



Your Safety is in Our Hands

AVO830 and AVO835 Digital TRMS Multimeter

A new generation of AVO meters designed for professional electricians, technicians, service personnel and engineers that require high reliability, build quality and performance in a compact, tough, weatherproof case.

- CAT III 1000 V (AVO835) and CAT IV 600 V (AVO830)
- 1000 V AC / DC Range (AVO835)
- IP54 environmental protection
- Phase rotation
- High / Low sensitivity live circuit detection
- 10 M Ω / 10 k Ω input impedance
- MIN / MAX / AVG / Smoothing

www.megger.com



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PRO

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TECHNOLOGIES

ROHDE & SCHWARZ

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Trust in our range of high-quality
test and measurement equipment...

...from industry-leading brands to optimise
performance and ensure accuracy.



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RS

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Offering you the latest, **complete range of Test and Measurement technologies** from the leading manufacturers

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TEST AND MEASUREMENT MEETS IOT - HOW DOES IT BENEFIT THE INDUSTRY?

Advancements in technology are enabling electronic test and measurement equipment (T&M) to provide faster, more accurate results while saving companies time and money. The Internet of Things (IoT) is one major development which is driving forward efficiency of T&M applications – here's how it can be used to benefit you and your business.

How is the IoT improving test and measurement?

The IoT is formed by connected devices, sensors and computers which collect and analyse data. It's transforming the way industries work, as businesses once operated by a complex system of buildings, machinery, and workers have now been taken over by automation and intelligence.

Electronic T&M equipment includes instruments and sensors which are used to test, measure, analyse, control, calibrate, display and record data in testing situations. Testing is

applied across a wide range of engineering applications such as electronics, manufacturing and research labs for fields including medicine, automotive, and aerospace.

What enables T&M tools to be used with the IoT is a combination of technologies, including device-to-device communication, automated analytics, and scalable systems – all of which industry leaders have implemented for years.

Using these advancements in T&M equipment enables you to implement fully automated end-to-end testing, analysis and improvements to your systems – allowing you to focus more time on innovating and developing your business.

WAYS THE IOT BENEFITS TEST AND MEASUREMENT

1. Access data at all times
Web, cloud and mobile technologies are redefining the landscape for how people can interact with machines, as well as machine-to-machine communication. There are around 15 billion IoT devices in the world, but by 2020 it's predicted that number will grow to between 50 and 70 billion. This means there are endless possibilities for how to use these devices and the data they gather.

For example, the Fluke Connect range has a dedicated app to view measurements via smartphones, tablets or PCs. As multiple devices can be connected to the app, you and anyone in your team can access the relevant data.

With the IoT, test managers can use a variety of test and measurement instruments, ranging from oscilloscopes and multimeters to function generators, data loggers and fully integrated smart testers. Using these to constantly access data from machines can help to optimise performance and improve decision-making.

2. Safety
When carrying out testing it can be dangerous – with people being exposed to volatile atmospheres, extreme temperatures and high voltage environments.

Employee safety in these situations is paramount, so being able to take measurements from a distance could prevent exposure to any risks. Cloud-connected data loggers allow readings to be taken without someone physically having to be there. This helps reduce risk as employees no longer have to work in dangerous contexts.

Start connecting your test and measurement

Having innovative test and measurement solutions can allow you to identify and fix problems early. By investing in the correct test solutions, you can reduce cost and, most importantly, reduce risks.

Fortunately, for test and measurement applications, the IoT isn't unfamiliar territory. There are so many benefits to using the IoT for your test and measurement, and we work with industry-leading suppliers in the T&M sector to bring you the best solutions for your business.

By offering our high-quality our own brand RS PRO, as well as partnering with pioneering brands including Fluke, Flir, Keysight Technologies and Tektronix, you can source everything you need from us.

3. Predict the future
Predictive analytics extract useful information from data sets using statistical algorithms and machine learning. This can then determine patterns and predict future outcomes and trends.

This is done by combining various aspects of machine learning, statistics, statistical algorithms, artificial intelligence, modelling, and mining to make predictions on machine testing and trends. It's a data-driven technique, which can be leveraged to predict failure points in testing activities and determine the future. It has the power to help optimise project data and make proactive decisions.

Using predictive analytics as part of an automated testing solution makes it possible to reduce the expense of the software testing process, with greater likelihood of an error-free result than with human testing alone.

4. Improve performance with smarter test systems
Increasing consumer expectations have heightened pressure for manufacturers. Through digital connectivity, the use of T&M equipment can be maximised to improve the quality of testing – with continuous monitoring of equipment and IoT technology becoming the most important aspect to eradicating faults.

This can allow you to save time, reduce human error and monitor machine trends easier. The main benefits of implementing improved test and measurement equipment include higher product quality, lower costs associated with product malfunctions and reduced repairs, replacements, product recalls and repeat production.

As demands and technologies continue to evolve, it's more important than ever to work out issues with processes and products

before going to market. IoT-enabled T&M solutions offer an opportunity to do that.

5. Break down barriers
There's the proposed technology Narrowband IoT (also known as NB-IoT or LTE-M2), which telecommunication giants such as Huawei, Ericsson, Qualcomm, and Vodafone are actively involved in putting together.

Narrowband IoT is a Low Power Wide Area Network (LPWAN) radio technology within the LTE standard. Meters for electricity, gas, or water consumption usually only need to transfer small amounts of data. These devices are often installed in places without power supply and run completely on battery. What's more, the coverage in these locations is often poor.

Using existing LTE technology would lead to a network overload. NB-IoT will allow these devices to connect where signals are weaker, optimise battery life and work through latency period to avoid packet loss.

For a device to connect successfully from an underground location, the link budget of NB-IoT needs to surpass existing cellular technologies. It's been shown that devices hidden behind several layers of brick can achieve connectivity from the additional link budget that comes with the low bitrate of the frequency. This means that devices located in tunnels, sewage networks, underground or in rural areas can be connected. As well as offering more coverage, NB-IoT has a simpler waveform and therefore low power consumption – meaning devices using a 5 watt/hour battery could last up to 10 years. What's more, this solution offers low device cost and low energy consumption, despite more connected devices being utilised.

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What's on the Product Launchpad?

We're constantly launching new products and brands so you can complete your mission with the latest technologies.



Compact Handheld Digital Multimeter

- High performance Digital Multimeters will provide much more safe measurements with double molded housing
- The meterbox-iMM software can support a DMM product transferring the measured data to the customers' smartphone for data editing and sharing



161-1625 10A ac 600V ac 10A dc 600V dc

Smart Digital Multimeter, Auto Selection

- Automatic selection DC/ACV, providing wide application in HVAC, factories, schools and at home, etc
- All inputs are protected to EN 61010-1 CATIV 600V
- Safety Conformance EN61010-1 CATIV 600V Double molded plastic housing Full ranges protection



161-1628 600V ac 600V dc

True RMS Compact Digital Multimeter

- True RMS compact digital multimeters with double molded plastic housing and over sized high contrast 4000 counts LCD display



146-9085 10A ac 600V ac 10A dc 600V dc

MeterScope Digital Multimeter

- Large 50,000 count 320 x 240 TFT colour LCD display 20MHz/50MS/s bandwidth/Real time sample rate
- Logging function with Trend Capture for easy review of logged data
- 100kHz bandwidth (voltage/current) AC, AC+DC true-RMS measurements
- 0.025% DCV accuracy with Fully PC Calibration



144-5337 10A ac 1000V ac 1000V dc 10A dc

Earth & Ground Resistance Tester

- Meets IEC10101, CATIII 1000V
- Large dual display with backlight & Low Battery Indication
- Test hold function for easy operation
- Zero Automatic adjustment
- Sampling Rate: 2.5 times per second



144-5339 2kΩ

Methane Gas Detectors

- To identify the presence of and isolate the source location of combustible gasses such as methane, propane, butane, ammonia, carbon dioxide and many more
- Can detect different combustible gas concentration 1 ppm to 1000 ppm or 0-10000ppm by setting high and low concentration detection
- 16"Adjustable Probe



144-5341 LCD Display

144-5342 LED Display

Heavy Duty True RMS Digital Multimeters

- Category IV rating ensure the highest level of protection against sudden transient over voltage and arcing flash-over with advanced DMM features and True RMS accuracy
- Rugged, waterproof and drop-proof
- Double molded plastic housing and over sized high contrast 4000/6000 counts LCD display
- All CAT IV rated for 600V/CATIII 1000V



161-1629 10A ac 1000V ac 10A dc 1000V dc 40mF 40MΩ

161-1626 10A ac 1000V ac 10A dc 1000V dc 4mF

6000 counts Handheld Digital Multimeter

- True RMS AC Voltage, Current readings, MAX-MIN recording, Peak recording, as well as Frequency and Capacitance readings
- Safety Conformance
- 1000V input protection
- 10A/1000V & 05A/1000V fuses protection



146-9097 10A ac 1000V ac 10A dc 1000V dc

Heavy Duty, IP67 Handheld Digital Multimeter

- with double molded plastic housing and over sized high contrast 6000 counts LCD display
- All CAT IV 600V/CATIII 1000V



146-9098 10A ac 1000V ac 10A dc 1000V dc

Meterbox Pro Air Quality Meter

- 2.0" TFT 220176 pixels Colour LCD display The determination of suspend particle concentration in the air of the weight method (PM2.5/PM10)
- Particle Counter PM2.5/PM10
- Air temperature and humidity
- Auto Power Off
- Real time clock display
- Bluetooth interface
- Analogue bar indicator



155-8903 LCD Display

RS PRO Light Meter

- 3999 Counts Large Backlit LCD Display
- Low Battery Indication
- Sampling Rate: 2.5 times per second
- Spectral Response close to CIE luminous spectral efficiency
- Cosine Angular Corrected



146-9083 400000lx

E4 Thermal Imaging Camera with Wi-Fi

- Features Multi-Spectral Dynamic Imaging (MSX) for easier interpretation of an image - adds visible spectrum definition to IR images by detecting the edges of objects and including that detail in the thermal image such as numbers, signage, labels and other identifiable features



175-1156 Temp Range: -20 → +250°C 80 × 60pixel 63906-0604x

Handheld Digital Multimeter with Bluetooth

- 5000 Counts coloured TFT LCD Display, whereby multi-parameters can be displayed
- Measures AC/DC Voltage and Current
- Maximum data record function
- Data logging - up to 100 Data and screen shots are possible
- Bandwidth up to 20KHz
- Bluetooth Interface for Smartphone communication



161-1624 10A ac 1000V ac 10A dc 1000V dc

Pocket Multimeter with NCV Tester

- with NCV Tester, offers double molded plastic housing and large high contrast 2000/4000 counts LCD display
- CAT IV 600 V safety conformance, non-contact voltage detection and flashlight



146-9086 200mA ac 600V ac 200mA dc 600V dc

Insulation Tester with Multimeter

- Measures AC/DC Voltage, AC/DC Current, Resistance, Capacitance, Frequency (electrical & electronic), Duty Cycle, Diode Test, Insulation Test, and Continuity plus Thermocouple Temperature
- Store and recall data
- A waterproof, rugged design for heavy duty use



161-1630 4000MΩ CAT III, CAT IV

DM91 Handheld Digital Multimeter

- Rich feature set: Includes True RMS, VFD mode, uA measurement, LoZ, NCV, and more
- Thermocouple input + test probe: The DM90 includes high-quality test probes and a Type K thermocouple input
- Smart design and functionality: Intuitive user interface, large display screen, LED work lights
- Durable: Drop-tested



168-1353 10A ac 1000V ac 10A dc 1000V dc DM91



DM64 HVAC TRMS Digital Multimeter with Temperature

- Ideal for HVAC professionals
- Diagnose complex systems with high and low voltage measurement capabilities
- Assess temperatures up to 400°C (752°F) with Type-K thermocouple
- Test flame sensors with microamps feature
- Readily and precisely identify live wires with probe-contact voltage detection
- Fast & Efficient Inspections



168-1347 10A ac 600V ac 10A dc 600V dc DM64



Inspection Windows for use with FLIR Cameras

- Stainless steel durability for harsh or exterior environments
- Easy installation and standard punch tool compatible
- PIRma-Lock™ locking ring technology with improved stainless steel ring
- Hinged flip open cover with integrated thumb screw
- Crystal IR Window for clear visual and thermal viewing



175-1157 50 mm IRW-2S
175-1158 75 mm IRW-3S
175-1159 95 mm IRW-4S

AVO®830 Series Digital TRMS Multimeters

- CAT III 1000 V and CAT IV 600 V
- IP54 environmental protection
- Phase rotation
- High / Low sensitivity live circuit detection
- 10 M Ω / 10 k Ω input impedance
- MIN / MAX / AVG / Smoothing



Megger.

