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INSTRUMENT	NEPTUNE	JUPITER	MAC-ROG3	T1805	T1120	T1820	T2000	T1800	T1832	T1151	T1851	T1825
PAGE NO.	13	13	29	36	37	37	38	41	41	42	42	45
Continuity of bonding	•	•	•					•	•	•	•	
Resistance of earth continuity conductor	•	•	•					•	•	•	•	
Continuity of ring circuits (if applicable)	•	•	•					•	•	•	•	
Earth loop impedance test: at main switch		•	•									•
Prospective short-circuit current at point of control (PSCC) for sub-distribution boards		•	•									•
Elevated voltage between incoming neutral and external earth	•	•	•						•+	•		
Earth resistance at electrode (if required)			•	•	•	•	•					
Insulation resistance	•		•					•	•	•	•	
Voltage at main distribution board with no load for each phase to neutral	•	•	•						•	•		•
Voltage at main distribution board with load (as calculated for full load) for each phase	•	•	•									•
Voltage at available load (worst condition as calculated for full load) for each phase to neutral	•	•	•									•
Operation of earth leakage units		•	•									
Polarity of points of consumption	•	•	•									•
Phase rotation at points of consumption for three-phase systems	•	•	•									
All switching devices, make-and-break circuits	•	•	•					•	•	•	•	

+ Indication only

**NOTE:**

Testing of operation of earth leakage test button, no instrument is required. The above is only a guide as many other instruments can be used.



All these instruments are used for SANS10142 testing



T416	T60	T70	T860	T890	TBM 076	TBM 079	TBM 3030	TBM 812	TBM 878	TEL11	TEL28	TEL2 TLB
36	31	51	50	49	19	22	19	10	12	48	48	49
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All these instruments are used for SANS10142 testing



FEATURES	T820	T835	T1300H	T235H	T48	T85D	IRONMETER
PAGE NO.	7	7	7	7	7	8	8
LCD Display (Counts)	1 999	1 999	1 999	1 999	1 999	5 999	4 000
LCD Display (Digits)	3½	3½	3½	3½	3½	3⅚	4
TRUE RMS							
Transistor HFE			•		•		
Logic					•		
Max AC Voltage (V)	600	600	500	750	750	600	600
Max DC Voltage (V)	600	600	500	1 000	1 000	600	600
Max AC Current (A)				20	20	10	10
Max DC Current (A)	10	10	10	20	20	10	10
Max Resistance (Ω)	20M	20M	200M	200M	200M	60M	40M
Continuity Beeper	•		•	•	•		•
Diode Test	•		•	•	•	•	•
Autoranging							•
Frequency (Hz)		20KHZ			200K	40~1KHZ	10K
Capacitance (F)				200μ	200μ	600μ	400μ
Temperature (°C)		1 000		1 000	1 000	40	
MIN/MAX Display							•
Data Hold	•	•	•	•	•		
Crest (Peak hold)							
Backlight			•		•		•
Splash and Dust Proof							
Transient Proof (kV)							
Relative Reference							
Bar Graph							
Auto Power Off		•		•			
USB Interface							
Data Logger							
EF Detect							
Safety Category				 	 		
Intrinsically Safe							
Dual Display							
Fuse: mA Rating	250mA 250V	250mA 250V	250mA 250V	250mA 250V	250mA 250V		
Fuse Size (mm)	5 x 20	5 x 20	5 x 20	5 x 20	5 x 20		
Fuse: A Rating					12A 250V		
Fuse: Size (mm)					5 x 20		
IP Rating							
Lifetime Warranty							
Dimensions (mm) LxWxH	138 x 72 x 35	150 x 73 x 35	150 x 73 x 35	190 x 88 x 27	189 x 97 x 35		120 x 65 x 45
Weight (g)	150	156	156	320	400		200



FLASHMETER	TBM805	TBM252	TBM239R	TBM525	TBM812	TBM869	TBM812XEX	T64	TBM319	TBM878	NEPTUNE	JUPITER	MERCURY	TBM27	TBM789
8	9	9	9	10	10	10	11	11	12	12	13	13	14	14	15
4 000	4 000	6 000	6 000	10 000	10 000	500 000	10 000	6 000	6 000	6 000	9 999	9 999	6 000	6 000	60 000
4	3 <sup>3</sup> / <sub>4</sub>	3 <sup>5</sup> / <sub>6</sub>	3 <sup>5</sup> / <sub>6</sub>	3 <sup>9</sup> / <sub>10</sub>	3 <sup>9</sup> / <sub>10</sub>	5 <sup>4</sup> / <sub>5</sub>	3 <sup>9</sup> / <sub>10</sub>	4 <sup>1</sup> / <sub>2</sub>	3 <sup>5</sup> / <sub>6</sub>	3 <sup>5</sup> / <sub>6</sub>	4	4	3 <sup>5</sup> / <sub>6</sub>	3 <sup>5</sup> / <sub>6</sub>	
TRMS			TRMS	TRMS		TRMS		TRMS	TRMS	TRMS	TRMS	TRMS	TRMS		TRMS
						•			•	•					
600	1 000	1 000	1 000	1 000	1 000	1 000	1 000	1 000	1 000	1 000			1 000	600	1 000
600	1 000	1 000	1 000	1 000	1 000	1 000	1 000	1 000	1 000	1 000	999.9	690	1 000	600	1 000
	10	8	10	10	10	10	10	10	10	10	3 000M	3 000	10	2 000µA	10
	10	8	10	10	10	10	10	10	10	10		199.9	10	2 000µA	10
400	40M	60M	60M	60M	60M	60M	60M	60M	60M	60M	1 999		60M	6M	60M
	•	•	•	•	•	•	•	•	•	•		•		•	•
	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	1M	1M	50K	1M	1M	1M	1M	1M	1k	5k	999.9	999.9	10M	10 to 30k	50kHz - 1MHz
	3 000µ	3 000µ	2 000µ	25m	20m	25m	20m	20m	200µ	30m			6000µ	2 000µ	10.00mf
	300	1 000	400	1 000		1 000		1 350	1 000	1 000			1 000		1 000
	MAX	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
				•	•	•	•	•	•	•	•	•	•	•	•
•	•			•	•	•	•	•	•	•	•	•	•	•	•
		•	•	•	•	•	•	•	•	•			•		8kv
	6.5	6.0	6.0	12	12	12	12	12	12	12					•
	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
				•									•		
•		•	•											•	
CAT IV 600V	CAT II 1000V CAT III 600V	CAT III 600V	CAT II 1000V CAT III 600V CAT IV 300V	CAT IV 1000V	CAT IV 1000V	CAT IV 1000V	CAT IV 1000V	CAT III 1000V CAT IV 600V	CAT II 1000V	CAT III 1000V CAT IV 600V	CAT III 1000V CAT IV 600V	CAT III 690V CAT IV 600V	CAT III 1000V CAT IV 600V	CAT II 600V CAT III 300V	CAT IV 600V CAT III 1000V
				•	•	•	•	•	•	•					
		630mA 500V		44mA 1 000V	1A 600V	44mA 1 000V	44mA 1 000V		630mA 500V	630mA 500V					
		6 x 32		10 x 37	10 x 38	10 x 38	10 x 38	x 35	6 x 32	6 x 32					
		10A 600V	11A 1 000V	11A 1 000V	10A 600V	11A 1 000V	11A 1 000V		6.3A 500V	6.3A 500V					10A 600V
	6 x 25	10 x 38	6 x 38	6 x 38	6 x 38	10 x 38	6 x 38		6 x 38	6 x 38					6 x 38
IP67				IP54	IP54	IP54	IP54				IP40	IP40	IP65		
				LIFETIME WARRANTY	LIFETIME WARRANTY	LIFETIME WARRANTY									
140 x 75 x 40	189 x 97 x 55	161 x 80 x 50	161 x 80 x 50	198 x 97 x 55	208 x 103 x 64.5	208 x 103 x 64	208 x 103 x 64.5	190 x 94 x 48	160 x 80 x 50	208 x 103 x 64	175 x 85 x 55	175 x 85 x 55	190 x 75 x 55	113 x 53 x 10.2	193 x 89 x 51
220	396	340	334	430	635	635	635	460	340	635	420	420	555	78	365



**T820**

- Continuity test
- Diode test
- Large LCD display
- Low battery indication
- Sampling rate 3 times/s

**Technical Overview**

Feature	Parameter	Accuracy
DC Voltage (V)	200mV/ 2/ 20/ 200/ 600V	±0.5% + 4 Digit
AC Voltage (V)	200/ 600V	±1.2% + 10 Digit
DC Current (A)	20µA/200µA/ 2mA/ 20mA/ 200mA/ 10A	±1.5% + 3 Digit
Resistance (Ω)	200/ 2kΩ/ 20kΩ/ 200kΩ/ 20MΩ	±0.8% + 5 Digit
AC Frequency Response (Hz)	40-400Hz	
Input Impedance(Ω)	10MΩ	
Display	3½ Digits	1 999 Counts

**Model Specification**

Power Source	1 x 9V Battery
Standard Accessories	Test Leads



**T235H**

- Capacitance
- Transistor test
- Data Hold
- Non-contact voltage EF detection (NCV)
- Auto Power Off
- Backlight
- Temperature
- Torch

**Technical Overview**

Feature	Parameter	Accuracy
DC Voltage (V)	200mV/ 2/ 20/ 200/ 1000V	±0.5% + 3 Digit
AC Voltage (V)	2/ 20/ 750V	±1.2% + 10 Digit
DC Current (A)	20µA/ 200µA/ 20mA/ 200mA/ 20A	±0.8% + 3 Digit
AC Current (A)	20mA/ 200mA/ 20A	±2.0% + 5 Digit
Resistance (Ω)	2kΩ/ 20kΩ/ 200kΩ/ 200/ 2MΩ/ 20MΩ	±1.2% + 4 Digit
AC Frequency Response	40 - 400Hz	
Temperature (°C)	-20 to +1000°C	±0.8% + 4 Digi
Input Impedance	10MΩ	
Capacitance (F)	2nF/ 20nF/ 200nF / 2000µF/ 20mF	±2.5 % + 20 Digit
Display	3½ Digits	1 999 Counts

**Model Specification**

Power Source	1 x 9V Battery
Standard Accessories	Temp Probe <b>TBTEMPPROBE</b> , Test Leads, Instruction Manual



**T1300H**

- Diode test
- Continuity test
- Data Hold
- Backlight
- Capacitance test
- Auto power off
- Non-contact voltage EF detection (NCV)
- Torch

**Technical Overview**

Feature	Parameter	Accuracy
DC Voltage (V)	200mV/ 2/ 20/ 200/ 600V	±0.5% + 3 Digit
AC Voltage (V)	200/ 600V	±1.2% + 10 Digit
DC Current (A)	20mA/ 200mA/ 10A	±1.0% + 2 Digit
AC Current (A)	200mA/ 10A	±3.0% + 10 Digit
Capacitance (F)	20nF/ 200nF/ 2µF/ 20µF/ 200µF/ 2000µF	±5.0% + 10 Digit
Frequency (Hz)	10/ 100Hz/ 1kHz / 10kHz/ 100kHz/ 2mHz	±1.0% + 10 Digit
Resistance (Ω)	200/ 20kΩ/ 200kΩ/ 2MΩ	±2.5% + 5 Digit
Display	3½ Digits	1 999 Counts

**Model Specification**

Power Source	1 x 9V Battery
Standard Accessories	Test Leads



**T48**

- Capacitance
- Inductance
- Frequency
- hFE Function
- Backlight
- Temperature

**Technical Overview**

Feature	Parameter	Accuracy
DC Voltage (V)	200mV/ 2/ 20/ 200/ 1000V	±0.5% + 3 Digit
AC Voltage (V)	200mV/ 2/ 20/ 200/ 750V	±0.8% + 5 Digit
DC Current (A)	2mA/ 20mA/ 200mA/ 20A	±0.8% + 3 Digit
AC Current (A)	2mA/ 20mA/ 200mA/ 20A	±1.0% + 5 Digit
Inductance (H)	2mH/ 20mH/ 200mH/ 2/ 20H	±2.5% + 20 Digit
Resistance (Ω)	200/ 2kΩ/ 200kΩ/ 2M/ 20M/ 2000MΩ	±0.8% + 3 Digit
Frequency (Hz)	20K/ 200K/ 2000/ 10MHz	±0.5% + 4 Digit
Temperature (°C)	-20 to +1000°C	±1.0% + 4 Digit
Input Impedance	10MΩ	
Capacitance (F)	20nF/ 200nF/ 2µF/ 20µF/ 200µF	±2.5% +20 Digit
Display	3½ Digits	1 999 Counts

**Model Specification**

Power Source	1 x 9V Battery
Standard Accessories	Temp Probe <b>TBTEMPPROBE</b> , Test Leads



**T835**

- Continuity test
- Diode test
- Data Hold
- Backlight
- Temperature
- Auto power off
- Non-contact voltage EF detection (NCV)
- Torch

**Technical Overview**

Feature	Parameter	Accuracy
DC Voltage (V)	200mV/ 2/ 20/ 200/ 500V	±0.5% + 2 Digit
AC Voltage (V)	200/ 500V	±1.2% + 10 Digit
DC Current (A)	200mA/ 2mA/ 20mA/ 200mA/ 10A	±1.0% + 2 Digit
Resistance (Ω)	200/ 2kΩ/ 20kΩ/ 200kΩ/ 20MΩ	±0.8% + 5 Digit
Temperature (°C)	-20 to +1000°C	±1.0% + 3 Digit
Display	3½ Digits	1 999 Counts

**Model Specification**

Power Source	1 x 9V Battery
Standard Accessories	Temp Probe <b>TBTEMPPROBE</b> , Test Leads



**T85D**

- LCD digital display
- Full intelligent automatic range
- Diode & Capacitance test
- Flashlight
- Firewire recognition
- Backlight
- Non-contact EF detection (NCV)

**Technical Overview**

Feature	Parameter	Accuracy
DC Voltage (V)	6/ 60/ 600V	±1.0% + 10 Digit
AC Voltage (V)	6/ 60/ 600V	±1.2% + 10 Digit
DC Current (A)	600mA/ 6A/ 10A	±2.0% + 5 Digit
AC Current (A)	600mA/ 6A/ 10A	±3.0% + 10 Digit
Resistance (Ω)	600Ω/ 6kΩ/ 60kΩ/ 600kΩ/ 6MΩ/ 60MΩ/	±2.0% + 5 Digit
Temperature (°C)	0 to +40°C <75%RH	
Capacitance (F)	60nF/ 600nF/ 6µF/ 60µF/ 600µF/ 6mF/ 60mF	±2.0% +4 Digit
Frequency response (Hz)	40 - 1KHz	
Display	3½ Digits	5 999 Counts

**Model Specification**

Power Source	2 x 1.5V AAA Battery
Standard Accessories	Test Leads, User manual
Dimensions (mm)	146(L) x 72(W) x 50(H)
Weight (g)	210
Certificates	IEC61010-1



### IRONMETER - TRMS AC/DC Unbreakable

- Integrated LED flashlight
- Automatic polarity indication
- "OL" over-range indication
- Diode and Continuity Test
- MAX/MIN Hold
- Autoranging
- Backlight
- Double insulation

#### Technical Overview

Feature	Parameter	Accuracy
DC Voltage (V)	400mV/ 4/ 4/ 40/ 600V	±1.0% +3 Digit
AC Voltage (V)	4/ 40/ 400/ 600V	±1.0% +3 Digit
DC Current (A)	400µA/ 4000µA/ 40mA/ 400mA/ 4/ 10A	±1.2% +3 Digit
AC Current (A)	400µA/ 4000µA/ 40mA/ 400mA/ 4/ 10A	±1.2% +3 Digit
Resistance (Ω)	400/ 4kΩ/ 40kΩ/ 400kΩ/ 4MΩ/ 40MΩ	±1.5% +5 Digit
Frequency (Hz)	10Hz – 10kHz	±1.2%
Capacitance (F)	40nF/ 400nF	±4.5% +10 Digit
	4µF/ 40µF	±3.0% +5 Digit
	400µF/ 4000µF	±5.0% +5 Digit
Display	4 Digits	4 000 Counts



#### Model Specification



Power Source	2 x 1.5V AAA Batteries
Standard Accessories	Test Leads, Transport Bag and User Manual
Certificates	IEC/EN61010-1, EMC: IEC/EN61326-1



### FLASHMETER – Unbreakable and Water Resistant

- Automatic measurement selection
- Detects AC Voltage without contact (NCV)
- Automatic polarity indication
- "OL" over-range indication
- Integrated white light illuminator
- Auto Hold
- Backlight

#### Technical Overview

Feature	Parameter	Accuracy
DC Voltage (V)	400/ 600V	±1.0% +5 Digit
AC Voltage (V)	400/ 600V	±1.0% +5 Digit
Resistance (Ω)	40/ 400Ω	±2.0% +18 Digit
	4kΩ/ 40kΩ/ 400kΩ	±2.0% +10 Digit
Display	4 Digits	4 000 counts



#### Model Specification



Power Source	2 x 1.5V AAA Batteries
Standard Accessories	Test Leads, Transport Bag and User Manual
Certificates	IP67, EMC 2014/30/EU, EMC: IEC/EN61326, IEC/EN61010-1, LVD 2014/35/EU

### T921

- Auto Range
- Integrated test leads
- Auto off function
- Shock Proof case
- Data hold
- Diode test / continuity buzzer
- Low battery indication
- Duty cycle measurement
- Compact Pocket DMM

#### Technical Overview

Feature	Parameter	Accuracy
DC Voltage (V)	200mV/2v/20v/200v/600v 400mv/4v/40v/400v/600v	± 0.5% + 4
AC Voltage (V)	200/600v 400mv/4v/40v/400v/600v	± 0.8% +4
DC Current (A)	20uA/200uA/2mA/20mA/200mA/10A	
Resistance (Ω)	400Ω/2kΩ/20kΩ/200kΩ/20mΩ 400Ω/4kΩ/40kΩ/400kΩ/4mΩ/40mΩ	± 0.8% +4
Capacitance (F)	4nF/40nF/400nF/4uF/40uF/2000uF	± 3.5%+8
Frequency response (Hz)	100Hz/1000Hz/10kHz/100kHz/1MHz/10MHz	± 0.5% +4



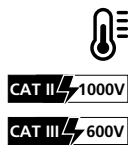
#### Model Specification



Power Source	2 x AAA
Standard Accessories	Integrated test leads
Certificates	CE







### TBM805

- Beep-Jack™ warning
- Data Hold
- Frequency
- Capacitance
- MAX/MIN Hold
- Relative zero
- Rugged Construction

#### Technical Overview

Feature	Parameter	Accuracy
DC Voltage (V)	400mV/ 4/ 40/ 400/ 1000V	±1.0% + 4 Digit
AC Voltage (V)	400mV/ 4/ 40/ 400/ 1000V	4 -400V ±1.5% + 5 Digit, 1000V ±4.0% + 5 Digit
DC Current (A)	400µA/ 4000µA/ 40mA/ 400mA/ 4/ 10A	±1.2% + 3 Digit
AC Current (A)	400µA/ 4000µA/ 40mA/ 400mA/ 4/ 10A	±1.8% + 4 Digit
Resistance (Ω)	400/ 4kΩ/ 40kΩ/ 400kΩ/ 4MΩ/ 40MΩ	±2.0% + 4 Digit
Temperature (°C)	-20 to +300°C	±2.0% + 3°C
Capacitance (F)	500nF/ 5µF/ 50µF/ 500µF/ 3000µF	±3.5% + 6 Digit
Frequency (Hz)	50/ 500/ 5kHz/ 50kHz/ 500kHz/ 1MHz	±0.5% + 4 Digit
Display	3 <sup>1</sup> / <sub>2</sub> Digits	4 000 Counts

#### Model Specification

Power Source	2 x 1.5V AAA Batteries
Standard Accessories	Temp Probe <b>TBMTEMPPROBE</b> , Test Leads
Certificates	UL, IEC61010-1, Certificate of Conformance



### TBM252

- USB Interface
- Non-contact EF detection (NCV)
- Frequency
- Separate battery compartment
- Capacitance
- Beep-Jack™ warning

#### Technical Overview

Feature	Parameter	Accuracy
DC Voltage (V)	60mV/ 600mV/ 6/ 60/ 600/ 1000V	±0.2% + 3 Digit
AC Voltage (V)	60mV/ 600mV/ 6/ 60/ 600/ 1000V	±1.0% + 5 Digit
DC Current (A)	600µA/ 6000µA/ 60mA/ 600mA/ 6/ 8A	±0.5% + 3 Digit
AC Current (A)	600µA/ 6000µA/ 60mA/ 600mA/ 6/ 8A	±1.0% + 3 Digit
Resistance (Ω)	600/ 6kΩ/ 60kΩ/ 600kΩ/ 6MΩ/ 60MΩ	±0.5% + 4 Digit
Temperature (°C)	-50 to +1000°C	±0.3% + 3 Digit
Capacitance (F)	60nF/ 600nF/ 6µF/ 60µF/ 600µF/ 3 000µF	±1.5% + 5 Digit
Frequency (Hz)	5Hz - 1MHz	±0.003% + 2 Digit
Display	3 <sup>1</sup> / <sub>2</sub> Digits	6 000 Counts

#### Model Specification

Power Source	1.5V AAA Battery
Standard Accessories	Temp Probe <b>TBMTEMPPROBE</b> , Test Leads
Optional Accessories	USB Cable and Software <b>TBU20X</b> (P16), USB Adaptor (P16)
Certificates	UL, IEC61010-1, Certificate of Conformance



### TBM239R

- 3-Phase rotation
- VFD V Hz
- Hz of line level voltage
- Beep-Jack™ warning
- Non-contact EF detection (NCV)
- Temperature

#### Technical Overview

Feature	Parameter	Accuracy
DC Voltage (V)	60mV/ 600mV/ 6/ 60/ 600/ 1000V	0.03% + 2 Digit
AC Voltage (V)	6V/ 60V/ 600V/ 1000V	0.7% + 3 Digit
DC Current (A)	200µA/ 2000µA/ 6A/ 10A	0.7% + 3 Digit
AC Current (A)	200µA/ 2000µA/ 6A/ 10A	1.0% + 3 Digit
Resistance (Ω)	600Ω - 60MΩ	0.3% + 3 Digit
Temperature (°C)	-40 to +400°C	1.0% + 1°C
Capacitance (F)	2 000nF/ 20µF/ 200µF/ 2 000µF	1.5% + 2 Digit
Frequency (Hz)	10Hz - 50KHz	0.03% + 2 Digit
VDF ACV	10Hz - 440Hz/ 600V/ 1000V	1.0% + 3 Digit - 10% + 3 Digit
Display	3 <sup>1</sup> / <sub>2</sub> Digits	6 000 Counts

#### Model Specification

Power Source	2 x 1.5V AAA Batteries
Standard Accessories	Temp Probe <b>TBMTEMPPROBE</b> , Test Leads, Crocodile Clips
Optional Accessories	Magnetic Hanger <b>TBMH01</b>
Certificates	EN6101-1/2-2-030/-2-033



### TBM525

- Data logger (140 hours at 60s intervals)
- 87 000 Points single display mode
- 43 000 Points dual display mode
- Optional USB PC interface
- T2 Dual Type-K temperature readings

#### Technical Overview

Feature	Parameter	Accuracy
DC Voltage (V)	60mV/ 600mV/ 6/ 600/ 1000V	±0.08% + 2 Digit
AC Voltage (V)	60mV/ 600mV/ 6/ 600/ 1000V	±0.08% + 2 Digit
DC Current (A)	600µA/ 6000µA/ 60mA/ 600mA/ 6/ 10A	±0.8% + 6 Digit
AC Current (A)	600µA/ 6000µA/ 60mA/ 600mA/ 6/ 10A	±0.8% + 6 Digit
Resistance (Ω)	0.1Ω - 60MΩ	±0.8% + 10 Digit
Temperature (°C)	-50 to +1000°C	±0.3% + 2°C
Capacitance (F)	60nF/ 600nF/ 6µF/ 60µF/ 600µF/ 25mF	±5.0% + 5 Digit
Frequency (Hz)	5Hz to 1MHz	±0.004% + 4 Digit
Display	3 <sup>1/2</sup> Digits	10 000 Counts



**IP54**

**CAT IV 1000V**

LIFETIME WARRANTY

#### Model Specification

Power Source	1 x 9V Battery
Standard Accessories	Temp Probe <b>TBMTEMPPROBE</b> , Test Leads
Optional Accessories	USB Cable and Software <b>TBU86X</b> (P16), Magnetic Hanger <b>TBMH01</b>
Certificates	IP54, UL, IEC61010-1, Certificate of Conformance



### TBM869

- Crest mode
- Dual K-Type temperature inputs
- Capacitance
- Beep-Jack™ warning
- Duty cycle
- Dual display
- VFD

#### Technical Overview

Feature	Parameter	Accuracy
DC Voltage (V)	500mV/ 5/ 50/ 500/ 1000V	±0.02% + 2 Digit
AC Voltage (V)	500mV/ 5/ 50/ 500/ 1000V	±1.2% + 40 Digit (20Hz-45Hz)
DC Current (A)	500µA/ 5000µA/ 50mA/ 500mA/ 5/ 10A	±0.15% + 20 Digit (0.5% + 50 Digit at 500µA)
AC Current (A)	500µA/ 5000µA/ 50mA/ 500mA/ 5/ 10A	±0.5% + 50 Digit
Resistance (Ω)	500/ 5kΩ/ 50kΩ/ 500kΩ 5MΩ/ 50MΩ	±0.07% + 10 Digit
Temperature (°C)	-50 to +1000°C	±0.3% + 1.5°C
Capacitance (F)	50nF/ 500nF/ 5µ/ 500µ/ 25mF	±0.8% + 3 Digit
Frequency (Hz)	10Hz - 3kHz	±0.002% + 4 Digit
Line Logic	5Hz - 1MHz	±0.002% + 4 Digit
Display	5 <sup>1/2</sup> Digits	500 000 Counts



**IP54**

**CAT IV 1000V**

#### Model Specification

Power Source	1 x 9V Battery
Standard Accessories	K-Type Temp Probe <b>TBMTEMPPROBE</b> , Test Leads, Holster
Optional Accessories	USB Cable and Software <b>TBU86X</b> (P16)
Certificates	IP54, UL, IEC61010-1, Certificate of Conformance



### TBM812

- General Purpose
- Splash/Drop proof
- 1 000V AC/DC
- Optional USB PC interface
- Backlight dual display
- 41 Segment analogue bar graph 60/s
- Audible and visual Beep-Jack™ warning

#### Technical Overview

Feature	Parameter	Accuracy	Protection
DC Voltage (V)	60mV/ 600mV/ 6/ 600/ 1000V	±0.08% + 2 Digit	1050Vrms, 1450V peak
AC Voltage (V)	60mV/ 600mV/ 6/ 600/ 1000V	±2.0% + 3 Digit	1050Vrms, 1450V peak
DC Current (A)	600µA/ 6000µA/ 6mA/ 600mA/ 6/ 10A	±0.2% + 4 Digit	0.44A/1000V Fuse (IR10kA) 11A/1000V Fuse (IR20kA)
AC Current (A)	600µ, 6000µ, 60mA, 600mA, 6/ 10A	±1.0% + 4 Digit	0.44A/1000V Fuse (IR10kA) 11A/1000V Fuse (IR20kA)
Resistance (Ω)	40.1Ω - 60MΩ	±1.5% + 5 Digit	1.2V DC open circuit
Capacitance (F)	60nF/ 600nF/ 6µF/ 60µF/ 600µF/ 20mF	±5.0% + 5 Digit	
Frequency (Hz)	5Hz - 1MHz	±0.5% + 4 Digit	
Transient Protection			12kV surge (1.2/50 µs) surge
Display	3 <sup>1/2</sup> Digits	10 000 Counts 6 000 Counts	AC/DC Voltage/ Hz/ nS mV/ µA/ A/ mA/ Ω/ F



**IP54**

LIFETIME WARRANTY

**CAT IV 1000V**

#### Model Specification

Power Source	1 x 9V Battery
Optional Accessories	Test Leads, USB Cable and Software <b>TBU86X</b> , USB Adaptor (P16), Magnetic Hanger <b>TBMH01</b>
Certificates	UL, IEC61010-1 Ed:3.0, Certificate of Conformance, IP54



### TBM812XEX – Intrinsically Safe

- Hazardous environment
- 1 000V AC/DC
- 1A/1kV (IR10kA) for  $\mu$ A and mA (1000V HRC Fuse)
- 11A/1kV (IR20kA) for A (1000V HRC Fuse)
- Backlight dual display
- 41 Segment analogue bar graph 60/5
- Audible and visual Beep-Jack™ warning

#### Technical Overview

Feature	Parameter	Accuracy	Protection
DC Voltage (V)	60mV/ 600mV/ 6/ 600/ 1000V	$\pm 0.08\% + 2$ Digit	1050Vrms, 1450V peak
AC Voltage (V)	60mV/ 600mV/ 6/ 600/ 1000V	$\pm 2.0\% + 3$ Digit	1050Vrms, 1450V peak
DC Current (A)	600 $\mu$ A/ 6000 $\mu$ A/ 6mA/ 600mA/ 6/ 10A	$\pm 0.2\% + 4$ Digit	0.44A/1000V Fuse (IR10kA) 11A/1000V Fuse (IR20kA)
AC Current (A)	600 $\mu$ , 6000 $\mu$ , 60mA, 600mA, 6/ 10A	$\pm 1.0\% + 4$ Digit	0.44A/1000V Fuse (IR10kA) 11A/1000V Fuse (IR20kA)
Resistance ( $\Omega$ )	40.1 $\Omega$ - 60M $\Omega$	$\pm 1.5\% + 5$ Digit	1.2V DC open circuit
Capacitance (F)	60nF/ 600nF/ 6 $\mu$ F/ 60 $\mu$ F/ 600 $\mu$ F/ 20mF	$\pm 5.0\% + 5$ Digit	
Frequency (Hz)	5Hz - 1MHz	$\pm 0.5\% + 4$ Digit	
Transient Protection			12kV surge (1.2/50 $\mu$ s) surge
Display	3 $\frac{1}{10}$ Digits	10 000 Counts	AC/DC Voltage/ Hz/ nS
		6 000 Counts	mV/ $\mu$ A/ A/ mA/ $\Omega$ / F

#### Model Specification (Refer to TBM812 model specification)



Certificates	IECSANS 60079-0:2012, IECSANS 60079-11:2012 Electrical apparatus for explosive gas atmospheres: <ul style="list-style-type: none"> <li>• Part 0 - General requirements</li> <li>• Part 1 – Intrinsic</li> </ul> Approved explosive protection rating is suitable for use in Zone 1 hazardous area. Group I (coal mines) underground and Group II (surface).
Meter Markings	<ul style="list-style-type: none"> <li>• Ex ib IIA T4 Gb</li> <li>• Ex ib I Mb</li> <li>• Ex ib falls under Zone 1 which is an area where flammable gas can occur in normal operating conditions</li> <li>• IA Number: MTEX - MS/19.0358 X</li> </ul>



