates when the temperature limit for the instrument has been exceeded. LED extinguishes when unit cools.

Lamp 1/ lamp 2: red LEDs which illuminate to indicate lead 'polarity' for extension lead test facility.

Supply
Supply voltage: 230V±10% 50/60Hz
Power consumption: 10/220VA

Complies with
EMC: BS EN50081-1
BS EN50082-1
LVD: BS EN61010-1

Housing: ABS/polycarbonate

Weight: 4kg approx.

Dimensions: 330 x 263 x 144mm

Includes: manual, removable earth bond lead (TL66), adaptor to test 230V plug to socket leads (EX332).

EasyPAT Manual PAT Tester - Dual Voltage 25A Bond Test

The EPAT1600 is a simple one button, one test, manual PAT tester which will test all 240V & 110V portable appliances. There are three earth bond test currents which can be selected on a simple rocker switch, including a 200mA soft test for computers and sensitive I.T. equipment.

The Easypat has a built in lead tester for testing extension leads, IEC leads and adaptors. It will also perform a polarity test and is supplied with the EX332 240V lead test adaptor.

- Tests both 240V and 110V appliances
- Class I, Class II & power lead tests
- Simple one button, one test operation
- Earth bond test currents – 25A, 8A and 200mA for sensitive IT equipment.
- Built in lead tester

ACCESSORIES

TC2B	calibration
EX331	adaptor lead to test 110V extension leads

FREE VC

Portable Appliance Testing

EasyPAT Manual PAT Tester - Professional with Flash Test

ACCESSORIES

TC2C	calibration
TL150 110V	110V adaptor for power tests on appliances
EX331	adaptor lead to test 110V extension leads

FREE VC

The simple one button, one test interface for testing both 240V and 110V appliances speeds up testing both in the workshop and on-site. It performs the mandatory tests for Class I and Class II appliances for earth bond and insulation and has added benefits of run current, run leakage and flash test. Earth bond tests can be carried out at 25A, 8A and 200mA for sensitive IT equipment.

It can be powered by a 110V or 240V supply which enables run current or run leakage tests to be performed without need for connection to an external power source. The 110V adaptor is included to enable connection to a 110V supply.

The Easypat2100 has a built in lead tester for testing extension leads, IEC leads and adaptors. The lead tester will perform a polarity test and is supplied with the EX332 240V lead test adaptor.

EPAT2100

Insulation test
Same as EPAT1600 (see page 29)
Earth continuity: 200mA, 8A & 25A
Run current test
Range: 0-19.9A (Usable: 0-13.0A)
Accuracy: ±10% of reading ±1 digit
Earth leakage test
Range: 0-19.9mA
Accuracy: ±10% of rdg ±1 dgt
Flash test
Test voltage: 1.5kV AC - Class I
3.0kV AC - Class II
Display range: 0-19.9mA AC
Usable range: 0-3.5mA AC (current trip @ 4mA nominal)
Accuracy: ±5% of rdg ±1 dgt
Leads
Earth continuity: 1.5m long
Flash gun: for extra user protection
110/240V adaptor:
110V 16A plug (BS 4343) to 240V 13A free socket (BS 1363)
230V IEC adaptor: 13A BS 1363 plug to IEC320 230mm long
Sockets
Mains: 240V 13A to BS 1363, 110V 16A to BS 4343
Flash: 4mm high safety socket
Lead test: IEC 320
Indicators
Flash: neon lamp for active test.
Over temperature: red LED.
Lamp 1/ lamp 2: red LEDs for extension lead polarity test
Supply
Voltage: 110V/240V ±10% 50/60Hz
Power consumption: 10/220VA
Complies with: LVD: BS EN61010-1
Weight: 5.1kg approx
Dimensions: 330 x 263 x 144mm
Includes: manual, bond lead (TL66), flash probe (TL166), 110V adaptor (TL150), 230V plug to socket leads Adaptor (EX332), carry bag.

4kV Flash Tester

Capable of operating from either 115V or 230V supplies at 50/60Hz, the E3640 can apply up to 4kV AC and displays both output voltage and leakage current on the twin 3½ digit LCD's.

A fail lamp and buzzer indicate test failure.
Operating modes:
Trip - a pre-determined current is exceeded
Breakdown - fast transients trigger the trip
Burn - trip function is by-passed and the fault current flows continuously to expose the fault;
Hold - shows breakdown voltage and leakage current.

ACCESSORIES

TC2D	calibration
DFH0369	flash gun

Metrohm®

E3640

Power requirement:
115/230 Volts ±15% 50/60Hz 40VA
Output voltage range:
0-2.2, 0-4.2kV 50/60Hz AC
Accuracy: ± 2% of rdg ± 1 dgt
Leakage current: 0-5 mA (nominal) 50/60Hz in 10µA steps
Accuracy: ±2% of rdg ± 1 dgt
Trip level range: 0 to 3mA 50/60Hz
Setting accuracy: ±5% of full range
Trip response leakage: Will trip for fault duration >5mS but not for <100µS
Breakdown: Will trip for fast transients of 30µS and above
Complies with: EMC: to BS EN50081-1 and BS EN50082-2
Safety & flash test: BS EN61010-1
Weight: 4kg approx.
Dimensions: 330 x 263 x 144mm
Includes: flash gun (DFH0369), earth lead (DFH0366), mains power lead (TL205) and manual

MPATPLUS

Insulation test
Test voltage: 500V DC - 0% + 20%
Short circuit current: 1mA DC nominal
Display range: 0 to 19.9MΩ
Accuracy: ± 5% ±1 digit

Earth continuity test
Test voltage: 6V AC nominal

Test current
25A AC nominal - 0.1Ω load
200mA (soft test) for IT equipment
Display range: 0 to 1.99Ω
Accuracy: ±10% ± 2 digit

Run test
Display range: 0 to 3.1kVA
Accuracy: ±10% ± 2 digit at nominal 240V/110V

Earth leakage test
Display range: 0 to 6mA AC
Accuracy: ±10% ±1 digit

Flash test
Test voltage: 1.5kV AC - Class I (at nom 240V AC) 3kV AC - Class II
Display range: 0 to 3.0mA AC
Accuracy: ±5% ±1 digit

Memory: stores 1000 sets of results

Sockets
Mains/AC: 240V 13A to BS 1363, 110V 16A to BS 4343.

Interface: connector RS232 compatible with USB adaptor.

Complies with:
LVD: BS EN61010-1

Housing: polycarbonate/ABS
Weight: 4.75kg approx.
Dimensions: 330 x 263 x 144mm
Includes: manual, removable earth bond lead (TL66), flash probe (TL166) and 110V adaptor (TL150) all contained in a carry bag

Micropat+ Professional Downloading PAT Tester

- Downloads to computer/printer
- Simple one button, one test operation
- Tests both 240V and 110V appliances
- Class I, Class II & power lead tests
- Performs up to 5 PAT tests (earth bond, insulation, run current, run leakage, flash)
- Earth bond test currents - 25A and 200mA for sensitive IT equipment
- Suitable for onsite PAT testing and workshop applications.

The MicroPAT Plus is a dual voltage PAT tester with memory storage and download capability. It features a one-button, one test operation with a fast and simple download procedure making the Micropat Plus the ideal PAT tester for fast high volume PAT testing. The Micropat can be connected to a barcode scanner to create an efficient system. For downloading test results we recommend using the Martindale MPATSUITE software but you can also download results to Shire Safety First Express & Simply PATs.

ACCESSORIES

TC2C	calibration
EX331	adaptor lead to test 110V extension leads
EX332	IEC to 240V 3A plug adaptor
TL125	computer download lead
TL150	110V adaptor
LTDV	extension lead tester
BARCCD	barcode reader
PATSUITE	downloading software

FREE VC

MPATNGO

Includes:

Micropat Plus tester

CCD barcode reader (BARCCD)

Barcoded pass labels (500)(BAR2)

Fail labels (100) (FAIL1)

Data lead (TL125)

Extension lead tester (LTDV)

110V lead (EX331)

230V lead (EX332)

Micropat software (MPATSUITE)

USB adaptor (PATUSBADAPT)

Book (PATGUIDE)

Manual

Micropat+ Downloading PAT Tester Kit

This value for money kit provides all you need for PAT testing with pass and fail labels, downloading software (MPATSUITE) with download lead, an extension lead tester, a CCD barcode reader and the Martindale Illustrated Guide to PAT Testing book.

ACCESSORIES

TC2B	calibration

FREE VC

Portable Appliance Testing

PAT Testing Competency Training

TRAIN

A comprehensive one day course at our air conditioned training facility conveniently located just North of London. The course content is taught in accordance with the IEE Code of Practice 4th Edition and teaches delegates the theory and practical aspects of testing portable appliances safely.

On completion of the course, successful candidates will be able to confidently undertake PAT Testing and record keeping and will be able to carry out testing for their organisation or as a service to others. As part of the course, all attendees receive a copy of "Portable Appliance Testing - An Illustrated Guide".

Martindale can also offer on-site training anywhere in the UK.

Portable Appliance Testing Guide

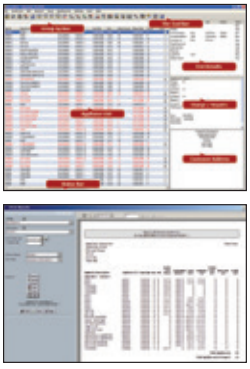
PATGUIDE

This "Portable Appliance Testing - An Illustrated Guide" is a comprehensive survey of all aspects of PAT testing. The book has been updated to address all changes in the IEE Code Of Practice 4th Edition and presents the information in a user friendly format.

A large number of illustrations show real world situations, with practical advice on the right approach.

This A4 book contains 96 pages of advice and guidance.

PAT Software



MPATSUITE

A comprehensive, easy to use software package for use with the downloading Martindale MPATPLUS and all manual testers, as it accepts manually input results. Designed with many time saving features, speeding up testing in the field and making you more productive. Has a full range of built in reports but also enables you to export your results into other common packages.

PAT Certificate Pad

A4 pad of 100 Portable Appliance Certificates of Test and Inspection. This gives detailed information on each appliance.

PATCERTS

Portable Appliance Register

PATREG

This handy A5 register allows you to keep manual records of PAT testing results for up to 315 appliances to ensure your system is fully compliant.

Portable Appliance Testing

Extension Lead Testers

A full range of Martindale extension lead testers for all makes of PAT testers. These units include an integral IEC mains lead test feature and are essential extras for anyone carrying out PAT tests.

LTDVR - Dual Voltage (110V & 240V) for Seaward PAT2000iee, PAT2000, PAT1000s, IT1000, PAT1000x, Supernova, Europa, Europa PAC & Megger PATS (except PAT4 & PAT32), Robin SmartPAT3500 and PAT5500.

LTDV - Dual voltage (110V & 240V) for EasyPAT, MicroPAT, PAC1500xi, PAT1900xi, PAT2100xi, PAT500H, MPAT40, MPAT60, Megger PAT4, Robin SmartPAT3000 and PAT5000 and all Edgcumbe (Metrohm) PATs.

LTDV SERIES

Both models can be used to check the continuity bond of the safety earth and check the polarity of phase and neutral conductors.

They can be used to check conventional extension leads and IEC type detachable leads as found on IT equipment and domestic appliances.

Operating: 0°C to 35°C
Storage: -10°C to 50°C
Housing: ABS
Dimensions: 141 x 82 x 51mm

PAT Flash Gun

TL166

A safety gun, giving extra user protection for flash testing. Supplied as standard with the EasyPAT2100 and MicroPAT+.

Suitable for safe use with PATs generating a test voltage of up to 3kV DC. Fitted with a 4mm connector.

PAT Barcode Reader

BARCCD

Remote sensing readers make it easier to read appliance numbers, especially ones in hard to get at locations or on cables or leads. This speeds up testing significantly, reduces errors and produces major savings in time and money. This reader is pre-configured for use with the MicroPAT+, so no setup is necessary.

Supplied pre-programmed for use with MicroPAT+, connects directly to the data port and does not require a separate power supply.

3 Phase Adaptor Leads

These adaptors allow a single phase PAT to carry out insulation and earth bond tests on 3 phase appliances.

TL151 – 16 Amp 4 pin delta style
TL152 – 16 Amp 5 pin star style
TL153 – 32 Amp 4 pin delta style
TL154 – 32 Amp 5 pin star style

EX331

IEC to 110v PAT adaptor for testing 110V extension leads.

EX332

IEC to 240V 3A plug adaptor for testing 13A extension leads.

TL150

110V adaptor enables the MICROPAT or EPAT2100 to be powered from a 110V supply.

TL157

110V adaptor lead – enables HPAT to test 110V appliances

TL66

Earth Bond Lead - 3 meters (EPAT & MICROPAT)

TL125

Computer download lead – MICROPAT to PC (9-9 pin)

PATUSBADAPT

For PC's with no serial port – uses USB port to download data from MICROPAT (requires TL125)

PL13 & PAD20R

Appliance plug lock off and padlock.

Portable Appliance Testing

LAB1

Paper labels suitable for plug tops and use on small appliances. Available in rolls of 500 (30 x 20mm).

LAB2

Paper pass safety test labels are designed to be replaced with each inspection. Available in rolls of 500 (60 x 30mm).

LAB3

Available in rolls of 500 (60 x 30mm).

POLY1

These are higher quality pass labels made of polyester for harsh environments or if subject to frequent cleaning and abrasion. Available in rolls of 500 (50 x 25mm).

POLY2

These are higher quality pass labels made of polyester for harsh environments or if subject to cleaning and abrasion. Available in rolls of 500 (50 x 25mm).

FAIL1

The fail labels are essential to prevent re-use of unsafe equipment which has failed a PAT test. Available in rolls of 100 (60 x 30mm).

MICRO

The labels show that appliances have been tested for microwave leakage. Available in rolls of 500 (50 x 25mm).

MS1

These allow test details to be written on them, then the information is sealed in by sticking down the clear flap. This provides a very high degree of protection against abrasion, dirt & erosion from cleaning fluids. Available in rolls of 500 (60 x 30mm).

BAR1

Bar code labels identify appliances with a unique number and corresponding bar code. Labels are produced on high quality polyester and are very durable. They withstand environments where ordinary paper labels would be unsuitable, e.g. on kettles, in greasy or dirty environments and are resistant to cleaning materials. Separate appliance number labels can be permanently attached to appliances where the pass test label is replaced after each test. Compatible with all current PAT Testers. Configured to Code 39. Available in rolls of 500 (50 x 25mm).

BAR2

Combined barcode & pass label can be fitted directly to the appliance. On re-test a new MARPOLY1 label is applied over the old test information on the bottom half of the label. Material is white vinyl. Configured to Code 39. Available in rolls of 500 (52 x 52mm).

BAR3

Combined barcode and pass label which can be fitted directly to the appliance. On re-test a new MARPOLY1 label is applied over the old test information on the bottom half of the label. Material is white vinyl. Configured to Code 39. Available in rolls of 500 (52 x 52mm).

