

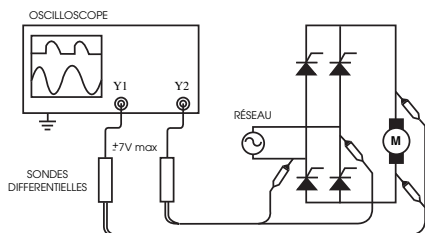


MEASURING APPARATUS

2023



DIFFERENTIAL PROBES



2 & 4 CHANNELS DIFFERENTIAL PROBES



Ergonomic solutions of differential probes, supplied from mains, with 2 or 4 channels according to the models. The housing is strong enough to put an oscilloscope on top.



Technical datasheets on our website



ISOL-710

DP25

These probes are used for displaying and measuring of dangerous voltages with a Class I oscilloscope, in accordance with the user safety standards. In fact, the image voltage applied to the oscilloscope is no more than a few volts. On the other hand, by using two probes the voltages applied to the oscilloscope inputs are isolated from one another. So, differential probes can measure high voltages and/or voltages which relate to different potentials, without any risk of short-circuiting through the base of the oscilloscope.

OPTION Mains adapter for ISOL



ref. ADA6

REF.	ISOL-710	ISOL-720	DP25
Channel	1	1	1
Bandwidth to -3dB	DC to 25MHz	DC to 25MHz	DC to 25MHz
Attenuation ratio	1/10 and 1/100	1/20 and 1/200	1/20 1/50 1/200
Measurable input voltage DC + AC	140Vpp on 1/10 1400Vpp on 1/100	280Vpp on 1/20 2000Vpp on 1/200	respect. 200Vpp / 500Vpp / 1400Vpp
Output voltage to oscilloscope	+/- 7V		+/- 5V
Max. differential input voltage	1000Vrms		
Max common mode voltage (1)	500Vrms	1000Vrms	600Vrms
Input impedance	4 MΩ / 5pF		4 MΩ / 1,2pF
Rise time	14 ns		
Accuracy	2%		
CEI1010 cat III Pol 2	1000Vrms		600Vrms
Power source	Battery (4 x LR6) and mains adapter		Mains adapter 230V 50/60Hz
Dimensions / Weight	158x62x20mm / 290g		210x58x35mm / 200g
Supplied accessories	Rubber jacket + test clip		Holster + test clips + mains adapter

(1) Common mode voltage: voltage between, on one hand, the interconnected inputs and on the other hand the ground or the BNC terminal on the oscilloscope

TRUE RMS DC AND AC LOW CURRENT PROBES



These probes are used with an oscilloscope, a multimeter or a recording instrument. They deliver a secondary image voltage of the primary current (a few dozen millivolts), thereby allowing the user to take measurements in complete safety and without having to switch off the power to the circuit. The Hall sensor fitted in them can detect a DC component overlaid onto the AC component. When used with a true RMS multimeter, these probes will provide a true RMS current measurement.

REF.	VA15	DCA60	PSY500	PSY510
Output voltage / Input current	100mV/A range 4A / 10mV/A range 30A 1000mV/A range 400mA AC only.	100mV/A range 20A 10mV/A range 60A	200mV/A range 5A 20mV/A range 50A	1 V / A range 4A 0,1V / A range 40A
Ranges DC + AC	4A & 30A	20A & 60A	5A & 50A	4 & 40 A
Range AC only	400mA AC			
Accuracy	1% DC ~ 1kHz	2% 40Hz ~ 2kHz 4% 2kHz ~ 10kHz 6% 10kHz ~ 40kHz	2% DC ~ 50Hz 3% 50Hz ~ 100kHz 5% 100kHz ~ 120kHz	2% DC to 80Hz 3% 80Hz to 180kHz 5% 180kHz to 270kHz 6% 270kHz to 350kHz
Diameter of the jaws	21mm	8mm	9mm	
Power source	battery : 2 x LR6	battery : 1 x 6LR61	Mains or battery 1LR61 (9V)	
CEI100	CATIII 300Veff pol2			
Supplied with	2 safety leads 1 BNC adapter	1 BNC adapter	1 BNC lead 1 BNC adapter 1 mains adapter	1 BNC lead 1 BNC adapter 1 mains adapter



DIGITAL STORAGE OSCILLOSCOPES 100 TO 300MHz

- High resolution TFT color LCD display
- Auto measurement modes, XY mode and FFT function
- "Autoset" and "Autoscale" function for easy use
- Real-time data transmission via USB connection
- USB host connection for external USB memory stick
- Safety: EN 61010-1; CAT II 400V
- Multi-languages



REF.	PT-OS1404	PT-OS1341	PT-OS1260	PT-OS1270
Number of channels	2	4	2	2
Bandwidth at -3dB	100MHz	100MHz	200MHz	300MHz
Rising time	< 3,5ns	< 3,5ns	<1,7ns	<1,17ns
Display	7" TFT, 800 x 480 pixels	8" (20 cm) TFT , 800 x 600 pixels		
Sampling mode	Normal, peak detection, average			
Sampling rate per channel	1 GSa/s	1 CH : 1 GSa/s 2 CH : 500 MS/s per channel 4 CH : 250 MS/s per channel	1 GSa/s	1,25 GSa/s
Input coupling	CA, CC, GND			
Input impedance	1 MΩ ± 2 % in parallel with 20 pF ± 5 pF	1 MΩ ± 2 % in parallel with 15 pF ± 5 pF	1 MΩ ± 2 % in parallel with 10 pF ± 5 pF	
Max Input voltage	400 V CC or CA pp	≤300V Vrms 400V (DC+AC Peak)	400 V CC or CA pp	
Sensitivity	5 mV - 5 V/div.	1 mV - 10 V/div.	2 mV - 10 V/Skt./div.	
Precision PP	± 3%			
Vertical Resolutions	8 bits (2 channel simultaneously)	14 bits	8 bits (2 channel simultaneously)	
Horizontal scale	2 ns - 100 s/div	2 ns - 1000 s/div	2 ns - 100 s/skt./div	1 ns - 100 s/skt./div
Sampling range	0,5 S/s – 0,5 GS/s	0,5 S/s - 1 GS/s	0,5 S/s - 1 GS/s	0,5 S/s - 2,5 GS/s
Trigger Type	Edge / Video / Slope	Edge / Video / Impulsion / Slope		
Triggering Mode	Automatic, Normal, Unique			
Automatic Measurements	30	18		
Math Functions	+, -, X, / ,FFT			
Phase difference	± 3%			
Recording length	10 000 points/CH	1 CH : 40.000.000 points 2 CH : 20.000.000 points 4 CH : 10.000.000 points	10 000 000 points/CH	
Interfaces	USB	USB, LAN	USB, VGA, LAN	
Operating voltage	100/240 VDC 50/60 Hz			
Dims (LxHxD) / Weight	301 × 152 × 70 mm / 1,1kg	340 × 175 × 90 mm / 2,5kg	340 × 155 × 70 mm / 1,8kg	
Accessories	USB wire, CD of the software for Windows, power cord, probes and manual	USB wire, CD of the software for Windows, power cord, 4 probes, BNC wires, transportation case and manual	USB wire, CD of the software for Windows, power cord, 2 probes, BNC wires, Transportation case and manual	

20MHz HAND-HELD OSCILLOSCOPE MULTIMETER



RS-232

USB

- Colour screen 75 x 56mm, 640 x 480 points
- Save/Recall 4 waveforms & 4 setup
- Zoom on the window. Choise of the window and zoom as far as 5ns/div
- Autoset and Autoranges, auto. measurements, cursors
- Digital multimeter TRMS

REF.	1022MN
Channels	2
Bandwidth -3dB	20MHz
Rise time	17.5ns
Sampling rate	100MSa/s
Record length by channel	6.000 points
Vertical resolution	8 bits
Sensitivity	5mV to 5V/div in séquence 1 - 2 - 5
Modes	Auto., normal, single, edge ↑↓, video
Fonctions Math - FFT	± x ÷ FFT
Mesures automatiques	20
Measurement cursors	V1/zero V2/zero ΔV T1/zero T2/zero ΔT
Fonctions Autoset	yes
Interfaces	USB - RS232
Multimeter	VDC - VAC - IDC - IAC - RΩ - CpF - Test diodes
Power source	Battery Li-ion. Operate time 6 hours.
Dimensions / Weight	180 x 113 x 40mm / 700g
Supplied with	2 oscilloscope probes x1 & x10 / 2 test leads for multimeter / Mains adaptor / USB lead Capacitance adaptor / Shunt 20A / Software / Transport case / User's manual.

4-CHANNEL OSCILLOSCOPE FOR COMPUTER



4CH

LAN

USB

Remote Control

FFT function



Technical datasheets on our website

ref. PC-SCOPE

- Software included
- USB (2.0) port for real-time data transmission
- LAN port for remote access via network
- 20 automatic measurement modes
- Input voltage from 40V to 400V / Bandwith: 60MHz
- Sample rate per channel: 500MSa/s

Runs as a digital storage oscilloscope

4-channel oscilloscope to connect to a desktop or laptop computer. It's equipped with an USB (2.0) port for real-time data transmission. You can evaluate and analyze data in real time on the computer thanks to the software included. For this, you have 20 measurement modes available and also several mathematical functions. Its LAN port enables the device to be installed in electrical systems or control cabinets. Measured data viewing by remote access through the network.

