

Fluke Handheld Oscilloscopes



The ScopeMeter 190 Series of high performance oscilloscopes have bandwidth of 60, 100, and 200 MHz and sample rates up to 2.5 GS/s. The high resolution color display has a fast update rate and digital persistence mode – making the analysis of complex and dynamic signals that much easier.

Choose the 190 Series for tough troubleshooting problems, like intermittent failures, impulses and signal fluctuations in high speed or sensitive electronic or electromechanical systems. They include automatic measurements, cursors, FFT analysis, paperless recording functions and a DMM input.

For industrial electronic or electromechanical applications, the 120 Series Industrial ScopeMeters offer bandwidth to 40MHz, a dual DMM and paperless recording.

The 125 offers additional capabilities for testing industrial machinery:

- Power & harmonic measurements for single phase and balanced 3-phase systems.
- RPM and Hz reading for motors & engines.
- Vac PWM for motor drive outputs.
- 0.01 ohm resolution for motor & transformer windings.
- a Bus Health function for troubleshooting industrial data networks.

For fast measurement answers and quick display of waveforms all ScopeMeters include Connect-and-View triggering. This feature recognizes signal patterns and automatically sets the oscilloscope for a stable reliable display of even the most complex waveforms. Move from test point to test point and the ScopeMeter will continuously lock onto just about any waveform.

ScopeMeter 190 Series II

NEW

Industrial ScopeMeters

Model	190-202	190-102	190-062	Fluke 123	Fluke 124	Fluke 125
Bandwidth	200 MHz	100 MHz	60 MHz	20 MHz	40 MHz	40 MHz
Max. real time sample rate	2.5 GS/s	1 GS/s	0.5 GS/s	25 MS/s	25 MS/s	25 MS/s
Display	15.3 cm Full Color LCD			10.2 cm Monochrome LCD		
Persistence	Digital Persistence giving analog oscilloscope-like waveform decay			---		
Max. record length	10,000 points per input (Scope mode) 30,000 points per input (ScopeRecord mode)			512 min/max pairs per input		
Number of inputs	2 plus external/DMM input			2		
Number of digitizers	2			2		
Independently floating isolated inputs	Up to 1000 V between inputs, references and ground			600 V RMS max input or any terminal to ground		
Input sensitivity	2 mV/div. ... 100 V/div.			5 mV/div. ... 500V/Div		
Glitch capture	8 ns			40 ns		
Waveform zoom	100x			---		
Timebase range in Scope mode	2 ns/div. to 2 min/div.			10 ns/div. to 1 min/div.	20 ns/div. to 1 min/div.	
Trigger types	Connect-and-View®, Free Run, Single Shot, Edge, Delay, Dual Slope, Video, Video line, Selectable pulse width, N-cycle and External			Connect-and-View®, Free Run, Single Shot, Edge, Video, External		
Scope Measurements	7 cursors , 30 automatic measurements			26 automatic measurements		
Power Measurements	---			---		W, VA, VAR. PF
Scope-Record Trigger modes	Start on Trigger / Stop on Trigger			---		
Capture last 100 screens	Automatic with Replay capability			---		
Dual input TrendPlot	Yes with Cursors and Zoom			Yes	Yes	
Memory for screens	30 screens and set-ups			10	20	
Memory for recordings	10			1		
External Memory	Isolated USB host port for data storage to USB memory			---		
True RMS multimeter	5000 counts, Volts, Amps, Ohms, Continuity, Diode, Temp			---		
Safety certified	1000 V CAT II / 600 V CAT III			600 V CAT III		
Battery power	4 hr Li-Ion battery included			7 hr NiMH		
Line power	Adapter/battery charger included			---		
Size (cm)/Weight	27.0 x 19.0 x 7.0 / 2.2 kg			23.2 x 11.5 x 5.0 / 1.2 kg		
Temperature	0-50°C operating (0-40°C with batteries)			0-50°C operating		
PC and Printer interface	Isolated USB (cable included)			Using optional Optically Isolated adapter/cable		
Warranty	3 years (1 year on accessories)					

Add /S to model number to include Flukeview software, isolated USB cable & hard carrying case

Fluke High Performance Digital Multimeters

NEW



287 ▲

Includes manual, 6 AA batteries, TL71 silicone test leads, probe holder, two AC72 alligator clips

The Fluke 287 True-rms Electronics Logging Multimeter with TrendCapture quickly documents performance and graphically displays results.

- Large 50,000 count, 1/4 VGA display with white backlight. Displays multiple sets of measurements simultaneously
- Logging function with expanded memory stores up to 15,000 recorded events
- TrendCapture graphically displays logged data session
- Zoom up to 14X to view & analyze TrendCapture data
- Selectable ac filter helps display rapidly changing or noisy signals
- Adjustable recording & auto hold thresholds, specify a percentage change in the readings that begins a new event
- On board help screens for measurement functions
- Multiple logging sessions without download
- 0.025 % basic dc accuracy
- True-rms ac and ac+dc
- 100 kHz ac bandwidth
- Real-time clock time-stamps saved readings
- Peak capture to record transients as fast as 250 μ s
- Relative mode to remove test lead resistance from low ohms or capacitance measurements
- Optional FlukeView software to document, store and analyze measurements
- CATIII – 1000V & CAT IV – 600V ratings
- Limited lifetime warranty

SPECIFICATIONS		
Function	Range & resolution	Basic Accuracy
VDC, VAC	50.000 mV, 500.00 mV, 5000.0 mV, 5.0000 V, 50.000 V, 500.00 V, 1000.0 V	0.025% (0.4% AC)
ADC, AAC	500.00 μ A, 5.000 μ A, 50.000 mA, 400.00 mA, 5.0000 A, 10.000 A*	0.15% (0.7% AC)
Resistance	500.00 Ω - 500.0 M Ω (7 ranges)	0.05%
Capacitance	1.100 nF - 100.0 mF (9 ranges)	1.0%
Frequency	99.999 Hz - 999.99 kHz (5 ranges)	0.005%
Temperature	-200 to 1350 $^{\circ}$ C, -328 to 2462 $^{\circ}$ F	1.0%

Battery life: 100 hours minimum, 200 hours in logging mode *10A continuous, 20A for up to 30 seconds.
 Environment: -20 $^{\circ}$ C to 55 $^{\circ}$ C, <90% RH up to 37 $^{\circ}$ C Size: 222x102x60 mm (8.75 x 4.03 x 2.38")

Fluke 289 adds 50 Ω range for measuring contacts & motor windings plus a LowZ voltage function for eliminating ghost voltages.



87V ▲

Includes: TL75 Test Leads, AC72 Alligator Clips, holster, 9V battery, temperature probe

The Fluke 87V has improved measurement functions & troubleshooting features, to solve problems on motor drives, in-plant automation, power distribution and electro-mechanical equipment.

- Selectable filters for accurate measurements on adjustable speed drives
- Built-in thermometer
- Capacitance to 10,000 μ F
- 30% larger display
- 2 level backlight
- 4x faster (250 μ S) peak capture
- CATIII-1000V & CATIV-600V rating
- Lifetime warranty

SPECIFICATIONS		
Function	Range & resolution	Basic Accuracy (87V)
DC Volts	600.0 mV, 6.000 V, 60.00 V, 600.0 V, 1000 V	0.05 %
AC Volts	600.0 mV, 6.000 V, 60.00 V, 600.0 V, 1000 V	0.7 % (True-rms)
DC Current	600.0 μ A, 6000 μ A, 60.00 mA, 600.0 mA, 6.000 A, 10.00 A	0.2 %
AC Current	600.0 μ A, 6000 μ A, 60.00 mA, 600.0 mA, 6.000 A, 10.00 A	1.0 % (True-rms)
Temperature (excl. probe)	-200 to 1090 $^{\circ}$ C (-328 to 1994 $^{\circ}$ F)	1.0 %
80BK Temperature Probe	-40 to 260 $^{\circ}$ C (-40 to 500 $^{\circ}$ F)	2.2 $^{\circ}$ C or 2 %
Resistance	600.0 Ω , 6.000 k Ω , 60.00 k Ω , 600.0 k Ω , 6.000 M Ω , 50.00 M Ω	0.2 %
Capacitance	10.00 nF, 100.0 nF, 1.000 μ F, 10.00 μ F, 100.0 μ F, 9,999 μ F	1.0 %
Frequency	199.99 Hz, 1.9999 kHz, 19.999 kHz, 199.99 kHz	0.005 %

Battery Life: 100 hours typical with headlight off.
 Size: (LxWxD): 201mm x 98mm x 52mm (7.9in x 3.6in x 2in)

Fluke 87V/E2 Industrial Electrician Combo Kit

Includes special accessories to increase productivity.

- 1.5m heat resistance silicone test leads
- Removable test probes with 4mm of exposed metal for use on industrial circuits
- Plunger style alligator clips
- Magnetic hanger to position and hold meter to steel surfaces
- Temperature probe
- Packaged in a durable carrying case

ORDERING INFORMATION	
Fluke-87-5	Industrial True-rms Multimeter with Temperature
Fluke-87-5/E2	Industrial Electrician Combo Kit
Fluke-287	True-rms Electronics Logging Multimeter
Fluke-289	True-rms Electronics Logging Multimeter
FVF-SC2	FlukeView® forms software with cable
80BK	Integrated DMM temperature probe
i410	AC/DC current clamp
TLK287	Electronic test lead set
TPAK	Magnetic hanging kit
C280	Soft case

TEST EQUIPMENT

Fluke Compact Digital Multimeters



Fluke 117



Every Fluke 110 Series meter comes

with a protective holster, TL75 test leads, 9V battery (installed) and manual.

ORDERING INFO

Fluke-114	Electrical Multimeter
Fluke-115	Multimeter
Fluke-116	HVAC Multimeter w/ temp. probe
Fluke-117	Electrician's Multimeter

RECOMMENDED ACCESSORIES

TPAK	Meter hanging kit with magnet
AC220	Alligator clips
C50	Carrying case

These little meters pack more features than some DMMs twice their size:

- True-rms ac voltage and current measurement for accurate readings on all waveforms
- 6000-count display provides improved resolution
- Min/Max/Average feature captures signal fluctuations
- Frequency, capacitance and diode test capabilities (except 114)
- White LED backlight for excellent visibility
- Fast continuity test detects intermittent connections
- IEC CAT III 600V safety rating
- Auto-Volt automatic ac/dc voltage selection

SPECIFICATIONS

Function	Range & resolution	Best accuracy
VDC	600.0 mV, 6.000 V, 60.00 V, 600.0 V	±0.5 % of rdg + 2 d
VAC ¹	600.0 mV, 6.000 V, 60.00 V, 600.0 V	±1.0 % of rdg + 3 d
ADC (Models 115 & 117 only)	6.000 A, 10.00 A ²	±1.0 % of rdg + 3 d
AAC (Models 115 & 117 only)	6.000 A, 10.00 A ²	±1.5 % of rdg + 3 d
Resistance	600.0 Ω, 6.000 kΩ, 60.00 kΩ, 600.0 kΩ, 6.000 MΩ, 40.00 MΩ	±0.9 % of rdg + 1 d
Capacitance (except Model 114)	1000 nF, 10.00 μF, 100.0 μF, 9999 μF	±1.9 % of rdg + 2 d
Frequency ³ (except Model 114)	99.99 Hz, 999.9 Hz, 9.999 Hz, 50.00 kHz	±0.1 % of rdg + 2 d

¹ Specified from 1% of range to 100% of range; CF < 3 up to 4000 counts, 1.5 at full scale.
² 10 A continuous, 20 A for up to 30 seconds, 45-500 Hz.
³ Frequency is ac coupled 5 Hz to 50 kHz for ac volts. Frequency is dc coupled 445 Hz to 5 kHz for ac current.
 AC volts is ac-coupled. Auto-V, LoZ and ac mV are dc-coupled.
 Battery life: 400 hours typical for alkaline.
 33 segment Bargraph display updates 32x/sec.

Additional Model 116 features:

- °F/°C temperature function for HVAC troubleshooting
- 600μA ac & dc ranges for testing flame sensors

Fluke Digital Multimeters



Fluke 179

The 170 series replaces the popular 70 Series. The 175, 177 and 179 are designed tough to withstand the harshest work environments. Accuracy rivals most bench meters.

- Lifetime warranty
- 6000 count display
- 0.09% basic dc accuracy (177 & 179)
- True-rms ac voltage and current measurement
- Min/Max/Average records irregular activity
- Auto and Manual hold
- Frequency, capacitance and resistance capabilities

Every Fluke 170 Series meter comes with TL75 test leads, 9V battery (installed) and manual. The Fluke 179 also includes an 80BK Temperature Probe.

- The 179 measures temperature in °C and °F
- 177 and 179 have a backlight to illuminate the screen in dark workspaces
- IEC 1010 CAT IV 600V, CAT III 1000V safety ratings
- Drop protected to 1 meter
- Overmolded case features integrated probe holders
- Compatible with ToolPak™ meter hanging kit

SPECIFICATIONS

Function	Range & Resolution	Best accuracy
VDC	600.0 mV, 6.000 V, 60.00 V, 600.0 V, 1000V	±0.09 % (177 & 179) ±0.15 % (175)
VAC ¹	600.0 mV, 6.000 V, 60.00 V, 600.0 V, 1000V	±1.0 % of reading
ADC	60.00 mA, 400.0 mA, 6.000 A, 10.00 A ²	±1.0 % of reading
AAC	60.00 mA, 400.0 mA, 6.000 A, 10.00 A ²	±1.5 % of reading
Resistance	600.0 Ω, 6.000 kΩ, 60.00 kΩ, 600.0 kΩ, 6.000 MΩ, 50.00 MΩ	±0.9 % of reading
Capacitance	1000 nF, 10.00 μF, 100.0 μF, 9999 μF	±1.2 % of reading
Frequency ³	99.99 Hz, 999.9 Hz, 9.999 Hz, 99.99 kHz	±0.1 % of reading
Temperature (Model 179)	-40 °C to +400 °C, -40 °F to +752 °F	1.0% of reading

¹All AC voltage and AC current ranges are specified from 5% of range to 100% of range.
²10 A continuous, 20 A for up to 30 seconds.
³Voltage Frequency is specified from 2 Hz to 100 kHz. Current Frequency is specified from 2 Hz to 30 kHz.
 Battery life: 200 hours typical for alkaline
 Size: (H x W x L): 4.3 cm x 9.0 cm x 18.5 cm
 Lifetime Warranty

ORDERING INFO

Fluke-175	Digital Multimeter
Fluke-177	Digital Multimeter
Fluke-179	Digital Multimeter

RECOMMENDED ACCESSORIES

TPAK	Meter hanging kit with magnet
C25	Soft vinyl carrying case
C510	Top grain leather carrying case
i 200	AC current clamp
TL223	Electrical test lead set

Extech CAT IV True RMS Multimeters + NCV

NEW



EX360
Electrical

EX365
Industrial

EX363
HVAC

- 6000 count white LED backlit display
- Fast 60-segment analog bargraph
- LoZ prevents false readings from ghost voltages
- Built-in Non-contact AC Voltage Detector (NCV)
- Smart Data Hold, Peak Hold, Auto Power off



ORDERING INFORMATION

EX360	8 Function TRMS Electrical DMM with NCV
EX363	11 Function TRMS HVAC DMM with NCV
EX365	10 Function TRMS Industrial DMM with NCV

True RMS provides accurate readings when measuring distorted or noisy waveforms. Choose a model designed for Electrical, HVAC, or Industrial applications. Advanced LoZ feature eliminates false readings caused by ghost voltages. CAT IV safety rating ensures the highest level of protection.

SPECIFICATIONS

All Models:

Basic Accuracy (DCV):	0.5%
NCV Detector:	80 to 1000V (50-60Hz) and 160 to 1000V (50-60Hz)
DC/AC Voltage:	0.1mV to 1000V
Resistance:	0.1Ω to 40MΩ
Capacitance:	1nF to 10mF
Frequency:	0.01Hz to 100kHz
Diode Test:	1.5V
Continuity:	Audible and visual
Safety:	EN61010-1 CAT IV 600V
Approvals:	cULus, CE
Dimensions:	6.5 x 3.2 x 1.7" (164x82x44mm)
Accessories Included:	Test leads, 9V battery, holster with tilt stand and built-in magnet. Also general purpose bead wire temperature probe on Model EX363
Warranty:	3 years

Additional Functions:

EX363:	
Temperature (Type K):	-40 to 742°F (-40 to 394°C)
DC/AC Current:	600μA, for flame rod measurements
EX365:	
DC/AC Current:	1mA to 10A

AEMC Digital Multimeters

NEW



5212

5217

5215

- TRMS AC
- Non-contact voltage detection
- Low impedance voltage measurement to help prevent 'ghost' readings
- Auto/manual ranging
- Hold function
- Backlight & flashlight
- Sleep mode for extended battery life
- Temperature, frequency & duty cycle functions (Model 5217)
- Min, Max & Relative measurements (Model 5215 and 5217)

SPECIFICATIONS

AC:	TRMS, 1kHz bandwidth
Basic Accuracy:	DCV: 0.2%+2cts; ACV: 0.5%+4cts
Voltage AC/DC:	750VAC/1000VDC (600V on Model 5212)
Current AC/DC:	6A/10A (4A/10A on Model 5212)
μAmps AC/DC:	600/6000μA (400/4000μA on Model 5212)
Resistance:	60MΩ (40MΩ on Model 5212)
Capacitance:	100mF
LCD display:	6000 count (4000 count on Model 5212)
Ranging:	Auto or manual
Power Off:	Auto (auto power off can be disabled)
Non-Contact Voltage Detect:	Red display with buzzer (AC only)
Max / Min / Max-Min / Δ REL:	Models 5215 & 5217
Other Features:	Diode test, continuity with beeper, LoZ voltage detect, display hold, low battery indication, flashlight, backlight, removable holster, magnetic hanger, direct fuse access
Operating Temperature:	-4 to 122°F (-20 to 50°C)
Safety Rating:	CAT III 600 V
Protection:	IP54, 2m drop resistance
Battery:	2 x AA, 500 hour life
Dimensions:	6.7 x 3.1 x 2" (170x80x50mm) with holster
Accessories Included:	Manual, test leads, 2 AA batteries, soft carry case. Also Thermocouple Adapter with Model 5217
Warranty:	3 years
Additional Functions on Model 5217:	
Frequency/Duty Cycle:	1000Hz
Temperature Measure:	-61° to 2192°F (-55° to 1200°C)

ORDERING INFORMATION

AE/2154.07	Model 5212 4000-count TRMS DMM
AE/2154.08	Model 5215 6000-count TRMS DMM
AE/2154.09	Model 5217 6000-count, TRMS DMM w/freq & temperature

Extech Industrial MultiMeters

- Double Molded Waterproof Case (IP67)
- 11 Functions
- 1000V Protection on All Functions
- True RMS AC
- Dual Sensitivity Frequency Functions
- Large Backlit LCD
- Diode Test Open Circuit 2.8V DC
- Auto Power Off with Disable Feature
- CATIII-1000V & CATIV-600V Ratings
- Drop Proof to 6 Feet

Model EX505

- 4,000 Count
- 0.5% Accuracy
- Data Hold and Relative
- 10A Max Current

Model EX520

- 6000 Count - High Resolution
- 0.09% Accuracy
- Min/Max/Relative/Data Hold
- 20A Max Current

Model EX530

- 40,000 Count - Highest Resolution
- 0.06% Accuracy
- Min/Max/Relative/Data Hold
- 20A Max Current
- Peak Hold (AC only)



SPECIFICATIONS

Measurement Range (auto or manual ranging)

DCV	0.1mV to 1000V (0.01mV on EX530)		
ACV	1mV to 1000V (0.1mV on EX505, 0.01mV on EX530)		
DCA	0.1mA to 20A (10A on EX505)		
ACA	0.1mA to 20A (10A on EX505)		
Ω	EX505:	0.1Ω to 40MΩ	
	EX520:	0.1Ω to 60MΩ	
	EX530:	0.01Ω to 40MΩ	
Capacitance	EX505:	0.01nF to 100mF	
	EX520:	0.01nF to 1000mF	
	EX530:	0.001nF to 40mF	
Frequency	Electrical	Electronic	
	EX505:	5Hz to 1kHz	0.001Hz to 10MHz
	EX520:	10Hz to 400Hz	0.001Hz to 40MHz
EX530:	40Hz to 400Hz	0.001Hz to 100MHz	
Temperature	-50 to 1382°F / -45 to 750°C (-4°F/-20°C min on EX505)		
Duty Cycle	0.1 to 99.9%		
Diode/Continuity	Yes		

Complete with double molded test leads, magnetic hanging strap, Type K bead wire temperature probe (-22 to 572°F/-30 to 300°C), carrying case, and 9V battery.

ORDERING INFORMATION

EX505	True RMS Industrial MultiMeter (4000 count)
EX520	True RMS Industrial MultiMeter (6000 count)
EX530	True RMS Industrial MultiMeter (40,000 count)
EX/TL810	Electrical Test Lead Kit
EX/TP200	Type K Clamp Probe (212°F/100°C)
EX/HG500	Magnetic Hanging Strap

Extech Autoranging MultiMeters

- Backlit 1" High LCD
- Resolution to 0.1mA
- CAT III - 600V Rating
- Audible & Visual Alerts
- Diode/Continuity Check
- Three Year Warranty
- Built-in IR thermometer with laser (450 & 470)



Model 450

- 2000 Count Full Scale
- 0.05% Basic DCV Accuracy
- IR Laser Thermometer
- MAX function

Model 430

- 4000 Count Full Scale
- TRMS AC
- 0.03% Basic DCV Accuracy
- Capacitance & Frequency
- Type K TC Temperature
- Relative Function

Model 470

- all of the Model 430 features plus
- IR Laser Thermometer



SPECIFICATIONS

Measurement Range

DCV	0.1mV to 600V
ACV	0.1mV to 600V
DCA	0.1mA to 20A
ACA	0.1mA to 20A
Ω	0.1Ω to 40MΩ (20MΩ on Model 450)
Models 430 & 470:	
Capacitance	0.01nF to 100μF
Frequency	0.001Hz to 10MHz
Duty cycle	0.1 to 99.9%
Type K TC	-4 to 1382°F (-20 to 750°C)
IR Thermometer (Models 450 & 470):	
Range	-4 to 518°F (-20 to 270°C)
Spot size	8:1
Emissivity	0.95

All models supplied with CAT III test leads, multi-position tilt stand and velcro strip for hanging, protective holster with test lead holder, bead wire temperature probe (except Model 450) and battery.

ORDERING INFORMATION

EX450	MultiMeter with IR Thermometer
EX430	TRMS MultiMeter
EX470	TRMS MultiMeter w/ IR Thermometer
EX/CA310	300A AC clamp-on adapter
EX/380905	2000A AC/DC clamp-on adapter
EX/409996	Pouch carrying case

Yokogawa Digital Multimeters

TY700 Series

- Basic accuracy 0.02%
- True RMS measurement
- Dual 7 segment display with backlight
- 50k count with 51 segment bar graph
- Measures AC/DC Volts to 1kV, AC/DC Amps to 10A, resistance, continuity, temperature, frequency, capacitance & diode test
- Large capacity logging-mode memory
 - TY720: 10,000 data
 - TY710: 1,000 data
- USB communication & application software (optional DMM communication package)
- Rated 1000V CAT III & 600V CAT IV
- Three year warranty


TY720


TY500 Series

- Basic accuracy 0.09%
- True RMS measurement
- 6k count backlit display
- 31 segment bar graph display
- Measures AC/DC Volts to 1kV, AC/DC Amps to 10A, resistance, continuity, temperature, frequency, capacitance & diode test.
- Logging-mode memory for 1600 data points
- USB communication & application software (optional DMM communication package)
- Conforms to safety standards EN61010-1, 1000V CAT III, 600V CAT IV
- Three year warranty


TY530


SPECIFICATIONS

Model	TY720	TY710	TY530	TY520	CA450
DC Volts	7 ranges, 50mV - 1000V (best resolution 0.001mV)		5 ranges, 600mV - 1000V (best resolution 0.1mV)		5 ranges, 600mV - 1000V (best resolution 0.1mV)
AC Volts, TRMS:	6 ranges, 50mV - 1000V (best resolution 0.001mV) 10Hz - 100kHz	10Hz - 20kHz	5 ranges, 600mV - 1000V (best resolution 0.1mV) 40Hz - 1kHz		5 ranges, 600mV - 1000V (best resolution 0.1mV) 40Hz - 1kHz
DC Amps:	6 ranges, 500µA - 10A (best resolution 0.01µA)		6 ranges, 600µA - 10A (best resolution 0.1µA)		30mA, 100mA ranges (best resolution 0.001mA)
AC Amps, TRMS:	6 ranges, 500µA - 10A (best resolution 0.01µA) 10Hz - 5kHz	10Hz - 1kHz	6 ranges, 600µA - 10A (best resolution 0.1µA) 40Hz - 1kHz		with optional clamp probe
AC + DC:	Volts, Amps		---		---
Resistance:	6 ranges, 500Ω - 50MΩ (best resolution 0.01Ω)		6 ranges, 600Ω - 60MΩ (best resolution 0.1Ω)		6 ranges, 600Ω - 60MΩ (best resolution 0.1Ω)
Low Power Resistance:	4 ranges, 5kΩ - 5MΩ	---	---	---	---
Capacitance:	8 ranges, 5nF - 50mF (best resolution 0.001nF)		6 ranges, 10nF - 1000µF (best resolution 0.01nF)		---
Frequency:	5 ranges, 10Hz - 100kHz (best resolution 0.001Hz)		4 ranges, 100Hz - 100kHz (best resolution 0.01Hz)		3 ranges, 200Hz - 20kHz (best resolution 0.01Hz)
Duty Cycle:	10 - 90% (resolution 1%)		---		---
Temperature (Type K):	-200 to 1372°C (resolution 0.1°C)		-50 to 600°C (resolution 0.1°C)		---
Logarithm (db) Computation:	Yes		---		---
Diode/Continuity Test:	Yes		Yes		Yes
Automatic Data Hold:	Yes		Yes		Yes
Min/Max Memory:	Yes		Yes	---	Yes
Peak Hold:	Yes	---	---	---	Yes
Data Logging Memory:	10000 points	1000 points	1600 points	---	---
PC Connection:	Yes		Yes	---	Yes
DC Current Source/Sink:	---		---		0 to 20mA (resolution 0.001mA)
24V Loop Supply:	---		---		20mA load max.
Step/Sweep mA Output:	---		---		Yes

CA450 Process Multimeter

Functionality of a loop calibrator like the CA11E plus a digital multimeter like the TY520.

- Simultaneous 24 V loop power and mA measurement
- HART mode setting with loop power (250Ω resistance)
- SIMULATE (SINK) function simulates transmitters
- 4-20 mA span/step/auto-step/sweep output
- High accuracy signal measurement: 0.05% @ 30.000mA DC
- Peak/Hold function for DCS power peak-to-peak measurement
- Dedicated sensor modes for direct reading of many sensor signal types
- Current terminal shutter prevents incorrect connections
- Sensor function handles AC load current measurement
- Meets 600 V CAT IV, 1000 V CAT III safety standards
- Transfer data to a PC via IR-U
- Three year warranty


CA450


ORDERING INFO

TY720	4.5 digit DMM with expanded data memory
TY710	4.5 digit DMM with data memory
TY530	3.5 digit DMM with data memory
TY520	3.5 digit DMM
CA450	Process Multimeter
Accessories	
YE/92015	DMM communication package (includes IR adapter, USB cable & PC software)
YE/90051	Type K liquid probe, -50° to 600°C
YE/90056	Type K surface probe, -20° to 500°C
YE/96001	400A AC current clamp probe
YE/96095	180A DC/ 130A AC clamp probe
YE/93029	Carrying case

Fluke Clamp Meters

NEW

Five new models offer an impressive array of innovative features with TRMS current ranges up to 2500A, TRMS voltage ranges to 1000V.