Labels not to scale
All labels supplied with marker pen excluding the BAR1, BAR2 and BAR3

Martindale Kits offer value, simplify buying decisions and provide complete solutions to many applications.

HAPT600KIT1
Comprehensive PAT Testing Kit

VIPD150
Voltage Indicator Kit
VI-15000 voltage indicator and PD690 proving unit in a TC69 case (CAT IV 1000V)

VIPDLOK138
Safe Isolation kit
Lock off kit with VI13800 voltage indicator and PD440 proving unit

LOKKIT1
Comprehensive Lock Off Kit

FD650
Elite Professional Fuse Finder Kit

Price List

- PAT Testers
- 17th Edition Testing
- Sockets Testers
- Voltage Indication
- Multimeters & Clamp Meters
- Continuity Testers
- Phase Rotation
- Fuse Finders
- Environmental
- Thermometry
- Test Leads & Accessories
- Decade Boxes
- Metrohm
- Drummond
- Calibration & Service

All products, except consumable items, have a 2 year warranty and products are supplied with batteries where applicable.

01923 441717
www.martindale-electric.co.uk

Calibration

We have a fast growing and well resourced in-house calibration and repair department. The list below shows the products we repair and calibrate.

- insulation testers
- rcd testers
- loop testers
- multifunction
- voltage testers
- multimeters
- clamp meters
- earth testers
- thermometers
- milliohm meters / micro ohm meters
- pat testers
- high voltage
- microwave leakage detectors
- process control
- light
- sound
- gas detectors
- anemometers

Repair
In the unlikely event of your test equipment failing, Martindale offers a full repair service to restore your instrument to its original specification.

A full repair service is also available on many other makes of instruments across a broad range of product types. Please call our service department on 01923 441717 for further information.

Martindale's verification service conforms to the requirements of BS EN ISO 10012-2003, is certified to ISO 9001: 2008 and is traceable to national standards via UKAS (NAMAS) certificates held for our calibration equipment.

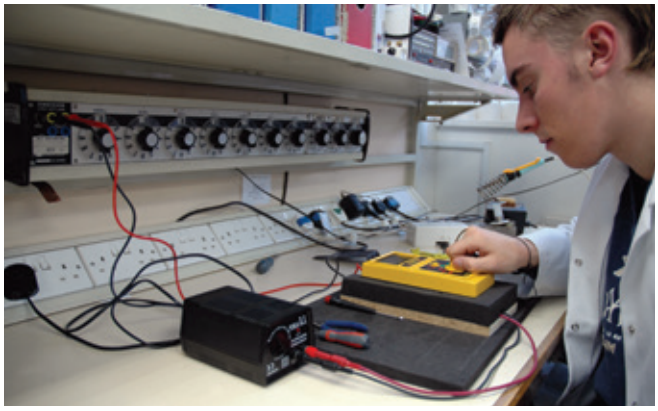
Turnaround times for repairs vary but instruments are usually turned around within 5 working days, subject to the availability of parts.

Calibration
To ensure your equipment remains in specification throughout its life, Martindale offers a calibration service on all the equipment in this catalogue.

All Martindale instruments are supplied calibrated at the factory, but personalised certificates are available at an additional cost. We use computer driven procedures to ensure a consistent, repeatable approach.

Centralised records also allow us to maintain traceability and to generate reminders for re-calibration when next due. Additionally we offer calibration across a wide range of electrical test equipment from other manufacturers.

FAST 24 hour calibration allows you to drop your meters off at our premises and collect them the next day, for an additional fee per unit. Alternatively, send the units to us and we will return them on a next day carrier. We also offer a standard 5 day service, but usually achieve better turnaround times.



Choosing the right socket tester

All socket testers check that the earth, live and neutral are the right way round (called polarity testing). Some offer added features – they may include a buzzer in addition to LEDs to indicate a good socket or they may show a combination of indicators to identify which particular fault type is present.

There is one fault that a socket tester and indeed no other piece of equipment can easily find – the swapping of the Earth and Neutral wires. This is because the earth and neutral are common at the substation, (if not closer), so electrically they are indistinguishable.

When selecting a socket tester it's important to understand the different types available and their capabilities and limitations.

Socket Tester Categories

There are 3 main categories of socket testers, simple, advanced and professional, summarised in the following table. The key differentiator is in the ability to measure and display either ranges or numerical values for earth fault loop impedance.

	Simple CP501, BZ101	Advanced EZ150	Professional EZ2500
Capabilities			
Indicate functional socket	✓	✓	✓
Detect line / neutral reversal	✓	✓	✓
Detect presence of earth	✓	✓	✓
Display range of earth loop impedance values	×	✓	×
Display the numerical value of earth loop impedance	×	×	✓

All socket testers will show the absence of an Earth; the Martindale EZ150 will show you how good your earth is and the EZ2500 will give you numerical values for certification and reporting.

This differentiation is important as some simple socket testers on the market have been seen to show an earth as good even when the impedance is as high as 500kΩ. As 0.5MΩ (500 kΩ) is normally considered a good insulation level, it's clear that in this case the "protective" earth will not protect.

Earth Loop Impedance

A reliable earth loop impedance measurement is important to ensure that the over current protection devices achieve a fast enough disconnection time to avoid electrocution. In the case of an earth fault, loop impedance values must be less than those specified in the BS7671 Wiring Regulations Amendment 3:2015.
Earth loop values higher than a few ohms can cause problems with disconnection times and therefore socket testers capable of indicating earth loop impedance values in this range reveal a lot more about the electrical safety of the installation than just an LED fault indicator. The Martindale EZ150 and EZ2500 have this capability built-in.

17th Edition Testing and Verification

It's important to appreciate that socket testers are not an alternative to the full verification of wiring installations. However as a first line indicator to identify potentially unsafe installations and wiring faults, socket testers offer a fast and effective solution when properly specified. They can also be particularly useful as a service tool in identifying potentially unsafe conditions prior to carrying out work on existing installations and appliances. For more information on the use of socket testers including their benefits and limitations, see the application notes on the socket tester pages at **bit.ly/socket-testers**

For information on professional loop testers and multifunction testers suitable for carrying out all the tests needed to verify the safety of domestic, commercial and industrial wiring installations according to Amendment 3 of the 17th Edition Wiring Regulations, see our ET4000/4500 multifunction installation testers on pages 3-5.

Find out more about the UK's favourite socket testers on our YouTube channel

Socket Testers

Classic Check Plug

With over 2 million of these socket testers sold, the Martindale CP501 is the most popular socket tester available. The classic check plug is a quick and easy way to ensure that 13A sockets are correctly wired, indicated by 3 bright long life LEDs.

Wiring faults are indicated by one or more of the LEDs failing to illuminate, with the pattern of lit LEDs indicating the type of fault detected. This fail-safe system means that any LED not lit indicates a fault.

The robust ABS housing has a sculpted shape for easy removal and there is a look up chart on the tester for quick fault diagnosis. The plug induces less than 5mA of earth leakage, well below RCD trip thresholds.

Detects 28 fault conditions.

A "simple" socket tester as described by the Health & Safety Executive.

ACCESSORIES
TC2A calibration

CAT II 300V

CP501

Operating voltage range: 200-250V

Frequency range: 30-70Hz

Power consumption: <1.8W

Temperature range: -10 to 40°C at max, 60% RH

Pollution degree: 2

Power supply: from mains

Open Earth if earth resistance > 50kΩ nom at 230VAC nom

Open Neutral if neutral resistance > 50kΩ nom at 230VAC nom

Complies with: BS EN61010

Dimensions: 65 x 65 x 47mm

Like all other standard socket testers, these units cannot detect common earth and neutral or earth neutral reversal.

ALSO SOLD IN PACKS OF 10 (CP511)

Buzz-IT Check Plug with Sounder

Together with the Classic Check Plug, the Buzz-IT is the UK's favourite socket tester.

The BZ101 provides a fast and simple solution for checking that 13A sockets are wired correctly. It uses the same LED indication as the CP501 but has the added benefit of an audible sounder to confirm that the wiring is correct. This is particularly useful when checking sockets that are not easily visible or in difficult to access locations. With the audible indication, the Buzz-It can also be used as a basic fuse finder. When the correct fuse is pulled the buzzer stops.

The Buzz-IT is an essential test tool for all electricians, maintenance and service personnel for fast fault finding and to quickly check socket integrity.
Detects 28 fault conditions

A "simple" socket tester with visual and audible indication as described by the Health & Safety Executive

ACCESSORIES
TC2A calibration

CAT II 300V

BZ101

Operating voltage: 200V-250V

Frequency: 50Hz

Power consumption: <2.7W

Temperature range: -10 to 40°C at max, 60% RH

Pollution degree: 2

Power supply: from mains

Open Earth if Earth resistance >50k ohm nom at 230VAC nom

Open Neutral if Neutral resistance >50k ohm nom at 230VAC nom

Earth Leakage <5mA on a correctly wired socket

Complies with: BS EN61010

Dimensions: 65 x 65 x 47mm

EZ150

Nominal supply: 230V, 50 Hz

Earth loop impedance span:
0-1.7Ω
1.7 to 5Ω
5 to 10Ω
10 to 100Ω
100 to 200Ω
200 to 500Ω

Earth loop threshold accuracy:
±(10% + 0.3Ω)*

Voltage low indication: <195V

Voltage high indication: >270V

Earth neutral voltage high indication: > 30V

Open earth indication: >500Ω

Temperature Range: -10 to 40°C, non-condensing.

Power consumption: <2.5 W

Pollution degree: 2

Complies with: BS EN 61010-1

Weight: 64g approx.

Dimensions: 65 x 65 x 50mm

* Note: measurement accuracy can be affected by highly inductive or capacitive components distributed on the supply

E-Ze Check Xtra™ with Non-Trip Earth Loop Impedance

The EZ150 was the first socket tester to indicate the value of earth loop impedance in addition to checking the socket wiring and has become the industry standard for installers, electricians and service personnel.

Basic socket testers can show if a socket is earthed, but not if the earth has a low enough resistance for protection devices to work properly and avoid electrocution when a fault occurs. The EZ150 does both.

Martindale's T-SafeTM patented technology gives safe, earth loop impedance checking within carefully selected bands, without tripping RCDs and RCBOs.

- Identifies faults other checkers can't
- Built-in self test
- Patented non-trip earth loop test
- Socket test for open termination and correct wiring
- Voltage test

This is an "advanced" socket tester as described by the Health & Safety Executive.

CAT II 300V

ACCESSORIES
TC2A calibration

EZ650

EZ150 specification: see above

Includes: mains lead (EX332 13A), 3-way fused leads (TL88) and carry case

E-Ze Check™ Xtra Professional Kit

The kit version extends the applications of the EZ150 from advanced socket testing to other wiring validation applications. The advanced socket tester kit includes a 13A mains lead for normal socket testing plus a TL88 3-way fused test leads and croc clips for carrying out the same suite of tests at light fittings, fused connection units and sub-distribution boards

The EZ650 kit shares the same T-Safe™ technology as the EZ150 to ensure that RCDs and RCBOs will not trip when the loop impedance check is carried out.

The comprehensive kit is supplied in a soft carry case for extra protection and convenience. (include carry case in spec panel)

- Complete advanced socket testing kit
- Fused leads, clips and 13A plug
- Supplied with soft carry case

ACCESSORIES
TC2A calibration

CAT II 300V

Socket Testers

E-Ze Test Professional Non-trip Earth Loop Impedance Tester

Smart and easy
Switch free operation
Battery free operation
Full socket testing
All P-E, P-N, PFC, PSC readings on one display

A "Professional socket" tester as described by the Health & Safety Executive

The EZ2500 is a professional socket tester that in addition to validating the socket wiring gives actual values for earth loop impedance. It's unique in being able to carrying out all tests automatically with no complicated switches or buttons ensuring the right test every time.

The simple and smart auto test sequence makes it ideal for applications where confirmation of adequate earthing is required prior to the installation and maintenance of electrical equipment. Applications also include 17th Edition high current and non-trip loop testing for wiring installations.

.

The EZ2500 performs non-trip P-E and P-N loop impedance tests, PFC and PSC checks and shows all results on the clear backlit LCD display. A voltage check and confirmation of correct wiring are also performed and results displayed.

The tester is supplied with a 13A plug mains lead for testing at 13A socket outlets. An additional 3 wire test lead can be purchased for testing at light fittings, fused connection units and sub distribution boards.

A soft carry case and comprehensive manual are included.

ACCESSORIES

TC2A	calibration
TL88	3-way fused test leads

CAT III 300V

EZ2500

Nominal voltage rating: 220-240V AC, 50Hz

Voltage range for wiring error detection: 30-275V

Open loop indication: If open PE or PN Loop is detected, no Impedance Measurement takes place

Voltage range for impedance

Measurement: 198-264V

Frequency: 50Hz

PE loop impedance ranges:
0-8.99Ω, 9.0-89.9Ω, 90-899Ω, 900-1699Ω, 1700-3000Ω

PE loop impedance accuracy:
0-8.99Ω ± 4% ± 0.05Ω*
9.0-89.9Ω ± 5% ± 0.5Ω*
90-899Ω ± 5% ± 5Ω*
900-1699Ω ± 5% ± 30Ω*
1700-3000Ω indicative

PFC & PSC test

PN loop impedance ranges:
0-8.99Ω, 9.0-89.9Ω, 90-899Ω, 900-1699Ω, 1700-3000Ω

PN loop impedance accuracy:
0-8.99Ω ± 4% ± 0.05Ω*
9.0-89.9Ω ± 5% ± 0.5Ω*
90-899Ω, ± 5% ± 5Ω*
900-1699Ω± 5% ± 30Ω*
1700-3000Ω indicative

Frequency accuracy: ± 4 %

Voltage accuracy: ± 4%

Temperature range:
-10° to 40° C at max
80 % Relative Humidity
(Non-Condensing)

Power supply: from mains

Power consumption: < 1.6W

Pollution degree: 2

Complies with: BS EN61010, BS EN61557 & BS 7671 (17th Edition)

Weight: 240g approx.

Dimensions: 145 x 85 x 53mm

Includes: carry case (TC210), mains lead & manual

* Note: measurement accuracy can be affected by highly inductive or capacitive components distributed on the supply

CP201

Operating voltage: 200-250V AC 30-70Hz

Power consumption: <1.8W

Overvoltage: CAT III/300V

Temperature range: -10 to 40°C at max, 60% RH

Pollution degree: 2

Power supply: from mains

Open Earth if earth resistance > 50kΩ nom at 230VAC nom

Open Neutral if neutral resistance > 50kΩ nom at 230VAC nom

Complies with: BS EN61010

Dimensions: 65 x 65 x 47mm (check plug body)

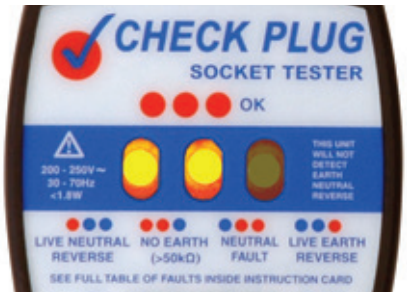
Weight: 195g approx.