ARBITRARY FUNCTION GENERATORS



- High resolution TFT-LCD screen
- 1 μ Hz frequency resolution for full bandwidth
- High sampling rate of 125 MS/s
- 14-bit vertical resolution
- 6 standard waveforms (Sine, Square, Triangle, DC, etc.)
- 45 arbitrary waveforms (Hamming, Gaussian, Trapezia, Tan, etc.)
- Built-in waveform editor
- Remote control and waveform editing software
- Safety: EN 61010
- Accessories included: power cable, USB interface cable, BNC cable, software for Windows, manual

REF.	PT-G4121	PT-G4125
Number of channels	1 CH	2 CH
Amplitude	0 - 25 Vpp	0 - 25 Vpp
Arbitrary	1 μ Hz - 5 MHz	1 μ Hz - 10 MHz
Bandwidth	10 MHz	25 MHz
Rise time	< 25 ns (10% - 90%) (typique, 1 kHz, 1 VSS)	<10 ns (10% - 90%) (typique, 1 kHz, 1 VSS)
Resolution Frequency	1 μ Hz	1 μ Hz
Sampling rate	125 MS/s	125 MS/s
Display Type	TFT colors	TFT colors
Sinus	1 μ Hz - 10 MHz	1 μ Hz - 25 MHz
Rectangle	1 μ Hz - 5 MHz	1 μ Hz - 5 MHz
Ramp	1 μ Hz - 1 MHz	1 μ Hz - 1 MHz
Impulse	1 μ Hz - 5 MHz	1 μ Hz - 5 MHz
Arbitrary	1 Hz - 5 MHz	1 Hz - 10 MHz
Modulation	N/A	AM, FM, FSK, PM
Other function		Sweep, Burst
Frequency counter	N/A	Up to 200MHz
USB		
Power supply	220-230 VAC, 100-110 VAC, 50/60 Hz, CAT II	
Dimensions (W x H x D)	235x110x295 mm	
Weight	3 kg	

SYNTHESIZED FUNCTION GENERATOR

HIGH STABILITY SYNTHESIZED

- Sine-square-triangle-pulse-TTL
- Frequency independent of duty cycle
- 6-digit frequency meter
- Frequency: 0.1Hz to 3MHz stability 20ppM
- Offset. Cyclical report
- -40dB attenuator
- Output voltage display
- Protection of outputs on short circuits



Technical datasheets on our website



REF.	SFG1013
Waveforms	sine - square - pulse - TTL
Frequency	0, 1Hz to 3 MHz - 7 ranges
Output voltage	20 Vpp on 600 Ω 10Vpp on 50 Ω
Attenuators	1 : -40dB
Offset	Continuously variable from -10V to +10V into 600 Ω
Duty	variable from 25% to 75% Calibrate to 50% Frequency independent of duty cycle

FUNCTION GENERATORS



- 6-digit LED display
- 5-digit frequency accuracy
- Frequency resolution of 10 μ Hz
- Choice of display of frequency or period values, amplitudes or peak to peak
- Numeric keypad for direct adjustment
- USB interface
- Integrated power amplifier 10 W, 22 Vpp, from 100Hz to 10kHz
- Safety: EN 61010-1; CAT II
- Accessories: power cables, BNC, USB. CD software, manual

Ref.	PT-G4055	PT-G4060
Waveform		
Output signals	16 standard signals such as sine, square, ramp, exponent, noise, etc.	
Wave length	1024 counts	
Harmonic distortion (1Vss)	≤ -40 dBc (<5 MHz) / < -35 dBc (>5 MHz)	
Total Distortion	$\leq 0,5\%$ (20 Hz ~ 20 kHz / 20 Vpp)	
Rise/fall time:	≤ 35 ns, over shoot $\leq 10\%$	
Cyclical report	0,1 % ~ 99,9 %	
Symmetry	0,0 % ~ 100,0 %	
Frequency		
Sinus	10 Hz ~ 3 MHz	10 Hz ~ 20 MHz
Rectangle	10 Hz ~ 3 MHz	10 Hz ~ 5 MHz
Others	10 Hz ~ 1 MHz	
Resolution	10 Hz	
Frequency accuracy	± 50 ppm	
Amplitude		
Without load	< 8 MHz : 0 mVss ~ 20 Vss / > 8 MHz : 0 mVss ~ 18 Vss	
50 Load	< 8 MHz : 0 mVss ~ 10 Vss / > 8 MHz : 0 mVss ~ 9 Vss	
Resolution	5 mVss For an amplitude > 2 Vss / 0.5 mVss For an amplitude < 2 Vss	
Amplitude accuracy	$\pm(1\% + 2 \text{ mVrms})$ the frequency is 1 kHz / > 5 mVrms	
Amplitude stability	$\pm 10\%$ Relative to sine 1 MHz, 5 Vpp	
output resistance	50 typically	
Offset (for 0 dB attenuation)		
Offset range	± 10 V DC (no load) / ± 5 V DC (50 load)	
Resolution	5 mV DC	
Offset Accuracy	$\pm(1\% + 20 \text{ mV DC})$	
Modulation frequency	40 mHz ~ 20 kHz	
Frequency offset	10 Hz ~ 3 MHz	10 Hz ~ 20 MHz
Power boost		
Input signal	0 Vrms to 4.5 Vrms	
Maximum output voltage	9 Vrms	
Frequency Bandwidth	100 Hz ~ 10 kHz	
voltage amplifier	Double	
Maximum output power	10 W (load 8)	

FOLLOWER AMPLIFIER



REF. AS150

- The output of a low frequency generator applied to the AS140 input, amplifies the voltage until 40V peak to peak, and the current up to 3A with an impedance $\leq 4\Omega$.
- Bandwidth at ± 1 dB: 20Hz-20kHz.
- The output level of the low frequency generator adjusts the AS140 output amplitude from 0 to 840Vpp.
- The AS140 output is protected against overloads.

OTHER FEATURES

- Input on BNC terminal Two parallel outputs: on 2 $\varnothing 4$ mm terminals and on BNC
- AS140 does not amplify the low frequency generator DC component
- 100 – 240VAC 50-60Hz power supply. Dims/weight: 500 x 300 x 65mm 6.5kg

SINGLE OUTPUT DC POWER SUPPLY (WITH SAFETY TERMINALS Ø4MM)



GPS3030DD



DC6140



GPS3030D



GPR3510HD

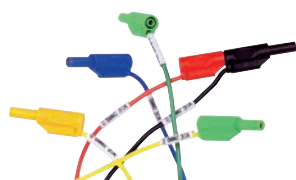
REF.	GPS3030A	GPS3030D	GPS1850D	GPS3030DD	GPR3060D	GPR3510HD	GPR6030D	DC6140	
Display type	TYPE A	TYPE D		TYPE DD			TYPE DD		
Power	90VA			180VA to 1000VA					
Voltage	0 to 30V	0 to 30V	0 to 18V	0 to 30V	0 to 30V	0 to 35V	0 to 60V	0 to 30V	
Adjustable	by 2 knobs coarse and fine from 0 to Vmax								
Current	0 to 3A	0 to 3A	0 to 5A	0 to 3A	0 to 6A	0 to 10A	0 to 3A	0 to 5A	
Adjustable	Deux gammes commutables : 0 à I _{max} /2 et 0 à I _{max} . Réglage par deux boutons GROS et FIN.							1 setting	
Regulation	Output voltage variation : < 0,01% + 3mV - Output current variation < 0,2% + 3mA by mains variation of 15% or load variation 0 ~ 100%								
Ripple & noise	0.5mVrms								
Protection	Electronic by current limitation against overload and short circuit								
Power source	Mains 120-240V - 50/60Hz								
Supplied with	Power lead and user's manual								

DISPLAY TYPE

- A : analogue type (with voltmeter & ammeter) Class 2,5%
- D : digital type. (1 switchable display for Voltage/current)
- DD : 2 digital type (1 display for voltage + 1 display for current)

ADDITIONAL ACCESSORIES

Safety leads



OPTION

GREEN/YELLOW male earthing socket
Put a «-M» at the end of the references

MULTI OUTPUT POWER SUPPLIES (WITH SAFETY TERMINALS Ø4MM)



GPS3303



GPD3303 - WITH USB CONNECTOR

High resolution 1mV – 1mA, can be remotely controlled via the USB connection. Adjustable by numeric keypad or encoder

- Accuracy of programming: voltage 0.03%+10dgt, current 0.3%+10dgt
- Accuracy of reading: voltage 0.03%+10dgt, current 0.3%+10dgt

Saving of 4 different configurations
High-resolution display: 30,000V – 3,000 A.
Labview driver.



SPD3606



GPS2303

REF.	SPD3606	GPS2303	GPS3303	GPD3303
INDEPENDENT 1	2 x 0 to 30V - 2 x 0 to 6A		2 x 0 to 30V - 2 x 0 to 3A	
INDEPENDENT 2	2 x 0 to 60V - 2 x 0 to 3A		-	
SERIAL 1	0 to 60V - 0 to 6A		0 to 60V - 0 to 3A	
SERIAL 2	0 to 120V - 0 to 3A		-	
PARALLELE	0 to 30V - 0 to 12A		0 to 30V - 0 to 6A	
AUXILIARY	0,1 to 5V - 3A	-	5V - 3A	2,5 - 3,3 - 5V - 3A
Dims	255 x 145 x 265mm	255 x 145 x 265mm		210 x 130 x 265mm
Weight	6kg	8kg		
Power source	Mains 120-240V - 50/60Hz			

Multiple power supplies consist of two or three power sources which are galvanically isolated from each other.

- 2 adjustable power supplies with rectangular features

AC POWER SOURCES

- Voltage can be adjusted progressively from 0 to Vmax.
- Voltage variation: <0.01% + 3mV or <0.02% + 3mA for 100% load variation or 15% mains variation.
- Current can be adjusted progressively from 0 to Imax.
- Regulation: background noise <1mVrms.
- Slave repeater error: <0.5% of the master voltage.
- Response time: 0 to Vmax. = 0.1ms.

AUXILIARY SOURCE (except for GPS2303)

- Auxiliary fixed voltage: 5V, 3A rating
- Voltage regulation:
 - <10mV for 100% charge variation
 - <5mV for 15% mains variation
- Background noise <2mVrms

PROTECTIVE DEVICES

All of the outputs are protected against short-circuits, even those lasting a long time. In this case, the power supply will automatically switch to a current source.

DISPLAYS

Digital: 3 digits 1/2 LED 13mm. 0.5%

THREE OPERATING MODES

Independent mode Both power supplies are completely independent from each other.

Tracking Series mode Allow the two power supplies to be used as a 0 to double rating voltage supply.

Tracking Parallel mode Allow the two power supplies to be used as a 0 to double rating current supply.



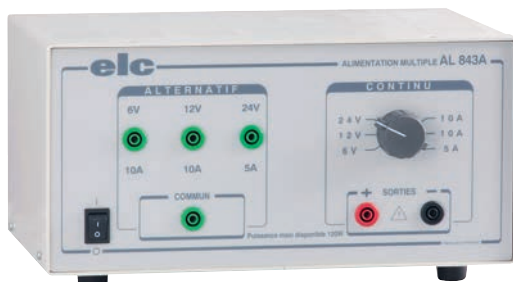
Technical datasheets on our website

MULTI-OUTPUTS POWER SUPPLIES

Complete range of DC or AC&DC power supplies, fixed or variable, fully protected for various type of use in laboratory.