- Measure to 1000A with fixed jaws, 2500A with flexible current probe
- Designed for one hand operation
- Removable display for remote reading up to 30 ft away (381)
- DCV & DCA measurements (most models)
- Resistance & continuity functions
- Frequency to 500Hz (most models)
- Large, backlit display with data hold
- In-rush current function (on most models) for measuring starting current
- Auto shut-off maximizes battery life

SPECIFICATIONS					
	Fluke 373	Fluke 374	Fluke 375	Fluke 376	Fluke 381
AC response	True-rms	True-rms	True-rms	True-rms	True-rms
AC amps (jaw)	600.0 A	600.0 A	600.0 A	999.9 A	999.9 A
Accuracy	2% ± 5 counts (48-62 Hz)	2% ± 5 counts (10-100 Hz)	2% ± 5 counts (10-100 Hz)	2% ± 5 counts (10-100 Hz)	2% ± 5 counts (10-100 Hz)
Crest factor	2.5 @ 600 A	2.5 @ 600 A	3 @ 500 A 2.5 @ 600 A	3 @ 500 A 1.42 @ 1000 A	3 @ 500 A 1.42 @ 1000 A
Flexible current probe	-	compatible	compatible	included	included
AC amps (probe)	-	2500 A	2500 A	2500 A	2500 A
Accuracy	-	3% ± 5 counts (5-500 Hz)	3% ± 5 counts (5-500 Hz)	3% ± 5 counts (5-500 Hz)	3% ± 5 counts (45-500 Hz)
AC volts	600.0 V	600.0 V	600.0 V	1000 V	1000 V
Accuracy	1% ± 5 counts (48-62 Hz)	1.5% ± 5 counts (20-500 Hz)	1.5% ± 5 counts (20-500 Hz)	1.5% ± 5 counts (20-500 Hz)	1.5% ± 5 counts (20-500 Hz)
DC amps	-	600.0 A	600.0 A	999.9 A	999.9 A
Accuracy	2% ± 5 counts	2% ± 5 counts	2% ± 5 counts	2% ± 5 counts	2% ± 5 counts
DC volts	600.0 V	600.0 V	600.0 V	1000 V	1000 V
Accuracy	1% ± 5 counts	1% ± 5 counts	1% ± 5 counts	1% ± 5 counts	1% ± 5 counts
mV range	-	-	500.0 mV	500.0 mV	-
Resistance	6000 Ω	6000 Ω	60k Ω	60k Ω	60k Ω
Accuracy	1% ± 5 counts	1% ± 5 counts	1% ± 5 counts	1% ± 5 counts	1% ± 5 counts
Continuity Beeper	<30 Ω	<30 Ω	<30 Ω	<30 Ω	<30 Ω
Capacitance	10-1000 μF	1-1000 μF	1-1000 μF	1-1000 μF	-
Frequency	-	-	5-500 Hz	5-500 Hz	5-500 Hz
Remote Display	-	-	-	-	yes
Max Wire Diameter (jaw)	750 MCM	750 MCM	750 MCM	750 MCM	750 MCM
Inrush	-	yes	yes	yes	yes
MIN/MAX/AVG	-	yes	yes	yes	yes
Backlight	yes	yes	yes	yes	yes
Display Hold	yes	yes	yes	yes	yes
Size HxWxD (mm)	232 x 85 x 45	248 x 85 x 45	248 x 85 x 45	248 x 85 x 45	280 x 88 x 50
Rating	CAT III 600V CAT IV 300V	CAT III 1000V CAT IV 600V	CAT III 1000V CAT IV 600V	CAT III 1000V CAT IV 600V	CAT III 1000V CAT IV 600V



Operating Temperature: -10°C to 50°C (14 °F to 122 °F)
Warranty: 3 years

OPTIONAL ACCESSORIES

- i2500-10 iFlex Flexible Current Probe 10"
- i2500-18 iFlex Flexible Current Probe 18"

ORDERING INFORMATION

- Fluke 373 600A True RMS AC Clamp Meter
- Fluke 374 600A True RMS AC/DC Clamp Meter
- Fluke 375 600A True RMS AC/DC Clamp Meter
- Fluke 376 1000A TRMS Clamp Meter with 18" iFlex probe
- Fluke 381 Remote Display TRMS Clamp Meter with 18" iFlex probe

New Model	Changes from Old Fluke Model
Fluke 376	Includes all 337 features plus: • CAT IV 600 V, CAT III 1000 V • iFlex™ 2500 A ac • 1000 V ac/dc • mV dc • 60 kΩ • 1000 μF
Fluke 375	Includes all 336 features plus: • CAT IV 600 V, CAT III 1000 V • Optional iFlex™ 2500 A ac • mV dc • 60 kΩ • 1000 μF • Min/Max/Avg
Fluke 374	Includes all 335 features plus: • CAT IV 600 V, CAT III 1000 V • Optional iFlex™ 2500 A ac • 600 A ac/dc • 1000 μF • Min/Max/Avg
Fluke 374	Includes all 334 features plus: • CAT IV 600 V, CAT III 1000 V • Optional iFlex™ 2500 A ac • True-rms • 600 A ac/dc • 1000 μF • Min/Max/Avg
Fluke 373	Includes all 333 features plus: • CAT IV 300 V, CAT III 600 V • True-rms • 600 A ac • 6000 Ω • 1000 μF

Yokogawa Clamp-On Testers

AC Current CL100 Series

- AC Current to 2000A
- AC Voltage Measurement
- Resistance / Continuity (CL130 & CL150)
- Data Hold
- IEC CAT III

CL130 ▶



AC/DC Current CL200 Series

- AC & DC Current to 2000A
- AC & DC Voltage Measurements
- Resistance / Continuity
- TRMS & Frequency (CL235 & CL255)
- Peak / Data Hold

CL250 ▶



AC Leakage Current CL300 Series

- AC Current to 1000A
- AC Leakage with 10µA Resolution
- Wide Jaw Opening
- AC & DC Recorder Outputs (CL360)
- Peak / Data Hold

CL360 ▶



ORDERING INFORMATION

YE/CL120	200A AC Clamp-On Tester
YE/CL130	600A AC Multi-Function Clamp-On Tester
YE/CL135	600A AC TRMS Multi-Function Clamp-On Tester*
YE/CL150	2000A AC Multi-Function Clamp-On Tester
YE/CL220	300A AC/DC Clamp-On Tester
YE/CL235	600A AC/DC TRMS Multi-Function Clamp-On Tester
YE/CL250	2000A AC/DC Multi-Function Clamp-On Tester
YE/CL255	2000A AC/DC TRMS Multi-Function Clamp-On Tester
YE/CL320	200A AC Clamp-On Leakage Tester
YE/CL340	400A AC Clamp-On Leakage Tester
YE/CL360	1000A AC Clamp-On Leakage Tester

*same features as CL130, except TRMS

Limited Lifetime Warranty on all Models

Model No.	Display	DC Current	AC Current	DC Voltage	AC Voltage	Resistance	Functions						Jaw opening capacity	Rating	
							TRMS	Frequency	Continuity Check	Peak Hold	Data Hold	Recorder Output			
CL120	2000	-	20/200A (2 ranges)	-	300V (1 range)	-	-	-	-	-	-	24mm 0.95"	CAT III 300V		
CL130	2000	-	200/600A (2 ranges)	-	200/600V (2 ranges)	200Ω (1 range)	-	-	•	-	•	33mm 1.30"	CAT III 600V		
CL150	4000	-	400/2000A (2 ranges)	40/400/750V (3 ranges)	40/400/750V (3 ranges)	400/4000/40k/400kΩ (4 ranges)	-	-	•	-	•	55mm 2.16"	CAT III 600V CAT II 1000V		
CL220	4000	40/300A (2 ranges)	40/300A (2 ranges)	-	-	-	-	-	-	-	•	24mm 0.95"	CAT III 300V		
CL235	4000	400/1000A (2 ranges)	400/600A (2 ranges)	40/400/600V (3 ranges)	40/400/600V (3 ranges)	400/4000Ω (2 ranges)	•	•	•	•	•	33mm 1.30"	CAT III 600V		
CL250	4000	400/2000A (2 ranges)	400/2000A (2 ranges)	40/400/1000V (3 ranges)	40/400/750V (3 ranges)	400/4000Ω (2 ranges)	-	-	•	•	-	•	55mm 2.16"	CAT III 600V CAT II 1000V	
CL255	4000	400/2000A (2 ranges)	400/2000A (2 ranges)	40/400/1000V (3 ranges)	40/400/750V (3 ranges)	400/4000Ω (2 ranges)	•	•	•	•	•	•	55mm 2.16"	CAT III 600V CAT II 1000V	
CL320	2000	-	20/200mA 200A (3 ranges)	-	-	-	-	-	-	-	-	•	24mm 0.95"	CAT III 300V	
CL340	4000	-	40/400mA 40/400A (4 ranges)	-	-	-	-	-	-	-	•	•	40mm 1.57"	CAT III 300V	
CL360	2000	-	200mA 2/20/200/1000A (5 ranges)	-	-	-	-	-	-	-	•	•	•	68mm 2.68"	CAT III 300V

Flir Imaging Clamp Meter

NEW

- Measure to 600A TRMS AC/DC
- Built-in thermal imager to visually identify problems
- Laser & crosshair to pin point image location
- Center point temperature measurement
- Narrow jaw fits tight spaces
- Built-in work light
- VFD mode for testing variable frequency drives
- LoZ voltage mode
- Inrush current check
- Frequency, capacitance, resistance functions
- Continuity & diode test
- Expandable to 3000A AC
- 10 year warranty



CM174

ORDERING INFORMATION

FLIR CM174	Imaging 600A AC/DC Clamp Meter
FLIR TA72	Universal Flex Current Probe 10"(25cm)
FLIR TA74	Universal Flex Current Probe 18"(45cm)
FLIR TA15	Soft Sided Carrying Case
FLIR TA55	Line Splitter
FLIR TA52	Magnet Mount

SPECIFICATIONS

Imaging Detector:	FLIR Lepton® microbolometer, 4800 pixels (60 × 80)	
Field of View (V x H):	38.6° x 50.0°	
Color Palettes:	Iron, Rainbow, Grayscale	
Image Frame Rate:	9Hz	
Temperature Measurement:	Center point of thermal image	
Temperature Range:	-13°F to 302°F (-25°C to 150°C)	
Distance to Spot Ratio:	30:1	
Temperature Accuracy:	±5.4°F (3°C) or ±3% of rdg	
Spectral Response:	8 to 14μm	
Temperature Targeting:	Class 1 Laser Pointer and Crosshair on display	
Emissivity Settings:	4 Presets with Custom Adjustment	
Electrical Measurements	Range	Basic Accuracy
AC/DC Voltage:	1000V	±1.0%
VFD AC Voltage:	1000V	±1.0%
LoZ Mode AC Voltage:	1000V	±1.0%
LoZ Mode DC Voltage:	1000V	±1.0%
DC Current:	600.0A	±2.0%
AC Current:	600.0A	±2.0%
VFD AC Current:	600.0A	±2.0%
Inrush AC Current:	600.0A	±3.0%
Frequency:	60.00kHz	±0.1%
Resistance:	6000Ω	±1.0%
Continuity:	600.0Ω	±1.0%
Capacitance:	1000μF	±1.0%
Diode Test:	1.5V	±1.5%
Inrush Threshold:	0.5A min, 100ms integration time	
Display:	6000 count, 2.0" (50mm) Color TFT	
Jaw Opening:	1.38" (35mm), 1250MCM	
Category Rating:	CAT IV-600V, CAT III-1000V	
Certifications:	UL	
Dimensions:	61 x 111 x 40 mm; Probe: 104 x 34 x 20 mm w/ 700 mm cable	
Accessories Included:	4 AAA batteries, silicone test leads, quick start guide, user manual	

Amprobe Clamp Multimeter

NEW

- Dual display shows volts and amps concurrently
- True-RMS AC for accurate measurements
- Low pass filter for current & voltage measurements on variable frequency drives
- Amp-Tip function for precise low current measurement down to 0.1 amp
- HVAC applications with temperature, DC micro-amps & capacitance
- Non-contact voltage detection
- In-rush current
- Audible continuity & diode test
- Type K thermocouple
- Data hold
- Auto ranging
- Auto power off
- Low battery indicator



ACD-14-PRO

SPECIFICATIONS

	Range	Accuracy
AC Voltage (True-RMS):	0.0 to 600.0 V	±1.0% + 5LSD (50 to 60 Hz)
DC Voltage:	0.0 to 600.0 V	±1.0% + 5LSD
AC Current (True-RMS):	0.00 to 600.0 A	±1.8% + 5LSD (50 to <100 Hz) ±2.0% + 5LSD (100 to 400 Hz)
Amp-Tip AC:	0.00 to 60.00 A	±1.5% + 5LSD (50 to 60 Hz)
DC Microamps:	0.0 to 2000 μA	±1.0% + 5LSD
Frequency:	5.00 to 999.9 Hz	±1.0% + 5LSD (600 V range)
Resistance:	0.0 Ω to 60.00 kΩ 60.01 kΩ to 6000 kΩ	±1.0% + 5LSD ±1.2% + 5LSD
Capacitance:	200.0 μF, 2500 μF	± 2.0% + 4LSD
Diode Test:	0.0 to 3.000 V	± 1.5% + 5LSD
Type K thermocouple*:	-40.0 to 752°F -40.0 to 400°C	±1.0% + 1.5°F (-40.0 to 99.9°F) ±1.0% + 2°F (100 to 752°F) ±1.0% + 0.8°C (-40.0 to 99.9°C) ±1.0% + 1°C (100 to 400°C)
Non-Contact Voltage:	10 to 550 V, 50/60 Hz	
Continuity Beeper:	On < 10 Ω, Off > 250 Ω	
Jaw Opening:	1.18 in (30 mm)	
Update Rate:	5 per second nominal	
Operating Temperature:	32 to 104°F (0 to 40°C), <80% RH up to 88°F (31°C) decreasing linearly to 50% RH at 104°F (40°C)	
Display:	Dual backlit LCD with annunciators	
Certification:	cULus, CE	
Dimensions (L x W x H):	8.62 x 3.03 x 1.46 in (219 x 77 x 37 mm)	
Safety Rating:	CAT III 600 V	
Accessories Included:	Manual, test leads, 2 AAA batteries, carry case, Type K thermocouple	

ORDERING INFORMATION

ACD-14-Pro	600 A TRMS Clamp Multimeter
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*thermocouple accuracy tolerances not included

Extech Clamp Meters

NEW

Model EX623

400A Dual Input Clamp Meters + IR Thermometer + Non-Contact Voltage Detect

- TRMS AC Voltage & Current measurements
- Dual type K thermocouple input with Differential Temperature function
- Non-contact Voltage detector with LED alert
- Non-contact IR Thermometer with laser pointer for locating hot spots
- DC Voltage, DC Current, Resistance, Capacitance, Frequency & Duty Cycle functions
- Autoranging with manual override
- Data Hold plus fast Peak Hold for surges
- Complete with test leads, 9V battery, two Type K bead wire probes and case



▲ Model EX623

Model MA640

600A True RMS Clamp Meters + Non-Contact Voltage Detect

- TRMS AC Voltage & Current measurements
- Non-contact Voltage detector with LED alert
- DC Voltage, DC Current, Resistance, Capacitance, Frequency, Temperature, Duty Cycle
- Relative Mode for Capacitance Zero and Offset Adjustment
- Data Hold and MIN/MAX
- Complete with test leads, Type K bead wire probe, 9V battery and carrying case



▲ Model MA640

800A Clamp Meters

- AC/DC Current, AC/DC Voltage, Resistance, Frequency, Capacitance, Temperature, Diode Test and Continuity
- True RMS models
- 1.2" (30mm) circular jaw opening
- Backlit LCD
- Peak, Data Hold, Auto power off
- DC Current with Zero (EX730)
- Complete with test leads, 9V battery, Type K bead wire probe (EX720, EX730) and carrying case



▲ Model EX730

200A AC/DC Mini Clamp plus MultiMeter

- High resolution to 10mA
- Measures voltage, resistance and frequency
- Fast 40 segment bargraph
- One touch auto zero for DC current measurements
- Min/Max
- Data hold and auto power off
- Complete with test leads, wrist strap, 2 AA batteries and carrying case



▲ Model 380941

30A True RMS AC/DC Mini Clamp

- Measure low AC/DC current with resolution to 1mA DC and 0.1mA AC
- Also measures voltage
- Fast 40 segment bargraph
- One touch auto zero for DC current measurements
- Min/Max
- Data hold and auto power off
- Complete with test leads, wrist strap, 2 AA batteries and carrying case



▲ Model 380942

SPECIFICATIONS

Model	EX623	MA640	380941	380942	EX710	EX720	EX730
AC Sensing:	TRMS	TRMS	Averaging	TRMS	Averaging	TRMS	TRMS
Display counts:	4000	6000	4000	4000	4000, backlit	4000, backlit	4000, backlit
Jaw size/ Cable size:	1.4" (36mm)	1.5" (40mm)	0.9" (23mm); 4/0 AWG	0.9" (23mm); 4/0 AWG	1.2" (30mm): 500MCM	1.2" (30mm): 500MCM	1.2" (30mm): 500MCM
AC Current:	400μA, 40A, 400A	60A, 600A	40A, 200A	400mA, 4A, 30A	800A	800A	800A
DC Current:	400μA, 40A, 400A	60A, 600A	40A, 200A	4A, 30A	---	---	800A
Max resolution:	0.1μA, 0.01A	0.01A	0.01A	AC: 0.1mA, DC: 0.001A	0.01A	0.01A	AC: 0.01A, DC: 0.1A
Basic AC/DC Accuracy:	±1.5%	±2.8%	±1.0%	±1.5%	±2.8%	±3%	AC: ±3%, DC: ±2.5%
AC/DC Voltage (Max. Res.):	AC: 600V (0.1V) DC: 600V (0.01mV)	AC: 600V (1mV) DC: 600V (0.01mV)	400V (0.1V)	400V (1V)	600V (0.1mV)	600V (0.1mV)	600V (0.1mV)
Resistance (Max Res.):	40MΩ (0.01Ω)	60MΩ (0.1Ω)	400Ω (0.1Ω)	---	40MΩ (0.01Ω)	40MΩ (0.01Ω)	40MΩ (0.01Ω)
Capacitance (Max Res.):	40mF (0.01nF)	4000μF (0.01nF)	---	---	40mF (0.001nF)	40mF (0.001nF)	40mF (0.001nF)
Frequency (Max. Res.):	100MHz (0.01Hz)	10kHz (0.01Hz)	1000kHz (0.01Hz)	---	4kHz (1Hz)	4kHz (1Hz)	4kHz (1Hz)
Temperatures (Type K):	-58 to 1832°F	-4 to 1400°F	---	---	---	-4 to 1832°F / -20 to 1000°C	-4 to 1832°F / -20 to 1000°C
IR Temperature:	-58 to 518°F	---	---	---	---	---	---
Diode/Continuity:	Yes	Yes	Continuity	---	Yes	Yes	Yes
Data Hold:	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Min/Max/Peak:	Yes	Yes	Min/Max	Min/Max	Peak	Peak	Peak
Safety Rating:	CAT III-600V	CAT III-600V	CAT III-300V	CAT III-300V	CAT III-600V	CAT III-600V	CAT III-600V

AEMC Clamp-On Power Meters

- Use on single & 3-phase power to 3MW
- Measure to 1000V AC, DC or AC+DC
- Automatic AC or DC selection
- Ω, Hz & THD measurements
- 10,000 count electroluminescent display
- Fast (1msec) inrush current capture
- 1000V CAT IV & IP54 rated
- Data storage & Bluetooth communication
- 1.89" or 2.36" jaw opening



ORDERING INFORMATION

AE/2139.50	Model 405 (TRMS, 1000Vac/dc, 1000Aac/1500Adc, Power, THD)
AE/2139.51	Model 407 (TRMS, 1000Vac/dc, 1000Aac/1500Adc, Energy, Harmonics, Power, THD, Recording)
AE/2139.60	Model 605 (TRMS, 1000Vac/dc, 2000Aac/3000Adc, Power, THD)
AE/2139.61	Model 607 (TRMS, 1000Vac/dc, 2000Aac/3000Adc, Energy, Harmonics, Power, THD, Recording)

SPECIFICATIONS

MODEL	405	407	605	607
Measurement Method	TRMS AC/AC+DC/DC		TRMS AC/AC+DC/DC	
Automatic AC/DC Detection	-	Yes	Yes	
A AC	0.15 to 1000A (1500A peak)		0.15 to 2000A (3000A peak)	
A DC	0.15 to 1500A		0.15 to 3000A	
A AC+DC	0.15 to 1000A (1500A peak)		0.15 to 2000A (3000A peak)	
Best A Accuracy	1% of Reading + 3 cts			
V AC	0.15 to 1000V (1400V peak)			
V DC	0.15 to 1400V			
V AC+DC	0.15 to 1000V (1400V peak)			
Best V Accuracy	1% of Reading + 3 cts			
Hz Current	5.0 to 2000Hz			
Hz Voltage	5.0 to 20.00kHz			
Ohm	0.1Ω to 99.99kΩ			
Audible Continuity	Adjustable	Fixed <40Ω	Adjustable	Fixed <40Ω
Diode Test	Yes	-	Yes	-
Power Values	Single Phase & Total 3-phase		Single Phase & Total 3-phase	
Active Power	5W to 1000kW		5W to 2000kW	
Reactive Power	5var to 1000kvar		5var to 2000kvar	
Apparent Power	5VA to 1000kVA		5VA to 2000kVA	
FP / DPF	Yes / No	Yes / Yes	Yes / No	Yes / Yes
THDf / THDr	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes
Frequency Analysis	-	25th order	-	25th order
Phase Rotation (2-wire)	Yes	-	Yes	-
True InRush® current	Yes	Yes	Yes	Yes
Hold, Min/Max, +/-Peak	Yes	Yes	Yes	Yes
REL ΔX / Diff. ΔX/X (%)	-	Yes / Yes	-	Yes / Yes
Jaw Opening	1.89" (48mm)		2.36" (60mm)	
Number of Values Displayed	1	3	1	3
Data Recording	-	Yes	-	Yes
Communication Interface	-	Bluetooth	-	Bluetooth
Dimensions	10.70 x 3.62 x 1.61" (272x92x41mm)		11.65 x 4.37 x 1.61" (296x111x41mm)	

Megger Clampmeters

FORK MULTIMETER



- Open jaw AC current to 200A
- 0.1V to 1000V AC/DC
- Resistance to 20MΩ
- Continuity buzzer & diode check
- Autoranging
- Non-contact AC voltage detection

Current measurements and the non-contact voltage sensor do not need the supplied test leads. The voltage detection function can identify the presence of live AC voltage from 50-1000 V at 50-500 Hz.

SPECIFICATIONS

Function	Range	Accuracy
AC Current	200.0 A	±3% ±3d, 50/60 Hz, Avg responding
AC Volts	200.0 / 1000 V	±1.5% ±5d, 50-500 Hz, Avg responding
DC Volts	200.0 / 1000 V	±1% ±2d
Resistance:	200.0Ω - 20.00MΩ (6 ranges)	±1% ±2d (2k-2MΩ ranges)
Continuity:	<50Ω	Buzzer sounds
Overload Protection:	400 Arms on AC current, 600 Vrms on ohms	
Conductor Size:	0.63" (16mm) max.	
Display:	3½ digit, 2000 count	
Operating Temp.:	0°C to 30°C, <80% RH; 40°C to 50°C, <45% RH	
Battery:	2 AAA Alkaline	
Battery Life:	250hrs typical (auto power off after 10 minutes)	
Dimensions:	4.7" x 2.1" x 1.2" (193 x 54 x 21mm)	
Safety:	IEC61010-1, CAT III 1000V, CATIV 600V	

LEAKAGE CLAMPMETER



- 0.01mA resolution for measuring earth leakage currents
- Amp ranges for standard current measurements
- Analog bargraph display for trending
- 40mm jaw opening

DCM300E

SPECIFICATIONS

Ranges:	30mA/300mA/30A/300A (50/60Hz)
Accuracy:	
30/300mA:	±1.2% rdg ±5d
0-200A:	±1.2% rdg ±5d
200-250A:	±3.0% rdg ±5d
250-300A:	±5.0% rdg ±5d
Circuit Voltage:	600V AC max.
Jaw Capability:	40mm (1.57")
Display:	3½ digit, 3200 count
Data Hold:	Indicated by DH in display
Operating Temp.:	0°C to +40°C, <80% RH
Storage Temp.:	-20°C to +60°C, <70% RH
Battery:	2 LR44 button cells
Dimensions:	2.5" x 7" x 0.9" (64 x 176 x 23mm)
Safety:	300V phase to earth, 500V phase to phase CAT III or 600V CAT II

ORDERING INFORMATION

ME/DCM330	Fork Multimeter
ME/DCM300E	Leakage Clampmeter with carrying case

Fluke Leakage Clamp Meter

- Measure leakage current with 1 μ A resolution, for monitoring of insulation erosion
- Measure to 60 A, for general installation needs
- Perform tests without powering down the installation or disconnecting equipment
- Advanced shielding ensures accurate results when measuring near other conductors
- Easy-to-carry, pocket-sized clamp with 40 mm (1.5") jaw size
- Handy "Display-Hold" button for capturing readings in hard-to-reach places
- Auto power-off, with warning buzzer, saves battery life
- Meets safety standard VDE0404-4 and VDE0702 for leakage current and differential current measurement of electrical appliances



360

SPECIFICATIONS

Ranges:	3 ma, 30 mA, 30 A, 60 A
Resolution:	0.001 mA, 0.01 mA, 0.01 A, 0.1 A
Accuracy:	$\pm 1\%$ rdg $\pm 5d$ (≤ 50 A) $\pm 5\%$ rdg $\pm 5d$ (>50 A)
Frequency range:	15-150 Hz
Maximum current:	60 A rms
Digital display:	3200 count LCD
Bargraph display:	32 segment LCD
Measurement cycle:	2/sec. (digital display), 12 /sec. (bargraph display)
Range switching:	Auto-range
Environment:	0-50 °C, <80 % RH (non-condensing)
Temperature coefficient:	<0.05 % of range/°C (0-18 °C & 28-50 °C, <50 A)
Influence of external magnetic field:	0.0005 % typical (on current value of adjacent cable)
Influence of conductor position:	Within accuracy
Circuit voltage:	≤ 300 Vrms
Safety standard:	EN 61010-1, EN 61010-2-032. 300 V CAT II, Pollution Degree 2
Battery type:	3 V Lithium battery (CR2032)
Battery life:	Approx. 90 hours (continuous use)
Conductor diameter:	40 mm (1.57") max.
Dimensions:	176 x 70 x 25 mm (6.9" x 2.8" x 1")

ORDERING INFORMATION

Fluke-360 Leakage Current Clamp Meter

Hioki AC Power Monitors

NEW

Clamp-On Power HiTester

- Measure up to two 3 \emptyset , 3-wire systems
- Measure up to four 1 \emptyset , 2-wire systems
- 5A to 5000A range
- Simultaneous recording of demand values and harmonics
- Ideal for troubleshooting & energy management



3169

3169 SPECIFICATIONS

Systems:	1 \emptyset 2-wire, 1 \emptyset 3-wire, 3 \emptyset 3-wire, 3 \emptyset 4-wire (50/60 Hz)	Accuracy:	$\pm 0.2\%$ rdg $\pm 0.1\%$ f.s. + Clamp accuracy (for active power)
Functions:	ACV, ACA, W, VA, VAR, PF, integrated power, Frequency, Harmonics	With 9660:	$\pm 0.3\%$ rdg $\pm 0.02\%$ FS
Ranges:	150/300/600V With 9660: 5-100A, 4 ranges With 9661: 5-500A, 5 ranges With 9669: 100A-1kA, 3 ranges With 9667: 500A-5kA, 2 ranges With 9694: 0.5A-5A, 3 ranges	With 9661:	$\pm 0.3\%$ rdg $\pm 0.01\%$ FS
Power:	75W to 9MW, 108 combination patterns	With 9667:	$\pm 2.0\%$ rdg ± 1.5 mV
		With 9694:	$\pm 0.3\%$ rdg $\pm 0.02\%$ FS
		Harmonics:	Up to the 50th order, $\pm 3\%$ FS + measurement accuracy
		Power:	100 to 240VAC, 50/60 Hz
		Dimensions:	8.3"W x 6.3H x 2.4"D
			Order clamp-on current sensors separately

Power Logger

- Capture voltage & current wave forms, power & energy use
- Measure to 780V, 5000A
- Harmonics to the 40th order (-21)
- Display demand and trend graphs
- Store months of data on SD card
- 3 current and 3 voltage channels



PW3360

ORDERING INFORMATION

HK/3169-20	Clamp-On Power HiTester, with voltage leads (order CTs below)
HK/PW3360-20	Power Logger, with voltage leads & AC adapter
HK/PW3360-20-01/5000	PW3360-20 w/ 3 5kA Flex CTs, battery, case, 2GB SD card, software
HK/PW3360-21	Power & Harmonic Logger, with voltage leads & AC adapter
HK/PW3360-21-01-5000	PW3360-21 w/ 3 5kA Flex CTs, battery, case, 2GB SD card, software
HK/9660	100A Clamp-On Sensor
HK/9669	1000A Clamp-On Sensor
HK/9667	5000A Flexible Clamp-On Sensor
HK/9694	5A Clamp-On Sensor

PW3360 SPECIFICATIONS

Systems:	1 \emptyset 2-wire, 1 \emptyset 3-wire, 3 \emptyset 3-wire, 3 \emptyset 4-wire (50/60 Hz)
Range:	Voltage: 90-780V AC, peak: ± 1400 V Current: 5-130% of sensor rating Power: 300.00 W to 9.0000 MW
Measurements:	RMS voltage & current, peak, phase angle, frequency, active power, reactive power, apparent power, power factor, active energy, reactive energy, demand value, demand quality
Harmonics:	Voltage, current & power to 40th order plus THD (PW3360-21 only)
Memory:	132kB internal, optional SD card up to 2GB
Pulse Input:	Use to record power data & production volume counts simultaneously
Pulse Output:	When power consumption exceeds a set output rate (1Wh to 100kWh)
Sampling:	14 bits, 10.24kHz
Display:	3.5" color LCD (320x240)
Interface:	10Base-T/100 Ethernet with HTTP, USB2.0
Rating:	CAT III 600V, CAT IV 300V
Power:	AC adapter; Rechargeable Ni-MH battery optional
Temperature:	-10 to +50 °C, <80% RH
Dimensions:	7.1"W x 4.0"H x 1.9"D
Free Software:	Setup and Data Download, Excel Graph Auto-Creation

Extech AC Power Clamp Meter

NEW

- Dual LCD display (9999 count)
- Measures 1Ø/3Ø True Power (kW), Apparent Power (kVA), Reactive Power (kVAR), plus Horsepower (HP), Power Factor and Phase Angle with Lead/Lag indicator
- AC+DC μ A current with 10nA resolution for flame rod tests
- Insulation Resistance tests to 100M Ω
- Type K temperature to 1000°F (900°C)
- 1.6" (40mm) clamp jaw opening
- Max/Min recording with elapsed time indication
- Auto Detect AC/DC Voltage measurements with simultaneous frequency display
- Diode and Continuity tests
- Category III 600V rating


380976

Complete with deluxe test lead kit, general purpose Type K thermocouple probe, carrying case and 9V battery.

