

**NEW
CATALOGUE**

tinsley
PRECISION INSTRUMENTS



TRIED. TESTED. TRUSTED.

Tinsley Precision Instruments - precision you can depend on.

KEEPING THE WORLD CONNECTED
THROUGH PRECISION MEASUREMENT

OUR TINSLEY PRODUCT RANGE



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PRECISION TEST & MEASUREMENT SOLUTIONS WELCOME



Tinsley Precision Instruments is a leading provider of precision electrical test and measurement equipment for utilities, industrial maintenance, cable testing, transformer diagnostics, calibration laboratories and high-voltage applications.



Built for Accuracy. Trusted Worldwide.

Our instruments are designed to provide dependable performance in demanding environments, helping engineers and technicians achieve precise and consistent results every time.

Our product range combines advanced measurement technology, rugged field performance and user-focused design to support engineers working across power generation, transmission, substations, manufacturing, rail, telecommunications and specialist industrial sectors.

From portable micro-ohmmeters and insulation testers to high-current test systems, bridge instruments and smart HV diagnostic equipment, Tinsley products are designed to deliver reliable, accurate and repeatable results in both laboratory and field environments.

With decades of engineering expertise, Tinsley continues to support customers worldwide through innovation, calibration services and specialist technical support.

PORTABLE DIGITAL
MICRO-OHMMETER
MO-5893-1A



The MO-5893-1A digital low resistance ohmmeter is a portable, microprocessor-controlled instrument used to accurately measure resistances of contacts, switches, transformer and motor windings, etc., using test currents from 1 mA up to 1 A.

It uses the Kelvin-type (4-terminals) measurement principle, thus eliminating errors caused by lead and contact resistances.

Resistance readings are shown in the alphanumeric display with up to a 4½ digit-resolution. It allows to measure resistances of up to 2kΩ, with resolution of 0.01mΩ.

Principle of operation

Measurements accuracy is guaranteed by the state-of-the-art system for signal-amplification, offset-free and with long-term stability.

The equipment has a serial output (RS232) that allows to collect measured values in a printer, notebook, palm-top computer or any data logger in order to register the tests performed.

The HOLD function keeps in the display the value measured at a certain time-point.

Test current may be adjusted by the operator in every one of the scales and their values are displayed in analogue form (bargraph), making it

easy to measure resistances with a significant inductive component. The open circuit output voltage is up to 10V, depending on the selected test current, reducing the stabilization time for the test current when highly inductive elements (specially transformers windings) are measured. The measurement circuit has an effective protection against voltage peaks originated by those inductances.

The equipment is housed in a rugged plastic case with a hinged lid and carrying handle. It is a portable, strong, impact resistant and lightweight equipment, suitable to be used in outdoors and under severe weather conditions. It supplies very reliable and accurate measurements both in laboratory and out in the field.

SPECIFICATIONS

See the tables below for product specifications.

Test Currents	
1mA, 10mA, 100mA, 1A. Each current may be continuously adjustable from 0 to 100%.	
Resistance Ranges	
0-2Ω @ 1A.	
0-20Ω @ 100mA.	
0-200Ω @ 10mA.	
0-2000Ω @ 1mA.	
Resolution	0.01mΩ @ 1A
Output voltage	Up to 10Vdc (open circuit) @ 1A
Measurement principle	4-terminal, Kelvin-type
Basic accuracy	± 0.2% of reading ± 2 digits
Advanced features	
Digital direct reading of low resistances in the alphanumeric display, with up to 4½ digits. Very fast and accurate measurements	
Serial data output	
RS232 @ 4,800bps. Suitable for data collection in an external serial printer, computer or data-logger.	

Environmental protection	IP65 with closed lid
Safety class	Meets the requirements of IEC 61010-1
Power supply	Internal rechargeable 12V - 3,000 mAh battery or mains
Built-in battery charger	For 100 - 240V~ mains supply
Operating temperature range	-5°C to +50°C
Storage temperature range	-25°C to +70°C
Humidity range	95% UR (non condensing)
Equipment Weight	Approx. 3kg
Dimension	274 x 250 x 124mm
Available Accessories	
2 Combined current and potential test leads.	
1 Power cord.	
1 RS232 cable.	
1 User guide.	
1 Synthetic bag.	

PORTABLE DIGITAL
MICRO-OHMMETER
MO-5893-10A



Instrument used to accurately measure resistances of switches and circuit breaker contacts, transformer and motor windings, wire and cable samples, joints in busbars, etc., using test currents from 1mA up to 10A.

The MO-5893-10A digital very low resistance ohmmeter uses the Kelvin-type, four-terminals measurement principle, thus eliminating errors caused by lead and contact resistances.

Resistance readings are shown in the alphanumeric display with up to a 4½ digit-resolution. It allows to measure resistances of up to 2,000Ω, with a resolution down to 1μΩ.

Principle of operation

Measurements accuracy is guaranteed by the state-of- the-art system for signal amplification, offset-free and with long-term stability.The equipment has a USB interface that allows to download the measured values to a computer for their later analysis.

The open circuit output voltage is of up to 10V, depending on the selected test current, reducing the stabilization time for the test current when highly inductive elements are measured.

The measurement circuit has an effective protection against voltage peaks originated by those inductances.

Operation is very simple: Just connect the leads, switch-on the equipment, select the test current and press the start button. After a few seconds (depending on inductance of the element), direct reading appears on the display with the measure unit indication (Ω, mΩ or μΩ). If it is necessary, the display will show messages to help the operator (Low battery, Over range, etc).

The equipment is housed in a rugged plastic case with a hinged lid and carrying handle. It is a portable, strong, impact resistant and lightweight equipment, suitable to be used in field, under severe weather conditions. It supplies very reliable and accurate measurements both in laboratory and out in the field.

SPECIFICATIONS

See the tables below for product specifications.

Test Currents	
1mA - 10mA - 100mA - 1A - 5A - 10A. Each current may be continuously adjustable from 0 to 100%.	
Resistance Ranges	
0-200mΩ @ 10A	
0-1,000mΩ @ 5A	
0-200mΩ @ 1A	
0-2,000mΩ @ 100mA	
0-20Ω @ 10mA	
0-2,000Ω @ 1mA	
Accuracy of Test Current	± 3%
Resolution	1μΩ @ 10A
Output Voltage	Up to 10 Vdc (open circuit) @ 1A
Measurement Principle	Four-terminal, Kelvin-type
Basic Accuracy of Resistance Measurement	± 0.2 % of reading ± 2 digits
Voltage Measurement	0V - 5V
Accuracy of Voltage Measurement	± 5%
Advanced Features	
Digital direct reading of very low resistances in the alphanumeric display, with up to 4½ digits. Very fast and accurate measurements. Built-in printer.	
Built-in Memory	For up to 30,000 measured values

Serial Data Output	USB
Environmental	IP54 with closed lid
Safety Class	
Meets the requirements of IEC 61010-1	
Power Supply	
Rechargeable LFP battery 12V, 6000mAh or 100 - 240V ~ mains supply.	
Battery Charger	
For 100 - 240V~ mains supply or auxiliary 12V supply input.	
Operating Temperature Range	5°C to +50°C
Storage Temperature Range	-25°C to +70°C
Humidity Range	95% UR (non condensing)
Equipment Weight	Approx. 6.5kg
Dimensions	378 x 308 x 175mm
Available Accessories	
2 Combined current and potential leads.	
1 Ground cable	
1 Power cord	
1 USB cable	
1 Auxiliary external power cord (12V – charge).	
1 Auxiliary external power cord (12V – charge or measure)	
1 User guide	
1 License to use the software	
1 Case for the accessories	

MILLI-OHMMETER
1UΩ - 2MΩ
MO-5894A



The MO-5894A adopts 32 bits CPU and high density SMD technology. 24 bits, 4.3-inch and touch LCD screen brings ease for your eyes and convenience to your operation.



On the basis of rich experience in impedance test and wide market research, now Tinsley launches the new DC impedance measurement instrument with touch and LCD screen MO-5894A milli-ohmmeter.

MO-5894A, with elegant appearance, easy operation and excellent performance, is comparable to the most advanced products in the market.

Principle of operation

The best measurement accuracy of 0.05% +2d and minimum 1 μΩ resolution shore up its leading role in testing relay contact resistance, interconnecting resistance, conductor resistance, PCB resistance and weldinghole resistance. Temperature compensation and conversion functions make your tests be free from the effect of the environment

temperature. The offset voltage compensation has effectively eliminated the electromotive force of the DUT and its contact potential difference. For the contact influence of the thermoelectricity on DUT, its elimination is achieved. Automation on production lines can be greatly improved by the realization of ultra-high test speed and the signal output of 3 compare results through HANDLER interface.

SPECIFICATIONS - SLOW SPEED MEASUREMENT

See the tables below for product specifications.

Model	MO-5894A Milli-Ohmmeter 1μΩ to 2MΩ		
Display			
Display	24-bit, 480 X 272 and touch TFT LCD screen		
Reading digits	4½ digits		
Resistance measurement			
Measurement range	1μΩ to 2MΩ		
Resistance range	Current	Resolution	Accuracy Rd%+digits
20mΩ	1A	1μΩ	0.100+3
200mΩ	1A	10μΩ	0.05+2
2Ω	100mA	100μΩ	
20Ω	10mA	1mΩ	
200Ω	1mA	10mΩ	
2kΩ	100μA	100mΩ	
20kΩ		1Ω	
200kΩ		10Ω	
2MΩ	1μA	100Ω	0.2+2
Measurement function			

Resistance measurement time	FAST:10ms; MED:25ms; SLOW1:115ms; SLOW2:455ms Above data is correct when DISPLAY is OFF; when DISPLAY is ON, 20ms should be added.		
Temperature measurement time	100 ± 10ms	----	
Test terminal	Kelvin 4 terminal		
Average setup	1 to 255		
Zero clearing	√		
Range switch	Auto, Manual		
Trigger mode	Internal, Manual, External, BUS		
Power frequency selection	√ (avoid the interface of the power noise)		
Setting data storage	30 groups		
Low voltage measurement	Open voltage: ≤ 40mV Effective range: 2Ω, 20Ω, 200Ω, 2kΩ		
Thermal electromotive force elimination	√	----	
Statistics function	AVG, MAX, MIN, OSD (Overall standard deviation), SSD (Sample standard deviation), Process capacity index (Cp, cpk)		
Beep state	Comparator, Button		
Key lock	√		
Temperature measurement			
Temperature measurement 1	-10.0°C to 99.9°C Sensor: PT500	----	----
Temperature measurement 2	Analogue input: 0V to 2V Display: -99.9°C to 999.9°C	----	----
Temperature compensation	√ (convert the resistance measurement value to that one measured under preset temperature)	----	----
Temperature switch	√ (temperature rising is gained from resistance test values before and after warming)	----	----

Compare Judge		
Comparator	Signal output	HI/IN/LO
	Beep	Beep mode: OFF, IN, HI/LO
	Limit setup mode	Absolute value high/low limit, Percentage high/low limit +nominal value
Sorting		3 bins, absolute value/percentage
External trigger delay time		Auto: dependent on range, low voltage mode ON/OFF, OVC (offset voltage compensation) ON/OFF Manual: 0.000 to 9.999s
External input trigger		Rising/Falling edge
Interface		
Interface		USB DEVICE, USB HOST, RS232C, HANDLER
General specification		
Working condition		Temperature: 0°C to 40°C, Humidity:≤ 80%RH
Storage condition		Temperature: -10°C to 50°C, Humidity:≤ 90%RH
Accuracy guarantee condition		Temperature: 18°C to 28°C, Humidity:≤ 80%RH
Power	Voltage	99V to 121V & 198V to 230V Nominal supplies
	Frequency	47.5Hz to 63Hz
Consumption		30 VA
Dimension		215mm × 89mm × 360mm (net size) 235mm × 104mm × 360mm (with foam sheath)
Weight		Approx.3.6kg

*: the accuracy is guaranteed under certain environmental and test conditions: temperature of 18°C to 28°C, humidity is ≤ 80%RH, test speed is SLOW2 (see details in Manual).