ALF1501D



AL843A



AM061205



Réf	DC OUTPUTS	AC OUTPUTS	Power	Informations
AL841C	3V / 4,5V / 6V / 7,5V / 9V / 12V - 1A	-	12 W	6 selectable voltage
ALF1501D	±15V 1A or 24V 1A or 12V 2,5A	-	30 W	±15V (Aj. ±10 à ±15V)
AL843A	6V, 12V / 10A or 24V / 5A	6V, 12V / 10A or 24V / 5A	120 W	AC & DC simultaneous
AM061205	6V, 12V / 5A	6V, 12V / 5A	120 W	AC & DC simultaneous
AM061210	6V / 20A, 12V / 10A	6V / 20A, 12V / 10A	120 W	AC & DC simultaneous



PROGRAMMABLE POWER SUPPLIES

- Visual: Large graphic display
- Tactile: Sensitive keyboard
- Connected: USB, RS232, RS485 and 0-10V isolated
- Efficient: Rear outlet with remote control
- Space saving: Compact vertical box
- Practical: Integrated handle, mains cord storage
- Silent: Controlled ventilation
- Configuration lock

Protections

- Against short-circuits, by current regulation
- Against excessive overheating
- Against overcurrents by internal fuses

Features

- Height: 210 mm
- Width: 111 mm
- Length: 260 mm
- Weight: 3.15kg (ALR3220) / 2.9kg (ALR3206D) / 3.32kg (ALR3206T)

Ref. ALR3220

640 W

0 - 32V 0 - 20A

Ref. ALR3206D

390 W

2 x 0 - 32V 0 - 6A (indépendant)
 1 x ± 0 - 32V 0 - 6A (tracking)
 1 x ± 0 - 64V 0 - 6A (séries)
 1 x ± 0 - 32V 0 - 12A (parallèle)

Ref. ALR3206D

400 W

2 x 0 - 32V 0 - 6A (indépendant)
 1 x ± 0 - 32V 0 - 6A (tracking)
 1 x ± 0 - 64V 0 - 6A (séries)
 1 x ± 0 - 32V 0 - 12A (parallèle)
 1 x 1 - 15V 3A/1A (15W)

STABILIZED POWER SUPPLY RS232, LABVIEW, USB*



Ref. AL991S

*USB OPTION

Set comprising an USB/RS232 adapter + null modem lead

Ref. USBRS232

- ± 0-15V / 1A or 0-30V / 1A and 2-5,5V / 3A and -15 - 0 - +15V / 200mA
- Power : 48 Watts
- Display: Digital
- Interface: RS-232
- Software: Windows95 minium, LabVIEW

CURRENT GENERATOR AC / DC POWER SUPPLY



Ref. ALR3002M

- 0 to 5V, 6V, 12V or 30V / 0 - 25 mA, 250 mA or 2,5A DC
- 6V or 12V or 24V / 5 A AC
- Power : 120 Watts

Reading of voltages and currents on separate displays. AC & DC voltages available at the same time.

HIGH SENSITIVITY RMS TEST CLAMP

MEASUREMENTS

ACTIVE POWER	AC VOLTAGE	HARMONICS AC VOLTAGE	POWER FACTOR
REACTIVE POWER	AC CURRENT	HARMONICS AC CURRENT	PHASE ANGLE
ENERGY	LEAKAGE CURRENT	TOTAL HARMONIC DISTORTION	CREST FACTOR

- Auto ranging
- Auto power-off after 30min.
- Dim: 210 x 62 x 36mm. Weight: 500g
- Supplied with test leads and carrying case

SINGLE & BALANCED THREE PHASES POWER

	W or VA or VAR			KW or kVA or kVAR	
RANGES	0.050 ~ 9.999	10.00 ~ 99.99	100.0 ~ 999.9	1.000 ~ 9.999	10.00 ~ 99.99
RESOLUTION	0,001	0,01	0,1	0,001	0,01
ACCURACY*	1%	1%	1%	1%	1%

AC CURRENT RMS

	in mA		in A		
RANGES	0.30 ~ 60.00	60.00 ~ 600.0	0.030 ~ 3.000	3.00 ~ 30.00	30.00 ~ 50.00
RESOLUTION	0,01	0,1	0,001	0,01	0,01
ACCURACY*	0,5%	0,5%	0,5%	0,5%	1%

AC VOLTAGE RMS

RANGES	3,0 to 250,0VAC	250 to 600VAC	Accuracy: 0,5% *
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*Bandwith 50Hz ~ 5kHz Accuracy 5% from 50Hz to 10kHz

HARMONICS of AC VOLTAGE in % or in VAC order 1 to 99

ORDER	RESOLUTION in %	RESOLUTION in VAC	Accuracy
1 to 99	0,1%	0,1 VAC	1 to 35% as per order

HARMONICS of AC INTENSITY in % or in IAC order 1 to 99

	in mA		in A		
RANGES	0.10 ~ 60.00	60.00 ~ 600.0	0.600 ~ 3.000	3.00 ~ 30.00	30.00 ~ 50.00
RESOLUTION in mA - A	0,01	0,1	0,001	0,01	0,01
RESOLUTION in %	0,1%	0,1%	0,1%	0,1%	0,1%
ACCURACY as per order	1-10: 1% + 7dgt	11-20: 5% + 7dgt	21-50: 15% + 7dgt	51-99: 35% + 7dgt	

OTHER FUNCTIONS

	CALIBRES	RESOLUTION	ACCURACY
POWER FACTOR	0.000 ~ 1.000	0,001	± 0,04
PHASE ANGLE	-180 ~ 180°	0,1°	± 2°
THD * 1 to 99 order	0.0 ~ 999.9%	0,10%	2 à 20% **
CREST FACTOR	1.00 ~ 99.99	0,01	5% + 30 dgt
ENERGY	mWh Wh et kWh SINGLE & BALANCED 3-PHASE		

*THD total harmonics distortion ** according the rate



Batteries: 2 x LR6

REF. VA21

LEAKAGE CURRENT CLAMP



LEAKAGE CURRENT CLAMP

- Allows to measure AC currents of some hundred μ A
- Peak hold function: max & min
- Auto power off after 30min
- Bargraph

REF.	ST9809
Display	4.000 points
IAC (accuracy)	40mA to 100A (2,5% + 15dgt)
VAC (accuracy)	400V (2% + 4dgt)
OHM (accuracy)	400 Ω (1% + 2dgt)
Protection	CEI1010 CAT III 300V
Power source	1 battery 6LR61
Dimensions / Weight	210 x 62 x 35mm / 200g
Supplied with	Test leads, soft carry case

MULTIFUNCTIONAL CLAMPS



MS232

- RMS AC+DC power measurement
- VAC & IAC TRMS measurements
- Peak hold function : Max
- Autopower off after 30mn



ST3348

- RMS AC+DC power measurement
- VAC & IAC TRMS measurements
- Frequency
- Back lighting of the screen
- Autopower off after 30mn



ST3353

- Double display (W & VA, W & φ etc.)
- $V_{rms} - I_{rms} - W - VA - VAR - \cos\varphi - kWh$
- Single- and three-phase (3 & 4 wires)
- TRMS in IAC & VAC
- Peak measurements Min and Max
- USB interface + software supplied
- Memory (99 measurements)
- Automatic shutdown at 30mn
- LCD 4 digits and bar graph (lit)



VA6600

- RMS AC + DC
- Dual display
- U & I , U & Hz , I & Hz , W & $\cos\varphi$, VA & VAR.
- Active, reactive and apparent power
- A memory function: storage of 4 measurements

PWM The clamps with the PWM logo are compatible with PWM variator.

REF.	MS232	ST3348	ST3353	VA6600
Display	10.000 points	4.000 points	10.000 points	2 x 4 figures
Converter	DC + TRMS AC		RMS AC	RMS AC+DC
Bandwidth	50 to 500Hz	50 to 60Hz	50 to 200Hz	DC to 400Hz
Opening of the jaws	Ø 30mm		Ø 53mm	Ø 55mm
VDC	600V (1% + 5dgt)	400mV to 600V (1,5% + 3dgt)	-	-
VAC	600V (1% + 5dgt from 50 to 500Hz)	400mV to 600V (1,5% + 3dgt)	15 to 750V (1,2% + 5dgt)	VAC+VDC 200 to 600V 2%+5dgt
IDC	600A (1,5% + 5dgt)	1000 A (1,8% + 5dgt)	-	-
IAC	600A (1,5% + 5dgt from 50 to 500Hz)	1000 A (1,8% + 5dgt)	40 to 1000A (2% + 5dgt)	IAC+IDC 200 to 2000A 2%+5dgt
WDC	100 to 360kW	40 to 240kW	-	-
WAC	100 to 360kW RMS	40 to 240kW RMS	0,6 to 750kW	99,99 to 1200kW 2%+5dgt
VA	-	-	0,6 to 750kVA (3% + 5dgt)	99,99 to 1200kVA 2%+5dgt
VAR	-	-	0,6 to 750kVAR (4% + 5dgt)	99,99 to 1200kVAR 2%+5dgt
OHM	10 000 Ω (1% + 5dgt)	400 Ω to 40M Ω (1,5% + 2dgt)	-	-
frequencymeter	-	5Hz to 100kHz	20 to 200Hz	-
Energy kWh	-	-	1 to 9999kWh (3% + 2dgt)	-
Diode test	-	Test 0,3mA	-	-
..)	Ring for R< 100 Ω		-	-
Power factor	-	-	0.3 ~ 1 Capacitive or inductive (0,02 + 2 dgt)	0,999 2%+5dgt
Ranging	Auto	Auto & Manual	Auto	Auto
Protection	CATIII 600Vrms pol2		CATIV 600Vrms pol2	CATIII 600Vrms pol2
Power source	2 batteries LR03	1 battery 6LR61	4 batteries LR6	1 battery 6LR61
Dimensions / Weight	218 x 84 x 30 mm / 270g	229 x 80 x 49 mm / 300g	295 x 100 x 46 mm / 540g	270 x 100 x 45mm / 800g
Supplied with	Test lead, soft carry case, batteries, user's manual.		Test lead, soft carry case, batteries, user's manual, USB cable, software.	soft carry case, batteries, user's manual.