SPECIFICATIONS

Function	Max Range / Resolution	Basic Accuracy
True Power (W):	600kW / 10W	$\pm 5\%$
Apparent Power (kVA):	600kVA / 100VA	$\pm 2\%$
Reactive Power (kVAR):	600kVAR/10VAR	$\pm 5\%$
Horsepower (HP):	800HP / 0.01HP	$\pm 5\%$
Phase Angle:	-60 to +60° / 0.1°	$\pm 6^\circ$
AC Current (Trms):	1000A / 10mA	$\pm 2\%$
μ A Current (AC+DC Trms):	1000 μ A / 10nA	$\pm 1\%$
AC/DC Voltage (Trms):	600V / 0.1mV	$\pm 1\%$
Resistance:	1000k Ω / 0.1 Ω	$\pm 1\%$
Resistance (M Ω):	100M Ω / 1k Ω	$\pm 5\%$
Capacitance:	7000 μ F / 1nF	$\pm 1.5\%$
Frequency:	40Hz to 1kHz / 0.1Hz	$\pm 0.5\%$
Temperature (Type K):	-58 to 1000°F / 0.1°F -50 to 900°C / 0.1°C	$\pm 1\%$
Dimensions:	9" x 3" x 1.6" (228 x 76 x 39mm)	

ORDERING INFORMATION

EX/380976-K 1000A 1Ø 3Ø AC Power Clamp Meter

Yokogawa AC/DC Clamp-On Power Meter

- AC & DC Power up to 600 kW
- True RMS for AC
- Harmonics 1st to 25th order
- Power fluctuation using the ACA Inrush and Peak Hold functions
- AC & DC Voltage to 1000 V
- AC & DC Current to 600 A
- Frequency, Resistance, Continuity, Diode check, Power factor
- White LED automatically illuminates front of jaw when clamping
- Category IV 600V & CAT III 1000V compliant


CW10

Complete with test leads, carrying case and 9V battery.

SPECIFICATIONS

Function	Range	Accuracy
AC Current:	99.99 / 600.0	$\pm(1.5\% \text{ Rdg} + 5 \text{ LSD}) @ 50/60\text{Hz}$
AC Voltage:	99.99 / 999.9	$\pm(1\% \text{ Rdg} + 5 \text{ LSD}), 50\text{-}500\text{Hz}$
DC Current:	99.99 / 600.0	$\pm(1.5\% \text{ Rdg} + 5 \text{ LSD})$
DC Voltage:	99.99 / 999.9	$\pm(0.7\% \text{ Rdg} + 2 \text{ LSD})$
Active Power (kW):	9.999 / 99.99 / 600.0	$\pm(2.5\% \text{ Rdg} + 11 \text{ LSD}) \text{ AC}$ $\pm(2.2\% \text{ Rdg} + 22 \text{ LSD}) \text{ DC}$
Inrush Current:	99.99 / 600.0	$\pm(2.5\% \text{ Rdg} + 20 \text{ LSD})$
Resistance:	1k / 10k / 100k	$\pm(1.0\% \text{ Rdg} + 5 \text{ LSD})$
Frequency:	100 / 1000 / 10k	$\pm(0.5\% \text{ Rdg} + 3 \text{ LSD})$
Harmonics:	99.99%	1-12: $\pm(5\% \text{ Rdg} + 10 \text{ LSD})$ 13-25: $\pm(10\% \text{ Rdg} + 10 \text{ LSD})$
Power Factor:	-1.00 to 1.00	$\pm(3^\circ + 2 \text{ LSD})$
Peak Hold (ACV, ACA):	40% overrange	$\pm(3\% \text{ Rdg} + 15 \text{ LSD})$
Dimensions:	9.6" x 7" x 2.0" (242 x 87 x 51mm)	

ORDERING INFORMATION

YE/CW10 AC/DC Clamp-on Power Meter

Amprobe Compact Power Quality Clamp

- AC/DC Voltage up to 600V, AC Current up to 600A, Resistance, Frequency; Active (W), Reactive (VAR) and Apparent (VA) Power with dual display Power Factor readout, kWh Recording
- Slim jaws fit in tight spaces & accommodate conductors up to 1.02" (26mm) diameter
- Auto Selection of AC Volts, DC Volts or AC Amps
- 3 phase unbalanced load measurement by calculation of discrete single phase measurements
- Overload protection for all functions to 600V AC and DC
- Peak hold, data hold, audible continuity test
- Optional PC interface capability
- Safety CAT III 600V


ACD-45PQ

Supplied with test leads & battery.

SPECIFICATIONS

Function	Range	Accuracy
AC Current:	40.00 / 400.0 / 600A	$\pm(1.0\% \text{ Rdg} + 5 \text{ LSD}) @ 50/60\text{Hz}$
AC Voltage:	600.0V	$\pm(0.5\% \text{ Rdg} + 5 \text{ LSD}) @ 50/60\text{Hz}$
DC Voltage:	600.0V	$\pm(0.5\% \text{ Rdg} + 5 \text{ LSD})$
Resistance:	999.9 Ω	$\pm(1.0\% \text{ Rdg} + 6 \text{ LSD})$
Frequency:	5.00Hz to 500.0Hz	$\pm(0.5\% \text{ Rdg} + 4 \text{ LSD})$
Active Power (W):	0 to 360.0 kW	$\pm(2.0\% \text{ Rdg} + 6 \text{ LSD}) @$ Harmonics to 10th & PF 0.1 to 0.99
Reactive Power (VAR):	0 to 360.0 kVAR	$\pm(2.0\% \text{ Rdg} + 6 \text{ LSD}) @$ Harmonics to 10th & PF > 0.7
Apparent Power (VA):	0 to 360.0 kVA	$\pm(2.0\% \text{ Rdg} + 6 \text{ LSD}) @$ Harmonics to 10th
Power Factor:	0.10 to 0.99	$\pm 3 \text{ LSD} @$ Harmonics to 21th
Dimensions:	10.5" x 7" x 3.2" (267 x 178 x 82mm)	

ORDERING INFORMATION

AB/ACD-45PQ 600A Power Quality Clamp

Yokogawa Power Quality Analyzer

NEW

Power Measuring & Logging

- Simultaneously measures 3 CH Voltage input, 4 CH current clamp-on probe input, 2 CH DCV input.
- Displays value list or trend graph screen of Instantaneous/Average/Maximum/Minimum of Voltage/Current/Power/Power factor/Phase Angle/Phase Advanced Capacitance Calculation and DCV input.
- Integration Value of Active/Reactive/Apparent Energy is each displayed by consumption and generation.
- Demand value can be monitored by screens of present power consumption compared to aimed demand power value.

Power Quality Measuring

Measure Temporary Malfunction of Power Line

- Captures temporary malfunction phenomena of power line which causes malfunction or destruction of devices by types (Voltage swell, Voltage dip, Voltage interruption, Transient overvoltage, Inrush current) as an event by high sampling rate of 24 μ s and RMS calculation.
- Event data contains the type of malfunction, occurred time or occurrence finish time, measured value and waveform of voltage and current of all channels for approx. 200 ms period.
- Measurement conforms to IEC standard 61000-4-30 Class S

Measure Continuous Malfunction of Power Line

- Measure and display graphs and list of up to the 50th Harmonic components of voltage, current & power for each phase and in total.
- Displays with up to 10 or 12 waveforms of voltage and current for each CH.
- Measures, 1 minute flicker (Pst, 1 min), short flicker (Pst) and long flicker (Plt).
- Displays voltage and current unbalance rate on 3 phase wiring.

Data Analysis & Report Generation Software

- Automatically generates graph and report by simply clicking on file data displayed on screen.
- Reports Power data, Power quality event data, Main Unit Setting data, Screen capture data.

CW500 includes 4 voltage probes, six AA batteries, carrying case, 2G SD memory card & PC software. Order current probes separately.



Vector Display indicates voltage and current phase difference and values between input channels of voltage and current. It also checks whether the wiring is appropriate.

CW500

CW500 Viewer software provides management of main unit settings and realtime measurements via USB.



SPECIFICATIONS

Wiring connections:	1P2W (max. 4 systems), 1P3W (max. 2 systems), 3P3W (max. 2 systems), 3P3W3 current, 3P4W
Measurements:	Voltage, Current, Frequency, Active power, Reactive power, Apparent power, Active energy, Reactive energy, Apparent energy, Power factor, Phase Advancing Condenser, Neutral current, Demand, Harmonics, Inrush current, Power Quality (Swell/Dip/Interrupt/Transient overvoltage, Unbalance rate, IEC flicker)
Other functions:	Digital output, Analog DCV input function
Voltage range:	600.0/1000 V RMS
Accuracy:	$\pm 0.2\%$ rdg $\pm 0.2\%$ rng. (sine wave, 40-70 Hz)
Allowable input:	1 to 120% (rms) of each range, 200% for peak of each range
Display range:	0.15 to 130% of each range
Crest factor:	3 or less
Sampling speed	24 μ s for voltage transient
Current range:	manual or auto, see probe table (below)
Accuracy:	$\pm 0.2\%$ rdg $\pm 0.2\%$ rng. + accuracy of clamp-on probe (sine wave, 40-70 Hz)
Allowable input:	1 to 110% (rms) of each range, 200% for peak of each range
Display range:	0.15 to 130% of each range
Crest factor:	3 or less
Active power range:	See probe table (below)
Accuracy:	$\pm 0.3\%$ rdg $\pm 0.2\%$ rng. + accuracy of clamp-on probe (Power factor 1, sine wave, 40-70 Hz)
Effect of Power Factor:	$\pm 1.0\%$ rdg (40-70 Hz, reading at power factor 0.5 ref. 1.0)
Frequency meter:	40 to 70 Hz
Power supply (AC Line):	100-240 V/50-60 Hz/7 VA max.
Power supply (Battery):	Alkaline size AA battery LR6 or Ni-Mh (HR15-51) \times 6 pcs
Battery life:	3 hours typical (LR6, Backlight OFF)
Internal memory:	Flash memory (4 MB)
External memory card:	SD Card (2 GB)
PC communication:	USB Ver. 2.0, Bluetooth Ver. 2.1 + EDR Class2
Display:	320 \times 240 (RGB) Pixel, 3.5 inch color TFT, 1 s update rate
Operating temperature:	0 to 45°C, less than 85% RH (without condensation)
Dimensions:	120 (W) \times 175 (H) \times 68 (D) mm

ORDERING INFO

YE/CW500-B0-D	Power Quality Analyzer, 120VAC cord, no Bluetooth
YE/CW500-B1-D	Power Quality Analyzer, 120VAC cord, with Bluetooth
Current Probes	
YE/96060	Clamp-on Probe 40mm AC 2A for leakage current
YE/96061	Clamp-on Probe 18mm AC 50A for load current
YE/96062	Clamp-on Probe 24mm AC 100A for load current
YE/96063	Clamp-on Probe 30mm AC 200A for load current
YE/96064	Clamp-on Probe 40mm AC 500A for load current
YE/96065	Clamp-on Probe ~110mm AC 1000A flexible type for load current
YE/96066	Clamp-on Probe ~150mm AC 3000A flexible type for 3ch load current

Power Ranges for Clamp-on Probes - in 1P2W configuration (multiply x2 for 1P3W and 3P3W, x3 for 3P4W)

Voltage range:	Clamp-on Probe Model & Current ranges											
	96061		96062		96063		96064		96065		96066	
	5000 mA	50.00 A	10.00 A	100.0 A	20.00 A	200.0 A	50.00 A	500.0 A	100.0 A	1000 A	300.0 A	3000 A
600.0 V	3000 W	30.00 kW	6000 W	60.00 kW	12.00 kW	120.0 kW	30.00 kW	300.0 kW	60.00 kW	600.0 kW	180.0 kW	1800 kW
1000 V	5000 W	50.00 kW	10.00 kW	100.0 kW	20.00 kW	200.0 kW	50.00 kW	500.0 kW	100.0 kW	1000 kW	300.0 kW	3000 kW

Hioki Power Quality Analyzer

Catch power quality problems on the fly.

- Monitor Inrush Current, Voltage Swells, Voltage Dips, Transient Over-Voltage, Interruptions
- Measure and Record: Power and Power Factor, Active/Reactive Energy, Demand, Load Changes (with graph display), Voltage and Current
- Large 4.7" Color LCD with Backlight

3197
▶ & three
9661
sensors



ORDERING INFORMATION

HK/3197	Power Quality Analyzer
HK/9660	100A Clamp-on Sensor (300V, Ø15mm jaw)
HK/9661	500A Clamp-on Sensor (300V, Ø46mm jaw)
HK/9667	5000A Flexible Clamp-on Sensor (1000V, Ø254mm jaw)
HK/9669	1000A Clamp-on Sensor (600V, Ø55mm jaw)
HK/9694	5A Clamp-on Sensor (300V, Ø15mm jaw)
HK/9624-50	Deluxe PQA Analysis Software

Includes: voltage cord set, 6 hour battery pack (rechargeable), AC adapter, USB cable, basic PC software, carrying case & strap. Order current sensors separately.

SPECIFICATIONS

Measurement lines:	Single-phase 2-wire (1P2W), single-phase 3-wire (1P3W), three-phase 3-wire (3P3W2M & 3P3W3M), three-phase four-wire (3P4W and 3P4W2.5E)
Measurement line frequency:	Auto-detect (50Hz/60Hz)
Voltage range:	600.0V AC (crest factor 2 or less)
Current ranges:	500.0mA, 5.000A, 50.00A, 10.00A, 100.0A, 500.0A, 1.000kA, 5.000 kA (manually switchable in 2 range sets according to clamp sensor)
Measurement items:	
Impulsive voltage quality:	Transient overvoltage (Impulse)
RMS voltage quality:	Voltage swell, Voltage dips, Voltage interruption
Power quality:	Frequency, Voltage, Current, Current peak, Active/Reactive/Apparent power, Power factor (displaced power factor)
Three phase quality:	Voltage unbalance ratio, Current unbalance ratio
Harmonic quality:	Harmonic voltage, Harmonic current, Harmonic power, Harmonic voltage/current phase angle, Total harmonic voltage distortion, Total harmonic current distortion (THD-F, THD-R), (to 50th harmonic)
Measurement method:	Simultaneous digital sampling of voltage and current (sampling frequency 10.24 kHz per channel)
Interval settings:	Auto / 1 / 5 / 10 / 15 / 30 / 60 minutes
Recordable period:	125 days maximum; partition memory into four segments for maximum 31 days of recording each
Internal memory:	4 MB non-volatile
PC Interface:	USB 2.0
Dimensions:	5.1" W x 9.7" H x 2.5" D (128 x 246x 63 mm)

Hioki AC/DC Current Monitor



◀ **3290**

Choice of measurement mode:

- DC (for battery measurement)
- AC+DC RMS (for full-/half-wave rectification measurement)
- AC RMS (for current distortion measurement)
- PEAK (for peak value measurement of inrush current, etc.)
- Selectable recorder output and response time
- Current integral, operating time/duty measurements (3290-10)

ORDERING INFORMATION

HK/3290	Clamp-On AC/DC HiTester
HK/3290-10	Deluxe Clamp-On AC/DC HiTester
HK/9691	100A AC/DC Clamp-on Sensor (600V, Ø35 mm jaw)
HK/9692	200A AC/DC Clamp-on Sensor (600V, Ø33 mm jaw)
HK/9693	2000A AC/DC Clamp-on Sensor (600V, Ø55 mm jaw)
HK/9445-02	AC Adapter
HK/9400	Carrying Case

Includes: carry strap, 4 AA batteries. Order clamp-on sensor separately.

SPECIFICATIONS

Current measurement:	AC RMS, AC MEAN, AC+DC, DC
Current ranges:	20 to 100A with 9661 clamp 20 to 200A with 9662 clamp 200 to 2000A with 9663 clamp
Frequency:	10 to 1000 Hz
Analog outputs:	DC or AC Current: 2V f.s. Level output with REC mode Waveform output with MON mode Integ./Frequency: 1V/f.s.
Accuracy:	Current: ± 1.3 % rdg. ± 3 digits. (typical) Frequency: ± 0.3 % rdg. ± 1 dgt. (typical at 50/60Hz)
Frequency response:	± 2.3 % rdg. ± 8 dgt. (DC to 1 kHz)
Digital display:	4 digit, maximum 3000 counts (9999 counts on 3290-10)
Bar display:	20 segments
Sampling rate:	Fast: 4 times / sec (3290-10: 10times/sec), Normal: 2 times / sec, Slow: 1 time / 3sec
Crest factor:	2.5 or less
Max. circuit voltage:	600 V AC rms. (insulated wire)
Dimensions:	6.1" W x 3.6" H x 1.9" D (155 x 98 x 47 mm)

3290-10: Polarity specific integral function measures battery charging and discharging. Peak current display shows peak charge and discharge.

AEMC Three-Phase Power Quality Analyzers



PowerPad™
3945B



- True RMS single-, two- and three-phase measurements at 256 samples/cycle, plus DC
- Real-time color waveforms
- Easy-to-use on-screen setup
- Automatic current probe recognition and scaling
- True RMS voltage and current measurement
- Measures DC volts, amps and power
- Display and capture voltage, current and power harmonics to 50th order, including direction, in real time
- Capture transients down to 1/256th of a cycle
- Phasor diagram display
- VA, VAR and W per phase and total
- kVAh, VARh and kWh per phase and total
- Neutral current display for three-phase
- Transformer K-factor display
- Power Factor, displacement PF display
- Captures up to 50 transients
- Short-term flicker display
- Phase unbalance (current and voltage)
- Harmonic Distortion (total and individual) from 1st to 50th
- Alarms, surges and sags
- Screen snapshot function captures waveforms or other information on the display
- Includes DataView® software for data storage, real-time display, analysis and report generation

SPECIFICATIONS

Electrical

Sampling Frequency	256 samples/cycle
Data Storage	3945B: 4MB 8335: 2GB SD card
Voltage (TRMS)	3945B: 960V Ø-Ø, 480V Ø-N 8335: 10-1000V Ø-Ø & Ø-N
Current (TRMS)	MN Clamp: 5mA to 100mA/ 120A or 2 to 240A MR Clamp: 10 to 1000Aac, 10 to 1400Adc SR Clamp: 3 to 1200A AmpFlex™: 10 to 6500A (Crest factor at 6500 = 1)
Frequency	40 to 69Hz
Other Measurements	kW, kVAR, kWh, kVARh, kVAh, K-Factor, Flicker 3945B: PF, DPF 8335: INrush
Harmonics	1st to 50th, Direction, Sequence
Power Source	9.6V NiMH rechargeable battery pack AC Supply: 110/230VAC ±20% (50/60Hz)
Battery Life	≥8 hrs with display on; ≥35 hours with display off (record mode)

Mechanical

Communication	Port Optically coupled RS-232
Display	1/4 VGA (320 x 240) color LCD
Dimensions	9.5 x 7 x 2" (240 x 180 x 55mm)
Weight	4.6 lbs (2.1 kg)
Safety Rating	3945B: 600V CAT III 8335: 1000V, CAT IV



All models include three color-coded current probes with 10 ft leads (MN93 example shown), four* color-coded 10 ft voltage leads, four* color-coded alligator clips, RS-232 DB9F optically coupled serial cable, NiMH battery, US 120V power cord, DataView® software, carrying bag, soft carrying pouch and user manual.
*Five in 8335 Kits

ORDERING INFORMATION

AE/2130.75	PowerPad™ Model 3945B w/MN93 (240A)
AE/2130.76	PowerPad™ Model 3945B w/SR193 (1200A)
AE/2130.77	PowerPad™ Model 3945B w/24" AmpFlex™ 193-24 (6500A)
AE/2130.78	PowerPad™ Model 3945B w/36" AmpFlex™ 193-36 (6500A)
AE/2130.79	PowerPad™ Model 3945B w/MR193 (1000Aac/1400Aac)
AE/2130.80	PowerPad™ Model 3945B w/MN193 (6A/120Aac)
AE/2136.21	PowerPad® Model 8335 w/MN93 (240A)
AE/2136.22	PowerPad® Model 8335 w/SR193 (1200A)
AE/2136.23	PowerPad® Model 8335 w/24" AmpFlex® 193-24 (6500A)
AE/2136.24	PowerPad® Model 8335 w/36" AmpFlex® 193-36 (6500A)
AE/2136.25	PowerPad® Model 8335 w/MR193 (1000AAC/1400ADC)
AE/2136.26	PowerPad® Model 8335 w/MN193 (5A/120AAC)

Accessories (Optional)

AE/2140.14	Set of three color-coded MN193 probes (6A/120A) with 10 ft leads
AE/2140.17	5A Adapter box
AE/2140.61	Set of four color-coded 30 ft voltage leads
AE/2140.24	Set of three color-coded MN93-30 probes (240A) with 30 ft leads
AE/2140.25	Set of three color-coded SR193-30 probes (1200A) with 30 ft leads
AE/2140.26	Set of three color-coded 24" AmpFlex™ 193-24-30 probes (6500A) with 30 ft leads
AE/2140.27	Set of three color-coded 36" AmpFlex™ 193-36-30 probes (6500A) with 30 ft leads
AE/2140.28	One AC/DC Current Probe Model MR193-BK (black connector) (1000Aac/1400Aac)
AE/2140.29	Set of three color-coded MN193-30 probes (6A/120A) with 30 ft leads
AE/2140.30	Set of three color-coded MR193-30 probes (1000Aac/1400Aac) with 30 ft leads

AEMC Single-Phase Power Quality Analyzer



▲ 8230 PowerPad® Jr.

All models include current probe with 10 ft lead and black connector, black & red 10 ft voltage leads and alligator clips, optical USB cable, NiMH battery, US 120V power cord, DataView® software, carrying bag, soft carrying pouch and user manual.

DataView® Software included with Model 8230

- Display and analyze real-time or recorded data on the PC
- Configure all PowerPad® Jr. functions & parameters
- Customize views, templates and reports
- Create and store a complete library of configurations
- Zoom in and out and pan through sections of the graph
- Display waveforms, trend graphs, harmonic spectrums, text summaries, transients, event logs & stored alarms

- Displays Min, Max and Average Volts and Amps, Crest Factor, Peak value and K-Factor
- Calculates and displays Watts, VARs and VA, Power Factor and Displacement Power Factor for single-phase and balanced three-phase
- Displays total harmonic distortion (THD-F and THD-R) for voltage and current
- Displays individual harmonic values and % for Volts and Amps through the 50th harmonic
- Captures, displays and stores inrush current waveforms and statistics
- Stores up to eight screen captures
- Stores up to 1MB of trend recorded data
- Configurable from DataView® software or front panel
- Captures up to 4096 alarm events using up to 10 different thresholds
- Displays and records up to 17 different power quality parameters
- Includes DataView® software for data storage, real-time waveform display, analysis and report generation

SPECIFICATIONS

Electrical	
Voltage (TRMS)	660V Phase-to-Phase, 600V Phase-to-Neutral
Current (TRMS)	MN Clamp: 5mA to 120A or 2 to 240A MR Clamp: 10 to 1000AAC, 10 to 1400ADC SR Clamp: 3 to 1200A AmpFlex®: 10 to 6500A (Crest factor at 6500 = 1)
Frequency	40 to 70Hz
Other Measurements	kW, kVAR, PF, DPF, kWh, kVARh, kVAh, K-Factor, Flicker, Harmonic Phase Shift, Phase Rotation
Harmonics	THD-R, THD-F, V, A, VA 1st to 50th, Direction, Sequence
Sampling Frequency	256 samples/cycle
Data Storage	1.5MB partitioned for waveforms, alarms & trend
Power Source	NiMH AA rechargeable battery pack AC Supply: 120/230VAC (50/60Hz)
Battery Life	>Eight hrs with display on, >40 hrs with display off (recording mode)
Mechanical	
Communication Port	Optically isolated USB
Display	1/4 VGA (320 x 240) color LCD
Dimensions	8.3 x 4.3 x 2.4" (211 x 108 x 60mm)
Safety Rating	EN 61010, 600V Cat. III, Pollution Degree 2

ORDERING INFORMATION

AE/2130.82	PowerPad® Jr. Model 8230 w/MN93-BK (240A)
AE/2130.83	PowerPad® Jr. Model 8230 w/SR193-BK (1200A)
AE/2130.84	PowerPad® Jr. Model 8230 w/24" AmpFlex® 193-24-BK (6500A)
AE/2130.85	PowerPad® Jr. Model 8230 w/36" AmpFlex® 193-36-BK (6500A)
AE/2130.86	PowerPad® Jr. Model 8230 w/MR193-BK (1000AAC/1400ADC)
AE/2130.87	PowerPad® Jr. Model 8230 w/MN193-BK (6A/120AAC)

AEMC Power Quality Meter



▲ 8220

- Displays Min, Max and Average Volts and Amps, Crest Factor, Peak value and K-Factor
- Calculates and displays Watts, VARs and VA, Power Factor and Displacement Power Factor for single-phase and balanced three-phase
- Displays total harmonic distortion (THD-F and THD-R) for voltage and current
- Displays individual harmonic values and % for Volts and Amps through the 50th harmonic
- Captures and displays inrush current
- Calculates & displays phase rotation & RPM
- Displays °F or °C & resistance to 2000Ω
- Conducts continuity and diode tests
- Stores up to nine complete sets of readings for all volt, amp, power, harmonics and other measurements
- Configurable from DataView® software or front panel
- Operates off batteries or optional AC adapter
- Includes DataView® software for data storage, real-time waveform display, analysis and report generation

All models include current probe with 10 ft lead & black connector, black & red 10 ft voltage leads and alligator clips, optical USB cable, six 1.5V batteries, two safety test probes, DataView® software, carrying bag, soft carrying pouch and user manual.

SPECIFICATIONS

Electrical	
Voltage (TRMS)	660V Phase-to-Phase, 600V Phase-to-Neutral
Current (TRMS)	MN Clamp: 5mA to 120A or 2 to 240A MR Clamp: 10 to 1000AAC, 10 to 1400ADC SR Clamp: 3 to 1200A AmpFlex®: 10 to 6500A (Crest factor at 6500 = 1)
Frequency	40 to 70Hz
Other Measurements	kW, kVAR, PF, DPF, VA, Harmonics, Phase Rotation, Temperature, RPM, Resistance, Continuity, Diode Test
Sampling Frequency	256 samples/cycle
Data Storage	Stores nine sets of readings
Power Source	Six 1.5V AA Alkaline batteries (>8hr life with display on) AC Supply: 120/230VAC (50/60Hz) – optional
Communication Port	Optically isolated USB
Dimensions	8.3 x 4.3 x 2.4" (211 x 108 x 60mm)

ORDERING INFORMATION

AE/2130.91	Power Quality Meter Model 8220 w/MN93-BK (240A)
AE/2130.92	Power Quality Meter Model 8220 w/SR193-BK (1200A)
AE/2130.93	Power Quality Meter Model 8220 w/24" AmpFlex® 193-24-BK (6500A)
AE/2130.94	Power Quality Meter Model 8220 w/36" AmpFlex® 193-36-BK (6500A)
AE/2130.95	Power Quality Meter Model 8220 w/MR193-BK (1000AAC/1400ADC)
AE/2130.96	Power Quality Meter Model 8220 w/MN193-BK (6A/120AAC)

Three-line backlit digital display with custom icons

Fluke Three Phase Power Quality Analyzers



The Fluke 435 and 434 three-phase power quality analyzers help locate, predict, prevent and troubleshoot problems in three-phase and single-phase power distribution systems. The new IEC standards for flicker, harmonics and power quality are built in.

- Analyzer trends using cursor & zoom tools even while background recording
- Seven hours operating time per charge on NiMH battery pack
- Transfer data files to your PC for reporting and analysis using FlukeView® software

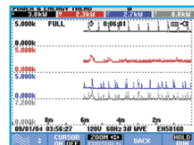
435 Includes: Hard carrying case with rollers, four flexible current probes (i430-flex), five test leads and clips, battery charger, FlukeView software, Power Log software, optical USB cable, color localization set, Getting Started manual, Users manual.

434 Includes: Hard carrying case, four current probes (i400s), five test leads and clips, battery charger, FlukeView software, optical USB cable, color localization set, Getting Started manual, Users manual.