PORTABLE DIGITAL MICRO-OHMMETER MO-5893-10AT



Instrument used to accurately measure resistances of switches and circuit breaker contacts, transformer and motor windings, wire and cable samples, joints in busbars, etc., using test currents from 1mA up to 10A.

The MO-5893-10AT digital very low resistance ohmmeter uses the Kelvin-type, four-terminals measurement principle, thus eliminating errors caused by lead and contact resistances.

Resistance readings are shown in the alphanumeric display with up to a 4 1/2 digit-resolution. It allows to measure resistances of up to 2,000Ω, with a resolution down to 0.1μΩ.

Principle of operation

Measurements accuracy is guaranteed by the state-of-the-art system for signal amplification, offset-free and with long-term stability. The equipment has a USB interface that allows to download the measured values to a computer for their later analysis.

The open circuit output voltage is of up to 10 V, depending on the selected test current, reducing the stabilization time for the test current when highly inductive elements are measured.

The measurement circuit has an effective protection against voltage peaks originated by those inductances.

SPECIFICATIONS

See the tables below for product specifications.

Test Currents	
1mA - 10mA - 100mA - 1A - 5A - 10A	
Each current may be continuously adjustable from 0 to 100%	
Resistance Ranges	
0-200mΩ @ 10A	
0-1,000mΩ @ 5A	
0-200mΩ @ 1A	
0-2,000mΩ @ 100mA	
0-20Ω @ 10mA	
0-2,000Ω @ 1mA	
Accuracy of Test Current	± 3%
Resolution	0.1μΩ @ 10A
Output Voltage	Up to 10 Vdc (open circuit) @ 1A
Measurement Principle	Four-terminal, Kelvin-type
Basic Accuracy	±(0.10% of reading + 3 ULSD)*. *Units of the Least Significant Digit
Voltage Measurement	0V - 5V
Advanced Features	
Digital direct reading of very low resistances in the alphanumeric display, with up to 4 1/2 digits. Very fast and accurate measurements. Built-in printer.	
Built-in Memory	
For up to 30,000 measured values	

Serial Data Output	USB
Environmental	IP65 with closed lid
Safety Class	Meets the requirements of IEC 61010-1
Power Supply	Rechargeable LFP battery 12V, 6000 mAh or 100 - 240V~ mains supply
Battery Charger	For 100 - 240V~ mains supply or auxiliary 12 V supply input
Operating Temperature Range	-5°C to +50°C
Storage Temperature Range	-25°C to +70°C
Humidity Range	95% UR (non condensing)
Equipment Weight	Approx. 6.5kg
Dimension	378 x 308 x 175mm
Available Accessories	
2 Combined current and potential leads. 1 Ground cable.	
1 Power cord.	
1 USB cable.	
1 Auxiliary external power cord (12V – charge). 1 Auxiliary external power cord (12V – charge or measure).	
1 Temperature sensor.	
1 User guide.	
1 License to use the software. 1 Case for the accessories.	

PORTABLE DIGITAL MICRO-OHMMETER MO-5898-100A



Especially developed to accurately measure very low contact resistances of breakers and switches, busbars, transformers winding and engines, etc, with test currents from 1 mA to 100 A.

The MO-5898-100A high current micro-ohmmeter employs the 4 terminals-method to avoid measurement errors caused by test leads and their contact resistances.

Resistances readings are shown in the alphanumeric display with up to 4 1/2 digits-resolution. It allows to measure resistances up to 200 Ω, with a resolution of up to 0.1 μΩ.

Principle of operation

Using its internal rechargeable battery, measurements with up to 10 A test current may be carried out without connecting the equipment to mains power. Powered by to mains power, it allows to measure with any test current up to 100 A.

Measurement accuracy is guaranteed by an state-of-the-arts signals amplification system, offset-free and of high long-term stability.

Test current may be adjusted by the operator in every one of the scales and their values are measured using an analogue indicator (bargraph), making it easy to measure resistances with a significant inductive

SPECIFICATIONS

See the tables below for product specifications.

Test Currents		
1 mA, 10 mA, 100 mA, 1 A, 10 A, 100 A		
Each current may be continuously adjustable from 0 to 100%		
Resistance Ranges		
Current	Range	Resolution
100 A	0-199.9 μΩ	0.1 μΩ
100 A	0-1999 μΩ	1 μΩ
10 A	0-1999 μΩ	1 μΩ
10 A	0-19.999 mΩ	1 μΩ
1 A	0-19.99 mΩ	10 μΩ
1 A	0-199.99 mΩ	10 μΩ
100 mA	0-199.9 mΩ	100 μΩ
100 mA	0-1999.9 mΩ	100 μΩ
10 mA	0-1999 mΩ	1 mΩ
10 mA	0-19.999 Ω	1 mΩ
1 mA	0-19.99 Ω	10 mΩ
1 mA	0-199.99 Ω	10 mΩ
For each test current, ranges are automatically selected for optimal reading		
Measurement Principle	Four-terminal, Kelvin-type	
Continuous Operation Time	At 100 A this equipment may be used continuously for aprox. 15 minutes before the thermal protection activates. At 10 A or less, there is not a limited time for continuous operation.	
Basic Accuracy	R < 0.5 mΩ: ± (0.50% of reading + 2 ULSD*). R ≥ 0.5 mΩ: ± (0.20% of reading + 2 ULSD*). * Units of the Least Significant Digit.	

component, as in the case of big transformers windings.

The high-current generation system is based on modern technology that allows to significantly decrease both its weight (14 kg) and size. The cabinet is made of plastic material highly resistant to impacts and to environmental challenges.

Internal thermal sensors in all sensitive components avoid any damaged caused to the instrument due to overheating.

This is a strong but lightweight equipment, and may be easily carried by one person. It is water-resistant and can be used under severe weather conditions offering an excellent performance working both in the laboratory and out in the field.

Advanced Features	
Digital direct reading of very low resistances in the alphanumeric display, with up to 4 1/2 digits. Very fast and accurate measurements.	
Terminal Protection	
Protects all sensitive components, avoiding any damage due to overheating.	
Environmental	IP54 with closed lid.
Safety Class	Meets the requirements of IEC 61010-1
Interface	USB
Power Supply	
Mains or internal battery powered. Internal battery: rechargeable, sealed lead-acid (for up to 10 A test current). Mains supply*: 100-130 V~ or 220-240 V~ (for up to 100 A test current). *The option must be indicated on the order.	
Built-in Battery Charger	For 100-130 V~ or 220-240 V~ mains supply.
Operatung Temperature Range	-5 °C to +50 °C.
Storage Temperature Range	-25 °C to +70 °C
Humidity Range	95% UR (non condensing).
Wquipment Weight	Approx. 14 kg.
Dimension	502 x 394 x 190 mm
Available Accessories	
2 Combined current and potential leads for 10 A	
2 Combined current and potential leads for 100 A	
1 Power cord	
1 USB cable	
1 User guide	
1 Case for the accessories.	

PORTABLE DIGITAL
MICRO-OHMMETER
MO-5899-100R



Has filters and protections optimized for measurements in substations.

Record with high precision, resistances very low contact, in high voltage circuit breakers, switchgear, busbars, etc.

With test currents up to 100 A.

Principle of operation

The MO-5898-100A high current micro-ohmmeter, uses the methodology of Kelvin (4 terminals) to avoid measurement errors caused by jump leads and their contact resistances.

The accuracy of the equipment is guaranteed by a last generation signal amplification system, offset and high stability free. The reading is in direct liquid crystal display indicating up to 4 ½ digits.

The equipment is extremely easy to use and carry, weighing approx. 11 kg. His case is sturdy with protection degree IP54 (with lid closed). Cables and accessories are packed in a suitcase that allows storage and transport safe and comfortable.

SPECIFICATIONS

See the tables below for product specifications.

Test Currents	
Up to 100 A (True DC).	
The test current can be set between 10% and 100% of the working stream with a resolution of 1 A.	
Resistance Ranges	
0.1 µΩ to 300 mΩ	
Measurement Principle	Four-terminal, Kelvin-type
Thermal Protection	Protects all sensitive components, avoiding any damage due to overheating
Programmable Test Time	Allows to setup the test time from 5 seconds up to 120 seconds
Basic Accuracy	± 1 % of reading ± 1 digit
Advanced Features	
Digital direct reading of very low resistances in the alphanumerical display, with up to 4½ digits. Very fast and accurate measurements.	
Built-in Printer	Allows print the measured values
Built-in Memory	Capacity to store 50 registers with 80 readings each
Serial Data Output	USB

Tinsley Software	
Friendly, easy to use software. With automatic report generator, including the operator's commentaries.	
Environmental	IP54 with closed lid
Safety Class	Meets the requirements of IEC 61010-1
Power Supply	Mains: 90-240 V~ 50/60 Hz auto
Operating Temperature Range	-5 °C to +50 °C
Storage Temperature Range	-25 °C to +70 °C
Humidity Range	95% UR (non condensing)
Equipment Weight	Approx. 11 kg
Accessories Weight	Approx. 20.5 kg
Dimension	502 x 394 x 190 mm
Available Accessories	
2 Combined test leads (current and potential) clamp type "C" (sargent)	
1 Power cord	
1 Ground cable	
1 Communication cable	
1 Carrying case the test leads	
1 License to use the software	
1 User guide.	

PORTABLE DIGITAL
MICRO-OHMMETER
MO-5889-200A



Optimized filters and protections for measurements in electrical substations.

Can be used to accurately measure very low contact resistances of high voltage circuit-breakers and switches, busbars, etc.

With test currents up to 200 A.

Principle of operation

The MO-5889-200 high-current micro-ohmmeter employs the 4 terminals-method (U/I measuring principle) to avoid errors caused by test leads and their contact resistances.