136-7898 AVO830, 10A ac 600V ac 10A dc 600V dc 1008-722
136-7899 AVO835 with RSCAL calibration, 10A ac 1000V ac 10A dc 1000V dc 1008-721

MFT1845 Electrical Tester

- Enhanced non-trip loop impedance measurement technology
- "Confidence meter" measurement analysis (patent pending)
- Full single and 3 phase compliant installation testing
- 10 mA to 1 A single and 3 phase RCD testing
- Simple colour-coded test selection
- Ambidextrous operation
- Internal memory and Bluetooth® communications



Megger.

175-4076 CAT III 600 V, CAT IV 300 V 1009-990

MFT1815 Multifunction Installation Tester

- The entry level tester offering CAT IV safety, 200 mA continuity, 2-wire non trip loop testing with resistance and fault current display, and frequency measurement



Megger.

901-1321 MFT1815-AU

MIT400/2 1KV Industrial Insulation Tester

- 250/500/1000V Insulation Tester with a large display providing the unique combination of two digital readouts and an analogue arc
- Rubber over moulding provides a tough shock absorbing outer protection with excellent grip, on a strong modified ABS housing
- CATIV 600V safety rating with carry case and calibration certificate included



Megger.

921-4508 250 V, 500 V and 1000 V MIT400/2

MIT410/2 1KV Industrial Insulation Tester

- Insulation Tester with a large display providing the unique combination of two digital readouts and an analogue arc
- Same features as MIT400/2 plus additional test voltages, frequency measurement and remote switch probe
- CATIV 600V safety rating with carry case and calibration certificate included



Megger.

921-4510 50 V, 100 V, 250 V, 500 V and 1000 V + PI, DAR MIT410/2

MIT420/2 1KV Industrial Insulation Tester

- Insulation Tester with a large display providing the unique combination of two digital readouts and an analogue arc
- Same features as MIT410/2 plus variable test voltage, capacitance measurement and memory
- CATIV 600V safety rating with carry case and calibration certificate included



Megger.

921-4523 50 V, 100 V, 250 V, 500 V and 1000 V + PI, MIT420/2 DAR + VAR and result storage

MFT1825 Multifunction Installation Tester

- The most popular of the range of testers offering all the benefits of the MFT1815, plus 3-pole and 2-pole earth electrode testing, 15 mA continuity testing, auto RCD testing, phase rotation, programmable and 3-phase RCD testing and current measurement with the optional clamp



Megger.

901-1330 MFT1825-AU

MFT1835 Multifunction Installation Tester

- The most sophisticated of the installation testers brings Type B RCD testing, 3-pole earth electrode testing with attached rod technique and stakeless testing to a downloading and rechargeable instrument



Megger.

901-1333 MFT1835-AU

MIT230 Insulation & Continuity Tester

- Insulation testing to 1000 M Ω
- Dual & triple test voltages models
- Digital display with electronic analogue arc display helps to confirm insulation condition & to monitor fluctuating readings not apparent on the digital display
- Continuity testing at 200 mA down to 0.01 Ω resolution



Megger.

535-3191 999MO CAT III 300 V MIT230

DLRO10HD Heavy Duty 10A Low Resistance Ohmmeters

- 2 high power (up to 25W) ranges ideal for inductive applications, and where heating a potential weakness is desirable
- 7 low power output ranges limited to 025W to avoid heating the test piece and to extend battery life
- Rechargeable battery or line power supply, continuous operation, even with dead battery
- 10 A for 60 seconds, less time waiting to cool, great for charging inductance



Megger.

910-6804 Max. Resistance 2500 $\mu\Omega$, Resolution 100n Ω 1006-603
666-7371 DHS straight duplex handspike set with 2.5m long leads DHS-RS

PAT150 Pass/Fail Portable Appliance Tester

- Test groups available for Class I, Class II and Extension/Power leads
- Simple Tick/Cross, pass/fail indication plus measurement
- Includes 250 V Insulation and Leakage testing for safe IT testing and surge protected devices
- Testing portable and fixed electrical equipment
- 10 mA and 30 mA Portable RCD lead testing
- Adjustable PASS test limits



Megger.

823-0420 Class I, Class II Test Type 1003-077

LT300 Loop Impedance Tester

- High current loop tester
- Simple auto start operation
- 16Hz to 400Hz frequency range
- Up to CATIV 300V phase-to-earth (550V phase-to-phase) applications



Megger.

528-6681 2 Wire 550V \pm 5% CAT IV 300 V LT300

MIT310A Insulation & Continuity Testers

- 20mm LCD display with true analogue response
- Tough rubber armoured case with self contained display cover that locks away underneath the instrument during use
- Designed to hang comfortably around the neck for hands-free, or for bench use
- Automatic 200mA fast continuity test on connection to the circuit



Megger.

516-7704 999MO CAT III 600 V MIT310A
480-1778 2 Wire Test Lead Set, For Use With MIT 300 Series 1002-001

DCM300E Clamp Meter

- Fully IEC1010-1 and IEC101-2-032 compliant for circuits up to 500V phase to phase or 300V phase to earth CAT III or 600V CAT II
- 30mA and 300mA ranges for leakage current measurement
- 0.01mA resolution on 30mA range
- 30A and 300A ranges for power measurements
- Data hold facility



Megger.

247-0142 300A ac CAT II 600 V, CAT III 500 V DCM300E

LRCD220 Loop & RCD Tester

- Built-in protective front cover
- Tough rubber armoured case
- Weatherproof to IP54
- High current loop testing
- Phase to phase loop testing
- Auto RCD testing
- 1000mA RCD test



Megger.

712-5749 Loop Impedance Test Type 2 Wire 500V LRCD220

LTW315 Loop Impedance Tester

- Verify the loop impedance and calculate the Potential Fault Current (PFC) of live electrical circuits without the need to disconnect the supply
- 50 V to 440 V operation and auto start operation
- CATIV Safety rating, calibration certificate and carry case



Megger.

198-435 2 Wire, 3 Wire 440V, RCD Test Type AC Selective LTW315

TDR900 TDR Cable Fault Locator

- CE-Certificated
- Accurate to 20 inches (50 cm) throughout the entire range
- Extra-large backlit (ICON type 7 segment) LCD
- Automatic output impedance control, auto-range, autozero, and auto-sensitivity allows for closely matching to a wide range of cables under test. Only V.O.P (velocity of propagation) settings required



Megger.

764-2838 3.7km TDR900

TDR500/3 TDR Cable Fault Locators

- Single cursor allows instant measurement of the distance to the fault
- AUTO set up for instant use
- Ultra fast pulse for near end fault identification
- Trace HOLD feature
- IP54 rating offers real life working
- Designed for use on all metallic cable pairs

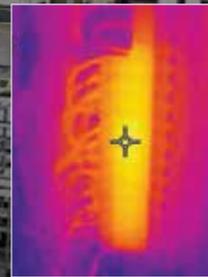
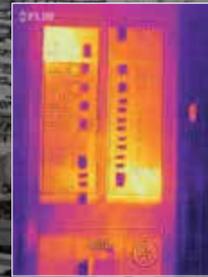


Megger.

764-2834 5000m TDR500/3
764-2831 Optional fused test lead set for testing power circuits 1002-015

SOLUTIONS FOR ELECTRICAL AND MECHANICAL INSPECTIONS

FLIR DM285™ Industrial Imaging Multimeters with IGM™



FLIR One® Pro Thermal Imaging Camera Attachment for iOS and Android

FLIR CM275™ Industrial Imaging Clamp Meters with IGM™



FLIR E8™ Affordable thermal imaging camera with Wi-Fi and MSX® Enhancement



DM62/DM66 True RMS Digital Multimeters

- Rich feature set ideal for various electrical applications
- Safely check voltage with non-contact voltage detection
- Measure both AC-DC voltage and current (A, mA, μ A)
- Diagnose faults with broad digital multimeter test functions including variable-frequency drive (VFD) mode and voltage range up to 600 V
- Fast Efficient Testing and Troubleshooting



168-1345 10A ac 600V ac 10A dc 600V dc DM62
168-1349 10A ac 600V ac 10A dc 600V dc; low impedance (LoZ) mode DM66

DM166 Handheld Thermal Imaging Multimeter

- Featuring IGM: A built-in 80 x 60 resolution thermal camera sensor visually guides you to an electrical problem
- Range of Measurement Options: Includes True RMS, VFD mode, and more
- The Test Tools You Need: Comes with high-quality test leads and a Type K thermocouple input (DM166 and DM64)
- Smart design and functionality: Intuitive user interface and high-quality design, with flashing backlight and audible indicators
- Safe and Durable: Drop-tested



168-1351 10A ac 600V ac 10A dc 600V dc DM166

DM285 Handheld Thermal Imaging Multimeter with Bluetooth

- Infrared Guided Measurement (IGM) technology powered by a built-in 160 x 120 FLIR thermal imager
- Visually guides you to the precise location of an electrical problem, helping you pinpoint hot spots faster
- Helps streamline inspections by connecting wirelessly to FLIR Tools or the new FLIR InSite™ workflow management app



168-1355 10A ac 1000V ac 10A dc 1000V dc DM285

C2 Thermal Imaging Camera

- The world's first full-featured, pocket-sized thermal camera designed for building industry experts and contractors
- Lightweight, slim profile fits comfortably in any work pocket
- Equipped to find structural defects, plumbing issues and to find hidden heat patterns that signal energy waste



866-8124 -10 to +150°C, 80 x 60pixel 72001-0101

C3 Thermal Imaging Camera with WiFi

- A full-featured, pocket-sized thermal camera designed for building inspections, facilities maintenance, HVAC or electrical repair
- Equipped to find hot fuses, cold air leaks and plumbing issues and to find hidden heat patterns that signal energy waste
- Must-have features include MSX® real-time image enhancement, area maximum or minimum temperature measurement and WiFi connectivity



135-3287 -10 to +150°C, 80 x 60pixel 72003-0303

E5 Thermal Imaging Camera with WiFi

- Easy to use, powerful and cost-effective troubleshooting tools for building, electrical and mechanical applications
- IR Resolution: 120 x 90 pixels
- Thermal Sensitivity/NETD: <math><0.10^{\circ}\text{C}</math> (0.27°F) / <math><100\text{ mK}</math>
- Image Adjustment: Automatic adjust/lock image



135-3290 -20 to +250 °C 120 x 90pixel 63909-0904

E6 Thermal Imaging Camera with WiFi

- Easy to use, powerful and cost-effective troubleshooting tools for building, electrical and mechanical applications
- IR Resolution: 160 x 120 pixels
- Thermal Sensitivity/NETD: <math><0.06^{\circ}\text{C}</math> (0.11°F) / <math><60\text{ mK}</math>
- Image Adjustment: Automatic/Manual



135-3289 -20 to +250 °C 160 x 120pixel 63907-0704

E8 Thermal Imaging Camera with WiFi

- Easy to use, powerful and cost-effective troubleshooting tools for building, electrical and mechanical applications
- IR Resolution: 320 x 240 pixels
- Thermal Sensitivity/NETD: <math><0.06^{\circ}\text{C}</math> (0.11°F) / <math><60\text{ mK}</math>
- Image Adjustment: Automatic/Manual



135-3288 -20 to +250 °C 320 x 240pixel 63908-0805

ETS320 Test Bench Thermal Camera

- Designed for hands-free laboratory testing. Ideal for reducing test times and improving product design for electronic board and device evaluation
- 320 x 240 IR resolution (7800 pixels)
- Vibrant 3" LCD display provides immediate thermal feedback
- 45° field of view
- $\pm 3\%$ measurement accuracy
- Records standard radiometric JPEGs
- Pole mount included for fast and easy setup



135-6220 -20 to +250 °C 320 x 240pixel 63950-1001



For latest stock availability & pricing visit au.rs-online.com

FLIR ONE Pro Thermal Imaging Cameras

- MSX™ - adds visible spectrum detail to thermal images and enhances resolution
- Ruggedized Design
- OneFit™ Adjustable Connector
- VividIR™ Advanced Image Processing
- Higher Resolution Thermal Sensor
- Advanced Diagnostics
- One-Touch Reporting
- Enhanced FLIR ONE App



136-8284	iOS	435-0006-03
136-8285	Android	435-0007-03
136-8286	Micro USB Android	435-0011-03

TG54/TG56 Spot Infrared Thermometers

- Simple, easy to use
- Compact, rugged design
- Graphical menu structure and colour display enable easy access to measurement settings & alarms
- Feature powerful LED work lights
- Take non-contact surface temperature measurements with IR (infrared) sensor
- Easily identify measurement location with built-in laser