### T64 - TRMS/AC+DC with Data Logger (Colour Display)

- Data logger and graph
- Diode, Continuity and Resistance tests
- Automatic polarity indication
- "OL" over-range indication
- Colour TFT, 6000 pixels backlit display
- MAX/MIN/AVG Data Hold
- LoZ voltage measurement
- PEAK 1ms
- Double insulation
- 4-20mA% Passive signal measurement

#### Technical Overview

Feature	Parameter	Accuracy
DC Voltage (V)	600mV/ 6/ 60V	$\pm 0.1\% + 5$ Digit
	600/ 1000V	$\pm 0.2\% + 5$ Digit
AC TRMS Voltage (V)	600mV/ 6/ 60V	$\pm 0.1\% + 5$ Digit
	600/ 1000V	$\pm 0.2\% + 5$ Digit
AC+DC TRMS Voltage (V)	6/ 60/ 600/ 1000V	$\pm 3.0\% + 20$ Digit
DC Current (A)	600 $\mu$ A/ 6000 $\mu$ A/ 60mA	$\pm 0.9\% + 5$ Digit
	600mA	$\pm 0.9\% + 8$ Digit
	10A	$\pm 1.5\% + 8$ Digit
AC, AC+DC TRMS Current (A)	600 $\mu$ A/ 6000 $\mu$ A/ 60mA/ 600mA	$\pm 1.2\% + 5$ Digit
	10A	$\pm 1.5\% + 5$ Digit
Resistance ( $\Omega$ )	600 $\Omega$	$\pm 0.8\% + 10$ Digit
	6k $\Omega$ / 60k $\Omega$ / 600k $\Omega$ / 6M $\Omega$	$\pm 0.8\% + 5$ Digit
	60M $\Omega$	$\pm 2.5\% + 10$ Digit
Frequency (Hz)	60/ 600/ 6kHz/ 60kHz/ 600kHz/ 1MHz	$\pm 0.9\% + 5$ Digit
Temperature ( $^{\circ}$ C):	-40 to +1350 $^{\circ}$ C	$\pm 105\% + 3^{\circ}$ C
Capacitance (F)	60nF/ 600nF/ 6000 $\mu$ F/ 60 $\mu$ F/ 600 $\mu$ F/ 6mF	$\pm 1.5\% + 20$ Digit
Display	4 $\frac{1}{2}$ Digits	6 000 Counts



#### Model Specification

Power Source	1 x 7.2V Li-ION Rechargeable Battery
Standard Accessories	K-Type Wire Temperature Probe, Test Leads, Transport Bag
Optional Accessories	Clamp transducer AC (HT96U), Standard Clamp DC Current (HT98U), Flexible Clamp (F3000U) (P21), 400A Clamp (HT4006)
Certificates	EMC: IEC/EN61326, IEC/EN61010-1, Calibration certificate ISO 9000



### TBM319 - Automotive Tester

- Splash/Drop proof
- Selectable 4-stroke /2-stroke
- Sensitivity on RPM
- Selectable 1 to 12 cylinders
- Bar graph indication 40s

#### Technical Overview

Feature	Parameter	Accuracy
DC Voltage (V)	60mV/ 600mV/ 6/ 60/ /600/ 1000V	±0.4% + 3 Digit
AC Voltage (V)	60mV/ 600mV/ 6/ /60/ 600/ 1000V	±2.0% + 5 Digit
DC Current (A)	600µA/ 6000µA/ 60mA/ 600mA/ 6/ 10A	±0.7% + 3 Digit
AC Current (A)	600µA/ 6000µA/ 60mA/ 600mA/ 6/ 10A	±2.2% + 5 Digit
Resistance (Ω)	600/ 6kΩ/ 60kΩ/ 600kΩ/ 6MΩ/ 60MΩ	±0.5% + 5 Digit
Temperature (°C)	-50 to +1000°C	±0.5% + 3 Digit
Capacitance (F)	6µF/ 60µF/ 600µF/ 2 000µF	±2.0% + 5 Digit
Frequency (Hz)	10Hz - 1kHz	±0.1% + 3 Digit
RPM	240-20 000RPM (Inductive), 60-20 000RPM (Contact)	2RPM
DWELL Angle	0 - 360°	±1.2%/kRPM + 1 Digit
Fuel Injector (ms)	0.05 - 250ms	±0.05ms + 1 Digit
Display	3 <sup>1</sup> / <sub>6</sub> Digits	6 000 Counts

#### Model Specification

Power Source	2 x 1.5V AAA Batteries
Standard Accessories	Temp Probe <b>TBMTEMPPROBE</b> , Banana Plug, Inductive Pickup Clip <b>BP300</b>
Certificates	UL, IEC61010-1, Certificate of Conformance



CAT II 1000V



### TBM878 - Insulation/Combination

- Industrial test probe
- Earth bond resistance, 200mA
- VFD AC Voltage
- Relative zero
- Hz Line level frequency
- Earth Continuity
- BeepJack™ warning
- Autoranging
- Continuity and Diode test
- Dual digital display
- Data Hold

#### Technical Overview

Feature	Parameter	Accuracy
DC Voltage (V)	60mV/ 600mV/ 6/ 600/ 1000V	±0.09% + 3 Digit
AC Voltage (V)	60mV/ 600mV/ 6/ 600/ 1000V	±2.0% + 3 Digit
DC Current (A)	60mA/ 600mA	±0.4% + 3 Digit
AC Current (A)	60mA/ 600mA	±1.5% + 3 Digit
Resistance (Ω)	600/ 6kΩ/ 60kΩ/ 600kΩ/ 6MΩ/ 60MΩ	±1.5% + 3 Digit
Insulation Resistance (Ω)	50V(3M-55MΩ)/ 100V(3M-110MΩ)/ 250V(3M-275MΩ) 550V(3M-550MΩ)/ 1000V (3M-25GΩ)	±1.5% + 5 Digit
Temperature (°C)	-50 to +1000°C	±9.0% + 2.0°C
Capacitance (F)	3µF/ 30µF/ 300µF/ 3 000µF/ 30mF	±1.5% + 5 Digit
Frequency (Hz)	10Hz - 5KHz	±0.02% + 4 Digit
Display	3 <sup>1</sup> / <sub>6</sub> Digits	6 000 Counts

#### Model Specification

Power Source	4 x 1.5V AA Batteries
Standard Accessories	Temp Probe <b>TBMTEMPPROBE</b> , Crocodile Clips <b>TBM878CLIP</b> , Test Lead Adaptor <b>TBM878TIPS</b> , Test Lead <b>TBM878LEAD</b> , Industrial Test Probe <b>TBM878PROBE</b>
Certificates	UL, IEC61010-1, Certificate of Conformance



CAT III 1000V

CAT IV 600V



IP40

CAT III 1000V

to ground and between inputs

CAT IV 600V

### NEPTUNE - Insulation and Continuity Tester 1000V

- Harmonics analyser up to 25th harmonic and THD%
- Bar graph
- Automatic polarity indication
- Automatic range & detection of AC/DC signals
- Dynamic INRUSH
- Continuity of earth conductors (LoΩ)
- Phase sequence rotation with 1-wire method
- MAX/MIN/PEAK Hold
- Polarisation Index (PI)
- Dielectric absorption ratio (DAR)
- Continuity of Protective and equipotential conductors (PE)

#### Technical Overview

Feature	Parameter	Accuracy
Insulation Voltage DC	50/ 100/ 250/ 500/ 1000V	±5.0% + 2 Digit
DC Voltage (V)	0 - 999.9V	±0.5% + 2 Digit
AC, AC+DC, LoZ TRMS Voltage (V)	0.5 - 999.9V	±0.5% + 2 Digit
DC, AC, AC+DC Current (A) – Standard Rigid Clamp	1 - 1000mV	±0.5% + 2 Digit
AC TRMS Current (A) Flexible Clamp	1 - 3000mV	±0.5% + 2 Digit
Inrush Current: DC, AC, AC+DC TRMS – Standard Rigid and Flexible Clamp	1 - 1000mV	±2.0% + 2 Digit
Inrush Current: AC TRMS – Flexible Clamp	1 - 3000mV	±2.0% + 2 Digit
Resistance (Ω)	0 - 1999Ω	±1.0% + 5 Digit
Frequency (Hz)	32 - 999.9Hz	±0.1% + 1 Digit
Harmonic Voltage and Current (Hz)	DC: 42.5 - 69Hz	±5.0% + 20 Digit
	1 - 25: 42.5 - 69Hz	±5.0% + 10 Digit
	THD%: 42.5 - 69Hz	±10.0% + 10 Digit
Display	4 Digits	9 999 Counts

#### Model Specification

Power Source	4 x 1.5V AAA Batteries
Standard Accessories	Test Leads, Pouch
Optional Accessories	Flexible Clamp (F3000U) (P21), 400A Clamp HT4006
Certificates	IP40, IEC/EN61010-1, IEC/EN61010-2-030, IEC/EN61010-2-033, IEC/EN61326-1, Calibration Certificate ISO9000



IP40

CAT III 690V

to ground and between inputs

CAT IV 600V

### JUPITER – Loop and RCD Tester

- RCD tests
- Bar graph
- Phase sequence rotation with 1-wire method
- Automatic polarity indication
- Automatic detection of AC/DC signals
- Continuity check 200mA
- Dynamic INRUSH
- Harmonics analyser up to 25th harmonic and THD%
- MAX/MIN/PEAK Hold

#### Technical Overview

Feature	Parameter	Accuracy
DC Voltage (V)	0 - 690V	±0.5% + 2 Digit
AC, AC+DC, LoZ TRMS Voltage (V)	0.5 - 690V	±0.5% + 2 Digit
DC, AC, AC+DC Current (A): Standard Rigid and Flexible Clamp	1 - 1000A	±0.5% + 2 Digit
AC TRMS Current (A): Flexible Clamp	1 - 3000A	±0.5% + 2 Digit
Inrush Current: DC, AC, AC+DC TRMS – Standard Rigid and Flexible Clamp	1 - 1000mV	±2.0% + 2 Digit
Inrush Current: AC TRMS – Flexible Clamp	1 - 3000mV	±2.0% + 2 Digit
Resistance (Ω)	0 - 199.9Ω	±1.0% + 5 Digit
Voltage/Current Frequency (Hz)	33 - 999.9Hz	±5.0% + 10 Digit
Harmonic Voltage and Current (Hz)	DC: 42.5 - 69Hz	±5.0% + 20 Digit
	1 - 25: 42.5 - 69Hz	±5.0% + 10 Digit
	THD%: 42.5 - 69Hz	±10.0% + 10 Digit
Display	4 Digits	9 999 Counts

#### LOOP Impedance L-N, L-L, RA,RA+RCD (NO RCD TRIPPING)

L-PE, L-N, L-L Voltage range: 100V - 690V, 42.5 - 69Hz

#### Model Specification

Power Source	4 x 1.5V AAA Batteries
Standard Accessories	Test Leads, Pouch
Optional Accessories	Flexible Clamp (F3000U, P21), 400A Clamp HT4006.
Certificates	IP40, IEC/EN61010-1, IEC/EN61010-2-030, IEC/EN61010-2-033, RCD Test: IEC/EN61557-6, LOOP P-P, P-N, P-PE, Ra+R Test, IEC/EN61557-3, Phase Sequence Rotation: IEC/EN 61557-7, IEC/EN61326-1, Calibration Certificate ISO9000

Test	Test Current (A)	Range (Ω)	Accuracy
Ra+RCD	15mA	1 - 1999Ω	+5.0% +3Ω
L-N, L-L, Ra+R	100mA	0.1 - 199.9Ω	+5.0% +3Ω



### MERCURY – Built-in Infrared Camera

- Data logger: max 16 recordings, 10 hours
- Automatic polarity indication
- “OL” over range indication
- Bluetooth Connectivity with HTMercury APP
- Laser pointer
- Micro SD card memory, screenshots in BMP format
- White LED illuminator

#### Technical Overview

Feature	Parameter	Accuracy
DC Voltage (V)	600mV/ 6/ 60V	±0.09% + 5 Digit
	600/ 1000V	±0.2% + 5 Digit
AC Voltage (V)	6/ 60/ 600/ 1000V	±0.8% + 5 Digit
DC Current (A)	600µA/ 6000µA/ 60mA	±0.9% + 5 Digit
	600mA	±0.9% + 8 Digit
	10A	±1.5% + 8 Digit
AC Current (A)	600µA/ 6000µA/ 60mA/ 600mA	±1.2% + 5 Digit
	10A	±1.5% + 5 Digit
DC Current (A) with Transducer clamp	1000mA/ 10/ 40/ 100/ 400/ 1000A	±0.8% + 5 Digit
AC, AC+DC TRMS Current (A) with transducer clamp	1000mA/ 10/ 40/ 100/ 400/ 1000A	±0.8% + 5 Digit
AC TRMS Current (A) with Flexible clamp	30/ 300/ 3000A	±0.8% + 5 Digit
Resistance (Ω)	600/ 6kΩ/ 60kΩ/ 600kΩ/ 6MΩ/ 60MΩ	±5.0% + 20 Digit
Frequency (Hz)	60/ 600/ 6kHz/ 60kHz/ 600kHz/ 1MHz/ 10MHz	±0.09% + 5 Digit
Temperature (°C)	-40 to +1000°C	±1.5% + 3°C
Capacitance (F)	60nF/ 600nF/ 6µF/ 60µF/ 600µF/ 6000µF	±2.5% + 20 Digit
Colour TFT Display		<b>6 000 Counts</b>



**IP65**

CAT III 1000V

CAT IV 600V

#### Model Specifications

Power Source	1 x 7.2V Li-ION Rechargeable Battery (1500mAh)
Standard Accessories	Test Leads, Micro SD card (8GB card) K-Type Temperature Probe, Pouch
Optional Accessories	Flexible Clamp (F3000U, P21), 400A Clamp HT4006
Certificates	IP65, IEC/EN611010-1, IEC/EN61326-1

#### Infrared Temperature

Feature	Parameter	Accuracy
Temperature (°C)	-20 to +260°C	±3°C or ±3% (@ env temp:10 - 35°C, object temp >0°C)
Thermal sensitivity	<0.1°C @ 30°C / 100mK	
Colour palettes	4 (Iron, Rainbow, Grey, Grey Inverted)	
Field of View (FOV)	21° x 21° / 7.5mm	
I FOV (@1m)	4.53mrad	
Image frequency	50Hz	
IR Resolution	UFPA (80 x 80pxl, 34µm)	
Emissivity correction	0.01 to 1.00	
Measurement cursors	3 (FIXED, MAX, MIN)	
Automatic Focusing	Min distance 0.5m	



### TBM27 - Card Sized Meter

- AutoCheck™
- EF detection
- Autoranging
- Diode test
- Audible continuity
- Capacitance
- Low impedance (LoZ)

#### Technical Overview

Feature	Parameter	Accuracy
DC Voltage (V)	6/ 60/ 450/ 600V	±0.5% + 3 Digit to 2.0% + 5 Digit
AC Voltage (V)	6/ 60/ 450/ 600V	±1.5% + 5 Digit
DC Current (A)	400µA/ 2000µA	±1.2% + 3 Digit
AC Current (A)	2000µA	±1.5% + 3 Digit
Resistance (Ω)	600/ 6kΩ/ 60kΩ/ 600kΩ/ 6M	±2.0% + 6 Digit
Capacitance (F)	2000µF	
Frequency (Hz)	30kHz (Auto)	
Display	3 <sup>1/2</sup> Digits	<b>6 000 Counts</b>

#### Model Specification

Power Source	3V CR2032 Button Battery
Certificates	UL61610B-1

CAT II 600V

CAT III 300V



### TBM789

- AutoHold Real-Read™
- BeepLit™ Continuity
- Paper white backlight display
- High resolution fast readings
- Hi-Lo EF Detection
- Non-contact EF detection (NCV)
- VFD-V & VFD-Hz fundamental measurements
- %4-20mA loop current
- 31 Segment Analogue Bar graph
- slimline over-moulded body
- BeebJack Input Warning

#### Technical Overview

Feature	Parameter	Accuracy
DC Voltage (V)	600mV/ 6/ 60/ 600/ 1000V	±0.15% + 5 Digit
AC Voltage (V)	600mV/ 6/ 60/ 600/ 1000V	±4.0% + 40 Digit
DC Current (A)	600µA/ 6000µA/ 60mA/ 600mA/ 6A/ 10A	±0.3% + 30 Digit
AC Current (A)	600µA/ 6000µA/ 60mA/ 600mA/ 6A/ 10A	±1.0% + 30 Digit
Resistance (Ω)	600Ω/ 6kΩ/ 60kΩ/ 600kΩ/ 6MΩ/ 60MΩ	±2.0% + 5 Digit
Temperature (°C)	-200 to +1000°C	±1.0% + 1 Digit
Capacitance (F)	10nF/ 100nF~1000nF/ 10.00µF~1.000mF/ 10mF	±2.0% + 4 Digit
Frequency (Hz)	Line: 99.999Hz - 50kHz Logic: 99.9999Hz - 1MHz	
BeepLit™ Diode Tester (V)	3V	±1.0% + 20 Digit
Display	4 <sup>2</sup> / <sub>6</sub> Digits	60 000 Counts



CAT IV 600V

CAT III 1000V

#### Model Specification

Power Source	3 x 1.5V AAA Batteries
Standard Accessories	Test lead pair, User's manual, Banana plug K-type thermocouple x 1
Optional Accessories	Magnetic Hanger TBMH02
Dimensions (mm)	193(L) x 89(W) x 51(H)
Weight (g)	635
Certificates	UL, IEC61010-1 Ed:3.0, Certificate of Conformance





## TBU Software

- Optical interface adaptor
- USB cable and software
- Software free to download (<http://www.brymen.com/download1.html>)

## Digital Multimeters

Code	TBRUSB	TBM252	TBM812	TBM525	TBM869
Page No.	16	9	10	10	10
TBU20X	TBRUSB (USB Adaptor)				
TBU86X					

## Digital Clamp Meters

Code	TBRUSB	TBM157	TBM198PV
Page No.	16	27	26
TBU13X	TBRUSB (USB Adaptor)		

Fits TBU20X, TBU13X, TBU19X





FEATURES	T6016	TBM3030	TBM031	TBM175D	TBM072	TBM076	TBM086	T98
PAGE	19	19	19	19	19	19	20	20
MAX AC Current (A)	600	600	600	600	600	600	1000	1000
MAX DC Current (A)				2				
MAX AC Voltage (V)	500	600	600	600	600	600	1000	750
MAX DC Voltage (V)	500	600	600	600	600	600	1000	1000
MAX Resistance (Ω)	2000	40M	6k	6M	60k	60k	60k	2k
Jaw Size (mm)	30	26	30	30	30	30	51	42
Temperature (°C)				400		400	400	
Continuity	•	•	•	•	•	•	•	•
Frequency (Hz)		100k		1000k	100k	100k	100k	
Capacitance (F)		3000μ		2500μ		2500μ	2500μ	
Diode	•	•	•	•	•	•	•	•
Display (Counts)	1 999	4 000	6 000	4 000	6 000	6 000	6 000	1 999
Backlight				•	•	•	•	•
Autoranging	•			•	•	•	•	•
Data Hold	•	•		•	•	•	•	•
MIN/MAX Display		•	•	•	•	•	•	•
AmpTip™			•	•	•	•	•	
TRUE RMS								
Lifetime Warranty								
Data Logging								
Safety Category			 					
Dimensions (mm) LxWxH	165 x 68 x 28	190 x 63 x 32	188 x 66 x 32	217 x 76 x 37	223 x 76 x 37	223 x 76 x 37	258 x 94 x 44	250 x 99 x 43
Weight (g)	180	187	158	186	186	186	312	460



T260D	T77N	TF3000	F3000U	T223	TBM037	TBM079	T8056	TBM162	TBM089	T2608	T261	TBM198PV	TBM157	TR1000P	ECLIPSE
20	21	21	21	22	22	22	23	23	24	24	25	25	26	26	27
1000	100	3000	3000	100	600	600	1000	800	1000	1500	200	2000	1000	1000	1000
				100	600	600	1000	1000	1000	2000	200	2000		1000	1000
750				600	600	600	700	600	1000	750	600	1000	600	1000	1000
1000				600	600	600	1000	600	1000	1000	600	1500	600	1000	1500
2M				10k	6000k	60k	40M	40M	60k	40M	600k	40M	999.9	9999	60M
60	40	110	110	12.5	26	35	42	50	51	57	20	55	45	51	40
					400	400	750		400			1000			1000
•				•	•	•	•	•	•	•	•	•	•	•	•
		500			999.9	400	100k	1000k	400k	400k		400	500	100k	600k
					2500μ	2500μ	40μ	3000μ	2500μ	40μ	1000μ	2000μ		30μ	6000μ
•					•	•	•	•	•	•	•	•	•	•	•
1 999	6 000	3 000	3 000	4 000	6 000	6 000	4 000	4 000	6 000	4 000	6 000	6 000	6 000	3 000	6 000
	•	•	•			•		•	•		•	•	•		
	•	•		•		•	•	•	•	•	•	•	•		
•	•	•		•		•	•	•	•	•	•	•	•	•	•
		•		•	•	•	•	•	•	•		•	•	•	
					•	•			•						
												•	•		•
235 x 96 x 46	200 x 70 x 40	280 x 120 x 25	280 x 125 x 25	202 x 70 x 34	188 x 66 x 32	223 x 76 x 37	250 x 99 x 43	227 x 78 x 40	258 x 94 x 44	277 x 102 x 49	232 x 72 x 35	264 x 97 x 43	224 x 78 x 40	270 x 90 x 70	190 x 75 x 55
268	265	170	170	180	202	234	480	290	392	540		608	224	500	555



**T6016 - 600A AC**

- Jaw size: 30mm
- Diode test
- Continuity buzzer
- Data Hold
- Autoranging
- Dimensions (mm): 165(L) 68(W) x 28(H)
- Weight (g): 180

Technical Overview

Feature	Parameter	Accuracy
AC Current (A)	200mA/ 20/ 200/ 600A	±2.0% ± 1 Digit
AC Voltage (V)	500V	±1.2% ± 5 Digit
DC Voltage (V)	500V	±0.8% ± 5 Digit
Resistance (Ω)	2000Ω	±1.0% ± 5 Digit
Input impedance	10MΩ	
Display	3½ Digits	1 999 Counts



Model Specification

Power Source	2 x 1.5 AAA Batteries
Standard Accessories	Test Leads
Certificates	IEC1010-1



**TBM175D - 600A AC**

- Jaw size: 30mm
- AmpTip™
- Rotary selector switch
- Dual display
- Non-contact EF detection (NCV)
- VFD, V & Hz feature
- DCμA - HVAC flame sensor via probe

Technical Overview

Feature	Parameter	Accuracy
AC Current (A)	60 - 600A	±1.5% + 5 Digit
DC Current (A)	200mA, 2mA	±1.0% + 5 Digit
AC Voltage (V)	4/ 40/ 400/ 600V	±1.0% + 5 Digit
DC Voltage (V)	400mV/ 4/ 40/ 400/ 600V	±1.0% + 5 Digit
Temperature (°C)	-40 to +400°C	±1.0 + 1°C
Resistance (Ω)	600kΩ/ 6kΩ/ 60kΩ 600kΩ/ 60MΩ	±1.0% + 5 Digit ±1.5% + 5 Digit
Capacitance (F)	5200nF/ 2500μF	2.0% + 4 Digit
Frequency (Hz)	10Hz - 1000kHz	0.5% + 4 Digit
Display	4¾ Digits	6 000 Counts



Model Specification

Power Source	2 x 1.5V AAA Batteries
Standard Accessories	Carry Pouch, Test Leads
Certificates	UL, IEC61010-1, EMC EN61326-1:2013, Certificate of Conformance



**TBM3030 - 600A AC**

- Jaw size: 30mm
- Diode test
- Continuity test
- Relative zero
- Data Hold
- Large LCD display

Technical Overview

Feature	Parameter	Accuracy
AC Current (A)	40/ 400/ 600A	±1.5% + 8 Digit
AC Voltage (V)	4/ 40/ 400/ 600V	4/ 40/ 400V ±1.5% + 5 Digit, 600V ±2.0% + 5 Digit
DC Voltage (V)	400mV/ 4/ 40/ 400/ 600V	±1.0% + 4 Digit
Resistance (Ω)	400/ 4kΩ/ 40kΩ/ 400kΩ/ 4MΩ/ 40MΩ	4k/ 40k/ 400kΩ ±0.6% + 4 Digit, 4MΩ ±1.0% + 4 Digit, 40MΩ ±2.0% + 4 Digit
Capacitance (F)	500nF/ 5μF/ 50μF/ 500μF/ 3000μF	±3.5% + 6 Digit
Frequency (Hz)	10Hz - 100kHz	±0.5% + 4 Digit
Display	3¾ Digits	4 000 Counts



Model Specification

Power Source	1 x 3V Battery CR2032
Standard Accessories	Carry Pouch, Test Leads
Certificates	UL, IEC61010-1, Certificate of Conformance



**TBM072 - 600A AC**

- Jaw size: 30mm
- AmpTip™
- Rotary selector switch
- DCμA - HVAC flame sensor via probe
- Continuity test
- Data Hold
- Non-contact EF detection (NCV)
- Large LCD display

Technical Overview

Feature	Parameter	Accuracy
AC Current (A)	40/ 600A	±1.8% + 5 Digit
AC Voltage (V)	4/ 40/ 400/ 600V	4/ 40/ 400V ±1.5% + 5 Digit, 600V ±1.2% + 7 Digit
DC Voltage (V)	400mV/ 4/ 40/ 400/ 600V	±1.0% + 5 Digit
Resistance (Ω)	600/ 6kΩ/ 60kΩ	±1.0% + 5 Digit
Frequency (Hz)	5Hz - 100kHz	±0.5% + 4 Digit
Display	3¾ Digits	6 000 Counts



Model Specification

Power Source	2 x 1.5V AAA Batteries
Standard Accessories	Carry Pouch, Test Leads
Certificates	UL, IEC61010-1, Certificate of Conformance



**TBM031 - TRMS 600A AC**

- Jaw size: 30mm
- AmpTip™
- BeepLit™ Continuity and Diode tests
- NCV
- Crest MAX/MIN (PEAK Hold)
- In-rush currents (5ms)
- Dimensions (mm): 188(L) 66(W) x 32(H)
- Weight (g): 158

Technical Overview

Feature	Parameter	Accuracy
AC Current (A)	60/ 600A	±1.0% + 5 Digit
DC Current (A)	600A	±1.5% + 5 Digit
AC Voltage (V)	600V	±1.5% + 5 Digit
DC Voltage (V)	600V	±1.0% + 5 Digit
Resistance (Ω)	600Ω, 6KΩ	±1.0% + 5 Digit
Display	3¾ Digits	6 000 Counts



Model Specification

Power Source	2 x 1.5V AAA Batteries
Standard Accessories	Test Leads, Carry Pouch
Certificates	UL, EN61326-1



**TBM076 - 600A AC**

- Jaw size: 30mm
- AmpTip™
- 3-Phase rotation for mains and motor
- Non-contact EF detection (NCV)
- DCμA - HVAC flame sensor via probe
- Rotary selector switch
- Continuity test
- Data Hold

Technical Overview

Feature	Parameter	Accuracy
AC Current (A)	40/ 600A	±1.8% + 5 Digit
DC Voltage (V)	400mV/ 4/ 40/ 400/ 600V	±1.0% + 5 Digit
AC Voltage (V)	4/ 40/ 400/ 600V	440/ 400V ±1.5% + 5 Digit, 600V ±1.2% + 7 Digit
Resistance (Ω)	600/ 6kΩ/ 60kΩ	±1.0% + 5 Digit
Temperature (°C)	-40 to +400°C	±1.0% - 1°C
Frequency (Hz)	5Hz - 100kHz	±0.5% + 4 Digit
Capacitance (F)	200μF/ 2500μF	±2.0% + 4 Digit
Display	3¾ Digits	6 000 Counts



Model Specification

Power Source	2 x 1.5V AAA Batteries
Standard Accessories	Carry Pouch, K-Type Temp Probe TBMTEMPPROBE
Certificates	UL, IEC61010-1, Certificate of Conformance



### TBM086 - 1000A AC Ultra Slim

- Jaw size: 51mm
- AmpTip™ AC
- 3-Phase rotation for mains and motor
- DCµA - HVAC flame sensor via probe
- Non-Contact EF detection (NVC)
- Rotary selector switch
- Peak RMS 80ms in-rush current
- Backlight

#### Technical Overview

Feature	Parameter	Accuracy
AC Voltage (V)	600/ 1000V	±1.8% + 5 Digit
DC Voltage (V)	600/ 1000V	±0.8% + 5 Digit
AC Current (A)	60/ 600/ 1000A	4/ 40/ 400V ±1.5% + 5 Digit, 600V ±1.2% + 7 Digit
Resistance (Ω)	600/ 6kΩ/ 60kΩ	4k/ 40k/ 400kΩ ±0.6% + 4 Digit, 4mΩ ±1.0% + 4 Digit, 40mΩ ±2.0% + 4 Digit
Temperature (°C)	-40 to +400°C	±1.0% - 0.8°C, 100°C - 400°C ±1.0% - 1°C
Frequency (Hz)	5Hz - 100kHz	±0.5% + 4 Digit
Capacitance (F)	200µF/ 2500µF	±2.0% + 4 Digit
Display	3 <sup>3</sup> / <sub>8</sub> Digits	6 000 Counts



CAT III 1000V

#### Model Specification

Power Source	2 x 1.5V AAA Batteries
Standard Accessories	Carry Pouch, K-Type Temp Probe TBMTEMPPROBE, Crocodile Clips
Certificates	UL, IEC61010-1, Certificate of Conformance, CE



### T98 - 1000A AC

- Jaw size: 42mm
- Continuity test
- Data Hold
- Backlight
- Temperature

#### Technical Overview

Feature	Parameter	Accuracy
AC Current (A)	20/ 200/ 1000A	±2.0% + 5 Digit
AC Voltage (V)	750V	±1.0% + 5 Digit
DC Voltage (V)	1000V	±1.0% + 2 Digit
Resistance (Ω)	200/ 2000Ω	±1.0% + 3 Digit
Temperature (°C)	-40 to +750°C	±1.0% + 5 Digit
Display	3 <sup>1</sup> / <sub>2</sub> Digits	1 999 Counts



CAT II 1000V

CAT III 600V

#### Model Specification

Power Source	1 x 9V Battery
Standard Accessories	Carry Pouch, K-Type Temp Probe TBMTEMPPROBE
Certificates	IEC61010-1