A138 : 25 functions

- LCD 10 000 points, digit height 12mm
- Manual or auto measurements
- RMS measurements in AC and AC+DC
- 10mV to 1000V in DC, ACrms, DC+ACrms
- 10mA to 1000A in DC, ACrms, DC+ACrms
- Measurement of the call current up to 1400A AC
- Max and Min peaks in voltage and current
- Active power from 1W to 1000kW
- Power factor $\cos\phi$ from -1.00 to +1.00
- Measurement of the THD and harmonics to row 25
- Resistance from 0.1ohm to 100kohms
- Sound continuity $R < 30\text{ohms}$ and LED test
- Frequencymeter 0.01Hz to 10kHz
- Measurement of capacitances from 1nF to 4000 μF
- Measurement of temperatures from -50°C to 1000°C
- Indication of the direction of rotation of the phases
- Contactless voltage detector
- Low-pass filter (removes noise)
- Reset button
- Bar graph
- Illumination of the cable to be tested when jaws open
- Display blocking. Backlit display
- Automatic shutdown after 15 minutes
- Low battery indicator

REF.	A138	
Display	10.000 points	
Converter	RMS AC AC+DC	
Bandwidth	50 to 400Hz (500Hz VAC)	
jaw diameter	Ø 42mm	
VDC*	100,00 - 1000,0V	Best accuracy 0.7% + 2dgt
VACrms* & VDC+VACrms	100,00-1000,0V	Best accuracy 1% + 5dgt
MAX & MIN (VAC only)	140,0 - 1400V	Best accuracy 3% + 15dgt
IDC	100,00 - 1000,0A	Best accuracy 1,5% + 5dgt
IACrms & IDC+ IACrms	100,00-1000,0A	Best accuracy 1,5% + 5dgt
MAX & MIN in IAC	140,0 - 1400,0A	Best accuracy 3% + 15dgt
Frequency	100,00-1000,0Hz-10,000kHz	Best accuracy 0.5% + 3dgt
THD total harmonic distorsion	100,0 %	Best accuracy 3% + 10dgt
Harmonic distorsion 1 to 12	100,0 %	Best accuracy 5% + 10dgt
Harmonic distorsion 13 to 25	100,0 %	Best accuracy 10% + 10dgt
Inrush current	100,00-1000,0A	Best accuracy 2,5% + 5dgt
Active power WAC+WDC	10,000-100,00-1000,0 kW	Best accuracy V x A +10dgt
cos ϕ	-1,00 à +1,00	Best accuracy 3% + 1dgt
Resistance	1000,0 Ω -10,000-100,00 k Ω	Best accuracy 1% + 3dgt
)))))	ring if $R < 30\Omega$ / Max voltage 1,8V	
Capacitance	4,000-40,000-400,0-4000 μF	Best accuracy 1,9% + 8dgt
Temperature °C	-50°C to 1000°C	Best accuracy 1% + 1°C
Overload protection	1000Vrms 1000Arms	
Change range	Automatic and Manual	
Protection	CATIV 600Vrms pol2 / CATIII 1000Vrms pol2	
Battery	1 x 6LR61	
Dimensions / Weight	257 x 87 x 50mm / 470g	
Supplied wiyth	Bag, cords, probe, battery and manual.	

*Impedance : 3,5M Ω //100pF in AC & DC

AC, DC, AC & DC CLAMPS



MS331 - AC



MS333 - AC & DC



MS3347 - DC & TRMS AC



MS337



MS223

- Peak hold function Max
- Auto power off after 15mn
- Duty 0,5 ~ 99%
- Auto power off after 10mn
- Peak hold function Min & Max
- Auto power off after 20mn
- Bargraph
- Auto power off after 25mn
- Recopy output 10mV/A 20kHz
- Back lighting of the screen
- Peak hold function Min & Max
- Auto power off after 10mn
- Recopy output 10mV/A 20kHz

PWM The clamps with the PWM logo are compatible with PWM variator.

REF.	MS331	MS333	MS3347	MS337	MS223
Display	2.000 counts		4.000 counts		10.000 counts
Converter	AC	AC & DC	DC & TRMS AC	AC & DC	AC & DC
Bandwidth		50 to 100Hz		50Hz to 500Hz	50Hz to 20kHz
Opening of the jaws	25mm	29mm	35mm		12mm
VDC / VAC	2 to 600V	4 to 600VDC / 400mV to	400mV to 600V		600V
IDC / IAC	2 to 400A AC only	40 to 400A	40 to 1000A	4 to 80A	9,999 to 99,99 A
OHM	200Ω to 20MΩ	400Ω to 40MΩ		4Ω to 40MΩ	9,999 kΩ
Farad	-	40nF to 100μF	4nF to 40mF	40nF to 100μF	-
Frequencymeter	-	5Hz to 150kHz	0 to 4,000 kHz	5Hz to 10MHz	-
Diode test	0,4mA - 1,5VDC test	0,3mA - 1,5VDC test		-	-
...))	Ring for R< 50 Ω	Ring for R< 150 Ω	Ring for R< 35 Ω	Ring for R< 150Ω	Ring for R< 100Ω
°C	1000°C ± 3% + 3d		-40°C to 1000°C		-
Ranging	Auto & Manual	Auto		Auto & Manual	Auto
Protection	CATIII 600Vrms pol2				
Power source	2 batteries LR03		1 battery 6LR61	2 batteries LR03	
Dimensions / Weight	205 x 70 x 37 mm /	200 x 50 x 35 mm / 200g	230 x 80 x 50 mm /	210 x 70 x 37mm /	202 x 70 x 34 mm /
Supplied with	Test lead, soft carry case, batteries				

ADDITIONAL ACCESSORIES

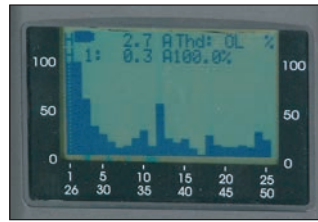
Oscilloscopes



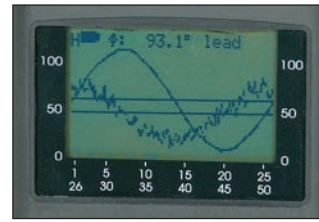
Coaxial leads



MAINS ANALYSIS CLAMP RMS AC



Courant efficace total - THD Courant harmonique n°1 % harmonique n°1 / fondamental



Oscillogramme U et I Angle de déphasage φ

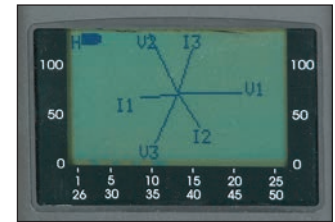


Diagramme des phases en triphasé V1 V2 V3 I1 I2 I3 φ



Puissances réactive active apparentes $\cos \varphi$ consommations



Courant pic - THD - Spectre des harmoniques

The screen on this clamp can be used either as a numeric display or as a graphical screen like an oscilloscope, or as a logging instrument. The clamp measures the true RMS voltage and current, apparent, reactive, active, balanced three-phase and single-phase power, $\cos\varphi$, peak factor, total distortion, power consumption and maximum power demand. In graphics mode, it displays and quantifies the first 50 harmonics of the signal (simultaneously as a percentage of the fundamental component and in volts, response in amperes), the form of the U and I signals, the single-phase and three-phase diagram. In logging mode, the clamp stores information in its memory. The sampling frequency and the start/stop cues can be programmed. Long acquisitions at high frequencies, with several simultaneous quantities, are possible by using an RS232 output to a PC and special software.

- Measurement of the maximum demand in kW and kVA
- Programmable threshold for transient capture (128 events)
- 32 to 256 points/cycle can be saved on the internal memory
- Memory size: 50,000 logs can be programmed based on a period of between 1 and 6000s.
- Real time output of: oscillograms, power, settings and harmonics
- Autopower off automatically if not used
- Opto-insulated RS232 interface

REF.	VA6200
Display	Graphique 128 x 64 pts
Converter	TRMS AC
Banwidth	50/60Hz
Opening of clamping jaws	Ø 55mm
VAC	4 to 600V auto ranging (0,5% + 5 dgt)
IAC	4 to 1500A auto ranging (0,5% + 5 dgt)
W - VA - VAR	1000W to 1000kW (1% + 20 dgt)
Energy Wh kWh	0 Wh to 999 999 kWh (resp VAh & VARh) (1% + 20dgt)
Crest factor CF	1,00 - 99,99 (5% + 30 dgt)
THD total harmonic distortion	0,0 to 1000,0 % (2% - 6% - 10% as per range)
Power factor	0,000 - 1,000 Accuracy 0,04
Phase angle	- 180° à +180° Accuracy 0,1°
Harmonics of AC voltage in V and in %	0,0 to 100,0% (2% Rang 1 to 20 / 4% Rang 20 to 50)
Harmonics of AC current in V in A and in %	0,0 to 100,0% (2% Rang 1 to 20 / 4% Rang 20 to 50)
IAC & VAC peak	Capture of transient events (32000)
Change range	Automatic
Interface	RS232
Protection	CATIII 600Vrms pol2
Battery	2 x LR06
Dimensions / Weight	270 x 100 x 45mm / 800g
Supplied with	RS232 interface and software, test probes and carrying case. User manual.



AUTO RANGING MULTIMETERS



ST9929



ST9919



ST9927T



ST9917

Range of reliable and robust automatic multimeters. Sturdy ABS housing, protected by a shock resistant soft moulded holster, waterproof (IP67)

- Peak hold function. Min et Max (except ST9917)
- Relative measurements
- Bargraph (except ST9917)

- Hold (ST9929)
- Data recording, max 200s (ST9929)
- Auto power-off after 15min

REF.	ST9929	ST9919	ST9927T	ST9917
Display	40.000 points		6.000 points	4.000 points
Converter	TRMS AC+DC	TRMS AC	TRMS AC	-
Bandwidth	40Hz to 10kHz	40Hz to 1kHz	40Hz to 1kHz	-
VDC accuracy	400mV to 1000V 0,06% + 4dgt		600mV to 1000V 0,09% + 2dgt	400mV to 1000V 1,2% + 2dgt
VAC accuracy	400mV to 1000V RMS 1% + 30dgt - 5% + 30dgt from 1kHz to 10kHz		6 to 1000V TRMS 1 to 2% +3dgt	400mV to 1000V 1,5% + 3dgt
IDC accuracy	400µA to 10A 1% + 3dgt		600µA to 10A 1% + 3dgt	400µA to 10A 1,5% + 3dgt
IAC accuracy	400µA to 10A RMS 1,5% + 30dgt - 5% + 30dgt from 1kHz to 10kHz		600µA to 10A TRMS 1,5% +3dgt	400µA to 10A 1,8% + 5dgt
OHM accuracy	400Ω to 40MΩ 0,3% + 4 to 9dgt		600Ω to 60MΩ 0,3% + 4dgt	400Ω to 40MΩ 1,2% + 2dgt
Farad accuracy	40nF to 40mF 3,5% + 10 to 40dgt		60nF to 1000µF 3,5% + 4dgt	4nF to 200µF 3% + 5dgt
Frequency accuracy	40Hz to 10MHz 0,50%		10Hz to 40MHz 0,1% + 1dgt	10Hz to 40MHz 1,2% + 3dgt
Diode test	Test 0,9mA - 2,8V			Test 0,3mA - 1,5V
..)))	Ring for R < 35Ω		Ring for R < 100Ω	Ring for R < 150Ω
Duty accuracy	0,1% to 99,9% 1,2% + 2dgt		0,1% to 99,9% 1,2% + 2dgt	0,1% to 99,9% 1,2% + 2dgt
°C (type K) accuracy	-50 to 1000°C 1% + 2,5°C		-45 to 750°C 3% + 5°C	-20 to 760°C 3% + 5°C
4 - 20mA	4mA~0% ; 20mA~100%		-	-
Ranging	Auto & Manual			
Protection	CAT III 1000V Pol 2	CAT III 1000V Pol 2	CAT III 1000V Pol 2	CAT III 1000V Pol 2
Power source	1 battery 9V type 6LR61			
Dimensions / Weight	182 x 82 x 55mm / 430g		182 x 82 x 55mm / 375g	
Supplied with	Test leads, thermocouple, carrying case, battery, user's manual.			