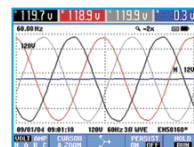
3 Year warranty

ORDERING INFORMATION

Fluke 435	3Ø Power Quality Analyzer
Fluke 434	3Ø Power Quality Analyzer



- Automatic transient capture: never miss an event
- Auto Trends: don't waste time setting up recordings



- Four voltage and four current channels capture waveform data on all phases simultaneously
- Meter display of phase readings

Feature	435	434
Measure voltage, current, dips, swells, interruptions, harmonics, inter-harmonics, flicker, power, energy, transients, frequency, unbalance, inrush, EN50160 overview	•	•
Logger function with multiple parameters	•	Optional*
Mains signalling	•	Optional*
Current probes	3000A flexible (4)	40/400A clamp (4)
Memory	16MB	8MB
Software	Power Log & FlukeView	FlukeView
IEC61000-4-30 Class A compliance	•	•
Safety rating	CAT IV 600 V/CAT III 1000 V	
Battery life	Up to 7 hours/charge	

*Optional function can be added with upgrade kit.

SPECIFICATIONS

System Configuration	1Ø+neutral, 1Ø split phase, 1Ø IT no neutral, 3Ø WYE, 3Ø Δ, 3Ø IT, 3Ø hi leg, 3Ø open leg, 3Ø 2-element, 3Ø 2½-element
Voltage Inputs	Four (3 phases + neutral), dc coupled
Maximum	1000V rms, 6kV maximum peak measured
Bandwidth	>10kHz, up to 100kHz for transient display
Accuracy (ac+dc)	435: ±0.1% of nominal voltage, 434: ±0.5% of nominal
Current Inputs	Four ((3 phases + neutral), dc coupled
Range	Determined by clamp-on probes used
Nominal Frequency	40-70Hz, BW >10kHz
Accuracy (ac+dc)	435: ±0.5%±20d, 434: ±1%±5d (with supplied probes)
Watts (VA, VAR)	1.0-20.00MW (resolution 0.1 to 1 kW)
Accuracy	435: ±1%±10d, 434: ±1.5%±10d
Sampling	16 bit resolution. 200k samples/second max
Logger Function	Captures up to 10000 events, 100 parameters/phase
Display	4.5" x 3.4" Color LCD, 320x240 pixel
Power	115/230V ac or battery, built-in battery charger

Fluke Power Quality Analyzer



- Voltage, current and power harmonics up to 51st
- Total harmonic distortion (THD)
- Phase angle of individual harmonics
- Watts, power factor, displacement power factor, VA and VAR
- Voltage and current waveforms
- Calculates 3Ø Power on Balanced Load from 1Ø Measurement
- Use cursors to read time and date of sags and swells.
- Catch voltage transients and waveform distortion
- See current at the instant of voltage events
- Catch and save up to 40 transients
- Correlate the cause of distortion with time and date stamps
- 3 Year Warranty

The Fluke 43B includes a hard case, voltage and current probes, FlukeView® PC software and cable, line voltage adapter/battery charger, applications manual, power quality video and user's manuals.

ORDERING INFORMATION

Fluke 43B	Power Quality Analyzer
-----------	------------------------

The Fluke 43B Power Quality Analyzer performs the measurements you need to maintain power systems, troubleshoot power problems and diagnose equipment failures. All in a rugged handheld package.

Function	Measurement	Accuracy/Selection
Volts	5.000V-600V RMS (AC & DC)	
Amps	50.00A-50.00kA RMS (AC & DC)	±(1%+10d)
Mains Frequency	40.0-70.0Hz	±(0.5%+2d)
Watts, VAR, VA	250W-2.5MW	±(4%+4d)
PF, DPF	0.25-1.00	±0.04
Sags & Swells	Voltage and Current	4 min-16 days selectable
Transient Capture	40 ns pulse width Up to 40 transients	Select 20/50/100/200% above or below line voltage
Thrush Current	1A to 1000A	1s to 5 min selectable
Ohms	500.0Ω to 30.00MΩ	±(0.6%+5d)
Capacitance	50.00nF to 500.0μF	±(2%+10d)
Scope	Dc, ac, ac+dc, peak, peak-peak, Hz, duty cycle, phase, pulse width, crest factor	Sampling rate: 25MS/sec Bandwidth: Voltage BW (Channel 1): 20MHz Current BW (Channel 2): 15kHz
Screen Saves	All functions	10 screens
Recording	V/A/Hz, Power, Harmonics, Ω/Cap, Temperature, Scope	4 min-16 days selectable parameters in each display mode

Battery life: Rechargeable Ni-Cd pack (charger included), 6 hrs typical (continuous)

OPTIONAL ACCESSORIES

i200s	240A AC current probe
80i-1000s	1000A AC current probe
i2000flex	2000A flexible AC current probe
80TK	Thermocouple module
80T-IR	Non-contact infrared temperature probe
PAC91	Parallel printer adapter

Extech Infrared Thermometers

Mini IR Thermometers

Compact thermometers with choice of 500°F or 1200°F maximum reading

- Model 42500 measures -4 to 500°F (-20 to 260°C) with 1° resolution
- Model 42510A measures -25 to 1200°F (-50 to 650°C) with 0.1° resolution up to 1000°
- Built-in laser pointer and backlit LCD display
- Adjustable emissivity (42510A)
- Field of view: 42500 6:1, 42510A 12:1
- Complete with 9V battery and carrying case



▲ **Model 42510A**

High Temperature IR Thermometer

Measures surface temperature to 1832°F with 50:1 distance to target ratio

- Measures small surface areas at greater distances
- Adjustable emissivity increases accuracy for different surfaces
- Displays MAX, MIN, average and difference (MAX-MIN) values
- Audible high/low alarm alerts user when temperature exceeds set limits
- Large, backlit LCD display with automatic Data Hold feature
- Complete with 9V battery and hard carrying case



▲ **Model 42545**

Dual Laser IR Thermometers

Two laser pointers converge to 1" target spot

- Measure to 1800°F (1000°C) with 1° resolution
- 12" or 30" laser convergence distance
- Fast 0.15 second response time
- White backlit dual LCD display
- Adjustable emissivity increases accuracy
- Lock function for continuous readings
- Adjustable high/low setpoints with audible alarm alerts
- Complete with 9V battery and carrying case



▲ **Model 42512**

Dual Laser IR Thermal Scanner

Tilt-adjustable LCD display with white backlight and dual bargraphs

- Measures -58 to 500°F / -50 to 260°C
- Dual laser converges at 20" distance for ideal 1" target spot
- Fast 150ms sample rate
- 5 user programmable threshold settings
- Audible alarm volume increases as temperature increases or decreases
- 3 color LED indicates High (red), Normal (green) or Low (blue) when scanning
- Min/Max storage & Trigger Lock
- Complete with 9V battery & case



▲ **Model IRT500**

ORDERING INFORMATION

EX/42500	500° Mini IR Thermometer
EX/42510A	1200° Mini IR Thermometer
EX/42511	Dual Laser IR Thermometer - 12" Convergence
EX/42512	Dual Laser IR Thermometer - 30" Convergence
EX/42545	High Temperature IR Thermometer
EX/IRT500	Dual Laser IR Thermal Scanner
EX/IR201A	Pocket IR Thermometer

Pocket IR Thermometer

Handy troubleshooting thermometer with laser pointer

- Measures from -4°F to 518°F (-20° to 270°C)
- Built-in laser pointer to improve aim
- Adjustable emissivity
- Data Hold & Max Hold
- 6:1 field of view
- Complete with two AAA batteries and carrying case



▲ **Model IR201A**

SPECIFICATIONS

Model	42500	42510A	42511	42512	42545	IRT500	IR201A
Temperature: (non-contact)	-4 to 500°F -20 to 260°C	-25 to 1200°F -50 to 650°C	-58 to 1100°F -50 to 600°C	-58 to 1832°F -50 to 1000°C	-58 to 1832°F -50 to 1000°C	-58 to 500°F -50 to 260°C	-4 to 518°F -20 to 270°C
Laser Pointer:	Single	Single	Dual	Dual	Single	Dual	Single
Basic Accuracy: (non-contact)	±2.5% of reading or ±4°F / 2°C (whichever is greater)	±1% of reading ± 2°F / 1°C	±1% of reading ± 2°F / 1°C	±1% of reading ± 2°F / 1°C	±2% of reading ± 4°F / 2°C <932°F (500°C)	±(1% of reading + 3.3°F / 1.5°C)	±(2.5% of rdg + 3.6°F / 2°C)
Max. Resolution:	1°	0.1° up to 999.9°	0.1°	0.1°	0.1° up to 199.9°	0.1°	0.1°
Emissivity	0.95 fixed	0.1-1.00 adjust	0.1-1.00 adjust	0.1-1.00 adjust	0.1-1.00 adjust	0.95 fixed	0.1-1.0 adjust
Field of View: (Distance to Target)	6:1	12:1	12:1	30:1	50:1	20:1	6:1
Dimensions:	3.2 x 1.7 x 6.7" 82x44x170mm	3.2 x 1.6 x 6.3" 82x42x160mm	5.7 x 4.1 x 1.6" 146x104x43mm	5.7 x 4.1 x 1.6" 146x104x43mm	3.9 x 2.2 x 9" 100x56x230mm	6.6 x 3.2 x 2.3" 168x82x58mm	3.7 x 2 x 1" 94x51x25mm
Weight	4.9oz (140g)	6.4oz (180g)	5.7oz (163g)	5.7oz (163g)	10.2oz (290g)	5.7oz (163g)	2.7oz (76g)
Warranty:	3 years	3 years	3 years	3 years	3 years	1 year	1 year

Yokogawa Insulation Testers

2406E Analog Insulation Tester

- 3 Ranges
- Discharge Function
- Portable Case for Hanging Tester from Neck
- Sky-Blue EL Illumination


2406E


MY10 Analog Insulation Tester

- Single Range Models
- AC Voltage Measurement Function (needle and LED)
- Automatic Discharge Function (LED)
- Easy to Use Pull-Up Switch


MY10


MY40 Digital Insulation Tester

- Four Voltage Ranges
- Memory Function
- Comparator Function with Sound Alert
- Auto Discharge Function
- Large LCD Display with Stable Indication
- AC Voltage/Resistance Measuring Functions
- Conductor Resistance Measurement


MY40


Model	Rating	Measure	Display	Illumination					
YE/2406	31	50V / 10M 125V / 20M	300V AC	Analog Meter	Back-lit EL display (41/42/43/44/45)				
	41								
	32	125V / 20M 250V / 50M							
	42								
	33	125V / 20M 250V / 50M 500V / 100M							
	43								
	44								
	YE/MY10	01				125V / 20M	250VAC	Analog Meter	Phosphorescent scale
		02				250V / 50M	300VAC		
03		500V / 100M	500VAC						
04		500V / 1000M							
05		1000V / 2000M							
YE/MY40	01	125V / 200M 250V / 200M 500V / 2000M 1000V / 2000M	600VAC	3.5 digit & 400Ω	LED Lighting bargraph LCD				

Lifetime Warranty on All Models
Dimensions:

2406	4.7"x4.3"x2.4" (120x110x60mm)
MY10, MY40	4.9"x4.1"x2.1" (125x103x53mm)

Power:

2406	6 AA Batteries (included)
MY10, MY40	4 AA Batteries (included)

Fluke Infrared Thermometers

- Dot Laser Sighting
- Comfortable Pistol Grip
- Large Backlit Display
- Hi/Lo Alarms
- Displays Difference Between Two Measurements
- Small Size Easily Fits in Toolbox or Clips to Belt Loop
- 3-Meter (9.8-Foot) Drop Tested
- IP54 Dust & Water Resistance

62 MAX

SPECIFICATIONS

MODEL	62 MAX	62 MAX+
Range °C	-30 to 500	-30 to 650
Range °F	-22 to 932	-22 to 1202
Spot Distance	10:1	12:1
Emissivity	0.10-1.00	0.10-1.00
Min/Max/Avg/Diff	Yes	Yes
Hi/Lo Alarms	Yes	Yes
Display Resolution	0.1°C (0.2°F)	0.1°C (0.2°F)
Basic Accuracy	1.5% or 1.5°C	1.0% or 1.0°C
Response Time (95%)	<500 ms	<300ms
Laser Sighting	Single	Dual

Battery: One AA (included)

Size: 6.88x3.34x2.95" (175x85x75mm)

Weight: 9 oz (255g)

Operating Temp: 0 to 50°C, <90% RH non-condensing

ORDERING INFORMATION

62 MAX Single Laser Infrared Thermometer

62 MAX+ Dual Laser Infrared Thermometer

Yokogawa Thermometers

TM10 Thermistor Data Collecting Thermometer



- Switch Between External Probe, Infra-Red Sensor and Built-In Sensor
- Measure from -30 to 200 °C

TM20 TC Data Collecting Thermometer



- Two Channel Simultaneous Measurement
- Measure Type K/J/E/T Thermocouples, mV Inputs & Infra-Red Sensors
- Display Channel Readings, Min, Max, Average & Difference

TX10 Series

- Measure J/K/T/E Thermocouples
- 3 ½ Digit Display for Resolution to 0.1 °C
- IP54 Drip Proof Case
- Two Channel Measurement (TX10-03)
- 10 Measurement Storage (TX10-02/03)
- Min & Max Storage (TX10-02/03)
- Temperature Difference Display (TX10-03)



SPECIFICATIONS

	TM10	TM20	TX10
Range	-30 to 200 °C (-22 to 392 °F)	K -200 to 1372 °C (-328 to 2501 °F) J 200 to 1000 °C (-328 to 1832 °F) E -200 to 700 °C (-328 to 1292 °F) T -200 to 400 °C (-328 to 752 °F)	TC same as TM20
Accuracy	±0.3 °C (0-100 °C)	TC ±0.3% rdg ±0.3 °C (>-100 °C) V ±0.1% rdg ±0.2% range	±0.3% rdg ±0.7 °C (-100 to 200 °C)
Resolution	0.1 °C	TC 0.1 °C V 0.001V mV 0.1mV	0.1 °C (below 200 °C)
Operating Temp	-20 to 50 °C	0 to 50 °C	0 to 50 °C

TM10 & TM20 Common Features

- Backlit LCD Display
- IP54 Drip Proof Case
- 1 Second to 24 Hour Measuring Intervals
- Data Capacity up to 20000 Readings
- Hi/Lo Alarms
- RS232 Port for PC Interfacing
- Easy PC Data Management (Automatic Layout in Excel)

Collector mode records the measured temperature along with the measured item, operator name, date/time of measurement in response to a key action. Test comments can also be recorded. Logging mode continuously records the measured temperature at a preset time interval.

ORDERING INFORMATION

YE/TM10	Thermistor Data Collecting Thermometer
YE/TM20	TC Data Collecting Thermometer
YE/TX10-01	Single function, 1 channel Thermometer
YE/TX10-02	Multi-function, 1 channel Thermometer
YE/TX10-03	Multi-function, 2 channel Thermometer

Order probes and carrying case separately

ACCESSORIES

TM10 Accessories

YE/90010	150mm needle probe
YE/90011	120mm sharp needle probe
YE/90012	Surface probe
YE/90013	Rounded probe (for liquids)
YE/93010	Soft case

TM10 & TM20 Accessories

YE/90003	Non-contact probe
YE/91011	RS-232 PC cable

TX10 & TM20 Accessories

YE/90020	Type K rounded probe
YE/90023	Type K needle probe
YE/90030	Type K surface probe
YE/245907	Type K bead
YE/93012	Soft case

Hioki Megohm Testers



3455

- Tests insulation on transformers, cables & motors
- Calculates PI (Polarization Index) and DAR (Dielectric Absorption Ratio)
- Temperature measurement & compensation
- Step voltage testing
- Leakage current display



- 5 test ranges to 1000V
- Insulation readings to 4000MΩ
- Pass/Fail indicator
- AC/DC voltage measurements
- Live wire warning
- Continuity check at 200mA
- Drop proof from 1m (3.3ft)

IR4056

SPECIFICATIONS

Insulation Resistance:	
Test voltage:	250V, 500V, 1kV, 2.5kV, 5kV DC
Manual adjust:	25V step (<1kV), 100V step (>1kV)
Resistance:	0.00MΩ - 5TΩ in 7 ranges (±5% rdg, ±5d for test current >100nA)
Leakage current:	1.00nA-1.2mA in 6 ranges (±2.5% rdg, ±5d above 100nA)
Voltage Measure:	50-750V AC, 50/60Hz; 50-1000V DC (±5% rdg, ±5d)
Temperature:	-10.0 to 70.0°C (±1.5°C)
PI, DAR test:	Times are user programmable.
Step voltage test:	500V-2.5kV in 500V steps, 1kV-5kV in 1kV steps
Compensation:	Displays the resistance based on reference temperature. Compatible to 10 insulation materials
Timer:	30s to 30min
Data memory:	Manual recording: 100 data Interval recording: 360 times x 10 data
Energy discharge:	Automatic discharge after measurement
Display LCD:	Digital and bargraph display, with backlight
Display Info:	Time, date, test voltage, timer, battery level
PC software:	For USB data transfer and report editing
Power supply:	6 AA batteries
Standards:	CAT IV 600V, CAT III 1000V
Dimensions:	10.2"W x 9.9"H x 4.7"D (260 x 251 x 119mm)

SPECIFICATIONS

Insulation Resistance:	
50 / 125 / 250 / 500 / 1000V DC test voltage	
Ranges:	100 / 250 / 500 / 2000 / 4000MΩ
Accuracy:	±4% rdg.
Low Resistance:	10.00 / 100.0 / 1000Ω ranges
Accuracy:	±3% rdg, ±2d
AC Volts Measure:	420.0 & 600V ranges, 50/60Hz
Accuracy:	±2.3% rdg, ±8d
DC Volts Measure:	4.200 to 600V in 4 ranges
Accuracy:	±1.3% rdg, ±4d
Response time:	0.8 sec for Pass/Fail decision
Other functions:	Live wire warning, automatic discharge, DC/AC detection
Power Supply:	4 AA batteries (20 hr life)
Dimensions:	6.3"W x 7.0"H x 2.1"D (159 x 177 x 53mm)

ORDERING INFORMATION

HK/3455-01	5kV MΩ HiTester with 3m leads, USB cable, PC software
HK/IR4056-20	1kV MΩ HiTester with test leads & neck strap
HK/L9787-91	Breaker pin for IR4056
HK/L9788-11	Test lead set with remote switch for IR4056
HK/9631-01	Temperature sensor for 3455 (1m)
HK/9750	10m Test Leads for 3455
HK/9459	Rechargeable Battery pack for 3455
HK/9753	AC adapter for 3455

Fluke MegOhmMeters



1507

Handheld MegOhmMeter

- Insulation resistance to 10GΩ (1507)
- Test voltages to 1000V
- Calculates Polarization Index & Dielectric Absorption Ratio (1507)
- AC/DC voltage measure to 600V
- Pass/Fail function for repetitive tests (1507)
- Remote probe for hard-to-reach tests

SPECIFICATIONS

Insulation Resistance:	
Ranges:	0.01 MΩ to 10 GΩ (1507); 0.01 MΩ to 4000 MΩ (1503)
Test Current:	1mA max.
Test Voltage:	50, 100, 250, 500, 1000 V (500 & 1000 V on 1503)
Basic Accuracy:	±(1.5% rdg + 5d) up to 2000 MΩ
Resistance:	0.01 Ω to 20.00 kΩ
Basic Accuracy:	±(1.5% rdg + 3d)
Voltage:	0 - 600.0 V DC or AC (50-400Hz)
Live Circuit Indicator:	Inhibits insulation resistance test if >30V AC/DC present
Operating Temperature:	-20 to 55°C
Rating:	CAT IV 600V

Includes test leads, test probes, alligator clips, protective holster & batteries.

ORDERING INFORMATION

Fluke 1503	1kV Handheld Insulation Resistance Tester
Fluke 1507	Deluxe 1kV Handheld Insulation Resistance Tester
Fluke 1550C-KIT	5kV Insulation Tester Kit
Fluke 1555-KIT	10kV Insulation Tester Kit



1550C

5kV & 10kV Insulation Testers

- Resistance to 2TΩ
- Ramp function
- DAR & PI calculations
- Auto-discharge
- 99 memory storage
- Live circuit voltage warning
- PC interface

SPECIFICATIONS

Insulation Resistance:	
250V	200 kΩ - 50 GΩ
500V	200 kΩ - 100 GΩ
1000V	200 kΩ - 200 GΩ
2500V	200 kΩ - 500 GΩ
5000V	200 kΩ - 1 TΩ
10000V	200 kΩ - 2 TΩ (1555 only)
Step Size:	50V up to 1000V, then 100V
Leakage Current:	1 nA - 2 mA
Capacitance:	0.01 μF - 15.00 μF
Timer:	0 - 99 minutes
Power:	12V rechargeable battery, >750 tests per charge
Charger:	85-250VAC
Operating Temperature:	-20 to 50°C

Kit includes test cables, ac power cord/charger, infrared USB cable, hard carry case, FlukeView® Forms PC software

Megger® Insulation Resistance Testers



▲ MJ15

MJ15 and BM15

The BM15 and MJ15 are compact 5-kV insulation testers that are simple to use and provide a quick, accurate reading of insulation resistance. Both instruments offer four test voltages (500 V, 1 kV, 2.5 kV, 5 kV), analog scales and measurement sensitivity to 20 GΩ.

These models include “pass/fail” display overlays for a rapid “go/no go” testing and trend analysis.

The BM15 is powered by 8 “AA” or rechargeable alkaline batteries while the MJ15 includes a hand-crank generator in addition to battery power.

MIT515 and MIT525 5kV Testers

NEW

This new generation of insulation testers offers increased measurement range, better accuracy, longer battery life, additional functionality and improved safety features.

MIT515

A rugged, portable tester designed for years of trouble free operation:

- Three industry standard tests can be programmed and run automatically
 - Insulation resistance (IR)
 - Dielectric absorption (DAR)
 - Polarization index (PI)
- Resistance measurements to 10 TΩ with 5% accuracy up to 1 TΩ
- Voltage, capacitance & leakage current measurements
- Test voltage can be set in 10 V increments from 50 V to 1 kV, and in 25 V increments above 1 kV
- Timer control, timer display and alarm limit modes
- Test lockout when an external voltage is present, for redundant safety
- Dual operation from AC line or rechargeable batteries



▲ MIT515

MIT525

All the features of the MIT515 plus expanded capabilities to afford the skilled operator more flexibility in analyzing and reporting the condition of capital equipment:

- Ramp test, auto step voltage (SV) test, auto dielectric discharge (DD) test
- Advanced memory functions with recall to screen, real time clock, time/date stamped results and data downloaded via RS232 or USB ports
- Includes PowerDB Lite software for documenting test results

MIT1025 10kV Insulation Tester

NEW

Same features and functions as the MIT525, but with 10kV maximum output:

- Test voltage range from 50 V to 10 kV, in 10 V increments to 1 kV and 25 V increments above 1 kV
- Increased measurement range to 20 TΩ, for testing the best insulating materials
- Automatic performance of standardized tests, including Step Voltage, Dielectric Absorption Ratio and Dielectric Discharge
- Capacitance measurements from 1 nF to 25 μF, providing additional equipment diagnostic information
- RS232 & USB ports for downloading test results
- A 'quick start' guide in the lid to make field operation simple and user-friendly



▲ MIT1025

IEEE43:2000 "IEEE Recommended Practices for Testing Insulation Resistance of Rotating Machinery" recommends testing machines rated above 12kV at 10kV.

The Polarisation Index test is performed on equipment and cables to assess the general condition of the insulation before applying potentially destructive test voltages.

The new MIT 5kV & 10kV models easily perform both these tests.

ORDERING INFORMATION

Catalog No.	Test Voltage (V dc)	Resistance
ME/MJ15	500	100 kΩ - 20GΩ
	1000	
	2500	
ME/BM15	5 kV	10 kΩ - 10 TΩ
	250	
	500	
	1000	
ME/MIT515	2500	10 kΩ - 10 TΩ
	5 kV	
	250	
	500	
	1000	
ME/MIT525	2500	10 kΩ - 20 TΩ
	5 kV	
	250	
	500	
	1000	
ME/MIT1025	2500	10 kΩ - 20 TΩ
	5 kV	
	500	
	1000	

Megger® Insulation Resistance Testers

MJ Series

The MJ159 is the recognized industry standard, upgraded with modern circuitry. This analog meter allows the trained operator to determine much more from the needle movement than just a MΩ reading. Available in line, battery or hand cranked models.

Other features include:

- IR measurements to 2000MΩ
- Four test voltages to 1kV
- Guard terminal
- Continuity and kΩ functions for troubleshooting

MJ159



MIT400/2 Series

The MIT400/2 Series Insulation Testers offer outstanding performance and ease of use. Dual digital displays show test results and test voltage or current simultaneously. The hands free, autoranging continuity function ensures the accurate measurement of circuit conductors and bonding. An audible continuity alarm speeds testing. These models offer improved test voltage accuracy, plus:

- Insulation resistance measurements to 200GΩ; selectable test voltages to 1000V
- Backlit LCD with dual digital and analog arc displays
- Leakage current readout
- Live circuit detection & protection
- PI/DAR and Timer functions (except MIT400/2)
- IP54 & CAT IV 600V rating

The MIT series offers TRMS & DC Voltage measurements from 10mV to 600V. The MIT420/2 and MIT430/2 add capacitance (100pf to 10uF), and test result storage/recall. MIT430/2 has Bluetooth for wireless data transfer (including download software). All models except the MIT400/2 include frequency measurement (15-400Hz).

Every unit comes with carrying case, test leads, and battery. All models except the MIT400/2 also include a remote switch probe for "hands free" testing.

MIT410/2



MIT310



MIT300 Series

The new MIT300 Series features a large display and hands-free operation. The tough, rubber armored case is designed for rough handling and weatherproof to IP54. A rigid cover folds up to protect the front panel when not in use. Intelligent safety features include:

- Safety Interlock – prevents unsafe connection of test leads
- Safe contact detectors – the tester will remain safe and not be damaged if connected to a live circuit while on continuity setting.
- Live voltage warning – alerts when circuit voltage is >25V.
- Safety lockout – inhibits test when circuit voltage is >50V.
- Continuity check – prevents a continuity test on a live circuit.

Each model includes a 200mA continuity test function and continuity buzzer. All models except the MIT300 measure DCV & ACV (50/60Hz) to 600V. The MIT330 adds memory for storing 1000 test results and a USB interface. The MIT310A has an analog meter display for those who prefer a moving needle.