### T260D - 1000A AC

- Jaw size: 50mm
- Combination Clamp
- Diode test
- Continuity buzzer
- Data Hold
- Dimensions (mm): 235(L) 96(W) x 46(H)
- Weight (g): 268

#### Technical Overview

Feature	Parameter	Accuracy
AC Current (A)	20/ 200/ 1000A	±2.5% + 5 Digit
AC Voltage (V)	200/ 750V	±1.0% + 5 Digit
DC Voltage (V)	200mV/ 2/ 20/ 200/ 1000V	±0.5% + 3 Digit
Resistance (Ω)	200Ω/ 2kΩ/ 20kΩ/ 2000kΩ/ 20MΩ	±1.0% + 8 Digit
Frequency (Hz)	2kHz	±2.0% + 5 Digit
Temperature (°C)	0 to +750°C	
Insulation Test	2000MΩ	±4.0% + 2 Digit
Display		2 000 Counts

RoHS



CAT II 1000V

CAT III 600V

#### Model Specification

Power Source	1 x 9V Battery
Certificates	ETL, IEC61010-1, Certificate of Conformance



### T77N - 100A AC

- Earth Leakage
- Data Hold
- Low pass filter with high stability 100Hz
- Autoranging
- Bar graph
- Frequency compare function
- Backlight

#### Technical Overview

Feature	Parameter	Accuracy
AC Current (A)	0.1mA/ 6mA	±1.0% + 8 Digit
	60A	±1.0% + 8 Digit
	100A	±2.0% + 10 Digit
Display	4 Digits	6 000 Counts

#### Model Specification

Power Source	2 x 1.5V AAA Batteries
Standard Accessories	Carry Pouch
Certificates	UL, IEC61010-1



### TF3000 - 3000A AC

- Jaw size: 110mm
- Flexible jaw length: 54mm
- Sample rate (4 times/second)
- Data Hold
- Backlight

#### Technical Overview

Feature	Parameter	Accuracy
AC Current (A)	0.1A, 30A	±3.0% + 5 Digit
	300A	±3.0% + 5 Digit
	3000A	±3.0% + 5 Digit
Display	4 Digits	3 000 Counts

#### Model Specification

Power Source	2 x 1.5V AAA Batteries
Standard Accessories	Carry Pouch
Certificates	UL, IEC61010-1, Certificate of Conformance



### F3000U - 3000A AC TRMS Transducer Flexible Clamp

- Jaw size: 110mm
- Flexible jaw length: 254mm
- Backlit LCD
- Cable connection to JUPITER, NEPTUNE and MERCURY series
- Dimensions (mm): 280(L) 125(W) x 25(H)
- Weight (g): 170

#### Technical Overview

Feature	Parameter	Accuracy
AC TRMS Current (A)	0.3 – 30A	±3.0% + 5mV Digit
	30 – 300A	±3.0% + 3mV Digit
	300 – 3000A	
Display	4 Digit	3 000 Counts

#### Model Specification

Power Source	2 x 1.5V AAA Alkaline Batteries
Standard Accessories	Banana Connectors, Cable Length 1m
Certificates	IP40, IEC/EN61010-1, IEC/EN61010-2-032





### T223 - 100A AC/DC

- Jaw size: 12.5mm
- Concurrent reading
- Resistance
- Continuity test

#### Technical Overview

Feature	Parameter	Accuracy	Protection
DC Current (A)	1mA/ 10mA/ 10/ 100A	±2.0% + 10 Digit	150A RMS
AC Current (A)	1mA/ 10mA/ 10/ 100A	±2.0% + 10 Digit	150A RMS
DC Voltage (V)	100mV/ 600V	±0.08% + 2 Digit	660V RMS
AC Voltage (V)	100mV/ 600V	±2.0% + 3 Digit	660V RMS
Resistance (Ω)	1.10kΩ	±1.0% + 3 Digit	
Display		<b>4 000 Counts</b>	

#### Model Specification

Power Source	2 x 1.5V AAA Batteries
Standard Accessories	Carry Pouch, Test Leads

CAT III 300V

### TBM037 – TRMS 600A AC/DC

- Jaw size: 26mm Hall-effect
- AmpTip™
- BeepLit™
- Non-contact EF detection (NCV)
- Crest max/min (Peak hold)
- In-rush currents (5ms)
- DCµA for HVAC flame sensors
- Dimensions (mm): 188(L) 66(W) x 32(H)
- Weight (g): 202

#### Technical Overview

Feature	Parameter	Accuracy
AC Current (A)	60 – 600A	±1.0% + 5 Digit
DC Current (A)	60/ 600A	±1.0% + 5 Digit
DC Current (µA)	200µA/ 2000µA	±1.0% + 5 Digit
AC Voltage (V)	600V	±1.5% + 5 Digit
DC Voltage (V)	600V	±1.0% + 5 Digit
Frequency (Hz)	5Hz - 999.9Hz	Line-level AC V
Resistance (Ω)	600/ 6kΩ/ 60kΩ/ 600kΩ/ 6000kΩ	±1.0% + 5 Digit
Temperature (°C)	-40 to +400°C	±1.0% + 1°C
Capacitance (F)	200µF/ 2500µF	±2.0% + 4 Digit
Display	<b>3<sup>1</sup>/<sub>2</sub> Digits</b>	<b>6 000 Counts</b>

#### Model Specification

Power Source	2 x 1.5V AAA Batteries
Standard Accessories	Test Leads, K-Type Thermocouple, Carry Pouch
Certificates	UL, EN61326-1

CAT III 600V

CAT IV 300V



### TBM079 - 600A AC/DC

- Jaw size: 35mm
- AmpTip™
- 3-Phase rotation for mains and motors
- Non-contact EF detection (NCV)
- Rotary selector switch
- Data Hold

#### Technical Overview

Feature	Parameter	Accuracy
DC Current (A)	60/ 600A	±2.0% + 5 Digit
AC Current (A)	40/ 600A	±1.8% + 5 Digit
DC Voltage (V)	400mV/ 4/ 40/ 400/ 600V	±1.0% + 5 Digit
AC Voltage (V)	4/ 40/ 400/ 600V	4/ 40/ 400V ±1.5% + 5 Digit, 600V ±1.2% + 7 Digit
Resistance (Ω)	600/ 6kΩ/ 60kΩ	±0.6 - 2.0% + 4 Digit
Temperature (°C)	-40 to +400°C	±1.0% + 1°C
Frequency (Hz)	50Hz - 400Hz	±2.0% + 4 Digit
Capacitance (F)	200µF/ 2500µF	2.0% + 4 Digit
Display	<b>3<sup>1</sup>/<sub>2</sub> Digits</b>	<b>6 000 Counts</b>

#### Model Specification

Power Source	2 x 1.5V AAA Batteries
Standard Accessories	Carry Pouch, Temp Probe TBMTEMPPROBE, Test Leads, Crocodile Clips
Certificates	UL, IEC61010-1, Certificate of Conformance

LIFETIME WARRANTY

CAT III 600V





CAT II 1000V

CAT III 600V

**T8056 - 1000A AC/DC**

- Jaw size: 42mm
- Duty cycle
- Diode test
- Continuity test
- Auto power off
- Relative zero
- Data Hold

**Technical Overview**

Feature	Parameter	Accuracy
DC Current (A)	400/ 1000A	±3.0% + 3 Digit
AC Current (A)	400/ 1000A	±3.0% + 3 Digit
DC Voltage (V)	0.4/ 4/ 40/ 400/ 1000V	±0.7% + 1 Digit
AC Voltage (V)	4/ 40/ 400/ 700V	±0.8% + 10 Digit
Resistance (Ω)	400/ 4kΩ/ 40kΩ/ 400kΩ/ 4MΩ/ 40MΩ	±2.0% + 3 Digit
Temperature (°C)	-40 to +750°C	±1.0% + 6 Digit
Frequency (Hz)	40/ 400/ 4k/ 40k/ 100kHz	±2.0% + 1 Digit
Capacitance (F)	4nF/ 40nF/ 400nF/ 4μF/ 40μF	±4.0% + 10 Digit
Display	3 <sup>1</sup> / <sub>4</sub> Digits	4 000 Counts

**Model Specification**

Power Source	1 x 9V Battery
Standard Accessories	Carry Case, Temp Probe <b>TBMTEMPPROBE</b> , Test Leads
Certificates	UL, IEC61010-1, Certificate of Conformance



CAT III 600V

**TBM162 - 1000A AC/DC**

- Jaw size: 50mm
- MAX Hold
- Continuity test
- Diode test
- Large display
- Backlight

**Technical Overview**

Feature	Parameter	Accuracy
AC Current (A)	400/ 800A	400A, ±2.0% + 5 Digit, 800A, 5.0% + 30 Digit
DC Current (A)	400/ 1000A	±0.5% + 3 Digit
AC Voltage (V)	600V	±2.0% + 5 Digit
DC Voltage (V)	600V	±2.0% + 5 Digit
Resistance (Ω)	400/ 4kΩ/ 4MΩ/ 40MΩ	±1.0% + 4 Digit
Capacitance (F)	500nF/ 5μF/ 50μF/ 500μF 3000μF	±3.5% + 6 Digit
Frequency (Hz)	15Hz - 1000Hz	2.0% + 5 Digit
Display	3 <sup>1</sup> / <sub>4</sub> Digits	4 000 Counts

**Model Specification**

Power Source	2 x 1.5V AAA Batteries
Standard Accessories	Carry Pouch, Test Leads
Certificates	UL, IEC61010-1, Certificate of Conformance



### TBM089 - 1000A AC/DC

- Jaw size: 51mm
- 3-Phase rotation for mains and motors
- AmpTip™
- Non-contact EF detection (NCV)
- Hall Effect AC/DC
- Rotary selector switch
- Continuity test
- Flashlight

#### Technical Overview

Feature	Parameter	Accuracy
DC Current (A)	60/ 600/ 1000A	±1.8% + 5 Digit
AC Current (A)	60/ 600/ 1000A	±1.8% + 5 Digit
DC Voltage (V)	600/ 1000V	±1.0% + 5 Digit
AC Voltage (V)	600/ 1000V	±1.2% + 7 Digit
Resistance (Ω)	600/ 6kΩ/ 60kΩ	±1.0% + 5 Digit
Temperature (°C)	-40 to +400°C	±1.0% + 0.8°C
Frequency (Hz)	5Hz - 400kHz	±0.5% + 4 Digit
Capacitance (F)	2500µF	±2.0% + 4 Digit
Display	3½ Digits	6 000 Counts

#### Model Specification

Power Source	2 x 1.5V AA Batteries
Standard Accessories	Carry Pouch, Temp Probe TBMTEMPPROBE, Test Leads, Crocodile Clips
Certificates	UL, IEC61010-1, Certificate of Conformance



### T2608 - 2000A DC/ 1500A AC

- Jaw size: 57mm
- MIN/MAX Hold
- Data Hold/Peak Hold
- Auto power off
- Diode test
- Continuity test
- Bar graph

#### Technical Overview

Feature	Parameter	Accuracy
DC Current (A)	400/ 2000A	±1.5% + 5 Digit
AC Current (A)	400/ 1500A	±1.5% + 5 Digit
DC Voltage (V)	400mV/ 4/ 40/ 400/ 1000V	±0.5% + 1 Digit
AC Voltage (V)	400mV/ 4/ 40/ 400/ 750V	±1.5% + 4 Digit
Resistance (Ω)	400/ 4kΩ/ 40kΩ/ 400kΩ/ 4MΩ/ 40MΩ	±1.0% + 4 Digit
Frequency (Hz)	10/ 1kHz/ 10kHz/ 100kHz/ 400kHz	±0.1% + 4 Digit
Capacitance (F)	4nF/ 40nF/ 400nF/ 4µF/ 40µF	±1.0% + 4 Digit
Display	3¾ Digits	4 000 Counts

#### Model Specification

Power Source	1 x 9V Battery
Certificates	UL, IEC61010-1, Certificate of Conformance





CAT IV 300V

CAT III 600V

### T261 – TRMS 200A AC/DC

- Jaw size: 20mm
- 1mA Current resolution
- Built in LED backlight
- Auto ranging
- Continuity and Diode test
- Data Hold
- Dimensions (mm): 232(L) 72(W) x 35(H)
- Weight (g): 230

#### Technical Overview

Feature	Parameter	Accuracy
AC/DC Current (mA)	4000mA	±2.0% + 5 Digit
AC/DC Current (A)	40/ 100/ 200A	±2.0% + 5 Digit
AC+DC Current (mA/A)	4000mA/ 40/ 200A	±2.5% + 5 Digit
AC Voltage (V)	6/ 60/ 600V	±1.2% + 5 Digit
DC Voltage (V)	6/ 60/ 600V	±1.0% + 2 Digit
AC+DC Voltage (V)	6/ 60/ 600V	±1.2% + 5 Digit
Resistance (Ω)	600/ 6KΩ/ 60kΩ/ 600kΩ	±1.0% + 3 Digit
Capacitance (F)	1μF/ 10μF/ 100μF/ 1000μF	±3.0% + 8 Digit
Display	3 <sup>1</sup> / <sub>6</sub> Digits	6 000 Counts

#### Model Specification

Power Source	2 x 1.5V AAA Batteries
Standard Accessories	Test Leads, Carry Pouch
Certificates	EN61010



CAT III 1500V (DC)

CAT IV 1000V (AC/DC)

### TBM198PV - Multimeter Clamp PV 2000A

- Jaw size: 55mm
- VFD-V, VFD-Hz (Variable frequency drivers)
- Update rate: 5 per second
- Ghost-Voltage-Buster
- Backlit Dual display
- Non-contact EF detection (NCV)
- Data logging (PC-Comm interface)
- 5mS Crest-Max capture mode
- Auto Ranging Relative-Zero mode

#### Technical Overview

Feature	Parameter	Accuracy
AC Current (A)	0 – 2000A	±3.5% ± 5 Digit
DC Current (A)	0 – 2000A	±3.0% ± 5 Digit
DC + AC Current (A)	0 – 2000A	±3.5% ± 8 Digit
AC Voltage (V)	6/ 60/ 600/ 1000V	±1.2% ± 5 Digit
DC Voltage (V)	6/ 60/ 600/ 1000V / 1500V	±0.5% ± 5 Digit
AC+DC Voltage (V)	6/ 60/ 600/ 1000V	±1.4% ± 7 Digit
Capacitance (F)	60nF/ 600nF/ 6μF/ 60μF/ 600μF/ 2000μF	±4.0% ± 5 Digit
Resistance (Ω)	600/ 6k/ 60k/ 600k/ 6M/ 40MΩ	±2.3% ± 5 Digit
Diode Tester	1V	1.0% ± 3 Digit
Temperature (°C)	-50°C to +1000°C	±0.3% ± 4 Digit
Input impedance	10MΩ	
Display	3 <sup>1</sup> / <sub>6</sub> Digits	6 000Counts (+1999 dual display)

#### Model Specifications

Power Source	2 x 1.5 AA Batteries
Standard Accessories	Test Leads, K-Type Thermocouple TBMTEMPPOBE, Soft Carrying Pouch
Optional Accessories	USB interface kit TBU19X (P16)
Certificates	IEC/EN/BSEN/CSA_C22.2_No./UL standards of 61010-1 Ed. 3.1, 61010-2-032 Ed. 4.0, 61010-2-033 Ed. 2.0
Dimensions (mm)	264(L) 97 (W) x 43(H)
Weight (g)	608



### TBM157 - Power Clamp 1000A AC

- Jaw size: 45mm
- 3-Phase Power Clamp
- Total power factor
- kWhr Recording
- 3-Wire, 4-wire unbalanced-load
- Peak inrush 65ms
- PC-Comm (Optical) Isolated PC interface

#### Technical Overview

Feature	Parameter	Accuracy
AC Current (A)	40/ 400/ 1000A	2.5% + 5 Digit
DC Voltage (V)	600V	0.5% + 5 Digit
AC Voltage (V)	600V	1.5% + 5 Digit
Resistance (Ω)	999.9 Ω	1.0% + 6 Digit
Frequency (Hz)	5 ~ 500Hz	0.5% + 4 Digit
Power	0.00 ~ 600kVA, 0.00 ~ 600kW 0.00 ~ 600kVAR	±3.5% + 6 Digit
THD%-F Total Harmonic Distortion	0% ~ 450%	Fundamental 1.5% + 6 Digit 2-51 Harmonics 2.5 - 10% + 6 Digit
Display	3 <sup>1</sup> / <sub>2</sub> Digits	6 000 Counts

#### Model Specification

Power Source	2 x 1.5V AAA Batteries
Standard Accessories	Carry Case, Test Leads
Optional Accessories	RS232 Cable and Software <b>TBU13X</b> , USB Adaptor (P16)
Certificates	UL, IEC61010-1, Certificate of Conformance



### TR1000P – 3 Phase Power Clamp AC/DC 1000A

- Jaw size: 51mm
- Continuity and Diode test
- Non-contact Voltage Detection (NCV)
- Active, Reactive and Apparent Power
- Harmonic measurement up to 49th Harmonic & THD%
- Power Factor
- Inrush/Peak Value Measurement (100ms)
- Data hold Max/Min
- LPF Mode for VFD
- Bar graph scale
- Rotating Clamp Jaws
- Dimensions (mm): 90(W) x 270(L) x 70(H)
- Weight (g): 500

#### Technical Overview

Feature	Parameter	Accuracy
AC Current (A)	0.1 – 1000A	±1.5% + 5 Digit
DC Current (A)	0.1 – 1000A	±1.5% + 5 Digit
AC Voltage (V)	0.1V - 1000V	±0.25% + 1 Digit
DC Voltage (V)	0.1V – 1000V	±0.25% + 1 Digit
Active Power (W)	1W – 1000/ 3000/ 1732kW	±2.0% + 5 Digit
Reactive Power (kVA <sub>r</sub> )	1W – 1000/3000/1732kVA <sub>r</sub>	±2.0% + 5 Digit
Apparent Power (kVA)	1W – 1000/3000/1732kVA	±2.0% + 5 Digit
Energy (kWh)	0.001kWh – 9999kWh	±3.0% + 5 Digit
Resistance (Ω)	9 999Ω	±0.4% + 1 Digit
Frequency (Hz)	1Hz – 100kHz	±0.5% + 1 Digit
Capacitance (F)	10F - 30μF	±1.0% + 3 Digit
Display	3 <sup>1</sup> / <sub>2</sub> Digits	3 000 Counts

#### Model Specification

Power Source	9V DC Battery
Standard Accessories	PT1000 Temperature Probe, Test Leads
Certificates	IP50, IEC 61010-1-2010



**IP40**

**CAT III 1000V**  
to ground

**CAT IV 600V**



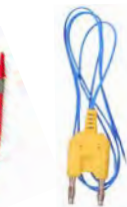
**F3000U**  
(Optional)



**AOMCY**



**Test Leads**



**TBMTEMPROBE**

### ECLIPSE - AC/DC TRMS Thermal Clamp 1500V DC

- Jaw size: 40mm
- Detects AC voltage without contact
- Data logger and graph
- Diode test
- Bluetooth connectivity with HTMercury APP
- Laser pointer
- White LED illuminator

#### Technical Overview

Feature	Parameter	Accuracy
DC Voltage (V)	600mV/ 6/ 60/ 600/ 1500V	±0.8% + 5 Digit
AC TRMS Voltage (V)	6/ 60/ 600/ 1000V	±2.5% + 5 Digit
AC +DC TRMS Voltage (V)	6/ 60/ 600/ 1000V	±2.5% + 20 Digit
DC Current (A)	60/ 600/ 1000A	±2.0% + 8 Digit
AC TRMS Current (A) INRUSH Current	60/ 600/ 1000A	±2.5% + 5 Digit
AC TRMS Current (A) with Flexible clamp	30/ 300/ 3000A	±3.0% + 5 Digit
Resistance (Ω)	600/ 6kΩ/ 60kΩ/ 600kΩ/ 6MΩ/ 60MΩ	±1.0% + 10 Digit
Frequency (Hz)	40 – 10kHz	±0.09% + 5 Digit
	60/ 600/ 6kHz/ 60kHz/ 600kHz/ 6MHz/ 10MHz	±0.2% + 5 Digit
Temperature (°C) K-Type	-40 to +1000°C	±1.5% + 3°C
Capacitance (F)	60nF/ 600nF/ 6μF/ 60μF/ 600μF/ 6000μF / 60mF/ 100mF	±3.0% + 8 Digit
Colour TFT Display	<b>6 000 dots</b>	

#### Infrared Temperature

Feature	Parameter	Accuracy
IR Sensor Resolution	80 x 80pxl	
Temperature (°C)	-20 to +260°C	±3°C or ±3% (@ env temp: 10 - 35°C, object temp >0°C)
Thermal sensitivity	<0.1°C @ 30°C / 100mK	
Colour palettes	5 (Iron, Rainbow, Grey, Reverse Grey, Feather)	
Field of View (FOV)	21° x 21° / 7.5mm	
IFOV (@1m)	4.53mrad	
Image frequency	50Hz	
Emissivity correction	0.01 to 1.00	
Measurement cursors	3 (FIXED, MAX, MIN)	
Focusing	Automatic	

#### Model Specifications

Power Source	1 x 7.2V Li-ION Rechargeable Battery (1200mAh)
Standard Accessories	Test Leads, Micro SD card (8GB card) K-Type Temperature Probe, Pouch ( <b>TBMTEMPROBE</b> )
Optional Accessories	Flexible Clamp ( <b>F3000U</b> ), 400A Clamp <b>HT4006</b>
Certificates	IP40, IEC/EN61010-1, IEC/EN61326-1
Dimensions (mm):	190(L) x 75(W) x 55(H)
Weight (g)	555



ELECTRIC SAFETY MEASUREMENTS	MACROG3	EASYTEST	COMBI521	T60	JUPITER	NEPTUNE
<b>PAGE NO.</b>	29	30	30	31	13	13
True RMS	•		•	•	•	•
Insulation with voltage 50, 100, 250, 500, 1000V DC	•	•	•	•		•
Continuity of protective conductors with 200mA/10A	•	•	•	•		150mA
Tripping time and current of RCDs type B, A, AC Standard, Selective and Delayed up to 1A	200mA	A, AC, A+B general and selective	Only A, AC general and selective	200mA	Only A, AC 300mA	
Tripping time and current of earth leakage relays type B, A, AC Standard, Selective and Delayed up to 10A	<b>RCDX10*</b>		X	<b>RCDX10*</b>		
Non-trip earth resistance	•		•	•	•	
Earth resistance with rods	•			•		
Earth resistance with stakeless testing method	<b>T2100*</b>			<b>T2100*</b>		
Ground resistivity by 4-wire method	•			•		
Loop/Line impedance, Phase-Phase, Phase-Neutral, Phase-PE	•		•	•	•	
Loop/Line impedance Phase-Phase, Phase-Neutral, Phase-PE with high resolution (0.1mΩ) Index (PI)	<b>TIMP57*</b>		<b>TIMP57*</b>	<b>TIMP57*</b>		
Measurement of percentage voltage drop on the line	•			•		
Contact Voltage	•	•	•	•	•	•
Phase Sequence	•		•	•	•	•
Leakage current with optional clamp meter	•		•	•		•
Dielectric absorption ratio (DAR), Polarisation (Index PI)						•
<b>POWER ANALYSIS</b>						
Measurement of Voltage, Current, Active, Reactive, Apparent Power	(1)			•		
Measurement of Cosphi, Power Factor	(1)			•		
Voltage and current harmonics up to the 49th with calculation of THD%	25th			•	25th	25th
<b>ADDITIONAL CHARACTERISTICS</b>						
Automatic test (Ra, RCD, Insulation)			•	•		
Measurement of environmental parameters (°C, %Relative Humidity, Lux)	<b>TIMP57*</b>			HT52/05*		
Test with remote lead PR400	•		•	•		
Help on screen display	•		•	•		
Internal memory for measured data saving	•		•	•		
USB PC connection	•	•	•	•		
Integrated WiFi connection and compatibility with HTANALYSIS App	•			•		
Safety category	<b>CAT III 240V</b>		<b>CAT III 240V</b>	<b>CAT III 300V</b>	<b>CAT III 1000V</b> <b>CAT IV 600V</b>	<b>CAT III 690V</b> <b>CAT IV 600V</b>
Reference standard for safety	IEC/EN61010-1	IEC/EN61010-1	IEC/EN61010-1	IEC/EN61010-1	IEC/EN61010-1	IEC/EN61010-1
IP Rating	50		50	50	40	40
Dimensions (mm) LxWxH	222 x 162 x 57		222 x 162 x 57	222 x 162 x 57	175 x 85 x 55	175 x 85 x 55
Weight (batteries included) Kg	1.2		1.2	1.2	420	420

\* Optional accessories

(1) Single-phase or balanced three-phase system



### MACROG3 – Compliance Single Phase

Advanced multifunction device for verification of domestic and industrial electric systems

- All SANS10142 electrical safety verifications
- (23kA L-N) (40kA L-L)
- Earth resistance by voltammetric method with 2 or 3 poles in TT, TN and IT systems
- Ground resistivity with 4-wire method
- Measurement of electric parameters in single-phase installations (V, I, W, VAR, VA, PF)
- Test of RCDs type A, AC, B up to 1A
- Test earth leakage relays with test current up to 10A (with optional accessory RCDX10)
- Loop/Line impedance P-N, P-P, P-PE also with high resolution (0.1mΩ) with optional accessory **TIMP57** (P48)
- Insulation resistance test with 50, 100, 250, 500, 1000V DC
- PSC/LOOP impedance tests P-P, P-N, P-PE
- Continuity of protective conductors with 200mA
- Phase Sequence and leakage currents verification
- Touch-screen colour display (320x240pxl)
- PC interface with optical USB and Wi-Fi
- 999 Memory locations, 3 levels of markers

#### Technical Overview

Feature	Parameter	Accuracy
DC Voltage (V)	100/ 250/ 500/ 1 000V	±5.0% +2 Digit
Voltage (RCD, LOOP, Phase sequence)	15 – 460V	±3.0% +2 Digit
AC TRMS Voltage (V)	15 – 459.9V	±1.0% +1 Digit
Frequency (Hz)	47 – 63.6Hz	±0.1% +1 Digit

#### Model Specification

Power Source	6 x 1.2V type AA rechargeable batteries or 6 x 1.5V type AA alkaline batteries
Standard Accessories Selection Guide (P70)	<b>UNIVERSALKITG3</b> - 4 cables, 4 Crocodile clips, 3 test leads <b>KITTERNE</b> - 4 Earth rods and cables in soft carry bag <b>PR400</b> - Remote switch probe <b>PR400</b> - Stylus <b>VAS07</b> - Rigid hard case <b>TOPVIEW2006</b> - PC software and optical-USB connection cable
Optional Accessories Selection Guide (P70)	<b>HT96U</b> - Clamp transducer AC 1-100-1000A/1V, diameter 54mm <b>TIMP57</b> - High resolution impedance measurement adapter <b>T2100</b> - Earth ground clamp transducer for Stakeless measurements
Certificates	IP40, Calibration Certificate ISO9000, IEC/EN61557-1 Certificate of Conformance



PR400



KITTERNE



%Rh



(to ground),  
max 415V between inputs



TOPVIEW2006



VAS07



UNIVERSALKITG3

### EVTEST100

Is an adapter that can be used in conjunction with the MACROG3 tester for testing safety of electric car charging stations.



CAT III 300V

#### Technical Overview

Feature	Parameter	Accuracy
Input voltage	Max 415V AC Phase-Phase, 50/60Hz	±5%
Connection to EVSE system:	Integrated cable with Type 2 plug, length 60cm	
Recharging stations	Charging modes 2 and 3	
PP Simulation:	NC, 13A, 20A, 32A, 63A	
CP Simulation:	Status A, B, C, D, ventilation/not ventilation	
Simulation EVSE fault:	Fault PE, Fault E	
CP output signal:	PWM communication protocol, 12V	
Allowed output load:	240V, 50/60Hz, max 10A AC	
Protection fuse:	Fast type 250V/10A (5x20mm) (0.2x0.8in)	
Max operating altitude:	2000m (6562ft)	

**Please Note:** Compatibility only applies to MACROG3 models 2018 to date, to verify compatibility send us your serial number and firmware version and our technical teams will confirm compatibility.