MANUAL RANGING MULTIMETERS



ST9905



M2005A



UM2010

Range of reliable and robust manual multimeters. Sturdy ABS housing, protected by a shock resistant soft moulded holster, waterproof (IP65)

ST9905 - M2005A
 • Auto power-off after 15min

UM2010
 • Length of the scale: 90mm
 • Safety sockets 4mm

REF	ST9905	M2005A	UM2010
Display	2.000 points	2.000 points	Analogue
VDC Accuracy	200mV to 1000V 0,5% + 2dgt	200mV to 200V / 0,5% + 3dgt 1000V / 1% + 5dgt	100mV to 1000V 1,5 %
VAC Accuracy	200mV to 700V 1,2% + 3dgt from 50Hz to 400Hz	200mV from 40 to 400Hz / 1,2% + 3dgt 2 to 200V from 40 to 400Hz / 08% + 5dgt 1000V from 40 to 100Hz / 1,2% + 5dgt	10 to 1000V 2,5 %
IDC Accuracy	2mA to 10A (20A during 30s) 1,5% + 3 dgt (3% + 10dgt/20A)	2 to 20mA / 0,8% + 3 dgt 200mA / 1,2% + 4 dgt 10A / 2% + 5 dgt	50µA to 10A 1,5 %
IAC Accuracy	2mA to 10A (20A during 30s) 2% + 3dgt (3% + 10dgt/20A)	2mA to 20mA from 40 to 200Hz / 1% + 5dgt 200mA from 40 to 200Hz / 2% + 5dgt 210A from 40 to 200Hz / 3% + 10dgt	2,5mA to 10A 2,5 %
OHM Accuracy	200Ω to 200MΩ 1,2% + 1dgt up to 20MΩ	200Ω to 2GΩ 0,8% + 3dgt up to 2MΩ	1 to 1000 kΩ 2 %
Farad Accuracy	2nF to 200µF 4% + 3dgt to 2µF	20nF to 200µF 2,5% + 20dgt up to 20µF	-
Henry Accuracy	-	2mH to 20H 2,5% + 20dgt	-
Frequency Accuracy	-	2kHz to 10MHz 1% + 10dgt	-
Diode test	1mADC under 2,8VDC max		
..)))	Ring for R < 50Ω	Ring for R < 70Ω	Ring for R < 50Ω
°C (type K) Accuracy	-	-20 to 1000°C 1% thermocouple K, C, E, B	-
Ranging	Manual		
Protection	CAT III 1000V Pol 2	CAT III 1000V Pol 2	CAT III 600V Pol 2
Power source	1 battery 9V type 6LR61		
Dimensions	182 x 82 x 55mm / 360g	200 x 100 x 60mm / 483g	170 x 110 x 53mm / 500g
Fuses	0,2A/250V - 5x20mm - fast 20A/250V - 6,3x25mm - fast	200mA - 6 x 32 fast 10A - 10 x 38 fast	HPC 600V 1A HPC 600V 10A
Supplied with	Housing, user's manual, test lead		User's manual, test lead



40.000 COUNTS COMMUNICATING RMS MULTIMETER



- 3 displays with 2 side displays 4000 counts
- Capacity and frequency measurements,
- Data logging 100 measurements
- Max /min and relative modes
- Bar Graph: Zero on left or central with 40 bars
- Auto power-off: adjustable 0 ~ 30min

REF.	UT71C
Main display	40.000 counts
Measurements	TRMS AC + DC
Bandwidth	45Hz to 100kHz
VDC / best accuracy	400mV to 1000V / 0.025% ±5dgt
VAC / best accuracy	4 to 1000V / 0.4% ±30dgt
IDC / best accuracy	400µA to 10A / 0.1% ±15dgt
IAC / best accuracy	400µA to 10A / 0.7% ±15dgt
OHM / best accuracy	400Ω to 40MΩ / 0.3% ±8dgt
Farad / best accuracy	40nF to 40mF / 1% ±20dgt
Frequency / best accuracy	40Hz to 400MHz / 0.01% ±8dgt
Diode test	max 2,8V
.))	ring for R< 60Ω
Duty / best accuracy	10%~90% / 1% ±30dgt
Temperature °C / best accuracy	-40°C to 1000°C / 1% ±30dgt
4 - 20mA / best accuracy	0,00~100,00% / 1% ±50dgt
Ranging	Auto ranging and manual
Interface	USB
Protection	CEI101 CAT IV 600Veff pol2
Power / accuracy	2500 W and 2500 VA / 2% ±5dgt
Power factor φ	yes
Power source	1 x 9V battery
Dimensions / Weight	200 x 93 x 40mm / 380g
Supplied with	USB cable and software, test leads, thermocouple, carrying bag, adapter for W VA cosφ

BENCH MULTIMETERS



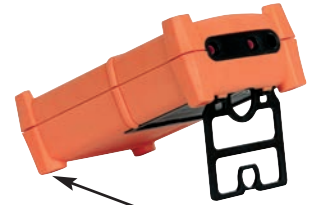
REF.	GDM8351	GDM8341
Display	120.000 counts	51.000 counts
Converter	TRMS AC+DC	TRMS AC+DC
Bandwidth	100kHz	100kHz
VDC	100mV to 1000V	500mV to 1000 V
VAC	100mV to 750V	500mV to 750 V
IDC	10mA - 10A	500µA to 10A
IAC	10mA - 10A	500µA to 12A
OHM	100Ω to 100MΩ	500Ω to 50MΩ
Farad	10nF to 100µF	5nF to 50µF
Frequencymeter	10Hz to 1MHz	10 Hz - 1MHz
Diode test .))	Max voltage : 6V Beeper	Max voltage: 1,5V. Buzzer <5Ω
°C (type K)	-200 to 300°C type J, K, T	
Ranging	Auto & Manual	Auto & Manual
Interface	RS232 - USB	USB
Protection	CEI1010 CATIII 300Vrms pol2	CEI1010 CATIII 300Vrms pol2
Power source	115- 230VAC 50/60Hz	100- 240VAC 50/60Hz
Dimensions / Weight	265 x 107 x 302mm / 2,9kg	265 x 107 x 302mm / 2,9kg
Supplied with	PC software & Driver Labview & User's manual	PC software & User's manual



REF.	PT-M4090	PT-M4095
Affichage	22.000 counts	60.000 counts
Type d'affichage	LCD	TFT couleurs
HZ max	220kHz	1 MHz
VDC max	600V	1000V
VAC max	600V	750V
IDC max	10A	10A
IAC max	10A	10A
OHM max	220MΩ	100MΩ
Farad max	N/A	10000 µF
Temperature min/max	-20 / 1000°C	-200 / 1350°C
Protection	CEI1010 CATI 600Vrms pol2	CEI1010 CATI 1000Vrms pol2. CATII 600V pol2
Interface	USB	USB - RS232 - LAN
Power source	240VAC 50Hz	110/240VAC 50/60Hz
Dimensions / Weight	268 X 108 X 322mm / 2,8kg	235 X 110 X 295mm / 3kg



MAGNETOELECTRIC VOLTMETERS (EASY TO READ)



Amortisseurs

REF.	V3296	V1001
VDC	100mV to 1000V (2%)	100mV to 1000V (1,5%)
VAC	3 to 1000V (3%)	3 to 1000V (2%)
Length of scale	90mm	90mm
Protection	CAT III 600V Pol 2	CAT III 600V Pol 2
Safety terminals	yes	yes
Fuses	F 250V 500mA	HPC 500V 500mA
Impedance	VDC : 20kΩ/V - VAC : 9kΩ/V	VDC : 20kΩ/V - VAC : 6,3kΩ/V
Dimensions / Weight	120 x 200 x 53mm / 350g	170 x 110 x 53mm / 500g
Supplied with	User's manual	User's manual

MAGNETOELECTRIC AMMETERS (EASY TO READ)



OPTION INTERFACE 30A COMPATIBLE MODEL A11



ref. TI-HU-30

REF.	A3295	A11
IDC	1ma to 10A (2%)	100µA to 10A (1,5%) - 30A with option TI-HU-30
IAC	10mA to 10A (3%)	10mA to 10A (2%) - 30A with option TI-HU-30
mV	/	100mV allows the use of external DC shunts
Length of scale	90mm	90mm
Protection	CAT III 600V Pol 2	CAT III 600V Pol 2
Safety terminals	yes	yes
Fuses	F 250V 10A	HPC 500V 3A + HPC 500V 10A
Dims / Weight	120 x 200 x 53mm / 600g	170 x 110 x 53mm / 500g
Supplied with	user's manual	user's manual

Integrates the components necessary for the operation of the A11 ammeter for currents up to 30A AC or DC. Ease of use. Direct reading on the AC or DC scales without making rule of 3.

Composition

The interface integrates:

- In alternating mode, a CT of caliber 30A/1A
- Continuously, a 30A/100mV shunt.



Technical datasheets on our website

WATTMETER MONO / CONTINUOUS / 3-PHASE

Mono / continuous / three-phase watt meter, single current rating at 5 amps.
 Only 2 easy reading levels with a parallax mirror.
 It is compatible with the watt meter switch using a 2 wattmeters measurement method with separate voltage and intensity circuits.

- Accuracy: 2.5% in DC and 1% in AC
- AC frequency range: 45–65Hz
- Protection with an HPC fuse on the current circuit
- Auto-protected on the voltage circuit
- Double insulation
- CEI-1010 – CAT III – 600V (pol2)

Selector calibers
Monophasic and continuous voltage:
 60 – 120 – 180 – 240 – 360 – 480 Volts
3-phase voltage
 100 – 200 – 310 – 415 Volts

ref. W17



SINGLE-PHASE DIGITAL WATTMETER



4mm safety terminals
 93 x 52mm LCD display
 6 x 1.5V batteries

ref. WECO

The WECO wattmeter is a multimeter able to measure the following values:
 Active power, Apparent power, Power factor, DC and AC voltage or intensity,
 Resistance, Frequency, Energy

MEASURING CHARACTERISTICS

Displays up to 4 values at the same time, e.g. U – I – W – PF or U – I – VA – Hz
 The WECO energy meter displays the energy consumed in the load in real time in
 Wh – kWh and elapsed time in hours, minutes, and 1/10 min.