Like all other standard socket testers, these units cannot detect common earth and neutral or earth neutral reversal.

250V Industrial Check Plug

The CP201 is an industrial version of the classic check plug, fitted with a 250V 16A plug (BS 4343 / IEC309).

Wiring faults are instantly indicated by one or more of the LEDs failing to illuminate, with the pattern of lit LEDs indicating the type of fault detected. There is a look up chart on the tester for quick fault diagnosis.



ACCESSORIES
TC2A calibration

CAT III 300V

CP301

Operating voltage: 110V AC (55-0-55V centre tapped only)

Operating current: 30mA

Overvoltage: CAT II/150V

Temperature range: -10 to 40°C at max, 60% RH

Pollution degree: 2

Complies with: BS EN61010

Dimensions: 65 x 65 x 47mm (check plug body)

Weight: 180g approx.

110V CT Industrial Check Plug

The CP301 is an industrial socket tester for instantly checking sockets on 110V centre tapped circuits. It is fitted with a yellow 110V 16A CT plug to BS 4343/ IEC309 and provides similar fail-safe LED indication as the classic check plug.

Using LEDs to highlight possible fault combinations, the CP301 is invaluable for instantly checking sockets on industrial or site installations. There is a look up chart on the tester for fast and simple fault diagnosis.

Fault indications include Line 1, Line 2 and centre tap faults plus Line 1 or 2 to centre tap reversal.

ACCESSORIES
TC2A calibration

CAT II 150V

Socket Testers

4 Pin 3-Phase Industrial Check Plugs

The PC104/16 is a 3-phase socket tester for checking supply faults and incorrect wiring of CEE 4 pin, 16A socket outlets. It will check for phase presence, phase sequence.

- 3 Phase Industrial Socket Testers
- 4 pin configuration
- 6 wiring condition checks
- Phase Sequence Indication
- Bright LED indication

3 MODELS

PC104/16 – 16A 4 pin
PC104/32 – 32A 4 pin
PC104/63 – 63A 4 pin

ACCESSORIES

TC2A	calibration
TC68	case for PC104/16 – 16A 4 pin
TC68	case for PC104/32 – 32A 4 pin

CAT III 300V

PC104

Input voltage range: 380V to 415V AC (Phase to Phase)

Input frequency: 50Hz

Input current: < 20mA

Power: From circuit under test

Complies with BS EN 61010-1, CAT III 300V

Class II Double Insulation

Pollution degree: 2

EMC: Conforms to BS EN 61326-1

Dimensions: 131 x 94 x 54mm

Weight: 292g approx (without plug)

Includes: manual

5 Pin 3-Phase Industrial Check Plugs

The PC105/16 is a 3-phase socket tester for checking supply faults and incorrect wiring of CEE 5 pin, 16A socket outlets. It will check for phase presence, phase sequence, PE presence and also checks for neutral presence.

- 3 Phase Industrial Socket Testers
- 5 pin configuration
- 6 wiring condition checks
- Phase Sequence Indication
- Neutral/Earth check
- Bright LED indication

3 MODELS

PC105/16 – 16A 5 pin
PC105/32 – 32A 5 pin
PC105/63 – 63A 5 pin

ACCESSORIES

TC2A	calibration
TC68	case for PC104/16 – 16A 4 pin
TC68	case for PC104/32 – 32A 4 pin

CAT III 300V

PC105

Input voltage range: 380V to 415V AC (Phase to Phase)

Input frequency: 50Hz

Input current: < 20mA

Power: From circuit under test

Complies with BS EN 61010-1

Class II Double Insulation

Pollution degree: 2

EMC: Conforms to BS EN 61326-1

Dimensions: 131 x 94 x 54mm

Weight: 292g approx (without plug)

Includes: Manual

Multimeter Comparison Chart





	AC Current	DC Current	AC Volts	DC Volts	Ohms	Frequency	Capacitance	True RMS	Auto-ranging	Holster	Other
MM39	0.01A -10A 3.5% + 5	0.01A - 10A 3% + 3	0.1mV - 600V 2% + 5	0.1mV - 600V 1% + 2	0.1Ω - 20MΩ 1.5% + 4	–	–	–	✓	over moulded holster	Continuity Diode Test
MM64	0.1µA - 200mA 1.5% + 4	0.1µA - 200mA 1% + 1	0.1mV - 600V 1.2% + 4	0.1mV - 600V 0.5% + 1	0.1Ω - 20MΩ 1% + 4	1Hz - 40kHz 0.1% + 3	0.1µF - 20mF 4% + 10	–	–	over moulded holster	Temperature Continuity Diode Test
MM65	0.1µA - 10A 2.5% + 5	0.1A µ- 10A 2.0% + 2	1mV - 600V 2% + 5	0.1mV - 600V 1% + 2	0.1Ω - 34MΩ 1.5% + 4	–	–	–	✓	over moulded holster	Continuity Diode Test
MM68	11µA - 10A 1.5% + 5	0.01µA - 10A 0.5% + 10	11mV - 750V 1.2% + 10	0.01mV - 1000V 0.05% + 5	0.01Ω - 220MΩ 0.5% + 10	0.01Hz - 22MHz 0.1% + 3	1pF - 22mF 3.0% + 5	✓	✓	over moulded holster	Duty cycle Continuity Diode Test Min/Max
MM94	0.01µA-20A 1.5% + 20	0.01µA-20A 0.5% + 10	0.01mV-750V 1.0% + 20	0.01mV-1000V 0.08% + 5	0.01Ω-60MΩ 0.3% + 20	0.001Hz-10MHz 0.1% + 10	1pF-6mF 3.0% +10	✓	✓	over moulded holster	Duty cycle, Continuity, Diode Test, Thermocouple input, Hi Frequency Filter, Min/Max, Peak, Relative mode

Best accuracies shown ± (% readings + digits)

TL55
The TL55 are fused test leads with double insulated silicone cable. Designed for your safety, they comply with GS38 & BS EN1010 and include 500mA 600V 50kA rupture rating ceramic fuses. Supplied with right angle fixed shroud.

TL45
All-in-one test lead sets. The TL45 are double insulated PVC leads. Supplied with right angle fixed shroud.

MG2
Magnetic strap (meter not included).

TC55
Suitable for all current Martindale multi-meters (190 x 88 x 55mm).

Multimeters

Autoranging Digital Multimeter

The MM39 is an auto-ranging multimeter with a large rotary switch for easy selection of the required test, even when wearing gloves. There are two test buttons, one to lock the range and the other to hold the results which are displayed on a 3½ digit LCD screen.

The main test functions are AC voltage and DC voltage and current and resistance. The MM39 measures both AC and DC voltage between 0.1mV to 600V and AC and DC current between 10mA to 10A. There is a diode test and an audible continuity test which sounds at less than 25Ω.

ACCESSORIES

TC2A	calibration
TL55	optional fused test leads
TC55	case

CAT III 600V

MM39

Display: 3½ digit

DC V: 0.1mV-600V (5 ranges)

AC V: 0.1mV-600V(5 ranges) (50Hz-500Hz)
DC current: 0.01A-10A

AC current: 0.01A to 10A (50Hz to 500Hz)

Resistance: 0.1Ω-20MΩ in 6 ranges

Continuity, diode test

Audible indication: Less than 25Ω

Weight: 315g approx.

Dimensions: 145 × 70 × 34mm

Includes: leads (TL16), 2 x 1.5V battery and manual

Digital Multimeter

The MM64 is a digital multimeter which performs all the basic test functions with the benefit of temperature measurement from -35°C to 750°C.

It measures AC and DC voltages from 0.1mV to 600V and AC and DC currents from 0.1µA to 200mA. Resistance measurements up to 20MΩ, frequency measurements up to 40 kHz and capacitance from 0.01µF to 20mF.

ACCESSORIES

TC2A	calibration
MG2	magnetic strap
TL55	optional fused test leads
TC55	case
TTXX	K-type thermocouples (see page 64)

CAT III 600V

MM64

Display: 3½ digit

DC V: 0.1mV-600V
(± 0.5% rdg ± 1 dgt)
AC V: 0.1mV-600V
(± 1.2% rdg ± 4 dgt)

Ohms: 0.1Ω-20MΩ (± 1% rdg ± 4 dgt)
AC A: 0.1µA-200mA (± 1.5% rdg ± 4)
DC A: 0.1µA-200mA (± 1% rdg ± 1 dgt)
Frequency: 1Hz-40kHz
(± 0.1% rdg ± 3 dgt)
Capacitance: 0.1µF-20mF
(± 4% ± 10 dgt)

Dimensions: 165 x 78 x 42.5mm
Weight: 285g approx
Includes: leads (TL16), K-type thermocouple, 1 x spare fuse, 9V battery & manual.

Autoranging Digital Multimeter with bargraph

The MM65 is an autoranging digital multimeter which measures AC and DC voltages up to 600V, and AC and DC currents of up to 10A. It measures resistance to 34MΩ and has a diode test and an audible continuity test which sounds below 35Ω.

It has a 3¾ digit LCD screen and it will display the results as digital numerical values and on a 34 segment analogue bar graph. The MM65 also has an auto-power off feature and on screen low battery indicator.

ACCESSORIES

TC2A	calibration
MG2	magnetic strap
TL55	optional fused test leads
TC55	case

CAT III 600V

MM65

Display: 3¾ digit

DC V: 0.1mV-600V
(± 1% rdg ± 2 dgts)

AC V: 1mV-600V
(± 2% rdg ± 5 dgt)
Ohms: 0.1Ω-34MΩ
(± 1.5% rdg ± 4 dgt)

AC A: 0.1µA-10A
(± 2.5% rdg ± 5 dgt)

DC A: 0.1µA-10A
(± 2% rdg ± 2 dgt)

Continuity:
<35Ω (audible indication)

Diode test

Weight: 285g approx

Dimensions: 165 x 78 x 42.5mm

Includes: leads (TL16),1 x spare fuse, 9V battery & manual.

MM68

Display: 4½ digit

DC V: 0.01mV-1000V
(± 0.05% rdg ± 5 dgt)

AC V: 0.01mV-750V
(± 1.2% rdg ± 10 dgt)

Ohms: 0.01Ω-220MΩ
(± 0.5% rdg ± 10 dgt)

AC A:
0.01µA-10A (±1.5% rdg ± 5dgt)

DC A:
0.01µA-10A (±0.5% rdg ± 10)

Continuity: <30Ω (audible indication)

Frequency: 0.01Hz-22MHz
(± 0.1% rdg ± 3 dgt)

Capacitance: 1pF-22mF
(± 3.0% rdg ± 5 dgt)

True RMS readings, duty cycle, continuity, diode test

Pollution degree: 2 for indoor use

Weight: 285g approx.

Dimensions: 165 x 78 x 42.5mm

Includes: leads (TL16), 1 x spare fuse, 9V battery(installed) & manual.

True RMS Digital Multimeter with bargraph

The MM68 is a True RMS digital multimeter which measures AC voltage up to 750V, DC voltage up to 1000V and both AC and DC current up to 10A. It measures frequency, capacitance, resistance, and also has duty cycle, diode test and an audible continuity test which sounds at less than 100Ω.

The 4½ digit LCD screen displays the results as values and on a 22 segment analogue bar graph. The MM68 also has an auto-power off feature and on screen low battery indication.

ACCESSORIES

TC2B	calibration
MG2	magnetic strap
TL55	optional fused test leads
TC55	case

CAT III 600V

CAT II 1000V

MM94

Display: 4 5/6 digit 60,000 Count

DC V: 0.01mV-1000V (± 0.08% rdg ± 5 dgt)

AC V: 0.01mV-750V
(± 2% rdg ± 20 dgt)

Ohms: 0.01Ω-220MΩ
(± 0.5% rdg ± 10 dgt)

AC A: 0.01µA-20A*
(± 1.5% rdg ± 20 dgt)

DC A: 0.01µA-20A*
(± 1.5% rdg ± 20)
*Continuous max 10A

Continuity: <40Ω (audible indication)

Frequency: 0.001Hz-10MHz
(± 0.1% rdg ± 10 dgt)

Capacitance: 1pF- 6mF
(± 3.0% rdg ± 10 dgt)

True RMS readings, duty cycle, continuity, diode test, k type, thermocouple, high frequency filter

Weight: 400g approx.

Dimensions: 198 x 90 x 44 mm

Includes: leads (TL16), 1 x spare fuse, 9V battery, manual and 1 x k type thermocouple

High Performance TRMS Digital Multimeter with bargraph

The MM94 is a high performance True RMS multimeter with a 600V CAT IV safety rating. It has an extended current measurement range up to 20A for short cycle measurements. Measurement capabilities include AC/DC voltage, capacitance, resistance and temperature with the included K Type thermocouple. Features include Min/Max and Peak measurement and a high frequency filter to optimise readings for distorted waveforms plus a relative mode.

The ruggedized design includes a 60,000 count backlit display with analogue bargraph.