922-8759	Distance to Spot Ratio: 24:1	GT54
922-8768	Distance to Spot Ratio: 30:1	GT56

TG165 Imaging IR Thermometers

- Easily finds unseen hot and cold spots for instant troubleshooting
- Frame Rate: 9 Hz
- Image Resolution: 4800 pixels (80 x 60)
- Spot size ratio: 24:1
- Display Type: 2" TFT LCD
- Measurement Resolution: 0.1°C / °F
- Temperature range: -25°C to +380°C, 14°F to 716°F
- Response Time: 150 ms
- Colour Palettes: 2 (Grey Scale, Hot Iron)



848-1331	Thermometer	TG165
875-4799	Case	TA13
877-7102	Holster	TA14

TG167 Spot Thermal Camera

- Bridges the gap between single spot infrared thermometers and FLIR's thermal cameras
- Lepton™ micro thermal sensor
- Built to withstand a 2 m drop
- 24:1 spot size ratio for safer distance measuring
- Eliminates blind guesswork



922-8761 TG167

¼ in. IR Window for use with Electrical Enclosure

- The glass is specially formulated to allow transmission of infrared light to allow use of infrared thermal sensing equipment without opening the enclosure
- Viewing aperture diameter: 89 mm (3.50 in.)
- Operating temperature range: Maximum 260°C (500°F)
- Material: Optics: CaF2 (Calcium Fluoride Crystal)



848-1362 29.3 x 127 x 137mm 19252-100

AX8 Thermal Image Infrared Temperature Sensors

- Compact and easy to install
- Streaming video output
- Automated alarming when pre-set temperature thresholds are exceeded
- Temperature trend analysis
- Results can be shared to a PLC
- Image masking function



893-8489	-10°C to +150°C	71201-0101
893-8492	M12 to RJ45 Ethernet Cable	T128390ACC

MR160 Imaging Moisture Meter

- 80 x 60 Lepton thermal imager with IGM technology
- Document thermal images and moisture readings on one screen
- Review images and generate reports with free FLIR Tools software
- Pinless technology for fast non-contact measurements



906-3909 Max. Measurement 100% MR160

CM174 600A AC/DC Clampmeter with IGM™

- Work safely - scan a panel or cabinet for hazards using IGM without direct contact
- Verify problems, check load and validate hot spots
- Narrow jaw and built-in work lights help you access difficult locations with lighting issues
- Advanced electrical features: True RMS, LoZ, VFD Mode, Inrush, Smart Diode with Disable
- Expandable to 3000 Amps AC with FLIR flex accessories



922-6220 Max Current 600A ac, 600A dc CAT III 1000 V, CAT IV 600 V CM174

CM275 Clamp Meter

- Find problems faster
- Diagnose efficiently
- Document and share results
- IGM: Up to 160 x 120 (19200 pixel) Lepton™ thermal imager powers IGM technology for visual identification of electrical issues



168-1358 Max Current 600A ac, 600A dc CAT III 1000 V, CAT IV 600 V CM275

UPS-III Intrinsically Safe Loop Calibrator

- ATEX/IEC intrinsically safe
- Measure or source 0 to 24 mA
- Accuracy 0.015% of reading
- Dual mA and % readout, linear or flow
- Step, span check, valve check, ramp
- 50 VDC measurement and continuity
- Hart® compatible



237-451 24mA UPS III IS

UPS-III Loop Calibrators

- Built in 24Vdc power supply loop
- mA and % displayed simultaneously, as linear or square root (flow)
- Measurement/generation 0 - 24mA DC
- Instrument accuracy 0.01% of the reading (over 1 year)
- Automatic PAS mode and ramp adjustable from 1 to 599 secs
- Contacts test mode
- Predefined values for the quick testing of linear loops, flow loops and the control of valves
- HART transmitter compatible



434-7000 24mA UPS-III
434-7016 Current Loop Calibrator Over Boot UNO-38023-3275

UPS-II Smart Loop Calibrator for Milliamps

- Outputs and reads mA
- Fixed current, auto step and auto ramp functions
- Readings/fixed steps in mA or % span
- Simplified valve stroking with fixed outputs of 3.8, 4, 4.2, 12, 19, 20 and 21mA, enabling the user to check for correct seating and operation of a valve



182-5456 4-20mA UNO-UPS-II-1841

DPI 705 Digital Pressure Meters

- 0.1% accuracy
- Large 13mm 5 digit LCD display
- 16 selectable pressure units
- Suitable for use with liquids compatible with the stainless steel diaphragm
- Ambient temperature indication in °C or °F
- 60 second leak test mode



312-0494	0.2bar, Differential	I705-02L-2388
312-0517	2bar,Gauge	I705-07G-2388
312-0539	2bar, Absolute	I705-07A-2388
312-0523	20bar	I705-13G-2388

DPI 705/IS Digital Pressure Meters

- Intrinsically Safe (EEx ia IIC T4)
- 16 pressure units
- Leak testing 1 minute
- High accuracy (0.1% full scale)
- Ambient temperature measurement
- Zero-display tare
- Peak value hold
- Alarm setting



451-1302	20bar	I705S-13G-3484
451-1295	2bar, Absolute	I705S-07A-3484
451-1267	200mbar, Differential	I705S-02L-3484

DPI705R Digital Pressure Meters

- No warm-up time
- Ambient temperature °F and °C reading of local condition ±3°F (±1.5°C)
- 0.1% full scale (FS) accuracy
- Rugged, lightweight handheld design
- Leak test, tare, max/min and filter
- Standard 60 second leak test
- Zero pressure correction



787-4612	10bar	DPI705R-11G
787-4603	70bar	DPI705R-16G
787-4609	200bar	DPI705R-18A
787-4628	350bar	DPI705R-20A

PV212 Hydraulic Pressure Hand Pump

- Pressures to 10,000 (690 bar) or 15,000 psi (1000 bar)
- Compatible with distilled water or mineral oil
- Quick priming function
- Optional adjustable pressure relief valve
- Compatible with many different liquids
- Large transparent 100cc capacity reservoir



529-3550 700bar, ¼ BSP, 3/8 BSP PV212-HP-700-4018

DPI104 Digital Pressure Indicators

- 0.05% FS Accuracy
- Pressure switch test
- Large easy to read 5 digit LCD display
- Bar graph and % pressure indication
- 0-5V analogue output
- Peak hold, max, min, tare and alarm functions



787-4640 0.7bar ¼ NPT, BSP ¼ DPI104-04G
532-6284 20bar ¼ in DPI104-13G-5491

UNIK 5000 Series ATEX Gauge Pressure Sensors

- Use silicon technology and analogue circuitry which enables high performance for stability, low power and frequency response
- Frequency response to 5 kHz
- High over pressure capability



746-3470	10bar	X5072-TB-A1-CA-H1-PA 10.0 bar G
746-3625	6bar	X5072-TB-A2-CA-H1-PA 6.0 bar G
746-3647	25bar	X5072-TB-A2-CA-H1-PA 25.0 bar G
746-3600	1.6bar	X5072-TB-A2-CA-H1-PA -1 to 1.6 bar G

608-H½ Thermohygrometer

- With dew point calculation and max/min 2 line LCD display
- NTC probe
- Humidity sensor not affected by water
- Standalone or attachable
- Powered by 9 V PP3 battery (supplied)



412-3062 608-H1, +50°C, 95%RH 0560 6081
420-7261 608-H2, +70°C, 98%RH 0560 6082

925 Digital Thermometer

- Single-channel type K thermocouple thermometer
- Accepts a wide range of Testo and other type K thermocouple probes with miniature K type connectors
- Compatible with the Testo Radio Probe System to provide an additional temperature measurement
- Continuous display of max/min values
- Hold button to freeze reading



512-0288 1 Input Handheld, K Type Input 0560 9250

Thermocouple Temperature Probe

- Connection: 1.2 m cable and Type K mini plug connector
- Probe Diameter: Ø 5.0 mm shaft (1¼ mm tip Ø 3.7 mm)
- Probe Length: 11¼ mm
- Response Time: 7 seconds
- Accuracy: ± 2.5°C [Class 2]
- Temperature Measurement Range: -60 to +400°C



512-0711 Type K, max. +400 °C 0602 1293

174T Temperature Data Logger

- Display of the current temperature
- High data integrity, even with empty battery
- Watertight in accordance with IP65
- Compact and robust
- Conforms to EN12830
- Flashing low & high level alarms on the display
- Data transfer to the PC via USB interface



712-5465 -30 → +70 °C 0572 1560

405-V1 Mini Anemometer with Temperature

- Measures air velocity, volume flow and temperature
- m/s and m3/h (volume flow calculation 0 to 99,990 m3/h)
- 180° swivel head for easy measurement readings
- Telescopic extendible probe, up to 30 cm
- Duct holder and multi-function clip for quick positioning



227-826 0 to +10 m/s 0560 4053

405i Thermal Anemometer, Bluetooth

- Professional measuring instrument for use with smartphones/tablets
- Measurement of air flow velocity, volumetric flow and temperature
- Easy configuration of the dimensions and geometry of the duct cross-section for determining volume flow
- Telescopic shaft extendible up to 400 mm
- Measuring range 0 to 30 m/s and -20 to +60 °C
- Dimensions 200 × 30 × 41 mm



913-2575 30m/s Max Air Velocity 0560 1405

410i Vane Anemometer Smart and Wireless Probe

- Measurement of air flow velocity, volumetric flow and temperature
- Easy parameterisation of the outlet (dimensions and geometry)
- Measuring range 0.4 to 30 m/s and -20 to +60 °C
- Design eliminates need for air density correction
- Can measure volume flow at several outlets simultaneously (using multiple Smart Probes) to adjust system balance
- Timed/multipoint averaging to get accurate air flow profiles
- Dimensions 154 × 43 × 21 mm
- Vane diameter 40 mm



913-2579 30m/s Max Air Velocity 0560 1410

549i Model Digital Pressure Meter

- Measurement of high and low pressure
- Quick and easy installation at the pressure connection
- Low refrigerant loss because of hoseless application
- Measuring range -1 to 60 hPa
- Dimensions 125 × 32 × 31 mm



913-2581 60bar 0560 1549

549 Model Digital Pressure Meter

- Measures high side / low side pressure and indicates saturation and evaporation temperature
- Fast and accurate determination of system parameters
- 60 refrigerant profiles
- Drop resistant
- Superior rugged housing construction
- Splash proof, protection to IP42
- Esc key, for easier menu navigation



913-2623 870psi 0560 0550

470 Optical and Mechanical Tachometer

- Rotation speed, speed and length measurement
- Memorisation of min. and max. values, as well as the last value at power down
- Automatic stop
- Delivered in a transit case with adaptor, funnel, wheel, reflective strips, batteries and instructions for use
- Set of 5 reflective strips available separately
- Available in calibrated version



327-6395 Best Accuracy ±0.02 % Contact, Optical LCD 9999rpm 0563 0470

460 Optical Tachometer

- For optical rpm measurement with LED marking of the area to be measured
- Max. / min. values
- Operates on two AAA alkaline batteries
- Battery life: 20 hours (average, without display lit)



114-146 Best Accuracy ±0.02 % Optical LED 29999rpm 0560 0460

540 Pocket-sized Light Meter

- Innovative measurement technology in a pocket-sized version for testing ambient light conditions
- Hold function, minimum / maximum
- Units in lux or footcandles



292-363 Range 0 → 99,999 Lux 0560 0540

DUSPOL Expert 1000 Voltage Tester

- Shows the phase sequence of a 3-phase current system, provided the neutral point is grounded
- Voltage testing
- Phase sequence test
- Polarity check
- Cable fracture detector
- Continuity test



778-4702 CAT III 1000 V, CAT IV 600 V M611E

Metravolt 12D+L Voltage and Continuity Tester

- The voltage tester allows for safe detection and measurement of AC and DC voltages within a range of 24 to 1000 V at frequencies of up to 4 kHz
- Resistance can also be measured within a range of 0 to 1999 kΩ with the integrated continuity tester
- Voltage and resistance values appear in digital format at the LCD
- Three LEDs indicate dangerous contact voltage and phase sequence, another LED indicates resistance and a sound generator indicates continuity



760-4551 CAT IV 1000 V M630G

METRAHit ENERGY Handheld Digital Multimeter

- TRMS measurement (AC, AC+DC)
- Power measurement (W, VA, VA, PF): active, reactive and apparent power with extreme values, power factor
- Energy measurement (Wh, VAh, VAh), active, reactive and apparent energy, mean power value with adjustable observation period and maximum value
- Mains quality analysis: recording of over and undervoltage, dips, swells, voltage peaks and transients in 0, 50 and 60 Hz systems