FUNCTION	RANGES	RESOLUTION	ACCURACY
WATT	6000W	1W	1,5% + 1dgt
VA	99,99 VA	0,01 VA	1,5% + 1dgt
	999,9 VA	0,1 VA	1,5% + 1dgt
	9999 VA	1 VA	1,5% + 1dgt
cosφ	1,00	0,01	1,5% + 2dgt
VDC	299,9 V	0,1 V	1% + 1dgt
	600 V	1 V	1% + 1dgt
VAC	299,9 V	0,1 V	1% + 1dgt
	600 V	1 V	1% + 1dgt
IDC	10,00 A	0,01 A	1% + 1dgt
IAC	10,00 A	0,01 A	1% + 1dgt
OHM	9999 ohms	1 ohm	1% + 1dgt
	19,99 kohms	10 ohms	1% + 1dgt
Hz	10,0 to 99,9 Hz	0,1 Hz	1% + 1dgt
	999 Hz	1 Hz	1% + 1dgt
Wh	10Wh to 10MWh	as per range	1% + 1dgt

Auto ranging mode. Accuracy specified in the 40 Hz – 400 Hz frequency range for sine wave signals.

It has an alarm with adjustable upper and lower set points.

- Voltmeter input impedance: 10 MΩ
- Circuit intensity resistance: 10 mΩ

LOW RANGES AC WATTMETERS



- RMS power
- Automatic rating change (PSY6063)
- Integrated phase-meter 0.01 to 1.00
- Voltage & Current measurement
- Double display:
 W & cosφ or by simple press U & I
- Automatic reset
- Memory: Min. / Max. / Hold
- Backlit display
- Voltage impedance: 10 Mohms
- Data acquisition program giving characteristic plots in Windows® with PC USB connection cable.

Ref	PSY6063	PSY6163
U	260 VAC x 0,1V	600 VAC x 0,1V
I	1A x 0,1mA / 2A x 1mA	10A x 0,01A
W	0 to 99,99W x 0,01 W / 0 to 520W x 0,1 W	0 to 6000W x 1W
Accuracy	+/- 1% + 0,5W / 50Hz	+/- 1% + 5W / 50Hz



R80

DECADE RESISTANCE BOXES

Ref.	Nb of decades	Resistances	Dims.
R0	1	10x0,1Ω	82x82x60
R1	1	10x1Ω	82x82x60
R2	1	10x10Ω	82x82x60
R3	1	10x100Ω	82x82x60
R4	1	10x1kΩ	82x82x60
R5	1	10x10kΩ	82x82x60
R6	1	10x100kΩ	82x82x60
R7	1	10x1MΩ	82x82x60
R40	4	from 10x1Ω to 10x1kΩ	290x80x60
R50	5	from 10x1Ω to 10x10kΩ	420x80x60
R60	6	from 10x1Ω to 10x100kΩ	490x80x60
R70	7	from 10x1Ω to 10x1MΩ	490x80x60
R80	8	from 10x0,1Ω to 10x1MΩ	490x80x60

CEI1010 CATIII 1000Vrms pol2



R4

- Safety terminals
- Double insulation
- Frequency range:
0 to 500 kHz at an accuracy 5%.

RESISTANCES

Power : 0.5 W permanent
Type : 0.1 et 1Ω coils / 10Ω to 1MΩ metal film to 50 ppm.



L70

DECADE INDUCTOR BOXES

Ref.	Nb of decades	Accuracy	Inductance	Dims.
L1	1	10%	10x1μH	82x82x60
L2	1	10%	10x10μH	82x82x60
L3	1	10%	10x100μH	82x82x60
L4	1	10%	10x1mH	82x82x60
L5	1	10%	10x10mH	82x82x60
L6	1	10%	10x100mH	82x82x60
L7	1	10%	10x1H	82x82x60
L40	4	10%	10x1mH to 10x1H	290x80x60
L50	5	10%	10x100μH to 10x1H	420x80x60
L70	7	10%	10x1μH to 10x1H	490x80x60

CEI1010 CATIII 1000Vrms pol2



L2

- Safety terminals
- Safety terminals
- Double insulation

TYPE OF COILS

Coils-wound on ferrite cores

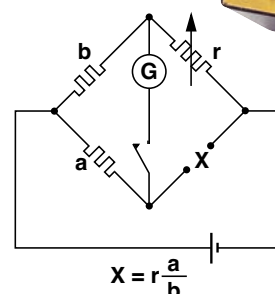
BOX WITH 7 POSITIONS OF RATIO

The K70 box is made up of two arms « a » and « b » of a Wheatstone Bridge. The two other arms form the resistance « X » to be measured and the calibrated variable resistor « r ».

- At balance $X = r a / b$
- Number of scales $k = a / b$: 7 positions: 0.001 - 0.01 - 0.1 - 1 - 10 - 100 - 1000
- Dimensions: 82 x 82 x 60mm.
- Double insulation

CEI1010 CATIII 1000Vrms pol2

ref. K70



DECADES CAPACITOR BOXES

Ref.	Nb of decade	Accuracy at 20°C	Capacitance	Dims.
C50	5	1%	from 10x100pF to 10x1μF	420x80x60
C1	1	1%	10x1nF	82x82x60
C2	1	1%	10x10nF	82x82x60
C3	1	1%	10x100nF	82x82x60
C4	1	1%	10x1μF	82x82x60

- Capacitors are plastic film, non polarised.
- Operating voltage : 400 VDC or 250 VAC
- Temperature drift : 80 ppM / °C
- Safety terminals
- Double insulation

CEI1010 CATIII 1000Vrms pol2



C50



C4

CAPACITOR LINK BOXES

Ref.	Nb of link	Accuracy at 20°C	Capacitance	Dimensions (mm)
C30	5	5%	from 5μF to 105μF	170x135x110
C20	6	1%	from 0,5μF to 20,5μF	190x110x60
C10	6	1%	from 0,05μF to 2,05μF	190x110x60

CEI1010 CATIII 1000Vrms pol2

- Capacitors are plastic film, non polarised.
- Operating voltage : 400 VDC or 250 VAC
- Temperature drift : 80 ppM / °C
- Safety terminals
- Double insulation



C20

ZEROING GALVANOMETER

FUNCTIONS	RANGES	INTERNAL RESISTANCE	ACCURACY
VDC	- 100mV 0 + 100mV	4 kΩ	1,5 %
IDC	- 30μA 0 + 30μA	1,7 kΩ	1,5 %
IDC	- 3 mA 0 + 3 mA	40 Ω	1,5 %

- Suitable for assembling in Wheatstone or Thomson bridge.
- Length of the scale: 90mm
- Safety sockets 4mm
- Protection at all ranges
- 1 fuse HBC 500V / 500mA

ref. GAL

CEI1010 CATIII 600Vrms pol2





INSULATION TESTER

The MEG2695 megohmmeter has 4 measuring functions: insulation resistances with 4 test voltages (125V, 250V, 500V, 1000V), resistors, DC voltage and AC voltage.



FUNCTION	RANGES	RESOLUTION	Withstanding voltage /current	ACCURACY
MΩ	400 - 4000MΩ	100kΩ - 1MΩ	125 - 250 - 500 -	5% + 5dgt
Ω	40Ω - 400kΩ	0.01Ω - 0.1Ω	< 5.8V	2% + 3dgt
. .)	Ring for R < 35Ω		200 mA when R < 40Ω	
VDC	1000V	1V		0.8% + 3 dgt
VAC	750V	1V		1.2% + 10 dgt

TECHNICAL CHARACTERISTICS

- Insulation tests: 1 mA rated current using the rated test voltage for fast-charging of the capacitors.
- .|.) in the ohmmeter position, the unit will make a sound if the tested resistance is less than 35Ω. In this case, the 200mA current is used to detect a poor connection.
- The HOLD key locks the display, and the LOCK key maintains the test voltage in the high-capacity wires which take longer to charge.
- Batteries: 6 x 1.5V (AA type)
- Dimensions: 200 x 92 x 50mm. Weight: 700g.
- Supplied accessories: test leads, batteries and case
- CEI1010 cat III 1000V pol2

ref. MEG2695

Battery : 6 x LR14

EARTH INSULATION TESTER

Tellurohmmeter for measuring by the auxiliary earth method.

- Large display for measurement, auxiliary display for battery voltage
- "Measurement freeze" key
- Dimensions / Weight: 200 x 92 x 50 mm / 700g
- IEC1010 CAT III 1000V



FUNCTIONS	RANGES	ACCURACY
EARTH RESISTANCE	20 - 200 - 2000Ω	2% + 3dgt
RESISTANCE	200kΩ	1% + 2dgt
AC VOLTAGE	750VAC	1,2% + 10dgt
CONTINUOUS TENSION	1000VDC	0,8% + 3dgt



ref. TER2700

CLAMP FOR MEASURING EARTH IN AN ELECTRIC NETWORK

Clamp used for measuring earth, even in complex network, with no need to use pegs, or to open the circuit. Facilitates analysis by measuring each ear th individually. Can also measure the leakage current in the earth conductor.

EARTH MEASUREMENT: The clamp has 9 ratings which are automatically switched.

RANGES	0,025	0,251	1,001	10,00	50,01	100,1	200,1	400,1	600,1
in Ω	to 0,250	to 1,000	to 9,999	to 50,00	to 100,0	to 200,0	to 400,0	to 600,0	to 1500
RESOLUTION	0,002	0,02	0,02	0,04	0,04	0,4	2	5	20
ACCURACY	1,5%	1,5%	1,5%	1,5%	1,5%	3%	5%	10%	20%

MEASUREMENT OF THE LEAKAGE CURRENT: The clamp has 7 ratings which are automatically switched.

	in mA	in mA	in mA	in mA	in A	in A
RANGES	0,20	1,001	10,01	100,1	1000,01	15,01
	to 1,000	to 10,00	to 100,0	to 1000	to 15,00	to 30,00
RESOLUTION	0,001	0,01	0,1	1	0,01	0,01
ACCURACY	2%	2%	2%	2%	2%	3%

- Adjustable upper and lower thresholds, for systematic controls.
- 116 measurements memory
- Dimensions : 257 x 100 x 47 mm
- Weight : 640 g
- Supplied with a calibrated resistor
- Supplied with a carry case
- CEI1010 CAT III 300V pol2



ref. VA5601



Technical datasheets on our website



DIFFERENTIAL TESTER

Residual current tester, used to determine the tripping currents and times of residual current circuit breakers. These circuit breakers are used for the protection of people. They break a circuit when a residual current flows through the protective conductor (PE).