ACCESSORIES

TC2B	calibration
TC55	case

CAT III 1000V

CAT IV 600V

TRUE RMS

Clamp Meters

	AC Current	DC Current	AC Volts	DC Volts	Ohms	Frequency	Max Conductor Size	True RMS	Min / Max	Backlight	Other	Safety
ET4	200.0A 2.0% ± 10 (50-60Hz)	200.0A 2% ± 5	mV,V to 600V 1.2% ± 5	mV, V to 600V 1.2% ± 5	Ω, kΩ, MΩ 1% ± 5	Hz	15mm Ø	–	–	✓	Autorange, Continuity, Diode Test, Non contact voltage, Torch, Hold, Auto power off	CAT III 600V
ET5	200A-0A 2.0% ± 10 (50-60Hz)	200.0A 2% ± 5	mV,V to 600V 1.2% ± 5	mV, V to 600V 1.2% ± 5 0.5% ± 2	Ω, kΩ, MΩ 1% ± 5	Hz	15mm Ø	–	–	✓	As above plus Capacitance, Duty cycle, Temperature	CAT III 600V
CM69	6.0000mA/ 60.00mA 600.0mA 6.000A/ 60.00A 1% ± 3	–	60.00V 600.0V 1% ± 3	60.00V 600.0V 1% ± 2	Ω, kΩ, 1% ± 2	–	20mm Ø	✓	Peak	✓	Autorange, Low pass filter, 1µA resolution, Hold, Auto power off	CAT III 600V CAT IV300V
CM51	40.00A 300.0A 1.8% ± 5 (40-500Hz)	–	–	–	–	–	27mm Ø	–	–	–	Autorange, Hold, Auto power off	CAT III 300V
CM55	40.00A 400.0A 1.9% ± 3	–	400.0V 600V 1.2% ± 3	400.0V 600V 1% ± 3	400 Ω 1% ± 2	–	25mm Ø 35x15mm	–	–	–	Autorange, Hold, Auto power off	CAT III 600V
CM57	60.00A 600.0A 1.9% ± 5	–	mV,V to 600V 1.2% ± 5	mv, V to 600V 1% ± 3	Ω, kΩ, MΩ 1.2% ± 3	Hz, kHz	25mm Ø 35x15mm	✓	–	✓	Autorange, Non contact voltage, Smart measurement, Capacitance, Diode Test, Hold, Auto power off	CAT III 600V
CM79	60.00A 600.0A 1.9% ± 5	60.00A 600.0A 2% ± 5	600.0V 1.2% ± 5	600.0V 1% ± 5	1000.0Ω 1% ± 2	–	25mm Ø 45x15mm	✓	✓	✓	Autorange, Hold, Auto power off	CAT III 600V
CM95	4.000A 40.00A 400.0A 3.0% ± 5	–	–	–	–	–	85mm Ø	✓	✓	✓	1mA resolution, Flexible, Inhibit for logging, Hold, Auto power off	CAT IV 600V
CM100	30.00A 300.0A 3000A 3% ± 5	–	–	–	–	–	160mm Ø	✓	✓	✓	Flexible, Auto power off Inhibit for logging, Hold	CAT IV 600V
CM82	40.00A 400.0A 1000A 2% ± 6 (50-60Hz)	–	mV, V to 750V 1.5% ± 5	mV, V to 1000V 0.5% ± 2	Ω, kΩ, MΩ	Hz, kHz, MHz	51mm Ø 70x18mm	–	–	–	Diode Test, Capacitance, Auto/manual range, Hold, Auto power off	CAT IV 600V
CM84	400.0A 1000A 2% ± 6	400.0A 1000A 2% ± 5	mV, V to 750V 1.5% ± 5	mV, V to 1000V 0.5% ± 2	Ω, kΩ, MΩ	Hz, kHz, MHz	57mm Ø 70x18mm	–	–	–	Diode Test, Auto/manual range options, Hold, Auto power ofof	CAT IV 600V
CM87	660.0A 1500A 2% ± 10 (50-60Hz)	660.0A 2000A 2% ± 5 (<660A)	V to 750V 1.5% ± 8	V to 1000V 0.5% ± 2	Ω, kΩ, MΩ	Hz, kHz, MHz	57mm Ø 70x18mm	✓	✓	✓	Diode Test Capacitance, Inrush, Hold, Temperature, Auto power off,	CAT IV 600V
CMi210	600.0A 1500A 2.5% ± 10 (50-60Hz)	600.0A 2000A 2% ± 5 (<660A)	mV, V to 750V 1.5% ± 8	mV, V to 1000V 0.5% ± 2	Ω, kΩ, MΩ	Hz, kHz, MHz	57mm Ø 70x18mm	✓	✓	✓	50-1000V Insulation Test, Inrush, HFR filters, Capacitance, Diode Test, Temperature Duty cycle, Hold	CAT IV 600V

ET4 / ET5

AC/DC A: 0.1A-200.0A
AC ±(2.0% of rdg + 10 dgt)
DC ±(2.0% of reading + 5 dgt)

AC/DC V: 0.1mV-600V
AC ±(1.2% of rdg + 5 dgt)
DC ±(0.5% of rdg + 2 dgt)

Resistance: 0.1 Ω-50MΩ
±(1% of reading + 5 dgt)

Frequency: 30Hz-400Hz
± (0.1% of reading + 5 dgt)

Continuity Buzzer: at<30Ω

Diode Test: 1mV-2V

NCV indicator: 70V- 600V

Power: 9V PP3 Alkaline

Weight: 200g (incl battery)

Dimensions: 202 x 51 x 44 mm

Includes: TL17 test leads, 9V battery, case & manual

ET5 additional functions

Temperature: -35°C-500°C
Accuracy: ± 2% rdg ± 3°C
Duty Cycle: 5% - 95%
Capacitance: 1nF - 5mF
± (3% of rdg + 5 dgt)
Includes: TL17 leads, K-type thermocouple (ET5), 9V battery, case & manual

AC/DC Electrical Tester 200.0A

The ET4 and ET5 combine all essential electrical test functions in an easy to use compact test tool with an open jaw for both AC and DC current measurement. Other functions include voltage, resistance, continuity and diode test. The backlit dual display shows current and voltage or frequency and voltage simultaneously. Both models include a non-contact voltage indicator and LED torch built-in to the jaw, and are supplied with detachable test leads and soft carry case.

ET5 additional features
The ET5 has additional functionality for duty cycle, capacitance and temperature measurement and is supplied with a K-type thermocouple.

ACCESSORIES

TC2B	calibration
TL57	optional fused test leads
TTXX	K-type probes (see page 64)

CAT III 600V

CM69

AC mA: 6.000mA / 60.00mA / 600.0mA autoranging

Accuracy: 1% ± 3dgt

AC A: 6.000A / 60.00A

Accuracy: ± 1% ± 3dgt

AC V: 60.00V / 300.0V

Accuracy: ±1% ± 3dgt

DC V: 60.00V / 300.0V

Accuracy: ±1% ± 2dgt

Ohms: 600.0Ω to 600.0kΩ

Accuracy: ±1% ± 2dgt

Continuity: buzzer ≤ 60Ω

Max conductor: 20mm Ø

Operating environment: 0°C to 40°C, <80% RH

Auto power off, low battery indication

Power: 2 x 1.5V AAA

Weight: 270g approx.

Dimensions: 206 x 76 x 34m

Includes: leads (TL16), case, batteries and manual

TRMS AC Earth Leakage Clamp Meter 6.000mA to 60.00A

The CM69 is a new high performance TRMS AC Leakage Clamp meter with outstanding low current capability able to resolve down to 1µA. This pocket sized clamp also measures AC/DC voltage and resistance. The advanced jaw design minimises the influence of conductor position and shields against external fields from other conductors to give more accurate and consistent results.

Peak hold, a switchable low pass filter and TRMS measurement make the CM69 ideal for many applications:

- Troubleshooting of RCD nuisance tripping
- Periodic measurement of leakage current at 50Hz to check for insulation deterioration
- Accurate measurement of triple neutral currents and other distorted waveforms
- Differential current measurement for appliance testing

The CM69 also features auto ranging and a high contrast backlit display.

ACCESSORIES

TC2B	calibration

TRUE RMS · CAT III 600V · CAT IV 300V

Clamp Meters

AC Current Only Clamp Meter 40.00A / 300.0A

The CM51 is a pocket sized clamp meter which reads AC current up to 300A. This low cost, auto ranging clamp meter has a jaw diameter of 27mm and is a useful tool for electrical, mechanical and engineering applications.

The clamp has a useful Data-hold feature to freeze the displayed value when used in difficult to access locations where the display may be hard to read.

There is also an auto power off function and the clamp is supplied with a manual, battery and a soft carry case.

This compact clamp is small enough to fit in a shirt pocket.

ACCESSORIES
TC2A calibration

CAT III 300V

CM51

Display: 3¾ digit LCD display with annunciators

AC A: 40.00A / 300.0A (40Hz to 500Hz)

Accuracy: ± 1.8%rdg ± 5dgt, 50-60Hz

Max conductor: 27mm Ø

Operating temperature & humidity: 0°C to 40°C, less than 80% RH.

Weight: 110g

Dimensions: 150 x 52 x 24mm

Includes: case, battery and manual

AC Clamp Multimeter 40.00A / 400.0A

The CM55 is a new pocket sized high performance AC Clamp meter measuring AC current, AC/DC voltage and resistance with continuity test. The compact rugged design enables accurate and reliable current measurement down to 10mA resolution without the need to break into the circuit.

Features include a thumbwheel for single handed operation, auto ranging for ease of use, auto power off, low battery indicator and a hold function useful for when working in areas with restricted access.

The CM55 has a CATIII 600V safety rating.

ACCESSORIES
TC2B calibration

CAT III 600V

CM55

AC A: 40.00A / 400.0A (50-400Hz)

Accuracy: ± 1.9% ± 3dgt (50-60Hz)

AC V: 400.0V / 600V (50-400Hz)

Accuracy: ±1.2% ± 3dgt (50-60Hz)

DC V: 400.0V / 600V

Accuracy: ±1% ± 3dgt

Ohms: 400Ω

Accuracy: ±1% ± 2dgt

Continuity: buzzer < 25Ω

Max conductor: 25mmØ

Operating environment: 0°C to 40°C, <80% RH

Power: 2 x 1.5V AAA

Weight: 260g approx.

Dimensions: 203 x 75 x 32m

Includes: leads (TL16), case, batteries and manual

CM57

AC A: 60.00A / 600.0A

Accuracy: ± 1.9% ± 5dgt

AC V: 6.000V / 60.00V / 600V

Accuracy: ±1.2% ± 5dgt

DC V: 6.000V / 60.00V / 600V

Accuracy: ±1% ± 3dgt

Ohms: 600.0Ω to 6.000MΩ

Accuracy: ±1.2% ± 3dgt

Continuity: buzzer ≤ 30Ω

Capacitance: 6.000nF to 600.0µF

Accuracy: ±3% ± 10dgt

Frequency: 6.000kHz / 10.00kHz (A), 6.000kHz to 100.0kHz (V)

Accuracy: ±1.2% ± 3dgt

Max conductor: 25mm (use normal symbol from CM51)

Operating environment: 0°C to 40°C, <80% RH

Power: 2 x 1.5V AAA

Weight: 270g approx.

Dimensions: 203 x 75 x 32m

Includes: leads (TL16), case, batteries and manual

TRMS AC Smart Clamp Multimeter 60.00A / 600.0A

The CM57 is a new pocket sized high performance AC Clamp meter measuring AC current, AC/DC voltage, resistance with continuity test plus capacitance, frequency and diode test. The compact rugged design enables accurate and reliable current measurement down to 10mA resolution without the need to break into the circuit.

Features include a thumbwheel for single handed operation, auto ranging for ease of use, auto power off and low battery indicator plus a high contrast backlit display with hold function useful for working in low light and hard to reach areas. The Smart function automatically detects and switches between resistance and capacitance measurements.

The CM57 has a CATIII 600V safety rating and includes a non-contact voltage sensor built into the jaw.

ACCESSORIES
TC2B calibration

TRUE RMS

CAT III 600V

CM79

AC A: 60.00A / 600.0A

Accuracy: ± 1.9% ± 5dgt

DC A: 60.00A / 600.0A

Accuracy: ± 2% ± 5dgt

AC V: 600.0V

Accuracy: ± 1.2% ± 5dgt

DC V: 600.0V

Accuracy: ± 1% ± 2dgt

Ohms: 999.0Ω

Accuracy: ± 1% ± 2dgt

Continuity: buzzer ≤ 30Ω

Max conductor: 25mm diameter, 35mmx15mm bus bar

Operating environment: 0°C to 40°C, 80% RH

Power: 2 x 1.5V AAA

Weight: 255g approx.

Dimensions: 209 x 74 x 36m

Includes: leads (TL16), case, alkaline batteries and manual

TRMS AC/DC Clamp Multimeter 60.00A / 600.0A

The CM79 is a new pocket sized high performance TRMS AC/DC Clamp meter measuring AC and DC current up to 600A, AC/DC voltage and resistance with continuity test. The compact rugged design enables accurate and reliable DC current measurements down to 10mA resolution in applications including PV installations, battery monitoring and electric vehicles.

The TRMS capability ensures accurate and reliable AC current and voltage measurement for distorted waveforms caused by today's power electronics and non-linear loads.

Features include an elliptical jaw to accommodate bus bars up to 35x15mm, thumbwheel for single handed operation, auto ranging for ease of use, auto power off and low battery indicator plus a high contrast backlit display. Useful functions include hold and Min/Max hold for monitoring maximum loads, start up and charging currents.

ACCESSORIES
TC2B calibration

TRUE RMS

CAT III 600V

Clamp Meters

TRMS AC Flex Meter 4.000A / 40.00A / 400.0A

The CM95 has a highly flexible 5.5mm diameter current sensor ideal for measurements on large and hard to reach conductors up to 85mm in diameter. It can be easily threaded through small apertures and around large conductors and fuse holders where conventional clamps can't be used. The CM95 offers high resolution True RMS measurement down to 1mA for low current applications. Unlike conventional current transformers there is no maximum overload limitation.

The separate display module is fitted with a 1.8m lead giving even more freedom in areas with restricted access and is backlit for viewing in low light conditions. The Hold function can be used for saving displayed values and Min/Max for longer term monitoring of peak loads. The auto power off function can be easily disabled when monitoring.

ACCESSORIES

TC2B	calibration
TC68	carry case

TRUE RMS | CAT III 1000V | CAT IV 600V

CM95

AC current: 4.000A / 40.00A / 400.0A

Accuracy: 3.0% of rdg ± 5 dgts (45Hz to 500Hz)

Sensor length: 254mm
Sensor diameter: 5.5mm

Max diameter conductor: 85mm

Cable length (to display module): 1.8m

Sampling rate: 2 / sec

Operating environment: 0°C to 50°C < 80% RH, non condensing
Storage temperature: -10°C to 60°C, 70% RH

Complies with: BS EN 61010-1, BS EN 61010-2-032, CAT IV 600V, Class II, Double Insulation, EMC BS EN61326-1

Low battery indication
Auto power off/disable
Power: 2 x 1.5 V AAA batteries (IEC LR03, NEDA 24A)
Battery life: 120 hours typical (alkaline)

Weight: 196g approx. incl batteries
Dimensions: 120 x 70 x 26 mm
Includes: 2 x 1.5V AAA alkaline batteries and manual.

TRMS AC Flex Meter 30.00A / 300.0A / 3000A

The CM100 has a highly flexible 8.5mm diameter current sensor ideal for measurements on large and hard to reach conductors up to 160mm in diameter. It's suitable for both low and high current applications up to 3000A. Unlike conventional current transformers there is no maximum overload or duty cycle limitations.

The separate display module is fitted with a 1.8m lead giving even more freedom when working in areas with restricted access and is backlit for viewing in low light conditions. The Hold function can be used for saving displayed values and Min/Max for longer term monitoring of peak loads. The auto power off function can be easily disabled when recording Min/Max values.

ACCESSORIES

TC2B	calibration
TC68	carry case

TRUE RMS | CAT III 1000V | CAT IV 600V

CM100

AC current: 30.00A / 300.0A / 3000A

Accuracy: ±3.0% ± 5 dgts (45Hz to 500Hz)

Flexible sensor length: 458mm
Flexible sensor diameter: 8.5mm

Max conductor: 160mm diam.
Display cable length: 1.8m

Sampling rate: 2/sec.