Measurement accuracy is guaranteed by a state-of-the- arts signal amplification system, offset-free and of high long-term stability. Resistances readings are shown in the alphanumeric display with up to 4½ digits- resolution. It allows to measure resistances up to 20 mΩ, and the best resolution is 0.1 µΩ.

Test current may be adjusted by the operator and his value is measured using an analogue indicator (bargraph).

SPECIFICATIONS

See the tables below for product specifications.

Test Currents	
100 A, 200 A (True DC).	
The current may be continuously adjustable from 0 to 100%.	
Resistance Ranges	
0-1999 µΩ (test current: up to 200 A). 0-19,99 mΩ (test current: up to 100 A).	
Reading Resolution	0.1 µΩ for R < 2,000 µΩ. 1 µΩ for R < 20 mΩ.
Test Voltage	3.5 Vcc @ 200 A. 4,5 Vcc @ 100 A. 5,8 Vcc (without load)
Maximum Load Resistance	10 mΩ @ 200 A. 30 mΩ @ 100 A
Measurement Principle	Four-terminal, Kelvin-type
Thermal Protection	Protects all sensitive components, avoiding any damage due to overheating
Continuous Operation Time	
At 200 A this equipment may be used continuously for aprox. 1 minute before the thermal protection activates.	
At 100 A this equipment may be used continuously for aprox. 15 minutes before the thermal protection activates.	
Basic Accuracy	± 0.5% of reading ± 2 digits
Advanced Features	
Digital direct reading of very low resistances in the alphanumerical display, with up to 4½ digits. Very fast and accurate measurements.	

Built-in Memory	It allows the storage of 200 tests readings
Interface	USB
Environmental	IP54 with closed lid
Safety Class	Meets the requirements of IEC 61010-1
Power Supply	Mains: 220-240 V~.
Operating Temperature Range	-5 °C to +50 °C
Storage Temperature Range	-25 °C to +70 °C
Humidity Range	95% UR (non condensing)
Equipment Weight	Approx. 11 kg
Accessories Weight	Approx. 20.5 kg
Dimension	502 x 394 x 190 mm
Accessories Weight	Approx. 20.5 kg
Available Accessories	
2 Combined current and potential leads.	
1 Power cord.	
1 Ground cable.	
1 USB cable.	
1 Case for the accessories.	
1 User guide.	

PORTABLE DIGITAL
MICRO-OHMMETER
MO-5898-200A



Especially developed to accurately measure very low contact resistances of breakers and switches, busbars, transformers winding and engines, etc, with test currents from 1 mA to 200 A.

The MO-5898-200A high current micro-ohmmeter employs the 4 terminals-method to avoid measurement errors caused by test leads and their contact resistances.

Resistances readings are shown in the alphanumeric display with up to 4½ digits-resolution. It allows to measure resistances up to 200 Ω, with a resolution of up to 0.1 μΩ.

Principle of operation

Using its internal rechargeable battery, measurements with up to 10 A test current may be carried out without connecting the equipment to mains power. Powered by to mains power, it allows to measure with any test current up to 200 A.

Measurement accuracy is guaranteed by an state-ofthe-arts signals amplification system, offset-free and of high long-term stability.

Test current may be adjusted by the operator in every one of the scales and their values are measured using an analogue indicator (bargraph), making it easy to measure resistances with a significant inductive

SPECIFICATIONS

See the tables below for product specifications.

Test Currents		
1 mA, 10 mA, 100 mA, 1 A, 10 A, 200 A.		
Each current may be continuously adjustable from 0 to 100%.		
Resistance Ranges		
Current	Range	Resolution
200 A	0-199.9 μΩ	0.1 μΩ
200 A	0-1999 μΩ	1 μΩ
10 A	0-1999 μΩ	1 μΩ
10 A	0-19.999 mΩ	1 μΩ
1 A	0-19.99 mΩ	10 μΩ
1 A	0-199.99 mΩ	10 μΩ
100 mA	0-199.9 mΩ	100 μΩ
100 mA	0-1999.9 mΩ	100 μΩ
10 mA	0-1999 mΩ	1 mΩ
10 mA	0-19.999 Ω	1 mΩ
1 mA	0-19.99 Ω	10 mΩ
1 mA	0-199.99 Ω	10 mΩ
For each test current, ranges are automatically selected for optimal reading.		
Measurement Principle		Four-terminal, Kelvin-type
Continuous Operation Time		
At 200 A this equipment may be used continuously for aprox. 3 minutes before the thermal protection activates. At 10 A or less, there is not a limited time for continuous operation.		
Basic Accuracy		
R < 0.5 mΩ: ± (0.50% of reading + 2 UUD*).		
R ≥ 0.5 mΩ: ± (0.20% of reading + 2 UUD*).		
* Units of the Least Significant Digit.		

component, as in the case of big transformers windings.

The high-current generation system is based on modern technology that allows to significantly decrease both its weight (16 kg) and size. The cabinet is made of plastic material highly resistant to impacts and to environmental challenges.

Internal thermal sensors in all sensitive components avoid any damaged caused to the instrument due to overheating.

This is a strong but lightweight equipment, and may be easily carried by one person. It is water-resistant and can be used under severe weather conditions offering an excellent performance working both in the laboratory and out in the field.

Advanced Features	
Digital direct reading of very low resistances in the alphanumeric display, with up to 4½ digits. Very fast and accurate measurements.	
Thermal Protection	Protects all sensitive components, avoiding any damage due to overheating
Environmental	IP54 with closed lid.
Safety Class	Meets the requirements of IEC 61010-1.
Interface	USB
Power Supply	
Mains or internal battery powered. Internal battery: rechargeable, sealed lead-acid, 12 V - 7 Ah (for up to 10 A test current). Mains supply: 220-240 V~ (for up to 200 A test current).	
Built-in Battery Charger	For 220-240 V~ mains supply.
Operating Temperature Range	-5 °C to +50 °C
Storage Temperature Range	-25 °C to +70 °C
Humidity Range	95% UR (non condensing)
Equipment Weight	Approx. 16 kg
Dimension	502 x 394 x 190 mm
Available Accessories	
2 Combined current and potential leads for 10 A. 2 Combined current and potential leads for 200 A. 1 Power cord. 1 USB cable. 1 User guide. 1 Case for the accessories	

PORTABLE DIGITAL
MICRO-OHMMETER
MO-5890-200A



Has a cooling system that allows making a large number of consecutive tests without activation of thermal protection.

Under normal ambient conditions (25 °C) it can perform up to 30 consecutive tests with duration of 1 minute and 1 minute interval.

The MO-5890-200A high current micro-ohmmeter, is a portable, microprocessor-controlled instrument. Has optimized filters and protections for measurements in electrical substations.

Principle of operation

Can be used to accurately measure very low contact resistances of high voltage circuit-breakers and switches, busbars, etc., with test currents from 5 A up to 200 A. It employs the 4 terminals-method (U/I measuring principle) to avoid errors caused by test leads and their contact resistances.

Measurement accuracy is guaranteed by a state-of-thearts signal amplification system, offset-free and of high long-term stability. Resistances readings are shown in the alphanumeric display with up to 4½ digitsresolution. It allows to measure resistances up to 1 Ω, and the best resolution is 0.1 μΩ.

It has an internal memory for storing 50 records with 80 readings each. The communication output (USB) may be connected to a computer to

download the stored values.

The high-current generation system is based on modern technology that allows to significantly decrease both its weight (approx. 11 kg) and size. The cabinet is made of plastic material highly resistant to impacts and to environmental challenges. Internal thermal sensors in all sensitive components avoid any damage caused to the instrument due to overheating.

This is a strong but lightweight equipment, and may be easily carried by one person. It is water-resistant and can be used under severe weather conditions (IP54 with closed lid) offering an excellent performance working both in the laboratory and out in the field.

SPECIFICATIONS

See the tables below for product specifications.

Test Currents	
From 5 A up to 200 A (True DC) The test current can be adjusted in steps of 0.2 A from 5 A to 20 A and steps of 1 A from 20 A to 200 A	
Resistance Ranges	
0.1 μΩ to 2 mΩ, with 0.1 μΩ resolution 2 mΩ to 200 mΩ, with 10 μΩ resolution 200 mΩ to 1 Ω, with 1 mΩ resolution	
Measurement Principle	Four-terminal, Kelvin-type
Thermal Protection	Protects all sensitive components, avoiding any damage due to overheating
Programmable Test Time	
Allows to setup the test time from 5 seconds up to 120 seconds.	
Basic Accuracy	± 1 % of measured value
Advanced Features	
Digital direct reading of very low resistances in the alphanumeric display, with up to 4½ digits. Very fast and accurate measurements.	
Built-in Memory	Capacity to store 50 registers with 80 readings each.
Interface	USB

Tinsley Software	
Friendly, easy to use software. With automatic report generator, including the operator's commentaries	
Environmental	IP54 with closed lid
Safety Class	Meets the requirements of IEC 61010-1.
Power Supply	Mains supply: 100-240 V~
Operating Temperature Range	-5 °C to +50 °C
Storage Temperature Range	-10 °C to +70 °C
Humidity Range	95% UR (non condensing)
Equipment Weight	Approx. 11 kg
Accessories Weight	Approx. 20.5 kg
Dimension	502 x 394 x 190 mm
Available Accessories	
2 Combined test leads (current and potential) 1 Power cord 1 Ground cable 1 Communication cable 1 Carrying case the test leads 1 License to use the software 1 User guide.	

PORTABLE DIGITAL MICRO-OHMMETER STANDARD REFERENCE RESISTORS



This model is available in two series:
**5695 (reference resistor) and 5685
(standard reference resistor).**

The 5695 series of 4-wire reference resistors
offer high accuracy and stability at an
economic cost.

Designed specifically, for use as a comparison standard for AC
thermometry resistance bridges, the 5695 series may also be used
in electrical standards laboratories.

Principle of operation

In addition to standard fixed values, resistors can be supplied in any
value between 1 and 1,000 Ω . Typical applications for the 5695 series
are as transfer standards or reference source in temperature calibration
or electrical standards laboratories.

The 5685 series is made from a specially selected alloy having a low
temperature coefficient mounted in a strain-free manner on formers
made from a material of low dielectric loss but of high mechanical
stability.

Prolonged heat treatment of the elements ensures long-term stability
and low temperature coefficient of resistance. The elements are
hermetically sealed in stainless steel containers and filled with dry oil
Castrol WOM 14.

SPECIFICATIONS

See the tables below for product specifications.