ORDERING INFORMATION

Catalog No.	Model No.	Test Voltage (V dc)	Insulation Resistance	Resistance Range	Display	Power Source
ME/212159	MJ159	100, 250, 500, 1000	0 to 2000 MΩ	0 to 5000 Ω	Analog	Hand-Cranked
ME/212559	MJ559	100, 250, 500, 1000	0 to 2000 MΩ	0 to 5000 Ω	Analog	Line or Rech. Batt.
ME/MIT400/2	MIT400/2	250, 500, 1000	0.01 MΩ to 200 GΩ	0.01 Ω to 999 kΩ	Analog/ Dual Digital	Alkaline or Rechargeable NIMH Battery (6 x AA)
ME/MIT410/2	MIT410/2	50, 100, 250, 500, 1000	0.01 MΩ to 200 GΩ	0.01 Ω to 999 kΩ	Analog/ Dual Digital	
ME/MIT420/2	MIT420/2	50, 100, 250, 500, 1000, variable	0.01 MΩ to 200 GΩ	0.01 Ω to 999 kΩ	Analog/ Dual Digital	
ME/MIT430/2	MIT430/2	50, 100, 250, 500, 1000, variable	0.01 MΩ to 200 GΩ	0.01 Ω to 999 kΩ	Analog/ Dual Digital	
ME/MIT300	MIT300	250, 500	10 kΩ – 999 MΩ	-	Digital/Analog	Alkaline or Rechargeable NIMH Battery (8 x AA)
ME/MIT310	MIT310	250,	10kΩ –	-	Digital/Analog	
ME/MIT310A	MIT310A	500, 1000	999 MΩ	10 Ω – 2 kΩ	Analog	NICD/NIMH
ME/MIT320	MIT320	250,	10 kΩ – 999 MΩ	0.01 – 99.9 Ω	Digital/Analog	Battery
ME/MIT330	MIT330	500, 1000	with limit alarm	10 Ω – 999 kΩ	w/backlight	(8 x AA)

AEMC Megohmmeters

1000V Digital/Analog Megohmmeter Models 1050 & 1060

- True Megohmmeter®
- Test voltage combinations of 50V, 100V, 250V, 500V and 1000V
- Insulation measurements to 4000GΩ (4TΩ)
- Direct measurement of DAR and PI values
- Direct measurement of sample Capacitance
- Display of test voltage and run time
- Programmable test run times and PI times
- Smooth and Alarm functions
- Automatic test inhibition (if live sample >25V)
- Automatic discharge after use with voltage display
- Large dual display with time, voltage and measurement
- Bright blue electroluminescent backlight
- Battery powered (Model 1050)
- Auto power-down when not in use
- Remote operation with optional test probe
- Rugged dual wall field case with detachable lead/accessory pouch
- EN 61010-1, 600V Cat III, IEC 61557 and CE rated



▲ 1060
CE □

Model 1060 includes the following additional features:

- AC rechargeable NiMH batteries
- RS-232 interface for direct printing of results (serial output)
- 128k memory to store measurements in specific files
- Remote operation of megohmmeter through PC
- Includes DataView® software to configure instrument and generate reports

5000V Digital/Analog Megohmmeter Models 5050, 5060 & 5070

- True Megohmmeter®
- Test voltage combinations of 500V, 1000V, 2500V and 5000V
- Insulation measurements from 30kΩ to 10,000GΩ (10TΩ)
- Selectable and programmable test voltage (40 to 5100V)
- Automatic calculation of DAR, PI and DD ratios
- Direct measurement and display of Capacitance and Leakage Current
- Display resistance, test voltage and run time
- Programmable test run times and PI ratio times
- Smooth and Alarm functions
- Automatic test inhibition (if live sample >25V)
- Automatic discharge and display of discharge voltage
- Large dual display with time, voltage and measurements shown (Models 5050 and 5060)
- Graphic and digital display of test voltage, resistance and more (Model 5070)
- Bright blue electroluminescent backlight
- Programmable test voltage lock-out
- Programmable alarm setting
- Auto power-down when not in use
- AC or DC powered with rechargeable NiMH batteries
- Rugged, weatherproof field case
- Designed and built to IEC safety standards
- EN 61010-1, 1000V Cat. III



▲ 5070
CE □



DataView® is included with the Models 1060, 5060 and 5070

DataView® Software for Models 1060, 5060 & 5070

- Configure all functions and run tests from your PC
- Retrieve and display data in real time
- Retrieve data from memory in real time
- Display plots & print reports

ORDERING INFORMATION

AE/2130.01	Megohmmeter Model 1050 (Digital, with Analog Bargraph, Backlight, Alarm, Timer, 50V, 100V, 250V, 500V, 1000V, Auto DAR/PI, Res., Continuity)
AE/2130.03	Megohmmeter Model 1060 (Digital, with Analog Bargraph, Alarm, Timer, 50V, 100V, 250V, 500V, 1000V, Auto DAR/PI, Res., Continuity, RS-232 with DataView® software, 128kB Memory)
AE/2130.20	Megohmmeter Model 5050 (Digital, with Analog Bargraph, Backlight, Alarm, Timer, 500V, 1000V, 2500V, 5000V, Auto DAR/PI/DD)
AE/2130.21	Megohmmeter Model 5060 (Digital, with Analog Bargraph, Backlight, Alarm, Timer, 500V, 1000V, 2500V, 5000V, Auto DAR/PI/DD, RS-232 w/DataView® software)
AE/2130.30	Megohmmeter Model 5070 (Graphical, Analog Bargraph, Backlight, Alarm, Timer, 500V, 1000V, 2500V, 5000V, Ramp, Auto DAR/PI/DD, RS-232 w/DataView® software)

AEMC Flexible Current Probe



▲ 24-3001
CE □

- 24" flexible sensor fits around conductors up to 7.6" in diameter
- Reads Amps directly on DMM or Scope
- mV output directly proportional to AC current (10mV/A on 300A range and 1mV/A on 3000A range)
- Accuracy 1% of Reading ± 500mA
- 4% influence of conductor position in jaw
- 300 hour battery life
- EN 61010, 1000V Cat. III

ORDERING INFORMATION

AE/2120.81	FlexProbe® Model 24-3001 (300/3000A, 24", 10mV/A/1mV/A, with lead)
AE/2118.46	Banana (Female) - BNC (Male) Adapter (XM-BB) for use with scopes

AEMC Megohmmeters

Digital/Analog Megohmmeters

1040
&
1045



For motors, cables, switchgear and general applications

- True Megohmmeter*
- Test voltage combinations of 250V, 500V and 1000V
- Insulation measurements to 2000M Ω (2G Ω)
- Automatic test inhibition (if live sample >25V)
- Automatic discharge for operator safety
- Multi-line 4000-count backlit digital display with analog bargraph
- Resistance measurements to 400k Ω
- Continuity with 200mA test current
- Timer function for easy DAR and PI (Model 1045)
- Over-molded slip-proof holster for rugged field use
- EN 61010-1, 300V Cat. II, EN 61557 and CE rated
- Supplied with a soft carrying case

Analog Megohmmeters

1015



1005



Ideal for acceptance testing and preventive maintenance

- Compact and lightweight
- Test voltage to 500V (Model 1005) or 1000V (Model 1015)
- Insulation measurements to 1000M Ω
- 600VAC voltage measurement range (safety check)
- 0 to 10 Ω + and 0 to 10 Ω - continuity ranges
- Continuity measurements with 200mA test current
- Resistance range to 1000 Ω (Model 1015)
- Push button for battery check
- Large, direct-reading, colored scale
- Rugged construction for heavy duty field use
- Includes test leads, shockproof rubber housing & soft carrying case

1000V Megohmmeter



6527



- Test voltage combinations of 250V, 500V and 1000V
- Insulation measurements to 4000M Ω
- Resistance measurements to 400k Ω
- Continuity meter, up to 200mA test current
- Voltmeter measures to 600VAC/1000VDC
- Large, dual, backlit digital display
- Auto HOLD function to freeze readings
- TEST LOCK feature for time sensitive measurements up to 15 minutes
- Automatic discharge after insulation test
- Auto power off
- CAT IV 600V rating
- Supplied with a soft carrying case and test leads

Hand-Cranked Megohmmeters

- True Megohmmeter*
- Test voltages of 250V, 500V and 1000V
- Insulation measurements to 200M Ω and 5000M Ω
- LED indicates constant voltage output and proper cranked speed
- Automatic discharge when measurement is finished
- Auto-Ranging with dual scale operation for better sensitivity and easier readings
- Voltage display prior to, during and at end of test
- Compact self-contained package; folding crank
- Large direct-reading scale
- CAT III 300V rating



6501



ORDERING INFORMATION

AE/2116.92	Megohmmeter Model 1040 (Digital, with Analog Bargraph, Alarm, Backlight, 500V, 1000V, 400k Ω , Continuity)
AE/2116.93	Megohmmeter Model 1045 (Digital, with Analog Bargraph, Alarm, Timer, Backlight, 250V, 500V, 1000V, 400k Ω , Continuity)
AE/2117.30	Megohmmeter Field Kit, Model 1040
AE/2117.31	Megohmmeter Field Kit, Model 1045
AE/2126.53	Megohmmeter Model 6527 (Digital, 250V, 500V, 1000V, 400k Ω , 600VAC/1000VDC measure)
AE/2126.51	Megohmmeter Model 6501 (Hand-cranked, 500V, 500k Ω , Continuity)
AE/2126.52	Megohmmeter Model 6503 (Hand-cranked, 250V, 500V, 1000V)
AE/1402.01	Megohmmeter Model 1005 (Analog, 500V, Continuity)
AE/1403.01	Megohmmeter Model 1015 (Analog, 500/1000V, Resistance, Continuity)

AEMC Ground Resistance Testers

Digital Ground Resistance Tester Models 4620 & 4630



▲ 4630 CE □

- Measures soil resistivity (4-Point) method
- Measures ground resistance (2- and 3-Point) Fall-of-Potential method
- Step voltage tests and touch potential measurements
- Auto-Ranging: automatically selects the optimum range
- Designed to reject high levels of noise and interference
- Extremely simple to operate: connect - press - read
- LED on faceplate informs operator of high input noise, high auxiliary rod resistance and fault connections
- Large easy-to-read backlit display
- Battery powered (Model 4620)
- AC powered with rechargeable NiMH batteries (Model 4630)
- Rugged dustproof and rainproof field case
- Can also be used for continuity tests on bonding
- Color-coded terminals

Also available as full kits



Clamp-On Ground Resistance Tester Models 6416 & 6417



▲ 6416

CE □

- Ground voltage indication (warns of possible unsafe conditions)
- Large multi-function bright yellow organic LED display (OLED)
- Selectable test frequency improves accuracy in inductive environments
- Large jaw with 35mm clamping diameter
- Storage of up to 300 measurements, Ω & A with time-stamp (Model 6417: up to 2000 measurements stored)
- View stored measurements on the OLED display (also on PC or Android phone via Bluetooth for Model 6417)
- Alarm function with adjustable set point & buzzer for quick field checks of volts, amps and ohms
- Alarm settings and stored memory information saved during shutdown
- Includes DataView® software for data storage, real-time display, analysis, report generation and system configuration (Model 6417)
- Noise icon and buzzer alert user to presence of dangerous voltage and current levels
- Designed to EN 61010-1, 600V CAT IV safety standards

Multi-Function Ground Resistance Tester Models 6470B & 6472

- 2- and 4-Wire Bond Resistance/Continuity measurement
- 3-Point Fall-of-Potential measurement with manual/automatic frequency selection
- 4-Point soil resistivity measurement with automatic calculation of Rho & user selection of Wenner or Schlumberger method
- 3-Point earth coupling measurement
- Frequency scan 40-513Hz for testing in electrically noisy environments
- Selectable test voltage of 16 or 32V up to 250mA of test current
- Automatic recognition of all electrode connections & resistance
- Stores up to 512 complete test results
- Optically isolated USB communication
- Rechargeable NiMH batteries from wall charger or vehicle power
- Rugged dustproof and rainproof field case
- Includes DataView® software for remote operation, data storage, real-time display, analysis, report generation & system configuration

Model 6472 adds:

- Manual and automatic frequency scan to 5078Hz
- Measures Ground Resistance using the 2 clamp method (selective ground testing)
- Measures Ground Impedance up to 5kHz to test lightning strike protection

Tester includes meter, NiMH batteries, optical USB cable, DataView® software, external battery charger, power cord, user manual.

Kit includes Tester, test leads, 30 ft ground lead (green), auxiliary ground electrodes, spaded lugs, 100 ft tape measure, ground tester workbook CD, carrying bag for meter, carrying bag for kit.

6470B ▶



ORDERING INFORMATION

AE/2130.43 Ground Resistance Tester Model 4620 (4-Point, Digital, Battery Powered)

AE/2130.44 Ground Resistance Tester Model 4630 (4-Point, Digital, Rechargeable Battery)

AE/2135.20 Model 4620 Kit with 300/100 ft leads

AE/2135.23 Model 4630 Kit with 300/100 ft leads

AE/2141.01 Ground Resistance Tester Model 6416 (Clamp-On)

AE/2141.02 Ground Resistance Tester Model 6417 (Clamp-On with Bluetooth)

AE/2135.01 Ground Resistance Tester Model 6470B

AE/2135.03 Ground Resistance Tester Model 6470B 4-point Kit - 300/100 ft leads

AE/2135.04 Ground Resistance Tester Model 6470B 4-point Kit - 500/100 ft leads

AE/2135.51 Ground Resistance Tester Model 6472

AE/2135.53 Ground Resistance Tester Model 6472 4-point Kit - 300/100 ft leads

AE/2135.54 Ground Resistance Tester Model 6472 4-point Kit - 500/100 ft leads

AE/2135.71* AC Current Probe Model MN82 for use with Model 6472

AE/2135.72* AC Current Probe Model SR182 for use with Model 6472

*2 probes required for two clamp testing method.

Megger® Ground Resistance Testers

Three-Terminal Ground Resistance Testers

BIDDLE® Model 250260 is the tried and proven analog tester. It is a simple, three-terminal model that will tolerate 2V peak-to-peak voltage interference.

The MEGGER® DET3TD is a digital tester with an expanded resistance range and selectable 25/50V test voltage. It rejects noise up to 40V p-p and measures earth voltages up to 100V. The DET3TC adds an ART (Attached Rod Technique) resistance measurement and earth current measurements from 0.5mA to 19.9A with the optional current clamp.

All DET3 and DET4 models are CAT IV 100V and IP54 rated. Test leads and carrying case are included.

Four-Terminal Ground Resistance Testers

Addition of a fourth terminal permits soil resistivity testing as well as more precise resistance (installed ground) measurements.

The new DET4TD2 offers the same features as the DET3TD, but with 4-terminal capability and a 20kΩ upper resistance limit. The DET4TC2 increases this to 200kΩ. The DET4TCR2 has rechargeable batteries that can be charged from the AC mains or a vehicle battery (with optional adapter). The DET4TC2 and DET4TCR2 offer 4 test frequencies for testing in noisy environments. Both models can be ordered with clamps to perform the stakeless test method, like a clamp style earth tester. A backlit LCD provides improved visibility in dark locations.

For testing in extreme electrical environments, the DET2/2 offers full autoranging, 0.001Ω resolution, adjustable test frequency and additional interference filtering.



ORDERING INFORMATION

Model No.	Measurement	Resistance	Voltage	Gnd Current	Power Source	Display	Test Leads
250260	2/3 Term.	0.5 - 500Ω			Battery	Analog	250560
DET2/2	2/3/4 Term.	0.010Ω - 20kΩ			Rechargeable Battery	Digital	250581
DET3TD	2/3 Term.	0.01 - 2000Ω	0 - 100V		Battery	Digital	included
DET3TC	2/3 Term. + ART*	0.01 - 2000Ω	0 - 100V	0.5mA - 19.9A*	Battery	Digital	included
DET4TD2	2/3/4 Term.	0.01Ω - 20kΩ	0 - 100V		Battery	Digital	included
DET4TC2	2/3/4 Term.	0.01Ω - 200kΩ	0 - 100V		Battery	Digital	included
DET4TC2+Clamps	2/3/4 Term. + stakeless	0.01Ω - 200kΩ	0 - 100V	0.5mA - 19.9A	Battery	Digital	included
DET4TCR2	2/3/4 Term.	0.01Ω - 200kΩ	0 - 100V		Rechargeable Battery	Digital	included
DET4TCR2 +Clamps	2/3/4 Term. + stakeless	0.01Ω - 200kΩ	0 - 100V	0.5mA - 19.9A	Rechargeable Battery	Digital	included

* Attached Rod Technique (ART) requires optional current measuring clamp.

Megger® Clamp-on Testers

NEW


Ground Resistance Testers

- Easy, fast clamp-on operation – No rods or cables needed
- Measure ground resistance from 0.05Ω to 1500Ω
- Measure ground leakage or phase current from 0.5mA to 35A
- Auto ranging with high & low alarms
- Automatic self calibration
- Data storage & USB interface

DET24C

APPLICATIONS

- Measure resistance and continuity of grounding loops around pads, poles and buildings.
- Check multi-grounded systems without disconnecting the ground rod/stake under test.
- Measure leakage current flowing to ground or circulating in ground systems.
- Use on cell towers, RF transmitters and telecom sites.
- Inspect and verify lightning protection systems.
- Test consumer installations, including pools, spas, etc.

FEATURES

- Backlit LCD display can be read in bright sunlight.
- Large 39 x 55mm jaw with 39mm (1.5") opening.
- Noise filter for stable readings in noisy environments.
- Hold function for difficult to reach installations.
- 24 hour battery life with auto-off to save on battery power.
- Two alarms with adjustable threshold & audible indication.
- Stores 2000 test results (DET24C).
- Calibration check loop insures proper operation.
- CAT IV 600V safety rating.

Range	Resolution	Accuracy	Range	Resolution
0.05 - 0.99Ω	0.01Ω	±1.5% ± 0.05Ω	0.5 - 0.99mA	0.01mA
1.00 - 9.99Ω	0.01Ω	±1.5% ± 0.1Ω	1.00 - 9.99mA	0.01mA
10.0 - 99.9Ω	0.1Ω	±2% ± 0.5Ω	10.0 - 99.9mA	0.1mA
100.0 - 199.9Ω	0.1Ω	±5% ± 1Ω	100 - 999mA	1mA
200 - 400Ω	1Ω	±6% ± 5Ω	1.00 - 9.99A	0.01A
400 - 600Ω	1Ω	±10% ± 10Ω	10.0 - 35.0A	0.1A
600 - 1200Ω	10Ω	±20%		
1200 - 1500Ω	10Ω	±35%		

TRMS reading, CF<5, 50-400Hz
Basic Accuracy 2% @ 50/60Hz

Model DET24C includes USB interface, IrDA dongle and software for downloading test data. Both models include batteries, carrying case, carrying strap & calibration loop.

ORDERING INFORMATION

ME/DET14C	Digital Earth Test Clamp-on Meter
ME/DET24C	Digital Earth Test Clamp-on Meter with USB

Hioki Battery Testers


3554

- Test without disconnecting the batteries
- Three level indication: Pass, Warning, Fail
- Audible beeper (3555)
- PC Interface & software (3554)

Get an instantaneous check of battery condition based on internal resistance and voltage.

Model 3554 for medium and high capacity lead-acid batteries. Model 3555 for compact storage batteries used in portable telephones and similar applications.

SPECIFICATIONS

	3554	3555
Measurement Ranges:		
Ohms:	3μΩ-3Ω	300μΩ-30Ω
# Ranges	4	3
Best resolution	1μΩ	100μΩ
Accuracy	0.8% rdg +6d	0.8% rdg +6d
Test Current	150mA-1.5mA	5mA-50μA
DC Volts	±6V, ±60V	±3V, ±30V
Best resolution	1mV	1mV
Accuracy	0.08% rdg +6d	0.1% rdg +6d
Temperature	-10 to +60°C	--
Resolution	0.1°C	--
Test Frequency	1kHz	1kHz
Max. Input	60V DC	50V DC
Comparator	Hi & low ohm limit, low volt limit (both models)	
# Limit Sets	200 stored	10 stored
Data Memory	4800 data/limit sets	--
Alert	LCD icon	LED & Beeper
Batteries	9 x AA	6 x AA
Life	up to 10 hrs	up to 18 hrs
PC Interface	USB	--
Operating Temp.	0-40°C, <80% RH non-condensing	
Dimensions	7.7 x 5.1 x 2.2" (196x130x55mm)	

SUPPLIED ACCESSORIES

3554	Pin-type test leads, USB cable, data management software, carrying case, zero adjust board, batteries, spare fuse
3555	Pin-type test leads, batteries.

ORDERING INFORMATION

HK/3554	Battery Tester (lead-acid batteries)
HK/3555	Battery Tester (portable batteries)
HK/9382	Carry case for 3555
HK/9453	4-terminal lead set
HK/9466	Remote Control Switch for 3554

Megger® High-Pot Testers

Production Line High-Pot Testers

BIDDLE® High-Pot Testers are designed for ease of operation and readily adapt to development, maintenance or production testing. These instruments are supplied with 4-ft removable probes.

Available in one AC/DC and two AC models; the AC units feature a front-panel, NEMA-5-15R three-prong output receptacle.

The BIDDLE high-pot testers are packed with features for safety and convenience, including:

- Ground continuity check of 3-wire devices with high voltage interlock
- Visual and audible alarms
- Leakage current adjustable on front-panel from 0.3 to 12.3 mA
- One-second or continuous testing
- Automatic failure shutdown
- Recessed high-voltage connections

Catalog No.	Model	Applied Test Voltage	Adjustable Leakage Current Trip Level
ME/230315	AC	0-3 kV ac	0.3 to 12 mA
ME/230415	AC	0-4 kV ac	0.3 to 12 mA
ME/230425	AC/DC	0-4 kV ac 0-5 kV dc	AC: 0.3 to 12 mA DC: 0.43 to 17 mA

230415



Megger® Digital Low Resistance Ohmmeters

NEW

DLRO-10

- Accurate results in under three seconds
- Auto current reversal cancels standing emfs
- Fuse protected to 600 V
- NiMH battery reduces weight
- 250 mW power limit avoids heating the test sample
- Autoranging with high/low limits (DLRO 10X)

Range	Resolution	Current
1.9999 mΩ	0.1 μΩ	10 A
19.999 mΩ	1 μΩ	1 A
199.99 mΩ	10 μΩ	100 mA
1999.9 mΩ	100 μΩ	10 mA
19.999 Ω	1 mΩ	1 mA
199.99 Ω	10 mΩ	0.1 mA
1999.9 Ω	100 mΩ	0.1 mA

Test Leads & Battery Charger Included

ME/DLRO-10	DLRO with LED display
ME/DLRO-10X	DLRO with LCD display
ME/DLRO10HD	Heavy Duty DLRO (LCD display)

DLRO10HD

- Delivers up to 10A into 250mΩ (25W)
- Operates from rechargeable battery or line power
- Input protected to 600V
- Heavy duty IP65 case
- 5 test modes, including auto-start on connection
- Simple to use rotary switches

Range	Resolution	Current
250.00 mΩ	10 mΩ	10 A
2500.0 mΩ	100 mΩ	1 A
2500.0 μΩ	0.1 μΩ	10A
25.000 mΩ	1 μΩ	1 A
250.00 mΩ	10 μΩ	100 mA
2500.0 mΩ	100 μΩ	10 mA
25.000 Ω	1 mΩ	1 mA
250.00 Ω	10 mΩ	0.1 mA
2500.0 Ω	100 mΩ	0.1 mA

DLRO10HD



DLRO 200

- Test currents from 10A to 200A DC
- Filtered DC output eliminates magnetic transients
- 0.1μΩ best resolution
- Full QWERTY keyboard
- On board memory for up to 300 test results and notes
- RS232 port to download stored results or for real time output to a printer

Measurement Range: 0.1μΩ to 999.9mΩ
 Test Modes: Normal, Continuous, Auto. Use continuous mode for long duration tests, Auto mode for rapid sequential testing.
 Test Time: 10 seconds
 Display: Large backlit LCD
 Dimensions: 16.4" x 9.9" x 10.7" (410x250x270mm)
 Weight: 32 lbs (14.5kg)
 Power: 100-130VAC, 50/60Hz

DLRO 200



Supplied with 16 ft. (5m) test leads and download software. A variety of C-clamp, Kelvin clips, fixed point and spring point leads are available in various lengths.

ME/DLRO200-115E	High Current Digital Low Resistance Ohmmeter
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Megger® Handheld Micro-ohmmeter

NEW

- Battery operated
- Auto range: 1 $\mu\Omega$ to 1000 m Ω
- Test current up to 220 Amps
- Safe test – DualGround™
- Stores up to 190 test records
- Bluetooth® PC communication
- Ultra capacitor technology (patent pending)

MOM2



The MOM2 Micro-ohmmeter is a lightweight, handheld unit designed to deliver up to 220 Amps and measure the resistance of circuit breaker contacts, bus-bar joints and other high-current links. Measurements are made using the DualGround™ method, where the test object is grounded on both sides throughout the test for a safer, faster and easier workflow. The conventional test method, with one side grounded, is also supported (optional cable kit required).

SPECIFICATIONS

Application:	High-voltage substations & industrial environments	
Resistance Ranges:	Autorangeing from 0 - 1000 m Ω	
Resolution:	0 - 999 $\mu\Omega$	1 $\mu\Omega$
	1.0 - 9.99 m Ω	0.01 m Ω
	10.0 - 99.9 m Ω	0.1 m Ω
	100 - 1000 m Ω	1 m Ω
Accuracy:	0 - 1999 $\mu\Omega$	± 1 % of reading ± 1 digit
	2 - 1000 m Ω	± 2 % of reading ± 1 digit
Pass / Fail:	Settable from 1 $\mu\Omega$ to 1999 m Ω	
Output Current:	Selectable minimum of 50 A or 100 A (100A valid at resistance <2m Ω)	
Output Voltage:	2.5 V DC max	
Output Duration:	Selectable: 0.1 s, 0.6 s, 3 s	
Recovery Time:	10-130 sec	
Voltage In:	± 3 V DC	
Trigger In:	Threshold 8 V DC	
DC Power In:	12 - 24 V DC, 2 A max	
Operating Temp.:*	-20°C to +50°C (-4°F to +122°F)	
Relative Humidity:	5%-95%, non condensing	
Battery:	Five AA, 2700 mAh NiMH cells	
Capacity:	Typ. 2200 measurements at 50 A and 0.1 s from fully charged batteries	
Battery Charger:	100-250 V AC, 50/60 Hz, 60 W	
Recharge Time:	< 12 hr; < 3 hr typical at 25°C	
Real-time Clock:	Battery life >10 years	
Audible Feedback:	Different buzzer sounds	
User Presets:	3	
Data Logger:	Label, Timestamp, I max, I min, I Limit, Resistance, Meas. time, P/F limit	
Data Capacity:	190 measurements	
Wireless:	Bluetooth headset & PC communication	
Encapsulation:	IP54	
Dimensions:	8.5"H x 3.6"W x 2.8"D, excl. binding posts (217 x 92 x 72 mm)	
Weight:	1.0 kg (2.2 lbs) instrument only	

*Battery operation temperature 0°C to +50° (32°F to +122°F)

*Battery charging temperature +10°C to +40° (50°F to +104°F)

Transport case, charger, rubber holster, carrying strap, belt clip, PC software included.

Megger® High Current Loop Tester



LT300

- Single and 3 phase testing
- 16 Hz to 400 Hz operation
- Simple 2 wire operation
- CAT IV 300V applications
- 0.01 Ω resolution on 20 Ω range

The LT300 offers high current loop testing over a wide range of frequencies and supply voltages with simple, fast, two wire operation.

SPECIFICATIONS

Voltage Measure:	0-550V (400V @ 16 Hz); Accuracy 5% ± 2 V
Frequency:	Supply frequency indicated upon connection (16, 50/60, 400 Hz). Test frequency automatically set
Loop Resistance:	0-19.99 Ω and 0-199.9 Ω ; Accuracy 5% ± 5 d
Test Current:	3-27A on 20 Ω range, 0.3-2.7A on 200 Ω range
Operating Temp.:	-10°C to 60°C, < 90% RH @ 40°C
Power:	Eight standard AA alkaline batteries
Dimensions:	8"H x 5.8"W x 3"D (203 x 148 x 78 mm)

Megger® Cable Height Meter



CHM600

- Measures the height of up to six overhead cables
- Dramatically reduces measuring time
- No physical connection to cables or wires
- Designed for portability & ease-of-use
- Readout in feet/inches or meters

The CHM Series utilize ultrasonic techniques to determine the height of up to the six overhead cables and wires. The meter displays the height of the lowest cable and the spacings between the next five cables.

SPECIFICATIONS

Min. Cable Size:	CHM2000: 0.125" @ 7-32 ft, 0.5" @ 35 ft. (@ 68° F)
	CHM600: 0.125" @ 10-32 ft, 0.5" @ 50 ft.
	CHM600E: 0.5" @ 10-50 ft, 1" @ 75 ft.
Resolution:	1/4 in. (5 mm) if < 10 m 1/2 in. (10 mm) if > 10 m
Accuracy:	Typically less than 0.5% error ± 2 digits
Power Source:	9 volt alkaline battery (included)
Operating Temp.:	14° F to 104° F (-10° C to 40° C), reading compensated over the full range
Battery Life:	> 50,000 measurements
Dimensions:	3"H x 4"W x 8.5"D (70 x 100 x 205 mm)

ORDERING INFORMATION

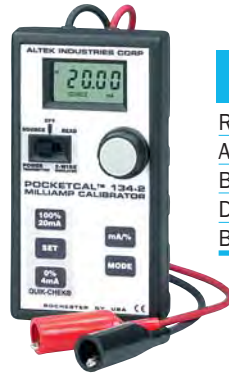
ME/BD-59090	MOM2 Micro-ohmmeter with 2 x 1.3 m (4 ft) test cables Kelvin probes (one with trig button)
ME/BD-59092	MOM2 Micro-ohmmeter with 1.3 m (4 ft) test cable red & Kelvin clamp 3 m (10 ft) test cable black with Kelvin clamp (Cat #GA-90001)
ME/GA-00384	15 meter Cable Kit
ME/LT300-EN-00	High Current Loop Tester with red/green leads & carry case
ME/LT300-EN-FS	High Current Loop Tester with fused leads & carry case
ME/CHM2000	Telecom Cable Height Meter; 6 lines; 7-35 ft.
ME/659600	CHM600 Power Cable Height Meter, 6 lines; 10-50 ft.
ME/659600E	CHM600E Power Cable Height Meter, 6 lines; 10-75 ft.

Altek Process Calibrators

Milliamp Calibrator

- Source and Read 0-24mA
- Simulate 2-wire Transmitters
- Quik-Chek Pushbuttons

Use the PocketCal 134-2 to simultaneously power and measure two-wire transmitters up to 12V. Simulate the transmitter in circuits from 3 to 45V.



MILLIAMP CALIBRATOR SPECIFICATIONS

Ranges	0.00 to 24.00mA, -25.0 to 125.0% of 4 to 20mA
Accuracy	0.03mA
Burden	0.9V @4mA, 1.9V @24mA
Drive	700Ω @20mA with fresh batteries
Battery Life	40hr simulate, 20hr source from 9V batteries (supplied)

134-2

Loop Calibrator

- Source to 24mA, Read to 52mA
- Measure to ±99.9V DC
- Quickly Simulate 2-wire Transmitters

The versatile 334A will check, calibrate and troubleshoot all the signals in a 4-20mA process control loop. Simultaneously power and measure two-wire transmitters up to 27V. Simulate the transmitter in circuits from 3 to 45V. Overload protected to 135VAC.