## COMBI521 – Multi Function

Electrical Installation and EVSE safety tester with power quality analysis

- Auto sequence
- Continuity of conductors
- Insulation resistance
- Polarity test
- RCD type AC, A and B general and selective
- Line/fault impedance and prospective short-circuit/fault current
- MCB and fuses › Phase sequence › Voltage drop › Leakage and absorbed current
- Power quality analysis
- Environmental parameters
- EVSE AUTO-sequence safety testing › Internal memory and connection to the PC
- Wi-Fi connection to Android and iOS smartphones and tablet

### Technical Overview

Feature	Parameter
Insulation resistance	Insulation resistance
Continuity of the protection cable	200mA
RCD tripping time and current, manual / auto / ramp test	A, AC, B General, Selective
RCD nominal currents (mA) (Molded case type)	6, 10, 30, 100, 300, 500, 650, 1000
L-PE resistance no trip RCD	(2-wires, 3-wires)
Automatic test sequence	(Ra, RCD, MOhm)
GUI (Graphic user interface)	Black/White Graphic display
Memory recall and clear	(999 locations)
PC Interface	(optical/USB)



## EASYTEST – Multi Function Electrical

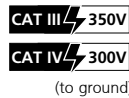
Installation and EVSE safety tester with power quality analysis

- Auto sequence
- Continuity of conductors
- Insulation resistance
- Polarity test
- RCD type AC, A and B general and selective
- Line/fault impedance and prospective short-circuit/fault current
- MCB and fuses › Phase sequence › Voltage drop › Leakage and absorbed current
- Power quality analysis
- Environmental parameters
- EVSE AUTO-sequence safety testing › Internal memory and connection to the PC
- Wi-Fi connection to Android and iOS smartphones and tablet

### Technical Overview

Feature	Parameter
Insulation resistance	Insulation resistance
Continuity of the protection cable	200mA
RCD tripping time and current, manual / auto / ramp test	A, AC, General, Selective
RCD nominal currents (mA) (Molded case type)	6, 10, 30, 100, 300, 500, 650, 1000
L-PE resistance no trip RCD	(2-wires, 3-wires)
Automatic test sequence	(Ra, RCD, MOhm)
GUI (Graphic user interface)	Black/White Graphic display
Memory recall and clear	(999 locations)
PC Interface	(optical/USB)





PR400



KITERRNE



TOPVIEW2006



UNIVERSALKITG3



HTFLEX33E

## T60 Compliance/3-Phase Network and Power Analyser

- Touch-screen colour display (320x240pxl)
- Optical/USB PC Connection
- Internal Memory
- Online Help on the display

### Electrical Safety

- 362 Parameters over 2 months recording
- Real-time display of wave forms
- Earth resistance by voltammetric method
- 4-Wire ground resistivity method
- RCD type testing, A, AC, B up to 10A
- Insulation resistance up to 1000V DC
- Advanced loop testing of MCBs
- Verification of phase sequence and leakage currents
- Continuity of protective conductors with 200mA
- Resistance of the earth rods with clamp
- Ground resistivity by 4-wire method
- Line/Loop, Phase-Phase, Phase-Neutral, Phase-PE impedance with high resolution (0.1 mΩ) with optional accessory TIMP57 (P45)
- Assumed short-circuit current
- Contact voltage
- Tripping time of General, Selective and Delayed RCDs
- Test current A, AC max 1A and type B max 300mA
- RCD tripping current (Ramp test)
- Phase sequence
- Measurement of percentage voltage drop on the lines
- Test with remote switch probe PR400

### Mains Analysis

- Power factor
- Histograms of voltage/current harmonics and THD%
- Voltage anomalies (sags and swells)
- 9 Types of electric systems available:
- AC TRMS voltage in single-/3-phase up to 600V
- AC TRMS current in single-/3-phase systems up to 3000A
- Active, Reactive and Apparent Power/Energy
- Cosphi and Power Factor
- Voltage, Current, DC Power
- Voltage dips and peaks on 20ms @50hz
- Voltage/current waveforms
- Histograms of voltage/current harmonics and THD%
- Voltage/current vector diagram
- Periodical recording with selectable PI
- Max number of simultaneously selectable quantities 632
- Voltage/current harmonic analysis up to the 49th
- Calculation and recording of voltage/current THD%

### Technical Overview

Feature	Parameter	Accuracy
DC Voltage (V)	100/ 250/ 500/ 1 000V	±5.0% +2 Digit
Voltage (RCD, Loop, Phase Sequence)	15 – 460V	±3.0% +2 Digit
Frequency (Hz)	47 – 63.3Hz	±0.1% +1 Digit
Continuity Test (Ω)	0.01 – 99.9Ω	±5.0% +3 Digit
Z Line (L-L, L-N, L-PE)	0 – 19999mΩ	±5.0% +1m Ω (TIMP57)
	0.01 – 199.9Ω	±5.0% +3 Digit
<b>RCD Tripping Current</b>		
AC, A	ΔIN = 10mA	- 0%, +10% I <sub>ΔN</sub>
	10mA < ΔIN ≤ 650mA	- 0%, +5% I <sub>ΔN</sub>
B	30mA ≤ ΔIN ≤ 100mA	- 0%, +5% I <sub>ΔN</sub>
<b>Earth Leakage Delay</b>		
AC, A	30mA ≤ ΔIN ≤ 6.5mA	- 0%, +5% I <sub>ΔN</sub>
B	30mA ≤ ΔIN ≤ 1mA	- 0%, +5% I <sub>ΔN</sub>
RA – Non-Trip Earth Loop Impedance	Test voltage: 100 - 265V (Line-PE),	50/60Hz ± 5%
Ground Resistance: 3-Wire Method	0.01 – 49.99kΩ	±5.0% +3 Digit
Soil Resistivity: 4-Wire Method	Range (Ωm)	Resolution (Ωm)
	0.06 – 3.14M*	0.01- 0.01M
Phase Sequence Rotation: 1-Wire Method	Voltage range P-N, P-PE[V] 100 - 265	

\* With distance d=10m, Distance "d" range

### Model Specification

Power Source	6 x 1.2V (rechargeable) AA or 6 x 1.5V AA Batteries or 10W power supply
Standard Accessories	HTFLEX33E - 4pcs 3000A AC flexible clamp, diameter 174mm UNIVERSALKITG3 - Set of 4 cables, 4 Crocodile clips, 3 test leads KITERRNE - 4 earth rods and cables in soft carry bag PR400 - Remote switch probe PT400 - Stylus TOPVIEW2006 - PC software and optical-USB connection cable
Optional Accessories Selection Guide (P70)	HTFLEX35 – 3000A AC flexible clamp , diameter 274mm HT96U - Clamp transducer AC 1-100-1000A/1V, diameter 54mm HT4003 - Clamp transducer 400A AC, diameter 30mm HT4005N - Clamp transducer AC 0-5A, 0-100A diameter 20mm T2100 - Earth ground clamp transducer for Stakeless measurements
Certificates	IP40, EN61010-1, EN61326-1, EN61557-1-2-3-4-5-6-7-10, EN50160, EN60909-0, Calibration Certificate



## MACROEVTEST

Is a new product for verification and checks on recharging stations for electric Cars in compliance with IEC/EN60364-7-722.

- **Simplifies:** Easy connection through built in C100EV cable to EV
- **Simulates:** EV-Test100 can simulate the presence of a car being recharged
- **Guides:** To correctly perform all tests all you need to do is to follow the Guided Procedure displayed by this innovative instrument
- **Connects:** Indicates how the cables must precisely be connected
- Automatically provides evaluation of the test outcome if compatible or not for the recharging station safety indicated by a green or red thumb symbol 👍👎
- **Tests:** Continuity, insulation, statuses of the recharging station, overall earth resistance and confirms verification of the RCD's tripping (Type A,B and type B 6ma)
- **Verification, tests & simulates:**
  - Vehicle not present,
  - Present but not being charged
  - Present and being charged
  - Events and anomalies which can be detected in the recharging phase
  - Presence of voltages on the EVSE output connector through LED
  - Verifies during the charging phase the block cable release to enhance safety (More than safe sure)



### Technical Overview

<b>Features</b>
Full colour touch screen
Wi-Fi connection
Built in cable Type 2 plug
Auto Function tests very quickly
All tests can be saved to create printable reports
Wi-Fi allows for data transfers to PC, Smart Phones & Tablets

### Model Specification

<b>Standard Accessories</b>	<p>C2033X - Three wire cable with Schuko plug  <b>UNIVERSALKITG3</b> - Set of 4 cables + 4 alligator clips + 3 test  <b>KITERRNE</b> - Set of 4 cables + 4 earth probes + carrying bag  <b>PR400</b> - Touchscreen stylus (included inside meter)  <b>ZEROLOOP</b> - Loop zero adapter  <b>EV-TEST100</b> - EVSE test adapter  <b>RCDX10</b> - Accessory to test earth leakage relay  <b>SP-5100</b> - Carrying straps  <b>TOPVIEW2006</b> - PC Windows software + optical/USB connection) cable (order code: C2006)  <b>VAS07</b> - Hard carrying case  <b>YABAT0003000</b> - Rechargeable battery NiMH, 1.2V, type AA 6 pcs  <b>YABAT0004001</b> - External charger ›  <b>YAMUM0058HT0</b> - Quick reference guide ›  <b>YAMUM0057HT0</b> - User's manual on CD-ROM › ISO calibration Report</p>
<b>Optional Accessories</b> Selection Guide (P70)	<p><b>HT4005K</b> - Standard clamp with 200A/1V AC full scale  <b>HT96U</b> - Standard clamp with 1/100/1000A full scale  <b>IMP57</b> - Accessory for Loop impedance measurement with high resolution  <b>T2100</b> - Clamp for earth probe resistance measurement  <b>HT52/05</b> - Temperature/Humidity probe  <b>HT53/05</b> - Illuminance (lux) probe  <b>BORSA2051</b> - Carrying bag  <b>606-IECN</b> - Connector with magnetic tip  <b>1066-IECN</b> - Connector for extension of banana cables 4mm</p>

**Please Note:** By using external probes (optional), MacroEVtest can measure environmental parameters such as air temperature/humidity, illuminance (Lux). By using the optional amperometric transducer it is also possible to perform measurements of LEAKAGE CURRENTS, COSPHI, POWER and HARMONICS.



### TCTCOMP – Compact Compliance Kit

- Kit supplied in a sturdy case with foam cut out to secure each instrument
- Refer to individual products for technical overview



Case Dimensions: 450(L) x 360(W) x 100(H)  
Weight: 5.5kg

Code	Description	Page No
T1151	1000V Digital Insulation Tester • Test Voltages (DC): 250/ 500/ 1000V LIFETIME WARRANTY CAT III 500V SA DESIGNED SANS10142	42
T1120	Digital Earth Resistance Tester • Earth Resistance (Ω): 20Ω, 200Ω, 2kΩ CAT II 300V	37
TEL2TLB	ELCB /Polarity Socket Tester • Rated Tripping Current: 10, 15, 20, 25, 30, 35mA • SANS164-2 plug socket compatible SA DESIGNED SANS10142	49
JUPITER	Multifunction Multimeter PSC/Loop Tester • Automatic detection of AC/ DC signals IP40 CAT III 690V to ground and between inputs TRMS CE CAT IV 600V	13

### TCTCDK Compact Digital Compliance Kit

- Kit supplied in a sturdy case with foam cut out to secure each instrument
- Refer to individual products for technical overview



Case Dimensions: 540(L) x 460(W) x 160(H)  
Weight: 10.5kg

Code	Description	Page No
T1151	1000V Digital Insulation Tester • Test Voltages (DC): 250/ 500/ 1000V LIFETIME WARRANTY CAT III 500V SA DESIGNED SANS10142	42
T1120	Digital Earth Resistance Tester • Earth Resistance (Ω): 20Ω, 200Ω, 2kΩ CAT II 300V	37
TEL2TLB	ELCB /Polarity Socket Tester • Rated Tripping Current: 10, 15, 20, 25, 30, 35mA • SANS164-2 plug socket compatible SA DESIGNED SANS10142	49
T1825	Loop/PSC Network Tester Analyser • Loop: 0 ~ 2000Ω • PSC: 0 ~ 6ka at 230v (L-N) LIFETIME WARRANTY CAT III 300V SA DESIGNED SANS10142	45
TBM031	TRMS 600A AC Digital Clamp Meter • Display: 6 000 Counts • Jaw size: 30mm CAT III 600V CAT IV 300V TRMS	19
T860	Phase Rotation and Motor Rotation • Operating Voltage: 100 - 600V AC SA DESIGNED SANS10142 LIFETIME WARRANTY	50

### TCTDT Digital Compliance Kit

- Kit supplied in a sturdy case with foam cut out to secure each instrument
- Refer to individual products for technical overview



Case Dimensions: 540(L) x 460(W) x 160(H)  
Weight: 11kg

Code	Description		Page No
T1851	1000V Digital Insulation Tester • Test Voltages (V DC): 250/ 500/ 1000V	LIFETIME WARRANTY CAT III 500V	42
T1820	Digital Tester • Earth Resistance ( $\Omega$ ): 20 $\Omega$ , 200 $\Omega$ , 2k $\Omega$	CAT III 500V	37
TEL2TLB	ELCB /Polarity Socket Tester • Rated Tripping Current: 10, 15, 20, 25, 30, 35mA • SANS164-2 plug socket compatible	SA DESIGNED SANS10142	49
T1825	Loop/PSC Network Tester • Loop: 0 ~ 2000 $\Omega$ • PSC: 0 ~ 6kA at 230V (L-N) • Symbols: SA designed SANS 10142	LIFETIME WARRANTY CAT III 300V SA DESIGNED SANS10142	45
TBM031	TRMS 600A AC Digital Clamp Meter • Display: 6 000 Counts • Jaw size: 30mm	CAT III 600V CAT IV 300V TRMS	19
T887	LCD Phase Rotation • Operating Voltage: 40 - 700V AC	SA DESIGNED SANS10142 LIFETIME WARRANTY	50



FEATURES	T416	T1805	T1820	T1120	T2000
PAGE NO.	36	36	37	37	38
Earth Resistance Test ( $\Omega$ )	50k	1k	2k	2k	1k
Earth Resistance Test (V)	460	30	200	200	
Micro Processor Controlled	•				
Long Test		•	•	•	•
Auto Power Off (APO)	•				•
PC Connection	TOPVIEW2006 (USB Cable)* 62006				
Data Saving	•				•
On Display Help	•				
Backlight	•				•
Data Hold	•		•	•	•
Test Cables Resistance Compensation	•			•	
Ground Resisting 4 Wire	•				
Detection of Disturbances Currents	•				•
Taut Band Movement		•			
Battery Check	•	•	•	•	
Safety Category					
Lifetime Warranty					
Dimensions (mm) LxWxH	222 x 162 x 57	170 x 165 x 92	170 x 165 x 92	175 x 85 x 75	293 x 90 x 66
Weight (g)	800	1000	1040	585	1320

\*Optional accessory

### T416 - Earth Resistance Tester

- 999 Memory locations
- Ground resistivity by 4-wire method
- Earth resistance with 2-wire, 3-wire and 4-wire voltammeteric method
- Calculation of earth resistance average value with both 2- and 3- wires (RAVG)
- Calculation of resistivity average value (AVG)
- Compensation of disturbance voltages
- Optical/USB interface with PC



CAT III 265V



KITERRNE

#### Technical Overview

Feature	Parameter	Accuracy
Range (2-, 3-wire)	0 – 499kΩ	±2.5%+2 Digit
Measuring Frequency (Hz)	125Hz/ 75Hz/ 41.66Hz	±1Hz
Test Current (A)	≤12mA AC	
Open Circuit Voltage	≤25V AC TRMS	
Wave Form of Test Voltage	Sinusoidal	
<b>Resistivity Measurement</b>		
Ωm Range ρ (4-wire)	0.6 – 3.15MΩ	±2.0%+3 Digit
Measuring Frequency (Hz)	125Hz / 75Hz/41.66Hz	±1Hz
Test Current (A)	≤10mA	
Open Circuit Voltage	≤30V	
Wave Form of Test Voltage	Sinusoidal	
<b>Measurement of Disturbance voltage</b>		
Range	500V	±2.0%+3 Digit

#### Model Specification

Power Source	6 x 1.5V AA Batteries (about 500 tests)
Standard Accessories	KITERRNE - 4 Earth rods and cables in soft bag Lengths: (RD) - 13m, (BL) - 20m, (GR) - 6m, (BK) - 6m, Carry Case, Instruction manual, Test Leads, Crocodile Clips COCGUK,
Optional Accessories	TOPVIEW2006 - Software and USB Cable Selection Guide (P70) VA500 - Hard Case
Certificates	UL, IEC61010-1, Calibration Certificate ISO9000.Certificate of Conformance

### T1805 - Analogue Earth Resistance Tester

- Taut band movement
- 2- and 3-Wire tester
- Earth voltage
- 2mA without tripping
- Large display



CAT III 150V

#### Technical Overview

Feature	Parameter	Accuracy
Earth Resistance (Ω)	10/ 100/ 1000Ω	± 2.5% of full scale
Earth Voltage (V)	30V AC (5kΩ/V)	± 1.0% of full scale
Measuring System	Resistance: (Constant current inverter 820Hz approx, 2mA) Voltage: rectifier type 0 - 30V AC, 40~500Hz	
Withstand Voltage	1.500V AC (1m)	± 1.8% + 4 Digit

#### Model Specification

Power Source	8 x 1.5V AA Batteries
Standard Accessories	Test Leads (Lengths: (RD) - 1m and 15m, (YL) - 10m, (GR) - 5m, Earth Spikes, Shoulder Belt, TAL36 (P66)
Optional Accessories	T1805LEAD (P65)
Certificates	UL, IEC61010-1, Certificate of Conformance*

\* Calibration performed with supplied test leads



### T1820 - Digital Earth Resistance Tester

- Earth voltage detection
- 2 and 3 wire testing
- 2mA earth resistance to test

#### Technical Overview

Feature	Parameter	Accuracy
Earth Resistance ( $\Omega$ )	20/ 200/ 2k $\Omega$	$\pm 2.0\% + 2$ Digit
Earth Voltage (V)	200V AC (40 - 500hz)	$\pm 1.0\% + 2$ Digit
Measuring System	Earth resistance by constant current inverter, 820Hz, 2mA Approx	
Over Voltage indication	1 (MSD)	
Display	3 1/2 Digits	2 000 Counts



CAT II 300V

LIFETIME WARRANTY

#### Model Specification

Power Source	8 x 1.5V AA Batteries
Standard Accessories	Test Leads (Lengths: <span style="color:red">■</span> (RD) - 1m and 15m, <span style="color:yellow">■</span> (YL) - 10m, <span style="color:green">■</span> (GR) - 5m), Earth Spikes, Shoulder Belt TAL36 (P66)
Certificates	UL, IEC61010-1, Certificate of Conformance*

\* Calibration performed with supplied test leads



### T1120 - Digital Earth Resistance Tester

- Safety voltage protection
- 2mA Earth resistance test
- Data Hold
- Compact design
- Low battery indicator

#### Technical Overview

Feature	Parameter	Accuracy
Earth Resistance ( $\Omega$ )	20, 200, 2k $\Omega$	$\pm 2.0\% + 2$ Digit
Earth Voltage (V)	0-200V AC	$\pm 1.0\% + 2$ Digit
Measuring System	Earth resistance by Constant current inverter 820Hz approx, 2mA square signal	
Withstand Voltage	1.500V AC (one minute)	
Display	3 1/2 Digits	2 000 Counts



CAT II 300V

CAT III 200V

#### Model Specification

Power Source	8 x 1.5V AA Batteries
Standard Accessories	Test Leads (Lengths: <span style="color:red">■</span> (RD) - 1m and 15m, <span style="color:yellow">■</span> (YL) - 10m, <span style="color:green">■</span> (GR) - 5m), Earth Spikes, Shoulder Strap, TAL36 (P66)
Certificates	UL, IEC61010-1, Certificate of Conformance*

### T2000 - Earth Resistance Clamp

- Jaw size: 32mm
- Direct earth probes measurement
- Leakage current
- Alarm thresholds
- Current noise
- Data Hold
- 99 measurement storage locations



#### Technical Overview

Feature	Parameter	Accuracy
Resistance (Ω)	0.01Ω-0.999Ω	±1.0%+0.01Ω
	0.1Ω-0.99Ω	±1.0%+0.01
	1Ω-49.9Ω	±1.5%+0.1Ω
	5Ω-99.9Ω	±2.0%+0.3Ω
	100Ω-199.9Ω	±3.0%+1Ω
	200Ω-395Ω	±6.0%+5Ω
	400Ω-590Ω 600Ω-1000Ω	±10%+10Ω ±20%+20Ω
AC Current (A)	0A-80mA	±2.5%+1mA
	80-650mA	±2.5%+2mA
	650-999.5mA	±2.5%+0.003A
	1-3.995mA	±2.5%+0.01A
	4-20mA	±2.5%+0.05A

#### Model Specification

Power Source	4 x 1.5V AAA Batteries
Standard Accessories	Resistive Test Loop, Carry Case
Certificates	UL, IEC61010-1, Certificate of Conformance

\* Calibration performed with supplied test leads



FEATURES	TBM878	T1800	T1832	T1851	T1151
PAGE NO.	12	41	41	42	42
Insulation Tester Voltage (V)	1000	1000	1000	1000	1000
Insulation Resistance Ranges ( $\Omega$ )	50V/55M 100V/110M 250V/275M 500V/550M 1000V/25G	250V/100M 500V/200M 1000V/400M	250V/100M 500V/200M 1000V/400M	250V/200M 500V/200M 1000V/200M	250V/2G 500V/4G 1000V/200M
Micro Processor Controlled	•			•	•
Bar Graph	•				•
Counting Timer					•
Long Test			•	•	•
Autoranging	•				•
Auto Power Off (APO)	•				•
Auto Discharge		•	•	•	•
External Voltage Warning Indication			•		•
Live Circuit Warning	•		•	•	•
PI (Polarisation Index)					•
DAR (Dialectical Absorption Ratio)					•
Eeprom Calibration					•
Data Hold	•				•
Auto Null			•		•
Fuse Protection	•	•	•	•	•
Mirror Scale			•		
Taut Band Movement		•	•		
AC Measurement (V)	1000	500	500	500	700
DC Measurement (V)	1000		•		950
Hand Free Testing Locker	•	•	•		•
Battery Check		•	•		•
Continuity Test Range ( $\Omega$ )	2/20	50	3/500	200/2000	1999
Safety Category					
Lifetime Warranty					
Dimensions (mm) LxWxH	175 x 85 x 75	170 x 165 x 92	170 x 165 x 92	175 x 85 x 75	175 x 85 x 75
Weight (g)	635	1030	1030	1040	655







CAT III 500V

### T1800 - Analogue Insulation Continuity Tester 1000V

- Heavy duty carry case
- Taut band movement
- Auto discharge
- Colour coded scale
- Live circuit indication
- AC Voltage measurement

#### Technical Overview

Feature	Parameter	Accuracy
Test Voltages (DC) and Measuring Range	250V (0 - 100MΩ), 500V (0 - 200MΩ), 1000V (0 - 400MΩ)	± 5.0% of Indicated value
Short Circuit Terminal Current	145mA DC Approx	
Output Voltage on Open Circuit	Rated test voltage + 10%	
Short Circuit Current (Max)	2mA DC	
Continuity Range	0 to 50Ω	
Open Circuit Terminal Voltage	445mV DC Approx	
AC Voltage (V)	0 to 500 V	2.5% of scale length

#### Model Specification

Power Source	8 x 1.5V AA Alkaline Batteries
Standard Accessories	Test Leads <b>TAL24</b> (P63), Pouch, Shoulder Strap
Certificates	UL, IEC61010-1. Certificate of Conformance

### T1832 - Analogue Insulation Continuity and Voltage Tester 1000V

- Taut band movement
- Live circuit indication
- >200mA continuity short circuit current
- Auto discharge
- AC voltage measurement
- Audible voltage detector
- Nullifying of test leads
- Continuity buzzer
- Mirror scale



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LIFETIME WARRANTY

CAT III 500V

#### Technical Overview

Feature	Parameter	Accuracy
Test Voltages (DC) and Measuring Range	250V (0 - 100MΩ), 500V (0 - 200MΩ), 1000V (0 - 400MΩ)	± 3.0% of Indicated value
Short Circuit Terminal Current	210mA DC Approx	
Output Voltage on Open Circuit	Rated test voltage + 10%	
Short Circuit Current (Max)	1.3mA	
Continuity Ranges	0 - 3Ω and 0 - 500Ω	
Open Circuit Terminal Voltage	5V DC Approx	
AC Voltage (V)	0 - 600V	± 3.0% of scale length

#### Model Specification

Power Source	8 x 1.5V AA Alkaline Batteries
Standard Accessories	Test Leads <b>TAL24</b> (P63), Pouch, Shoulder strap
Certificates	UL, IEC61010-1, Certificate of Conformance



CAT III 600V

### T1851 - Digital Insulation Tester 1000V

- Continuity buzzer
- Live circuit warning
- 200mA continuity short circuit current
- AC voltage measurement
- Auto power off
- Auto discharge
- Live circuit indication

#### Technical Overview

Feature	Parameter	Accuracy
Test Voltages (DC) and Measuring Range	250V (0 - 200MΩ), 500V (0 - 200MΩ), 1000V (0 - 2000MΩ)	±1.5% + 5 Digit
Short Circuit Terminal Current	200mA DC Approx	
Output Voltage on Open Circuit	Rated test voltage + 10%	
Short Circuit Current (Max)	1mA	
Continuity Range	0-2kΩ	
Open Circuit Terminal Voltage	500V DC Approx	
AC Voltage (V)	0 - 500V	±1.5% + 3 Digit
Display	3 1/2 Digits	2 000 Counts

#### Model Specification

Power Source	8 x 1.5V AA Alkaline Batteries
Standard Accessories	Test Leads TAL24 (P63), Pouch, Shoulder Strap
Certificates	UL, IEC61010-1, Certificate of Conformance



T1151OLED

CE

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LIFETIME WARRANTY

CAT III 500V

### T1151 / T1151OLED – Digital Insulation Tester 1000V

- Safety voltmeter protection before each test
- Live circuit indication
- Auto discharge
- AC and DC voltage measurements
- OLED Display (Organic light-emitting diode - T1151OLED)
- Polarisation Index\*(PI)
- Dielectric absorption ratio\* (DAR)
- Auto nulling of test leads and fuse
- Fuse protection

#### Technical Overview

Feature	Parameter	Accuracy
Test Voltages (DC) and Measuring Range	250V (2k-2GΩ), 500V (4k-4GΩ), 1000V (8k-8GΩ)	0.1MΩ to 4GΩ ± 3.0% 0.1MΩ to 8GΩ ± 5.0%
AC Voltage (V)	0 - 700V	±3%
DC Voltage (V)	0 - 950V	±3%
Continuity Range	0.01 to 1999Ω	
Continuity Short Circuit Current	>220mA	
Polarisation Index	Yes	R at 1min
Dielectric Absorption Ratio	Yes	R at 10min

#### Model Specification

Power Source	8 x 1.5V AA Alkaline Batteries
Standard Accessories	Test Leads TAL24 (P63), Pouch and Shoulder Strap
Certificates	Certificate of Conformance



\* Polarisation Index (PI) and Dielectric Absorption Ratio (DAR) are useful to schedule maintenance. The user can keep record of the PI and DAR results and analyse these over time. Maintenance can be done according to analysis and down time can be scheduled thus same production time.



### T10020C – Low Voltage Insulation Tester 1000V

- Self-powered – Hand crank
- 55mm logarithmic scale
- Self-lubricating moulded gears
- Robust moulded Poly Carbonate Case

#### Technical Overview

Feature	Parameter
Rated Voltage (V)	500/ 1000V
Continuity Measurement	0 -5kΩ
Insulation Resistance	100MΩ/ 200MΩ
Accuracy	±5.0% First effective range, ±10.0 Second effective range
Dialectic test	Withstand 2KV AC (max)

#### Model Specification

Power Source	Self-powered – no battery required
Standard Accessories	Test Leads (1.5m)
Optional Accessories	Replacement Case (T5010CS)
Dimensions (mm)	200(L) x 125(W) x 135(H)
Weight (g)	1978
Certificates	OS:2992



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### TIN4D - Insulation Tester 5KV

- Displays insulation (500, 1000, 2500, 5000V)
- Displays warning
- Fully protected crow bar
- Insulation test time interval up to 99s
- Autoranging
- 4 Insulation test voltages
- Display time

#### Technical Overview

Insulation Test Voltage	500V	1000V	2500V	5000V
Insulation Resistance (Ω)	0-30GΩ	0-60GΩ	0-125GΩ	0-250GΩ
Accuracy	±3.0% + 2 digit			
Output Current Limit (A)	50μA to 100μA			
Live Warning (V)	>500V			
Operating Temperature (°C)	0 to +40°C			
Operating Humidity	85% Max Relative Humidity			

#### Model Specification

Power Source	8 x 1.5V C Alkaline Batteries
Standard Accessories	Carry Case, Test Leads TALTIN (P64)
Certificates	Certificate of Conformance



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### TIN5D - Insulation Tester 10kV

- 4 Insulation test voltages (1000, 2500, 5000, 10 000V)
- Autoranging on all ranges
- Displays insulation test time
- Displays warning
- Fully protected crow bar
- Insulation test time interval up to 99s

#### Technical Overview

Feature	Parameter
Insulation Test Voltage (V)	1000V    2500V    5000V    10000V
Insulation Resistance (Ω)	0-60GΩ    0-125GΩ    0-250GΩ    0-500GΩ
Accuracy	±3.0% + 2 digit
Output Current Limit (A)	50μA to 100μA
Live Warning (V)	>500V
Operating Temperature (°C)	0 to 40°C
Operating Humidity	85

#### Model Specification

Power Source	8 x 1.5V C Alkaline Batteries
Standard Accessories	Carry Case, Test Leads TALTIN (P64)
Certificates	EN61010-1. Certificate of Conformance



### TIN6D - Insulation Tester 10kV

- 20 Insulation test voltages (500V - 10kV)
- Silicone test leads
- Anti-skid/vibration absorbing enclosure
- Live circuit warning
- Auto discharge
- Insulation test time up to 99s
- Autoranging
- Auto off

#### Technical Overview

Feature	Parameter	Accuracy
Insulation Test Voltage (V)	500V - 10kV	±3.0% + 1 Digit
Measuring Range (Autoranging)	500V - 10kV 25GΩ - 500GΩ	
Output Power Limit (W)	1W	
Short Circuit Current (Max)	1.25mA	

#### Model Specification

Power Source	8 x 1.5V C Alkaline Batteries
Standard Accessories	Heavy Duty Carry Case, Test Leads TALTIN (P64)
Certificates	EN61010-1, Certificate of Conformance



### TIN7D / TIN7DOLED - Insulation Tester 10kV

- Polarisation index\*
- Dielectric absorption ratio\*
- Live circuit warning
- Auto discharge
- Insulation test time interval up to 10mins
- 20 Insulation test voltages
- Autoranging
- OLED display (organic light-emitting diode - TIN7DOLED)

#### Technical Overview

Feature	Parameter	Accuracy
Insulation Test Voltage (V)	500V, 10kV (20 x 500V increments)	± 5.0% + 1 Digit
Measuring Range (Ω)	0-250GΩ, 800kΩ-500GΩ	
Output Power Limit (W)	1W	
Short Circuit Current (Max)	1.25mA	
Dielectric Absorption Ratio	Yes	R at 1min
Polarisation Index	Yes	R at 1min

#### Model Specification

Power Source	8 x 1.5V C Alkaline Batteries
Standard Accessories	Test Leads TALTIN (P64), Heavy Duty Carry Case
Certificates	EN61010-1, EN61326-1. Certificate of Conformance

#### TIN7D



Polarisation Index (PI) and Dielectric Absorption Ratio (DAR) are useful to schedule maintenance. The user can keep record of the PI and DAR results and analyse these over time. Maintenance can be done according to analysis and down time can be scheduled thus same production time.