Operating environment: 0°C to 50°C < 80% RH, non condensing

Storage temperature: -10°C to 60°C, 70% RH

Complies with: BS EN 61010-1, BS EN 61010-2-032, Class II, Double Insulation, 600V CAT IV

Pollution degree: 2

EMC BS EN61326-1

Low battery indication

Auto power off/disable

Power: 2 x 1.5 V AAA batteries

Battery life: 120 hrs typical alkaline

Weight: 286g approx. incl batteries

Dimensions: 120 x 70 x 26 mm
Includes: 2 x 1.5V AAA alkaline batteries and manual

CM82

Display: liquid crystal display
AC V: 0.1mV to 750V, autoranging (50Hz to 500Hz) (5 ranges)
Accuracy: 1.5% rdg + 5 dgts
AC A: 0.01A to 1000A (3 ranges) (50Hz to 400Hz)
Accuracy: 2.0% rdg + 6 dgts (≤600A) 50Hz to 60Hz
2.5% rdg + 6 dgts (>600A) 50Hz to 60Hz
DC V: 0.1mV to 1000V autoranging (5 ranges)
Accuracy: 0.5% rdg + 2 dgts
Resistance ranges: 400Ω, 4 kΩ, 40kΩ, 400kΩ, 4MΩ, 40MΩ
Resolution: 0.1 Ω on 400Ω
Accuracy: 1.0% rdg + 5 dgts on 400Ω to 400kΩ, 2.0% rdg + 5 dgts on 4MΩ, 3.5% rdg + 5 dgts on 40MΩ
Capacitance: 4nF to 4mF (7 ranges)
Frequency: 0.001 kHz to 1 MHz (4 ranges)
Continuity: Buzz at < 25Ω
Maximum conductor: 51mm diameter or 70 x 18mm bus bar
Diode test

Dimensions: 279 x 103 x 53mm

Weight: 515g incl battery approx

Includes: leads (TL16), case (TC68), battery & manual

AC Clamp Meter 40.00A / 400.0A / 1000A

The CM82 is a high specification 1000A clamp meter, packed full of functions for the installation, testing and maintenance of domestic and industrial installations. It is light enough for easy one handed operation but still robust enough for use in harsh environments.

This compact meter provides accurate measurement of AC voltage to 750V, DC voltage to 1000V and AC current to 1000A. It has the same test functions you would find on a high specification multimeter making this clamp a comprehensive testing solution for electricians, maintenance and service engineers.

ACCESSORIES

TC2A	calibration
TL55	optional fused test leads

CAT III 1000V
CAT IV 600V

CM84

Display: liquid crystal display
AC V: 0.1mV to 750V, autoranging (50Hz to 500Hz) (5 ranges)
Accuracy: 1.5% rdg + 5 dgts
AC A: 0.1A to 1000A (2 ranges)
Accuracy:
2.0% rdg + 6 dgts (≤600A) 50Hz to 60Hz
2.5% rdg + 6 dgts (>600A) 50Hz to 60Hz,
DC V: 0.1mV to 1000V autoranging (5 ranges)
Accuracy: 0.5% rdg + 2 dgts
DC A: 100mA to 1000A
Accuracy: 2.0% + 5 dgts (≤600A)
3.0% + 5 dgts (>600A)
Resistance ranges: 400Ω, 4kΩ, 40kΩ, 400kΩ, 4MΩ, 40MΩ
Resolution: 0.1Ω
Best Accuracy: 1.0% rdg + 5dgts to 400kΩ
2.0% rdg + 5 dgts on 4MΩ
3.5% rdg + 5 dgts on 40MΩ
Frequency: 0.001 kHz to 1 MHz
Continuity: buzz at < 25Ω
Maximum conductor: 57mm diameter or 70 x 18mm bus bar
Diode test

Dimensions: 281 x 108 x 53mm

Weight: 570g approx incl battery

Includes: leads (TL16), case (TC68), battery & manual

AC/DC Clamp Meter 400.0A / 1000A

The CM84 shares the same features as the CM82, apart from capacitance, but has the added benefit of DC current measurement to 1000A and has a useful DC current zero function.

The large jaw will accommodate conductors with diameters up to 55mm and bus bars up to 70mmx18mm.

ACCESSORIES

TC2A	calibration
TL55	optional fused test leads

CAT III 1000V
CAT IV 600V

Clamp Meters

TRMS AC/DC Clamp Meter 660.0A / 2000A

A high specification True RMS clamp meter. The CM87 is packed full of functions for the installation, testing and maintenance of domestic, industrial and utility installations.

This robust clamp meter provides True RMS measurement of AC current up to 1500A and AC voltage to 750V. It also measures DC current to 2000A and DC voltage to 1000V.

The CM87 shares all of the features of the CM82 and CM84 but has the added benefit of temperature measurement between -20°C to 1000°C and is supplied with a K-type thermocouple. The comprehensive specification includes inrush current measurement for startup current monitoring and a min/max function.

TRUE RMS | CAT III 1000V | CAT IV 600V

ACCESSORIES

TC2B	calibration
TL55	optional fused test leads

CM87

Display: liquid crystal display
AC V: true RMS 0.001V to 750V, autoranging
Best accuracy: 1.5% rdg + 8 dgts
AC A: true RMS 0.1A to 1500A
Best accuracy: 2.0% rdg + 10 dgts (≤660A) 50-60Hz
DC V: 0.001V to 1000V autoranging (4 ranges)
Best accuracy: 0.5% rdg + 2 dgts
DC A: 100mA to 2000A
Best accuracy: 2.0% + 5 dgts (≤660A)
Resistance: 660Ω, 6.6kΩ, 66kΩ, 660kΩ, 6.6MΩ, 66MΩ
Resolution: 0.1Ω on 660Ω
Accuracy:
1.0% rdg + 5 dgts to 660kΩ
2.0% rdg + 5 dgts on 6.6MΩ
3.5% rdg + 5 dgts on 66MΩ
Capacitance: 0.001nF to 6.6mF (7 ranges)
Frequency: 0.01Hz to 1MHz (6 ranges)
Temperature: -20°C to 1000°C (-4°F to 1832°F)
Continuity: buzz at <30Ω
Maximum conductor: 57mm diameter or 70mm x 18mm bus bar
Diode test, Duty cycle
Dimensions: 281 x 108 x 53mm
Weight: 585g approx incl battery
Includes: leads (TL16), case (TC68), type K thermocouple, battery & manual

Combined Insulation Test and TRMS AC/DC Clamp Meter

A unique insulation clamp meter for the installation, testing and maintenance of domestic and industrial installations. This high specification clamp meter can perform insulation tests to 6G Ohms with 5 test voltages from 50V to 1000V.

The clamp provides True RMS measurement of AC current to 1500A and AC voltage to 750V. It will also measure DC current to 2000A and DC voltage to 1000V.

The CMi210 has all the same test functions you would expect to find on a high specification multimeter with the added benefit of temperature measurement.

TRUE RMS | CAT III 1000V | CAT IV 600V

ACCESSORIES

TC2B	calibration
TL55	optional fused test leads
TL180	optional switching insulation probe

CMI210

AC V: true RMS 0.001V to 750V, autoranging
Best accuracy: 1.5% rdg + 8 dgts
AC A: true RMS 0.1A to 1500A (2 ranges)
Best accuracy: 2.5% rdg + 10 dgts (≤600A) 60Hz
DC V: 0.001V to 1000V autoranging (5 ranges)
Best accuracy: 0.5% rdg + 2 dgts
DC A: 0.1A to 2000A (2 ranges)
Best accuracy: 2.0% + 5 dgts (≤600A)
Insulation resistance: 300kΩ-6GΩ depending on voltage test
Best accuracy: 250-1000V 1.5% +5
Capacitance: 0.001µF to 6.6mF (4 ranges)
Frequency: 0.01Hz to 10MHz (7 ranges)
Resistance ranges: 600Ω, 6kΩ, 60kΩ, 600kΩ, 6MΩ, 60MΩ
Resolution: 0.1Ω on 600Ω
Best accuracy: 1.0% rdg + 5 dgts on 600Ω to 600kΩ
Temperature: -50°C to 1300°C (-58°F to 2372°F) K-type probes
Continuity: buzz at <40Ω
Maximum conductor: 57mm diameter or 70mm x 18mm bus bar
Diode test, duty cycle
Dimensions: 326 x 108 x 53mm
Weight: 720g approx incl batteries
Includes: leads (TL45), case, type K thermocouple, battery & manual

FD550 / 650

Transmitter

Voltage rating: 230V

Frequency range: 30-70Hz

Switching frequency: 5Hz approx.

Transmission pulse width: 1.7µS approx.

Transmission pulse amplitude: 20A max

Earth leakage: Nil

Power consumption: 1W approx.

IP rating: IP20

Overvoltage:

Transmitter: CATIII 300V

Receiver: CATIV 600V

Supply: from mains

Dimensions: 65 x 65 x 50mm

Weight: 65g approx.

Receiver

Tracing depth for fuse assignment: 0-10cm approx. depending on local conditions

Sensitivity setting: via digital stepping

IP rating: IP20

Supply: 9V battery, MN1604/ PP3, IEC 6LA61 (alkaline only) (included)

Weight: 135g approx. (incl battery)

Dimensions: 202 x 32 x 22mm

Units are EMC compliant

FD550 includes:

FD650/R receiver

FD500/T transmitter

Battery

FD650 kit includes:

FD650/R receiver

FD600/T multi-purpose transmitter

IEC 13A mains lead adaptor

TL83 2 wire fused leads with IEC connector

Carry case (TC57)

Battery

Elite Fuse Finder

The FD550 makes identifying poorly labelled fuses and breakers easy without the need to power down each circuit to identify the one you need to work on. Plug in the transmitter to a live 13A mains socket and then scan the board with the digital receiver to quickly identify the right breaker with audible and LED bargraph indication. The receiver has both fast manual mode and auto threshold mode set by a single sweep over the board. The auto mode sets the sensitivity to ignore weaker signals which can be caused by coupling between circuits ensuring easy detection in a wide range of installations.

The receiver will work with multiple transmitters and can also be used as a non-contact voltage indicator.

- Simple tracing of fuses and breakers
- Visual & audible indication
- Fast manual mode
- Self-adjusting auto mode
- Mains powered plug-in transmitter
- Dual function receiver & non-contact voltage indicator

ACCESSORIES
TC2A calibration

Transmitter CAT III 300V

Receiver CAT IV 600V

Elite Professional Fuse Finder Kit

The comprehensive professional Kit expands the capabilities of the standard FD550 so that it can also be used on light fittings or other points in a circuit in addition to 13A sockets.

Supplied in a carry case complete with transmitter (FD600/T) and receiver (FD650/R), it is capable of operating with either the 13A plug top lead (EX332) for sockets or the TL83 lead for light fittings or other points in a circuit without standard 13A power sockets. The receiver unit should be held at right angles to the conductor.

- Trace fuses and breakers from sockets
- Trace from light fittings
- Trace from one distribution board to another
- Supplied with soft carry case

ACCESSORIES
TC2A calibration

CAT III 300V

Cable Detector

The CD1000 is a multi-function Cable Detector and fuse finder kit. It is ideal for tracing circuits in walls, underground cables, and for fuse finding applications on live and dead circuits.

This two piece kit provides fast and simple location of open-circuits in cables and electric underfloor heating systems and can also be used for tracing metallic water and heating pipes.

The unit is supplied as a complete kit with a Transmitter, Receiver, a set of test leads with crocodile clips, earthing rod, batteries, comprehensive instructions and a soft carry case.

Additional transmitters and receivers are available to purchase for applications where multiple operatives are working or where more than one transmitter is needed. Transmitters can be easily set to send out a different signal to allow up to 8 units to be used at the same time.

ACCESSORIES

TC2C	calibration
TL57	optional fused test leads
TL78	50m R2 continuity lead
SB13	Safebreak mains socket adaptor

Transmitter CAT III 300V

Receiver CAT III 600V

CD1000

Transmitter:
Output carrier signal frequency: 125 kHz
Voltmeter function: Range: 12V to 400V DC & AC rms (50Hz to 60Hz)
Accuracy: ± 2.5%
Maximum input voltage 400V DC or AC rms

Tracking Depth
Single pole mode: 2m
Dual pole mode: 0.5m
Single loop line: 2.5m
UAC mode: 0.4m

Temperature & Humidity
Operating: 0°C to40°C max 80% RH (non condensing)
Storage: -20°C to 60°C max 80% RH (non condensing)
Altitude: up to 2000m

Power
Transmitter: single 9V IEC 6LR61 battery

Receiver: 6 x 1.5V AAA, IEC LR03 batteries

Current consumption
Transmitter:
31mA approx minimum
115mA approx maximum

Receiver: 32mA approx minimum
89mA approx maximum

Auto off time: 10 minutes approx (receiver only)

1.5V alkaline battery x 6 and manual.

Safety
Transmitter:
Conforms to BS EN61010-1
CAT III 300V
Class II Double Insulation
Pollution degree: 2

Receiver:
Conforms to BS EN 61010-1
CAT III 600V
Class II Double Insulation
Pollution degree: 2

Test leads supplied conform to BS EN61010-031 CAT III 1000V, 10A

EMC: Conforms to BS EN61326

Weight
Transmitter:
360g approx (excl batteries)
420g approx (incl batteries)
Receiver:
280g approx (excl batteries)
350g approx (incl batteries)

Dimensions
Transmitter: 190 x 89 x 42.5mm
Receiver: 241.5 x 78 x 38.5mm

Includes: carry case, TL47 test leads (with crocodile clips), earthing rod, 9V alkaline battery,

DC50

Power supply: 4 x1.5V AA battery

Current consumption: 400mA max

Monitor: TFT 89mm (3.5")

Resolution: 320 x 240 pixels

Camera lighting: 2 x white LEDs

Field of view: 54°

Depth of field: 30-60mm

Operating temperature: 0 to +45°C

Operating humidity: 15-85% RH

Storage temperature: -10 to +50°C

Weight: 430g approx

Dimensions: 90 x 205 x 131mm

Gooseneck camera

Length: 880mm approx

Diameter: 9.8mm

Minimum bend radius: 45mm

Includes: hard carry case, 3 x attachments, inter-connecting lead, batteries and manual

Borescope

This borescope is ideal for fast location of cables and services in concealed locations. A 3.5" detachable TFT monitor provides a clear image for detailed engineering and mechanical applications. The waterproof 9.8mm diameter camera is IP67 rated, suitable for plumbing and drainage inspections.

The brightness of the LED lighting in the tip of the camera can be adjusted to produce a clear image, even in reflective or poorly lit locations. There is a 180 degree view rotation function to maintain correct orientation. The semi-rigid gooseneck camera can be pre-formed for difficult to access locations but still remains flexible enough to guide it around obstructions.

Three attachments clip onto the camera head. The hook attachment is ideal for retrieving cables in stud walls, the magnet for picking up metallic components and a right-angled mirror is also included for viewing behind obstructions.

ACCESSORIES
TC2B calibration
DC50EXT 3m extension cable

FL30

Lamp test voltage: 3kV at 280kHz approx (with new battery)

Field strength: 100µV/m approx.

Operating environment: -10°C to 50°C ≤ 70% RH

Altitude: up to 2000m

Power: Single standard 9 volt battery, IEC 6LR61, NEDA 1604

Weight: 109g approx. incl battery

Dimensions: 169 x 40 x 24mm

Includes: soft case, telescopic antenna, 9V battery and manual.