Reference resistor, model 5695	
Resistance value	1, 10, 25, 100, 300, 400, 500, 1.000 and 10.000 Ω others on request
Tolerance	± 10 ppm
Long-term stability	$< \pm 5$ ppm per year
Temperature coefficient	< 1 ppm per $^{\circ}\text{C}$
Frequency dependence	< 1 ppm up to 400 Hz
Permissible ambient conditions	
Working temperature	20 $^{\circ}\text{C}$ [68 $^{\circ}\text{F}$]
Operating temperature	15 ... 40 $^{\circ}\text{C}$ [59 ... 104 $^{\circ}\text{F}$]
Case	
Dimensions	$\varnothing = 76$ mm, height 114 mm [$\varnothing = 2.99$ in, height 4.49 in]
Weight	0.5 kg [1.1 lbs]

Applications

- Primary standards for voltage and resistance in calibration
laboratories worldwide
- Calibration reference for resistance and temperature bridges, such
as ohmmeters and AC or DC temperature bridges

Special features

- High accuracy
- Excellent long-term stability
- Low temperature coefficient
- Rugged stainless steel construction

Reference resistor, model 5685	
Resistance value	10, 25, 100, 400 and 1,000 Ω others on request
Tolerance	± 10 ppm
Long-term stability	2 ppm per year (HS version 0.5 ppm per year) ¹⁾
Temperature coefficient	2 ppm per $^{\circ}\text{C}$ (HS version 0.5 ppm per $^{\circ}\text{C}$)
Frequency dependence	1 ppm up to 1,592 Hz
Permissible ambient conditions	
Working temperature	20 $^{\circ}\text{C}$ [68 $^{\circ}\text{F}$]
Operating temperature	15 ... 40 $^{\circ}\text{C}$ [59 ... 104 $^{\circ}\text{F}$]
Case	
Dimensions	$\varnothing = 76$ mm, height 114 mm [$\varnothing = 2.99$ in, height 4.49 in]
Weight	0.7 kg [1.5 lbs]

1) No HS version is available for the resistance values 1 k Ω

CERTIFICATES

Calibration for model 5695	Standard: without Option: UKAS calibration certificate
Calibration for model 5685	Standard: without Option: UKAS calibration certificate
Recommended recalibration interval	1 year (dependent on conditions of use)

PORTABLE DIGITAL MICRO-OHMMETER RESISTANCE TEST CLAMP



Designed for the resistance measurement
of wire, cable or strip metal



The Type 3218C is designed for the resistance
measurement of wire, cable, or strip metal using a low
resistance measuring device (milli or micro-ohmmeter
such as the Tinsley 5894), which use a four wire kelvin
type measuring system.

Principle of operation

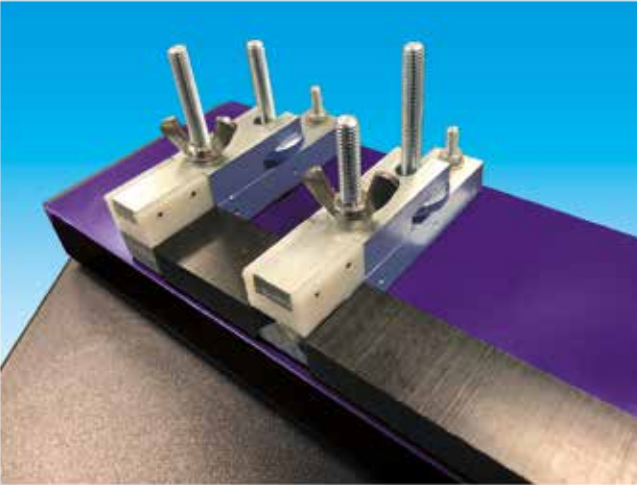
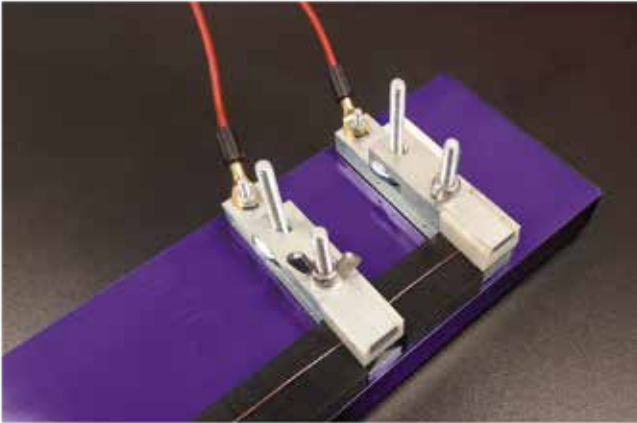
The unit consists of a base onto which insulated clamping units are
mounted. There are two types of clamping units, a flat type located at
the ends of the base for the application of the test current (C1 and C2)
and knife clamps mounted on the inside used for the sense signals (P1
and P2) to allow the resistance to be calculated. The distance between
the knife clamps is 1 metre.

The unit is designed to accommodate material up to
25 x 25mm or 25mm diameter. (Modified version available to take
40mm diameter)

SPECIFICATIONS

See the tables below for product specifications.

Size	1260 x 102 x 93mm
Weight	4.35 Kgs



PORTABLE 9 DECADE HIGH RESISTANCE BOX MODEL 4720 SERIES



Designed for the checking and calibration of insulation testers at voltages of up to 5000V DC, the Tinsley Model 4720 high resistance decade boxes provides up to 9 decades of resolution.

The total range covered is from 1 kΩ to 1,111,111,110kΩ using specially selected resistors and high quality switches mounted on an easy to read panel.

These decade resistance boxes are housed in strong polymer portable cases with lids and carrying handles to provide an ideal solution to on-site and laboratory calibration of high resistance insulation testers.

Principle of operation

The instruments can be supplied complete with a calibration certificates provided by our own in-house calibration laboratory.

Designed for checking and calibration of insulation testers

- Measuring Range 1kohm to 1Tohm
- Resolution 1kohm
- Best accuracy 0.1% (dependent on range)

- Maximum 5000V (dependent on range)
- Maximum dissipation 3.5W (dependent on range)
- up to 9 decades
- Rugged construction
- Easily portable

SPECIFICATIONS

See the tables below for product specifications.

Models Available	
4720	9 Decade Box 1 KΩ to 611 GΩ
4720/1	3 Decade Box 1 GΩ to 611 GΩ
4720/2	6 Decade Box 1 KΩ TO 1111 MΩ
4720/3	6 Decade Box 1 MΩ TO 611 GΩ
4720/4	9 Decade Box 1 KΩ TO 1 TΩ

Model 4720										
Decade	Value	Accuracy	Max. Power (Watts)	Max. V/Step	Temp. Coeff.	4720	4720/1	4720/2	4720/3	4720/4
1	10 x 1KgΩ	± 0.15%	2	10	±15ppm./°C	✓		✓		✓
2	10 x 10KgΩ	± 0.15%	2	50	±15ppm./°C	✓		✓		✓
3	10 x 100KgΩ	± 0.15%	2	150	±15ppm./°C	✓		✓		✓
4	10 x 1 MΩ	± 0.15%	2	300	±25ppm./°C	✓		✓	✓	✓
5	10x 10MΩ	± 0.2%	2	500	±50ppm./°C	✓		✓	✓	✓
6	10 x 100MΩ	± 1.0%	7.5	1000	±100ppm./°C	✓		✓	✓	✓
7	10 x 1GΩ	± 1.0%	7.5	5000	±100ppm./°C	✓	✓		✓	✓
8	10x 10GΩ	± 2.0%	7.5	5000	±100ppm./°C	✓	✓		✓	✓
9	5x 100GΩ*	± 5.0%	7.5	5000	±2000ppm./°C	✓	✓		✓	✓
										*10x100GΩ

*This decade is extended to 10 x 100G for the type 4720/4 only

SINGLE, HIGH RESISTANCE DECADE BOX MODEL 4721



The Tinsley Model 4721 decade box is designed for the checking and calibration of insulation testers at voltages of up to 5000V DC.

The total range covered is from 1 kΩ to 1 TΩ using specially selected resistors and a high quality switch mounted on an easy to read panel.

This resistance box is housed in a rugged PE carrying case with lid and carrying handle to provide an ideal solution to on-site and laboratory calibration of high resistance insulation testers.

Principle of operation

The decade box is supplied with two high voltage leads which are 1.5 metres long. On one end is located the HV connector for use with the decade box and the other end is open circuit to allow the end user to fit their own connections.

The instrument is supplied complete with an inhouse calibration certificate or a UKAS calibration certificate can be provided by an external test house at additional cost if required.

Key features

- Resistance range 1 KΩ to 1 TΩ
- Voltage rating up to 5000 volts
- Fitted with temperature and humidity indicator
- Supplied with two HV test leads
- IP67 Rugged case
- Dimensions 270 x 246 x 174 mm
- Weight 2.7 KG

SPECIFICATIONS

See the tables below for product specifications.

@ 22°C ± 2°C RH <50%					
Decade	Value	Accuracy	Max. Power (Watts)	Max. V/Step	Temp. Coeff.
1	1KgΩ	± 0.15%	2	10	±15ppm./°C
2	10KgΩ	± 0.15%	2	50	±15ppm./°C
3	100KgΩ	± 0.15%	2	150	±15ppm./°C
4	1 MΩ	± 0.15%	2	300	±25ppm./°C
5	10MΩ	± 0.20%	2	500	±50ppm./°C
6	100MΩ	± 1.0%	7.5	1000	±100ppm./°C
7	1GΩ	± 1.0%	7.5	5000	±100ppm./°C
8	10GΩ	± 2.0%	7.5	5000	±100ppm./°C
9	100GΩ	± 5.0%	7.5	5000	±2000ppm./°C
10	1TΩ	± 5.0%	1	5000	±2000ppm./°C

DECADE HIGH RESISTANCE BOX
ZX SERIES
MODELS ZX74 & ZX90



The ZX70E to ZX99E DC resistance decade boxes consist of multiple switched units which are connected in series.

Connection to the unit is via terminal posts which can accept spade connections or 4mm banana type plugs.



Principle of operation

An Earth connection is also available on the unit with the same connection capability.

SPECIFICATIONS

See the tables below for product specifications.

Reference and Nominal Temperatures	
Reference Range	20 ± 1.0 °C
Nominal Range	20 ± 10°C
Reference and Nominal Relative Humidity	
Reference Range	40% ~ 60%
Nominal Range	25% ~ 75%

Measuring Range and Step Resolution										
Type	ZX90E	ZX91E	ZX92E	ZX93E	ZX94E	ZX95E	ZX96E	ZX97E	ZX98E	ZX99E
RmaxΩ	111.10	11110	1111.10	111110	111110	11111.10	111111.0	1111110	111111.10	1111111.0
RminΩ	0.01	1	0.01	0.1	1	0.01	0.1	1	0.01	0.1

Power Ratings			
Type	ZX70E Series	ZX80E Series	ZX90E Series
Reference Power	0.05 W	0.1 W	0.05 W
Nominal Power	0.1 W	0.2 W	0.1 W
Ultimate Power	0.2 W	0.3 W	0.2 W

COMPLIANCE

When the conditions of reference have been met for temperature, relative humidity and power, the accuracy of each decade resistance group should meet the specifications and residual resistance for each series, please see the datasheet online or contact Tinsley for more information.