726-5099 10A ac 600V ac 10A dc 600V dc M249A

METRAHIT 2+ Digital Multimeter

- Digital multimeter with bar chart display
- Real-time testing (AC)
- Automatic and manual measuring range selection
- Display of negative values on the analogue scale
- DATA HOLD, MIN/MAX memory
- Diode and continuity testing



667-0201 15A ac M205A

METRAHIT 271 Handheld Digital Multimeter

- Insulation resistance measurement 30 MOhm to 3 GOhm with adjustable test voltage of 50, 100, 250, or 500 Vdc
- Milliohmmeter with 1 A measuring current and 200 mA measuring current
- Kelvin connection (4-wire measurement)
- Resistance measurement from 300 Ohm to 30 MOhm



811-1280 1A ac 600V ac 600V dc M227B

METRA HIT 29S Multimeter

- High-resolution precision multimeter
- Triple display
- Automatic reading range selection
- Effective value measurement (AC, AC+DC)
- MIN / MAX memory
- Integrated quartz clock for real-time registration
- Diode and continuity testing
- Protection classes: CAT IV 300 V, CAT III 600 V



487-870 10A ac 1000V ac 1000V dc 10A dc M250A

TBS1000B/-EDU Digital Storage Oscilloscopes

- Features offered as standard include USB connectivity, 34 automated measurements, limit testing, data logging, frequency counter, trend plot and a context-sensitive help menu
- TBS1000B-EDU is designed specifically to meet the needs of schools and universities
- 200 MHz, 150 MHz, 100 MHz, 70 MHz and 50 MHz bandwidth models
- 2-channel models
- Up to 2 GS/s sample rate on all channels
- 2.5 k point Record length on all channels



Tektronix
800-2978 2 Channels, 50MHz TBS1052B
800-2997 For education users, 2 Channels, 50MHz TBS1052B-EDU

TBS1000 Series Oscilloscope

- Advanced triggers including Pulse Width Trigger and Line-selectable Video Trigger
- Automated measurements (16) and FFT Analysis for simplified waveform analysis
- Built-in waveform limit testing
- Automated, extended data logging feature
- Autoset and signal auto-ranging



Tektronix
786-5306 Digital Storage, 4 Channels, 60MHz TBS1064

TBS1000B Series Digital Storage Oscilloscope

- 150 MHz bandwidth, 2-channels
- Up to 2 GS/s sample rate on all channels
- 2.5 k point Record length on all channels
- Advanced triggers including pulse and line-selectable video triggers
- 7 in WVGA (800 x 480 pixels) active TFT colour display



Tektronix
800-2984 Digital Storage, 2 Channels, 150MHz TBS1152B

MDO3000 Series Domain Oscilloscope

- Each model is multi-functional with integrated basic spectrum analyzer, Wave Inspector Navigation, MSO, serial and parallel bus triggering and analysis, and digital voltmeter
- Optional instrument upgrade and application modules can be bought at the time of the initial scope purchase or at any time afterwards



Tektronix
797-3340 2 Analogue. Ch., 100MHz MDO3012

A622 Current Probe & Clamp

- "Long nose" style clamp-on probe uses a Hall Effect current sensor to provide a voltage output to oscilloscopes
- With BNC connector and may be used with a shrouded banana plug adapter so it can also be used on digital multimeters, TekMeter, and scopes
- Measure AC/DC currents from 50 mA to 100 A peak over a frequency range of DC to 100 kHz
- Provides 10 mV or 100 mV output for each Amp measured



Tektronix
851-224 AC/DC - 100 kHz A622

TBS1000B Series Digital Storage Oscilloscopes

- 200 MHz, 150 MHz, 100 MHz, 70 MHz and 50 MHz bandwidth models
- 2-channel models
- Up to 2 GS/s sample rate on all channels
- 2.5 k point Record length on all channels
- Advanced triggers including pulse and line-selectable video triggers
- 7 in WVGA (800 x 480 pixels) active TFT colour display
- 34 automated measurements



Tektronix
744-2476 Digital Storage, 2 Channels, 150MHz TDS2004C
481-0845 Soft Carrying Case AC2100

AFG1022 Arbitrary Waveform Generator

- 125 MS/s sampling rate and 14-bit vertical resolution enable great signal fidelity
- 1 mVp-p to 10 Vp-p output amplitude over the whole frequency range
- Intuitive user interface shortens the learning curve for students and other users
- 2 to 8,192-point length of memory for user-defined arbitrary waveforms
- 64-MByte internal non-volatile memory for arbitrary waveform storage



Tektronix
855-5078 10 MHz, 12.5 MHz, 25 MHz AFG1022

TPP0101 Passive 10X Voltage Probe

- For use on BNC oscilloscopes with 1 MΩ/13 pF (TPP0100) and 1 MΩ/20 pF (TPP0101) inputs
- 10X Attenuation
- 100 MHz Bandwidth
- 1.3 m Length



Tektronix
715-8733 Passive, Voltage 100MHz 300V TPP0101

TPP0201 Passive 10X Voltage Probe

- 10X Attenuation
- 200 MHz Bandwidth
- 1.3 m Length



Tektronix
726-0041 Passive 200MHz 300V TPP0201

INSTALTEST 3017 Electrical Tester

- In-built limits set to AS/NZS3000 wiring rules
- On-screen pass / fail indication with tick or cross
- Includes visual inspection, correct connections and polarity testing, not found on other multifunction testers
- Unique "auto-sequences" allow users to build their own test sequences
- Batteries: 6 x AA NiMH, 1.2V 2000mAh (included)
- Designed for testing to AS/NZ3000



METREL
758-6817 Testing to AS/NZ3000 INSTALTEST 3017

Instaltest Combo MI-3125 Combination Testers

- 3-in-1 multi-function tester, installation tester and pass/fail tester
- Installation verification tests to AS/NZS3017 covering earth continuity, insulation resistance, polarity, correct connections, fault loop impedance and RCD tests
- Tests sockets in seconds with single push button and without trailing leads



METREL
712-6023 Tester MI-3125
758-6769 Portable Case A1289

PAC3760 DL Logging Appliance and RCD Tester

- Display LCD
- Indication PASS/FAIL and Measured Values
- Operation 6 Push Button
- Insulation test: Test Range 500V DC, 1Mohm at rated mains supply, Pass Level 1Mohm
- Earth continuity test: Test Current 200mA, Pass Level 1ohm
- Leakage test: Output Voltage 240V AC, Pass Level Class I 5mA, Class II 1mA
- Single push button operation



SEAWARD
828-2635 Class I, Class II Test Type PAC3760 DL

PAC3760 DL AU PAT Tester Kit

- Display LCD
- Indication PASS/FAIL and Measured Values
- Operation 6 Push Button
- Insulation test: Test Range 500V DC, 1Mohm at rated mains supply, Pass Level 1Mohm
- Earth continuity test: Test Current 200mA, Pass Level 1ohm
- Leakage test: Output Voltage 240V AC, Pass Level Class I 5mA, Class II 1mA
- Single push button operation



ProTag
863-7023 265 x 110 x 65mm Protag PAC3760DL Kit

PT300 PRO AU PAT Tester Kit

- The most affordable and truly portable appliance and RCD testing, tag printing and record keeping system
- Designed to meet all testing requirements of AS/NZS3760
- Bluetooth to communicate with the Optimall printer without cables
- PATGuard PRO - professional level reporting and asset history software. Automatically generates customer and test history database guaranteeing accountability and data reliability



ProTag
863-7045 260 x 100 x 65mm Protag PT300 PRO Kit

Optima II Pro AU PAT Tester Kit

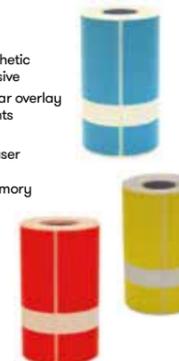
- Print durable and permanent synthetic test tags within seconds from the Primetest 300 via Bluetooth



ProTag
863-7035 76.2 x 152.4 x 190.5 (OPTIMA II Printer) mm Protag Optima II Kit

Protag Optima Portable Appliance Tester Labels

- For Use With Protag Printer
- Durable and tear resistant synthetic test tags with permanent adhesive
- Available in 6 colours and a clear overlay for heavy industrial environments
- Printed with appliance number, appliance barcode, test date, user name, test status and next test date direct from the tester's memory
- 250 tags per roll



ProTag
758-6784 Blue OPT-BLUE
758-6788 Green OPT-GREEN
758-6790 Red OPT-RED
758-6794 White OPT-WHITE
758-6797 Orange OPT-ORANGE
758-6804 Yellow OPT-YELLOW

Protag Elite Portable Appliance Tester Labels

- For Use With Protag Elite Test Tag Printer
- Elite outdoor and indoor test tags are thermal transfer, UV and heat durable and tear resistant synthetic material
- Test tag size is 100mm by 50mm
- Requires Elite ribbon printer



ProTag
828-2562 White ELT-WHITE
828-2566 Yellow ELT-YELLOW
828-2572 Red ELT-RED
828-2575 Green ELT-GREEN
828-2581 Burgundy ELT-BURGUNDY
828-2588 Blue ELT-BLUE

Protag Generic Laminated Tags

- For Use With Emona Portable Appliance Tester
- Adhesive backed high quality vinyl
- With clear laminated layer of heavy duty polypropylene for written data area
- Guaranteed weather and tamper proof data area
- Supplied with permanent marker pen
- Pack of 100 tags



ProTag
828-2590 Red ST-002-RED
828-2594 Blue ST-002-BLUE
828-2597 White ST-002-WHITE
828-2601 Yellow ST-002-YELLOW
828-2607 Green ST-002-GREEN

EVERY TEST MATTERS

Pick RS Pro for your test and measurement needs

Our high-quality range of RS Pro test and measurement equipment guarantees precision and performance at a very competitive price. We deliver to customers worldwide with our growing collection of products, which are rigorously tested against demanding industry standards to gain the RS PRO Seal of Approval.

And as well as providing a wide range of quality items, we negotiate the best conditions with our suppliers to help you save – so why wait to make RS Pro your choice?



Look for the RS Seal of Approval

The Pro range doesn't just provide value for money; the quality and performance of our products mean we can stand shoulder-to-shoulder with the leading brands. Our products are rigorously tested & backed by the RS Seal of Approval - the trusted sign of quality and performance on over 40,000 RS Pro products.



AUDITED
PRODUCTS CONFORM TO INDUSTRY STANDARDS.



INSPECTED
PRODUCTS INSPECTED TO ENSURE EXCELLENT QUALITY.



TESTED
TESTED BY LEADING ENGINEERS.

All RS Pro products are tested to appropriate industry standards including:



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For latest stock availability & pricing visit au.rs-online.com!

ICM20 Current Clampmeter

- 2000 Count Large-scale LCD display
- AC current measuring up to 400 Amps
- Data Hold
- Max Hold
- Easy battery replacement
- 27 mm dia. conductor size
- 1.2 m Drop Proof



123-3230 400A ac CAT III 600 V

RS330 Mini AC Autoranging Clamp Meter

- 400 A AC current measurement
- Maximum Resolution to Current Measurement: 1 mA
- 2000 Count LCD display with backlight
- Data Hold
- Max Hold
- Auto Power Off (approximately 15 minutes)
- Low battery indication
- Jaw Size: 23 mm (0.9")



123-1936 400A ac

ICM30R AC-DC Current Clamp Multimeter

- Digital AC and DC clamp meter with True-RMS reading, dual hall sensor and a Nickel-Steel alloy jaw mechanism
- True-RMS reading
- 4000 Count digital display
- Auto-ranging, Dual hall sensor
- Nickel-Steel alloy jaw mechanism
- AC-DC 300 A, AC-DC 600 V



123-3252 300A ac, 300A dc CAT III 300V

Volt-Stick SOUND AC Indicator with audible alarm

- Tip glows red and the audible sounder activates when a voltage is detected
- Locates breaks in cables
- Detects blown fuses inside plugs or fuse holders
- Distinguish between live and neutral wires in both single and three-phase supplies
- Identifies voltage-carrying cables in junction boxes



167-645 230V ac to 1000V ac

Magnetic Field Indicator

- Responds to all kinds of magnetic fields from alternating current to direct current and permanent strong magnets
- A small test magnet is housed in the cap of the Magnet Stick to check that it is working correctly



375-5422 0.3mT 1000V ac

Test Lead Kit

- Meet CAT III Safety Standards
- Probe tip insulators
- Current rating 10 A
- Optional crocodile clip applicator



243-2998 CAT III 1000 V

ICMA1 Current Clampmeter

- 6000 Count large-scale LCD display with backlit
- AC-DC current measuring capability up to 300 A
- Automatically detect DCA/ACA with AC True RMS reading mode
- 10 mA Resolution
- 1.5% basic DCA/ACA accuracy