### TIN8D – High Voltage Insulation Tester 15kV

- Test insulation resistance up to 30TΩ (30000GΩ)
- Short-circuit current up to 5mA
- Optical USB to RS-232 data transmission
- 30 Insulation test voltages
- Autoranging on all insulation ranges
- Backlight function
- Bar graph indicates test voltage, rise and decay
- 200 Measurement results can be saved in the memory and recalled on the display

#### Technical Overview

Feature	Parameter	Accuracy
Insulation Test DC Voltage (V)	500 – 15kV (500V increments)	±5.0%+5 Digit
Current (A)	0.5nA – 0.55mA	Depend on insulation resistance
AC Voltage (V)	30~ - 600V (50/60Hz)	±2.0% + 3 Digit
DC Voltage (V)	30 - 600V	±2.0% + 3 Digit
Insulation Resistance (Ω)	1000GΩ/0.5kV 1000GΩ at 0.5kV - 30TΩ at 15kV	±0.4% + 1 Digit
Short Circuit Current	up to 5mA	±0.5% + 1 Digit
PI	√	
DAR	√	
Display	3¾ Digits	3 000 Counts

#### Model Specification

Power Source	14.8V Lithium Ion Rechargeable Battery (TIN8DBATT) – requires monthly charging
Standard Accessories	Test Leads with Crocodile Clips (TIN8DTLKT) (P66), Test Probe (TAL58) (P65), Data Transmission Cable and Software on USB (TIN8DCHARGE), Instruction Manual, Test Report
Certificates	EN 61010-1, EN 61010-2-030, EN 61326-1



**IP66**  
when lid closed





Feature	T1825	T1826	JUPITER	T1MP57
PAGE NO.	45	46	13	46
Loop Impedance (L-N) (mΩ)		1999	1-1999	0.1-1999
Loop Impedance (L-E) (mΩ)	1999	1999	0.1-1999	0.1-1999
PSC Current (L-N)	6kA	6kA		400kA
PSC Current (L-E)		6kA		400kA
Voltage Measurement (V AC) (L-N)	50-280	50-280	690	190-460V
Voltage Measurement (V AC) (L-E)		50-280	690	190-460V
Operating Voltage (V AC)	230 ±20	230 ±20		220-415
Neutral Wire Resistance (Ω)		0.01 - 2000	1999	0.1 - 2000
Live Wire Resistance (Ω)		0.01 - 2000	1999	0.1 - 2000
TEST CURRENT - Loop/PSC/Load	11A ± 1A	16A (11.76A per loop)	100mA	202A
Auto Off	•	•	•	•
Autoranging	•	•	•	•
Wiring Check	•	•	•	
Resolution (mΩ)	10 (Loop)	•	0.1	0.1 (Zloop)
Thermal Protection	Electronic	10 (Loop)	Electronic	Electronic
Operating Temperature (°C)	-10 to +40	Electronic	5 to +40	0 to +40
Operating Humidity	85%	-10 to 40	<80%	85%
Lifetime Warranty	LIFETIME WARRANTY	80%		
IP Rating		•	IP40	
Safety Category	CAT III 300V	CAT III 300V	CAT IV 600V CAT III 690V to earth between inputs	CAT III 240V to earth CAT III 415V between P1, C1, P2 and C2 inputs
Dimensions (mm) LxWxH	170 x 165 x 92	170x165x92	175 x 85 x 55	300 x 340 x 150
Weight (g)	970	970	420	4100



### T1825 - PSC Loop Tester

- Load/No load tester
- Prospective short circuit current
- Volt drop test
- Microprocessor controlled
- Test up to 100A (6kA) circuit breakers
- Can test 3-Phase systems by testing each Line separately in relation to Neutral
- Scroll through results

#### Technical Overview

Feature	Parameter	Accuracy
Measuring :Loop :PSC	0 ~ 2000Ω 0 ~ 6kA at 230V (L-n)	±2% (0.05 ~ 50Ω), ±3% (500Ω), ±15% (above 500Ω) ±12% + 5 Digit
Operating Voltage (V AC)	50 ~ 275V AC	50Hz only
Test Current - Loop/PSC/ Load	11A (Load Voltage shown as at 16A)	±1A
Resolution (Ω)	0.01 (Loop)	
Thermal Protection	Electronic	
PSC Current	6kA at 230V AC	
(L-N) Max	±2% (0.05 ~ 50Ω), ±3% (500Ω), ±15% (above 500Ω)	
Operating Temperature (°C)	-10to +40°C	
Humidity	85% Max Relative Humidity	

#### Model Specification

Power Source	8 x 1.5V AA Alkaline Batteries
Standard Accessories	Carry Case, Strap, Leads TAL1825 (P64)
Certificates	UL, IEC61010-1, Certificate of Conformance

### T1826 - PSC Loop Tester / Network Analyser

- Fault finding
- Electrical network analyser
- Earth resistance without peg
- Analyse to SANS 10142
- Loop test for L-E, L-N and PSC
- Prospective short circuit current



LIFETIME WARRANTY

CAT III 300V

#### Technical Overview

Feature	Parameter	Accuracy
Measuring :Loop :PSC	0 ~ 2000Ω	± 5% ± 2 Digit
	0 ~ 6kA at 230V AC	± 12% + 5 Digit
Operating Voltage (VAC)	230V ± 20V 50Hz	± 2%
Test Current - Loop/PSC/Load	11.76A	
Neutral Wire Resistance	0.01 - 2000Ω	
Live Wire Resistance	0.01 - 2000Ω	
PSC Current (L-N)	Max 6kA at 230V AC	
PSC Current (L-E)	Max 6kA at 230V AC	
Operating Temperature	-10°C to 40°C	
Humidity	80% Max Relative humidity	

#### Model Specification

Power Source	8 x 1.5V AA Alkaline Batteries
Standard Accessories	Carry Case, Strap, Test leads <b>TAL1825</b> (P64)
Certificates	UL, IEC61010-1. Certificate of Conformance IEC61326-1

### TIMP57 – High Resolution Loop/Line Impedance

- Line Loop Adaptor
- Test up to 400kA
- 4 wire high resolution Line impedance measurement
- Phase to Phase, Phase to Neutral, Phase to Protection Conductor Impedance Measurement
- Phase to Phase, Phase to Neutral, Phase to Protection Conductor PSC current calculation



Instruments listed below are to be used in conjunction with the TIMP57 in order to do high line loop tests up to 400kA

MACROG3

T60



#### Technical Overview

Range	Resolution	Accuracy
<b>Z<sub>LINE</sub> Z<sub>LOOP</sub> Measurement</b>		
0 - 199.9mΩ	0.1mΩ	±5.0% + 1mΩ
200 - 1999mΩ	1mΩ	
<b>RLINE RLOOP, XLINE XLOOP Measurement</b>		
0 - 199.9mΩ	0.1mΩ	±10.0% + 1mΩ
200 - 1999mΩ	1mΩ	
<b>PSC Current (A)</b>		
0 - 1999A	1A	Related to Z accuracy
2.0 - 9.9kA	0.1kA	
10 - 1999kA	1kA	
<b>Voltage (V)</b>		
190 - 460V	1V	±1.0% + 2 Digit
<b>Frequency (Hz)</b>		
47.5 - 52.5Hz	0.1Hz	±0.2Hz

#### Model Specification

Power Source	8 x 1.5V Alkaline Batteries
Standard Accessories	Test Cables (3m length, with Crocodile Clips), RS-232 Serial Cable, Carrying Bag
Certificates	EN60909-0, VDE 0413, EN61557-3

CAT III 240V (to Earth)

CAT III 415V (between P1, C1, P2, C2 inputs)



FEATURES	TEL28	TELE10L	TEL11/OLED	TEL2TLB
PAGE NO.	48	48	48	49
Rated Tripping Current (mA)	0-999	1-999	1-999	10, 15, 20, 25, 30, 35
Voltmeter (V AC) (L-E)	20 - 280	50-550	50-650	
Timer Resolution (mS)	1	10	1	5
Current Resolution (mA)	1	1	1	5
Data Hold	•	•	•	
Wiring check		•	•	•
Auto Off	•	•	•	
Thermal Protection	•	•	•	
Phase Angle or Phase-start-selection	0° and 180°	0° and 180°	0° and 180°	
Phase Polarity Trip Indicator	•		•	
Maximum Trip Time (s)	99.9	99.99	99.99	
Operating Voltage (V AC) (L-E)	100-550	230 /380 /550	60-317 (525V System)	230
Operating Temperature (°C)	-50 to +40	0 to +40	0 to +40	0 to +40
Relative Humidity	80%	80%	80%	80%
Fuse Protection	1A	1A	1A (Slow Blow)	
Lifetime Warranty	LIFETIME WARRANTY	LIFETIME WARRANTY	LIFETIME WARRANTY	
Safety Category	CAT III ⚡ 450V	CAT III ⚡ 550V	CAT III ⚡ 550V	CAT III ⚡ 230V
Dimensions (mm) LxHxW	170 x 165 x 92	330 x 260 x 150	330 x 260 x 160	80 x55 x 30
Weight (g)	1500	3700	3850	400



SA DESIGNED  
SANS10142  
LIFETIME WARRANTY  
CAT III 450V

### TEL28 - Industrial ELCB

- Microprocessor
- Direct read out of time/current
- Voltage measurement
- Suitable for industrial and mining
- Each phase tested separately on a 3-Phase system industrial, mining and domestic environments

#### Technical Overview

Feature	Parameter	Accuracy
Rated tripping current	1 to 999mA	± 1mA
Resolution	1mA	
Operating Voltage (AC)	100 - 550V	50 - 50V AC 2% ± 1V 350 - 550V AC
Maximum Trip Time	99.9 s (1mS resolution)	1mS ± 1mS 5% ± 1mS
Operating Temperature (°C)	-50 to +40°C	
Operating Humidity	80%	
Phase Angle Setting	0 and 180s selectable	

#### Model Specification

Power Source	8 x 1.5V AA Alkaline Batteries
Standard Accessories	Carry Case, Test Leads, Fuse
Certificates	Certificate of Conformance, EN 0081-1, EN 50082-1



SA DESIGNED  
SANS10142  
LIFETIME WARRANTY

### TELE10L – Industrial ELCB Tester

- Microprocessor controlled
- Pure resistive load
- Fully programmable (direct readout - time or current)
- Voltage measured during test

#### Technical Overview

Feature	Parameter	Accuracy
Rated Tripping Current (A)	3-999mA at 317V	±1.0% reading ±2 digits
Lowest Resolution Time (s)	10ms	
Lowest Resolution Current (A)	1mA	
Operating Voltage (V)	230-550V (designed 317V)	1.0% reading ±1 digit
Maximum Trip Time (s)	99.99 secs	
Maximum Trip Current (A)	999mA	
Operating Temperature (°C)	0 to +40°C	
Operating Humidity	80%	

#### Model Specification

Power Source	8 x 1.5V C Alkaline Batteries
Standard Accessories	Test Leads, Fuse
Certificates	Certificate of Conformance



TEL11OLED

SA DESIGNED  
SANS10142  
LIFETIME WARRANTY

### TEL11 / TEL11OLED – 3-Phase Industrial ELCB Tester

- Multi frequency
- Multi Voltage
- Industrial use
- 3-Phase presence
- 3-Phase rotation
- TEST for disconnection sensitivity
- TEST for disconnection time
- Select one of 3-Phase to earth to test ELCB
- Measure voltage phase to Earth
- Over temperature protection
- Phase polarity trip indicator
- Select start at 0°C and 180°C

#### Technical Overview

Feature	Parameter
Current Settings (A)	1 to 999mA AC
Phase-start-selection	0 and 180
AC Operating Voltage (L-E) (V)	110V AC to 550V AC
Timer Resolution	1mS (Max Time = 99.99s)
Current Resolution	1mA
Voltmeter Resolution	1V
Earth Leakage Constant Current IAC	5 to 999 (mA)
Ramping Current	5 to 999 (mA)
Sensitivity Disconnection Check	0 to 99s
Time Delay Disconnection Check(s)	0.001 - 99.999
Maximum Current Consumption	10mA (LCD) 100mA (OLED)
ELCB Voltage Measurement (L-E) (V AC)	10 to 550V
ELCB Tester Voltage Present (VELCB)	LED
ELCB Fuse (Slow Blow)	1.5A Slow Blow

#### Model Specification

Power Source	8 x 1.5V C Batteries Alkaline
Standard Accessories	Test Leads x 2 (terminate own plug)
Certificates	Certificate of Conformance





### T4137 - Digital Milliohm Meter

- Four terminal measurement
- Large LCD display
- Robust lightweight case with O-ring seal
- Bonding tests
- Earth continuity testing

#### Technical Overview

Feature	Range	Accuracy
Resistance Ranges ( $\Omega$ )	0 - 200m $\Omega$ in steps of 100 $\mu\Omega$ 0 - 2000m $\Omega$ in steps of 1m $\Omega$ 0 - 20 $\Omega$ in steps of 10m $\Omega$ 0 - 200 $\Omega$ in steps of 100m $\Omega$	$\pm 0.5\%$ $\pm 2$ digits
Test Current (A)	1mA = 2000 $\Omega$ range 10mA = 200 $\Omega$ range 100mA = 2000m $\Omega$ range	$\pm 1.0\%$
Max Output Voltage (V)	20V	

#### Model Specification

Power Source	12V DC Battery, 8 x 1.5V C Alkaline Batteries
Standard Accessories	Test Leads, <span style="color:red">■</span> <span style="color:blue">■</span> <span style="color:green">■</span> (TAL34B)
Certificates	Certificate of Conformance

### TEL2TLB - ELCB Socket and Polarity Tester

- SANS164-2 (Type N) plug socket compatible
- Ready-board compatible
- LED wiring integrity indication
- Faulty Earth Detector (LCD)/Live on earth
- ELCB Tester (10-35mA)
- Includes SANS 164-1: 16 A - 3 PIN (Type M) adapter plug



#### Technical Overview

Feature	Parameter	Accuracy
Operating Voltage (V)	230V	$\pm 10.0\%$
Rated Tripping Current	10mA-35mA	
Quiescent Current (A)	6mA	

#### Model Specification

Power Source	No battery required
Standard Accessories	Test Leads (length (m))1.5, TEL2TLBADAPT
Certificates	OS:2992

### T890 - 3-Phase Detector (Non-contact)

- Clamps over wire insulation without contact on conductor
- Non-contact sensor clips
- Open phase and phase sequence
- Magnets on back of unit to mount on metal surfaces

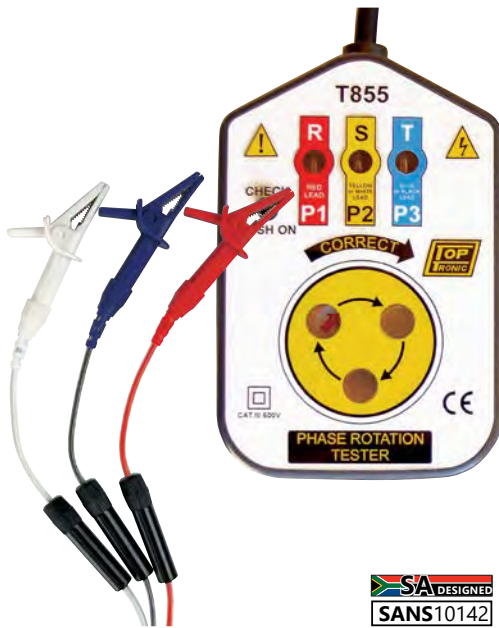


#### Technical Overview

AC Operating Voltage (V)	150 to 1000V AC
Operating Frequency (Hz)	45 to 65Hz
Circuit Structure	Electronic
Operating Temperature ( $^{\circ}\text{C}$ )	-10 to +50 $^{\circ}\text{C}$
Humidity	80%
Current Consumption	15mA
Cable Length	Approx 800mm

#### Model Specification

Power Source	4 x 1.5 AA Batteries
Standard Accessories	Carry Pouch, Crocodile clips <span style="color:red">■</span> <span style="color:blue">■</span> <span style="color:white">■</span>
Certificates	UL, IEC61010-1, Certificate of Conformance



### T855 - 3-Phase Rotation Indicator

- Fused test leads
- Rotating disc
- Colour coded red/white/blue
- Large crocodile clips
- Real motor behaviour

#### Technical Overview

AC Operating Voltage (V)	200 - 600V
Operating Frequency (Hz)	50/60Hz
Operating Temperature (°C)	-10 to +40°C
Humidity	80% Max Relative Humidity
Cable Length	1.1m each <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

#### Model Specification

Standard Accessories	Carry Pouch, Large Crocodile clips <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Certificates	Certificate of Conformance

T860LEAD



### T860 - 3-Phase and Motor Rotation Indicator

- Test rotation of unconnected motors by turning shaft by hand
- Heavy duty crocodile clips
- Open phase identification
- Phase presence
- Colour coded:
- Clockwise or anti-clockwise indication

#### Technical Overview

AC Operating Voltage (V)	100 to 600V AC
Operating Frequency (Hz)	45 to 75Hz
Circuit Structure	Electronic
Operating Temperature (°C)	0°C to +50°C
Humidity	90% Max Relative Humidity
Power Consumption	±14mA for motor rotation field test
(Correct)	±7mA for Phase rotation field indication

#### Model Specification

Power Source	9V Battery
Standard Accessories	Carry Pouch, Crocodile clips <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> (T860LEAD)
Certificates	Certificate of Conformance

T860LEAD



### T887 - 3-Phase Rotation LCD Indicator

- Phase rotation and phase presence
- Colour coded
- Large crocodile clips
- No battery required

#### Technical Overview

AC Operating Voltage (V)	40 - 700V AC
Operating Frequency (Hz)	45 to 75Hz
Operating Temperature (°C)	-1°C to +55°C
Humidity	90% Max Relative Humidity
Cable Length	60cm each of <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

#### Model Specification

Power Source	No batteries required
Standard Accessories	Carry Pouch, Large Crocodile clips <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> (T860LEAD)
Certificates	Certificate of Conformance



CAT IV 1000V

#### HT70 - Phase Sequence Indicator and Voltage Detector

- Detection AC voltage
- Phase sequence and conformity test with 1-wire method
- With or without contact measurements
- LED Red and buzzer indication
- Practical pen clip
- Dimensions (mm): 160 (L) x 26 (W) x 20 (H)
- Weight (g): 48

##### Technical Overview

AC Operating Voltage (V)	100 to 1000V AC
Frequency	50 - 60Hz

##### Model Specification

Power Source	2x 1.5V AAA Alkaline Batteries
Certificate	IEC/EN61010-1



Incorrect phase sequence



Correct phase sequence



CE  
IP40

CAT III 250V

Receiver: CAT III 600V

#### HT38 – Circuit Breaker Finder

- Max distance between transmitter and receiver 500m
- Indicates the reference switch with LED and sound
- Transmitter Dimensions (mm): 95 (L) x 60(W) x 30 (H)
- Transmitter Weight (g): 140
- Receiver Dimensions (mm): 195 (L) x 60(W) x 35 (H)
- Receiver Weight (g): 130

##### Technical Overview

Feature	Parameter
Signal Output Current (A)	<20mA
Voltage detection	<250VAC to ground

##### Model Specification

Power Source	230V AC (Transmitter), 1 x 9V Alkaline Battery (Receiver)
Certificates	IP40, EMC: IEC/EN61326, IEC/EN61010-1



#### T180 - Tone and Probe Kit

- With tone generator and amplifier probe
- Sensitivity control
- Crocodile clips and RJ11 connector
- Single or dual alternating tone
- Use on de-energised circuits

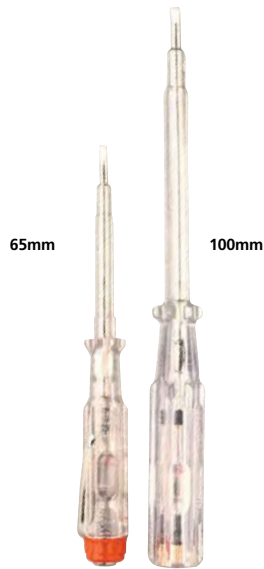
##### Technical Overview

	Waveform	Square Wave
Tone Generator	Frequency	±1.13kHz
	Amplitude	9V P-P
	Over voltage Protection	±100V
Amplifier Probe	Frequency Detection	1-12kHz
	Receiver distance	50-60cm
	Sensitivity Control	√

##### Model Specification

Power Source	Probe: 1 x 9V Battery, Tone: 1 x 9V Battery
Standard Accessories	Carry Pouch, Crocodile clips, RJ11 connector
Certificate	Certificate of Conformance

### T45200/T45000 – Neon Screwdrivers



Code	Overall Length (mm)	Head (mm)	Width (mm)	Thickness (mm)
T45200	185	100	4	0.5
T45000	140	65	3	0.5

#### Technical Overview

Feature	Parameter
AC Operating Voltage (V)	120 - 250V

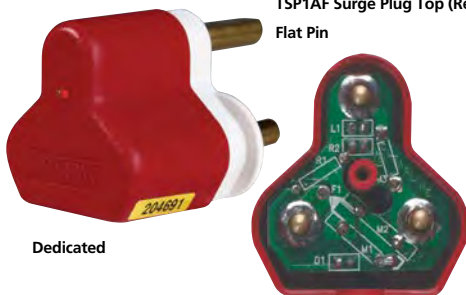
TSP1A Surge Plug Top (Green)



### TSP1A/TSP1AF - Surge Plugs

- High surge handling capability
- Incorrect power socket wiring detection
- Economical secondary protection
- Thermal and over-current fusing
- Visual fault indication
- Differential and common mode protection
- 2 Year warranty

TSP1AF Surge Plug Top (Red)  
Flat Pin



Dedicated

#### Technical Overview

Rated Voltage	230V/50Hz
Max Continuous Operating Voltage	275V AC
Max Continuous Current	16A
Max Surge Current (A)	8kA
Fusing (°C)	Integrated 104°C Thermal and 16A over current fuse
Temperature Range	-10°C to +70°C

#### Model Specification

Certificates	SANS 164-0 Approval
Standards Compliance	IEC 61643-1

### TS500 - Non-Contact Voltage

- Non-contact EF detection (NCV)
- Audio/visual/vibration indication
- Polarity check
- Microwave leakage



#### Technical Overview

Voltage (V)	70 - 600V
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#### Model Specification

Power Source	4 x 1.5V LR44 Batteries
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CAT III 1000V

### T475 - Volt/Current Tracer

- Detect current through concrete walls, shielded/armoured cable
- Adjustable sensitivity
- Non-contact EF detection (NCV)
- Non-contact current detection (NCC)
- Visual and audible

#### Technical Overview

Feature	Parameter
AC Voltage Detection (V)	5 ~1000V
Current Sensitivity (A)	>100mA
Frequency (Hz)	50 - 500Hz
Operating Temperature (°C)	+10 to +50°C
Operating Humidity	<80% RH

#### Model Specification

Power Source	4 x 1,5V LR44 Batteries
Certificates	IEC/EN61010-1
Dimensions (mm)	192(L) x 31(W) x 24(H)
Weight (g)	60



Receiver:

CAT IV 1000V

Transmitter:

CAT II 300V

### T475S – Wire Tracer & Transmitter

- 3 in 1 Cable & wire tracer, Non-contact EF and current detection (NCV/NCC)
- Detect current through shielded/armoured cable (>1 – 5A)
- Audible and vibration indication
- Auto sensitivity with 6 LED sensitivity indication
- LED torch

#### Technical Overview

Feature	Parameter
AC Voltage Detection (V)	>25V single sheath wire
Current Sensitivity (A)	>0.5A single sheath wire
Frequency (Hz)	50 – 500Hz
Temperature (°C)	-10 to + 50°C
Operating Humidity	<80% RH

#### Model Specification

	Cable + Tracer	Transmitter
Power Source	2 x AAA Batteries	200-230V AC
Dimensions (mm)	178(L) x 28(W) x 22(H)	52(L) x 48(W) x 26(H)
Weight	40	55



CAT III 600V

### TLVD15 - Non-Contact Voltage

- Voltage Detection EF detection (NCV)
- LED and tone indication
- Flashlight

#### Technical Overview

Voltage (V)	50 - 1000V AC
Frequency (Hz)	50 - 500Hz

#### Model Specification

Power Source	2 x AAA 1.5V Batteries
Certificates	EN:61010-1, EN:61326-1



**CAT IV** ⚡ 1000V

### TLVD17 - Non-Contact Voltage

- Direct non-contact EF and current detection (NCV)
- Sensitivity adjustable
- LED and tone indication
- Identifies live and neutral

#### Technical Overview

AC Voltage (V)	5 - 1000V
Frequency (Hz)	50 - 500Hz

#### Model Specification

Power Source	1 x 1.5V AAA Battery
Certificates	CE EN:61010-1, EN:61326-1



**CAT III** ⚡ 600V

### TLVD18 - Non-Contact Voltage

- Both direct non-contact EF and voltage detection (NCV)
- LED and tone indication
- Detect Voltage in lighting fixtures and circuit breakers
- Detect a break in a wire
- Flashlight
- Continuity test and basic driver function

#### Technical Overview

Direct Contact Voltage (V)	50 - 600V AC
Non-contact Voltage (V)	50 - 600V AC
Frequency (Hz)	50 - 500Hz
Operating Temperature (°C)	0 to +40°C
Operating Humidity	< 80% Relative Humidity
Altitude	Max 2000m

#### Model Specifications

Power Source	2 x 1.5V AAA Batteries
Certificates	EN 61010-1, EN 61326-1



### WIBRETEST – Vibrating Voltage and Line Tester 750V

- Single phase (240V) and 3-phase (415V) voltage tests
- AC/DC
- DC range indicates polarity
- Probe pins spring loaded for protection and easy measurement
- Neon indicator for 'live' ■ ■
- Slip proof and oil resistant rubber grip, ribbed and padded for extra protection
- Vibration indication

#### Technical Overview

Feature	Parameter
DC voltage (V) <span style="color: red;">■</span> Scale	110 - 750V
AC voltage (V) <span style="color: yellow;">■</span> Scale	125 - 750V

#### Model Specification

Power Source	No Batteries Required
Certificates	IEC1010, AC IEEC61243-3 (CATIV 300V), EN55022
Weight (g)	55



### WIBRE1000 - Voltage Tester 1000V

- Dust and waterproof
- AC/DC
- LED indicators
- Polarity
- Oil resistant

#### Technical Overview

Voltage Range (V)	110V/ 230V/ 380V/ 690V/ 1000V AC/DC
-------------------	-------------------------------------

#### Model Specification

Power Source	No Batteries Required
Certificates	IP65, IEC61243-3, DIN/VDE 0682-401



### TBT69 - Voltage Tester 1000V

- Industrial
- Polarity LED indicators
- Electric field detection
- LCD display
- RCD (ELCB) tripping (30mA)
- Continuity
- Attached red probe with screw-on 4mm test tip
- Phase rotation

#### Technical Overview

Voltage Range (V)	6V/ 12V/ 24V/ 50V/ 120V/ 230V/ 400V/ 690V/ 1000V
Transient protection	8kV

#### Model Specification

Power Source	No Batteries Required
Certificates	IEC61010-1, IP65



### TCVR2 - 2 Pole Voltage and Continuity Tester

- 2 Pole voltage tester with LED & LCD display
- Built in LED torch
- Self-proving
- Continuity Test
- Battery test
- Phase rotation test
- Weight: 216g
- Dimensions: 255 length 61mm width 33.5mm depth

**IP64**

CAT III 690V

CAT IV 600V

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#### Technical Overview

Feature	Parameter
AC Voltage Detection (V)	12 - 690V
Current Sensitivity (A)	>100mA
Frequency (Hz)	50 - 60Hz
Operating Temperature (°C)	+10 to +50°C
Operating Humidity	<80% RH

#### Model Specification

Power Source	2 x 1,5V AAA Batteries
Certificates	IEC/EN61010-1, EN61243-3:2014, EN 61010-2-33



### DUSPOLA - Analogue Plus 1000V

- Vibration
- Phase sequence
- LED indicators
- Solenoid movement
- Polarity test

**IP65**

CAT III 1000V

#### Technical Overview

AC Voltage (V)	12 - 1000V
DC Voltage (V)	12 - 1000V

#### Model Specification

Power Source	No Batteries Required
Optional Accessories	DUSPOLABAG
Certificates	IP65, 61243-3:2011-02



### DUSPOLE - Voltage Tester 1000V

- Expert
- Vibration
- Phase sequence
- Continuity with buzzer
- LED indicators
- Measuring point illumination
- Polarity test

**IP65**

CAT III 1000V

#### Technical Overview

Voltage (V)	12 - 1000V AC
Voltage (V)	12 - 1000V DC

#### Model Specification

Power Source	2 x 1.5V AAA Batteries
Certificates	IP65, 61243-3:2011-02





CE  
IP65

### T325SVD - Personal Safety Voltage Detector

The T325SVD is designed as a personal safety device warning you of potential danger of high voltage presence in the surrounding area. The device sounds a loud audible beep and flashes when high voltage presence is detected

**Please Note** this device is not designed to verify isolation for safe working conditions, it is purely a pre-warning system.