- LCD display with backlight
- Compatible with TT and TN regime
- Normal (N) or selective (S) type differential circuit breaker test
- Fault current selection 10mA / 30mA / 100mA / 300mA / 500mA / 1000mA
- Operating voltage 230VAC / 50HZ
- Blocking and warning signals for a mains voltage of 400V and a contact potential > 50V
- Applicable measurement standards: IEC 61557-6, NF EN 61557-6, VDE 0413-6
- Safety standards: EN-61010-1; CAT III 600V, IP40, double insulated enclosure
- Accessories: case, test leads, batteries and manual
- Power supply: 6 x 1.5 V AA batteries.
- Dimensions: 92 x 200 x 50mm (WxHxD)
- Weight: 700g

ref. PT-T2710

FUNCTIONS	RANGES	RESOLUTION	ACCURACY
Rated tripping current $I_{\Delta n}$	$I_{\Delta n}$: 10 mA, 30 mA, 100 mA, 300mA, 500mA, 1000mA		(-2%+10%)+6Digits
Selection of test current	0,5x, 1x, 2x, 5x Rated test current		
Tripping time ms	10-2000 ms to 0,5 x 10-500 ms to 1x 10-150 ms to 2x 10-40 ms to 5x	1 ms	$\pm(2\%rdg.+2Digits)$
ramp test	0,4x to 1,4x nominal current value		10%
Operating voltages	230 V (+10%/-10%)	1V	$\pm(2\%rdg.+2Digits)$
Frequency of use	50 Hz		

ELECTRICAL INSTALLATION TESTER

The PT-T2755 installation security controller combines in a single device the majority of the functionalities necessary for the control of domestic and tertiary installations. In particular: current, voltage, earth measurement, earth continuity, RCD trip time and current, resistance insulation, calculation of short-circuit and fault currents, mains and earth loop resistance, phase rotation, etc.

The device is delivered with a storage bag and all the accessories necessary for all the measurements.

- 3.5 inch TFT color display
- Measurements according to DIN VDE 0100/0413, EN 61557-6, EN 61008, EN 61009 and IEC 60364 standards
- Bluetooth interface for data transfer to a smartphone
- Internal memory and SD card
- Test standards: EN 61557-2, EN 61557-3, EN 61557-4, EN 61557-5, EN 61557-6, EN 61557-7
- Safety standards: EN 61010-1; CAT III 600V, IP 65, TÜV / GS
- Protection device: 1x 500mA (Flink) fuse, 2x 5A fuse
- Dimensions: 105 (L) x 225 (W) x 130mm (H)
- Weight: 1.6 kg
- Accessories: protective case, carrying strap, test leads, test clamps, insulation probe, universal charging adapter, ground rods, etc.

ref. PT-T2755 (with accessories)



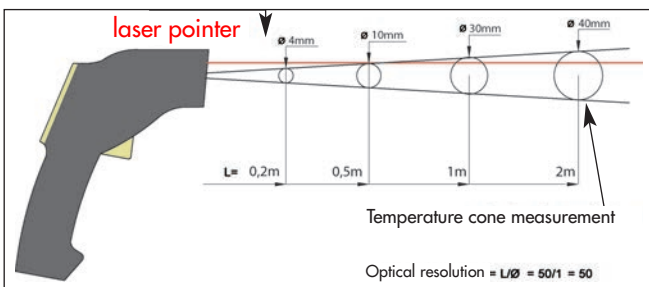


SPOT INFRARED THERMOMETER



ref. ST8829

ST8829 measures temperatures remotely – beyond two metres – with a very narrow measuring cone. This special feature means that the temperature in an area measuring just a few millimetres in diameter can be taken. This makes it possible to measure the connection temperature of a poorly tightened terminal, fuse or electric cable, etc. A red laser beam parallel to the axle of the measuring cone points to the area where the temperature is to be taken.



RANGE	- 50°C to 1000°C
RESOLUTION	0.1°C up to 200°C 1°C from 200 to 1000°C
ACCURACY	1.5% of reading
TIME BASE	< 1 sec
OPTICAL resolution*	50/1

* Optical resolution = L/D

DUAL THERMOMETER

ST613 is a thermometer with two inputs for thermocouple type K. The range of measuring temperature is – 40°C to 1300°C. Within the range – 50 °C to 1000 °C the resolution is 0.1°C. The dual displays shows temperature of each probes, or the difference of temperature between the two probes.

- Display: 10000 counts
- Unit of temperature : °C or °F or °K
- Max & Min hold function
- Average of temperatures recorded during a time adjustable from 1s to 99min 59s
- Supply: 9V battery (type 6F22)
- Auto power off
- Large digits 17mm
- Dims: 165 x 76 x 43mm. Weight: 0.4kg
- Accessories: 2x type K thermocouple: stainless steel tube with handle: Ø3.2mm



ref. ST613



	ACCURACY	
RANGE	T1 & T2	ΔT = T1-T2
-50 to -100°C	0.5% + 2°C	0.5% + 1°C
-100 to 1300°C	0.15% + 1°C	0.5% + 1°C

SOUND LEVEL METER



This sound level meter measures the acoustic pressure. The purpose is to determine and control the noise pollution in the working area, in conformity with the norm CEI61672-1 Class 2.

ref. ST8852

Battery: 1 x 6LR61

ST8852 measure in dB the acoustic pressure
 - According two integrating periods: slow (S: 1s) or fast (F: 250 ms)
 - With 2 frequency correction filter: A (human sensibility) or C (materials)

- Frequency range: 31.5 Hz to 8 kHz / Accuracy: +/- 1.4 dB
- Auto range: 30dB to 130 dB
- Display: 4 digits, 0.1dB resolution, backlight function
- Functions: MAX/MIN – HOLD – Alarms
- USB interface (data in formats .txt or .xls)
- Application software: Curve drawing, cursors, measuring charts, stats.
- Analogical output: in AC: 1Vrms, DC = 10mV/dB
- Auto power off after 15min
- Supply: 9V battery
- Dims/weight: 278 x 76 x 50mm / 350g

Supplied accessories : software, USB cable, tripod, mains adapter

SHUNTS



Accuracy 0,5%.

Ref.	Current	Terminal voltage
HU10-100	10A	100mV
HU20-100	20A	100mV
HU25-100	25A	100mV
HU40-100*	40A	100mV
HU60-100*	60A	100mV

* Lined current terminals compatible with lab leads.



DIGITAL LUXMETER

LX337 is a compact luxmeter with autoranging that can be manually overridden.

- Accuracy: 3% of the rdg + 5 dgt
- Response time: 0.5 seconds
- Response curve: maximum sensitivity centred around 570 nm
- Auto & manual power off
- Power supply: 9v battery
- Dimensions: 196 x 54 x 33mm.
- Weight: 180g

ref. LX337

Battery: 1 x 6LR61

RANGES in lux	RESOLUTION
39,99	0,01
399,9	0,1
3999	1
39990	10

PYRANOMETER

The PYR1307 pyranometer measures the power of solar radiation in watts per m2: W/m2

- Ratings: 199.9 W/m2 and 1,999 W/m2
- Measuring error: < 10W/m2 or 5% of the reading
- Display: 2,000 pixel LCD
- Captures min. and max. values
- "Hold" key allows one to freeze the display
- Backlighting
- Supplied with a carry case
- Dimensions: 162 x 63 x 28mm
- Weight: 250g



Battery: 1 x 6LR61

ref. PYR1307



4-20mA LOOP CALIBRATOR

- in % of the output span to supply a typical intensity like 4 – 8 – 12 – 16 or 20mA
- linear ramps with low and high selectable levels as well as timing
- programming of manual ramps step by step with selectable amplitude
- programming of auto ramps by steps with selectable amplitude and timing
- Beeper warning when output is open
- Display: 5 digits
- Input for mains adapter (not included)
- Dimensions : 88x168x26mm
- Weight: 330g

ref. VA100

Batteries: 6 x 6LR61

RANGE	RESOLUTION	ACCURACY
4 - 20 mA	1µA	0,025% + 5µA
0 - 20mA	1µA	0,025% + 5µA
0 - 24mA	1µA	0,025% + 10µA
4 - 20V	1mV	0,05% + 5mV
0 - 20V	1mV	0,05% + 5mV
0 - 24V	1mV	0,05% + 10mV

3-PHASE TESTER

ST850 is a simple and robust tester allowing the detection of a voltage on a line and the order of the phases.

- Voltage sensing: 3 lamps indicate the presense/absence of a voltage on each of the three 3 phases
- Phase order: The circle turns clockwise, if the phases are connected in the right order
- Maximum voltage 1600 VAC for 1 min
- Box fully isolated 130x80x43mm. Weight. 550g.
- CEI1010 CATII 600Vrms pol2
- CEI1010 CATIII 300Vrms pol2

ref. ST850



CONTACT & NON-CONTACT TACHOMETER

The AT8 tachometer combine in one case a light-sensing detector and a sensor for measurement by contact. A microprocessor switches between ranges automatically, eliminates non-significant zeroes and controls a memory which records the maximum, minimum and average value. Delivered with one rubber cone for direct measuring by contact on shafts, and one disk for the scrolling measuring (band in movement).



Display : 5 digits lcd 11mm
 Light sensor measurement 2 ~ 100 000 rpm
 Contact measurement 2 ~ 20 000 rpm
 Accuracy 0,05% lecture + 1dgt
 Measurement units rpm m/min hz m
 Sample time 0,5s
 Detection distance 50 ~ 500mm
 Time base quartz
 Memory 10 measurements
 Min max average value for each measurement
 Dimensions : 210 x 58 x 36mm. Weight 180g.
 Battery: 1 x 6LR61 (9V)
 Supplied with bag and contact accessories.



ref. AT8

TACHOMETER WITH MEMORY

- Large LCD 6 digits with backlit
- Contact and non-contact measurement in the same device
- Measurement distance: from 40 to 500 mm
- USB datalogger (20 000 measurements)
- Sampling period: from 62.5ms to 2s
- Contactless rotation speed measurement: from 30.00 to 99 990 rpm on 4 ranges
- Contact rotation speed measurement: from 15.00 to 19 999 rpm on 4 ranges
- Contactless rotation speed measurement: from 0.5000 to 1600 rps on 4 ranges
- Contact rotation speed measurement: from 0.2500 to 333.0 rps on 4 ranges
- Circumferential speed measurement: from 1.500 to 1999.9 m/min
- Circumferential speed measurement: from 0.0250 to 33.30 m/s
- Period measurement in ms, for deduction of frequency
- Lap counter
- Rotation on buzzer beep

Features

Automatic range switching,
 Average, Max/Min,
 Auto power saver, Hold function,
 Buzzer (ON/OFF)
 Dimensions: 186 x 76 x 36 mm
 Battery info: 1 x 6LR61 (9V)



Delivered with carrying case, contact accessories, reflective tape, connection lead and software.

ref. DT-LOGGER

STROBOSCOPES

STA10K and STA269 are both stroboscopes with the same flash lighting circuits.