Complies with BS EN61010-1 CAT I max 50V to earth

Pollution degree: 2

EMC: Conforms to BS EN61326

Lamp Tester

Ideal for the fast testing of gas filled lamps, especially low and high pressure vapour lamps. The FL30 is a lightweight, hand-held unit and tests most gas filled lamps by ionizing them with a high frequency voltage of approximately 3kV. It can be used to test fluorescent and neon tubes while situated in light fittings without the need for removal.

The kit is supplied with a telescopic antenna to allow testing of tubes on standard height ceilings without the need for ladders or platforms. It is also ideal for maintenance applications where new lamps can be checked before attempting installation in difficult to access locations.

It can be used for testing the following types of gas filled lamps:

- Fluorescent
- Low Press Sodium (SOX)
- High Pressure Sodium (SON)
- Neon lamps and tubes
- Mercury Vapour
- Metal Halogen

ACCESSORIES
TC2A calibration

Microwave Leakage Detector

An easy to use, low cost pass/fail microwave leakage detector suitable for commercial and domestic microwave ovens. It is designed to comply with national standards on permitted exposure levels.

The TEK500 includes a self test which simulates a real microwave input to ensure the unit is working correctly at all times.

This meter can test microwave ovens for potentially dangerous leaks.

Using the measuring beaker and thermometer supplied, microwave power output may be assessed, an important requirement for catering applications.

Indicates at 1, 5, 10mW/cm^2. Tests to BS EN5175.

ACCESSORIES
TC2B calibration

TEK500

Frequency of operation: 2450 ± 25MHz

Power density range: ±1dB for planewave of all polarisations

Cardinal points: >1mW/cm2, >5mW/cm2, >10mW/cm2

Response to step input: 2-3 seconds to reach 90% of steady state indication

Overload capacity: 50mW/cm2

Indicators:
LED (green) - battery OK

LED (yellow) - 1mW/cm2 - acceptable microwave leakage below safety limit

LEDs (red) at 5 & 10mW/cm2 and audible tone - hazardous microwave leakage above safety limit

Cone spacer: prescribed test distance of 50mm is achieved when cone tip is in contact with appliance

Operating temperature: -5°C to 40°C

Complies with
BS EN 60335-2-25:2002 and
BS EN 60335-2-90:2002
Supply: 9V alkaline battery, MN1604 or equivalent (incl)
Dimensions: 145 x 64 x 30mm

Carbon Monoxide Meter

A rapid responding carbon monoxide meter, ideal for checking safety.

A beeper gives audible indication, speeding up with CO concentration and becoming a continuous tone above 200 ppm.

Max and Hold buttons allow one reading (or the highest reading) to be displayed over a period of time.

ACCESSORIES
TC2C calibration
COPUMP carbon monoxide flue pump

CO90

Display: 3½ digit liquid crystal display (LCD) with maximum reading of 1999 ppm

Operating environment: 0°C to 40°C (32°F to 105°F) at 15% to 90% relative humidity

Response time: <70 sec to 90% of reading

Initial accuracy: ± 5% of reading ± 5ppm

Average measurement mode: a reading is taken every 7 seconds and the average displayed on screen

Normal measurement mode: current reading shown on screen

Supply: standard 9V battery (PP3, NEDA 1604, IEC 6F22 006P) (included)

Low battery indication

Weight: 193g approx. (incl battery)

Dimensions: 189 x 67 x 35mm

LM90 / LM92

LM90 ranges:
20lux, 200lux, 2000lux, 20klux
20fc, 200fc, 2000fc, 20kfc
Resolution: 0.1lux, 0.1fc (LM92)
Spectral response: CIE photopic

Total accuracy for CIE standard illuminant A (2856K):
±(3%rdg + 10 dgts)

Supply: 9V battery (NEDA 1604, IEC 6F22 006P) (included)
Dimensions: 190 x 65.5 x 35mm
Weight: 210g approx. (incl battery)
Includes: battery and manual

The LM90 is preferred for emergency lighting applications

Photometric Formulae:
10.764 foot candles=lux (lumens/meter^2)
0.0929 lux=foot candles (lumens/ft^2)

LM92 Ranges:
200lux, 2000lux, 20klux, 200klux
200fc, 2000fc, 20kfc, 200kfc

The LM92 is more sensitive at higher lux levels.

Light Meter

The LM90 light meter resolves down to 0.01 lux, making it ideal for use in very low light applications such as certifying emergency lighting.
The manual gives details of conversion factors for different light wavelengths allowing more accurate measurements. Peak Hold & Hold functions allow a maximum reading to be recorded or one particular result to be kept. Results can be shown in lux or foot candles.

The instructions contain a graph enabling different light sources to be measured eg LED, fluorescent.

Two versions are available:
LM90 ranges: 20 lux to 20k lux (resolves to 0.01LUX)
LM92 ranges: 200 lux to 200k lux (more sensitive in higher ranges).

ACCESSORIES
TC2C calibration

LM82

Range: 0 to 200k lux, 0 to 18580 fc

Resolution:
1 lux (0 to 19999)
10 lux (20k to 200k)
1 fc (0 to 18580)

Total accuracy for CIE standard illuminant A (2856K): ±(3%rdg + 10dgts)

Measurement rate: once per second

Power: 2 x 1.5V, AAA alkaline batteries (IEC LR03, NEDA 24A)

Weight: 116g incl batteries

Dimensions: 25 x 51 x 133mm

Light Meter

This compact light meter is suitable for most industrial applications and environmental monitoring.

It provides readings up to 200k Lux and will also display the results as foot candles (fc).

For more accurate measurements, the instruction manual provides a conversion chart for different light wavelengths.

ACCESSORIES
TC2C calibration

SP79

Measurement range: 32-130 dB
Measurement rate: twice per second

Display: 4 digit LCD
Resolution: 0.1dB

Frequency weighting: A and C
Frequency range: 20Hz-8000Hz

Detector: True-RMS with independent frequency weightings

Dynamic range: 60dB
Time weighting: SLOW & FAST
Microphone: ½" electret condenser
Supply: 6LR61 / MN1604 / PP3

Dimensions: 285 x 55 x 25 mm
Includes: windscreen, battery & case

Complies with: BS EN 61672-1:2003

Sound Level Meter

The SP79 is a Class 2 sound level meter for on-site measurements in accordance with Noise at Work legislation in industrial and office environments. Featuring A and C frequency weighting and fast and slow time weighting, the compact design can be handheld, or mounted on a tripod for longer term monitoring of Min / Max values. Detailed recording and analysis can be made using the AC and DC outputs.
The SP79 complies with BS EN 61672-1:2003 and is supplied with a detachable windshield and hard carry case. The large high contrast display includes both digital reading and analogue bar graph.

ACCESSORIES
TC2C calibration
SPC70 Class II sound level calibrator

Anemometer with External Probe

Displays temperature (C or F) and airflow at the same time. Maximum and minimum figures for flow and temperature can be shown. For more accurate measurements, up to 8 readings can be taken and automatically averaged.

In addition, measurements can be taken over either 2 or 16 seconds with the average being displayed.

Airflow measurement can be displayed as: metres/second, feet/minute, knots, mph or kph.

ACCESSORIES
TC2D calibration

AV90

Measurement range:
-20°C to 60°C/-4°F to 140°F
Resolution: 0.1°C/°F
Accuracy:
±1.0°C at -20°C to 0°C, 45°C-60°C
±0.5°C at +0°C to 45°C
±2.0°F at +4°F to 32°F, 113°F-140°F
±1.0°F at +32°F to 113°F
Wind Velocity:

Range	Units	Resolution
0.3-30	m/s	0.01
60-5900	ft/min	1
0.6-58	knots	0.1
0.7-67	mph	0.1
1.1-108	km/h	0.1

Supply: 9V battery (PP3, NEDA 1604, IEC 6F22 006P)
Weight: 390g approx.
Dimensions: 770 x 65.5 x 35mm
Includes: battery and manual

Hygro-anemometer

This compact hygro-anemometer with integrated low friction vane is suitable for both indoor and outdoor use. The meter can display simultaneous measurement of temperature and airflow or temperature and relative humidity.

There are 6 different units of measurement for airflow and the hold functions allow the user to record the maximum, minimum and average readings. The LCD screen has a backlight for working in low light environments and there is an optional auto power off function.

ACCESSORIES
TC2D calibration

AV85

AIR FLOW:
Range: 0.4-20m/s (80-4000 ft/min)
Accuracy:
± (0.2 m/s + 2% of reading)
± (40 ft/min + 2% of reading)
Resolution: 0.1 m/s, 1ft/m
RELATIVE HUMIDITY
Sensor: Digital capacitive humidity
Range: 0% to 100% RH
Best Accuracy: ±2.5% at 25°C (77°F)-10% to 90% RH
AIR TEMPERATURE
Range: -20°C to 60°C (-4°F-140°F)
Best Accuracy: ±0.5°C (0°C to 45°C)
Resolution: 0.1°C (0.1°F)
Measurement rate: once per second
Power: 2 x 1.5V, AAA batteries
Dimensions: 25 x 61 x 133mm
Weight: 119g approx incl batteries
Includes: protective cover, batteries, detachable carry strap & manual.

Differential Manometer

A simple to use differential manometer providing accurate pressure readings over 8 different units of measurement.

The results are displayed on the clear LCD display which has a backlight for working in low light environments. The compact size makes it an ideal meter for HVAC and engineering applications.

ACCESSORIES
TC2B calibration

PM85

Measurement ranges: mmH2O (0 to 1019), mmHg (0 to 75), psi (0 to 1.45), inH2O (0 to 40.1), inHg (0 to 2.95), hPa (0 to 100), mbar (0 to 100), Pa (0 to 10000)
Accuracy: Nominal temperature 22°C, ±1dgt)
±0.3 mmH2O (0 to 3.0 mmH2O)
±0.5 mmH2O (3.1 to 10.2 mmH2O)
±1.02 mmH2O + 1.5% of reading
Measurement rate: twice per second.
Max operating pressure: 29PSI
Power: 2 x 1.5V, AAA alkaline batteries (IEC LR03, NEDA 24A)
Dimensions: 25 x 51x 133mm
Weight: 113g approx incl batteries.

Includes: protective cover, batteries, detachable carry strap and manual

DH85

MOISTURE: Seven ranges
Accuracy: ± 1%
HUMIDITY: Digital capacitive humidity sensor
Range: 0%-100% RH
Best accuracy: ±2.5% at (18°C-28°C) (64.4°F-82.4°F) - 10%-90% RH. **Resolution:** 0.1% RH
TEMPERATURE:
Range: -20°C-60°C (-4°F-140°F)
Best accuracy:
±0.5°C for 0°C-45°C (18°C-28°C)
Temperature coefficient: 10% per °C at 18°C-28°C (64.4°F-82.4°F)
Resolution: 0.1°C (0.1°F)
Measurement rate: per second.
Power: 2 x 1.5V, AAA alkaline batteries (IEC LR03, NEDA 24A)
Dimensions: 25 x 51 x 133mm
Weight: 118g incl batteries.
Includes: protective cover, batteries, detachable carry strap and manual

Hygro-moisture Meter

A hygro-moisture meter giving accurate measurements of moisture levels in materials and also measures air temperature and humidity of the environment.

Seven different ranges (hard wood, soft wood, plaster, anhydrite screed, cement mortar, lime mortar and brick) can be selected.

The backlit LCD screen also displays the temperature and humidity with a choice of units of measurement. As well as the usual hold, auto power off and backlit screen features, the DH85 also has a useful self-check function to ensure that the unit is working correctly at all times.

ACCESSORIES
TC2B calibration

RT80

Measuring range: 100.0 to 99999 rpm, 1.7 to 1666 rps
Resolution:
0.1 rpm (100.0 to 19999.9 rpm)
0.1 rps (1.7 to 333.3 rps)
1 rpm (20000 to 99999 rpm)
1 rps (334 to 1666 rps)
Accuracy:
± 0.02% of reading + 1 digit
Stated accuracy at 18°C to 28°C <75% RH
Measurement rate: per second
Power: 2 x 1.5V, AAA alkaline batteries (IEC LR03, NEDA 24A)

Weight: 110g approx incl batteries

Dimensions: 25 x 51 x 133mm

Includes: protective cover, batteries, detachable carry strap and manual

Optical Tachometer

A non-contact tachometer for applications where direct contact RPM measurements are not possible. The RT80 displays RPM or RPS readings on the LCD display and has a useful hold function for maximum, minimum and average readings.

The meter is supplied with reflective tape for measuring rotating objects which do not have the reflective surface required for accurate measurement.

ACCESSORIES
TC2B calibration

DT85

Ranges:
K-Type (0.1°C) -100°C to 1372°C
K-Type (1°C) -100°C to -200°C
K-Type (0.1°F) -100°F to 2501°F
K-Type (1°F) -100°F to 2000°F
(2000°F to -2501°F)
Accuracy: Stated accuracy at 18°C to 28°C (64°F to 82°F), <75% RH not including thermocouple error.
Resolution: (0.1°C/1°C)
(0.1°F/1°F)
Measurement rate: per second
Power: 2 x 1.5V, AAA alkaline batteries (IEC LR03, NEDA 24A)

Weight: 150g approx.
Dimensions: 133 x 51 x 25mm

Includes: 2 x K-Type thermocouples, detachable carry strap, batteries, protective cover and manual

Dual Input Thermometer

A dual input differential thermometer which allows the user to carry out temperature measurements of two different points at the same time. The unit is supplied with K-type probes and has an impressive measurement range between -200°C to 1372°C (-100°F to 2501°F).

The DT85 has a Relative mode which allows the user to store the last measurement as a reference value and has a hold function for recording the maximum, minimum and average readings. For applications where an offset between the two probes is required, the DT85 allows the user to create the offset via a simple to use set up menu.

ACCESSORIES
TC2A calibration
K-type thermocouples – see page 64

Thermometry

Infrared Gun-Type Thermometer

The pistol style infrared thermometer has a laser marker to ensure accurate spot measurement. The display can show temperatures in Fahrenheit or Celsius.

A limit function sets upper and lower temperature thresholds and a tone alerts if the limits are exceeded. An optional auto power off feature conserves battery life.

Adjustable emissivity from 0.1 to 1.0.

ACCESSORIES
TC2B calibration

IR88

Range:
-30°C to 550°C/-22°F to 1022°F

Resolution:
0.5°C/1°C (AUTO), 1°F

Accuracy:
±(2°C/4°F) for -30°C to 100°C, -22°F to 212°F
±(2% of reading) for 101°C to 550°C, 213°F to 1022°F

Response time: 0.25 second

Supply: 9V battery (PP3, NEDA 1604, IEC 6F22006P)

Weight: 157g approx

Dimensions: 148 x 105 x 42mm

Includes: battery, manual & clear plastic carry case

Infrared & K-type Thermometer

This thermometer has a laser marker to ensure accurate spot measurement. The display can show temperatures in Fahrenheit or Celsius. A limit function sets upper and lower temperature thresholds and a tone alerts if the limits are exceeded. An optional auto power off feature can conserve battery life.

A K-type thermocouple (see page 64) can also be used with a variety of probes to take contact temperature readings. In addition the emissivity is variable, to allow for a wide range of radiating surfaces. A TT1P thermocouple is included.