Changing the value of resistance is accomplished by rotating the knobs of the various switches, the resistance values of which are clearly identified on the panel. The resistive elements are wound in a special non inductive way onto formers using enameled manganin wire, which is aged and treated to provide a high level of stability with a low temperature coefficient.

Measuring Range and Step Resolution				
Type	ZX74E	ZX75E	ZX76E	ZX77E
RmaxΩ	1111.21	11111.1	111111.0	1111110.0
RminΩ	0.001	0.01	0.1	1111110.0
Type	ZX83E		ZX84E	
RmaxΩ	11111110.0		111111100.0	
RminΩ	10.0		10.0	

Dimensions and Weights			
Type	Number of Decades	Dimensions (mm)	Weight (kg)
ZX74E	6	440 x 130 x 120	4.5
ZX75E	6		
ZX76E	6		
ZX77E	6	440 x 130 x 120	4.5
ZX83E	6		
ZX84E	6		
ZX90E	4	200 X 95 X 94	0.85
ZX91E	4		
ZX92E	5	242 X 95 X 94	1
ZX93E	5		
ZX94E	5		
ZX95E	6	284 X 95 X 94	1.15
ZX96E	6		
ZX97E	6		
ZX98E	7	327 X 95 X 94	1.25
ZX99E	7		

TRANSFORMER TEST EQUIPMENT
PORTABLE 'Q' (QUALITY) METER
MODEL 5867



The 5867 is an accurate bench portable digital 'Q' meter for the measurement of the 'Q' value of wound components, e.g. Transformers and rotating electrical machine windings.

This provides the ability to determine the presence of shorted turns in a winding.

The Q value may be described as a figure reflecting the resonance of the inductance, capacitance and resistance components of the transformer under test.



Principle of operation

The measured values are displayed on a 8-Digit high visibility dot matrix display. The 5867 utilises simple button operation and features warning lights which are illuminated when appropriate.

This apparatus is designated Safety Class I as defined in the IEC publication 348. This apparatus has been designed and tested in accordance with IEC Publication 348, entitled "Safety Requirements for Electronic Measuring Apparatus" and has been supplied in a safe

condition. The present instruction manual contains some information and warnings which must be followed by the user to ensure safe operation and to retain the apparatus in safe condition. The mains plug shall only be inserted in a socket outlet provided with protective earth contact.

The case is ruggedly constructed from an ABS/polycarbonate alloy. A strong internal sub frame ensures that the 5867 will withstand the harshest of environments. The front panel is a reverse printed polycarbonate overlay with clear and unambiguous text.

SPECIFICATIONS

See the tables below for product specifications.

Digital display	8 digit, LED 0.8" height Range indicator, 999 count and status indicators via 3 LED's
Working temperature	0...+40°C Relative Humidity max. 80%
Normal temperature	20°C
Oven temperature	40°C
Storage temperature	-20°C...+50°C
Mains connection	90 - 260V
Size (mm)	24 x 28 x 12cm
Weight	4.5 kg
Measuring frequency	250ms
Accessories supplied as standard	
1 mains cord 1 operating instructions (English) 2 test leads (colour coded), length 3m each, supplied with selection of connectors When unpacked, inspect for physical damage and report any defects immediately in writing, retaining packaging materials for inspection. This unit has been designed to operate at different mains voltages, ranging from 90 – 260V AC.	

Maintenance		
Line Voltage Selection	Range VAC 47-63Hz	Fuse (250V) IEC 127 5 x 20mm
100V	87-110V	1A (T)
120V	104-132V	
220V	191-242V	1A (T)
240V	209-264V	
Capacitance Sensitivity		
A: 100µF B: 10µF C: 1µF D: 100nF E: 10nF		
Remote Output		
The RS232 plug should be connected here (via an RS232/DIN connector adaptor). The digital output is a 38400baud* N 8 1 serial interface. The RX & TX conform to the EIA RS232 standard of +15 to +5v (Logic Low) and -15 to -5v (Logic High).		

TRANSFORMER TEST EQUIPMENT

HIGH RESISTANCE FAULT LOCATOR

MODEL 5762N



The 5762N is a portable cable fault locator for determining the position of a single shorting fault between two conductors, or between one conductor and the cable sheath or ground.

The instrument can be powered from a mains electricity supply or from the internal battery which is recharged when the instrument is connected to the mains.

The 5762N is equally suitable for use in the factory, to find faults in stock cable, or in the field to locate faults in an installed system.

Principle of operation

The fault is located by manually adjusting a potentiometer to find the null point as indicated on a front panel meter. The instrument uses a bridge circuit with the two sections of the faulty conductor (either side of the fault) acting as one arm of the bridge and the internal pushbutton potentiometer forming the other. The potentiometer is adjusted until the null is found, at which point the distance to fault can be read from the instrument as a percentage of cable length. A high

input-resistance differential amplifier circuit is used to drive the detector allowing faults of up to 200MW to be accurately located. A maximum potential of 6V (limited to 1A, or 10A if 10A BOOST button is held) is applied across the bridge circuit and therefore the cable under test. The 5762N is housed in a rugged highly luminous case manufactured from a high impact copolymer and featuring an internal metal sub-frame for added strength. When closed, the case is rated to IP67.

SPECIFICATIONS

See the tables below for product specifications.

Battery	Yuasa NP2.8-6, 6V 2.8Ah sealed lead-acid
Operating temp	0...+40°C
Storage temp	-23...+85°C
Mains connection	85 - 264V AC, 47 - 63Hz
Power consumption	9W (when fast charging)
Size	270 x 246 x 124 mm
Mass	TBC
Fault location	Shorting faults of up to 200MW
Resolution	0.1% of length of cable on test
Accuracy	0.5%, subject to cable uniformity

PORTABLE TEST & MEASUREMENT

INSULATION TESTER

MODEL INA-1001KV



The INA-1001KV general purposes insulation tester is a truly portable equipment suitable to measure insulation resistances using test voltages up to 1 kV.

It employs high-reliable, state-of-the-art technology for accurate measurements of ultra high insulation resistances up to 2,000,000 MΩ with four test voltages: 100V-250V-500V-1000V.

Readings are performed through an easy-to-read analogue indicator having a broad scale.

Principle of operation

Many experienced technicians consider that insulation measurements are best performed with analog instruments, because they get useful information from the pointer displacement along the time. This equipment is specially indicated for that people, because it is a true analog, simple to use, cost effective, insulation resistance tester.

Insulation of low voltage in electrical systems, transformers, motors, cables, electro-medical equipment and installations, distribution networks, etc., the measurements are easily performed with great reliability, using this instrument.

In order to maximize the operator's safety, this equipment was made within a plastic cabinet of high breakdown strength, a light indicator warns about dangerous voltages presence both in the equipment and

in the element under testing, and switches-off automatically when the discharge process has finished. This insulation tester has a GUARD terminal that allows to remove the effects of parasitic resistances and surface currents on the isolation resistances to be measured.

Due to its reduced size and weight, its power autonomy and mechanical strength, this equipment is suitable for working out in the field, under severe weather conditions. It is battery powered with an internal, rechargeable battery. In order to easily carry the cabinet, it is closed and water-, dust- and sand-resistant. It provides an IP54 protection (with closed lid) and is supplied with a complete kit of test leads.

SPECIFICATIONS

See the tables below for product specifications.

Test Voltages	100 V - 250 V - 500 V - 1000 V.
Maximum Resistance Reading	200 GΩ @ 100 V 500 GΩ @ 250 V 1 TΩ @ 500 V 2 TΩ @ 1000 V
Short Circuit Current	1 mA ± 2%
Test Voltages Accuracy	± 2% of nominal test voltages on R ≥ 1 GΩ
Internal Current Limiting Resistance	100 kΩ @ 100 V 250 kΩ @ 250 V 500 kΩ @ 500 V 1 MΩ @ 1000 V
Insulation Tester Accuracy	Class 2 (± 2% of full scale deflection)
Analogue Indicator	Class 1. Scale with up to 98 mm length, with extra fine pointer and mirror, thus avoiding parallax errors. Taut band system.
Environmental Protection	IP54 (with closed lid)
Safety Class	In accordance with IEC 61010-1

Electromagnetic Compatibility (E.M.C.)	In accordance with IEC 61326-1
Electromagnetic Immunity	In accordance with IEC 61000-4-3.
Electrostatic Immunity	In accordance with IEC 61000-4-2
Power Supply	Internal rechargeable 12 V - 2.3 Ah, sealed lead acid battery
Battery Charger	100 - 240 V~ mains supply
Operating Temperature Range	23°F to 122°F (-5°C to 50°C)
Storage Temperature Range	-13°F to 149°F (-25°C to 65°C)
Humidity Range	95% RH (non condensing)
Equipment Weight	Approx. 8.16 lb (3.7 kg)
Dimensions	10.78" x 9.84" x 4.88" (274 x 250 x 124 mm)
Included Accessories	1 GUARD test lead 1 Charger power cord 1 Operating instructions 1 Carrying bag

PORTABLE TEST & MEASUREMENT
INSULATION TESTER
MODEL INS-1001KV



The INS-1001KV from Tinsley is a smart, microprocessor-controlled, 1kV insulation tester.

Besides the conventional measurement of insulation resistances up to 1 TΩ, its advanced features allow to automatically measure both the Polarization Index and Dielectric Absorption Index, thus significantly simplifying testing of transformers.

This insulation tester is a portable, battery-powered equipment. Test voltage may be chosen from 100 V to 1 kV in 50 V increments.

Principle of operation

Due to its measurement principle (actual voltage and current readings) the accuracy of resistance measurement is not affected by any test voltage error.

The built-in chronometer automatically counts the elapsed time since the start of measurement. Measured values are transmitted through the USB interface and are printed in the built-in printer (optional) as a registration of the performed test. Furthermore, the measured values are stored in a non-volatile internal memory. Up to 4000 measured values may be stored, to be transferred afterward to a computer running the T-Logger program. This software allows a further analysis of the test results, including a graphical representation and automatic

report generation. The real time clock and calendar, and the sequential test number, facilitates the identification of each test, and the organization of a predictive maintenance system by trend analysis.

Some other advanced features are useful to run the most sophisticated insulation analysis. Configurable Pass-Fail and timed measurements are automatically performed, with a very simple and user-friendly setup. The measurement parameters are stored in the non-volatile memory for an easy configuration.

The INS-1001KV is powered using a rechargeable LFP battery and has an automatic charger that may be connected to 100 - 240 V mains supply (through an AC Adapter). The cabinet is strong and lightweight, easy to carry, impact-resistant and suitable to be used under severe weather conditions. Thus the instrument supplies very reliable and accurate measurements both in laboratory and out in the field.

SPECIFICATIONS

See the tables below for product specifications.