123-3256 300A ac, 300A dc CAT III 600 V

ICM136R True RMS Clampmeter

- Backlit 4000 Count LCD display with analogue bargraph
- True RMS Reading on ac mode
- 600 A ac/dc current measurement
- 600 V ac/dc voltage measurement
- Resistance measurement with continuity beeper
- Display hold & peak hold (10 ms)



123-3222 600A ac, 600A dc CAT II 1000 V, CAT III 600 V

ICA39T Current Clamp Adapter

- 1.9% basic D CA / A CA accuracy
- Non-intrusive transducing
- Up to 29 mm Diameter conductor
- Shock Proof: 5 ft drop
- Coiled cable output plugs
- Ergonomically designed jaw and trigger



123-3224 1000A dc, 1000A ac, 51mm

Insulated Test Lead Set

- Suitable for most instruments including units that do not accept shrouded 4mm safety plugs
- Complies to EN61010 1000V CATII
- Supplied in handy PVC wallet with instruction leaflet
- Contents: 2 each (1 red & 1 black): 1.2m long shrouded 4mm plug (probe end) retractable 4mm plug (equipment end), Sprung hook, Test prod, Crocodile clip and Spade terminal connector



340-2421 CAT II 1000 V

Test Lead Set, CAT III, CAT IV, 600 V, 1000 V

- The shrouded 4 mm test lead terminations are for use with all types of test equipment that feature full safety sockets
- Each set comprises 1 red, 1 black cable assembly and test prods
- The cable is double insulated silicone with the inner insulation of a contrasting colour to indicate damage
- Kit complies to EN61010-1 1000 V CAT III



125-3736 CAT III, CAT IV, 600 V, 1000 V

Automotive Test Lead Kit

- 2 pairs of silicone insulated test leads, 1.2m long, terminated in 4mm shrouded sockets
- 1 pair of fully insulated crocodile clips, with wide opening jaws ideal for battery terminals
- 1 pair of cable piercing prods
- 1 pair of thin back probing probes for access into the rear of automotive cable connectors. Spring steel probes give greater flexibility and cause less damage to rubber connector seals
- 10A current rating
- Supplied in durable plastic wallet roll



612-0835 1.2m Lead length, 10A current rating

IPM245F Power Clampmeter

- 10000 Count digital display
- Active Backlit, Large-scale display
- VoltSense (None Contact Voltage)
- Analogue Bar graph
- True RMS reading on AC and AC+DC mode



124-1963 1kA ac, 1kA dc CAT III 1000 V, CAT IV 600 V

IVT-20 Voltage Indicator with RCD Trip Test Continuity Check

- 2 pole test with 2000 Count digital display
- Auto Sensing of ACV, DCV, Ω , Continuity and Diode
- Integrated single pole test for phase detection
- Rotary field indication
- Dual display for ACV measuring with frequency



124-1962 CAT III 750 V, CAT IV 600 V

RS700/RS730 Thermal Imaging Cameras

- Combines all the important features for thermographic measurement at an affordable price
- Display: 2.8" LCD, 240 x 320 pixels
- Image Frequency: 50 Hz
- Built in digital camera



136-5667 80 x 80 pixels, Temp Range: -20 to +150°C

136-5668 120 x 160pixel, Temp Range: 0 to +350°C

Air Quality Meter with LCD display

- Measure and display 6 channels of particle sizes (down to 0.3 μm), Air Temperature, Humidity, Dew Point and Wet Bulb
- 8" TFT Colour LCD display
- Internal 74 MB memory
- Stores 5000 records and 20 minutes of video
- Selectable sample time, count data, and Programmable delay



146-9079 2.8" colour TFT LCD display

Extra Sharp Long Reach Prod Set

- The insulated probes have a 155 mm robust stainless steel shaft ideal for probing hard to reach places
- The tip of the probe is sharp allowing the technician to probe through rust, paint and other barriers
- Features a 4 mm socket to the rear making it compatible with all standard 4 mm test leads



124-7406 CAT II, 1000 V

Fused Probe Kit

- A 1.2m fused test lead set offering a high degree of protection to the user when measuring on high energy circuits up to 1000V CAT III
- Available with either straight 4mm plugs with retractable shroud, or with right angled shrouded plugs
- Each lead is fitted with a 500mA 1000V 50kA HRC fuse within totally touch proof integral fuse holders



204-599 1000 CAT III V, 600 CAT III V

RS1327 Infrared Thermometer

- Built-in laser sighting
- Backlit LCD display
- Auto HOLD
- MAX / MIN reading
- Adjustable emissivity
- High/Low audible and visible alarm (presettable)
- Data memory (50 measurements) and read function
- Dimensions 172 x 118 x 46 mm
- Weight 220 g



123-2216 +500 °C, +932 °F

123-2217 +1350 °C, +1999 °F

Digital Manometer

- Measures gauge/differential pressure.
- 11 selectable units of measure
- Data Hold
- Auto Power off disabled



144-5336 Dual LCD display

Hours Run Meter- DIN Rail Mount

- 6 digit non-resettable with automatic recycle to zero
- DIN Rail mounting
- Frequency independent for AC applications
- Indicates operating time in hours and tenths with running indicators
- Wide supply voltage range
- IP20 (terminals), IP40 (enclosure) protection



896-6945 270 → 460 V ac, 90 → 264 V ac

Three Axis RF Field Strength Meter IM-195

- RF range 38 mV to 20 V/M
- Frequency range 50 MHz to 3.5 GHz
- Sensors triple axis (X, Y, Z)
- Manual data memory (Max & AVG) records
- Calibration factor, Alarm and Clock settings



106-5307 50 MHz → 3.5 GHz

IT-1 Infrared Thermometer

- Large-scale LCD display infrared thermometer
- Single point laser sighting
- Integrated non-contact AC voltage detection 60 V ac → 600 V ac with LCD indication
- Ultra bright white LED torch
- Single AAA size battery operation
- Pocket clip designed for easy carrying



123-3250 max. +500°C

Surface Temperature Probe, Type PT100

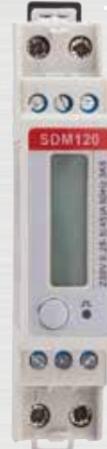
- The patch is fitted with adhesive foil backing which enables the probe to be fixed to a surface
- 1 meter of 7/0.2mm tinned copper silicone cable
- Good resistance to oils and chemicals
- Fitted with mini connector
- Measurement Temperature: -50 to 150°C



788-7132 max. +150 °C

LCD Digital Power Meter

- 45A single phase
- Backlit digital display
- Mounts to 35mm DIN Rail
- 2 pulsed outputs for active and reactive energy indication
- Modbus RTU protocol
- IP51 protection
- RS485 communication port
- Self-supplied power supply



871-8302 119mm x 17.5mm, 6-Digits, 1 Phase, 1% Accuracy

ILM201L Light Meter

- Measuring range: 200, 2000, 20 000, 200 000 lux; 20, 200, 2000, 20 000 foot-candles
- Accuracy ±3% (calibrated to standard incandescent lamp 2856 oK) and corrected LED day white-light spectrum (±8% other visible light source)
- 3 digits LCD with maximum reading 1999
- Max Hold
- Manual zero adjustment
- Manual ranging



124-0938 ±3 [Incandescent] %

ILOM-508A Milliohm Meter

- 3 digits, LCD display with maximum reading of 1999 with decimal point and measurement unit
- Accuracy ± (0.3% of reading + 1 digit)
- Open-terminal voltage 1.0 V maximum
- Overload indication 'OL'
- Zero adjust knob
- Low battery indication



124-0940 Measurement range 0.1 mΩ to 20 kΩ

Surface Temperature Probe, Type K

- Time constant 1 second (clean tip)
- Solid waterproof handle for added protection and to prevent damage by excess heat
- Wide temperature measurement range of -200 to 1000°C



342-8956 max. +250 °C

Immersion Temperature Probe, Type K

- This Immersion probe is constructed using a waterproof stainless steel domed end sensor, this is hermetically sealed allowing the probe to be suspended within a water storage tank
- Probe Diameter: 4 mm
- Probe Length: 50 mm
- Stainless Steel 316 (Food Grade)
- Measurement Temperature: -50°C to + 250°C
- The probe is supplied with 2m PTFE fine wire with moulded mini plug



788-7144 max. +250 °C

Insertion, Needle Temperature Probe, Type K

- Probes are moulded directly onto a miniature thermocouple plug giving a waterproof and robust assembly
- May be plugged directly into any of the RS thermocouple indicators
- Alternatively any of the plug mounted probes may be used in conjunction with the socket in the handle as illustrated
- Probe Length: 100mm, Diameter 3.3mm



342-9094 max. +250 °C

RS1260 Digital Humidity Meter

- Dual LCD display
- Dew Point reading
- Wet bulb reading
- MAX/MIN with time stamp
- Data Hold function
- °C & °F switchable
- DATA memory and read function (99 readings from LCD display)



123-2210 Maximum Measurement 99%

ISM 400 Solar Power Meter

- Spectral response 400 -1000 nm
- Full cosine correction for the angular incidence of the solar illumination
- Select either W/m² or Btu/ (ft² × h) units
- Data HOLD/ MAX/ MIN / AVG modes
- Manual data memory and read functions (99 sets)
- Elapsed time clock



123-2218 Response range 400 → 1100 nm

LDM Distance Meter

- Immediate or long-term (tracking) measurement of the distance to the target (length)
- IP54
- Angle measurement
- Indirect distance measurements
- Area and volume determination
- Calculations
- Determination of the maximum and minimum values



126-8184 0.05 → 100 m

Type K Fine Wire Thermocouple

- Exposed thermocouple junction at one end
- Features a moulded thermocouple termination plug
- Class 1 Type K alloys (NiCr/NiAl) wire
- Including flame sensors in safety devices for gas powered appliances
- The thermocouple fibre glass wire with this temperature sensor is 1 meter in length and has a response time of 0.1 seconds
- Includes a wide temperature sensor range of -100 °C to 250°C



409-4908 0.2mm dia., -100°C → +250°C

RS Pro Digital Thermometer

- Temperature measurement range: 0 °C-50 °C (32 °F-122 °F)
- Can be switched between Celsius and Fahrenheit
- Clock (can be switched between 12 and 24 hour format) with alarm and countdown function
- Calendar with day display



656-5660 111 × 54.5 × 17 + base 28.5mm

Wall Mountable Indoor & Outdoor Thermometer Clock

- 3m external Temperature Sensor
- Temperature range -50°C to +70°C
- Accuracy of ±1°C within the operating temperature of 0°C to +40°C/°C/°F selectable



408-6137 max. +70°C

100mm Diameter Pressure and Vacuum Gauges

- Instrument Glass Window Inbuilt restrictor screw
- Copper Alloy Element and Movement
- Stainless Steel case, Bottom entry connection
- Ambient Operating Temperature between -20 and +60°C



188-986 Dual-Scale, BSP G 3/8
257-8381 BSP G 1/2

Analogue Positive Pressure Gauges

- Bourdon tube operating principle
- Dual scale - calibrated in bar and psi
- Ambient operating temperature -40 to +60°C
- Medium operating temperature +60°C
- Accuracy ±2.5% FSD (EN837-1/6 class 2.5)
- Rear connection



777-075 0bar -10bar, 50mm dia, G 1/8
405-5537 BSP tapered thread, 0bar -106bar, 40mm dia, R 1/8

Single Memory Optical Tachometer

- An integrated optical transmitter and receiver at the top of the unit and a mechanical contact assembly at the base
- 5-digit LCD automatically inverts when switched from optical to contact
- Measurement Range: Optical 5 rpm to 100000 rpm, Contact 0.5 rpm to 19999 rpm
- Surface speed: m/min, ft/min



123-8779 Best Accuracy ±0.05 % Contact, Optical LCD

150mm Digital Caliper

- Clear LCD display
- Stainless Steel construction
- Origin setting
- Switchable On/Off
- Thumbwheel for fine adjustment
- Knurled locking screw



841-2518 0.0005 in, 0.01 mm, Metric & Imperial

Inspection Mirror Probe

- A fully chromed telescopic shaft and articulated mirror mount
- Mirror can be set in any position for best viewing
- Mirror diameter 32mm
- Fully extended length: 500mm
- Fully folded length: 120mm
- Handle: Chrome plated 75mm diameter x 105mm long
- Complete with pocket clip



394-156 32mm mirror dia., Adjustable, Telescopic

130mm Magnetic Inclinator

- Provides a fast, easy and inexpensive way to measure angles, easy & convenient to use, measures angles accurately and quickly from 0-90 degree degrees in an quadrant, accuracy within 1/2 of 1°
- Product Dimensions: 130 x 110 x 17 mm
- Material: Magnetic base for mounting on steel framing square or pipe



851-3548 130mm

Illuminated Pocket Magnifying Glass

- Offers 7 x or 10 x magnification, precision ground glass lens set in a sturdy body, ergonomic or contoured handles makes these magnifiers comfortable to hold



123-0925 10 x Magnification, 30mm diameter

Brass Feeler Gauge, 13 Blades

- Brass blades, SAE 80 CA 260 (Full Hard)
- Anti-Magnetic applications
- Blade length 100mm



449-9628 13 Blades

Steel Feeler Gauge, 10 Blades

- 10 piece standard 1/4in (100mm) metric gauge blades with steel holders
- High carbon steel (k-7) for feeler gauge blades, medium carbon steel (s-1045c) for holder, low carbon steel screws, plastic screw lock
- Heat treated to hrc: 30 degree +5 degree (feeler gauge blades)



449-9628 10 Blades

TATA STEEL MAKES SAVINGS WITH RS PRO

Procurement teams and engineers face a number of challenges when it comes to the maintenance, repair and operation of their organisation's assets and facilities. The supply chain for indirect materials is complex and there's constant pressure from senior management to reduce costs.