IR90

Range: -20°C to 550°C/-4°F to 1022°F
Resolution: 0.5°C/1°C (AUTO), 1°F
Accuracy: ±2% of reading or ±3°C/6°F, whichever is greater

Response time: 1 second
Emissivity: 0.10 to 1.00 by steps of 0.01

K-type -200°C to 1372°C, -328°F to 1999°F
± (0.1%rdg + 1°C) at -50°C to 1372°C
± (0.1%rdg + 2°C) at -50°C to -200°C
± (0.1%rdg + 2°F) at -58°F to 1999°F
± (0.1%rdg + 4°F) at -58°F to -328°F

Supply: 9 volt battery (PP3, NEDA 1604, IEC 6F22) (included)

Weight: 195g approx

Dimensions: 170 x 65.5 x 35mm

Waterproof Penetration Thermometer

TM2RD (red)
TM2WH (white)
TM2YE (yellow)

The TM2 is a rapid response pocket thermometer suitable for catering applications. It's available in multiple colours including white, red and blue, making it easy to avoid potential cross contamination of different food types. The strong, thin probe tip makes it easy to use on all foods and ensures a fast and reliable reading with an accuracy of up to 0.5°C and resolution of 0.1°C.

Useful features include the ability to record Min/Max values and a Hold function so that you never miss a reading. The TM2 is waterproof with a full IP67 rating and is supplied with a handy protective sheath. The display can easily be set to °C or °F and includes a useful battery level indicator.

TM2

Display: LCD, 31/2 digit

Range: -40 to +250°C

Resolution: 0.1°C

Range		Accuracy:
-40...	-20°C	± 3°C
-19.9...	+200°C	± 0.5°C
+200.1...	+250°C	± 3°C

Temperature change/response time: > 5 K/s

Working temperature:
-10°C ..+50°C / at max. 80% RH

Storing temperature:
-20°C ...+60°C / 30 ... 75% RH

Power supply: 1 pc. 3V CR 2032

Battery life: 200h
Dimensions: 50 x 30 x 160mm
Weight: 16g approx. incl. batteries
Protection degree: IP 67

DT73 / DT75

Measurement range: -50°C to 1300°C. (-58°F to 2000°F)

Resolution: 0.1° to 199.9°C/°F, 1° ≥ 200°C/°F

Accuracy:
DT73:

-50°C to 1000°C	±(0.3% of rdg + 1°C)
1000°C to 1300°C	±(0.5% of rdg + 1°C)
-58°F to 2000°F	±(0.3% of rdg + 2°F)

DT75:

-50°C to 0°C	± 2°C
0°C to 1000°C	±(0.3% of rdg + 1°C)
1000°C to 1300°C	±(0.5% of rdg + 1°C)
-58°F to 32°F	± 4°F
32°F to 2000°F	±(0.3% of rdg + 2°F)

TT1P thermocouple:
4-foot K-type thermocouple bead probe (Teflon tape insulated)

Maximum insulation temperature 260°C (500°F)

Probe accuracy ± 2.2°C or ± 0.75% of reading (whichever is greater)

Display: 3½ digit liquid crystal display (LCD) with maximum reading of 1999

Reading rate: 2.5 times per second.

Ambient operating range: 0°C to 50°C (32°F to 122°F)

Storage temperature: -20°C to 60°C (-4°F to 140°F)

SAFETY: BS EN 61010-1 50V. Class II Double Insulation

Pollution degree: 2

EMC: Conforms to BS EN 61326-1

Weight: 210g approx. (incl battery)
Dimensions: 147 x 70 x 39mm
Includes: Rubberised holster, TT1P K-type thermocouple (x2 for DT75), Velcro strap, 9V battery and manual

Single and Dual Input Digital Thermometers

The DT75 is a high quality dual-input digital thermometer with temperature difference capability. It is able to measure input and output temperature and temperature differentials through boilers, radiators etc. and can accept a wide range of K-type probe accessories.

The meter comes with a protective rubberised holster and is switchable between °C and °F and between 1° and 0.1° resolution. Hold and maximum buttons allow the current value to be frozen or the maximum reading to be stored.

See page 64 overleaf for a wide range of compatible K-type probes. Two TT1P thermocouples are supplied.

The measurement range will be limited by the range of the thermocouple probe used.

The input connector accepts standard miniature K-type thermocouple connectors.

The DT73 is a single-input version of the DT75 supplied with 1 TT1P thermocouple.

ACCESSORIES

TC2A	calibration

THERMOKIT

The sensors included are:

2 x TT1P bead thermocouples

1 x TT5K air probe

1 x TT8K surface probe

2 x TT10K pipe clamp probes

ACCESSORIES

TC2A	calibration (thermometer only)
TC2D	calibration (for combined kit)

Thermometry Kit

The Thermokit includes a DT75 digital thermometer, complete with a selection of probes. The kit is supplied in a high quality soft carry case.

Legionella Testing Thermometer Kit

The ThermokitLGN includes the DT73 Thermometer with max function and thermocouple probes in a soft carry case. The kit can be used for temperature testing and monitoring in accordance with Health & Safety Guidelines to avoid water temperature and conditions that can favour the growth of Legionella and other bacteria. The surface and immersion probes simplify measurement on pipework and tanks.

THERMOKITLGN

1 x DT73 digital thermometer
1 x TT6 penetration probe
1 x TT8 surface probe
1 x soft carry case

Extension Lead TTKEXT

Sensor lengths can be extended by using a 3 metre extension lead.

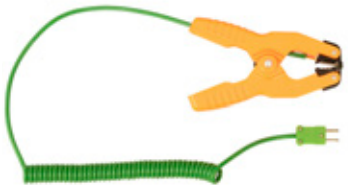
Thermocouples TT1P & TT1KF

The TT1P is a flexible general purpose bead K-type thermocouple, PTFE insulated cable with mini plug.

The TT1KF is a simple general purpose bead K-type thermocouple, fibreglass insulated cable with mini plug.

TT1P
Temperature range: -75 to 250°C
Dimensions: Ø1.5 x 1000mm

TT1KF
Temperature range: -75 to 350°C
Dimensions: Ø1.5 x 1000mm



Pipe Clamp TT10K

Ideal for measuring boiler flow and return temperatures. Measures the temperature of pipes in refrigeration and H&V systems. The sensor is in the clamp jaw which fits around the pipe.

Temperature range: -50 to 100°C
Dimensions: Maximum Ø30mm

Surface Probe TT8K

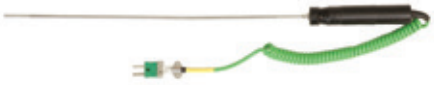
Surface probe with spring loaded sensing tip. Suitable for a variety of industrial applications as well as heating & ventilation.

Temperature range: -50 to 600°C
Dimensions: Ø6 x 130mm

Air Probe TT5K

Specially designed for measuring the temperature of air, e.g. in heating or air conditioning ducts. A very sensitive, high quality sensor which responds more rapidly than a general purpose probe.

Temperature range: -50 to 250°C
Dimensions: Ø4.5 x 130mm



High Temperature Probe TT4K

These mineral insulated probes are ideal for measuring temperatures up to 1100°C. They can be easily bent without affecting their performance.

Temperature range: -50 to 1100°C
Dimensions: Ø4.5 x 130mm

Needle Probe TT9K

This hand-held needle probe is ideal for penetrating soft materials. Suitable for a variety of industrial applications.

Temperature range: -50 to 250°C
Dimensions: Ø1.8 x 130mm

Velcro Probe TT12K

A sensor is built into the wrap around velcro. Ideal for measuring temperatures of large pipes or other objects where attaching a conventional probe would be difficult.

Temperature range: -50 to 100°C
Dimensions: 20 x 500mm

Penetration Probe TT6K

The TT6K penetration probe is strong and versatile and suitable for both liquids and semi-solids.

TT6K K Type
Temperature range: -50 to 250°C
Dimensions: Ø3.3 x 130mm

TT6T T Type
Temperature range: -50 to 250°C
Dimensions: Ø3.3 x 130mm

TEK300

DC/DC converter output:
28.5V (+0.1V)

Current range:
0-20mA F.S. (+0.1%)

Resolution: 10µA

Temperature drift: 150ppm/°C

Linearity: +0.15%

Output noise (typically): 4mV p/p

Indicators:
LED (green) - battery OK
LED (red) - output error

Display: 3½ digit LCD

Output connectors: 4mm terminal posts (19.05mm apart)

Operating temperature: 0-50°C

Supply: 2 x 9V alkaline batteries, MN1604 or equivalent (included)

Housing: light grey ABS hand-held, supplied with stand

Weight: 380g approx.

Dimensions: 180 x 100 x 44mm

Process Control Current Calibrator

This Martindale current calibrator has sink and source modes for 0 to 20mA.

It is ideal for most process control as well as general purpose, signal injection applications.

The hand-held, fully portable unit has a 3½ digit display and has overload protection for additional safety.

A monitor mode facility is also incorporated into the design, whereby the current (0-20mA) in the process loop can be monitored and read directly from the digital display.

CB12

Resistance settings:
0.5Ω, 1Ω, 2Ω, 20Ω, 200Ω, 1kΩ, 10kΩ, 20kΩ, 100kΩ, 1MΩ, 2MΩ, 10MΩ

Accuracy:

0.5Ω-2Ω	± 0.025Ω
20Ω-10MΩ	± 2%

Maximum voltage input:
1000V DC

Case: Impact Resistant ABS

Weight: 280g

Dimensions: 150 x 70 x 55mm

Verification certificate included

Calibration Checkbox

The CB12 is a portable check box for checking the resistance and continuity ranges of multimeters, insulation testers, multifunction clamp meters and test instruments which use resistance as part of their measurement capability. This check box provides a quick method of verifying that a test instrument is giving accurate readings between annual calibration.

It is simple to use and is designed to be a quick check device for workshop and site use. Connect the instrument under test via the 4mm terminals on the front of the check box. Select a resistance value using the rotary dial and set the instrument under test to the relevant test range. The values can be checked or an insulation test can be performed to check that the values are within the appropriate limits.

A verification/calibration certificate is included.

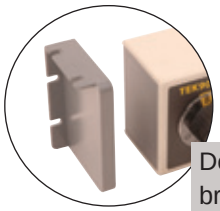
ACCESSORIES
TC2B calibration

FREE VC

CAT IV 300V

Calibrators and Decade Boxes

Decade Resistance Box



A very reliable decade resistance box with high quality rotary switches providing in-line readouts. Ideal for laboratory, educational and calibration applications. The extra terminal forms an accurate potential divider.

1% Accuracy.

TEK903

ACCESSORIES
TC2B calibration

FREE VC

TEK903

Resistance:
1% grade 0.6W per resistor variable from 10Ω to 11.1111MΩ in 6 decades

Typical residual (zero) resistance:
< 150mΩ

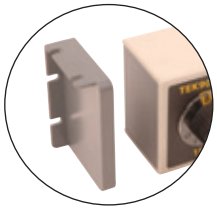
Temperature coefficient: 50 ppm/°C

Operating environment: 0°C to 50°C at < 70% RH

Weight: 537g approx

Dimensions: 345 x 71 x 51mm

Enhanced Decade Resistance Box



The TEK904 adds an extra decade at the bottom of the range and this allows resistance from 1 ohm to over 11MΩ to be set. This is an exceptionally wide range for such a compact unit.

1% Accuracy.

TEK904

ACCESSORIES
TC2B calibration

FREE VC

TEK904

Resistance:
1% grade 0.6W per resistor variable from 1Ω to 11.1111MΩ in 7 decades

Typical residual (zero) resistance:
<150mΩ

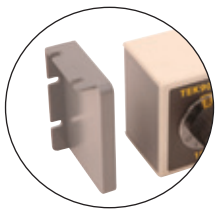
Temperature coefficient: 50 ppm/°C

Operating environment: 0°C to 50°C at < 70% RH

Weight: 536g approx

Dimensions: 345 x 71 x 51mm

Capacitance Box



This is a 5 decade capacitance box giving a useful range of capacitance values from 100pF to 4.111µF Ideal for laboratory, educational and calibration applications.

5% Accuracy.

TEK905

FREE VC

TEK905

Capacitance: ±5% grade 100V DC variable from 100pF to 4.111µF in 5 decades

Typical residual (zero) capacitance: < 40pF

Operating environment: 0°C to 50°C at < 70% RH

Weight: 489g approx

Dimensions: 345 x 71 x 51mm

4mm Unfused Lead

TL16 leads are replacement leads, suitable for most multimeters, including the Martindale MM series. If you require crocodile clips, the TL45 (unfused) or the TL55 with fuse protection are available.

4mm Unfused Leads (double insulated cable)

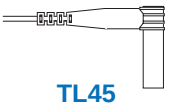
The TL4X series are double insulated PVC leads. For use with hazardous voltages and currents, we recommend the fused 5X series opposite for your extra safety and GS 38 compliance.

TL45: double insulated PVC leads – supplied with right angle fixed shroud

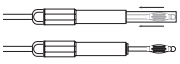
TL46: double insulated PVC leads – supplied with sprung retractable shroud

TL47: double insulated PVC leads – supplied with straight fixed shroud

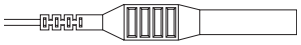
TL48: double insulated PVC leads – supplied with wide bore right angle fixed shroud



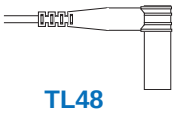
TL45



TL46

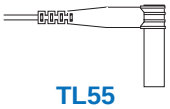


TL47

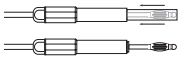


TL48

4mm Fused Test Leads (double insulated cable)



TL55



TL56

TL57

The TL5X series are fused test leads with double insulated silicone cable. Designed for your safety, they comply with GS38 & BS EN1010 and include 500mA 600V 50kA rupture rating ceramic fuses.

TL55: supplied with right angle fixed shroud

TL56: supplied with sprung retractable shroud

TL57: supplied with straight fixed shroud

Test Leads and Accessories

Multifunction Testers - Unfused 4mm Leads (double insulated)

All-in-one test lead sets. Each set includes 1.2m double insulated PVC leads with 4mm straight connectors on both ends, push fit probe section with removable tip caps and separate croc clip attachments.