Test Voltages	100 V, 250 V, 500 V, 1000 V directly, one button selectable. 100 V to 1 kV in 50 V increments. DC, negative
Maximum Resistance Reading	1 TΩ @ 1 kV
Short Circuit Current	1.5 ± 0.5 mA
Test Voltages Accuracy	± 3% of nominal test voltages on 10 GΩ
Equipment Basic Accuracy	± 5% of reading ± 3 digits. (1 MΩ to 500 GΩ at any test voltage)
Advanced Features	• Automated Polarization Index calculation. • Automated Dielectric Absorption Ratio calculation. • Programmable Pass-Fail test. • Programmable Timer.
Built-in Printer (optional)	Prints elapsed time, actual voltage and resistance measured each 15seconds.
Built-in Memory	Stores up to 4000 measured values
Interface	USB
Build-in Chronometer	Shows elapsed time in mm:ss format. Count starts automatically for each measurement
Real Time Clock and Calendar	Allows a reliable identification for each test.
Environmental Protection	IP65 with closed lid
Safety Class	In accordance with IEC 61010-1

E.M.C.	In accordance with IEC 61326-1
Electrostatic Immunity	In accordance with IEC 61000-4-2
Electromagnetic Irradiation Immunity	In accordance with IEC 61000-4-3
Power Supply	Internal rechargeable LFP battery (LiFePO4 12 V - 3000 mAh)
Battery Charger	12 V - 2.0 A
Operating Temperature Range	23°F to 122°F (-5°C to 50°C)
Storage Temperature Range	-13°F to 158°F (-25°C to 70°C)
Humidity Range	95% RH (non condensing)
Equipment Weight	Approx. 5.96 lb (2.7 kg)
Dimensions	10.78" x 9.84" x 4.88" (274 x 250 x 124 mm)
Included Accessories	2 Measuring test leads, 5.90 ft (1.8 meters). 1 Guard test lead, 5.90 ft (1.8 meters). 1 AC Adapter. 1 USB communication cable. 1 T-Logger user license. 1 User guide. 1 Carrying bag

PORTABLE TEST & MEASUREMENT
INSULATION TESTER
MODEL INS-5005KV



The INS-5005KV measure insulation resistances up to 5 TΩ, automatically measure both the Polarization Index and Dielectric Absorption

Significantly simplifying testing of transformers. The INS-5005KV is a smart, 5 kV insulation tester and analyzer.

This insulation tester is a portable, rechargeable battery-powered equipment. Test voltage may be chosen from 500 V to 5 kV in 100 V increments. Due to its measurement principle (actual voltage and current readings) the accuracy of resistance measurement is not affected by any test voltage error.

Principle of operation

Nevertheless, the High-Voltage generator is electronically stabilized with a better than 2% accuracy in open-circuit condition and for any normal operation battery voltage.

The built-in chronometer automatically counts the elapsed time since the start of measurement. Measured values are transmitted through the USB interface and are printed in the built-in printer as a registration of the performed test. Furthermore, the measured values are stored in a non-volatile internal memory. Up to 4000 measured values may be stored, to be transferred afterward to a computer running the TINSLEY SOFTWARE program. This advanced software allows a further analysis of the test results, including a graphical representation and automatic

report generation. The real time clock and calendar, and the sequential test number, facilitates the identification of each test, and the organization of a predictive maintenance system by trend analysis.

Some other advanced features are useful to run the most sophisticated insulation analysis. Step Voltage Test, configurable Pass-Fail and timed measurements are automatically performed. The measurement parameters are stored in the non-volatile memory for an easy configuration.

In order to guarantee the operator safety, the cabinet is made of a high breakdown strength plastic. High security output terminals are placed in the furthest and most protected area of the equipment. A light indicator shows high-voltage presence and is switched-off when the capacities (both internal and external) are discharged up to reaching a safe value.

SPECIFICATIONS

See the tables below for product specifications.

Test Voltages	500 V, 1000 V, 2500 V, 5000 V directly, one button selectable. 500 V to 5 kV in 100 V increments. DC, negative.
Maximum Resistance Reading	5 TΩ @ 5 kV
Short Circuit Current	1.5 ± 0.5 mA
Test Voltages Accuracy	± 3% of nominal test voltages on R ≥ 10 GΩ
Equipment Basic Accuracy	± 5% of reading ± 3 digits (1 MΩ to 500 GΩ at any test voltage)
Advanced Features	Automated Polarization Index calculation. Automated Dielectric Absorption Ratio calculation. Programmable Pass-Fail test. Programmable Timer.
Built-in Printer	Prints elapsed time, actual voltage and resistance measured each 15 seconds
Built-in Memory	Stores up to 4000 measured values
Interface	USB
Built-in Chronometer	Shows elapsed time in mm:ss format. Count starts automatically for each measurement
Real Time Clock and Calendar	Allows a reliable identification for each test
Environmental Protection	IP54 with closed lid
Safety Class	Meets the requirements of IEC 61010-1

E.M.C.	In accordance with IEC 61326-1
Electrostatic Immunity	In accordance with IEC 61000-4-2
Electromagnetic Irradiation Immunity	In accordance with IEC 61000-4-3
Power Supply	Internal rechargeable battery (LiFePO4 12 V - 3000 mAh) or AC Adapter
Battery Charger	12 V - 2.0 A (AC Adapter)
Operating Temperature Range	-5°C to 50°C
Storage Temperature Range	-25°C to 65°C
Humidity Range	95% RH (non condensing)
Weight	Approx. 2.7 kg
Dimensions	274 x 250 x 124 mm
Included Accessories	2 Measuring test leads 1.8 meters 1 GUARD test lead 1.8 meters 1 AC Adapter 1 USB cable 1 Tinsley Software 1 User guide 1 Carrying bag

PORTABLE TEST & MEASUREMENT INSULATION TESTER INS-6005KV



The digital insulation tester model INS-6005kV is one of Tinsleys' cutting edge insulation analyser equipment and it is one of the most complete and sophisticated available in the international market.

A software allows for further analysis of tests results, including features such as graphical representation and automatic report generation.

Principle of operation

A state-of-the-art microprocessor controls the equipment operation and enables the incorporation of advanced features which make measurements easier: auto-range selection, 4000 readings memory, AC/DC voltmeter, automatic measurement of Absorption Index and Polarization Index, leakage current and capacitance measurement, timer enabling programming of test duration, configurable Pass-Fail test, Step voltage test, real time clock and calendar.

Built-in chronometer, indicating elapsed time, in minutes and seconds, since the test started, up to 90 minutes.

SPECIFICATIONS

See the tables below for product specifications.

Test Voltages	500V - 1kV - 2.5 kV - 5 kV directly, one button selectable. 500 V to 5 kV in 25 V, 100 V or 500 V steps. DC, negative.
Maximum Resistance Reading	5 TΩ @ 5 kV
DC Voltmeter	10V up to 1,000 Vdc. Accuracy: ±(5% of reading + 3 digits)
AC Voltmeter	10V up to 1,000 V r.m.s. Accuracy: ±(5% of reading + 3 digits)
Overvoltage Category	CAT. III - 600V
Leakage Current Measurement	1nA up to 3mA. ±(10% of reading + 3 digits)
Capacitance Measurement	50nF up to 10μF @ 500V. 50nF up to 5μF @ 1,000V. 30 nF up to 2μF @ 2,500V. 30 nF up to 1μF @ 5,000V. Accuracy: ±10% of reading ± 3 digits
Short Circuit Current	Max. 3 mA
Test Voltages Accuracy	± 3% of nominal test voltages on 10GΩ
Equipment Basic Accuracy	± 5% of reading 1MΩ to 1TΩ @ 5 kV. ± 20% of reading 1 TΩ to 5 TΩ @ 5 kV. (for lower test voltages, the upper limit will be reduced proportionally). ± 20% of reading 10kΩ to 100kΩ. ± 10% of reading 100 kΩ to 1 MΩ.

Measured values are transmitted through the USB interface and are printed in the built-in printer as a registration of the performed test. Furthermore, the measured values are stored in a nonvolatile internal memory. Up to 4000 measurements may be stored, to be transferred afterward to a computer running the MegaLogg2 program. This software allows a further analysis of the test results, including a graphical representation and automatic report generation. The real time clock and calendar, and the sequential test number, facilitates the identification of each test, and the organization of a predictive maintenance system by trend analysis.

Advanced Features	Automated Polarization Index calculation. Automated Dielectric Absorption Ratio calculation. Programmable Pass-Fail test. Step Voltage Test. 4000 readings memory. Switchable filter to remove external noise interference.
Built-in Printer	Prints elapsed time, actual voltage and resistance measured each 15 seconds
Data Output	USB
Built-in Chronometer	Shows elapsed time in mm:ss format. Count starts automatically for each measurement
Megalogg2 Software	Friendly, easy to use software. Tests are represented in graphic and tabular views. With automatic report generator, including the operator's commentaries.
Environmental Protection	IP54 (with closed lid)
Safety Class	In accordance with IEC 61010-1
E.M.C.	In accordance with IEC 61326-1
Electro Magnetic Irradiation Immunity	In accordance with IEC 61000-4-3
Electrostatic Immunity	In accordance with IEC 61000-4-2
Power Supply	Internal rechargeable battery (LiFePO4 12.8 V - 6000 mAh)

Full specification available online.

PORTABLE TEST & MEASUREMENT INSULATION TESTER INS-6010KV



The digital insulation tester model INS-6010kV is Tinsleys' cutting edge insulation analyzer equipment and it is one of the most complete and sophisticated available in the international market.

A powerful software allows for further analysis of tests results, including features such as graphical representation and automatic report generation.

Principle of operation

A state-of-the-art microprocessor controls the equipment operation and enables the incorporation of advanced features which make measurements easier: auto-range selection, 4000 readings memory, AC/DC voltmeter, automatic measurement of Absorption Index and Polarization Index, leakage current and capacitance measurement, timer enabling programming of test duration, configurable Pass-Fail test, Step voltage test, real time clock and calendar.

Built-in chronometer, indicating elapsed time, in minutes and seconds, since the test started, up to 90 minutes.

Measured values are transmitted through the USB interface and are printed in the built-in printer as a registration of the performed

test. Furthermore, the measured values are stored in a non-volatile internal memory. Up to 4000 measurements may be stored, to be transferred afterward to a computer running the MegaLogg2 program. This software allows a further analysis of the test results, including a graphical representation and automatic report generation. The real time clock and calendar, and the sequential test number, facilitates the identification of each test, and the organization of a predictive maintenance system by trend analysis.

The INS-6010KV is powered using a rechargeable battery and has an automatic charger that may be connected to 100 - 240V mains supply. The cabinet is strong and lightweight, easy to carry, impact-resistant and suitable to be used under severe weather conditions. Thus the megohmmeter supplies very reliable and accurate measurements both in laboratory and out in the field.

SPECIFICATIONS

See the tables below for product specifications.