As one of the largest industrial suppliers, we're in a unique position to understand the needs of our customers, and to help businesses improve their processes and make efficiencies.

The Solution

As one of our strategic suppliers, Tata Steel shared its objective of reducing costs with us and asked what we could do to help them achieve this. Using transactional data of products and brands we've supplied over the years, we looked for opportunities where an alternative brand could support them.

One initiative was to help reduce costs for Engineers' Test Kits. Working with Tata Steel's engineering team, we reviewed a selection of products to see which would meet their specifications. It was during this exercise that we introduced Tata Steel's Head of Engineering to RS PRO, our own-label range of tools and products, as a solution to their challenge.

Having been impressed by the quality and variety of products in the RS PRO range, Tata Steel worked with us to identify ongoing MRO purchases that could be substituted for RS PRO products. Just one example is a multimeter, which they include in an electrical testing kit provided to all electrical engineers; the branded meter costs \$419.90, while the RS PRO version was just \$180.20 and met all of Tata Steel's requirements.

The Outcome

Tata Steel has embraced RS PRO and switched a significant number of purchases away from branded items. Despite having to work with new products, the RS PRO tools have proven popular with Tata Steel engineers out in the field.

"We had some pushback initially when we switched from a branded multimeter to an RS PRO alternative," says Rob Choat, Electrical Engineer at Tata Steel.

"Some engineers who had been trained on the branded product didn't like the idea of switching, but over time, and with support from RS, we've won those people around and they now admit that the RS PRO multimeter meets our needs."

Find out if your business could save money while maintaining high performance by switching to RS PRO products; visit rs-online.com and search 'RS PRO'.

The challenge

Tata Steel's UK site in Port Talbot, South Wales employs around 600 electrical engineers who use thousands of MRO products each year. Given the high volume, their procurement team was challenged to find cost-effective alternatives to branded items, while still maintaining the safety and quality standards of those products. In addition, Tata Steel was keen to achieve more standardisation of its tools across the business.

The simplicity of ordering has helped to improve the entire purchasing process, which lets the engineers spend more time keeping the business running efficiently and less on sourcing products and tools. We're also able to deliver direct to engineers' desks from the local trade branch in Cardiff, which makes getting hold of the products even more straightforward.

During the first 12 months of the switch Tata Steel saved at least \$51,000, and we identified a further \$22,100 plus of potential savings the business could still make if it switched more items in the future.

Tata Steel now has access to a huge range of RS PRO products that have high availability, industry-standard quality and cost significantly less than branded alternatives. These products have been seamlessly integrated into the daily maintenance work stream while maintaining Tata Steel's high standards.



CD771 Digital Multimeter

- 3 digit 4000 count multimeter
- Entire outer surface of the case is formed with thermoplastic elastomer, giving main meter high resistances against drops
- 1.5V battery check functionality available
- Continuity buzzer with LED indication & diode test functions
- Auto power off function (30 min)



sanwa

635-7807 10A ac 1000V ac 10A dc 1000V dc CD771

DCM400 Series Clamp Meter

- Able to measure current frequency
- 4000 count display
- Voltage frequency measurement range up to 10MHz
- To IEC1010 CATIII 300V, CATII 600V



sanwa

353-3957 400A ac CAT II 600 V, CAT III 300 V DCM400

BT3554 Battery Tester

- Speedy Diagnosis of Lead-Acid Batteries in as Fast as 2 sec
- Download data includes: resistance value, voltage value, test date and time
- Improved noise resistance and measurement stability
- 4 Terminal testing via specially designed test probes supports greater accuracy



HIOKI

123-5176 6V to 60V BT3554

Microwave Leakage Detector

- Includes self test which simulates a real microwave input, to ensure the unit is working correctly
- Audible warning device
- Measuring beaker and thermometer allows measurement of the microwave power output
- Dimensions (mm): 150 x 64 x 30 (L x W x D)



MARTINDALE ELECTRIC

252-324 Max. 2450MHz RSTEK500

Cable Detector Kit

- For all applications (live or dead cables) without additional instruments
- Proven digitally coded sender signal guarantees clear signal identification
- Transmitter with LCD display for transmitting level, transmitting code
- Receiver with a backlight LCD display for level of receiving signal, code of receiving signal and live voltage indication



MARTINDALE ELECTRIC

788-4587 CAT III 300 V, CAT III 600 V CMD1000

Continuity Checkers

- Compact, versatile, battery powered instruments suitable for use in noisy environments
- Ideal for industrial and commercial environments including low voltage signalling, process control and training or educational applications
- Loud 85 dB buzzer makes it ideal for use in noisy environments where many continuity buzzers, multimeters or 17th Edition multi function testers cannot be heard



MARTINDALE ELECTRIC

255-604 Audible indication, 50µA TEK402
254-263 Audible and visual indication, plus overvoltage protection, 5mA TEK404

Compact Insulation & Continuity Tester

- Analogue Display
- Dust and drip proof designed to IEC60529 IP54
- Small, lightweight and shock resistant



KYORITSU

447-7606 400MQ CAT III 600 V 3132A

Fork Current Tester

- Non-contact voltage function
- True RMS Reading
- Auto Power-Off
- Data Hold (AC/DC A Only)
- Measurement Ranges: DC 0 to +/- 100 A



KYORITSU

466-6042 Max Current 100A ac, 100A dc CAT III 300 V 2300R

KEW1110 Analogue Multimeter

- High dc sensitivity - 20kΩ/V
- Polarity selector switch
- 600V ac/dc measurement
- 300mA current measurement
- Resistance measurement & continuity buzzer
- Battery check, LED check



KYORITSU

530-0793 300mA dc 600V ac/dc KEW1110

Non-Contact Voltage and Magnetic Indicator

- Avoids the need for a separate proving unit
- Tests relays, contactors and solenoids without disconnecting them from circuit
- Senses AC voltages from 100 to 600V by detecting the electrical field
- Determines and displays polarity of magnetic fields
- Self test facility ensures correct functioning



MARTINDALE ELECTRIC

719-0876 ±10mT, 100V ac to 600V ac TEK200

Phase Rotation Indicator

- Input Voltage: 150V-1000V 3-Phase AC
- Frequency Range: 45-65Hz
- Operating Temperature & Humidity: -10 °C to 50 °C, Max. 80%RH
- Battery Current consumption: 15mA
- Cable Length: Approx. 800 mm



MARTINDALE ELECTRIC

740-1488 CAT III 1000V, CAT IV 600V CAT III 1000 V, PSI4000 CAT IV 600 V 65Hz 1000V ac

Phase Sequence Indicator

- Gives a fast and effective identification of worn or unmarked cables and ensures 3-phase outlets and machines are wired correctly
- Retractable GS38 probe shields give a choice between using long, exposed tips for reaching inaccessible contacts, and safer, shorter lengths for increased safety
- Input voltage range: 50V to 600V AC (Phase to Phase)
- Input frequency: 40 to 60Hz
- Input current: < 3mA



MARTINDALE ELECTRIC

782-4424 CAT IV 600V CAT IV 600V 60Hz 600V ac PC15250

KEW MATE Digital Multimeter 2012R

- True RMS measurements ACV and ACA
- Auto-power-save function
- Buzzer for easy continuity checking
- Data hold function to freeze readings
- LCD with bar graph
- Dimensions 128 x 92 x 27 mm



KYORITSU

916-3377 120A ac 600V ac 120A dc 600V dc 2012R

Dual Counter & Indicator Meter CUB 5

- Count speeds up to 20kHz
- Programmable scaling for count/rate
- Bi-directional counting, up/down control
- Flexible input configurations
- Anti-coincidence counting (add/add & add/sub)



red lion

492-7319 20kHz, 9 → 28 V dc CUB5B000

Voltage Monitoring Relay with SPDT Contacts

- 17.5mm DIN rail housing
- Microprocessor based
- 1 x SPDT relay output 8A
- Green LED indication for supply status
- Red LED indication for relay status



BROYCE CONTROL

850-5411 8 → 30 V dc LBVR/A 12-24VDC

Universal Lock Off Kits

- Designed to ensure the safe isolation of an electrical circuit and prevent the supply being inadvertently turned on
- Ensures the safety of workers when cleaning, servicing or repairing electrical equipment
- The 14 piece kit is compatible with most circuit breakers, includes a padlock with its own unique key
- A safety hasp that enables multiple workers to lock off. The hasp has space for up to 6 more padlocks



MARTINDALE ELECTRIC

757-5084 6 locks LOKKIT1
757-5081 Replacement Tags, A pack of 10 TAG2

1 Lock MCB Isolation Locks

- Individual MCB lock for use with MCBs on domestic and industrial distribution boards for isolation purposes



MARTINDALE ELECTRIC

788-4596 Green Marlok1
788-4599 Yellow Marlok2
788-4603 Red Marlok4
788-4593 Blue RSLOK3

MARLOK6 lock off device

- LOK6 is a lock off device for individual Red Spot style and other similar style fuse holder bases, after removal of the fuse carrier
- It's easily adjustable to fit fuse holders from 20A to 100A, providing a "one size fits all solution" saving time sourcing the right device for the job



MARTINDALE ELECTRIC

865-4737 ABS, Polycarbonate LOK6

TEST AND MEASUREMENT

Oscilloscopes

Tektronix®



Model 511

THEN

- In 1946 C. Howard Vullum and Melvin J. Murdock invented the world's first triggered oscilloscope: the Model 511
- Tektronix quickly became the foremost supplier of oscilloscopes

Did you know that it all about triggering?

Triggering allows stationary display of a repeating waveform. Without triggering, multiple copies of the waveform are drawn in different places, giving an incoherent jumble or a moving image on the screen.



MDO4000 & TBS2000

NOW

- Today Tektronix is the top brand and the benchmark when talking about oscilloscopes
- Tektronix designs and manufactures to break through the walls of complexity, and accelerate global innovation.
- Broadest portfolio of digital oscilloscopes
- The richest set of product features
- The most extensive analysis capability

Signal Generator and Analysers

KEYSIGHT TECHNOLOGIES



200A

THEN

- Dave Packard and Bill Hewlett decided to start a business "and make a run for it."
- Their first business location was the now iconic garage located at 367 Addison Avenue in Palo Alto
- Here they manufacture the company's first product, the 200A Audio Oscillator



N6705C

NOW

- Keysight Technologies is the world's leading electronic measurement company
- Transforms today's measurement experience through innovations in wireless, modular, and software solutions
- The company's nearly 10,500 employees serve customers in more than 100 countries

Did you know that Keysight Technology originated from HP?

In 1937 Dave Packard and Bill Hewlett developed plans to create an electronic measurement company. The measurement arm of the company became independent in 1999 and was named Agilent Technologies which became Keysight Technologies in 2013.

Did you know that Keysight helped Disney?

After they developed their first product, the 200A Audio Oscillator, Dave Packard and Bill Hewlett were contacted by Walt Disney Studios. Eight of those oscillators were ordered to test equipment for the groundbreaking sound system used in the movie "Fantasia."

Insulation testers

Megger®



Original Megger

THEN

- Sydney Evershed (1858-1939) and Ernest Vignoles bought the instrument section of Goolden and Trotter (where they both worked) and founded Evershed & Vignoles Limited on 5 February 1895.
- Sydney Evershed applied for several patents for various electric devices. One of them was a "hand dynamo", which allowed generation of voltages high enough to measure resistance in the megohm range and so construction of the first portable insulation tester.

Did you know where Megger got their name from?

The name Megger came from abbreviating the name MEGaohm metER. "Megger" became a trademark name registered on 25 May 1903, a term used by engineers throughout the world for decades, and as late as 2002 it became the overall company name as well!