LOOP CALIBRATOR SPECIFICATIONS

Source/Simulate	0.00 to 24.00mA, -25.0 to 125.0% of 4 to 20mA
Read	0.00 to 52.00mA, -25.0 to 300.0% of 4 to 20mA
Accuracy	0-24mA: ±0.05% of reading ± 1 digit Quik-Chek: ±0.03% of reading ± 0.01mA
Drive	1200Ω @20mA with fresh batteries
Battery Life	100hr simulate, 20hr source from 9V batteries (supplied)

334A



820E

MULTIFUNCTION CALIBRATOR SPECIFICATIONS

FUNCTION	RANGE	ACCURACY
mA Source/Measure	0.00 to 24.00mA, -18.8 to 125.0% of 4 to 20mA	±0.05% of FS ± 1d
mV	0.00 to 110.00mV DC (20mA max source/sink)	±0.05% of FS ± 1d
V	0.00 to 10.25V DC (20mA max source/sink)	±0.05% of FS ± 1d
V (measure only)	0.0 to 200.0V DC	±2% of FS ± 1d
VAC (measure only)	0.0 to 250.0V AC TRMS	±2% of FS ± 1d
TC	J, K, T, E	±2% typical
RTD	100Ω Pt, 385 alpha (2mA max)	±1°C
Ohms	0 to 400.0Ω source, 0 to 1000.0Ω measure	±0.06Ω
Frequency	1-1000 CPM, 1-1000 Hz, 0.01-10.00 kHz	±0.05% of FS ± 1d
Simulate Range	3 to 45V	
ma Compliance	25V (max 1.9V burden at 24mA)	
Transmitter Drive	1200Ω @20mA typical, Power & Measure mode	
Battery Life	50hr simulate, 20hr source (AA batteries supplied)	

Multifunction Calibrator

- Calibrate Milliamps, Volts & Frequency
- Check Thermocouple & RTD Sensors
- Use in Place of a DMM for ACV & Ohms
- Simulate 2-Wire Transmitters

The deluxe Model 820E combines the functions of the 111, 322-1, 334A and voltage calibration in one compact unit. It also performs frequency calibration and extended voltage measurements.

ORDERING INFORMATION

(Batteries & three year warranty included)

AL/134-2	PocketCal Milliamp Calibrator
AL/334A	Milliamp Loop Calibrator with Carrying Case
AL/820E	TechChek Multifunction Calibrator with Carrying Case
AL/3331E	Carrying Case with Belt Clip for 134-2

Altek Temperature Calibrators

RTD Calibrators

- Source and Read Pt RTDs
- 8 RTD Types Plus Ohms (Model 211)
- 0.1° and 0.01Ω Resolution
- °C/°F Display
- Easy Dial Setting
- Small and Lightweight

111 ▶



The Model 111 simulates and measures 3-wire, 100Ω Platinum RTDs over the full industrial temperature range. The Model 211 handles multiple RTD types in either 3 or 4 wire configurations, plus extended ohms range.

Thermocouple Calibrators

- Source and Read Modes
- 0.1° and 0.001mV Resolution
- °C/°F Display
- Easy Dial Setting
- Small and Lightweight

322-1 ▶



Simulate and measure the most popular thermocouple types with the Model 322-1. Use the Model 422 with 14 different types. Three output memories for each TC type facilitate repetitive testing. Each model accepts miniature thermocouple connectors and direct thermocouple wires.

SPECIFICATIONS

MODEL 111		
RTD Type	100Ω Pt (DIN/IEC/JIS), 385 alpha	
Accuracy	-200.0 to 200.0°C (-328.0 to 212.0°F)	±0.5°C (±0.9°F)
	200.0 to 700.0°C (212.0 to 750.0°F)	±0.6°C (±1.0°F)
	700.0 to 850.0°C (750.0 to 1562.0°F)	±0.7°C (±1.2°F)

MODEL 211		
RTD Type	Alpha	Range
Pt100 (DIN/IEC/JIS)	3850	-200.0 to 850.0°C (-328.0 to 1562.0°F)
Pt100 (JIS 1981)	3916	-200.0 to 648.9°C (-328.0 to 1200.0°F)
Pt100 (Burns)	3902	-195.6 to 648.9°C (-328.0 to 1200.0°F)
Pt100 (US lab)	3926	-200.0 to 862.0°C (-328.0 to 1584.0°F)
Pt1000 (HVAC)	3750	-184 to 275°C (-300 to 527°F)
Cu10 (Minco)	4274	-200 to 260°C (-328 to 500°F)
Ni120	6720	-80.0 to 273.0°C (-112.0 to 524.0°F)
Ni110	5801	-106.7 to 315.6°C (-160.0 to 600.0°F)
Accuracy (typical)	Pt100	±0.15°C (±0.25°F)
	Pt1000, Ni	±0.10°C (±0.2°F)
	Cu10	±1.1°C (±2.0°F)

MODEL 111 & 211		
Ohms	0.00 to 410.00	±0.2Ω accuracy
	0.0 to 2010.0	±0.5Ω accuracy (211 only)
Excitation Current	0.09 to 5.80 mA source, 1mA read	
Temperature Drift	<0.01%/°C change in ambient	
Battery Life	Approx. 50 hrs from 9V alkaline battery (supplied)	
Size	5.2" x 2.6" x 2.5" (130x67x64 mm)	

SPECIFICATIONS

Input/Output (322-1)	Type J, K, T, E and mV
Input/Output (422)	Type J, K, T, E, R, S, B, N, G, C, P, L, U, D and mV
Ranges	J: -210.0 to 1200.0°C (-346.0 to 2192.0°F)
	K: -230.0 to 1371.1°C (-382.0 to 2500.0°F)
	T: -260.0 to 400.0°C (-436.0 to 752.0°F)
	E: -240.0 to 1000.0°C (-400.0 to 1832.0°F)
	R, S: -18.3 to 1767.8°C (-1.0 to 3214.0°F)
	B: 315.6 to 1820.0°C (600.0 to 3308.0°F)
	N: -230.0 to 1300.0°C (-382.0 to 2372.0°F)
	G: 100.0 to 2320.0°C (212.0 to 4208.0°F)
	C, D: -1.1 to 2320.0°C (30.0 to 4208.0°F)
	P: -217.8 to 1395.0°C (-360.0 to 2543.0°F)
	mV: ±99.999mV
	Accuracy
Cold Junction Effect	<0.05°/°C change in ambient
Battery Life	Approx. 40 hrs from 9V alkaline battery (supplied)
Size	5.2" x 2.6" x 2.5" (130x67x64 mm)

ORDERING INFORMATION

(Batteries, carrying case and three year warranty included)	
AL/111	RTD Calibrator (100Ω Pt, 385)
AL/211	RTD Calibrator (8 types)
AL/322-1	Thermocouple Calibrator (type J, K, T, E)
AL/422	Thermocouple Calibrator (14 types)

Yokogawa Calibrators

CA11E Voltage/Current Calibrator

- Source and Measure Voltage and Current
- 4-20mA and 1-5V DC Step-up/down Function
- 20mA SINK Function
- Sweep Function
- 0.05% Basic Accuracy



SPECIFICATIONS

Source/Measure Functions

Range	Span
30V	0 to 30.00V DC
10V	0 to 11.000V DC
1-5V (source only)	1/2/3/4/5V DC
1V	0 to 1.1000V DC
100mV	0 to 110.00mV DC
20mA	0 to 24.000mA DC
4-20mA (source only)	4/8/12/16/20mA
20mA SINK (source only)	0.1 to 24.000mA

CA71/SP1 Multi-function Calibrator

- Simultaneous Source & Measure Capability
- Separate Source & Measure Switches for Easy Setup
- Autostep, Sweep & Memory Functions
- 0.025% Measure Accuracy (DCV)



Each CA71/SP1 includes: 120VAC adapter, source & measure cables, terminal adaptor for temperature measurements, input fuse, magnetic instrument case, accessory case for input cables, carrying case, 9 pin RS232 communications cable & data logging software.

SPECIFICATIONS

SOURCE FUNCTIONS	RANGES	BEST RESOLUTION	BEST ACCURACY
DCV	100mV/1V/10V/30V	10mV	0.02%+15µV
DCA	20mA/4-20mA	1µA	0.025%+3µA
mA sink	20mA	1µA	0.05%+3µA
Resistance	400Ω	0.01Ω	0.02%+0.1Ω
RTD	Pt100 (-200 to +850°C)	0.1°C	0.025%+0.3°C
TC	J K T E L U N	0.1°C	0.02%+0.5°C
TC	R S B	1°C	0.02%+1.5°C
Frequency	500/1000/10kHz	0.2Hz	0.2Hz
Pulse	99999 cycles	1	--

MEASURE FUNCTIONS	RANGES	BEST RESOLUTION	BEST ACCURACY
DCV	100mV/1V/10V/100V	10mV	0.025%+20µV
DCA	20mA/4-20mA	1mA	0.025%+4µA
Resistance	400Ω	0.01Ω	0.05%+0.1Ω
ACV	1/10/100/300V	1mV	0.5%+5 digits
RTD	Pt100 (-200 to +850°C)	0.1°C	0.05%+0.6°C
TC	J K T E L U N	0.1°C	0.05%+1.5°C
TC	R S B	1°C	0.05%+2°C
Frequency	100/1000/10kHz	0.01Hz	2 digits
Pulse	99999 counts/min, /hr	1	--

CA12E Temperature Calibrator

- Simulate Thermocouples and RTDs
- Multi-range RTD Thermometer
- °C/°F Selection
- Built-in Sensor for Reference Junction Compensation
- 0.05% Basic Accuracy
- Binding Post Terminal Adapter



SPECIFICATIONS

Source/Measurement Functions

Selection	Source/Measure
Type K	-200.0 to 1372.0°C -328 to 2498°F
Type E	-200.0 to 1000.0°C -328 to 1832°F
Type J	-200.0 to 1200.0°C -328 to 2192°F
Type T	-200.0 to 400.0°C -328 to 752°F
Type N	-200.0 to 1300.0°C -328 to 2372°F
Type R, Type S	0 to 1768°C 32 to 3214°F
Type B	600 to 1800°C 1112 to 3272°F
Type L	-200 to 900°C -328 to 1652°F
Type U	-200 to 400°C -328 to 752°F
RTD Pt100 (3 wire)	-200.0 to 850.0°C -328 to 1562°F
100mV	-10.00 to 110.00mV
400Ω	0 to 400.0Ω

CA150/SP1 Multi-function Calibrator

- Simultaneous Source & Measure Capability
- Large LCD Display
- Step, Linear & Programmed Sweeps
- Loop Power Supply
- DC Voltage and Current Generation
- Settings and Data Memory
- 0.02% Measure Accuracy (DCV)



Each CA150/SP1 includes: 120VAC adapter, source & measure cables, terminal adaptor for temperature measurements, input fuse, NiMH battery, accessory case for input cables & carrying case

SPECIFICATIONS

SOURCE FUNCTIONS	RANGES	BEST RESOLUTION	BEST ACCURACY
DCV	100mV/1V/10V/30V	1µV	0.02%+10µV
DCA	20mA	1µA	0.02%+3µA
mA sink	20mA	1µA	0.025%+6µA
Resistance	500/5k/50kΩ	0.01Ω	0.02%+1.5Ω
RTD	Pt100 (-200 to +850°C)	0.1°C	0.025%+0.3°C
TC	J K T E L U N	0.1°C	0.02%+0.4°C
TC	R S B	1°C	0.02%+1.2°C
Frequency	100/1000/10k/50kHz	0.01Hz	0.05Hz
Pulse	1100 CPM	0.1 CPM	0.5 CPM

MEASURE FUNCTIONS	RANGES	BEST RESOLUTION	BEST ACCURACY
DCV	500mV/5V/35V	10µV	0.02%+50µV
DCA	20mA/100mA	1µA	0.025%+4µA
Resistance	500/5k/50kΩ	0.01Ω	0.055%+0.075Ω
RTD	Pt100 (-200 to +850°C)	0.1°C	0.05%+0.6°C
TC	J K T E L U N	0.1°C	0.05%+1.5°C
TC	R S B	1°C	0.05%+2°C
Frequency	100/1000/10kHz	0.01Hz	2 digits
Pulse	100000 CPM, CPH	1	--

Yokogawa Process Calibrators

NEW

VOLTAGE/CURRENT

- Source to 24mA, ±33V
- Measure to ±60mA, ±55V
- Step, ramp & sweep
- 24V loop power supply
- Simulate (sink) function



CA310

SPECIFICATIONS

Source:	0 to 24.000mA, <1kΩ load 0 to 550.00mV/5.5000V/±33.000V
Measure:	0 to ±24.000mA/±60.000mA; 0 to ±550.00mV/±5.5000V/ ±33.000V/±55.000V
Simulate:	0 to 24.000mA, 5-28V external supply
Input R:	mA source: <10Ω V measure: >1MΩ
Loop Supply:	24V ±1V (@24mA, comm R OFF) 24V ±6V (@20mA, comm R ON)
Accuracy:	0.015% +3 digit (+5 digits on volts)
Dimensions:	7.5" x 3.6" x 1.65" (192 x 90 x 42mm)

Includes test leads, batteries & carrying case. AC adapter sold separately (P/N 94013).

ORDERING INFORMATION

YE/CA310	Volts & mA Calibrator
YE/CA320	Thermocouple Calibrator
YE/CA330	RTD Calibrator

THERMOCOUPLE

- Measure & source (simulate) 16 T/C types
- 0.5° C basic accuracy, including internal reference junction
- Step, ramp & sweep
- Dual display (° & mV or %)



CA320

SPECIFICATIONS

Type K	-200.0 to 1372.0°C
Type E	-250.0 to 1000.0°C
Type J	-210.0 to 1200.0°C
Type T	-250.0 to 400.0°C
Type N	-200.0 to 1300.0°C
Type L	-200 to 900.0°C
Type U	-200.0 to 600.0°C
Type R, S	-20.0 to 1767.0°C
Type B	600.0 to 1820.0°C
Type C	0.0 to 2315.0°C
Type XK	-200.0 to 800.0°C
Type A	0.0 to 2500.0°C
Voltage:	-11.000 to ±99.999mV
Accuracy:	Type K, E, T, L, U: 0.5°C for 0<t<500° mV: 0.015% +10μV (max 10mA out)
Dimensions:	7.5" x 3.6" x 1.65" (192 x 90 x 42mm)

Includes test leads, batteries & carrying case. AC adapter sold separately (P/N 94013).

RTD

- Source/Measure 16 RTD types
- 0.3° C basic accuracy
- 2/3/4-wire
- Step, ramp & sweep
- Dual display (° & Ω or %)



CA330

SPECIFICATIONS

Pt100 (3851)	-200.0 to 800.0°C
Pt100 (3850)	-200.0 to 630.0°C
Pt100 (3916)	-200.0 to 510.0°C
Pt100 (3926)	-200.0 to 630.0°C
Pt200 (3851)	-200.0 to 630.0°C
Pt500 (3851)	-200.0 to 630.0°C
Pt1000 (3851)	-200.0 to 630.0°C
Cu10 (427)	-100.0 to 260.0°C
Ni120 (627)	-80.0 to 260.0°C
Pt50 (3851)	-200.0 to 630.0°C
Pt50G	-200.0 to 800.0°C
Pt100G	-200.0 to 630.0°C
Cu50M	-180.0 to 200.0°C
Cu100M	-180.0 to 200.0°C
500Ω	0.00 to 550.00Ω
3000Ω	0.0 to 3300.0Ω
Accuracy:	Pt100, Pt200: 0.033% +0.3°C Ω: 0.025% +0.5Ω
Dimensions:	7.5" x 3.6" x 1.65" (192 x 90 x 42mm)

Includes test leads, binding posts, batteries & carrying case. AC adapter sold separately (P/N 94013).

Extech Process Calibrators

VOLTAGE/CURRENT

- Source to 24mA, 20V
- Measure to 50mA, 20V
- 5 user adjustable presets
- Banana connections
- Battery or AC power



PRC15

SPECIFICATIONS

Source:	0 to 24mA (-25% to 125%), <1kΩ load 0 to 20V										
Measure:	0 to 50mA (-25 to 230%); 0 to 19.99V										
Input/Output:	<table border="1"> <thead> <tr> <th>Range</th> <th>Resolution</th> </tr> </thead> <tbody> <tr> <td>0 to 19.99mA</td> <td>0.01mA</td> </tr> <tr> <td>0 to 24.0mA</td> <td>0.1mA</td> </tr> <tr> <td>0 to 1999mV</td> <td>1mV</td> </tr> <tr> <td>0 to 20.00V</td> <td>10mV</td> </tr> </tbody> </table>	Range	Resolution	0 to 19.99mA	0.01mA	0 to 24.0mA	0.1mA	0 to 1999mV	1mV	0 to 20.00V	10mV
Range	Resolution										
0 to 19.99mA	0.01mA										
0 to 24.0mA	0.1mA										
0 to 1999mV	1mV										
0 to 20.00V	10mV										
Accuracy:	0.01% +1 digit										
Dimensions:	6.3" x 3.2" x 1.7" (159 x 80 x 44mm)										

Includes test leads, AC power adapter, batteries & hard carrying case

THERMOCOUPLE

- Measure & source (simulate) 8 T/C types
- Display °C, °F or mV
- 5 user adjustable presets
- Miniature thermocouple connector
- Battery or AC power



PRC20

SPECIFICATIONS

Type J	-58 to 1832°F (-50 to 1000°C)
Type K	-58 to 2498°F (-50 to 1370°C)
Type T	-184 to 752°F (-120 to 400°C)
Type E	-58 to 1382°F (-50 to 750°C)
Type C	32 to 3182°F (0 to 1750°C)
Type R/S	32 to 3182°F (0 to 1750°C)
Type N	-58 to 2372°F (-50 to 1300°C)
Voltage:	-10.00mV to +60.00mV
Resolution:	0.1° (up to 999.9) or 1° (over 999.9°) for J, K, T, E: ±1° for R, N; 0.5° for C, S
Accuracy:	0.05% rdg +1° 0.015% ±3 digit or 10μV +1d
Input Z:	10 MΩ
Dimensions:	6.3" x 3.2" x 1.7" (159 x 80 x 44mm)

Includes calibration cables, AC power adapter, batteries

MULTIFUNCTION

- Source/Measure Voltage, Current, mV & Thermocouples
- Combines functions of the PRC15 & PRC20
- 24V loop power source



PRC30

SPECIFICATIONS

DC Source:	<table border="1"> <tr> <td>Current</td> <td>0 to 24mA (-25% to 125%), <1kΩ load</td> </tr> <tr> <td>Voltage</td> <td>0 to 2000mV, 0 to 20V</td> </tr> <tr> <td>mV/Temp</td> <td>-5 to 55mV</td> </tr> </table>	Current	0 to 24mA (-25% to 125%), <1kΩ load	Voltage	0 to 2000mV, 0 to 20V	mV/Temp	-5 to 55mV						
Current	0 to 24mA (-25% to 125%), <1kΩ load												
Voltage	0 to 2000mV, 0 to 20V												
mV/Temp	-5 to 55mV												
DC Measure:	<table border="1"> <tr> <td>Current</td> <td>0 to 50mA, -25% to +230%</td> </tr> <tr> <td>Voltage</td> <td>0 to 1999mV / 2 to 20V</td> </tr> <tr> <td>mV/Temp</td> <td>-10 to 60mV</td> </tr> </table>	Current	0 to 50mA, -25% to +230%	Voltage	0 to 1999mV / 2 to 20V	mV/Temp	-10 to 60mV						
Current	0 to 50mA, -25% to +230%												
Voltage	0 to 1999mV / 2 to 20V												
mV/Temp	-10 to 60mV												
Thermocouple Source/Measure:	<table border="1"> <tr> <td>Type J</td> <td>-58 to 1832°F (-50 to 1000°C)</td> </tr> <tr> <td>Type K</td> <td>-58 to 2498°F (-50 to 1370°C)</td> </tr> <tr> <td>Type T</td> <td>-184 to 752°F (-120 to 400°C)</td> </tr> <tr> <td>Type E</td> <td>-58 to 1382°F (-50 to 750°C)</td> </tr> <tr> <td>Type C, R, S</td> <td>32 to 3182°F (0 to 1750°C)</td> </tr> <tr> <td>Type N</td> <td>-58 to 2372°F (-50 to 1300°C)</td> </tr> </table>	Type J	-58 to 1832°F (-50 to 1000°C)	Type K	-58 to 2498°F (-50 to 1370°C)	Type T	-184 to 752°F (-120 to 400°C)	Type E	-58 to 1382°F (-50 to 750°C)	Type C, R, S	32 to 3182°F (0 to 1750°C)	Type N	-58 to 2372°F (-50 to 1300°C)
Type J	-58 to 1832°F (-50 to 1000°C)												
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Type T	-184 to 752°F (-120 to 400°C)												
Type E	-58 to 1382°F (-50 to 750°C)												
Type C, R, S	32 to 3182°F (0 to 1750°C)												
Type N	-58 to 2372°F (-50 to 1300°C)												
Accuracy:	V/I/mV: 0.01% + 1 digit T/C: 0.05% + 2°F or 1°C												
Loop Power:	24V												
Dimensions:	6.3" x 3.2" x 1.7" (159 x 80 x 44mm)												

Includes test leads, calibration cables, AC power adapter, batteries & hard carrying case

ORDERING INFORMATION

EX/PRC15	Voltage/Current Calibrator	
EX/PRC20	Thermocouple Calibrator with Cold Junction Compensation	add -NIST to P/N for NIST traceable Certificate of Calibration
EX/PRC30	Multifunction Calibrator with Cold Junction Compensation	

Martel Beta Process Calibrators

Multi-Function

MC-1210 ▶



- Measure and source T/Cs, RTDs, ohms, current, voltage, frequency; source pulse trains
- Isolated mA/V read-back for complete transmitter calibration
- Dual display (volts/mA, source/measure)
- Automatic cold junction compensation
- Tests pressure & temperature switches
- Auto step & ramp with setpoints
- Complete serial interface for remote control
- Rugged IP54 case

SPECIFICATIONS

Read and Source	Voltage	Current (mA)
Source	0.000 to 20.000 VDC	0.000 to 24.000 mA
Read Isolated	0.000 to 30.000 VDC	0.000 to 24.000 mA
Read Non-isolated	0.000 to 20.000 VDC	0.000 to 24.000 mA
Accuracy	±0.015% of rdg ±2 mV	±0.015% of rdg ±2 µA
Frequency	Millivolts (mV)	
CPM Source & Read	2.0 to 600.0 CPM	Read & Source -10.000 to +75.000 mV
Hz Source & Read	1.0 to 1000.0 Hz	Accuracy ±0.02% of rdg, ±10 µV
kHz Source & Read	1.0 to 10.00 kHz	Ohms
Accuracy	0.05% ±1d	Source 5.0 to 4000Ω
		Read 0.00 to 4000.0Ω
		Accuracy 0.025% ±5d
Read and Source	Range (Accuracy) * °C	Read and Source Range (Accuracy) °C
J	-210.0 to +1200.0 (0.2)	Ni120 -80.0 to +260.0 (0.2)
K	-200.0 to +1370.0 (0.3)	Pt100 (385) -200.0 to +800.0 (0.2)
T	-250.0 to +400.0 (0.2)	Pt100 (3926) -200.0 to +630.0 (0.2)
E	-250.0 to +1000.0 (0.2)	Pt100 (3916) -200.0 to +630.0 (0.2)
R	-20.0 to +1767.0 (1.2)	Pt200 (385) -200.0 to +630.0 (0.7)
S	-20.0 to +1767.0 (1.2)	Pt500 (385) -200.0 to +630.0 (0.3)
B	+600.0 to +1820.0 (1.2)	Pt1000 (385) -200.0 to +630.0 (0.2)
C	0 to +2316.0 (0.6)	Cu10 -100.0 to +260.0 (1.3)
XK	-200.0 to +800.0 (0.2)	YSI400 +15.00 to +50.00 (0.1)
BP	0 to +2500.0 (0.9)	Cu50 -180 to +200 (0.3)
L	-200.0 to +900.0 (0.2)	Cu100 -180 to +200 (0.1)
U	-200.0 to +600.0 (0.25)	Pt10 (385) -200 to +800.0 (1.4)
N	-200.0 to +1300.0 (0.4)	Pt50 (385) -200 to +800.0 (0.4)

*T/C basic accuracy with CJC off; same as PTC-8010 with CJC on

Operating Temperature: -10 °C to +50 °C
 Protection: Protected against misconnection to 250V AC/DC
 Dimensions: 8.5" H x 4.8" W x 2.1" D (22x12x5.3cm)

Loop Calibrator



LC-110 ▶

- Simulate, power & measure two-wire transmitters
- Five preset outputs (4, 8, 12, 16, 20 mA)
- 0.001 mA resolution
- Adjustment level knob
- Variable step and ramp time
- Measures loop power
- Hart protocol (LC-110H)

SPECIFICATIONS

Current Source & Measure	
Range:	0.000 to 24.000 mA, -25 to +125 %
Voltage (Reading):	0 to 30 VDC
Protection:	240 VAC, 28mA DC
Valve Test:	Simulates defined mA values with % keys
Loop Supply:	24 VDC @ 20mA
Data Storage:	9800 records or 99 sessions, 1 to 60 second interval
Resolution:	1 µA, 1mV
Accuracy:	±0.01% of reading ± 2 digits
Operating Temp.:	-10 to +55 °C
Dimensions:	6" x 3.6" x 1.3"

Thermocouple Calibrator

- 10 T/C types plus mV
- ±0.3 °C accuracy (type J)
- Accepts T/C mini-plug & bare T/C wires
- 3 setpoints for each T/C type
- MIN/MAX recall in measure mode
- Input protection to 240 VAC



TC-100 ▶

SPECIFICATIONS

Voltage Source & Measure	
Range:	-10 to +75.000 mV
Resolution:	1 µV
Accuracy:	±0.007% of reading, ±10 µV
Output Impedance:	≤1 Ω
Input Impedance:	>1 MΩ
Thermocouple Source/Measure	
Types:	J, K, T, E, R, S, B, L, U, C
Resolution:	0.1 °C or °F source
	0.01 °C or °F measure
Operating Temp:	-10 °C to +55 °C
Dimensions:	5.7" x 3.15" x 1.43"

Universal Temperature

- Calibrates thermocouples, RTDs, transmitters & meters
- Displays cold junction & mV equivalent
- Direct keyboard entry or scroll control
- ASCII RS-232 & USB interface
- Rugged IP54 case
- High accuracy: ±0.4 °C Type J T/C, ±0.2 °C Pt100 RTD
- Auto step & ramp

PTC-8010 ▶



SPECIFICATIONS

Read/Source	Range °C	Accy*	Ni120	-80.0 to 260.0	0.1°
J	-210.0 to 1200.0	0.4°	Pt 100 (385)	-200.0 to 800.0	0.2°
K	-200.0 to 1370.0	0.5°	Pt 100 (3926)	-200.0 to 630.0	0.2°
T	-250.0 to 400.0	0.4°	Pt 100 (3916)	-200.0 to 630.0	0.2°
E	-250.0 to 1000.0	0.4°	Pt 200 (385)	-200.0 to 630.0	0.7°
R	-20.0 to 1767.0	1.4°	Pt 500 (385)	-200.0 to 630.0	0.3°
S	-20.0 to 1767.0	1.4°	Pt 1000 (385)	-200.0 to 680.0	0.2°
B	600.0 to 1820.0	1.5°	Cu100	-180.0 to 200.0	0.1°
L	-200.0 to 900.0	0.4°	YSI400	15.0 to 50.0	0.1°
U	-200.0 to 600.0	0.5°	Ohms	0.00 to 400.00,	0.025%
N	-200.0 to 1300.0	0.6°		401.0 to 4000.0	
mV	-10.000 to 75.000	0.02%	plus Pt10/50, Cu10/50 RTDs; C, XK, BP T/Cs		

Connectors: Standard mini-plug for T/C, banana jack for RTDs
 Operating Temp.: -10 to +50 °C
 Dimensions: 8.5" H x 4.8" W x 2.1" D (22x12x5.3cm)

*Basic Accuracy with thermocouple CJC on or 4-wire RTD connection

ORDERING INFORMATION

MA/MC-1210	Multi-Function Calibrator with test leads, carrying case, 4 AA batteries, NIST certificate
MA/PTC-8010	Universal Temperature Calibrator with test leads, carrying case, 4 AA batteries, NIST certificate
MA/IVC-222	HP11 Voltage/Current Calibrator with test leads, carrying case, 9V battery, NIST certificate
MA/TC-100	Thermocouple Calibrator with 9V battery, NIST certificate
MA/LC-110	Loop Calibrator with test leads, 6 AAA batteries, NIST certificate

A variety of temperature probes, test leads, cables and software are available.