Test Voltages	500V - 1kV - 5kV - 10kV directly, one button selectable. 500V to 10kV in 25V, 100V or 500V steps. DC, negative.
Maximum Resistance Reading	10TΩ @ 10kV
DC Voltmeter	15V up to 600Vdc. Accuracy: ±(5% of reading + 3 digits)
AC Voltmeter	15V up to 600V r.m.s. Accuracy: ±(5% of reading + 3 digits)
Overvoltage Category	CAT. III - 600V
Leakage Current Measurement	1nA up to 1500μA ±(10% of reading + 3 digits)
Capacitance Measurement	50nF up to 10μF @ 500V. 50nF up to 5μF @ 1,000V. 30nF up to 2μF @ 2,500V. 30nF up to 1μF @ 5,000V. 30nF up to 680nF @ 10,000V. Accuracy: ±10% of reading ± 3 digits
Short Circuit Current	Max. 2mA
Test Voltages Accuracy	± 3% of nominal test voltages on 10GΩ

Megohmmeter Basic Accuracy	± 5% of reading from 1MΩ to 1TΩ @ 10kV. ± 20% of reading from 1TΩ to 10TΩ @ 10kV. (for lower test voltages, the upper limit will be reduced proportionally). ± 20% of reading ± 5 digits from 10kΩ to 100kΩ. ± 10% of reading ± 5 digits from 100kΩ to 1MΩ.
Built-in Printer	Prints elapsed time, actual voltage and resistance measured each 15 seconds
Data Output	USB
Built-in Chronometer	Shows elapsed time in mm:ss format. Count starts automatically for each measurement
Megalogg2 Software	Friendly, easy to use software. Tests are represented in graphic and tabular views. With automatic report generator, including the operator's commentaries.
Environmental Protection	IP54 (with closed lid)
Safety Class	In accordance with IEC 61010-1
E.M.C.	In accordance with IEC 61326-1
Electro Magnetic Irradiation Immunity	In accordance with IEC 61000-4-3
Electrostatic Immunity	In accordance with IEC 61000-4-2
Power Supply	Internal rechargeable battery 12.8V - 6Ah

Full specification available online.

PORTABLE TEST & MEASUREMENT
HIGH VOLTAGE INSULATION TESTER
INA-6020KV 20KV



The INA-6020kV High-Voltage insulation tester is a truly portable device that allows the measurement of insulation resistances using test voltages up to 20 kV.

It employs a state-of-the-art technology for the safe measurements of insulation resistances up to 4,000,000 MΩ with four test voltages: 5k V - 10 kV - 15 kV and 20 kV.

Principle of operation

Readings are performed through an easy-to- read analogue indicator, having a broad scale range.

This equipment is specially well suited to test isolation resistances in transmission lines and medium voltage distribution systems, whether aerial or underground, as it allows to perform testing with voltages near to the operational value. Besides, it is an excellent auxiliary when detecting cable failures.

In order to maximize the operator's safety, this equipment was made within a plastic cabinet of high dielectric strength, with no metallic accessible parts. A light indicator warns about dangerous voltages presence, both in the equipment and in the element under testing, and switches off only when the discharge process has finished.

This insulation tester has a GUARD terminal that allows to avoid the effects of parasitic resistances and surface currents on the insulation resistances under test.

Due to its reduced size and weight, its power autonomy and mechanical strength, this insulation tester is suitable for working out in the field, under severe weather conditions. It is powered with a rechargeable battery, with a charger for 110 V/220 V. In order to protect the equipment, the cabinet is water and dust resistant. Protection grade is IP65, and the insulation tester is supplied with a complete kit of high voltage test leads.

SPECIFICATIONS

See the tables below for product specifications.

Test Voltages	5 kV - 10 kV - 15 kV - 20 kV
Maximum Resistance Reading	1 TΩ @ 5 kV. 2 TΩ @ 10 kV. 3 TΩ @ 15 kV. 4 TΩ @ 20 kV
Short Circuit Current	500 μA
Test Voltages Accuracy	± 2 % of nominal test voltages on R ≥ 10 GΩ
Internal current limiting resistance	10 MΩ @ 5 kV. 20 MΩ @ 10 kV. 30 MΩ @ 15 kV. 40 MΩ @ 20 kV
Insulation tester accuracy	Class 2 (± 2 % of full scale deflection)
Analog indicator	Up to 98 mm scale length, taut band, with mirror
Environmental protection	IP65 (with closed lid)
Safety class	In accordance with IEC 61010-1

Electromagnetic compatibility (E.M.C.)	In accordance with IEC 61326-1
Electromagnetic immunity	In accordance with IEC 61000-4-3
Electrostatic immunity	In accordance with IEC 61000-4-2
Power supply	Internal rechargeable 12 V - 7 Ah, sealed lead acid battery
Battery charger	100 - 240 V~ mains supply
Operating temperature range	23 °F to 122 °F (-5 °C to 50 °C)
Storage temperature range	-13 °F to 158 °F (-25 °C to 70 °C)
Humidity range	95 % RH (non condensing)
Equipment weight	Approx. 21.60 lb (9.8 kg)
Dimensions	14.88" x 12.13" x 6.89" (378 x 308 x 175 mm)

Full specification available online.

PORTABLE TEST & MEASUREMENT
DIGITAL EARTH TESTER
ET-1020KW



This equipment allows for the measurement of Earth Resistances and Soil Specific Resistivity, and also the spurious voltages caused by parasitic voltages present in the soil.

The ET-1020KW is suitable for fast and easy measurement of the grounding resistance in house and industrial buildings, hospital installations, lightning rods, antennas, substations, etc.

Principle of operation

Soil resistivity measurement allows for soil stratification in order to optimize the most complex grounding systems engineering.

Its state-of-the-art system of active and passive filters provides it with high immunity to electric interferences, making it possible to obtain reliable measurements even in the presence of spurious voltages, such as the ones that can be found in some urban areas and near primary substations.

A 1,470 Hz internal generator injects alternated current on the soil through an auxiliary rod. The voltage generated over the earth resistance is measured by the apparatus, and the resistance value is evaluated. The test current is automatically regulated.

It has an audible signal which advises the operator when the generated current is not enough to carry out reliable measurements. Due to the fact that it may not be noticed, this alarm also prevents further testing.

Because of its wide range of measurement (from 0.01 Ω up to 20 kΩ), this equipment allows for reliable testing in all kinds of soils, including those that offer very high resistivity. The use of this instrument is very simple, it has a high-visibility 31/2 - digit display with direct readings, even under sunlight.

This earth tester is supplied with a rechargeable internal battery. The smart charger is microprocessor- controlled, and can be powered from a 12 V car battery (or a similar one).

SPECIFICATIONS

See the tables below for product specifications.

Application	Measurement of grounding resistances (3 terminals), soil resistivity (4 terminals) and spurious voltages present in the soil.
Resistance Measurement Method	The equipment injects an electronically stabilised current in the soil, and measures, with high precision, the voltage developed in the soil by means of that current flowing through grounding diffusion resistances. Display shows the Resistance value.
Operation as a Voltmeter	In the voltmeter function, the equipment operates as a AC conventional voltmeter, making it possible to check the presence and to measure voltages generated by parasitic currents.
Measurement Ranges	Resistances: 0-20 Ω; 0-200 Ω; 0-2000 Ω and 0-20 kΩ. Voltage: 0-200 V~
Accuracy	Resistances measurements: ± (2% of the measured value + 1% of the maximum value of the selected range). Voltage measurement: ± (2% of the measured value + 1% of end of scale value)
Reading Resolution	0.01 Ω in the resistance measurement. 0.1 V in the voltage measurement.
Output Power and Current	The output power is less than 0.5 W, and the output current is limited to less than 15 mA (Peak to peak)
Battery Status Checking	

It makes it possible to verify the battery charge status under normal use conditions.	
Audible Alarm	It warns the operator in case that there are abnormalities in the current circuit, which make it difficult to obtain a reliable result.
Power Supply	By means of an internal rechargeable battery, from a 12 V external battery.
Battery Charger	A smart, microprocessor controlled, circuit adjusts the battery charge to the optimised parameters in order to ensure the maximum service life. It is supplied by means of an external AC adapter (provided with the equipment) or from a 12 V car battery.
Operation Temperature	-10 °C to 50 °C
Storage Temperature	-25 °C to 65 °C
Humidity	95 % RH (without condensation)
Equipment Weight	Approx. 2.3 kg (without accessories)
Dimensions	221 x 189 x 99 mm
Accessories	4 Steel rods (50 cm). 1 Rod extraction tool. 1 AC adapter for the battery charger. 1 Connection cable to use an external 12 V battery (car battery or similar) to charge the internal battery 1 40m red lead (on spool) 1 20m blue lead (on spool). 1 20m green lead (on spool). 1 5m black lead 1 5m green lead. 1 Carrying bag. 1 User guide.

Full specification available online.

PORTABLE TEST & MEASUREMENT SMART DC HIPOT HP-1030KV



Tinsleys HP-1030KV smart DC hipot is a cutting-edge dielectric test instrument designed with an emphasis on operator safety, versatility and ease of use.

Complying with the most rigorous safety requirements, the system is divided into two modules, a control unit and a high voltage generation unit.

Principle of operation

Additional safety features include an emergency stop switch and a built-in sound alarm. Furthermore, the ability to fully remote control the instrument from an Android device — both to program the settings as well as to perform the tests — provides increased safety protection and greater comfort for the operator.

HP-1030KV's built-in microprocessor allows the user to adjust the output voltage, test duration, maximum leakage current and ramp slope, allowing for more complex tests to be carried out automatically.

SPECIFICATIONS

See the tables below for product specifications.

Test Voltage	From 2,000 V up to 30,000 V
Test Voltage Resolution	100 V between 10 kV and 30 kV 10 V up to 9.99 kV
Test Voltage Accuracy	± (2% of nominal value ± 2 digits) with 1 mA load
Polarity	Negative voltage, ground positive
Leakage Current	Max. 20 mA
Leakage Current Resolution	0.01 mA
Leakage Current Accuracy	± (2% of nominal value ± 2 digits)
Display	Alphanumeric, displays the measurements in digital form
Ripple	< 2%
Safety Features	Remote control via Bluetooth Emergency stop buttons Self-detection of sparks Visual indicators (LEDs) Sound indicator
PC Interface	USB
Advance Features	Ramp test Pass-Fail and fixed-time tests Internal memory
Built-in Chronometer	Indicates the time elapsed from the beginning of the measurement in mm:ss format

Software	It allows to transfer the data stored in the equipment memory to a PC, to analyze them, to present the results in tables and graphs, to generate reports of the tests.
Environmental Protection	IP54 (with closed lid)
Safety	In accordance with IEC 61010-1
Power Supply	Mains: 200-240 V, 50/60 Hz, 720 VA
Maximum Operating Altitude	Up to 4,000 m (13,000')
Operating Temperature	-5 °C to 50 °C (23 °F to 122 °F)
Storage Temperature	-25 °C to 70 °C (-13 °F to 158 °F)
Humidity Range	95% HR (non condensing)
Equipment Weight	Control module: approx. 16.76 lb (7.6 kg) High voltage module: approx. 17.63 lb (8 kg)
Dimensions	Control module: 450 x 360 x 190 mm (17.5" x 14.2" x 7.5") High voltage module: 450 x 360 x 190 mm (17.5" x 14.2" x 7.5")
Included Accessories	1 Interconnection cable* (controller ↔ module). 1 High voltage cable*. 1 Return cable HV*. 1 Protective grounding cable*. 1 Power cable. 1 USB cable. 2 Carrying bag (control module and high-voltage module). 1 Operation Manual. 1 Software. * Supplied with different lengths on request.