- Wear it like a watch
- Compact, easy to wear and convenient in use
- Usable both indoor and outdoor
- Water-proof design. (IP65)
- Equipped with self-testing functions
- Able to sense all kinds of AC High Voltage System from 11Kv to 42Kv
- Low power consumption
- CE Certified

#### Warning Sensitivity

Voltage (Phase to ground)	Detection Angle	Detection Distance
11kV	120°	120cm ± 20%
22kV	120°	140cm ± 20%
33kV	120°	160cm ± 20%
42kV	120°	170cm ± 20%

#### Technical Overview

Feature	Parameter
Applicable Frequency (Hz)	50/60Hz
Operating Temperature (°C)	0°C to +40°C
Volume (dB)	65dB or higher at 1 meter distance

#### Model Specification

Power Source	1 x CR2032 battery
Dimensions (mm)	79(L) x 42(W) x 33(H)
Weight (g)	42 (batteries included)



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SANS10142  
LIFETIME WARRANTY

### T175HP - Proximity Detector (Hi-Prox)

- Non-contact high voltage detector
- Ten switch-selectable voltage sensitivity ranges
- Lightweight
- Audible and visual indication of live voltage
- Rose adaptor
- Check high frequency radiation

#### Technical Overview

Voltage (V)	240V/ 3.3kV/ 6.6kV/ 11kV/ 22kV/ 33kV/ 66kV/ 132kV/ 275kV
Detection	Selection range is detected at approx. 25cm from the voltage 240V ±10cm, 33kV ±50cm
Self-Test	Selection
Indicators	Bright LED and buzzer

#### Model Specification

Power Source	3 x 1.5V C Batteries
Standard Accessories	Carry Pouch
Certificates	Certificate of Conformance
Dimensions (mm)	260(H) x 98(W)
Weight (g)	503



T99FD -  
Fuse disconnect included

### Telescopic Link Stick - Ritz

#### VTT25F

- 6 Sections
- 7.78m (25ft) Length when extended
- Voltage range 1 to 132kV
- Rubber hook latch
- Base cap for better stability

#### Model Specification

Length Extended (m)	7.78m (25ft)
Standard Accessories	Heavy Duty Carry Bag
Certificates	Certificate of Conformance, ASTM F 1826-00 specification

#### VTT30F

- 7 Sections
- Suitable for voltage ranging 1 to 132kV
- Rubber hook latch
- Base cap for better stability

#### Model Specification

Length Extended (m)	9.18m (30ft)
Standard Accessories	Heavy Duty Carry Bag
Certificates	Certificate of Conformance, ASTM F 1826-00 specification



T99FD - Fuse disconnect included

### Telescopic Link Stick - Hastings

- Long reach, speed, convenience and safety
- High dielectric properties
- Triangular shape prevents twisting
- Removable sections to shorted stick

#### Technical Overview

	C4031601 (SH250)	CSH230 (SH230)	HV240
<b>Voltage range (V)</b>	1 - 132kV	1 - 132kV	1 - 132kV
<b>Length Extended (m)</b>	7.62m (25ft)	9m (30ft)	12m (40ft)
<b>Tip Diameter Retracted (m)</b>	1.55m	1.60m	1.60m
<b>Base Diameter (mm)</b>	60mm	67mm	

#### Model Specification

Standard Accessories	Heavy Duty Carry Bag (LSBAG)	Fuse Hook, Bag	Heavy Duty Carry Bag
<b>Certificates</b>	Calibration Certificate	Calibration Certificate	12m (40ft)
<b>Weight (kg)</b>	18.3	22.6	



T99FD - Hook included

### Telescopic Link Sticks

- Triangular - shaped design keeps sections aligned during extension and retraction
- Withstands voltage rating of 100kV from 30cm for 5min
- Universal end fitting

#### THS25F

##### Model Specification

<b>Length Extended (m)</b>	7.78m
<b>Standard Accessories</b>	Disconnected hook and carry bag
<b>Sections</b>	6
<b>Certificates</b>	IEC 62193

\*12m available on request

#### THS30F

##### Model Specification

<b>Length Extended (m)</b>	9.18m
<b>Standard Accessories</b>	Disconnected hook and carry bag
<b>Sections</b>	7
<b>Certificates</b>	IEC 62193



### TPC7/11/22/33/44K – High Voltage Testers

- High voltage phase comparators/live line tester/voltage detector
- Dual colour coded scale (% , V AC)
- Neon indicator lit when > 1200 AC
- Measure and test phase to earth and phase to phase
- High quality fibreglass wound rods
- Resistive measurement method
- Current is limited to Milliampere
- Grounded or ungrounded systems
- Lightweight, robust and compact
- High immunity to interference fields
- Silicone handles
- Specified by municipalities, mines and Eskom

#### Technical Overview

Model	TPC7K	TPC11K*	TPC22K	TPC33K*	TPC44K
<b>System Voltage (kV)</b>	6.6	11	22	33	44
<b>Full Scale Voltage (kV)</b>	8	12	24	36	48
<b>Total Resistance (MΩ)</b>	3.95	6.78	13.5	20.1	27
<b>Response Time (s)</b>	1 s				
<b>Neon Threshold</b>	1.2 kV				
<b>Operating Temperature (°C)</b>	-25 to +55°C				
<b>Operating Humidity</b>	20 to 96% RH				

#### Model Specifications

Power Source	No Batteries Required				
<b>Total Length (m)</b>	1.105	1.105	1.225	1.375	1.525
<b>Total Weight (kg)</b>	1.2	1.2	1.3	1.4	1.5
<b>Standard Accessories</b>	Carry Case				
<b>Optional Accessories</b>	90° Bend TPCAA90, Proving Unit T2713				
<b>Certificates</b>	IEC61481:200, IECSP8561481 (Excluding TPC44K)				



TPCAA90 - 90° Angle bends for the TPC Series (Optional Accessory)

T2713 - Proving unit for TPC series (Optional Accessory)



### T1133HVD25E – High Voltage Contact Capacitor Detector (Designed for Eskom)

- Designed for multi-voltage sites
- Covers systems voltage from 11kV to 33kV
- Contact Capacitive High Voltage Detector
- Self-starting and automatically activated when the High Voltage is applied to the contact electrode
- Self-test built-in
- Use on sinusoidal (50 or 60Hz) High Voltage systems
- HV live or dead
- Bridging protection
- Spark protection
- Designed for Eskom

#### Technical Overview

System Voltage	11/33kV
Threshold Set within Range	2500V as per Eskom regulation
Response Time (s)	<1s
Auto-OFF	±3min
Battery Low	<7V
Threshold	2.5kV
Battery Current	<30mA
■ = Armed	Yes
■ = V Detected	Yes

#### Model Specification

Power Source	1 x 9V Alkaline Battery
Standard Accessories	Carry Case, Cleaning Kit, 1 x Rose Connector, 1 x Y Contact
Certificates	Certificate of Conformance IEC 61481, IEC 61243-1 above 1kV 50/60Hz, IP65
Dimensions (mm)	180(L) x 100(Dia.)
Weight (g)	600



### HVD – High Voltage Detector

- HV live or dead

#### Technical Overview

ELECTRICAL	HVD13AC	HVD32A	HVD33AC
System Voltage (kV)	6.6 to 132	11 to 33	44 to 132
Threshold Range (kV)	2.5kV	2.5kV	10kV
	Non standard threshold voltages can be set outside the range to suit customers' requirements		
Spark Protection	Detector will not be damaged as a result of spark discharge while making contact with the conductor under test		
Bridging Protection	Detector and its accessories will not cause flashover between live parts of the installation or between live parts of the installation and earth/ground		
Current Consumption	30mA		
Test Button	Tests and ready for use		
Visual Indicator (2Hz)	■ lamp (voltage present), ■ lamp (safe)		
Audible Indicator	Buzzer - 3.1kHz tone modulated at 2Hz - 70dB (1.5m)		

#### Model Specification for HVD

	Length (mm)	Diameter (mm)	Material
Y Electrode	35	40	Stainless steel
Power Source	1 x 9V Alkaline Battery		
Standard Accessories	Carry Case, Cleaning Kit, 1 x Rose Connector, 1 x Y Contact		
Certificates	Certificate of Conformance, IEC 61481, IEC 61243-1 above 1kV 50/60Hz, IP65		
Dimensions (mm)	180 (L) x 100 (Dia.)		
Weight (g)	600		



### THVD – Automatic Contact Capacitive High Voltage Detector

- Self-starting and automatically activated when the High Voltage is applied to the contact electrode
- Use on sinusoidal (50 or 60Hz) high voltage systems
- Models are available to cover systems voltage from 6.6kV to 132kV
- HV live or dead
- Self-test built in
- Specified at Eskom, mines and municipalities



**IP65**



LIFETIME WARRANTY

#### Technical Overview

MODEL	T213HVD	T217HVD	T218HVD	T219HVD	T220HVD
<b>System Voltage</b>	11kV	11/33kV	44/ 132kV	56/132kV	6.6/132kV
<b>Threshold Set within Range</b>	1.65kV - 4.4kV	3.3kV - 4.95kV	1.8kV - 2.7kV	6.6kV - 19.8kV	1.65kV - 14.6kV
<b>Response Time (s)</b>	<1s	<1s	<1s	<1s	<1s
<b>Auto-OFF</b>	±3min	±3min	±3min	±3min	±3min
<b>Bridging Protection</b>	Yes	Yes	Yes	Yes	Yes
<b>Spark Protection</b>	Yes	Yes	Yes	Yes	Yes
<b>Battery Low</b>	<7V	<7V	<7V	<7V	<7V
<b>Threshold</b>	3.02kV	4.12kV	2.5kV	13.2kV	2.5kV
<b>Battery Current</b>	<30mA	<30mA	<30mA	<30mA	<30mA
<b>■ = Ready</b>	Yes	Yes	Yes	Yes	Yes
<b>■ = V Present</b>	Yes	Yes	Yes	Yes	Yes

#### Model Specification for THVD

	Length (mm)	Diameter (mm)	Material
<b>Y Electrode</b>	35	40	Stainless steel
<b>Power Source</b>	1 x 9V Alkaline Battery		
<b>Standard Accessories</b>	Carry Case, Cleaning Kit, 1 x Rose Connector, 1 x Y Contact		
<b>Certificates</b>	Certificate of Conformance, IEC 61481, IEC 61243-1 above 1kV 50/60Hz, IP65		
<b>Dimensions (mm)</b>	180(L) x 100(Dia.)		
<b>Weight (g)</b>	600		



**IP54**

Model Specification	C.A.T4™	Genny4
<b>Power Source</b>	2 x LR20 (D) 1.5 V Alkaline Batteries (Compatible with D type NiMH rechargeable batteries)	4 x LR20 (D) 1.5 V Alkaline Batteries

### CAT4PLUS - Cable, Pipe Locator and Avoidance Kit

- C.A.T4™ Avoidance Mode™
- eCert™ – remote calibration validation
- Four functions, audio and visual indication and depth estimation in Genny mode
- Signal strength indicator
- Mode/clock face indicator
- USB data connection
- Genny4 transmits a specialised small diameter Locate frequency

#### Technical Overview

Locate Performance	Frequency	Sensitivity@ 1m	Conditions: Locating Depth Guide	
			Good	Poor
<b>Power signals (P)</b>	50 – 1.5 kHz	3mA	3	2
<b>Radio signals (R)</b>	15k – 30kHz	25µA	2	1
<b>Genny4 signals (G)</b>	32.768kHz ±20Hz 131.072kHz ±20Hz	5µA	4	2
<b>Avoidance Mode (A)</b>	P + R + G As above	As above	4	2

Feature	Parameter
<b>Dynamic Range</b>	120dB @ 10Hz
<b>Dynamic Overload Protection</b>	120dB @ 10Hz
<b>Depth Accuracy</b>	Line: 5% 0.1m to 3m Sonde: 5% 0.1m (On undistorted signal and with no adjacent signals)
<b>Horizontal GPS Position Accuracy</b>	3m CEP (Circular Error Probable) – Conditions and satellite dependent
<b>Temperature (°C)</b>	-20 to +50°C
<b>Standard Accessories</b>	Includes clamp, spike and bag

### RD7200 – Cable Route Tracer



**IP65**

Model Specification	
<b>Power Source</b>	2 x D-Cell Alkaline Batteries
<b>Standard Accessories (RD7100PL Receiver)</b>	Soft Carry Bag, 100mm Transmitter Clamp, Connection Leads, Tx-5 Transmitter
<b>Certificates</b>	EN 61010-1:2010, IP65

- Sun light readable display
- Low pitch and high pitch audio options with vibration alerts
- Sensitive and accurate signal processing for reliable results
- Compass Orientation
- Power filters
- Self-calibration check
- Haptic swing feedback
- Strike-Alert, warns of the presence of shallow cables
- True-Depth and current readout

#### Performance

<b>Sensitivity</b>	6E-15 Tesla 5µA at 1m (33kHz)
<b>Dynamic range</b>	140dB rms/VHz
<b>Selectivity</b>	120dB/Hz
<b>Depth Measurement Precision</b>	± 3%
<b>Locate Accuracy</b>	± 5% of depth
<b>Active Locate Filter Bandwidth</b>	± 3Hz, 0 < 1kHz ± 10Hz, ≥ 1kHz
<b>Maximum Depth Readout (max)</b>	Cable /Pipe: 30m Sonde: 19.5m
<b>Start-up time</b>	Less than 1 second

#### Locate Functions

<b>Active Locate Modes</b>	Peak Peak+ (Choice of combined Peak & Guidance or Peak & Null) Guidance Null
<b>Gain Control</b>	Guidance Mode: Automatic Other modes: Manual gain using "+" or "-" with one touch to return to center (50% of Full Scale)
<b>Active Locate Frequencies</b>	8 Frequencies: 512Hz, 640Hz, 8kHz, 33kHz, 65kHz, 83kHz, 131kHz and 200kHz
<b>Sonde Frequencies</b>	4 Frequencies: 512Hz, 640Hz, 8kHz and 33kHz
<b>Fault Find</b>	8KFF Locate insulation sheath faults on pipes and cables to 10cm / 4' accuracy using the accessory A-Frame and a compatible transmitter
<b>Passive Locate Modes</b>	Power, Radio, and CPS (Cathodic Protection System)



Model Specification	Locator	Transmitter
Power Source	Lithium-Ion Battery	Lithium-Ion Battery

Needs to be charged regularly

### RD8200 – Cable Route Tracer

- Unique arrangement of 5 antennas to optimize different tasks
- Enhanced self-test
- StrikeAlert™ in active and passive locating modes - shallow cables visual and audio warnings
- eCert™ - verify and certify calibration of your locator via internet
- RD Map App on Android
- CALSafe™ - Countdown to calibration certificate expiry date
- TruDepth™ - only when correctly orientated
- High sensitivity
- GPS and Usage-Logging
- iLOC - Bluetooth enabled transmitter to control power and frequency up to 450m away

#### Technical Overview

##### Locator

Feature	Parameter
Locate Frequencies	22
Sonde Frequencies	4
Passive Modes	5
4 kHz	4k+CD

##### Transmitter

Feature	Parameter
Output Power (Max)	10W
Active Frequencies	36
Induction frequencies	8
Current Direction Frequencies	14
Induction field strength	1

### T2550T – Handheld Cable Fault Locator

- Transmit and reflect of pulse signal principle - open, short, splice, taps, water ingress and impedance mismatches
- Max range 3km
- Auto power off
- Backlight
- Autoranging
- Automatic Pulse width
- Connectors: 2 x 4mm safety terminals



#### Technical Overview

Feature	Parameter	Accuracy
Measuring Range (m)	100/ 300/ 1000/ 3000m	0.9% of range
Variable Propagation Velocity Factor (PVF)	0.01-0.99	0.9%
Resolution	1% of range	
Output Impedance (Ω)	120Ω	
Output Pulse	5V (nominal in open circuit)	
Operating Temperature (°C)	-20 to +70°C	

#### Model Specification

Power Source	6 x AA Batteries
Standard Accessories	2m Test Leads, Carry Pouch
Certificates	IP54, IEC61010-1, EN60950
Dimensions (mm)	210(L) x 100(W) x 50(H)
Weight (g)	550

#### T02AS

- Universal
- 10A
- Suitable for all testers with 4mm terminals
- Budget test lead set with probe and crocodile clips
- Silicon based with thicker probes



CAT IV 600V

CAT III 1000V

#### T8040LEAD

- Universal
- 10A
- Handles 125mm
- Length of leads 1.2m
- Suitable for all DMMs (P7-15)

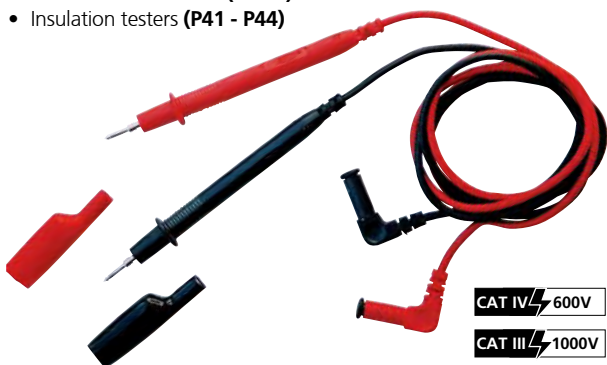


CAT IV 600V

CAT III 1000V

#### TAL24

- Universal
- 10A
- 2mm Probe tip
- PVC test leads
- C/W Screw on crocodile clips
- Length of leads 1.1m
- Suitable for all DMMs (P7-15)
- Insulation testers (P41 - P44)



CAT IV 600V

CAT III 1000V

#### TAL25

- Universal
- 4mm Probe tip
- PVC test leads
- C/W Slide on crocodile clips
- Suitable for all DMMs (P7-15)



#### TALTBM

- Silicone
- Ideal for TBM Series meters (P19-26)
- Certification: IEC61010-1



CAT IV 1000V

#### TAL35RBK

- Silicone
- Double insulated Silicone wire (1m)
- Spring-shrouded 4mm brass caged banana probe tips
- Shrouded right-angle connector
- Suitable for all DMMs (P7-15)
- Certification: IEC1010



CAT III 1000V

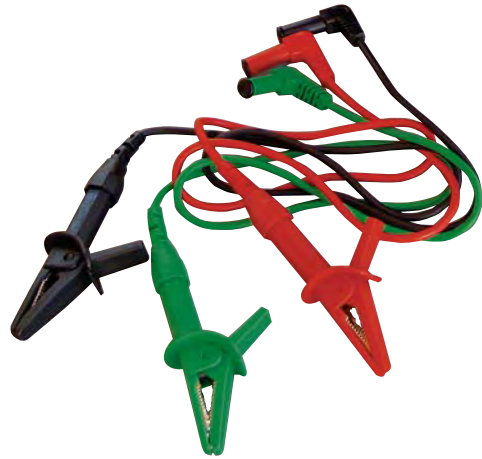
## TALTIN

- Double insulated silicone wire (1.2m)
- Used for TIN insulation testers
- TIN4D - P43**
- TIN5D - P43**
- TIN6D - P44**
- TIN7D - P44**



## TAL1825

- Accessories
- Short length to reduce resistance with loop test
- Used for loop testers
- T1825 - P45**



## TAL34B

- Wide grip crocodile clips with integral finger guards
- Right angle connectors
- 10A
- Length: 600mm
- Certificates: EN 61010-031-2002
- Used for **T4137 - P49**



T860LEAD ■ □ ■ for T860 & T887

CAT III 600V

## TEL4137

- PVC insulated wire (900mm) with connected straight input plugs (100mm silicon wire)
- Outside diameter: 4mm
- Certificates: EN61010-031:2002 + At:2008
- 3A



CAT III 150V

Colour	Length (m)
■ ■ ■ ■	1

## TAL30AG

- Wide grip crocodile clips with integral finger guard
- Large high tension spring mount: 35mm
- Double insulated silicon wire
- Safety straight input plug
- 10A
- Certificates: EN 61010-031-2002 + At:2008



CAT III 1000V

Colour	Length (m)
■	1

## TELEL

- ELCB test lead 3 Plug





### T1805LEAD – 4-Wire Earth Resistance Test Leads

- Terminal: 4mm brass banana plug
- Wire: PVC
- Outside diameter: 3.5mm
- Braided copper wires: 0.127mm
- Auxiliary earth spikes: 450mm



Colour	Length (m)
■	1 and 5
■	10
■	5

### TAL30CRBK

- Accessories
- Wide grip crocodile clip with integral finger guard
- Compatible with 4mm male leads
- Suitable for use with **TAL35RBK** (P63) test leads



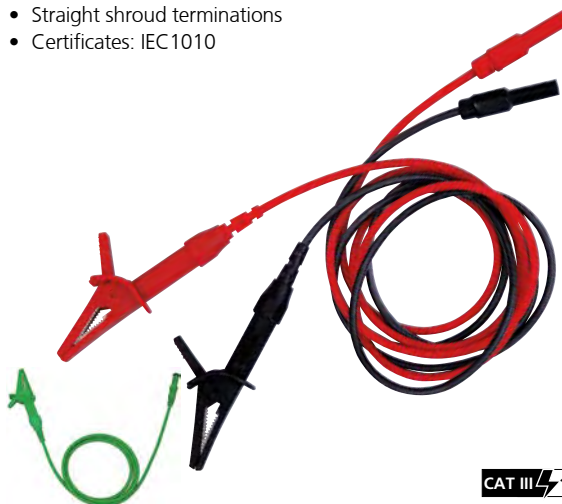
### TAL38CRBK

- Accessories
- Wide grip crocodile clips with integral finger guard
- Suitable for all 4mm male leads
- Suitable for use with **TAL39RBK** (P63) test leads



### TAL30ARBK

- Double insulated silicone wire (1m)
- Wide grip crocodile clips with integral finger guard
- Straight shroud terminations
- Certificates: IEC1010



CAT III 1000V

### TAL39RBK

- Double insulated silicone wire (1.2m)
- Straight shroud terminations both sides



### TAL58 – Earth Resistance Test Leads

- Large test probe handles with shroud 4mm brass caged banana plug tip
- Insulated silicone wire 2.5m
- Safety straight input plug connect with extra green guard
- **TIN8D – P44**



CAT I 15kV

### TAL30HB

- Spring-shrouded 4mm brass caged banana probe tip
- Double insulated silicon wire
- Safety straight input plug
- Certificates: EN61010-031:2002 + At:2008
- 10A



CAT III 1000V

Colour	Length (m)
■	1

### TAL23CA

#### (TEL11)

- Crocodile clip for 4mm banana plug
- 10A
- Certificates: IEC/EN61010-031



CAT III 1000V

CAT IV 600V

### TAL36

- Wide grip crocodile clips with 35mm spring mouth
- PVC insulated wire
- All 3-wire Earth Resistance Testers

T1805 - P36

T1820 - P37

T1120 - P37



Colour	Length (m)
■	15
■	10
■	10
■	5

### TAL36L – 3-Wire Earth Resistance Test Leads

- Wide grip crocodile clips with 35mm spring mouth
- PVC insulated wire



Colour	Length (m)
■	30
■	20
■	5

### TEARTHKIT – Earthing Tester Kit

- Used for earthing testers

T416 - P36

MACROG3 - P29

T60 - P31

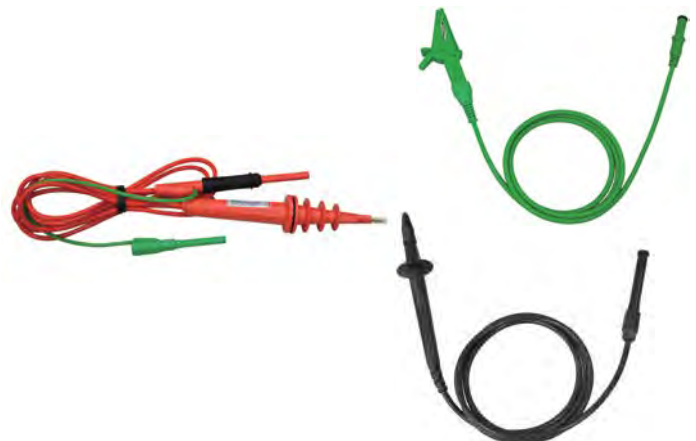
- Length: Red - 250mm



Colour	Length (m)
■	20
■	4.5
■	25

### TIN8DTLKT - TIN8D Cable Kit

- TAL58 - P65
- TAL30AG - P64
- TAL30HB - P66
- Pouch (47mm x 240mm x 138mm)



#### TKPS54BK /TKPS54RD

- Accessories
- Flexible shaft with twin pointed gripping jaws
- Colour:
  - (RD)
  - (BK)
- Compatible with 4mm male leads
- 4A Red Grabber Clip, 30V AC/ 60V DC Rating 4.1mm tip size, 4mm probe socket size
- Contact resistance 50m(Ω)
- Nickel grip jaws
- PF insulation material



<b>Certificates</b>	EN 1010 part 2-031, UL94 V-0
---------------------	------------------------------

#### TELEWR50F

- 4mm Brass banana plug
- Soft PVC insulated wire
- Braided copper wires: 0.254mm
- Outside diameter: 4mm



<b>Colour</b>	<b>Length (m)</b>
■	50
<b>Accessories</b>	Auxillary, Earth Bar, Crocodile Clip



MAIN MEASUREMENTS	TPQA820
<b>PAGE NO.</b>	69
AC/DC voltage in single-phase/three-phase systems	•
AC/DC current in single-phase/three-phase systems	•
Cosphi, Power Factor	•
Voltage unbalance (NEG%, ZERO%)	•
Active, reactive, apparent power/energy and DC power	•
Voltage and current harmonics up to the 49th with THD%	•
Voltage anomalies (dips, peaks) with 10ms resolution (at 50Hz)	•
Voltage fast transients (spikes) with 5µs resolution	
Electric motor starting current (INRUSH)	
Voltage flickers (Pst, Plt)	
Phase sequence	•
Neutral-Ground Voltage	
Neutral current	•
<b>MEMORY AND RECORDING</b>	
Max number of simultaneously selectable parameters	383
Recording with selectable integration period	5s-60min
Indicative memory duration (in days at Pl=10min at max number of parameters)	30 days
Indication of recording duration	• *
Internal memory capacity	8MB
External compact flash card	
Default and custom recording	
Saving instant sampled value	• *
<b>REAL-TIME DISPLAY</b>	
Summary table of main electric parameters	• *
Voltage/current waveforms	• *
Tables or histograms of Harmonics and THD%	• *
Voltage/current vector diagram	• *
<b>ADDITIONAL CHARACTERISTICS</b>	
Measurement with use of external CT and VT (with optional accessory HT903)	<b>ACONBIN**</b>
Touchscreen colour display	
Power supply: Rechargeable battery and charger	Auto power supplied
Auto Power Off (APO)	•
USB port for data download onto Pen Drive	Only PC
PC interface with software for Windows	WiFi/USB
Context help active on each screen	
Protection password on recording	
Safety category	<b>CAT IV/300V</b>
Reference standard for power quality	
Reference standard for safety	IEC/EN61010-1
Dimensions (mm) LxWxH	255 x 200 x 115
Weight (batteries included) Kg	0.7

\*Through App HTANALYSIS

\*\*Adapter **ACONBIN** necessary



%Rh

**IP65**

**CAT IV 300V**

(AC to ground, max 460V between Inputs)

### TPQA820 – 3-Phase without Neutral

- AC TRMS voltage in single-/3-phase systems
- AC TRMS current in single-/3-phase systems
- Active, reactive and apparent power/energy
- Cosphi and Power Factor
- Voltage dips and peaks on 10ms
- Voltage unbalance (NEG%, ZERO%) only
- Voltage/current waveforms
- Maximum number of simultaneously recorded quantities, 383
- Calculation and recording of voltage/current THD%

#### Technical Overview

Feature	Parameter	Accuracy
DC Voltage (V)	10 – 265V	±0.7% + 0.4V
AC TRMS Voltage (V)	10 – 460V	±1.0% + 0.2V
DC TRMS(External STD Transducer Clamp)	5 – 999.9mV	±0.7% + 0.6mV
AC TRMS Current (STD External Transducer Clamp)	5 – 999.9mV	±0.5% + 0.6mV
Frequency (Hz)	42.5 – 65Hz	0.2% + 0.1Hz

#### Model Specification

Power Source	Rechargeable Li-ION Battery
Standard Accessories Selection Guide (P70)	<b>KITMPPACW</b> - 4 x Measuring Cables <b>KITMPPACC</b> - 4 x Crocodile Clips <b>TFLEX33L</b> - Flex 1000A AC Clamp, Diameter 174mm <b>TOPVIEW2007</b> - Windows Software and USB Cable
Certificates	IP40 , IEC/EN61010-1, Calibration Certificate



Code	Image	Description	MACROG3	T60	TPQA820
PAGE NO.			29	31	69
TOPVIEW2007 TOPVIEW2006		Windows software, USB cable	TOPVIEW 2006		TOPVIEW 2007
BORSA2051		Soft carry bag	•		
TA0055		External power supply AC/DC			
KITMPPACC		AC - 4 Crocodile clips			•
KITMPPACW		AC - 4 Cables (2m)			•
TKIT800		5 Cables (black, red, green, blue, brown) with crocodile clips			
606-IECN		Connector with magnetic terminal			•
ACONBIN		Adapter for connection standard clamps			o
HTFLEX33E		Flex 3000A AC clamp, max diameter of cable 174mm			
HTFLEX33L		Flex 1000A AC clamp, diameter 174mm			•
HTFLEX35		Flex 3000A AC clamp, max diameter of cable 274mm			o Max 1000 AC
HT96U		Standard AC clamp 1-100-1000A/1V, diameter 54mm	o		o ACONBIN
HP30D1		Standard DC clamp 1000A/1V, diameter 83mm	o		o ACONBIN
HT4005K		Standard AC 200A/1V clamp, diameter 40mm	o		o ACONBIN
HT4005N		Transducer AC 5A-100A/1V			o ACONBIN
TIMP57		Loop/Line adaptor	o		
T2100		Earth clamp	o	o	
PR400		Remote lead for test activation	•		
HT52		Temperature/humidity probe	o	o	
HT53		Illuminance measurement probe	o	o	
RCDX10		Accessory for industrial RCDS	o	o	

o ACONBIN necessary

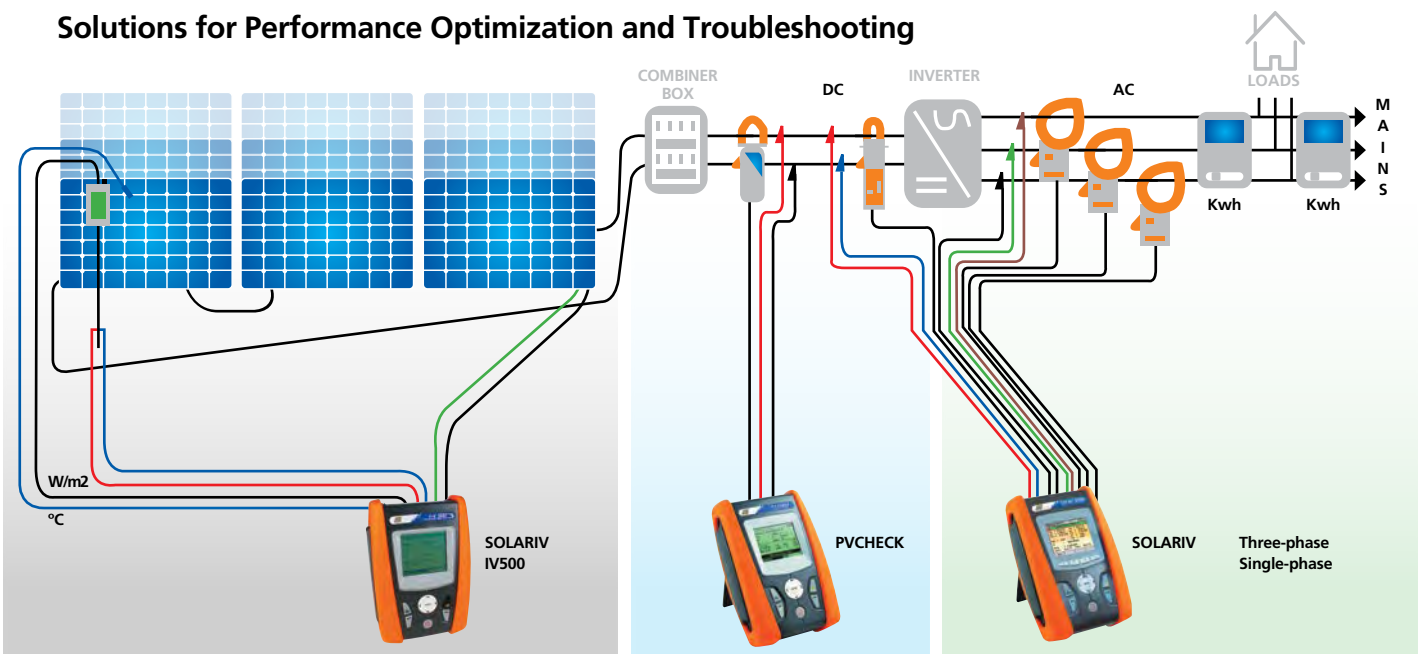


<b>MAINTENANCE AND EFFICIENCY OF THE PHOTOVOLTAIC SYSTEM</b>	<b>SOLARIV</b>	<b>IV500</b>	<b>PVCHECK</b>	<b>PVISOTEST</b>
<b>PAGE NO.</b>	74	75	77	76
Continuity of protective conductors with 200mA			•	•
Insulation measurement with test voltage 250, 500, 1000V DC with no service interruption			•	x +1500Vdc
I-V Curve measurement on single module or string	•			
VOC and ISC measurement on single module or string	•		•	
Single- and 3-Phase efficiency measurement	1MPPT			
DC side efficiency of the photovoltaic field			•	
Use of remote unit SOLAR02 with USB \ RF connection	RF	USB	RF	
Measurement of irradiation with reference cell	•	•	•	
Temperature of cell and environment	•	•	•	
<b>POWER QUALITY ANALYSIS</b>				
AC/DC voltage in single-/3-phase systems		•	DC	•
AC/DC current in single-/3-phase systems			DC	•
Cosphi, Power Factor				
Voltage unbalance (NEG%, ZERO%)				
Power/Energy: Active P, Reactive Q, Apparent S	Only active P		Only active P	
Voltage and current harmonics up to the 49 <sup>th</sup> with THD%				
Voltage anomalies (dips, peaks) with 10ms resolution (at 50Hz)				
Voltage fast transients (spikes) with 5µs resolution (200kHz)				
Electric motor starting current (INRUSH)				
Voltage flickers (Pst, Plt)				
Phase sequence				
Neutral-Ground Voltage				
Neutral current				
<b>MEMORY AND RECORDING</b>				
Internal memory capacity	249 curves I-V 8 days@ PI =10min	249 curves I-V	999 Locations	999 Locations
Recording with selectable integration period	5s-60min		5s-60min	
Indicative memory duration(in days at PI=10min at max number of parameters)	8			
Indication of recording duration for power quality analysis			•	
Internal memory extension with compact flash card			•	
Default and custom recordings				
<b>REAL-TIME DISPLAY</b>				
Summary table of main electric parameters	•	•	•	•
Voltage/current waveforms				
Tables or histograms of Harmonics and THD%				
Voltage/current vector diagram				
Polarization Index (P.I.)				•
Dielectric Absorption Ratio				•
Ground Fault Location				•



ADDITIONAL CHARACTERISTICS	SOLARIV	IV500	PVCHECK	PVISOTEST
Measuring range of I-V Curve / IVCK	1500V/10A 1000V/15A	1500V/10A 1000V/15A	1000V/15A only VOC and ISC	
Measuring range for efficiency measurement	1000V DC/ 265V AC			
Touchscreen colour display				
LCD display with backlight	•	•	•	•
USB port for data download onto Pen Drive				
PC interface with software for Windows	•	•	•	•
Integrated WiFi interface	•	•		
Custom management of internal PV module database	•	•	•	
Power supply: Rechargeable battery, charger				
Indication of recording duration for efficiency measurement	•			
On display help	•	•	•	•
Safety category	CAT III ⚡ 300	CAT III ⚡ 300	CAT III ⚡ 300	CAT III ⚡ 1500
Reference standard for safety	IEC/EN61010-1	IEC/EN61010-1	IEC/EN61010-1	IEC/EN61010-1
Reference standard for Power Quality Analysis				
Dimensions (mm) LxWxH	235 x 165 x 75	235 x 165 x 75	235 x 165 x 75	235 x 165 x 75
Weight (batteries included) kg	1.2	1.2	1.2	1.2

### Solutions for Performance Optimization and Troubleshooting



#### Troubleshooting

Possibly during the operation of a system, some modules may jeopardise the performance of the whole system. When system efficiency is lower than expected, it is necessary to detect the defective modules so that they can be replaced.