Voltage/Current Calibrator

- 0.015% of reading accuracy
- 200 mV, 2 V, 20 V and 24 mA ranges
- 24 V supply can drive 4-20 mA loops
- 2 stored setpoint values
- Intuitive, easy-to-use controls



IVC-222HP11 ▶

SPECIFICATIONS

Resolution	
Voltage:	0.01 mV, 0.0001 V, 0.001V
Current:	0.001 mA
Accuracy:	±0.015% of reading, ±2 count; 18 °C to 28 °C
Temp. Stability:	±0.005% FS/°C
Load Capability	
Voltage:	±1 mA for rated accuracy
Current:	1kΩ
Output Protection:	Current limited internal RESET
Operating Temp:	-10 °C to +55 °C
Dimensions:	1.43" x 3.15" x 5.7"

Fluke Process Loop Calibrators

Fluke 705 Loop Calibrator

- Simultaneous mA and % Readout
- Fast “Span Check”
- Selectable Slow Ramp, Fast Ramp & Step
- 24V Internal Loop Supply

Fluke 707 Loop Calibrator

705 Features, Plus:

- Output Adjustment Dial
- HART™ Mode
- 0.015% Accuracy

Fluke 787 Process Meter

- DMM and Loop Calibrator
- Backlit LCD
- 1000V Overload Protection on V, Ohms, Frequency

Fluke 789 Process Meter

787 Features, Plus:

- 24V Loop Power Supply
- HART™ Mode
- Fast “Span Check”

Fluke 715 Volt/mA Calibrator

- Measure loop Currents and Process Voltages
- Source Loop Currents to 24mA
- Source Voltage to 10V

787 ▼

SPECIFICATIONS				
Functions	Fluke 705 and 707	Fluke 715	Fluke 787 and 789	
Voltage measurement				
Range	0-28 V dc	0-100 mV 0-10 V	0-1000 V ac or dc	
Resolution	0.001V	10 µV 1 mV	0.1mV to 1.0V	
Accuracy	705: 0.025% Rdg + 1 LSD 707: 0.015% Rdg + 2 LSD	0.02% Rdg + 2 LSD	0.1% Rgd + 1 LSD (VDC)	
Current measurement				
Range	0-24 mA	0-24 mA	0-1A dc	0-30 mA dc
Resolution	0.001 mA	0.001 mA	1mA dc	0.001 mA dc
Accuracy	705: 0.02% Rdg + 2 LSD 707: 0.015% Rdg + 2 LSD	0.015% + 2 LSD	0.2%+2 LSD	0.05%+2 LSD
Current sourcing				
Range	0-20 mA or 4-20 mA ¹	0-20 mA or 4-20 mA ¹	0-20 mA or 4-20 mA ¹	
Accuracy	705: 0.025% Rdg + 2 LSD 707: 0.015% Rdg + 2 LSD	0.015% Rdg + 2 LSD	0.05% of span	
Drive capability	705: 1000Ω @ 24 mA 707: 1200Ω @ 24 mA	1000Ω @ 24 mA	787: 500Ω @ 24 mA 789: 1200Ω @ 24 mA	
Loop power while measuring mA	24V	24V	24V (789 only)	
Voltage sourcing	N/A	0-100 mV or 0-10V	N/A	
Resistance measurement	N/A	N/A	to 40MΩ, 0.2% + 1 LSD	
Frequency	N/A	N/A	to 19.999 kHz, 0.005% + 1 LSD	
Diode test	N/A	N/A	2.4 V shows diode voltage drop	
Continuity	N/A	N/A	Beeps for resistance <100 ohms	
Display current and % of span	Yes	mA or %	Yes	
Auto step, auto ramp	Yes	No	Yes	
Span Check	Yes	No	789 only	

¹Will over-range to 24 mA



705 ▲



Fluke Temperature Calibrators



Fluke 712B RTD Calibrator

- Measure & simulate 13 RTD types & resistance
- Measure 4-20mA signals while sourcing an RTD signal
- Configurable 0% to 100% source for quick 25% linearity checks
- Linear ramp & 25% auto ramp
- Power down settings remembered at power up
- Dual inputs & backlit display
- Hanging tool built into case
- 1 and 2 year specs plus traceable certificate of calibration



Fluke 714B Thermocouple Calibrator

- Measure & simulate 17 TC types
- Measure 4-20mA signals while sourcing a thermocouple signal
- Configurable 0% to 100% source for quick 25% linearity checks
- Linear ramp & 25% auto ramp
- Power down settings remembered at power up for easy restart of tests
- Dual inputs & backlit display
- Hanging tool built into case
- 1 and 2 year specs plus calibration certificate

SPECIFICATIONS

Model	Function	Range	Resolution	1 yr Accuracy	Types
Fluke-712B	Measure/simulate RTD	-200 to 800°C, depending on type	0.1°C	0.015%+0.18°C (Pt 100, 100-800°)	Pt 10 50 100 200 500 1000 (385); Pt 100 (3916 3926); Ni 120 (672); Cu 10 50 100 (427); YSI400
	Measure/simulate Resistance	0 to 400Ω 40 to 4000Ω	0.01Ω 0.1Ω	0.015% + 5d	
Fluke-714B	Measure/simulate Thermocouple	-250 to 2500°C, depending on type	0.1°C	0.3°C (Type K -100 to 400°)	J K T E N R S B C L U G D P B P X K M (K range = -200 to 1372°C)
	Measure/source mV	-10 to 75 mV	0.01 mV	0.015% + 1d	
Both Models	Measure DC mA	0 to 24 mA	0.001 mA	0.010% + 2d	

Simpson Analog VOM

- Industry Standard Model 260
- Mirrored Scale
- 10A AC (260-95)
- 36 Measurement Ranges
- CAT III-600V (260-95)
- 1000V AC/DC Max (260-8)

ORDERING INFORMATION

(Test Leads Included)			ACCESSORIES		
Cat. #	Model #	Description	Cat. #	for Model	Description
SI/12388	260-8	General Purpose, Phenolic Case	SI/00043	260-8, 8P	Probe Set, threaded w/clips
SI/12391	260-8P	Relay Protected	SI/00125	260-8XI, 8XPI	Probe Leads w/Screw-On Alligator Clips
SI/12389	260-8RT	Roll Top Case			
SI/12392	260-8PRT	Relay-Protected, w/Roll Top Case	SI/00834	Any 260-8	Black nylon padded case
SI/12395	260-8XI	Yellow ABS Plastic Case	SI/00805	Any 260-8	Black Leatherette case
SI/12396	260-8XPI	Yellow Case, Relay-Protected	SI/00541	260-8XI, 260-8XPI, 9S, 9SP	250A AC Clamp
SI/12397	260-9S	Safety VOM Orange, with Case	SI/00545	260-8, 8P, 8RT, 8PRT, 95, 95P	250A AC Clamp
SI/12398	260-9SP	Safety VOM Protected, with Case	SI/00425	260-8X, 9	Screw-on alligator Clips



▲ 260-8
260-9S ▼



Triplet Analog VOM

- 58 Ranges & Functions (Model 60-NA)
- Withstands 5 Foot Drop
- 3 Year Warranty
- Mirrored Scale

60 ▶



ORDERING INFORMATION

TR/3145	Model 60 VOM (Orange Case)	Test Leads
TR/3151	Model 60-NA (Gray Case)	TR/79-373 Miniature Clip Leads (female jack)
Carrying Cases		TR/79-374 48" Test Leads w/ Screw-On Alligator Clips (female jack)
TR/10-823	639 Carrying Case (Top Opening)	AC Amps Clamp-On
TR/10-2739	639-A Carrying Case (Snap back Cover)	TR/3264 Model 101-G Line Separator
TR/4152	639-C Padded Cordura Carrying Case	TR/60-211 Model 10 Clamp-On AC AMP Adaptor (60, 60-NA)
		TR/79-417 6' Attachment Leads (60/ 60-NA to Model 10)

Weschler Columbia AC/DC Clamp-On Tong Test Ammeters

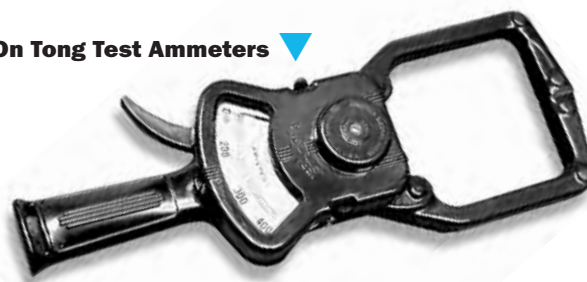
Ideal for verifying current in plating tanks, coating systems, welding equipment, motors, generators & transformers

- Instant Readings
- One Hand Operation
- No Transformers or Shunts Needed

The Tong Test Ammeter reads the true RMS (heating) value, regardless of wave shape. It contains no batteries, rectifiers, switches or electrical windings to overheat or burn out. Currents in lines up to 2300V can be measured if the cables are properly insulated. DC accuracy is 5% of full scale, AC accuracy (25-100Hz) is 2%, except 5% on ranges above 500A. Add 1% for 100-400Hz.

Plug-in Range modules: 0-100A, 0-150A, 0-200A, 0-300A, 0-400A, 0-500A, 0-600A, 0-800A, 0-1000A. The effective range can be lowered by winding two or more turns of the conductor around the tongs.

Clamp-On Tong Test Ammeters ▼



ORDERING INFORMATION

Columbia AX	for conductors up to 1 1/2" dia.
Columbia C	for conductors up to 2 1/2" dia.
Columbia D	for conductors up to 3" dia. or bus bars to 4"x1" or 4 1/2"x 1/2"

Specify range model(s) when ordering.

Yokogawa Test Standards

Decade Resistance Boxes

2793 6-Dial Decade Resistance Box

- Resistance value ranges: 0.100 to 1111.210 Ω (2793 01)
0 to 111.1110M Ω (2793 03)
- Accurate, highly stable
- High reproducibility
- Resolution 0.001 Ω
- Well-suited for resistance temperature detector calibration (2793 01)
- Well-suited for insulation resistance tester calibration (2793 03)

2786 Decade Resistance Box

- Resistance ranges: 0.1 to 111,111 Ω (2786 10)
1 to 1,111,110 Ω (2786 20)
- Small temperature coefficient, little temporal variation
- Small residual resistance
- Metal casing resists external influences



Wheatstone Bridges

2768 Precision Wheatstone Bridge

- Measurement range 0.1 Ω to 111M Ω
- High precision $\pm 0.01\%$
- Does not require accessories
- Built-in power source, current detector; external plug
- Highly stable measurement over long periods
- Also functions as a variable resistor

2755-97 Portable Wheatstone Bridge

- Measurement range 1 Ω to 10M Ω
- Does not require accessories
- Simple operation
- Current detector with built-in protection circuit
- Compact, light-weight



Double Bridges

2752 Precision Double Bridge

- Measurement range 0.1 Ω to 111M Ω
- High precision $\pm 0.03\%$
- Stable over long periods
- Standard resistor built-in
- Allows testing of cylindrical resistors using clamp device

2769 Portable Double Bridge

- Measurement range 0.1 Ω to 110M Ω
- Rapidly performs reliable, accurate measurements
- Easy to handle and store
- Does not require accessories
- Built-in high sensitivity current sensor



Portable Meters

Portable AC Ammeters and Voltmeters

- Superior product line
- Highly reliable, incorporating 80 years of meter manufacturing technology
- Low friction, withstands impact, tautband technology
- Compact, light-weight

Miniature Portable Ammeters and Voltmeters

- Superior product line
- Highly reliable, incorporating 80 years of meter manufacturing technology
- Low friction, withstands impact, tautband technology



Monarch Optical Tachometers

- Operating Range up to 25 Feet
- Accepts Remote Contact Assembly (optional)
- Accepts Remote Sensors (optional)
- TTL Pulse Output
- Auto Ranging or Fixed Decimal
- English and Metric Rates
- Tripod Mounting Bushing
- On-Target and Low Battery Indicators
- Rugged Rubberized Housing
- N.I.S.T. traceable Certificate of Calibration

PLT200 ▶



PLT200 SPECIFICATIONS

Display:	5 digit alpha-numeric LCD
Optical Range:	5 to 200,000 RPM
Contact Range*:	0.5 to 20,000 RPM (other ranges: inches, yds, miles, cm, m per hour or per second)
Optical Accuracy:	±0.01% of reading
Contact Accuracy*:	±0.05% of reading (RPM)
Resolution:	0.001 to 10 RPM (range dependent)
Operating Range:	2 inches to 25 feet
Light Source:	Class 3R visible laser
Memory:	Maximum, Minimum and Last
Power:	(2) AA batteries
Environmental:	5° to 40°C (0° to 100°F) 80% RH up to 31°C (88°F)
Dimensions:	6.92 "H x 2.4" W x 1.6" D
Weight:	7 oz. (210 g)

* with optional Remote Contact Assembly (RCA).

PLT200 is a 32 function Laser Tachometer and Ratemeter/Totalizer/Counter/Timer (stopwatch). The unit is program-able in both English and Metric rates. Support is built-in for the optional Remote Contact Assembly (RCA) and plug-in remote sensors. A TTL compatible pulse output can trigger devices like data collectors or stroboscopes. The ergonomic design allows safe, direct line-of-sight viewing of both the target and the display at the same time. The case has a non-slip rubber surface for single hand operation.

PT99 SPECIFICATIONS

Display:	5 digit alpha-numeric LCD
Range:	5 to 99,999 RPM
Accuracy:	0.01% of reading or ±1 Digit
Resolution:	Autoranging: 0.001 to 1.0 RPM Fixed: 1 RPM
Operating Range:	2 to 36 inches
Light Source:	Red LED
Memory:	Maximum, Minimum & Last
Power:	(2) AA 1.5 VDC batteries
Environmental:	5° to 40°C (0° to 100°F) 80% RH up to 31°C (88°F)
Dimensions:	6.92 "H x 2.4" W x 1.6" D
Weight:	7 oz. (210 g)

PT99 ▶



- Non-Contact Optical Measurement
- Operating Range up to 36 Inches
- Rugged, Ergonomic Rubberized Housing
- Tripod Mounting for Hands Free Operation
- Autoranging or Fixed Decimal

Direct line-of-sight viewing of both the rotating target and the display at the same time.

ORDERING INFORMATION

Catalog No.	MODEL	DESCRIPTION
MN/6125-010	PLT200	Pocket Laser: Tachometer/Timer/Totalizer with N.I.S.T. traceable certificate of calibration and 12" of reflective tape.
MN/6125-011	PLT200 KIT	Pocket Laser Tachometer Kit includes: Tach, RCA, Carrying Case, N.I.S.T. certificate and 5 ft roll of T-5 reflective tape.
MN/6109-010	PT99	Pocket Tachometer with 12" of reflective tape
Accessories for PLT200		
MN/6180-057	ROS-P	Remote Optical Sensor with 8-foot cable, mounting bracket and 12" of reflective tape.
MN/6180-057-25	ROS-P-25	Remote Optical Sensor with 25-foot cable, mounting bracket and 12" of reflective tape.
MN/6180-017	MT-190P	Magnetic trigger Sensor/Amplifier with 8 foot cable
MN/6180-020	IRS-P	Infrared Sensor with 8 foot cable, 3.5 mm plug and mounting bracket
MN/6180-028	EC-25P	25 foot extension cable for all sensors
MN/6280-037	CA-4044-6	6 foot input/output cable, 1/8 inch mono phone plug to BNC connector
MN/6180-074	RCA	Remote Contact Assembly includes contact tips (concave and convex) and 10 cm linear contact wheel.
MN/6580-010	CTE	Rubber concave, convex tips and 10 cm contact wheel
MN/6580-011	12" Contact Wheel	Linear Contact Wheel with 12-inch circumference for use with RCA.
Accessories for both models		
MN/6180-047	CC-10	Padded Pouch
MN/6180-048	CC-11	Latching Plastic Carrying Case.
MN/6180-070	T-5	Reflective Tape 5 foot roll, 0.5" wide

Monarch LED Stroboscopes

NEW

Nova-Strobe

- Brightest portable LED strobes available
- For diagnostic inspection and RPM checks
- Digital LCD backlit display (DBL, PBL models)
- Lightweight design with tripod mount bushing (¼-20) in handle
- 12 button keypad for quick entry of flash rates (DBL, PBL)
- NIST certificate included with DBL and PBL models
- Continuous, 24/7 operation (PBL)



Nova-Strobe DBL

NOVA-STROBE SPECIFICATIONS			
	BBL Basic	DBL Deluxe	PBL Phaser
Flash Range (FPM/RPM):		30-500,000	
Display:	6 digit numeric and 5 digit alphanumeric LCD		
Accuracy/Resolution:	0.002% of setting or ±1 least significant digit/ 0.01 FPM		
Light Output:	3000 Lux @ 6000 FPM, 8 inches (20cm), 2% duty cycle		
Flash Duration:	Adjustable to 14 degrees /3000µsecs max		
Light Source:	12 LED Array		
Color Temperature:	6300°K		
External Triggers in/out:	N/A	TTL (24Vdc Max) Input. Provides 3.3 Vdc TTL output	
Tachometer Mode:	N/A	0-500,000 RPM (Use with optional remote sensor)	
Programmable Memory:	N/A	Yes	
Internal Phase Shift:	N/A	Yes	
Phase Delay - Degrees:	N/A		0.1 to 359.9 degrees
Time Delay (milliseconds):	N/A		0.01 to 1000 msec.
Virtual RPM (Slow Motion):	N/A		0-200 VRPM
Operating Time (AC power):	N/A		continuous
Operating Time (battery power):	8-10 hours typical @ 1800 FPM		
Batteries:	Internal NiMH rechargeable (120/240V charger included)		
Size (L x W x H)/Weight:	Body: 9" x 3.66" x 3.56" (229 x 93 x 90 mm); Reflector Housing: 4.8" (122mm) dia.; Handle: 4.254" (108 mm long) / 1.9 Lbs (860g)		

Nova-Strobe industrial stroboscopes provide a bright, uniform light output. The twelve LED source is extremely efficient, which means long battery life & continuous cool operation. A wide operating range of 30-500,000 flashes per minute covers all applications. The Basic BBL is designed for simple stop motion inspection and RPM measurements. The Deluxe DBL adds internal phase shifting, memory for 5 preset flash rates, NIST calibration certificate and tachometer mode for speed measurements up to 500,000 RPM using optional remote sensors or TTL pulse input. The top of the line Phaser PBL has all the features of the DBL plus external phase delay, time delay & virtual RPM mode. The PBL will also run continuously with the power supply/recharger.

Pocket LED Strobe

- Intuitive one hand operation
- Extremely bright, uniform light
- Quiet/Cool operation
- Digital LCD backlit display
- Compact size, long battery life
- Tripod mounting bushing (¼-20)
- No lamp replacements
- NIST Certificate included



ORDERING INFORMATION		
Catalog No.	MODEL	DESCRIPTION
MN/6230-010	Nova-Strobe BBL	BBL Strobe, universal 115/230 recharger with interchangeable wall plugs & manual
MN/6230-011	Nova-Strobe BBL Kit	Same as above with plastic latching carry case
MN/6231-010	Nova-Strobe DBL	DBL Strobe, universal 115/230 recharger with interchangeable wall plugs, manual & NIST Cert
MN/6231-011	Nova-Strobe DBL Kit	Same as above with plastic latching carry case
MN/6232-010	Nova-Strobe PBL	PBL Strobe, 115/230 power supply/recharger with USA and Euro cables, manual & NIST Cert
MN/6232-011	Nova-Strobe PBL Kit	Same as above with Deluxe water tight plastic carry case
MN/6235-010	PLS	Pocket LED Strobe, 115/230 VAC recharger with interchangeable wall plugs, manual & NIST Cert
MN/6235-011	PLS Kit	Same as above with latching carry case
Accessories		
MN/6180-029	ROLS-P	Remote optical laser sensor with 8 ft cable, 1/8" phone plug & 12" reflective tape
MN/6280-048		Protective rubber cover for Nova-Strobes
MN/6280-040		Standard latching carry case for Nova-Strobes
MN/6280-073		Protective carry pouch with belt hook for PLS
MN/6180-070	T-5	Reflective Tape 5 foot roll, 0.5" wide

PLS SPECIFICATIONS	
Light Source:	7 LED Array
Avg. Light Output:	1800 Lumens at 6000 FPM 8" from lens
Color Temp:	5600°K
Power:	Li-Ion rechargeable batteries 3.6Vdc
Run Time:	5-6 hours typical at 6000 FPM
Charge Time:	4-5 hours typical with supplied charger
Memory:	5 user settable memory locations
Flash Duration:	Adjustable 0.5 to 2500 µsec or 0.1 to 18 deg. of rotation (auto adjusts with flash rate)
Internal Mode:	
Flash Range:	30-300,000 FPM (Flashes per minute), 0.5 to 5000Hz
Accuracy:	0.005% of setting or ± last digit
Resolution:	0.01 to 1 FPM (menu selectable), 0.1 FPM resolution above 9,999.99 FPM, 1 FPM resolution above 99,999.9
External Modes:	
Flash Range:	0-300,000 FPM, 0 to 5000Hz
Tachometer Mode:	30 to 300,000 RPM
Accuracy:	±0.005% of reading or ± last digit
Display Update:	0.5 second typical above 120 RPM
Trigger to Flash:	~15 µsec delay
External Input:	2.5-12V peak pulse, 500ns min pulse width, pos. or neg. edge triggered (menu selectable)
Pulse In to Out Delay:	<0.2µsec
Output Pulse:	3V pulse. One pulse per flash in internal mode. Mimics input pulse in external mode
LCD Display:	6 digit numeric plus 5 digit alpha-numeric
Indicators:	Battery level, On Target, Select, TACH, EXT icons
Dimensions:	7.75" x 2.75" x 2.3" (197 x 70 x 58 mm)

TEST EQUIPMENT

Amprobe Tachometers

- Measures rotational and surface speed
- Contact and non-contact measurement
- Select rpm using infrared beam or adapter: m/min, m/sec, ft/min, ft/sec, in/min, m, ft, in
- Stores maximum, minimum, average & last measurement
- Auto power off function

Includes 6 adapters, carrying case, reflective tapes, 2 AA batteries and user manual

TACH20


SPECIFICATIONS

Measuring Ranges:			
Optical	1 - 99999 RPM		
Mechanical	1 - 19999 RPM		
Speed	Ø 01 m	Ø 6"	Ø 12"
m/min	0.10 - 1999	0.10 - 1524	0.40 - 609.6
ft/min	0.40 - 6550	0.40 - 5000	0.40 - 2000
in/min	4.00 - 78700	4.00 - 60000	4.00 - 24000
m/sec	0.10 - 33.30	0.10 - 25.40	0.10 - 10.16
ft/sec	0.10 - 109	0.10 - 83.33	0.10 - 33.30
Length	0 - 99999 m / 0 - 99999 ft / 0 - 99999 in		
Accuracy	±0.02% of reading ±1 digit		
Sensing Distance	600 mm / 24 in max. (optical)		
Operating Temp.	0 to 50°C (32 to 122°F)		
Housing Material	ABS		
Dimensions	175 x 60 x 28 mm (7 x 2.5 x 1 in)		

- Measures rotational & surface speed
- Non-contact measurement in RPM
- Contact measurement in RPM, m/min, ft/min, yd/min (user selectable)
- 5 digit display
- Auto power off function

Includes cone & funnel contact tips, reflective tape, 9V battery, user manual

SPECIFICATIONS

Measuring Ranges:	
Rotation	10.0 - 99999 RPM (Non-contact) 10.0 - 19999 RPM (Contact)
Surface Speed (Contact)	1.0000 - 9999.9 m/min 3.0000 - 30,000 ft/min 1.0 - 10,000 yd/min
Resolution:	
RPM	0.001/0.01/0.1/1
M/Min	0.0001/0.001/0.01/0.1
Ft/Min	0.0001/0.001/0.01/0.1
Yd/Min	0.0001/0.001/0.01/0.1
Accuracy	±(0.1% of rdg. +2 digit)
Measure Distance	5-30 cm / 2-13 inches (non-contact)
Sampling Time	1 second (>60RPM), >1 second (10~60RPM)
Operating Temp.	0 to 50°C (32 to 122°F), < 80% RH
Dimensions	267 x 178 x 82 mm (10.5 x 7 x 3.2 in)


TACH-10

ORDERING INFORMATION

AB/TACH20	Combo Tachometer
AB/TACH-10	Contact / Non-Contact Tachometer

Monarch Palm Strobe

- One touch tuning
- Flash rates to 12500 FPM
- Tachometer mode
- TTL compatible input/output
- Memory recall
- Rechargeable battery

Four quadrant joystick button adjusts flash rate, x2, +2.



SPECIFICATIONS

Operating Modes	Internal 100-12500 FPM External 5-12500 FPM Tach 5-250000 RPM
Battery Run Time	1 hour typical
Display	6 digit backlit LCD

ORDERING INFORMATION

MN/6205-050	Palm Strobe, with charger & NIST certificate
MN/6205-053	Palm Strobe Kit (Strobe, charger, NIST cert., spare battery, spare lamp, holster & case)
MN/6280-044	Protective Rubber Boot

Exttech Tachometer

NEW

- Measures RPM & surface speed
- Pocket size
- Laser guided non-contact measurements to 4.9 ft
- Reversible 5 digit LCD display
- Min/Max/Last reading memory

Complete with cone tip and wheel for rpm or linear surface speed, four AAA batteries, and reflective tape.



SPECIFICATIONS

Range	5 to 99,999 rpm (photo mode) 0.5 to 19,999 rpm (contact mode)
Surface Speed (Contact mode)	2.0 to 78,740 inches/min 0.2 to 6560 ft/min 0.05 to 1999.9 m/min
Accuracy	±(0.1% rdg +1 digit)
Sampling Time	1 sec
Resolution	0.1rpm (<1000 rpm); 1rpm (>1000 rpm)

ORDERING INFORMATION

EX/RPM40	Pocket Laser Photo/Contact Tachometer
----------	---------------------------------------

Extech Tachometers

Combination Laser Tach & IR Thermometer

- Built-in laser thermometer measures surface temperature of moving parts
- Fixed 0.95 emissivity, 6:1 distance to target ratio
- Non-contact photo tach measures to 6.5ft (2m)
- Contact tach for RPM & linear speed
- Min/Max/Last memory
- Complete with tips/wheel, AA batteries, reflective tape, carrying case

RPM10 ▶



Contact/Laser Photo Tachometer

- Laser guided non-contact measurements to 6.5ft (2m)
- Characters on display reverse for easy reading (photo/contact mode)
- Hold button stores last reading for 5 minutes
- Min/Max memory
- Complete with wheels, AA batteries, reflective tape, carrying case

461995 ▶



SPECIFICATIONS

Display	99999 counts
Range	
rpm	10 to 99999 photo 0.5 to 20000 contact
ft/min	0.2 to 6560
m/min	0.05 to 1999.9
Accuracy	±0.05% ±1d
Resolution	0.1 rpm
Laser	-4 to 650 °F / -20 to 315 °C (RPM10 only)
Dimensions	8.5 x 6.1 x 1.5" (216x66x38mm)

ORDERING INFORMATION

EX/RPM10	Combination Tachometer + IR Thermometer
EX/461995	Contact/Laser Tachometer
EX/461937	Reflective Tape 10pcs 1/4"x23"
EX/461990	Contact Wheels (cone tip, flat tip)

Extech Light Meters



Model EA30 Wide Range Light Meter

- Measures up to 40,000Fc & 400,000Lux
- Large display with bargraph
- Relative function for zero or difference from reference value
- Peak captures light pulses to 100ms
- Data hold & Min/Max store
- Complete with AAA batteries, light sensor and protective cover with 39" (1m) cable, built-in stand, protective holster & carrying case



Model EA31 EasyView® Big Digit Light Meter

- Measures up to 20,000Fc/20,000 Lux
- 0.01Fc / 0.01Lux resolution
- 2000 count display with bargraph
- Data hold & Min/Max store
- Complete with AAA batteries, light sensor and protective cover with 39" (1m) cable, built-in stand, protective holster & carrying case



Model 407026 Heavy Duty Light Meter with PC Interface

Enhance accuracy by selecting one of four lighting types plus PC interface

- % displays differential from reference point
- "ZERO" Re-Calibration
- Selectable lighting type Tungsten/Daylight, Fluorescent, Sodium, Mercury
- Data hold, Min/Max/Avg readings
- Auto power off
- Optional Data Acquisition software (407001) and Datalogger (380340)
- Complete with 9V battery, light sensor and protective cover with 3.8ft 1.2m cable, and protective holster with stand. Optional 117V or 220V AC adaptors.