PORTABLE TEST & MEASUREMENT SMART DC HIPOT HP-1060KV



Tinsleys HP-1060KV smart DC hipot is a cutting-edge dielectric test instrument designed with an emphasis on operator safety, versatility and ease of use.

Complying with the most rigorous safety requirements, the system is divided into two modules, a control unit and a high voltage generation unit.

Additional safety features include an emergency stop switch and a built-in sound alarm.

Principle of operation

Furthermore, the ability to fully remote control the instrument from an Android device — both to program the settings as well as to perform the tests — provides increased safety protection and greater comfort for the operator.

HP60KV's built-in microprocessor allows the user to adjust the output voltage, test duration, maximum leakage current and ramp slope, allowing for more complex tests to be carried out automatically.

Remote control by App

Increased safety and comfort : Set up, start and stop tests in an even safer and more comfortable way

Automatic reports : Generate test reports directly on the App

Smartphone / tablet features : Incorporate smartphone features into your reports (photo, GPS coordinates and test location map)

• Android, Google Play and the Google Play logo are trademarks of Google LLC

SPECIFICATIONS

See the tables below for product specifications.

Test Voltage	2,000 V up to 60,000 V
Test Voltage Resolution	100 V between 10 kV and 60 kV 10 V up to 9.99 kV
Test Voltage Accuracy	± (2% of nominal value ± 2 digits) with 1 mA load
Polarity	Negative voltage, ground positive
Leakage Current	Max. 20 mA
Leakage Current Resolution	0.01 mA
Leakage Current Accuracy	± (2% of nominal value ± 2 digits)
Display	Alphanumeric
Ripple	< 2%
Safety Features	Remote control via Bluetooth Emergency stop buttons Self-detection of sparks Visual indicators (LEDs) Sound indicator
Advance Features	Ramp test Pass-Fail and fixed-time tests Internal memory
Built-in Chronometer	Up to 20 min., indication in seconds
Protocol	Modbus
USB	For configuration, control and download the stored values
Bluetooth	For configuration, control and download the stored values

Desktop (PC/Notebook)	TLogger software: for remote control, allowing to configure, run tests and generate reports
Android (Smartphone/ Tablet)	TENTECH Remote Control app: for remote control, allowing to configure, run tests and generate reports
Safety class	IEC 61010-1
IP rating	IP65 (with closed lid)
Operating Temperature	14°F to 122°F (-10°C to 50°C))
Storage Temperature	13°F to 158°F (-25°C to 70°C)
Humidity Range	95% HR (non condensing)
Main	Option: 100 - 240 V~ 50/60 Hz 450 VA
Weight	Control module: approx. 16.76 lb (7.6 kg) High voltage module: approx. 21.16 lb (9.6 kg)
Dimensions	Control module: 17.5" x 14.2" x 7.5" (450 x 360 x 190 mm) High voltage module: 17.5" x 14.2" x 7.5" (450 x 360 x 190 mm)
Accessories	• Interconnecting cable (control - high voltage modules)* • High voltage cable* • Return cable* • Protective ground cable* • Power cord • USB cable • Control module carrying bag • High voltage module carrying bag • User manual • TLogger software (download) • TENTECH Remote Control App (download) • Supplied in different lengths on request

PORTABLE TEST & MEASUREMENT SMART DC HIPOT HP-1080KV



The HP-1080KV smart DC hipot is a cutting-edge dielectric test instrument designed with an emphasis on operator safety, versatility and ease of use.

Complying with the most rigorous safety requirements, the system is divided into two modules, a control unit and a high voltage generation unit.

Principle of operation

Readings are performed through an easy-to-read analogue indicator. Complying with the most rigorous safety requirements, the system is divided into two modules, a control unit and a high voltage generation unit.

Additional safety features include an emergency stop switch and a built-in sound alarm. Furthermore, the ability to fully remote control the

instrument from an Android device — both to program the settings as well as to perform the tests — provides increased safety protection and greater comfort for the operator.

HP80KV's built-in microprocessor allows the user to adjust the output voltage, test duration, maximum leakage current and ramp slope, allowing for more complex tests to be carried out automatically.

SPECIFICATIONS

See the tables below for product specifications.

Test Voltage	From 2,000 V up to 30,000 V
Test Voltage Resolution	100 V between 10 kV and 80 kV 10 V up to 9.99 kV
Test Voltage Accuracy	± (2% of nominal value ± 2 digits) with 1 mA load
Polarity	Negative voltage, ground positive
Leakage Current	Max. 20 mA
Leakage Current Resolution	0.01 mA
Leakage Current Accuracy	± (2% of nominal value ± 2 digits)
Display	Alphanumeric, displays the measurements in digital form
Ripple	< 2%
Safety Features	Remote control via Bluetooth Emergency stop buttons Self-detection of sparks Visual indicators (LEDs) Sound indicator
USB	For configuration, control and download the stored values
Bluetooth	For configuration, control and download the stored values
Protocol	Modbus
Advance Features	Ramp test Pass-Fail and fixed-time tests Internal memory
Built-in Chronometer	Indicates the time elapsed from the beginning of the measurement in mm:ss format

Software	It allows to transfer the data stored in the equipment memory to a PC, to analyze them, to present the results in tables and graphs, to generate reports of the tests.
Environmental Protection	IP54 (with closed lid)
Safety	In accordance with IEC 61010-1
Power Supply	Mains: 200-240 V, 50/60 Hz, 960 VA
Maximum Operating Altitude	Up to 4,000 m (13,000')
Operating Temperature	-5 °C to 50 °C (23 °F to 122 °F)
Storage Temperature	-25 °C to 70 °C (-13 °F to 158 °F)
Humidity Range	95% HR (non condensing)
Equipment Weight	Control module: approx. 16.76 lb (7.6 kg) High voltage module: approx. 21.16 lb (9.6 kg)
Dimensions	Control module: 450 x 360 x 190 mm (17.5" x 14.2" x 7.5"). High voltage module: 450 x 360 x 190 mm (17.5" x 14.2" x 7.5").
Included Accessories	1 Interconnection cable* (controller ↔ module). 1 High voltage cable*. 1 Return cable HV*. 1 Protective grounding cable*. 1 Power cable. 1 USB cable. 2 Carrying bag (control module and high-voltage module). 1 Operation Manual. 1 Software. * Supplied with different lengths on request.

PORTABLE TEST & MEASUREMENT SMART INSULATING GLOVE TESTER DT-70KV



Dielectric insulating glove tester for testing up to 70 kVDC.

The dielectric tester DT-70KV is an instrument specially developed to insulating gloves testing, in accordance with standards ASTM D120-22, ASTM F496-23, EN60903:2003 and IEC 60903 (annex E) and insulating sleeves testing in accordance with standards ASTM D1051-23, ASTM F496-23 and IEC 60984:2014 (annex E).

Principle of operation

It was designed with emphasis on safety, versatility and ease of use. The voltage output is adjustable (according to the glove class), with up to 70 kVDC. Its intuitive interface makes it possible to program the glove class and the maximum leakage current, allowing automatic tests.

Complying with the most rigorous safety requirements, the system is divided into two units, a control unit and a high voltage generation unit.

Additional safety features include an emergency stop switch and a built-in sound alarm. Furthermore, the ability to fully remote control the

instrument from an App for Android — both to program the settings as well as to perform the tests — provides increased safety protection and greater comfort for the operator.

Remote control by App

Increased safety and comfort: Set up, start and stop tests in an even safer and more comfortable way. **Automatic reports:** Generate test reports directly on the App Smartphone / tablet features : Incorporate smartphone features into your reports (photo, GPS coordinates and test location map) • Android, Google Play and the Google Play logo are trademarks of Google LLC.

SPECIFICATIONS

See the tables below for product specifications.

Test Voltage	Up to 70,000 V
Test Voltage Resolution	100 V between 10 kV and 70 kV 10 V up to 9.99 kV
Test Voltage Accuracy	Up to 50 kV: ± (2 % of nominal value ± 2 digits) with 500 µA load Above 50 kV: ± 1 kV
Polarity	Negative voltage, ground positive
Leakage Current	Max. 500 µA
Leakage Current Resolution	1 µA
Leakage Current Accuracy	± (2 % of nominal value ± 2 digits)
Ripple	< 2%
Safety Features	Remote control via Bluetooth. Emergency stop buttons. Self-detection of sparks. Visual indicators (LEDs). Sound indicator.
Advance Features	Automatically configured tests in accordance with ASTM D120, ASTM F496 and IEC 60903 (annex E). Periodic tests for gloves class: 00, 0, 1, 2, 3 and 4. "Pass / Fail" test. Timed tests (within the limits of each standard)
Display	Alphanumeric LCD display, 4 lines / 20 characters (Big Number)
Chronometer	Up to 3 min., indication in mm:ss
Built-in memory	Memory for storing up to 107 tests with 3 minutes duration each
Protocol	Modbus
USB	For configuration, control and download the stored values

Bluetooth	For configuration, control and download the stored values
Desktop (PC/Notebook)	TLogger software: for remote control, allowing to configure, run tests and generate reports
Android (Smartphone/ Tablet)	TENTECH Remote Control app: for remote control, allowing to configure, run tests and generate reports
Safety class	IEC 61010-1
IP rating	IP65 (with closed lid)
Operating temperature	23°F to 122°F (-5°C to 50°C)
Storage temperature	-13°F to 158°F (-25°C to 70°C)
Humidity range	95 % RH (non condensing)
Maximum operating altitude	Up to 13,000 ft (4,000 m)
Mains	200 - 240 V~ 50/60 Hz 50 VA
Weight	Control unit: approx. 16.76 lb (7.6 kg) High voltage unit: approx. 21.16 lb (9.6 kg)
Dimensions	Control unit: 17.5" x 14.2" x 7.5" (450 x 360 x 190 mm). High voltage unit: 17.5" x 14.2" x 7.5" (450 x 360 x 190 mm)
Included Accessories	Graduated tank. Interconnection cable* (control unit ↔ HV unit). High voltage cable*. Return cable HV*. 2 protective grounding cables*. 2 glove holders. 4 clamps for fixing gloves. Power cord. USB cable. User manual. TLogger software (download). TENTECH Remote Control App (download). Carry case (control unit. Carry case (HV unit) * Supplied in different lengths on request

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Tinsley Instrumentation Ltd
1 Warner Drive
Springwood Industrial Estate
Braintree, Essex
CM7 2YW

Tel: 01376 335271
E-mail: info@tinsley.co.uk
www.tinsley.co.uk