**Suggested solution:** Measure the I-V curve with devices IV500 (P75) or SOLARIV (P74) (DC voltage up to 1500V)

#### Commissioning Tests

When operating a photovoltaic system, it is necessary to certify its safety according to IEC62446.

**Suggested solution:** PVCHECK (P77) is recommended to perform these verifications










#### Performance

For effective maintenance programmes, Performance Recording and monitoring is necessary to identify losses quickly and efficiently.

**Suggested solution:** SOLARIV (P74) are ideal for recording utilisation over time as well as performance checks of an inverter.





ACCESSORY		Description	SOLARIV	IV500	PVCHECK	PVISOTEST
PAGE NO.			74	75	77	76
TOPVIEW2006		PC Windows software + USB/ optical cable (C2006) for <b>TOPVIEW2006</b>	<b>TOPVIEW2006</b>	<b>TOPVIEW2006</b>	<b>TOPVIEW2006</b>	<b>TOPVIEW2006</b>
TOPVIEW2007		(C2007) for <b>TOPVIEW2007</b>				
PT300N		PT1000 probe for PV module temperature	•		○	
SOLAR02		Irradiation and temperature remote unit	•	○	○	
KITGSC4		4 Cables, 4 crocodile clips	•	•	•	•
TKIT800		5 Cables, 5 crocodile clips				
KITPVMC3 - KITPCMC3		2 Adapters with connectors MC3	<b>KITPVMC3</b>	<b>KITPVMC3</b>	<b>KITPCMC3</b>	○
KITPVMC4 - KITPCMC4		2 adapters with connectors MC4	<b>KITPVMC4</b>	<b>KITPVMC4</b>	<b>KITPVMC4</b>	•
TA0055		AC/DC battery charger 230V 50/60Hz				
PT400		Touch-screen pen				
HT304N		Irradiation measurement sensor	•	•	○	
M304		Mechanical inclinometer	•	•	○	
HT4004N		Standard 10-100A DC clamp, diameter 32mm	•			
HT4005K		Standard 200A AC clamp, diameter 40mm	•			
C2007		TYPE A/B 1.5m USB cable				
C2006		USB cable with optional adapter	•	•	•	
HT97U		Standard 10-100-1000A AC clamp, diameter 54mm	○			
HTFLEX33E		Flex 3000A AC clamp, diameter 174mm				
HP30D1		1000A DC clamp, diameter 83mm	○			
HP30C3		3000A AC clamp, diameter 70mm	○			
HP30C2		200-2000A AC clamp, diameter 70mm	○			
606IECN		Magnetic connectors for voltage measurement	○	○	○	○
BORSA2051		Soft carrying bag			•	
VA500		Rigid carrying case	•	•		•
KITKELVIN		Test lead kit	○	○		

○ Optional



CAT II  $\leq$  1000V DC

CAT III  $\leq$  300V AC to ground (Max 1500V among inputs P1, P2, C1, c2)



### SOLARIV – I-V Curve Tracer Up To 1500V DC

- Measurement of PV module/string output voltage, 1500V
- Measurement of PV module/string output current, 15A
- Resolution (spots) of I-V curve in Standard or Capacitive mode, 128
- Measurement of Voc-Isc-Pmax-Vmpp-Imp-FF
- Measurement of cell temperature through external feeler
- Measurement of irradiation [W/m<sup>2</sup>] through reference cell
- Measurement of DC and rated power at module/string output
- Detection of I-V curve through remote unit SOLAR-02
- Measurement of resistance of series Rs of panels
- Direct comparison with reference conditions (STC - 1000W/m<sup>2</sup>, 25°C)
- Internal database for managing up to 30 PV modules (30.000 modules by software)
- DC/AC TRMS single-phase voltage
- DC/AC TRMS single-phase current
- Single-phase DC power / AC active power
- Solar irradiation [W/m<sup>2</sup>] with reference cell HT304N
- Panel and environmental temperature through probes
- Remote unit SOLAR02 with RF connection
- Display of environmental data in real time
- Use of compensation relationships Cells/ Environment on Pdc
- Parameter recording of a PV system with 5s to 60min programmable IP
- Max/Min



#### Model Specification

<b>Power Source</b>	6x1.5V AA Alkaline Batteries
<b>Standard Accessories Selection Guide (P73)</b>	<p><b>SOLAR02</b> - Irradiation and Temperature Remote</p> <p><b>KITGSC4</b> - 4 x Cables &amp; 4 x Crocodile Clips</p> <p><b>KITPVMC3</b> - 2 x Adapters with Connectors MC3</p> <p><b>KITPVMC4</b> - 2 x Adapters with Connectors MC4</p> <p><b>HT4005K</b> - Standard 200A AC clamp, diameter 40mm</p> <p><b>HT4004N</b> - Standard 10-100A DC Clamp, Diameter 32mm</p> <p><b>HT304N</b> - Sensor for Irradiation Measurement</p> <p><b>PT300N</b> - PT1000 Probe for PV Modules Temperature</p> <p><b>M304</b> - Mechanical inclinometer</p> <p><b>TOPVIEW2006</b> - Windows Software &amp; Optical/USB C2006 Cable</p> <p><b>VA500</b> - Rigid Case</p>
<b>Certificates</b>	IEC/EN61010-1, Calibration Certificate

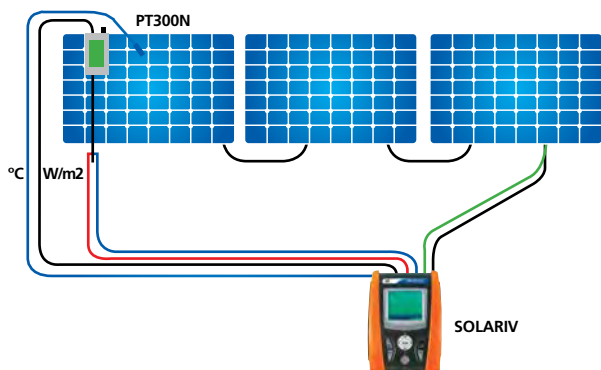
#### Technical Overview

##### Certifier of Single Phase PV Installation

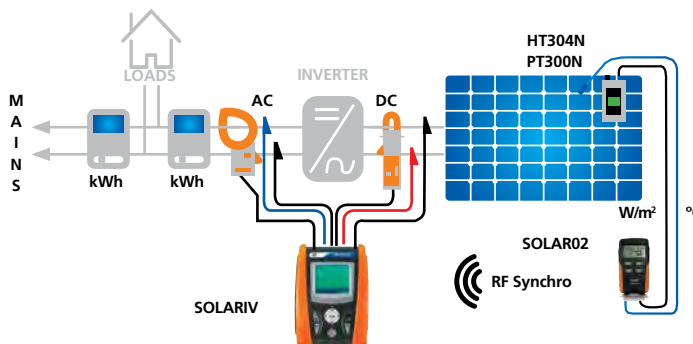
Feature	Parameter	Accuracy
DC Voltage (V)	15 – 1500V	±0.5% + 2 Digit
AC TRMS Voltage (V)	10 – 265V	±0.5% + 2 Digit
DC Current (External Transducer Clamp(mV))	-1100 - 1100mV	±0.5% + 0.6mV
AC TRMS Current (External Transducer Clamp (mv))	1 – 1200mV	±0.5% + 0.6mV
DC Power (1<FS≤1000)	0 – 9999kA	±0.7% + 3 Digit (I <sub>meas</sub> < 10%FS)
AC Single Phase (1<FS≤100)	0 – 9999kA	±0.7% + 3 Digit (I <sub>meas</sub> < 10%FS)
Frequency (Hz)	47.5 – 63Hz	0.2% + 1.0Hz
Irradiance (Reference Cell)	1 – 65mV	±1.0% + 5 Digit
Temperature (External Probe PT1000)	-20 to +100°C	±1.0% + 1°C

#### I-V Curve and IVCK Measurements

Feature	Parameter	Accuracy
I-V, IVCK: VDC Voltage @ OPC	15 – 1499.9V	±0.5% + 2 Digit
I-V, IVCK: IDC Current @ OPC	10 – 15A	±1.0% + 2 Digit
I-V: DC Power @ OPC (Vmpp >30V, Imp >2A)	50 – 99 999W	±1.0% + 6 Digit
I-V, IVCK: VDC Voltage (@ STC)	5 – 999.9V	±4.0% + 2 Digit
I-V: IDC Current (@ STC)	10 – 99A	±4.0% + 2 Digit
I-V: DC Power @ STC (Vmpp >30V, Imp >2A)	50 – 99 999W	±5.0% + 1 Digit



Measuring of curve IV with environmental sensors



Measuring single-phase efficiency with remote environmental sensors



CAT II 1000V DC

CAT III 300V AC to ground (Max 1500V among inputs P1, P2, C1, c2)



### IV500 - I-V Curve Tracer Up To 1500V DC

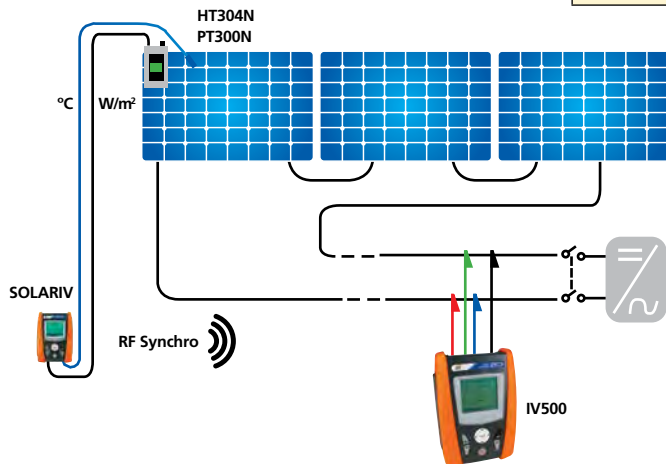
- Measurement of PV module/string output voltage, 1500V
- Measurement of PV module/string output current, 15A
- Resolution (spots) of I-V curve in Standard or Capacitive mode, 128
- Measurement of Voc-Isc-Pmax-Vmpp-Impp-Fill Factor
- Measurement of cell temperature through external feeler
- Measurement of irradiation [W/m<sup>2</sup>] through reference cell
- Measurement of DC and rated power at module/string output
- Detection of I-V curve through remote unit SOLAR02
- Measurement of resistance of series Rs of panels
- Max/Min
- Direct comparison with reference conditions (STC - 1000W/m<sup>2</sup>, 25°C)
- Internal database for managing up to 30 PV modules (30.000 modules by software)
- DC/AC TRMS single-phase voltage
- DC/AC TRMS single-phase current
- Single-phase DC power / AC active power
- Solar irradiation [W/m<sup>2</sup>] with reference cell HT304N
- Panel and environmental temperature through probes
- Remote unit SOLAR02 with RF connection
- Display of environmental data in real time
- Use of compensation relationships Cells/ Environment on Pdc

#### Technical Overview

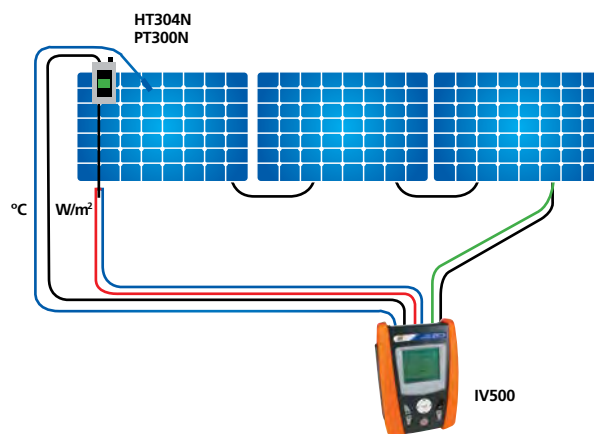
Feature	Parameter	Accuracy
I-V, IVCK: VDC Voltage @ OPC	15 – 1499.9V	±0.5% + 2 Digit
I-V, IVCK: IDC Current @ OPC	10 – 15A	±1.0% + 2 Digit
I-V: DC Power @ OPC (Vmpp >30V, Impp >2A)	50 – 99 999W	±1.0% + 6 Digit
I-V, IVCK: VDC Voltage (@ STC)	5 – 999.9V	±4.0% + 2 Digit
I-V: IDC Current (@ STC)	0.1 – 99A	±4.0% + 2 Digit
I-V: DC Power @ STC (Vmpp >30V, Impp >2A)	50 – 99 999W	±5.0% + 1 Digit
Irradiance (Reference Cell)	1 – 100mV	±1.0% + 5 Digit
Temperature (Auxiliary PT1000 probe)	-20 to +100°C	±1.0% + 1°C

#### Model Specification

Power Source	6x1.5V AA Alkaline Batteries
Standard Accessories Selection Guide (P73)	<b>KITGSC4</b> - :4 x Cables and 4 x Crocodile Clips <b>KITPVMC3</b> - 2 x Adapters with Connectors MC3 <b>KITPVMC4</b> - :2 x Adapters with Connectors MC4 <b>HT304N</b> - Sensor for Irradiance Measurement <b>M304</b> - Mechanical inclinometer <b>TOPVIEW2006</b> - Windows Software & Optical/USB C2006 Cable <b>VA500</b> : Rigid Case
Certificates	IP40 , IEC/EN61010-1, Calibration Certificate



\* Measuring a IV curve via remote synchronisation of irradiation and temperature



Measuring of curve IV with environmental sensors



**IP40**

**CAT III 1000V (AC)**

**CAT III 1500V (DC)**



KITGSC4



KITPCMC4



VA507



SP-5100



TOPVIEW2006

### PVISOTEST - PV Insulation Tester

Multifunction device for checking electric safety and performance of a photovoltaic system

#### Features

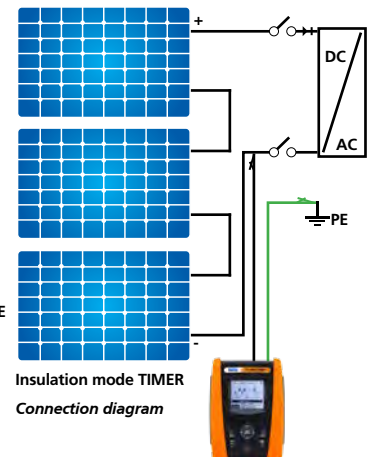
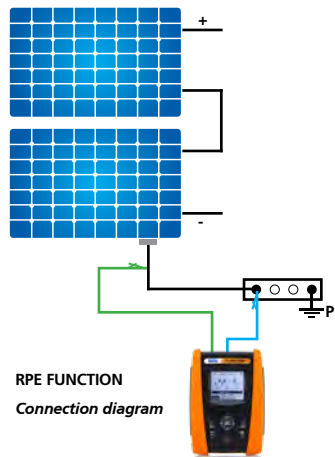
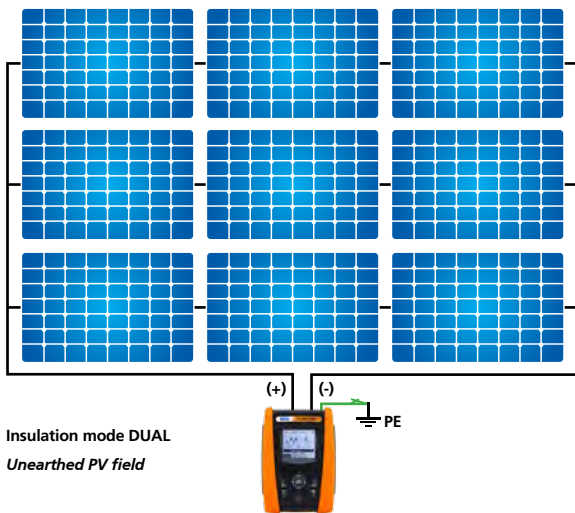
- Insulation measurement up to 1 500V DC even on live systems
- Ground Fault Locator function for localization of the faulty module
- Continuity of the protective conductor with 200mA
- Dielectric absorption ratio D.A.R
- Measurement of polarization index P.I.
- Backlit Display 128 x 128 pixels
- Optical/USB interface

#### Technical Overview

Feature	Parameter	Resolution	Accuracy
DC Voltage (V)	3 - 1500V	1	±1.0% +2 Digit
AC Voltage (V)	3 - 1000V	1	±1.0% +3 Digit
Insulation Test Voltage (V)	250V/ 500V/ 1000V/ 1500V		
Insulation Resistance (MΩ)	0.01 - 9.99MΩ	0.01	±5.0% +5 Digit
	10 - 99.9MΩ	0.1	
Continuity of protection conductors (RPE)	0.00 - 9.99Ω	0.01	±2.0% +2 Digit
	10 - 99.9Ω	0.1	
	100 - 1999Ω	1	
Ground Fault Locator (GFL) function	0.1 - 0.99MΩ	0.01	±5.0% +5 Digit (±1 module)
	1.0 - 19.9MΩ	0.1	
	20 - 100MΩ	1	
Working Humidity	<80%RH		
Working Temperature	0°C to 40°C		
Memory	999 tests MAX		
Display	128 x 128 pixel with backlight		

#### Model Specification

Power Source	6 x 1.5V AA Batteries
Dimensions (mm)	235(L) x 165(W) x 75(H)
Weight (g)	1200 (including batteries)
Standard Accessories Selection Guide	<p><b>KITGSC4</b> - 4 x Cables &amp; 4 x Crocodile Clips</p> <p><b>KITPCMC4</b> - 2 x MC4 banana adapters</p> <p><b>VA507</b> - Hard carrying case</p> <p><b>SP-5100</b> - Carrying straps</p> <p><b>TOPVIEW2006</b> - Windows Software &amp; Optical/USB C2006 Cable, user manual on CD-ROM</p>
Certificates	IEC/EN61010-1, IEC/EN61010-2-030, IEC/EN61010-2-033, IEC/EN61010-2-034





PV CHECK PRO

**CAT III 300V** to ground (Max 1000V DC among inputs P, N, E, C)



TOPVIEW2006



BORSA2051



KITGSC4



KITPVMC3



KITPVMC4



HT4004

### PV CHECKPRO



PT300N



SOLAR02



HT304N



VA500

### PV CHECK/ PV CHECKPRO

- Continuity of protective conductors with test current 200mA
- Insulation measurement with test voltage 250,500 and 1000VDC
- Open-circuit voltage (VOC) measurement up to 1000V DC
- Short-circuit current (ISC) measurement up to 15A DC
- DC voltage - DC current - DC power measurement
- Use of compensation relationships Cells/Environment on Pdc
- Internal database for managing up to 30 PV modules (30.000 modules by software)
- Test measurement of string operation
- Result for every measurement OK/NO
- Internal memory and optical USB output for PC connection (256kBytes)
- LCD display, 128x128pxl, with backlight

#### Technical Overview

##### Performance Test

Feature	Parameter	Accuracy
DC Voltage (V)	5 – 999.9V	±1.0% + 2 Digit
DC Current (Mean External Clamp (mV))	0 – 1000V	±0.5% + 0.6mV Digit
DC Current (FS DC clamp [A])	1<FS≤1000	0.05 – 5A
DC Power (Vmeas > 150V)	1<FS≤1000	±1.5% +3 Digit (Imeas < 10%FS)

##### Functionality Test

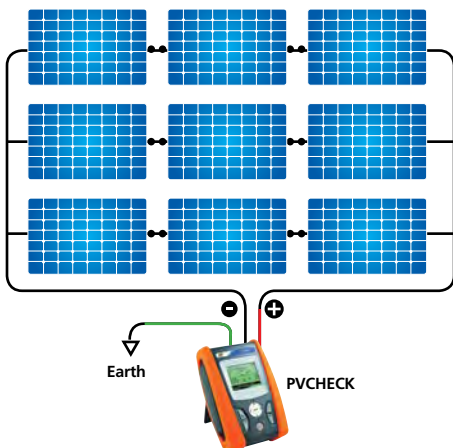
Feature	Parameter	Accuracy
DC Voltage @ OPC (V)	5 – 999V	±1.0% + 2 Digit
DC Current @ OPC (A)	0.1 – 15A	±1.0% + 2 Digit
DC Voltage @ STC (V)	5 - 999	±4.0% + 2 Digit
DC Current @ STC (A)	0.1 – 15A	±4.0% + 2 Digit
Irradiance (Mean HT304N) (mV)	1 – 40mV	±1.0% + 0.1mV
Temperature (Mean PT300N) (°C)	-20 to +100°C	±1.0% + 1°C

##### Safety Test

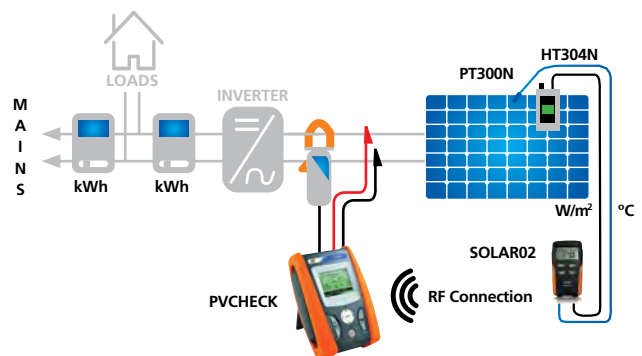
Feature	Parameter	Accuracy
Continuity Test (LOWΩ)	0 – 199Ω	±2.0% + 2 Digit
Insulation Test (MΩ) – Mode TIMER	25/ 500/ 1000V   0.01 – 199MΩ	±5.0% + 5 Digit

##### Model Specification

Power Source	6x1.5V AA Alkaline Batteries
Standard Accessories Selection Guide (P73)	<p>KITGSC4 - 4 x Cables and 4 Crocodile Clips</p> <p>KITPCMC3 - 2 x Adapters with MC3 Connectors</p> <p>KITPCMC4 - 2 x Adapters with MC4 Connectors</p> <p>HT4004 - Standard 10-100A DC clamp, diameter 30mm</p> <p>TOPVIEW2006 - Windows Software and USB C2007 Cable</p> <p>BORSA2051 - Soft Carrying Bag</p> <p>VA500 - Hard carrying case</p>
Optional Accessories Selection Guide (P73)	<p>PT300N - PT1000 Probe for PV Modules Temperature</p> <p>SOLAR02 - Irradiation and Temperature Remote</p> <p>HT304N - Sensor for Irradiation Measurement</p> <p>M304 - Mechanical inclinometer</p>
Certificates	IEC/EN61010-1, Calibration Certificate



"Whole photovoltaic field" insulation measurement method



Measuring efficiency of photovoltaic field

### T8051 – Process Calibrator 4-20mA / 0-10V

- Generation of output voltage signal with amplitude up to 10V DC
- Generation of output current signal with amplitude up to 24mA DC
- Current measurement under percentage format (4-20mA)
- Adjustment selector with high sensitivity
- Up to 3 available automatic ramp selection
- Backlight
- Simulation of external transducer



#### Technical Overview

Feature	Parameter	Accuracy
<b>DC Voltage (Generated and Measured)</b>		
Range	0.01mV - 10V	±0.02% + 4 Digit
Resolution	0.01mV - 0.001V	
Protection	30V DC	
Slower linear ramp	from 0% 100% 0% in 40s	
Faster Linear ramp	from 0% 100% 0% in 15s	
Step ramp	from 0% 100% 0% in steps of 25% with ramps of 5s each	
<b>DC Current (Generated and Measured)</b>		
Range	0.001mA - 24mA	±0.02% + 4 Digit
Percentage	-25% - 125%	
Resolution	0.001mA	
Protection	30mA DC	

#### Model Specification



Power Source	Lithium-Ion Rechargeable Battery, External Adapter
Standard Accessories	Test Leads, Crocodile Clips, Protection Rubber Holster, Carrying Case
Certificates	CE, IEC61010-1



#### CBTL - Circuit Buddy 6 to 50V

- Volt Test Light
- Automotive industry
- Test for current on wiring, fuses etc.
- Safe and easy to use, especially when piercing wire
- Use of LED's instead of globes reduces the risk of damage to electronics



VOLTAGE RANGE 6-50V

**WARNING**

Not for use on circuits exceeding 50 Volts



#### CBSPK - Circuit Buddy Safety Probe Kit

(To be used with a digital multimeter)

- Automotive industry
- Used with a standard multimeter e.g: TBM805
- Easy and safe to pierce wires



VOLTAGE RANGE 0-50V

**WARNING**

Not for use on circuits exceeding 50 Volts. When using a multimeter, voltages from 0-50V can be measured. 5A MAX Rating.