TL34 (red/black)

TL35 (red/black/green)

TL36 (red/blue/green)

TL37 (brown/blue/green)

Multifunction Fused Leads, RCD & Loop Tester Leads

TL52: fused test leads for loop and multifunction testers (red/blue/green)

TL54: fused test lead set for multifunction testers (red/green/black)

TL88: 3-wire, two probes with removable croc clips and 1 fixed crocodile clip, supplied with X (IEC) connector -10A fused

TL205: IEC style (X) Loop/RCD tester mains lead - 13A plug

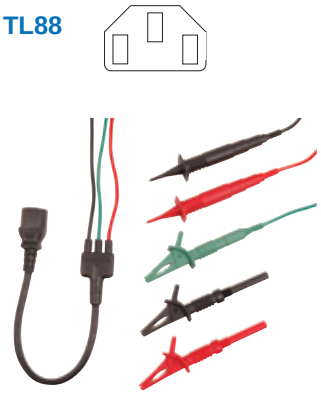
TL206: 13A plug to 3x4mm plug mains lead for Veritest (red/green/black)

TL207: 13A plug to 3x4mm plug mains lead (red/green/blue)

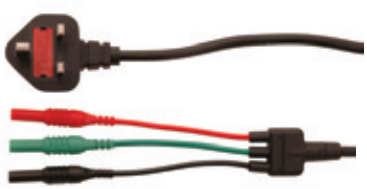
TL52

TL54

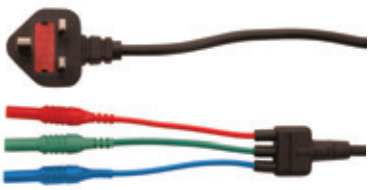
TL88



TL205



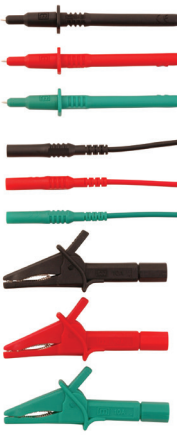
TL206



TL207

Test Leads and Accessories

TL63
Unfused test lead set (red/black/green) for VR2230/40/50



TL49
Unfused lead set – with uninsulated croc clips (TEK402 only)

TL180
Optional switching insulation probe

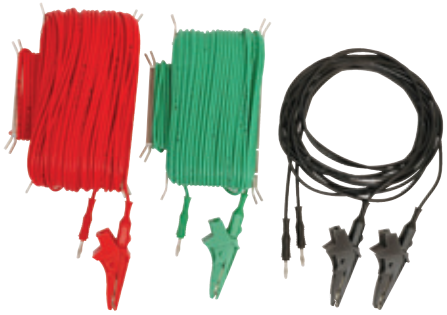
TL33RD/BL
Extended fine pobes, 50mm reach.
For use with TL34 - TL37.

TL130
Data lead for Veritest to printer (VRPRINT1 to VRTL1)

VRTL1
Infrared data lead for VR2240

TL75
Earth tester leads in case (red 15m, yellow 10m, green 5m)

TL76
Earth tester lead kit (red 50m, green 30m, 2 x black 3m)



MG2
Magnetic strap (meter not included)

PSUHPAT12
In-car charger

PSUPD230
Mains charger

TL67
Earth bond probe/clip for HPAT

ER2KIT/S
Earth Tester Kit
Includes carry case

17th Edition Accessories

SB13 Safe Break Socket Adaptor

Speed up 17th Edition, Part P and periodic testing of electrical installations with this plug-in adaptor. The SB13 enables safe and fast testing at socket outlets without the need to remove the socket faceplate from the wall. This saves time when taking R2 and R1+R2 measurements as well as voltage measurements.

The adaptor is compatible with any meter with industry standard 4mm plugs and most standard test lead probes.

CAT III 300V

50m Green R2 Continuity Lead on Reel

A 50m R2 continuity lead on an easy to use extension reel. The lead is ideal for measuring earth bond continuity and for R2 measurement via the long lead method.

The double insulated PVC lead is housed in a durable reel case which offers excellent protection and prevents the lead from being damaged. The lead outlet is positioned to allow for smooth unreeling and retrieval of the lead which is important when working over long distances.

The lead is fitted with a standard 4mm plug at each end and is also supplied with a croc clip for connecting to the earth conductor.

CAT II 300V

TL78

Wire: PVC, outer diameter: 3.8mm, braided copper wires (32 x 0.2mm), 50m in length

Terminals: 4mm banana plugs

Maximum voltage: 300V AC/DC

Maximum current: 1A continuous

Pollution degree: 2

Reel dimensions: 270 x 225 x 105mm

Weight: 1860g approx

Safety: conforms to BS EN61010-031 CAT II 300V, 1A Class II double insulation

Certification pads

UPDATED
Amendment 3: 2015
17TH EDITION
BS7671: 2008

With the new system of certificates, it's easier to understand which certificates need to be used together. There is one set for New Installations and one set for Existing Installations and within each set there is an option for up to 100 A supply and one for greater than 100 A supply.

Cert no.	Description
T10	Electrical Installation Certificate for up to 100A Supply
T20	Minor Works
T30	Electrical Installation Condition Report for up to 100A
T40	Electrical Installation Condition Report for greater than 100A
T50	Schedule of test results up to 12 Way
T60	Schedule of test results greater than 12 Ways
T70	Observation Record Sheet
T80	Electrical Installation Certificate for greater than 100A Supply

The 8 new pads contain approximately 80 pages of carbonless copy forms and a card divider and are based on the model forms in BS7671.

Drummond Leads and Accessories

Heavy Duty CAT IV Fused Leads

Drummond Heavy Duty CAT IV Fused Leads, 1.2m long and double insulated with a contrasting white inner core to identify damage. The unique 45° plug reduces cable stress, aids grip and improves connection.

MP21-08 – 600V CAT IV fitted with 500mA 600V 50kA fuses
MP30-08 – 1000V CAT IV fitted with 500mA 1000V 50kA fuses
MP21-10BK – Heavy duty black crocodile clip
MP21-10RD – Heavy duty red crocodile clip

Test Lamp Probes

MTL2106
Straight Prod Long 130mm

MTL2107
Angled Prod Long 130mm

MTL2108
Straight Prod Australian 62mm

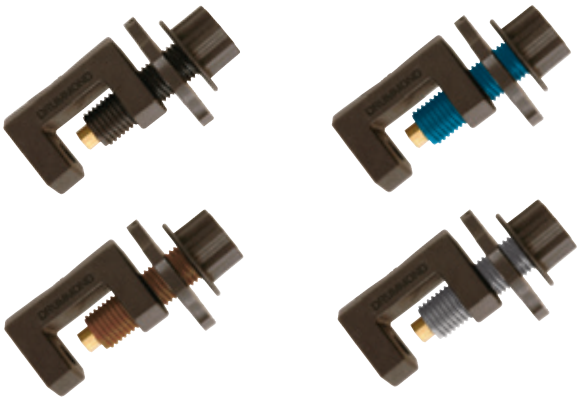
MTL2104
Straight Prod Standard 62mm

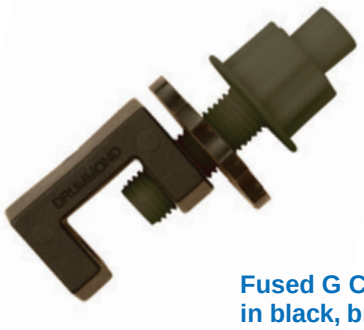
MTL2105
L Shaped Prod Standard 62mm

MTL2103
Straight Prod Short 30mm

DRUMMOND

G-Clamp for Bus Bar Connections





CAT IV 600V

Fused G Clamp in black, brown and grey

The Drummond G Clamp makes connecting to bus bars straight forward. The clamp-on design eliminates the need to drill bus bars and provides a much safer reliable connection via a standard 4mm socket.

Ideal for connecting power monitoring and measuring equipment, the new colour coded clamps make phase identification easy. The spring loaded contact pin and locking ring ensure reliable results throughout extended logging periods.

The G Clamp can be tightened by hand when wearing PPE gloves, eliminating the need to use tools in the bus bar chamber.

Risk assessment is required before installation.

Available in Brown, Black, Grey and Blue, the new design is comes in both fused and unfused versions. The replaceable fuse is within the clamping screw providing protection at the source.

DRUGCLAMP/BK	(Unfused Black)
DRUGCLAMP/BR	(Unfused Brown)
DRUGCLAMP/GY	(Unfused Grey)
DRUGCLAMP/BL	(Unfused Blue)
DRUGCLAMP/F0.5/BK	(Fused 0.5A Black)
DRUGCLAMP/F0.5/BR	(Fused 0.5A Brown)
DRUGCLAMP/F0.5/GY	(Fused 0.5A Grey)

DRUGCK/F/GKIT1 (Set BK, BR, GY Fused + BL Unfused)
DRUGCK/F/GKIT2 (As KIT1 plus 4m CATIV Lead Set)

Cases

PP100

Pocket pouch multi-purpose tool holder

TC151

Clip on tester accessory bag

(210 x 275 x 50mm)

Suitable for EPAT1600, EPAT2100, MPATPLUS, METE3511 and METE3640

TC52

Suitable for VT12, VT25 and VT28

(245 x 80 x 38mm)

TC54

Suitable for PSI4000 and PSI4300

(160 x160 x 40mm)

TC55

Suitable for all Martindale multi-meters except MM84

(190 x 88 x 55mm)

TC57

Suitable for HPAT500, HPAT600, FD600, FD650, IN2101, IN2102, RC2000, LP2000, DT73 and DT75.

(220 x 90 x 95mm)

TC68

Suitable for PC15250, CM100, CM50, CM80 series and PC104/105 16A and 32A (not PC104/105 63A)

(290 x 130 x 60mm)

TC69

Suitable for PD440/690 & VI13800, VI-15000, VT12 or a Drummond Lamp

(265 x 100 x 100mm max)

TC70

Suitable for PD440/690 & VT25/ VT28

(320 x 100 x 100mm)

TC210

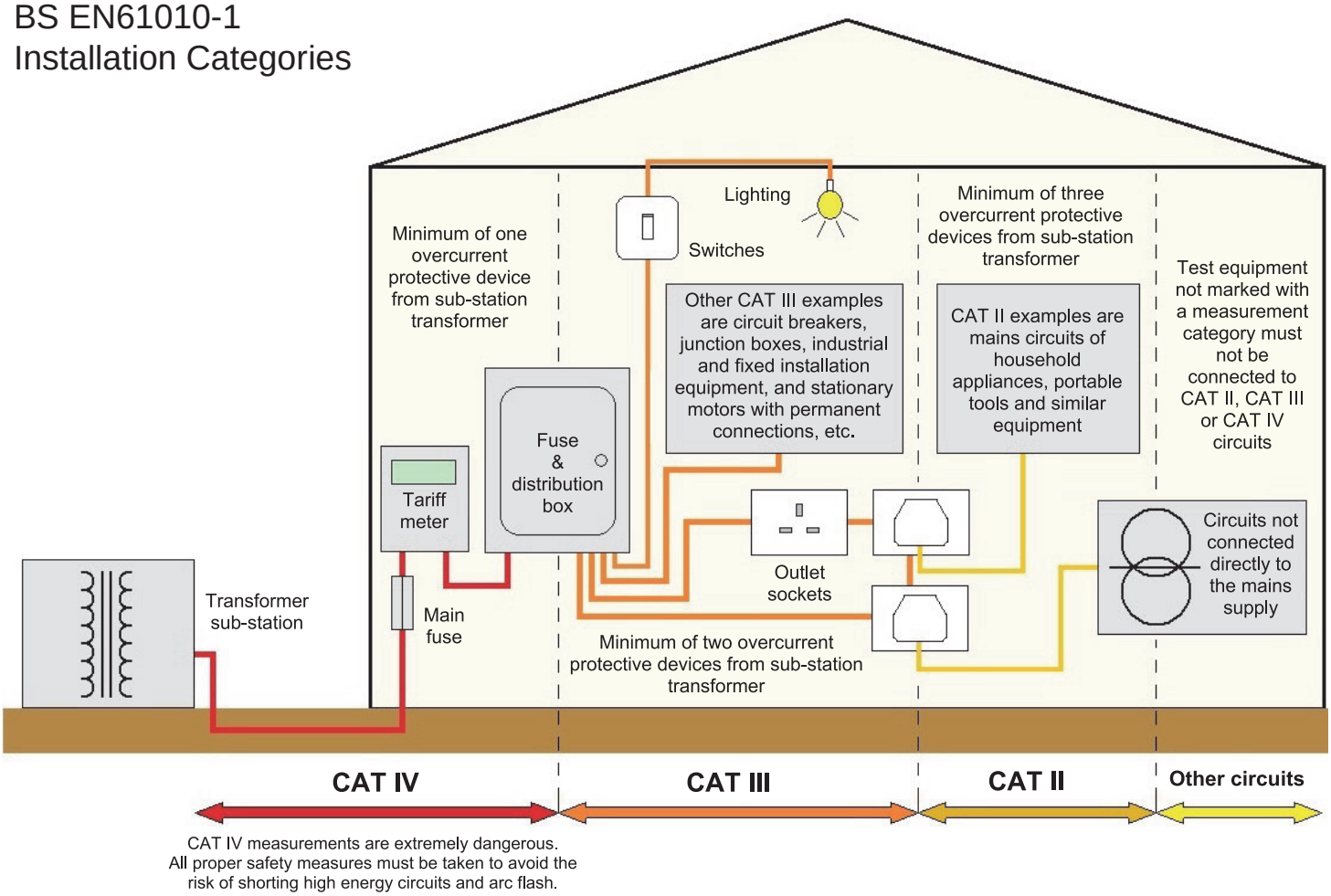
Suitable for E-Ze Test™

(210 x 105 x 105mm max)

Measurement Categories

Use this diagram to decide the rating you need for your equipment

BS EN61010-1
Installation Categories



CAT IV measurements are extremely dangerous.
All proper safety measures must be taken to avoid the risk of shorting high energy circuits and arc flash.

Measurement categories are determined by the potential for dangerous transient impulses on the mains supply system, the magnitude of which depends on the amount of damping of the transient energy due to the location within the system and the system voltage. Short-circuit current levels are also a factor.

Test equipment used for measuring mains circuits will be marked with one or more of three measurement categories, CAT II, CAT III or CAT IV, to identify on which parts of a mains supply system it can safely be used.

Each category has a voltage rating marked to indicate the maximum safe phase to earth system voltage (conventionally 50V, 100V, 150V, 300V, 600V or 1000V). Transient impulses are greatest for CAT IV 1000V installations.

'CAT IV 300V, CAT III 600V' is an example of measurement category marking.

This unit can only safely be used on CAT IV installations where the phase to earth voltage is ≤ 300V and on CAT III installations where the phase to earth voltage is ≤ 600V.

Such products would have these symbols in this catalogue.

CAT III 600V CAT IV 300V

Such a unit could safely be connected between phases on CAT IV parts of a 3-phase distribution system where the phase to phase voltage is 400V because the phase to earth voltage is only 230V.

- 17th Edition testers
- Safe isolation solutions
- Voltage indicators & proving units
- PAT testers & accessories
- Flash testers
- Socket testers
- Multimeters & clamp meters
- Phase rotation & continuity
- Fuse finders & cable detectors
- HVAC & environmental
- Thermometry
- Test leads & accessories
- Metrohm 5kV & earth testers
- Metrohm milliohmeters
- Drummond test lamps
- Full calibration & repair service

Imperial Park
Imperial Way, Watford
WD24 4PP England
T: +44 (0)1923 441717
F: +44 (0)1923 446900
sales@martindale-electric.co.uk
www.martindale-electric.co.uk
Issue 87

Martindale • Metrohm® • Drummond

MARTINDALE ELECTRIC