Megger MIT2500

NOW

- Megger has grown to be a global designer and manufacturer of portable electrical test equipment, helping users install, improve efficiency, reduce cost and extend the life of electrical assets.
- Their extensive range has evolved to meet the needs of many industry sectors as well as utility companies.
- Megger remains the leading supplier of insulation testers. These include new developments to ensure output test voltages are maintained to within 2% of the selected range, even when under test, so avoiding the risk of over-voltage damage to circuits.
- No longer needing winding up, the MIT2500 offers test voltages from 50V to 2500V! A suite of advanced tests such as Polarisation Index and Dielectric Absorption Ratio are now included, as well as a range of safety features.

Thermal Imaging Cameras

FLIR®



Airborne IR System

THEN

- FLIR was established in 1978 to pioneer the development of high-performance, low-cost infrared (thermal) imaging systems for airborne applications
- Thermal imaging systems allow the operator to see in total darkness, adverse weather and through such air pollutants as smoke and haze

Do you know where FLIR got their name?

FLIR took its name from the acronym Forward Looking InfraRed cameras, typically equipped on military and civilian aircraft, using a thermographic camera that senses infrared radiation.



FLIR DM284

NOW

- Today, FLIR is the world's largest commercial company specializing in the design and production of thermal imaging cameras, components and imaging sensors
- FLIR has spread thermal imaging in new fields of application introducing the IGM technology
- Everyday instruments like multimeters become an all in one solution opening the door to further usages and application

Did you know how IR radiation was discovered?

On 11 February 1800, Sir Frederick William Herschel was testing filters for the sun. When using a red filter a lot of heat produced. Herschel discovered infrared radiation in sunlight by passing it through a prism and holding a thermometer just beyond the red end of the visible spectrum. He was shocked when it showed a higher temperature.



Amplifier Probe

- Volume control for increased sensitivity and adjustable to suit work environment
- Recessed ON/OFF button prevents battery drain
- Battery low indicator
- 9 volt battery included



IDEAL NETWORKS
819-8770 62-164

LinkMaster™ Tester

- Test wiring configuration on UTP and STP
- Check for shorts, miss wires, reversals and split pairs
- Debug feature, automatic shut-off and low battery LED indicator
- Main unit and remote allow one person testing



IDEAL NETWORKS
328-7856 62-200

VDV II Cable Tester

- Performs standard tests for copper cabling
- Coax, 6Pin (RJ11/12), 8Pin (RJ45) Connectors for Copper Cable Testing
- Wiremap for Miswires, Split Pairs, Shorts and Opens
- Analog Tone Generator
- Voltage Protection
- Shielded Cable Testing
- Single Screen Results



IDEAL NETWORKS
812-3889 R158000

VDV II Pro Cable Tester

- Employing state-of-the-art technology, VDV II Pro offers functionality not previously available in a wiremapper
- The advanced wiremap engine accurately displays complex wiring faults instantaneously whilst TDR (Time Domain Reflectometry) aids troubleshooting and improves on-site productivity
- Larger 2.9" Display
- Coax, 6Pin (RJ11/12), 8Pin (RJ45)



IDEAL NETWORKS
812-3892 R158003

NaviTEK NT Pro Network Tester Kit

- Advanced wiremap for miswires, split pairs, opens and shorts
- Distance to opens and shorts [TDR]
- PoE/PoE+ detection
- Tone generator for cable tracing
- Ping and Traceroute testing
- Hub blink for port identification



IDEAL NETWORKS
897-7169 R151004

Multimeter Test Lead Set

- Extension test leads compatible with the U1240A & U1250A series digital multimeters
- Includes 2 extension test leads (one red and one black), 2 test probes, medium sized alligator clips and 4 mm banana plugs
- Extension Test Leads: Cat III 1000V, 15A
- Test Probes: Cat III 1000V, 15A
- Medium Sized Alligator Clips: Cat III 600V, 10A
- 4mm Banana Plugs: Cat II 600V, 10A



KEYSIGHT TECHNOLOGIES
501-304 U1161A

Standard Test Lead Kit

- Compatible with the U1230, U1240, U1250 and U1270 Series handheld digital multimeters
- Includes one pair of test leads, test probes (19-mm tips), test probes (4-mm tips), alligator clips, fine tip test probes, SMT Grabbers and mini grabber (black only)



KEYSIGHT TECHNOLOGIES
760-0373 U1168A

Fine Tip Test Probe

- One pair (red and black) of fine tip probes. Recommended for use with Keysight standard test leads
- CAT II 300V, 3A



KEYSIGHT TECHNOLOGIES
661-2741 CAT II 300 V U1164A

Alligator Clips

- Consists of one pair (red and black) of insulated alligator clips
- Recommended for use with Keysight standard test leads (4mm push-on connection)
- Rated at CAT III 1000V, 10A



KEYSIGHT TECHNOLOGIES
661-2753 15A, Red/Black U1162A

U1701B Handheld Capacitance Meters

- For electronics assembly and passive components troubleshooting
- 11,000 counts resolution
- Dual display with backlight
- Wide measurement range 0.1pF to 199.99mF
- Compare mode with 25 sets of High/Low limit settings
- Tolerance mode 1%, 5%, 10% and 20%



KEYSIGHT TECHNOLOGIES
697-8892 199.99mF max. measurement U1701B
711-8054 Crocodile Clip Lead U1781A

U1733C Handheld LCR Meter

- 20,000 counts resolution
- 0.2% basic accuracy
- Wide LCR ranges with three to five selectable test frequencies (up to 100 kHz for U1733C)
- Auto identification (AI) automatically determines and displays component type and measurements
- Detailed component analysis with DCR, ESR, Z, D, Q, and functions
- Battery life of 16 hours/AC-powered
- IR-to-USB connectivity for data logging to PC



KEYSIGHT TECHNOLOGIES
738-9486 20mF, 200 MΩ, 2000h U1733C

U1232A Handheld Digital Multimeters

- Built-in LED flashlight to illuminate test area
- Flashing backlight as additional visual alert during continuity tests in noisy areas
- Vsense to perform non-contact voltage detection
- Data logging capability (stores up to 10 readings)
- IR-to-USB connectivity to transfer data to PC for record



KEYSIGHT TECHNOLOGIES
740-3529 10A ac 600V ac 10A dc 600V dc U1232A
501-314 Soft Case U1174A

U1242B Handheld Digital Multimeter

- 10,000 - count dual display
- Overmold body casing
- Up to 0.09% basic DCV accuracy
- CAT IV 600 V and CAT III 1000 V over-voltage protection
- Longer battery life up to 300 hours
- Auto & Manual data logging - 200 readings



KEYSIGHT TECHNOLOGIES
699-7351 10A ac 1000V ac 10A dc 1000V dc U1242B
705-6306 K-Type Thermocouple Adapter U1186A
501-314 Soft Case U1174A

U1252B Handheld Digital Multimeters

- 50,000 - count dual display
- Up to 0.025% basic DCV accuracy
- CAT IV 600 V and CAT III 1000 V over-voltage protection
- Longer battery life up to 30 hours
- Auto & Manual data logging up to 200 readings



KEYSIGHT TECHNOLOGIES
699-7363 10A ac 1000V ac 10A dc 1000V dc U1252B
501-314 Soft Case U1174A

U1461A Insulation Multimeter

- Wireless insulation resistance testing via PC or iOS/Android based smart devices
- Automatic test report generation
- 50 V / 100 V / 250 V / 500 V / 1000 V test voltages
- Measure up to 260 GΩ
- Timed / PI / DAR test
- Adjustable test output voltage from 10 V to 1.1 kV



KEYSIGHT TECHNOLOGIES
820-2976 50V to 1kV U1461A

10 MHz Function/Arbitrary Waveform Generator

- 10 MHz Sine and Square waveforms
- Pulse, Ramp, Triangle, Noise, and DC waveforms
- Optional 14-bit, 50 MSa/s, 8K point Arbitrary Waveform Generator
- AM, FM, and PWM modulation types
- Linear & logarithmic sweeps and burst operation
- 10 mVpp to 10 Vpp amplitude range
- Graph mode for visual verification of signal settings



KEYSIGHT TECHNOLOGIES
667-2591 10MHz GPIB, LAN, USB 33210A

Truevolt Digital Multimeter

- Bright 4.3in (109mm) high-resolution colour graphical display Intuitive menu-driven interface
- Press and hold a key to display built-in help
- Display operation can be customised to meet user needs
- Customised labels can be added
- Quick insight with graphical views of measurement results



KEYSIGHT TECHNOLOGIES
777-7104 10A ac 750V ac 10A dc 1000V dc 34461A

Waveform Generators

- FULL BANDWIDTH PULSE - Full-bandwidth pulse to 20 or 30 MHz
- 2 CHANNELS - Dual channel coupling, frequency and amplitude, equal and inverted
- SUM MODULATE - Sum two signals together, frequency and amplitude independent
- POINT-BY-POINT ARB - Create up to 1 million samples standard, 16 million optional
- VOLTAGE SETTINGS - Lowest voltage range at 1 mVpp, a 10x improvement
- PRBS PATTERNS - Provides standard PRBS patterns, PN7 ... PN23



KEYSIGHT TECHNOLOGIES
763-9113 20 MHz, 1-channel 33509B
763-9122 20 MHz, 2-channel 33510B
763-9125 20 MHz, 1-channel, ARB 33511B
763-9129 20 MHz, 2-channel, ARB 33512B
763-9138 30 MHz, 1-channel 33519B
763-9131 30 MHz, 2-channel 33520B
763-9135 30 MHz, 1-channel, ARB 33521B
763-9144 30 MHz, 2-channel, ARB 33522B

EX-R Series Single, Dual and Triple Output PSUs

- Mixed-mode regulated with linear final regulation
- Constant voltage or constant current with automatic cross-over
- 4 digit meters with 10mV and 1mA resolution
- Switchable remote sense terminals for perfect regulation at the load
- DC output switch enables voltage/current setup without load connected
- Safety terminals accept fixed shroud 4mm plugs plus forks and wires
- Silent fan-free convection cooling



388-2726	300W	EX752M
665-4903	280W	EX354RD
665-4912	305W	EX354RT

CPX Series Single/Dual Output Digital Bench Power Supplies

- Single & dual output PowerFlex dc PSUs - 360 to 840 watts
- High performance autoranging outputs, up to 60V and 20A max
- True analog controls with digital functionality including S-Lock
- GPIB, RS-232, USB and LAN interfaces; LXI class C compliance
- Isolated tracking for easy series/parallel use - up to 120V or 40A



737-7186	420W, 0 → 60V, 0 → 20A	CPX400S
731-2842	840W, 0 → 60V, 0 → 20A	CPX400D

PFM3000 Frequency Counter

- Wide frequency range of 3000MHz
- High sensitivity across the frequency band
- High impedance measurement up to 125MHz
- Period measurement from 8ns to 330ms
- 8 digits of resolution at 1 sec. measurement
- Low pass filter for noise suppression



457-730	3GHz	PFM3000
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TF960 Frequency Counter

- Frequency, period, pulse width, frequency ratio, duty cycle and event counter modes
- DC to 6000MHz range, 0.001MHz resolution
- High impedance measurement up to 125 MHz
- AC or DC coupling, 1M/50Ohm selection, polarity invert
- Switchable attenuator, threshold control



768-3441	6GHz	TF960
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1604 Bench Multimeter

- 40000 count auto/manual ranging Large bright LED display (14mm/0.56in.)
- Resolution 10mΩ, 0.1μA
- Current measurement up to 10 amps
- True RMS a.c. functions, wide bandwidth
- Frequency measurement function
- Relative, THold and Min-Max functions
- Isolated serial interface as standard
- Safety Rating: EN61010-1 CAT II 600 V



284-8056	40,000 Count	58122-0750
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3 Output Digital Bench Power Supply

- More than 100W per main output
- Multiple ranges for increased current flexibility
- Setting by numeric data entry or spin wheel
- Multiple non-volatile setting memories
- Selectable remote sense terminals
- Compact modular width for bench or rack



753-1447	228W 0 → 15 V, 0 → 35 V, 1 → 6 V	QL355T
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PSA1302 Handheld Spectrum Analyser

- 1MHz to 1300MHz or 2700MHz frequency range (depending on choice of model)
- Resolution bandwidths of 1MHz, 280kHz or 15kHz
- -96dBm typical noise floor at -20dBm reference level
- Measurement in dBm or dBμV, mV or μW
- Zero span mode with AM and FM audio demodulation



787-7674	1 Channel, 4.3 in TFT, USB, 1MHz → 1.3 GHz	PSA1302USC
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MINI 05 Current Clamp for AC Current