COMMON FEATURES

- Stroboscopes with xenon lamp, a flash duration of approximately 60µs and a power of 40W.
- LED digital display indicating the rotation speed in revolutions/minute (RPM)
- 230V AC mains power supply.
- Ventilated focussing lens to protect the flash tube. Parabolic mirror.
- Power supply 230VAC 50/Hz
- Dimensions: 210 x 120 x 120mm. Weight: 1kg.
- ABS housing



Réf	Rotation speed	Accuracy	Functions	Nb dgts	Ext trigger	Memory	RS232 output
STA10K	100 to 10000 rpm	0,05%	rpm	4	/	/	/
STA269	5 to 12500 rpm	0,01%	rpm & Hz	5	pulse 5V	10 memories	yes

RLC BRIDGE



ref. LCR2175

BATTERY: 1 x 6LR61

LCR2175 is able to measure resistance, capacity & inductance.

- Inputs protection: 600 Vrms
- Display: 11000 counts
- Manual and Auto ranging mode
- Relative measurements
- Recording of max and minimum values
- Diode test under 300µA
- Continuity: rings if R < 30Ω
- Hold display mode
- Auto power-off after 10 min
- Back lighting of the screen
- Shock resistant, soft moulded holster.
- Dim: 182x82x55mm
- CEI1010 CATIII 600V

RESISTANCE	ACCURACY
110,00Ω	1,2%± 0,5 Ω
1,1000kΩ	1,2%± 5dgt
11,000kΩ	1,2%± 5dgt
110,00kΩ	1,2%± 5dgt
1,1000MΩ	1,2%± 5dgt
11,000MΩ	1,2%± 5dgt
110,00MΩ	1,2%± 5dgt

CAPACITANCE	ACCURACY
11,000nF	5%± 0,7nF
110,00nF	5%± 15dgt
1,1000µF	5%± 15dgt
11,000µF	3%± 10dgt
110,00µF	3%± 10dgt
1,1000mF	3%± 10dgt
11,000mF	10%± 10dgt
110,00mF	10%± 10dgt

INDUCTANCE	ACCURACY
11,000mH	2%± 50µH
110,00mH	2%± 50µH
11,000H	5%± 50mH
20,000H	5%± 200mH

DATA RECORDER

Simple to use, this is a precision instrument intended to record RMS alternating currents and voltages. The sampling period can be set from 1 second to 24 hours. Each channel can store 128,000 data items. The current range is 2-200A, the voltage range is 6-600VAC. It is supplied with one USB cable and software for storing data and viewing voltage and current curves on a PC, 2 clamp-on ammeter and 2 voltage probes terminated with 2 tips.



ref. ST176

Battery: 4 x LR03

Memory size:	128 kpoints per channel (voltage and current) 256 kpoints current (or voltage)
Sampling speed	1s to 24 hours
Current range	2A to 200A ACrms
Current accuracy	±2% ±1A
Current resolution	0.1A AC
Voltage range	6 to 600VACrms
Voltage accuracy	±2% ±1V
Voltage resolution	0,1VAC
MAX hold	capture of max and min of reading
Start blip	manual or automatic
Frequency range	40Hz to 1kHz
Power supply	4 batteries LR03 (AAA)
Dimensions/Weight	114 x 63 x 34mm / 248g

MAINS ANALYSER

V A W VAR VA POWER FACTOR THD HARMONICS

The 6830 analyser is well suited to taking measurements in both living and educational spaces due to low current ratings (999.9mA) and low power ratings (999.9 W – 999.9VAR – 999.9VA). It is also suitable for industry due to its high ratings, the analysis of 3-wire and 4-wire unbalanced three-phase and single phase networks, the detection of transience, a comprehensive current and voltage analysis, and harmonic distortion. 4 display modes: electrical quantities (35 simultaneous parameters), dual-trace oscilloscope, harmonic analysis and Fresnel diagram.

FUNCTIONS	RANGES	Band-width	ACCURACY
POWER	999,9 W - 9,999 - 99,99 - 999,9 - 9999 kW	6kHz	1% + 8dgt
	999,9 VAR - 9,999 - 99,99 - 999,9 - 9999 KVAR	6kHz	1% + 8dgt
	999,9 VA - 9,999 - 99,99 - 999,9 - 9999 kVA	6kHz	1% + 8dgt
INTENSITY TRMS	999,9 mA - 9,999 - 99,99 A	12kHz	0,5% + 5 dgt
VOLTAGE TRMS	600,0 V	12kHz	0,5% + 5 dgt
POWER FACTOR	0,00 à 1,00		0,04
Phase angle	-180° to 180°		1°
Capture of pics V	600,0 V		5%
Capture of pics A	999,9 mA - 9,999 - 99,99 A		5%
Crest factor	1,00 to 99,99		5%
THD-F	0,0 to 20,0 %		1%
	20,0 to 100,0 %		3%
	100,0 to 999,9 %		10%

HARMONICS order 1 ~ 100	RANGES	ACCURACY
measured in / expressed in		as per order
VOLTAGE / in VOLT	600.0 V	2 ~ 6%
VOLTAGE / % of the fundamental	0.0 ~ 100.0%	2 ~ 6%
CURRENT / in mA or A	999.9 mA - 9.999 - 99.99 A	0.2 ~ 35%
CURRENT / % of the fundamental	0.0 ~ 100.0%	0.2 ~ 35%

Networks

- 2- and 3-wire single-phase
- 3- and 4-wire 3-phase Balanced or otherwise.

Displayed measurements

- phase-to-ground and composite RMS voltages
- RMS voltage of the neutral/earth
- RMS currents in phases and neutral
- RMS voltages and current peaks
- average current, average voltage
- Power, W, VAR and VA in each phase
- total power W, VAR and VA in the charge
- average power W, VAR and VA
- power peaks W, VAR and VA
- Power factor and average Power factor
- phase shift of the phase-to-ground and composite voltages
- phase shift of currents in the phases
- consumption WH, VARH and VAH

Harmonics 1 to 99

- RMS currents and voltages of harmonics
- harmonic currents and voltages as a % of the fundamental component
- frequency and distortion of harmonics
- THD-F (total harmonic distortion)
- Imbalance ratio between voltages
- Fluctuation ratio between voltages
- Imbalance ratio between currents
- Fluctuation ratio of currents

Capture of transients

- overvoltages – undervoltages – lack of a phase

Memory capacity

- up to 28 files of transients (from all of the measurements)
- 2.4 MB

Data transfer

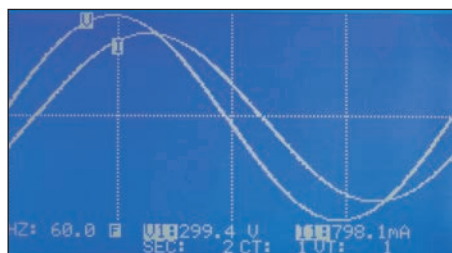
- screen files (measurements, harmonics, Fresnel diagrams and transients)
- RS232 – USB optical link.
- Supplied software.

Screen hard copy

- table of measurements, oscillograms, harmonics and Fresnel diagrams

Miscellaneous

- Internal calendar: year-month-day-hour-min-sec
- Power supply 230VAC 50/60Hz
- 106 x 60mm backlit LCD screen
- Dim: 25 x 155 x 57mm Weight: 1.2kg



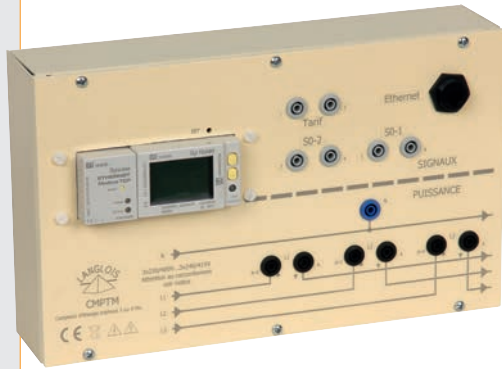
ref. 6830

Supplied accessories

- 3 multiple-rating hook-on ammeters: 1 - 10 - 100A
- 4 measurement leads + crocodile clips
- 1 RS232/USB cable + software + handbook
- 1 mains adapter
- 1 carry case



SINGLE & 3-PHASE MULTIFUNCTIONAL COUNTERS



ref. CMPTM

Energy counters (ULYS type) for the counting and the measuring of consumed powers. The direct reading of values is possible on embedded web pages thanks to the Ethernet connection. The connection is done on safety terminal 4mm.

Features

- Connection 3-phase and single-phase
- Electrical network 230/400VAC 50/60Hz
- Span range I : 20mA...80A
- Communication Ethernet
- Works by direct measuring without current transformer
- Backlit LCD display
- Measuring range: from 0 to 9 999 999.9 kWh
- Programming and simple use thanks to navigation keys.
- Indicator of capacitive or inductive values
- Energy balance between consumed energy and produced energy
- Phases rotation direction indicator
- One All-or-Nothing output – assignable to P, Q and S
- The apparatus is protected up to 80A

Record values	Direct screen reading	Via communication
Active energy receptor and generator (L1, L2, L3, total)	▪	▪
Reactive energy (L1, L2, L3, total)	▪	▪
Apparent energy (L1, L2, L3, total)	▪	▪
Zero reset partial energy counter (kWh, kVarh, kVah)	▪	▪
4 quadrants energy balance (kWh, kVarh, kVah)	▪	▪

Instant values	Direct screen reading	Via communication
V1, V2, V3, V		▪
U12, U23, U31		▪
I1, I2, I3, In, I		▪
FP1, FP2, FP3, FP		▪
S1, S2, S3, S	▪	▪
P1, P2, P3, P	▪	▪
Q1, Q2, Q3, Q	▪	▪
Frequency		▪

ENERGY METERS

Energy counter (ME type) commonly encountered in housing buildings.

Easy to use thanks to 3 intuitive navigation keys

Works by direct measuring without current transformer

- LCD display
- Current up to 63A
- Totalizer counter
- Partial counter with zero reset
- Autonomous supply



Ref	ME66 single-phase	ME71 3-phase + N
Voltage and frequency of use	230/400V – 50/60Hz	230V – 50/60Hz
Measuring range	0 to 99 999 999,99 kWh	0 to 99999 kWh
Display of date and hour of zero-reset	No	Yes
Impersonal output	-	Adjustment from 1Wh to 1 kWh
Counter indicator light	1000 lightnings by kWh	500 lightnings by kWh



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