#### T185 - LAN Tester

- LED Display
- Network cable testing (RJ45)
- Test any un-energised wire or cable
- Auto and manual scan function
- Lock status function
- Verify cable continuity, open, short circuit and miss-wired
- Buzzer sound warning for wire status

##### Model Specification

Power Source	1 x 9V Battery
Standard Accessories	RJ45 Cable, Case
Certificates	Certificate of Conformance
Dimensions (mm) LxWxH	132x55x39
Weight (g)	148



Not suitable for PoE CAT cables carrying voltage



#### T5012 - Carcheck

- DC only
- Polarity (LED display)
- 3 - 48V

##### Technical Overview

Feature	Parameter
DC Voltage (V)	3-48V

##### Model Specification

Power Source	No Battery Required
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### T2268 – Digital Tachometer

- Photo/contact
- Microprocessor based
- High accuracy
- Variable LCD contrast
- Holds last reading/recalls max and min

#### Technical Overview

Feature	Parameter	Accuracy
Measurement and Range	Photo: 5 - 99,999 RPM Contact: 0.5 to 19,999 RPM Surface Speed (m/min): m/min: 0.05 - 1999.9 m/min	± 0.05% + 1 Digit
Resolution RPM M/Min	0.1 (0.5 - 999.9 RPM) 1 RPM (≥1000 m/min), 0.01 m/min (< 100 m/min.)	
Display	5 Digits, 18mm LCD	

#### Model Specification

Power Source	4 x 1.5V AA Batteries
Standard Accessories	Carry Case, Reflecting Tape Marks (600mm), RPM Adaptor (cone) RPM Adaptor (Funnel), Surface Speed Test Wheel
Dimensions (mm)	195(H) x 61(W) x 39(H)
Weight (g)	280



### T8202 – Vibration Meter

- Magnetic probe
- Sensing probe
- MIN/MAX memory

#### Technical Overview

Feature	Parameter	Accuracy
Velocity	0.5 ~199.9mm/s	±5%+2 Digit at 23 ±5°C
Acceleration	0.5 ~199.9m/s <sup>2</sup>	
Frequency (Hz)	10Hz ~1kHz	
Sampling Time	Approx.1s	
Temperature (°C)	0 to +50°C	
Operation Humidity	< 80% Relative Humidity	

#### Model Specification

Power Source	4 x 1.5V AA Batteries
Standard Accessories	Cables with plugs, Sensing Probe, Magnetic Base, Carrying Case, Vibration Probe
Certificate	Certificate of Conformance
Dimensions (mm)	180(L) x 72(W) x 32(H)
Weight (g)	Meter: 230, Probe: 165



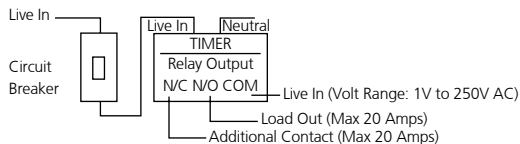
### TDDT7 – 7 Day Digital Timer (Relay Contacts)

- Rated Voltage: 12V-240V AC/DC (50 - 60 Hz)
- Relay contacts for various voltage ranges
- Max 20A (3500 Watts) - resistive load (geysers, underfloor heating, lights)
- Max 10A - inductive load (pool pump, aircon)
- Day/Weekly 20 programmable settings
- Din rail mounting
- 3 Year backup battery
- LCD displays real time hour/minute - on/auto/off



Mounts on both  
Din rail and mini rail

#### Wiring diagram



Certificates	IEC 60669-1, IEC 60669-2-2, IEC 60730-2-7, IEC 60730-1, RCC Certificate
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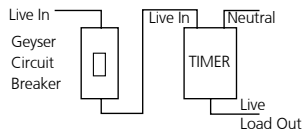
### TDDGT – 7 Day Digital Geyser Timer (Internal Relay)

- Rated Voltage: 220 - 240V AC (50 - 60 Hz)
- Max 30A (3500 Watts) - resistive load (geysers, underfloor heating, lights)
- Max 10A - inductive load (pool pump, aircon)
- Day/Weekly 20 programmable settings
- Din rail mounting
- 3 Year backup battery
- LCD displays real time hour/minute - on/auto/off
- Power disconnect battery indication



Mounts on both  
Din rail and mini rail

#### Wiring diagram



Certificates	IEC 60669-1, IEC 60669-2-2, IEC 60730-2-7, IEC 60730-1, RCC Certificate
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### TDT7 – Digital 3 Pin Socket

- Ideal for household use
- Backup rechargeable battery
- 8 Group programmable
- 3500 Watt / 16 Amps



Certificates	IEC 60730
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### TMT2 – 24 Hour Mechanical 3 Pin Socket

- Ideal for household use
- User friendly
- 15 Minute increment adjustment
- 3500 Watt / 16 Amps

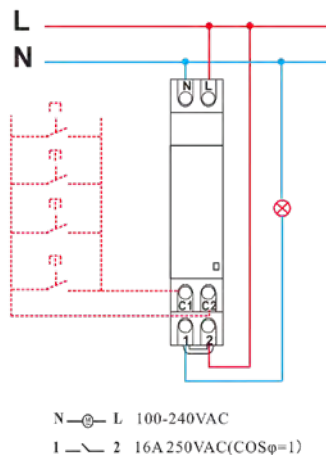


Certificates	IEC 60730
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### TMDT2 - 24 Hour Mechanical Din Rail Timer

- 15 Day battery back-up
- Ideal for household use in DBs
- 15 Minute increment adjustment
- 3500 Watt / 16 Amps



### TWST2 – WIFI Smart Timer

- Contact configuration: 1NO (SPST-NO)
- DIN Rail mounting 35mm (EN 60715)
- Schedule 100 On/Off programs per week or one day
- Count down time, 1min to 23 hours 59mins
- Disconnected from network, timer retains all programs via Mobile App
- Memory function - contact is in close state, after power failure, contacts still keep close state
- Can be controlled by external buttons

#### Technical Overview

Feature	Parameter
Rated AC Voltage (V)	100-240V/ 50-60Hz
Rated AC Current: (A)	20A 250V (COS Ø =1)
Wi-Fi Frequency	2.4GHz
Operating Temperature (°C)	-10 to +60°C

#### Model Specification

Power Source	Mains, Lithium Back-up Battery Reserve (3 Years)
Dimensions (mm)	86(L) x 17.5(W) x 64(H)



### TWSTM2 – WIFI Smart Timer

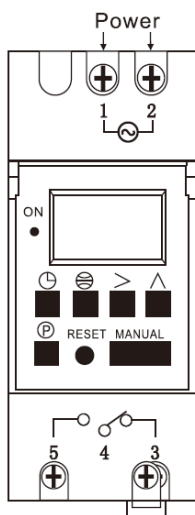
- Contact configuration: 1NO (SPST-NO)
- DIN Rail mounting 35mm (EN 60715)
- Schedule 100 On/Off programs per week or one day
- Count down time, 1min to 23 hours 59mins
- Disconnected from network, timer retains all programs via Mobile App
- Memory function – contact is in close state, after power failure, contacts still keep close state
- Can be controlled by external buttons

#### Technical Overview

Feature	Parameter
Rated AC Voltage (V)	100-240V/ 50/60Hz
Rated AC Current: (A)	20A 250V (COS Ø =1)
Wi-Fi Frequency	2.4GHz
Operating Temperature (°C)	-10 to +60°C

#### Model Specification

Power Source	Mains, Lithium Back-up Battery Reserve (3 years)
Dimensions (mm)	86(L) x 17.5(W) x 64(H)



### TDTASTRO – Astronomical Timer Relay

Automatically adjust the set time along with seasonal variation and when sun sets or rises

- Contact configuration: 1NO (SPST-NO)
- DIN Rail mounting 35mm (EN 60715)
- 8 sets of On/Off programs
- Set program to revise functions according to latitude variation.
- Minimum interval 1min
- Count down time, 1min to 23 hours 59mins
- Auto time error correction +30sec, weekly.
- Memory function – contact is in close state, after power failure, contacts still keep close state

#### Technical Overview

Feature	Parameter
Rated AC Voltage (V)	180-250V/ 50/60Hz
Rated AC Current (A)	16A 250V (COS Ø =1) / 2000W
Hysteresis	< 2sec/day
Operating Temperature (°C)	-10 to +60°C

#### Model Specification

Power Source	Mains, Lithium Back-up Battery Reserve (3 Years)
Dimensions (mm)	86(L) x 17.5(W) x 64(H)

### TEMS100 – Energy Meter Single Phase

- Designed to measure single phase two wire AC active energy
- High stability and overload capability
- Low power loss
- Bi-directional total active energy, reverse active energy measure in the total active energy
- Energy data can store in memory chip more than 15 years after power off
- 35mm DIN rail installation
- LCD Display
- Warm-up time 10s
- Connection mode - direct

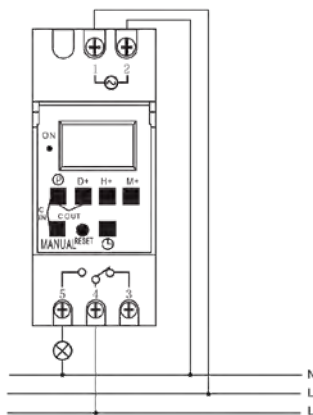
#### Technical Overview

Feature	Parameter	Accuracy
Rated Voltage (V)	220V-230V	0.5%
Working Voltage range	0.80-1.2Un	
Impulse Voltage	6kV 1.2µs waveform	
AC voltage withstand	4000V/25mA for 60 sec	
Start current	0.004Ib	
Over current withstand	30Imax for 0.01s	
Rated Current (A)	10(100)A	0.5%
Temperature (°C)	-25 to +55°C	
Relative Humidity	0 to 95%, non-condensing	
Frequency	50Hz or 60Hz±10%	0.5%
Power consumption	<1W/10VA	1.0%
Constant	1000 2000 imp/kWh	
Pulse output	Passive pulse, pulse width is 80 ±5ms 5-27VDC, Max current input 27mA DC	

#### Model Specification

Certification	DIN 43880, IEC62053-21, IEC62052-11
Dimensions (mm)	100(L) x 36(M) x 65(H)
Weight (g)	±130





### TDDT7M – 7 Day Digital Timer Transferable Memory

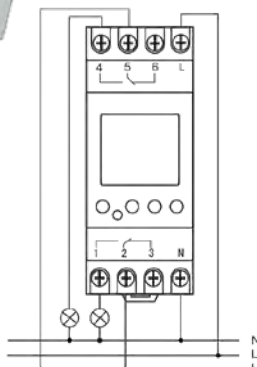
- DIN Rail installation
- LCD display, Day/week programme
- 21 ON/OFF programmes
- Memory card (sold separately)
- Backlight (when connected to power)

#### Technical Overview

Feature	Parameter
AC Voltage Rating (V)	220V
AC Voltage Limit (V)	180 - 250V
Frequency (Hz)	50 - 60Hz
Switching Contact	1 change-over switch
Switching Capacity at 250V AC, $\cos \phi = 1$	16A
Switching Capacity at 250V AC, $\cos \phi = 0.6$	10A
Incandescent / Halogen Lamp Load	2300W
Energy Saving Lamps Guide	22 x 7W, 15 x 11W, 16 x 15W, 16 x 20W, 14 x 23W
Shortest Switching Times	1 minute ( pulse/cycle 1s)
Power Consumption	5VA (max)
Temperature (°C)	-10 to +45°C

#### Model Specification

Power Reserve	Lithium Battery - 3 Years
Optional Accessories	Memory Card TDDT7MCARD
Dimensions (mm)	36(W) - 2 modules
Weight (g)	±150



### TDDT72L – 7-Day Digital Timer Dual Relay Contact

- 2 Channels
- 44 Memory locations (22) ON/OFF programmes
- Pulse programme: 44 memory locations
- Large LCD display

#### Technical Overview

Feature	Parameter
Operating Voltage (V)	12 – 240V AC/DC
Voltage Rating (V)	24 – 240V AC/DC
Voltage Limit (V)	11 – 240V AC/DC
Frequency (Hz)	50 – 60Hz
Switching Contact	2 Change over switch
Switching Capacity at 250V AC, $\cos = 1$	16A
Switching Capacity at 250V AC, $\cos = 0.6$	10A
Incandescent/Halogen Lamp Load	2300W
Energy Saving Lamps	22 x7W / 18x11W/ 16x15W/ 16x20W/ 14x23W
Shortest Switching Times	1min (pulse/ cycle 1s)
Time Accuracy	≤2s/day @ 25°C
Power Consumption (Max)	5VA
Temperature (°C)	-10 to +45°C

#### Model Specification

Power Reserve	3 Years (Lithium Battery)
Dimensions (mm)	93 x 36
Weight (g)	±170



FEATURE	T3004	T8000	T502KJ	TIR9PEN	T111	HT3305
PAGE NO.	87	88	88	89	89	91
Temperature Range (°C)	-27 to 60°C	-100 to 1300°C	-200 to 1370°C	-33 to 500°C	-30 to +550°C	-50 to 1000°C
Probe/Sensor Type	Semi-conductor	K	K, J	IR	IR	IR
Single/Dual Input		Single	Dual			
Data Hold	•	•	•	•	•	
MIN/MAX Display	•	•	•	•	•	•
Resolution	0.1°C	0.1°C	0.1°C	0.1°C	0.5 / 1°C (Auto)	0.1°C
Backlight			•	•	•	•
High/Low Setting			•		•	
Auto Power Off (APO)	•	•	•	•	•	•
Temperature Accuracy (°C)	±0.8°C	0.1°C	±0.05% to ±0.7°C	±2°C or ±2%		±3.5°C
Dimensions (mm) LxWxH	240 x 34 x 34	156 x 60 x 33	160 x 83 x 38	150 x 25 x 27	148 x 105 x 42	180 x 105 x 155
Weight (g)	180	160	240	74	157	330



### T630 – Digital Luxmeter

- 0-200 000 Lux
- Data hold
- MAX Hold
- Backlight

#### Technical Overview

Feature	Parameter	Accuracy
LCD Display	3 1/2 Digit LCD	
Range	20, 200, 2000, 20000, 200000 Lux	±3% + 10 Digit
Resolution	0.01 Lux	
Over-range	OL display	
Sampling Time	2.5 times/s	
Sensor Material	Silicon Photodiode	
Operating Temperature (°C)	0 to +50°C	
Operating Humidity	< 70% Relative Humidity	

#### Model Specification

Power Source	4 x 1.5 AAA Batteries
Standard Accessories	Carry Pouch
Certificates	Certificate of Conformance
Dimensions (mm)	170(H) x 44(W) x 40(H)
Weight (g)	220



### T531 – LED Light Meter

- Removable probe for easy access
- Cosine and colour corrected measurements
- 2s Response time
- “-OL-” display
- MIN/MAX/AVG
- Auto power off

#### Technical Overview

Feature	Parameter	Accuracy
Measuring Range (lx)	0 – 199.9, 1999, 19990, 199900lx	±3.0% + 5 Digits (standard A light source)
Angle of deviation : Cosine	10° 30° 60° 80°	±1% ±2% ±5% ±20%
Temperature (°C)	0 to +40°C	±0.1% (above 25°C)

#### Model Specification

Power Source	2 x AA Batteries
Standard Accessories	Carry Case
Dimensions (mm)	169(L) x 63(W) x 37(H)
Weight (g)	210



### T325 – Sound Level Tester

- Type 2 sound level meter
- Wide range
- Sampling rate 2s
- Bar graph
- MIN/MAX Hold
- Frequency weighting A/C
- Over range indications

#### Technical Overview

Feature	Parameter	Accuracy
Display	3.5 Digit with bar graph	
Function	Fast (125ms) Slow (1000ms)	
Measurement Range	30dB to 130dB	±1.5dB at 94dB of 1kHz
Level Ranges	Low 30dB to 80dB, Med 50dB to 100dB, Hi 80dB to 130dB	
Display Update	2.5s	
Microphone	1/4inch (ECM)	
Output Impedance	Approx 100Ω	
Operation Humidity	90% Relative Humidity	
Operation Temperature (°C)	0 to +40°C	

#### Model Specification

Power Source	1 x 9V Battery
Standard Accessories	Screw Driver, Instruction Manual, Carry Case, Wind Shield
Certificates	Certificate of Conformance
Dimensions (mm)	240(L) x 62(W) x 39(H)
Weight (g)	224



LIFETIME WARRANTY



### T3004 – Humidity/Temperature Meter

- Data hold
- MIN/MAX Hold
- REL function
- Auto power off

#### Technical Overview

Feature	Parameter	Accuracy
Altitude	Up to 2000	
Temperature (°C)	-20 to +60°C	±0.8°C
Humidity	0% ~ 100% Relative Humidity	±3% Relative Humidity
Resolution Temperature	0.1°C	
Resolution Humidity	0.1% Relative Humidity	
Response Time Humidity	180s	
Response Time Temperature	10s	
Operation Temperature	0°C to 40°C	
Operation Humidity	<80% Relative Humidity	
Sampling Rate	2.5 times per second	
Calibration	Internal calibration	



%Rh

#### Model Specification

Power Source	1 x 9V Battery
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### T522 – Hygro Thermometer Wireless Data Logger

- Measures K-, J-, T-, N-, R-, S- Type Thermocouples
- Interchangeable digital probe
- DEW Point and wet bulb measurement
- Recall function up to 100 sets of manually saved data
- MIN/MAX/AVG

#### Technical Overview

Feature	Parameter	Accuracy
Temperature (°C): Probe	-20 to +50°C (0-100%RH)	±2.5%RH; ±0.8°C
Temperature (°C): Thermocouple	-200 to +1370°C	±1.0% + 0.7°C
Temperature (°C)	0 to +50°C	



#### Model Specification

Power Source	4 x 1.5V AAA Batteries
Standard Accessories	Carry Case, Micro USB Cable, K-Type Bead Probe, BT-01 Bluetooth Adapter
Dimensions (mm)	187(L) x 75(W) x 29(H)
Weight (g)	210



dB



### T411 – Combustible Gas Leak Detector

The T411 is designed as a high performance combustible gas detector with high sensitivity to a variety of commonly used combustible gases. The unit uses a heated semi-conductor gas sensor and microprocessor control to provide reliable digital signal processing. Adjustable leak sensitivity level and 7 LED visual indicators offer ease and convenient operation.

#### Features

- Detection of Methane/Hydrocarbon/Combustible Gases.
- Sensitivity as small as 5 ppm.
- Sensor Life: 1 year
- Ambient Concentration Reset.

#### Application

- Detect leaks in automobile exhaust and fuel system.
- Detect leaks in liquid or gas fired heating system.
- Safety checks at propane filling stations.
- Search for arson residue.
- Detect fuel in marine bilges.
- Check manholes/sewers for safety.
- Check for cracked heat exchangers.
- Detect solvent residue



### T4201 – Anemometer

- Low friction
- Ball bearing design
- Data hold
- 4 Different speed units

#### Technical Overview

Measurement	Range	Resolution
Meters per Second (m/s)	0.4 – 30.0	0.1
Kilometers per Hour (km/h)	1.4 – 108.0	0.1
Knots	0.8 – 58.3	0.1
Display	18mm LCD, 31/2 Digits	
Accuracy	±(2% + 1 Digit) ≤ 25 m/s	
Temperature (°C)	0 to +50°C	
Dimensions	Sensor Head: Round 72mm Dia.	
Operating Humidity	Max 90% Relative Humidity, (0 to +35°C)	

#### Model Specification

Power Source	1 x 9V Battery
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### T8000 – Anemometer/Hygro/Lux/Temp

- Display LCD
- Auto power off



#### Technical Overview

Feature	Parameter	Accuracy
<b>AIR VELOCITY</b>		
Metres Per Second (m/s)	0.4 to 30.0 m/s	
Kilometers Per Hour (Km/h)	1.4 to 108.0 km/h	
Knots	0.8 to 58.3 Knots	
Temperature	-100 to 1300°C	0.1°C
Light Intensity	0.2, 200, 1800, 20000 Lux	
Humidity	10 to 95%Rh	0.1%Relative Humidity
Resolution Metres Per Second (m/s)	0.1 m/s	
Resolution Kilometers Per Hour (Km/h)	0.1 km/h	
Resolution Knots	0.1 Knots	
Operating Temperature	0 to 50°C	
Operation Humidity	80% Relative Humidity Max	
<b>LIGHT INTENSITY</b>		
0, 2, 200 Lux	1 Lux	
1800 to 20.000 Lux	10 Lux	



%Rh

#### Model Specification

Power Source	1 x 9V Battery
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### T502KJ – Thermometer K- and J-Type

- Data hold
- Programmable
- Temp1/Temp2 dual display
- High/low limit mode
- Relative mode
- Backlight



#### Technical Overview

Feature	Parameter	Accuracy
Temperature (°C)	Type K: -200 to +1370°C Type J: -200 to +1050°C	-50 to +1370°C, ± 0.05%, + 0.7°C -200 to -50°C, 0.05% + 0.3°C Accuracy specification does not include probe accuracy
Resolution	0.1°C	

#### Model Specification

Power Source	4 x 1.5V AAA Batteries
Standard Accessories	2 x Bead Probe







### TIR9PEN – 9:1 Infrared Thermometer

- Hold, Max/Min display
- Compact size
- Circular laser
- LCD backlight

#### Technical Overview

Feature	Parameter	Accuracy
Temperature Range (°C)	-33 to +500°C	±2% or 2°C
Resolution	-9.99 to +199.9°C	0.1°C
Response Time	1.0s	
Wavelength	8 - 14µm	

RoHS



#### Model Specification

Power Source	1 x 1.5 AA Battery
Certification	CE, RoHS



### T111 – Non-Contact Thermometer

- Auto power off
- Laser pointer
- MIN/MAX Record
- Settable Hi/Lo limits with beep
- Backlight
- Data hold
- Emissivity Adjustable
- Distance and spot D:S (Field of view) 10:1

#### Technical Overview

Feature	Parameter	Accuracy
Temperature (°C)	-3 to +550°C	± 2°C for -30°C - 100°C, ± 2% for 101°C - 550°C
Resolution	0.5 / 1°C (Auto)	
Response Time	0.25s	
Emissivity Adj.	0,1 to 1	
Co-efficient	±0,2°C	
Operating Temperature (°C)	0 to 50°C	



#### Model Specifications

Power Source	1 x 9V Battery
Dimensions (mm)	148(L) x 105(W) x 42(H)
Weight (g)	157



### HT3305 - Infrared Thermometer + Temperature Meter with K Type Probe

- Display LCD 4 digit with back light
- Auto power off
- Operating temperature/humidity: 0°C / 50°C / 10% / 90%RH
- EMC:IEC/EN61326-1:2006, IEC/EN61326-2:2006
- Laser source: IEC/EN60825-1, Class 2
- Max operating altitude:2000m
- Mechanical protection: IP54
- Fall test: 2m

#### Technical Overview

Feature	Parameter	Accuracy	Response time
Temperature (°C)	-50°C to +20°C	±3.5°C	<150ms
	20°C to 300°C		
	300°C to 1000°C		
Spectrum response:	8 , 14µm		
D/S ratio:	20:1		

#### Model Specifications

Power Source	3x Type AAA LR106 Alkaline batteries
Dimensions (mm)	180(L) x 105(W) x 155(H)





FEATURE	THT80	THT100	THT600	THT500H	TPK80	MERCURY	THTA1	THT33	HOTFIND	TD300
<b>PAGE</b>		93	94		94	14	96	95	95	96
<b>CHARACTERISTICS OF IR IMAGE</b>										
IR Sensor Resolution (Pixels)	120 x 90	80 x 80	384 x 288	160 x 120	80 x 80	80 x 80	220 x 160	80 x 80	384 x 288	384 x 288
Temperature Range	-20 to +550°C	-20 to +650°C	-20 to +650°C	-20 to +650°C	-20 to +160°C	-20 to +260°C	-20 to +300°C	-20 to +380°C	-20 to +600°C	-20 to +600°C
Thermal Image Sensitivity	< 0.05°C at 30°C	< 0.05°C at 30°C	< 0.05°C at 30°C	< 0.05°C at 30°C	≤0.1°C at 30°C	≤0.1°C at 30°C	0.08°C	<0.1°C at 30°C	≤0.05°C at 30°C	±0.05°C at 30°C
Frequency	50Hz	50Hz	50Hz	50Hz		50Hz	9Hz	50Hz	50Hz	50Hz
<b>CHARACTERISTICS OF IR AND INTEGRATED OPTICS</b>										
Field of view	50° x 37°	21° x 21°	17° x 12.7°	17.3° x 13°	20° x 20°	21° x 21°	35° x 26°	21° x 21°	24° x 18°	24° x 18°
Focal length of standard lens		9mm	7.5mm		Fixed	7.5mm	FIXED	7.5mm	MANUAL	MOTORISED
<b>FUNCTIONS</b>										
Communication	USB type C, Wi-fi, SD Card	USB type C, Wi-fi, SD Card	Micro USB Wi-fi, Micro SC, Micro HDMI	Micro USB Wi-fi, Micro SC, Micro HDMI		•		•		•
Laser			•	•		•			•	•
Colour Palettes		4 Standard	8 Standard, 10 Custom Colours			4 Standard	5	6	6	6
Touch Screen	•	•	•	•	•			•	•	
IP Rating		IP50	IP65		IP54	IP65	IP50	IP54	IP54	IP54
Hot/Cold Spot	Auto	Auto			Auto	3 Cursors	3 Markers	3 Cursors	8 Movable spots	Auto
Dimensions (mm) LxWxH	133 x 87 x 24	224 x 77 x 96	270 x 100 x 120	270 x 100 x 120	175 x 102 x 36	190 x 75 x 55	125 x 80 x 24	180 x 60 x 75	215 x 80 x 219	
Weight (g)		500	920		415	555	130	260	600	900



### THT80 - Thermal IR Camera

- IR resolution 120 x 90 pxl
- Temperature range -20° to 550°C
- Touch Screen
- Picture in Picture Function
- AutoFusion image enhancement
- Built in LED light

#### Technical Overview

Feature	Parameter
Temperature Range	-20° to 550°C
Thermal Sensitivity	<0.05°C @ 30°C
Image Frequency	50Hz
Digital Zoom	1x to 32x continuous
IR Resolution	120 x 90 pixels
Colour Palette	4 Standard
Field Of View	50° x 37°
Measurement tools (in live mode)	3 spots, center spot, hot/cold spots,
Communication modes	USB type C , Wi-fi. SD card
Display	touch screen
Dimensions (L x W x H)	133 x 87 x 24m



#### Model Specification

Power Source	Lithium-Ion Rechargeable Battery, Battery Charger
Standard Accessories	Focal Lens 9mm, Universal Plugs, Micro SD Card 8GB, USB Cable, Video Cable, Earphone set, Carry Bag, Wrist Strap, THTLink Windows Software, Quick Reference Guide
Certificates	ISO9000

### THT100 - Thermal IR Camera

- IR resolution 80 x 80 pxl
- Temp. range -20° to 650°C
- Touch Screen
- Picture in Picture Function
- AutoFusion image enhancement



#### Technical Overview

Feature	Parameter
Temperature Range	-20° to 650°C
Thermal Sensitivity	<0.05°C @ 30°C
Image Frequency	50Hz
Digital Zoom	1x to 32x continuous
IR Resolution	80 x 80 pixels
Colour Palette	4 Standard
Field Of View	21° x 21°
Communication modes	USB type C, Wi-fi. SD card
Display	touch screen
Dimensions (L x W x H)	140 x 100 x 110

#### Model Specification

Power Source	Lithium-Ion Rechargeable Battery, Battery Charger
Standard Accessories	Focal Lens 9mm, Universal Plugs, Micro SD Card 8GB, USB Cable, Video Cable, Earphone set, Carry Bag, Wrist Strap, THTLink Windows Software, Quick Reference Guide
Certificates	ISO9000

### THT600 - Thermal IR Camera

- IR resolution 384 x 288 pxl
- Field of view 17° x 12.7°
- Temp. range -20° to 650°C
- Laser distance meter
- Picture in Picture Function
- AutoFusion image enhancement
- Built in LED Light



#### Technical Overview

Feature	Parameter
Temperature Range	-20° to 650°C
Thermal Sensitivity	<0.05°C @ 30°C
Image Frequency	50Hz
Digital Zoom	1x to 32x continuous
IR Resolution	120 x 90 pixels
Colour Palette	4 Standard
Field Of View	17° x 12.7°
Measurement tools (in live mode)	3 spots, center spot, hot/cold spots,
Communication modes	Micro USB, Wi-fi, micro SD, micro HDMI
Display	Touch screen
Dimensions (L x W x H)	270 x 100 x 120

#### Model Specification

Power Source	2 x 7.4V Lithium-Ion Rechargeable Batteries, AC/DC Adapter and Universal Plugs, Charger
Standard Accessories	7.5mm Lens and Protection Cover, 4GB Micro SD Card, Card Reader, USB Cable, RCA Video Output Cable, Rubber Support for LCD Hood, and Tripod, Earphone Set, THTLink Software, Hard Carry Case
Optional Lenses	<b>RL1160</b> -11mm, <b>RL2260</b> -22mm and <b>RL3360</b> -33mm
Certificates	ISO9000



### TPK80 - Thermal Imager

- 80 x 80 Pixels
- Integrates tablet and thermal camera technology
- Communicate in real time, live image and video transmission
- Android, Open Source and expandable
- Built in memory
- IP54



#### Technical Overview

Feature	Parameter
Temperature (°C)	-20 to +160°C
Measurement Accuracy	±2°C or ±2%
Thermal Sensitivity	±0.1°C at 30°C
Display	5.5" Capacitive touch screen
Field of View	20° x 20° / 0.5m
Visible Pixels	High Definition CCD, 8 Mega Pixel
Detector Resolution	80 x 80pxl
Focus	Fixed
Image Mode	IR, CCD
Measurement Functions	1 Moveable spots, auto hot/cold spot capture, isothermal analysis, circle analysis, rectangular analysis



### HOTFIND – Infrared Camera

- 384 x 288 Resolution High Performance IR Camera
- Duo Vision display mode IR/CCD
- 50Hz dynamic real-time graphical output
- 9 movable spots, auto hot/cold spot, 1 line profile, 2 areas boxes, isotherm
- 5M Pixel High definition CCD
- Dual Control—Keypad & Touch



#### Technical Overview

Feature	Parameter	Accuracy
Temperature (°C)	-20 to +600°C (Up to 1500°C, Optional)	+2.0% ±2.0 �C
Thermal Sensitivity	0.05°C@30°C	
Field of View (FOV)	24° x18°/0.15m	
Spectral Range	8-14�m	
IR Resolution	384 x 288pxl	
Display	3.5" Capacitive Touch screen	
Operating Temperature	-20°C to +50°C	
Correction	Emissivity, ambient temperature, distance, relative humidity	
Image Frequency (Hz)	9Hz	
Focus	Manual	
Palette	6 (Iron, iron inverted, rainbow, feather, grey, grey inverted)	
Image Storage	16GB removable TF card	
Video Output	NTSC (60Hz)/PAL (50Hz)	

#### Model Specification

Power Source	1 x 3.7V Rechargeable Li-ion Battery
Standard Accessories	USB
Certificates	IP54

### THT33 – Infrared Camera

- Built-in illuminator – white light LED
- 80 80pxl



#### Technical Overview

Feature	Parameter	Accuracy
Temperature (°C)	-20 to +380°C	±2.0% or ±2.0�C
Thermal Sensitivity	<0.1°C @ 30°C	±1.0% + 0.7�C
Field of View (FOV)	21° x 21° (7.5mm lens)	
D:S Ratio	74:1	
Spectral Range	8 - 14�m	
IR Resolution	80 x 80pxl	
Display	2.8" TFT Colour	
Humidity	<80%RH	
Image Frequency (Hz)	50Hz	
Emissivity	0.1 – 1.0	
Focus	Automatic	
Colour Palette	5 (Iron, rainbow, grey, grey inverted, feather)	
Image Storage	Internal memory – max 20 locations	

#### Model Specification

Power Source	1 x 3.7 Rechargeable Li-ion Battery
Standard Accessories	Carry Case, Micro USB Cable
Certificates	IP54

### TD300 – Thermal Imager

- Duo Vision Plus overlays CCD and IR images giving a detailed and clear image
- 5MP High Definition Camera
- ISO density alarm (visual feedback)
- 3 Imaging modes Infrared (IR), Digital (CCD) and Duo Vision Plus
- Laser Range Finder
- Motorised lens auto focus
- Thermal Video Recording
- Analogue Video output
- JPG file format (Thermal/Visual)
- USB real time transmission
- Dimensions (mm): 25(H)
- Weight (g): 850



IP54

#### Technical Overview

Feature	Parameter	Accuracy
Temperature (°C)	-20 to +600°C	±2.0% or ±2.0°C
Thermal Sensitivity	≤0.05°C@30°C	
Field of View (FOV)	24° x 18°	
Spectral Range	7.5 to 14µm	
IR Resolution	384x288pxl	
Display	3.5" capacitive Touch	
Operating Temperature	-20°C to +50°C	
Measurement range (m)	0.05 to 30	
Measurement mode	8 movable spots, auto hot/cold spot, profile, 2 area boxes, isotherm, line	
Correction	Emissivity, ambient temperature, distance, relative humidity, reflected temperature	
Focus	Motorised/Manual/Auto	
Palette	Iron, Iron inverted, Rainbow, Feather, Grey and Grey inverted.	
Image Storage	Built in – 16GB	

#### Model Specification

Power Source	1 x 3.7 Rechargeable Li-ion Battery
Standard Accessories	Carry Case, USB Cable Type-C
Certificates	Calibration Certificate, IP54

### THTA1 – Thermal Imaging Camera

- USB Micro-B transfer to and from PC (Android and IOS)
- Visual and thermal picture overlay



#### Technical Overview

Feature	Parameter	Accuracy
Temperature (°C)	-200 to +1 370°C	±2.0% Digit ±2.0°C
Thermal Sensitivity	0.08°C	±1.0% + 0.7°C
Field of View (FOV)	35° x 26°	
IR Resolution	220 x 160pxl (total 3520pxl)	
Display	3.5" Colour	
Humidity	<90%RH	
Image Frequency (Hz)	9Hz	
Emissivity	0.1 – 1.0	
Focus	Fixed	
Palette	4 (Iron, rainbow, black, white)	
Image Storage	8Gb	

#### Model Specification

Power Source	1 x 3.7 Rechargeable Li-ion Battery
Dimensions (mm)	125(L) x 80(W) x 24(H)
Weight (g)	130