- Excellent resolution for measuring AC intensities from 5 mA to 100 A with its 2 calibres
- Current calibre: 10 A AC and 100 A AC
- Bandwidth: 48 Hz to 500 Hz
- Output: Double-insulated cable 1.5 m long, terminated by 2 insulated elbowed male banana connectors Ø 4 mm
- Clamping capacity: Cable Ø max 10 mm



799-9027	100A ac, 10mm	P01105105Z
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CA5273 True RMS Digital Multimeter

- TRMS measurements
- Double 6,000-count backlit display and a 61+2-segment bargraph with remnant effect
- CAT IV 600V / CAT III 1,000V
- 12-bit TRMS fast acquisition & 5 measurements per second
- Measurement of the ionization current
- Bi-mode double 6,000-count backlit display and 61+2-segment bargraph (full scale / central zero)
- Auto AC/DC selection
- Automatic or manual range selection



778-1065	10A ac 1000V ac 10A dc 1000V dc	P01196773
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EA-PS 500 Series Power Supplies

- High performance despite very compact housing
- Cycled switch controller with PFC
- Table-top devices (... T) with 4 mm sockets
- Wall-mounted devices (... R) with screw clamps
- Output voltage adjustable up to +20 / -10% with one screwdriver
- Remote detection (sense)



538-9055	11 → 14V dc, 21A	EA-PS 512-21 T
538-9033	22 → 29V dc, 5.2A	EA-PS 524-05 T
538-9011	22 → 29V dc, 10.5A	EA-PS 524-11 T
538-8995	43 → 58V dc, 5.2A	EA-PS 548-05 T

EA-PS 8000 3U Series, 1 Output Digital Bench Power Supplies

- μ-processor controlled, external control
- Master-slave bus for parallel operation up to 150kW
- Plug'n play digital interface slot (analogue 0 → 5V/0 → 10V, USB, CAN, GPIB, Ethernet, Profibus)
- Freeware "easypower lite" for automated testing & data logging (csv), Labview VI's
- Housing 19" rack 3U, 596mm depth (658mm including terminals)
- Connections: 3-phase AC input receptacle, DC output 8mm bolts, copper bars or HV-terminals



711-6727	10kW 0 → 400V 0 → 70A	EA-PS 8400-70 3U
711-6742	15kW 0 → 500V 0 → 90A	EA-PS 8500-90 3U
711-6736	15kW 0 → 600V 0 → 70A	EA-PS 8600-70 3U
711-6749	15kW 0 → 1500V 0 → 30A	EA-PS 81500-30 3U

2000P Series Differential Manometers

- Robust design, IP67 with hose connected, operates between -10 and +50°C, backlit 12.7mm display, reinforced silicone key pad and separate battery compartment
- Accuracy: 0.15% rdg + 0.1fs + digit (+20 to +30°C); 0.15% rdg + 0.15% fs digit (elsewhere)
- Connection: 2 inputs via 1/8 BSP (4mm id, 6mm od hose)
- Zeroing absolute user input of local barometric conditions for additional accuracy



313-0924	25mbar	2020P7
313-0261	2bar	2026P7

EA-PS 2000B Series Power Supplies

- μ-processor controlled and USB-programmable low-cost power supplies provide for a fully flexible 'auto-ranging' output
- Frequency 45 Hz to 65 Hz
- Operating temperature 0 to 50°C
- Attractive flat desk-top housing
- Natural convection (no fan)
- IEC 320-C14 input receptacle
- Output via safety (banana) sockets



716-7377	100W 0 → 42V 0 → 6A	EA-PS 2042-06B
716-7371	160W 0 → 42V 0 → 10A	EA-PS 2042-10B
716-7383	160W 0 → 84V 0 → 5A	EA-PS 2084-05B
756-8803	320W 0 → 84V 0 → 10A	EA-PS 2084-10B

2006T Digital Thermometer

- Specifically for the food industry, meeting the UK and International food hygiene guidelines
- Backlight
- Display hold
- Optional auto power off after 12 minutes
- Low battery indication
- Set up retention (when switched on the last settings used are displayed)
- For T type thermocouples



311-1658	1 Input Handheld, T Type Input	2006T
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EA-PS 3000 Series Digital Bench Power Supplies

- Current and voltage can be adjusted with a coarse and precision regulator
- Constant current and constant voltage operation
- Temperature-controlled fan output
- Analogue interface for U/I



493-8038	160W 0 → 16V 0 → 10A	PS 3016-10B
493-7984	320W 0 → 32V 0 → 10A	PS 3032-10B
493-8016	160W 0 → 65V 0 → 3A	PS 3065-03B
493-7978	325W 0 → 65V 0 → 5A	PS 3065-05B
493-7934	640W 0 → 150V 0 → 4A	PS 3150-04B

PM Model Digital Pressure Meter

- Differential input – 8mm tube connectors
- Water resistant (IP67 rated)
- Backlight
- Rugged case with protective rubber boot
- Magnetic attachment or tilt stand
- Push button "Zero" and "Hold" features
- Backlit digital display



437-8931	130mbar	PM-20
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2 Channel RF Digital Thermometer

- Wireless signal from remote sensors to base station
- Both channels displayed simultaneously
- Selectable Temperature Unit °C or °F
- Magnetic, wall mounting or free standing fixing base
- Remote sensors equipped with spring action clips or alternative suction cups



712-1110	-30 °C → +40 °C, 2 Input Recording, PT100 Type Input	FM25
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Digital Thermistor Food Thermometer

- Fast response digital hand-held thermometer for food industry use
- Large LCD display with rubber on/off key and protective rubber boot
- Lumberg connector allows selection and replacement of probes
- Open probe indication
- Long battery life and auto power off after 3 minutes



712-1104	1 Input Handheld	FM35
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IEC 1010 Safety Kit

- A fully shrouded test lead kit meeting the safety requirements of IEC 1010
- Red & black hard point test probes
- Red & black gripper test probes
- Red & black crocodile clips (clamping dia. 9.5mm)
- Red & black PVC 1m stackable test leads



196-2555 935982257

Test Equipment Set for 4mm System

- KLEPS 30 - Clamp-type test probe with rotating grip jaws and flexible shaft for clamping of pins and wires up to ø 4 mm
- PRUEF 2 - Test probe with slender stainless steel tip for penetration of insulation and oxide layers
- AK 2 S - Insulated alligator clip for clamping of finest wires, clamping range up to a maximum of 9.5 mm bolt diameter
- MLN 100/1 - Measuring lead with 4 mm plug and 4 mm socket for tower construction on both sides (length: 100 cm)



738-339 932793001

4mm Series Safety Test Lead Set

- Contain a combination of test leads, crocodile clips and grabber clips suitable for CAT II and CAT III (dependent upon the kit chosen) in black and red, part of the 4mm safety range
- Highly flexible silicon insulation and many hundreds of copper conductor strands that offer extremely long life and durability
- Suitable for use with Oscilloscopes, multi-meters and other similar devices



772-9389 972338001

Straight Silicone Rubber Leads

- Terminated with 'lantern' style spring contact plug
- Supplied in 1m lengths
- 10A, 60V dc



488-422 Black BULA 60/973-048 100-BLK
488-416 Red BULA 60/973-048 100-RED

Test leads, 16A, 1000V ac/dc

- Highly flexible, featuring nickel plated copper beryllium spring contacts for high durability
- Double insulated PVC cable
- 16A, 1000V ac/dc
- 2m Lead Length



246-7994 16A, 1000V ac/dc, Black 934069100
246-7988 16A, 1000V ac/dc, Red 934069101

2mm Screw-in Panel Sockets

- Insulated, gold-plated copper beryllium contact (spring-loaded), with solder connection. Suitable for installation in equipment chassis and switch panels up to a maximum wall thickness of 5 mm
- 6A, 60V dc, Gold, Nickel Plated



444-933 Black 930308700
444-955 Red 930308701

4mm Chassis Mount Test Sockets

- CAT I 4mm gold plated chassis mount test sockets with pole clamp-claw edge, captive-insulated head and insulating ring
- Incorporates a 4mm socket and an M6 x 0.75mm threaded nickel plated brass bolt with 2.6mm diameter transverse hole for wire connection
- For insulated non-rotating installation in equipment chassis and switch panels up to 3.5mm wall thickness
- 60V dc, 63A



738-402 Black 930136100
738-418 Red 930136101

4mm Sockets, Tin Plated

- Sockets with insulated head and ring for installation in equipment chassis and switch panels
- Wall thickness: 2mm (max.)
- Installation hole diameter: 8mm
- 30 V ac, 60 V dc, 32A



738-474 Black 930176100
738-480 Red 930176101

4mm Screw Terminated Plugs

- Accept a cable with a maximum cross section diameter of 2.5 sq.mm
- The socket in the rear allows other 4mm plugs to be stacked in-line
- 60Vdc rating
- Nickel-plated/ brass



738-884 60V dc, 30A, Black 930729100
738-890 60V dc, 30A, Red 930729101
738-907 60V dc, 30A, Blue 930729102
738-913 60V dc, 30A, Yellow 930729103



SLS 200, CAT I Banana Plugs Retractable Shrouds - Stackable

- Touch-protected screw terminated, stackable 4mm plugs with retractable shroud that is released only through pressure on the side-mounted locking-spring
- Accepts conductors up to 2.5mm diameter
- Rated voltage 30 VAC/ 60 VDC
- Rated Current 30A
- CAT I
- Spring loaded pin



737-948 Black 932153100
737-954 Red 932153101

4 mm Fully Mating Connectors

- Length 59.5 mm
- Fully mating connector, hardwearing, flexible insulating sleeve with through hole
- The tapering ferrule end prevents the conductor from kinking.
- Screw connection up to maximum conductor cross-section of 1.5 square mm
- Nickel-plated brass contact material.



156-0058 60V dc, 16A, Black 930058100
156-0042 60V dc, 16A, Red 930058101

CAT I 4mm Chassis Mount Test Sockets

- With pole clamp-claw edge and a captive insulated head and insulated ring, 2mm cross hole and M4 termination thread.
- Ideal for insulated, non-rotating installation in equipment chassis and switch panels with a wall thicknesses of up to 2mm
- Rated voltage 30 VAC/ 60 VDC
- Rated Current 35A



787-2297 8mm, Black 930103700
787-2307 8mm, Red 930103701

CAT I 4mm Chassis Mount Test Sockets

- With insulated head and ring, solder connection and M6 threaded body
- Ideal for use in equipment chassis and switch panels with a wall thicknesses of up to 4mm
- Rated voltage 30 V ac/ 60 V dc
- Rated Current 32A
- CAT I
- Screw mounting M6x0.75mm
- Solder termination



787-2332 30 V ac, 60 V dc, 32A, Red 930166101
787-2341 30 V ac, 60 V dc, 32A, Blue 930166102
787-2338 30 V ac, 60 V dc, 32A, Black 930166100
787-2348 30 V ac, 60 V dc, 32A, Green 930166104
787-2344 30 V ac, 60 V dc, 32A, Yellow 930166103

4mm Cable Connectors, 16 A system

- Bunch pin plug with hardwearing and flexible insulating sleeve with through hole
- screw terminal, max. cable cross-section 1.5 mm
- contact material of nickel-plated brass



641-8019 60V dc, 16A, Black 930726100
641-8025 60V dc, 16A, Red 930726101
641-8031 60V dc, 16A, Blue 930726102
641-8053 60V dc, 16A, Green 930726104

4mm Crocodile Clips, Brass Contact

- Length: 80.5 mm
- Crocodile clip with unbreakable insulation on all sides
- Clamping range up to 9.5 mm bolt diameter
- The flat section of the clamping jaws made from tin-plated brass (fine wire-gripping surface) allows fine wires to be connected
- Closed against IEC probe on all sides in normal position in accordance with DIN 57 470 part 1
- Ø 4 mm socket connector and screw connection for wires up to Ø 1.5 mm



738-941 25A, Black 932146100
738-957 25A, Red 932146101

Miniature Dolphin Clips, Brass Contact

- Tin plated brass, miniature crocodile clips
- Fully insulated
- 2 mm diameter socket to accept 2mm plugs



405-461 5A, Black 930 317-800
405-455 5A, Red 930 317-801

Female Test Connector Adapters

- Fully insulated coupling with a nickel plated brass tube
- Allowing the interconnection of two 4mm plugs



738-553 Black 930109100
738-569 Red 930109101

Cable Sockets - Screw Termination

- Cable mounting to make in-line connections to standard 4mm plugs
- Cable of 1.5 sq.mm max. Shrouded centre contacts
- Standards: IEC1010



738-604 60V dc, 16A, Black 930189100
738-610 60V dc, 16A, Red 930189101