SPECIFICATIONS

Model	EA30	407026
Display counts:	4000 (LCD)	2000 (LCD)
Range: Fc	40, 400, 4000, 40000	200, 2000, 5000
Lux	40, 400, 4000, 40000, 400000	2000, 20000, 50000
Max. Resolution:	0.01Fc/0.01Lux	0.1Fc/Lux
Basic Accuracy:	±3% rdg ±0.5% FS	±4% FS
Cosine & Color Corrected:	Yes	Yes
RS-232 Interface:	—	Optional 407001
Datalogging:	—	Optional 380340
Dimensions:	5.9 x 2.8 x 1.4" (150x72x33mm)	7 x 2.9 x 1.3" (178x74x33mm)

ORDERING INFORMATION

EX/EA30	Wide Range Big Digit Lightmeter
EX/EA31	Big Digit Lightmeter
EX/407026	Heavy Duty Lightmeter
EX/407001	Data Acquisition Software & Serial Cable for 407026
EX/156119	117VAC Adaptor for 407026
EX/409997	Large Soft Vinyl Pouch Carrying Case for 407026
EX/407001	Data Acquisition Software & PC Serial Cable
EX/380340	Data Logger w/8000 Reading Storage, PC Software, Serial Cable

Yokogawa Clamp-on Process Meter

Measure 4 to 20mA DC signals without breaking the loop

- 0.2% Accuracy, 0.01mA Resolution
- Dual Display with Backlight
- LED Spot Light
- Analog Output



SPECIFICATIONS

Measurable Conductor:	6mm diameter max.		
DC Current:	Measuring Range	Measuring Accuracy	
	20.00 mA Range:	0.00 to ±21.49mA	±(0.2%rdg +5dgt)
	100.0 mA Range:	±21.0 to ±126.0mA	±(1.0%rdg +5dgt)
Analog Output:	Output Range	Output Accuracy	
	20.00 mA Range:	0.0 to ±214.9mV DC	Measuring Accuracy +0.5mV
	100.0 mA Range:	±210 to ±1260mV DC	Measuring Accuracy +3mV
Display:	4-digit LCD numeric display		
Response Time	Approx. 1.5 seconds (2.5 seconds when across the range)		
Range Switching:	Auto range		
Operating Temperature:	-10°C to +50°C, <80% RH (non-condensing)		
Safety Standards:	EN61010-1, EN61010-2-030, EN61010-2-032		
Withstanding Voltage:	2.2kV AC for 5 seconds (between the core and the case)		
Power:	Four AA-size alkaline batteries (1.5V LR6)		
Battery Life:	Approx. 60hrs (continuous) with backlight off and LED light off		
Other Functions:	Data hold, Zero adjust function, Auto power off, LED spot light, Back light display, Illuminant panel		
Dimensions:	Meter: 61 x 111 x 40 mm; Probe: 104 x 34 x 20 mm w/ 700 mm cable		

ORDERING INFORMATION

YE/CL420	Clamp-on Process Meter with batteries, manual & soft case
YE/98076	Analog Output Cable (banana plugs)
YE/98077	Analog Output Cable (for screw terminals)

Yokogawa Light Meters

Model 51011 & 51012 Digital Light Meters

- Measure to 999,000 lux
- Wide measurement range, high accuracy
- Spectral response characteristics for visible range
- Good oblique incident light characteristics
- Recorder output & USB digital output

51011
51012 ▶



◀ **51021**

Model 51021 Multi Function Light Meter

Model 51012 Features plus:

- Color correction coefficient setting
- Light source brightness measurement
- Mean brightness calculation

ORDERING INFORMATION

YE/51011	Digital Light Meter (5 ranges)
YE/51012	High Accuracy Digital Light Meter (5 ranges)
YE/51021	Multi Function Light Meter (6 ranges)

SPECIFICATIONS

Measuring Range:	51011& 51012: 0.0 to 99.9/999/9,990/99,900/999,000lx 51021: 0.00 to 9.99/99.9/999/9,990/99,900/999,000lx	
Standard Conformance:	510011, 51012: JIS C1609-1 2006 class A 51021: JIS C1609-1 2006 class AA	
Functions	51011, 51012: Response switching, Range Hold, Timer Hold, Deviation display, Auto off. 51021: Response switching, Range Hold, Timer Hold, Deviation display, Auto off, Color correction factor setting, Average illuminance computation, Ripple measurement, Light source luminous intensity measurement, Measurement of totalized intensity of illumination.	

Model	51011	51012, 51021
Accuracy:	±4% rdg ±1dgt (under 3000lx) ±6% rdg ±1dgt (over 3000lx)	±2% rdg ±1dgt (under 3000lx) ±3% rdg ±1dgt (over 3000lx)
Fatigue Characteristics:	±2%	±1%
Temperature Characteristics:	±5%	±3%
Characteristics of Oblique Incident Light: (deviation from cosine law)	Angle of: 10° ±1.5% 30° ±3% 60° ±10% 80° ±30%	Angle of: 10° ±1% 30° ±2% 50° ±6% 60° ±7% 80° ±25%

Visible-Spectrum Response: (deviation from standard spectral luminous efficiency)	f1' within 9 %	f1' within 6 %
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General Specifications (all models):

Photoelectric Element:	Silicon photodiode
Display:	7 digit liquid crystal display; maximum effective display: 999
Measurement Rate:	Twice per second
Response Time:	Automatic range: 5 sec; Manual range: 2 sec
Operating Temperature:	-10 to 40°C, <80% RH, non-condensing
Communication:	USB (Mini-b 5pin)
Output:	DC 1V ±5% (fixed range); 100kΩ min. load resistance
Dimensions:	67 x 177 x 38 mm
Power:	Two AA (LR6) batteries or USB supply (5VDC ±5%)
Accessories Included:	Instruction manual, battery, soft case, recorder output plug

Bacharach Combustion Analyzers & Leak Detectors

Carbon Monoxide Analyzer

- Measures CO with 1ppm resolution
- Highly visible digital display with backlight
- Probe and hose assembly for flue gas testing
- Optional IrDA printer

Monoxor III ▶



SPECIFICATIONS

Range:	0 - 2000 ppm
Accuracy:	± 5% of reading or 10 ppm, whichever is greater
Probe:	1000°F (538°C) max at 5" insertion
Warm Up:	60 seconds
Display:	Four-digit LCD display w/backlight
Power:	4 AA Alkaline batteries (18 hour life)
Printer Port:	Wireless, IrDA or HP protocol
Size & Wgt:	7.5 x 3.1 x 2.1" (16 oz. with batteries)
Warranty:	2 years, including sensor

Combustible Gas Leak Detector

- Visual & audible indicators
- 2 sensitivity levels
- 12" probe with plug-in sensor
- Automatic calibration
- UL913 classification

Leakator Jr. ▶



SPECIFICATIONS

Indicators:	Variable rate flashing red, variable speed audible ticking
Sensitivity:	20ppm in high mode, 50ppm in low mode
Warm-up:	60 seconds, flashes green when ready
Power:	4 AA alkaline batteries (14 hours life)
Temperature:	0-40°C operating
Size & Wgt:	Handheld, 6 x 2 x 1.5" (6oz)
Safety:	UL913 Class I, Div 2, Group A,B,C,D locations

Refrigerant Leak Detector

- Detects all CFC, HFC & HCFC refrigerants
- Patented heated diode sensor
- Visual & audible indicators
- Automatic zero & background correction
- 2 sensitivity levels



▶ **Tru Pointe**

SPECIFICATIONS

Indicators:	Variable intensity audible & visual
Sensitivity:	0.1 oz/yr for R134a (hardest to detect)
Sensor Life:	1 yr of normal use (150 hours)
Probe:	14" flexible, with plug-in sensor
Power:	2 D alkaline batteries (8-13 hr life)
Size & Wgt:	2 x 9.4 x 2.5" (1.2 lbs with batteries)
Approvals:	UL listed to SAE J1627

Combustion Analyzer

- Measures CO, O₂, stack temperature, ambient temperature
- Calculates CO₂, combustion efficiency, excess air, CO free air
- 10 record data storage
- Easy to use, quick sensor replacement
- 2 year warranty (1 year on O₂ probe)

Fyrite InTech ▶



SPECIFICATIONS

Measurement Ranges

Flue Gas:	-4 to 1202°F (-20 to 650°C)
Ambient:	23 to 113°F (-5 to 45°C)
Oxygen:	0.0 to 20.9% O ₂
Carbon Monoxide:	0 to 2000 ppm CO

Calculated Ranges

Combustion Efficiency:	0.1 to 99.9%
Carbon Dioxide:	0.1 to a fuel dependent maximum (in %)
CO Air Free:	0 to 9,999 ppm
Excess Air:	0 to 250%

Selectable Fuels:	Natural Gas, Oil #2, Oil #6, Propane, Kerosene
Power:	4 AA alkaline (20 hours life)
Size & Wgt:	8.0 x 3.6 x 2.3" (16 oz. with batteries)

Includes angled probe/hose, batteries & soft carrying case.

Dual Purpose Leak Detector

- Detects refrigerants & combustible gases
- Swap sensors in seconds
- Sensitivity automatically adjusted
- 0.2" probe tip fits into tight spaces
- Filter prevents moisture contamination
- Dual LED displays for easy viewing
- Optional rubber boot holds flashlight



▶ **Informant 2**

SPECIFICATIONS

Indicators:	Audible, sequential LEDs & flashing probe tip
Detection:	All CFC, HCFC & HFC refrigerants, all combustible gases & vapors
Sensor:	Located at probe tip for fast response & quick changeover
Sensitivity:	0.25 oz/yr of R134a (hardest to detect), 50ppm of methane
Warm-up:	10 seconds
Power:	4 AA alkaline batteries (5 hr life)
Size & Wgt:	1.8 x 9.7 x 2.3" with 20" probe
Approvals:	UL listed to SAE J1627, MET lab certified to UL913, intrinsically safe for Class 1, Div. 1, Group D hazardous locations

Includes batteries, refrigerant & gas sensors, sensor tips, filters and carrying case.

ORDERING INFORMATION

BA/19-8104	Monoxor III CO Analyzer
BA/24-8511	Fyrite InTech CO, O ₂ Combustion Analyzer
BA/19-7075	Leakator Jr. Combustible Gas Leak Detector
BA/19-8038	Informant 2 Dual Detector Contractor Kit
BA/19-8106	Tru Pointe Refrigerant Leak Detector

Megger® Hand-Held TDR / Cable Length Meter

- Measures length of power, telephony, CATV & LAN cables
- Determines distance to an open or short
- Automatic impedance control (25, 50, 75, 100, 125, 150W)
- Internal library of 39 standard cable types
- Memory for 20 custom cable settings
- Tone generator for cable tracing
- Large, high resolution backlit LCD display

Additional Features:

Cable Calibration function allows measurement of V.O.P. (Velocity Of Propagation) in a known cable length. Requires at least a 30ft (10m) sample.

Line Voltage Detection feature displays "OUCH" message and stops operation if voltage exceeds 6.5V.


TDR-900

Supplied with soft carrying case and alligator clip adapter.

SPECIFICATIONS

Range:	12000 ft (3.7km) at 99.9 V.O.P. 9800 ft (3.0km) at 80.0 V.O.P. 8000 ft (2.4km) at 66.0 V.O.P. 6200 ft (1.9km) at 50.0 V.O.P.
Accuracy*:	±2% of rdg ±20" at <300 ft ±2% of rdg at >300 ft
Resolution:	20 inches (50cm)
V.O.P.:	adjustable from 1.0% to 99.9% of the speed of light
Connector:	BNC
Power:	4 AA batteries
Battery Life:	5000 tests
Operating Temperature:	-18°C to 60°C

* at 20°C for coax cables <8000 ft, telephony cables <6000 ft, wiring <3000 ft

ORDERING INFORMATION

ME/TDR900 Hand-Held TDR/Cable Length Meter

Megger® Hand-Held TTR


TTR20

SPECIFICATIONS

Excitation Voltage:	8 V rms for testing distribution or power transformers & PTs; 0.5, 1.5, or 8 V ac rms for testing CTs (switched automatically if current exceeds a preset value)
Test Frequency:	55 Hz
Excitation Current:	Range 0 to 100 mA, 4-digit resolution
Turns Ratio Range:	0.8 to 10000, 5-digit resolution
Transformer Polarity:	Normal or reversed
Current Accuracy:	2% of reading ±1 digit
Turns Ratio Accuracy:	0.1% (0.8 to 2000) 0.15% (2001 to 4000) 0.25% (4001 to 10,000)
Measuring Time:	Less than 5 seconds
Measurement Method:	ANSI/IEEE C57.12.90
Phase Relationship:	ANSI C57.12.70-1978
Display:	Graphic LCD, adjustable back-lighting
Safety/EMC/Vibration:	IEC-1010-1, CE and ASTM D999.75
Operating Temperature:	-20° C to 55° C (-5° F to 130° F), < 90% RH non-condensing
Power:	Six standard AA alkaline batteries
Battery Life:	12 hours of field operation
Dimensions:	9.5" H x 4.5" W x 1.9" D (240x115x50 mm)

ORDERING INFORMATION

ME/TTR20	Handheld TTR with 6ft (1.8m) test leads
Optional Accessories	
ME/35942	Test leads, X/H winding, 12ft (3.6m)
ME/36013	Test leads, X/H winding, 20ft (6m)
ME/35755-1	Battery/line power thermal printer with paper, battery pack, charger, interface cable
ME/35788	Semi-hard fabric transport case

- Single- and three-phase transformer testing
- Fully automatic; fast; easy-to-use; robust; lightweight
- Battery powered
- Tests turns ratio, excitation current and polarity
- Simple, one-button operation
- Quick-start guide on front panel

Megger Time Domain Reflectometers

Dual Cursor Hand-Held TDR

- Single trace display with dual cursors
- Auto set-up for instant use
- 2 ns pulse width virtually eliminates dead zones
- Trace HOLD with live trace overlay
- Designed for use on all metallic cable pairs
- Last setting memory
- IP54 rating
- Three-year warranty

CFL510G ▶



Hand-Held TDR

- Simple handheld operation
- AUTO selection of gain & pulse width
- Ultra fast pulse for near end fault identification
- Trace HOLD feature
- IP54 rating
- Designed for use on all metallic cable pairs
- Three-year warranty

TDR500/3 ▶



SELECTION GUIDE

Model	TDR900 *	TDR500/3	CFL510G
Measurement Ranges (ft):	6200-12000 4 ranges	30-15000 7 ranges	
Display:	Numeric	Graphic LCD	
Dual Cursors:	----	----	✓
Fault Location Modes:	1	1	3
Accuracy:	±2 %	±1 %	
Resolution:	20 in. (50 cm)	1% of range	
Gain:	----	3 steps	
Velocity Factor	1.0 to 99.9%	0.2 to 0.99	
Output Impedance (Ω):	25, 50, 75, 100, 125, 150	25, 50, 75, 100	
Output Pulse:	7 ns - 3 μs	25 ns - 3 μs	2 ns for near fault
Pulse Amplitude:	5 V pk-pk	5 V pk-pk	5 V pk-pk
Low Battery Warning	✓	✓	✓
Backlight	✓	✓	✓
TX Null	----	✓	✓
Channels	1	1	1
Rating:	IP42	IP54	IP54

* see page 173 for specifications and ordering information

ORDERING INFORMATION

ME/CFL510G	Dual Cursor Hand-Held TDR w/ battery, case & test leads
ME/TCDR500/3	Hand-Held TDR with battery, case & test leads
ME/1002-015	Fused test lead set

SPECIFICATIONS

Range:	10/25/100/250/1000/2500/5000 m (30/75/300/750/3000/7500/15000 ft)
Accuracy:	±1% of range ± pixel at 0.67 VF *
Resolution:	1% of range
Input protection:	Complies with IEC61010-1 for connection to live systems up to 150 V CAT IV when used with the optional fused test lead set.
Output pulse:	5 volts pk-pk into open circuit. Pulse widths determined by range and cable.
Gain:	Set for each range with three user selectable steps (in manual operating mode)
Velocity factor:	Variable from 0.2 to 0.99 in steps of 0.01
TX null:	Automatic
Power down:	Automatic after 5 minutes with no key press
Backlight:	Stays on for 1 minute with no key press
Battery:	Five LR6 (AA), Manganese alkali or nickel metal-hydride cells
Battery life:	Up to 14 hours (typical)
IP rating:	IP54 for use indoors or outdoors
Dimensions:	230 x 115 x 48 mm (9 x 0 x 4.5 x 2.0 inches)
Connectors:	Two 4 mm-safety terminals
Test lead:	1.5 meter long consisting of 2 x 4 mm shrouded connector to miniature crocodile clips
Display:	256 x 128 pixel Graphics LCD
Temperature range:	-15 °C to +50 °C (5 °F to 122 °F) operating

* Measurement accuracy is for the indicated cursor position only and is conditional on the velocity factor being correct.

Megger Irradiance Meter & Photovoltaic Kit

NEW



- Optimal incident angle & positioning of solar panels
- Measure solar power for panel short calculation
- 3¾ digit LCD display with 1999 W/m² range
- Mini pocket size with built-in detector
- One hand use, with Display Hold
- Standard camera mount

◀ **PVM210**

PVK330 ▶



The Megger PVK330 Photovoltaic Kit features the PVM210 with the DCM340 AC/DC Clampmeter. The kit includes a set of 4 ft. red and black test leads (4mm instrument plugs to MC4 solar connectors) and MC4 to MC3 adapters. Leads are rated 19A 1000V. A zipped pouch is provided to store the instruments and leads.

SPECIFICATIONS

Display:	3¾ digits LCD with maximum reading 3999
Range:	1999 W/m ² / 634 BTU / (ft ² *h)
Accuracy:	Typically within ± 10 W/m ² (±3 BTU / (ft ² *h)) or ±5%, whichever is greater in sunlight;
Temperature coefficient:	±0.38 W/m ² /°C (±0.12 BTU/(ft ² *h)/°C) from 25 °C
Angular accuracy:	Cosine corrected <5% for angles <60 °C
Accuracy:	<±3% per year
Resolution:	0.1 W/m ² / 0.1 BTU / (ft ² *h).
Sampling time:	Approx. 0.25 second
Over input:	Display shows "OL"
Operating temperature:	5 °C~40 °C, below 80% RH
Dimensions:	134 mm (H) x 48 mm (W) x 27 mm (D)
Battery life:	50 hr approx from 2 x 1.5 V AAA / MN2400
Auto off:	15 min.

Includes test leads, test probes, alligator clips, protective holster & batteries.

ORDERING INFORMATION

ME/PVM210	Irradiance Meter
ME/PVK330	Photovoltaic Kit

TEST
EQUIPMENT

Extech Sound Level Meters

- Two range meter with backlit LCD display
- Measures 35 to 130dB
- Meets ANSI & IEC 651 Type 2 standards
- Data Hold & Max Hold functions
- NIST certification available

Applications:

- Product noise testing
- Installing audio system
- Meeting OSHA safety issues
- Enforcing community noise ordinances

407732 ▶



SPECIFICATIONS

Basic Accuracy	±1.5dB
Display	2000 count backlit LCD
Microphone	0.5" condenser type
Power	9V battery
Dimensions	8.2 x 2.1 x 1.25" (210x55x32mm)

ORDERING INFORMATION

EX/407732	Digital Sound Level Meter
EX/407732-NIST	Digital Sound Level Meter with NIST Cert

- Easy to use analog meter
- Measures 54 to 126dB in 7 ranges
- Selectable A or C weighting
- Fast or slow response
- Analog output for recorder or datalogger
- Battery check
- Tripod mount

407730 ▶



CE

SPECIFICATIONS

Basic Accuracy	±2dB @94db, 1000Hz
Analog Output	AC: 0.707V rms
Microphone	Built-in 0.5" Electret condenser type
Power	9V battery
Dimensions	7.1 x 2.7 x 1.4" (180x68x36mm)

ORDERING INFORMATION

EX/407703A	Analog Sound Level Meter
EX/407703A-NIST	Analog Sound Level Meter with NIST Cert

Extech Testers

Battery Powered Milliohm Meter

- Four terminal Kelvin measurements
- Resolution to 100μΩ
- 20V test voltage
- Large LCD display
- Invalid test indicators
- Auto-Hold and Auto-Off features
- Built-in water resistant case with shoulder strap

Complete with AA batteries, leads with 4 alligator clips, leads with 2 Kelvin alligator clips

▶ **380580**



SPECIFICATIONS

Range	Resolution	Current	Accuracy
200mΩ	0.1mΩ	100mA	±(0.5% +2d)
2000mΩ	1mΩ	100mA	±(0.5% +2d)
20Ω	0.01Ω	10mA	±(0.5% +2d)
200Ω	0.1Ω	10mA	±(0.5% +2d)
2000Ω	1Ω	100mA	±(0.5% +2d)

Dimensions: 9.8 x 7.5 x 4.3" (250x19x110mm)

Battery Capacity Tester

- Checks battery condition in seconds while the battery is in service
- Simultaneously measures battery resistance and voltage
- Built-in datalogger stores up to 999 tests

Includes PC interface cable, software, test leads and AAA batteries

▶ **BT100**



SPECIFICATIONS

Resistance Ranges:	40mΩ, 400mΩ, 4Ω, 40Ω
Resistance Accuracy:	±(1% reading + 8 digits)
Voltage Ranges:	4V, 40V
Voltage Accuracy:	±(0.1% reading + 6 digits)
Display:	4000 count LCD, dual readout
Input Voltage:	50VDC max.
Battery Life:	7 hours
Dimensions:	9.75" x 4" x 1.75" (250 x 100 x 45 mm)

ORDERING INFORMATION

EX/380580	Battery Powered Milliohm Meter
EX/BT100	Battery Capacity Tester
EX/BT102	120V AC Adapter for BT100

Amprobe Testers

SOLAR POWER METER



- Measures Solar Power and Transmission
- Reads up to 2000 W/m² or 634 BTU/(ft² x h)
- Large Display & Separate Sensor
- Displays Transmission Percentage
- MAX/MIN & Data Hold

◀ **SOLAR-100** CE

Optimize the placement of solar systems and verify window efficiency.

SPECIFICATIONS

Measurement Range:	1999 W/m ² , 634 BTU/(ft ² x h)
Display:	3½ digits, 2000 counts
Sampling Time:	Approx 0.25 second
Accuracy:	Typically within ±10W/m ² [±3 BTU/(ft ² x h)] or ±5%, whichever is greater in sunlight
Angular Accuracy:	Cosine corrected < 5% for angles < 60°
Battery:	9V alkaline included
Operating Temperature:	5-40°C (41-104°F), <80%RH (non-condensing)
Dimensions:	5.2" x 2.4" x 1.5" (132x60x38 mm)

PSYCHROMETER

- Temperature, RH, Dew Point & Wet Bulb Measurements
- Extended Flex Probe
- Dual Display with Backlight
- MAX/MIN & Data Hold
- Tripod Mountable

CE



▶ **THWD-5**

SPECIFICATIONS

Range:	RH: 0 to 100% Temperature: -10 to 60°C (14 to 140°F) DP: -73.4 to 59.9°C (-100 to 139.8°F) WB: -13.4 to 59.9°C (7.88 to 139.8°F)
Accuracy:	RH: ±3% from 10 to 90% at 25°C and ±5% for others Temperature: ±0.6°C (±1°F)
Response Time:	60 seconds
Resolution:	0.1°C / 0.1°F
Temperature:	0 to 50°C (32 to 122°F) operating, up to 100% RH
Battery (Life):	Four AAA (100 hrs w/o backlight, 50 hrs w. backlight)
Dimensions:	6.9" x 2.8" x 1.3" (175x70x33 mm)
Included:	Hard carrying case, batteries, probe

NON-CONTACT AC VOLTAGE DETECTOR

- Visual & Audible Indication
- Measure to 122kV
- Self-test Verification
- Drop Proof to 6 ft



▶ **TIC 300 PRO** CE

SPECIFICATIONS

Voltage Range:	30-1500 VAC 1500- 122,000 VAC (with Hot Stick TIC 410A)
Detection Range (typical):	2.7" @ 30 V, 18" @ 120 V, 28" @ 220 V, 50" @ 500 V, 75" @ 1000 V, 93" @ 1500 V
with Hot Stick:	1' 2" @ 1.5 kV, 2' 5" @ 2 kV, 6' 3" @ 10 kV, 9' 4" @ 25 kV, 14' 8" @ 75 kV, 22' @ 122 kV

NEW

SWIVEL CLAMP METERS

- 180° Rotating Head
- Measure to 400A AC, 600V AC/DC
- Resistance, Capacitance, Continuity
- One Hand Operation
- Auto & Manual Ranging
- Non-Contact Voltage Detection



▶ **ACD-20SW**

SPECIFICATIONS

DC Volts Ranges:	400mV, 4V, 40V, 400V, 600V
Accuracy:	±(0.5% rdg + 2 dgts)
AC Volts Ranges:	4V, 40V, 400V, 600V (50-500Hz)
Accuracy:	±(1.2% rdg + 5 dgts), [1.5% on 600V range]
AC Current Ranges:	40A, 400A (50-60Hz)
Accuracy:	±(2.0% rdg + 6 dgts)
Resistance Ranges:	400Ω, 4kΩ, 40kΩ, 400kΩ, 4MΩ, 40MΩ
Accuracy:	±(1.0% rdg + 4 dgts) on 400Ω to 400kΩ ranges
Continuity:	Audible indication less than 25Ω
Non-Contact Voltage:	Beeper & red LED for 70V to 600VAC (50-60Hz)
Other Features:	Diode test, display hold, auto power off, noise filter
Display:	3¾ digit LCD, maximum reading 3999
Temperature:	0 to 50°C (32 to 122°F) operating, <70% RH
Power (Life):	2 AAA batteries (alkaline 400 hrs)
Wire Diameter:	1.18" (30mm) max.
Dimensions:	12" x 5.3" x 1.2" (306x135x30 mm)
Rating:	CAT III 600V
Included:	Battery, test leads, carrying case

CAT IV ANALOG CLAMP METERS

- Measure to 1000A & 600V AC
- Resistance & Continuity
- Pointer Lock for Data Hold
- Operates Down to 5° F
- No Batteries Needed for Volts & Amps



▶ **RS-3 PRO** CE

SPECIFICATIONS

Display:	Analog scales with clamping needle
AC Voltage Ranges:	150 / 300 / 600 Vrms
Input Impedance:	1.5 MΩ
AC Amp Ranges:	6 / 15 / 40 / 100 / 600 Arms [1000 A on RS-1007 PRO]
Accuracy:	± 3% of Full Scale for Volts & Amps (50/60 Hz)
Ohms Range:	1000Ω, 25Ω mid-scale
Accuracy:	± 3 degrees of arc
Max. Wire Diameter:	1.64" (41mm) [1.88" (47mm) on RS-1007 PRO]
Power:	One AAA battery for resistance & continuity
Temperature:	-15 to 50°C (-5 to 122°F) operating, <80% RH
Dimensions:	RS-3 PRO: 10.3" x 4.0" x 1.6" (243x102x41 mm)
Safety LVD Rating:	CAT IV 600V AC

ORDERING INFORMATION

AB/SOLAR-100	Solar Power Meter
AB/THWD-5	Temperature, RH, Dew Point & Wet Bulb Meter
AB/TIC 300 PRO	Non-Contact AC Voltage Detector
AB/TIC 410A	Hot Stick Accessory for TIC 300 Pro (1.5-122 kV)
AB/ACD-20SW	400A Swivel Clamp Meter
AB/ACD-21SW	400A Swivel Clamp Meter w/ Temperature & Capacitance
AB/RS-3 PRO	CAT IV 600A Analog Clamp Meter
AB/RS-1007 PRO	CAT IV 1000A Analog Clamp Meter

Hioki Testers

MULTI-FUNCTION DMMS

- AC/DC Voltage & Current
- Resistance & Continuity
- 9999 count LCD display
- Min/Max, Average & Relative values
- 4-20 mA measurement converts to 0-100% display
- Optional RS-232C package for PC data transfer



SPECIFICATIONS

DC Volts:	4 ranges, 999.9mV to 999.9V ($\pm 0.3\%$ rdg $\pm 2d$)
AC Volts:	4 ranges, 999.9mV to 999.9V ($\pm 1.2\%$ rdg $\pm 5d$) 40-500Hz
Ohms:	6 ranges, 400.0 Ω to 40.00M Ω ($\pm 0.6\%$ rdg, $\pm 3d$)
DC Current:	6 ranges, 400.0 μ A to 10.00A ($\pm 0.2\%$ rdg, $\pm 3d$)
AC Current:	6 ranges, 400.0 μ A to 10.00A ($\pm 1.2\%$ rdg, $\pm 5d$) 50-2kHz
Other Functions:	Capacitance, Data hold, continuity ($<10\Omega$), diode check 3805: TRMS AC, freq to 50kHz, J&K thermocouples
Ranging:	Auto or Manual
Bar Display:	41 segment
Sample Rate:	3/sec (digital), 13/sec (bar)
Dimensions:	3" x 6.6" x 1.3" (76x167x33mm)
Accessories:	Test leads 3851-10, holster, battery

ORDERING INFORMATION

HK/3804-50	4-Digit DMM
HK/3805-50	4-Digit TRMS DMM

PHASE DETECTOR



- LED & Buzzer Indicate Phase Direction
- No Electrical Connection
- Live Wire Check (R-S, S-T)
- Battery Check & Auto Shut Off

SPECIFICATIONS

Detection Method:	Electrostatic induction
Voltage Range:	70-600VAC, 50/60Hz
Max. Wire Size:	0.67" (17mm) dia., insulated wire
Standards:	Cat III, 600V
Dimensions:	2.76"W x 2.95"H x 1.18"D
Lead Length:	27" (0.7mm)

ORDERING INFORMATION

HK/3120	Voltage Detector, batteries included
HK/3129	Phase Detector, with carrying case & AA batteries
HK/3246	Pencil HiTester, battery included
HK/3280-10	Clamp-On HiTester, with leads, battery & carrying case
HK/3280-20	TRMS Clamp-On HiTester, with leads, battery & carrying case

VOLTAGE DETECTOR



- Detect AC Voltage in Insulated Wires

SPECIFICATIONS

Voltage Range:	70-600VAC, 50/60Hz
Indication:	Red LED and continuous beep
Battery Check:	Green LED
Operating Temperature:	0 to 40 °C, $<80\%$ RH (non-condensing)
Standards:	CAT IV 600V, indoor use
Dimensions:	5.9" L x 0.7" dia (149 x 18.5mm)

CLAMP-ON HITESTERS



- Slim Body for Easy Clamping in Narrow Spaces
- Independent-opening Double-lever Jaw
- Right or Left Hand Operation
- 4199 Count LCD
- True RMS Measurement (3280-20)

SPECIFICATIONS

Function	Range (Accuracy)
AC Amps:	3280-10: 42 / 420 / 1000A (50/60Hz; $\pm 1.5\%$ rdg $\pm 5d$), 3280-20: 42 / 420 / 1000A (45-66Hz: $\pm 1.5\%$ rdg $\pm 5d$) (40-45Hz or 66Hz-1kHz: $\pm 2.0\%$ rdg $\pm 5d$)
DC Volts:	420m / 4.2 / 42 / 420 / 600V ($\pm 1.3\%$ rdg $\pm 4d$)
AC Volts:	4.2 / 42 / 420 / 600V (50-500Hz, $\pm 2.3\%$ rdg $\pm 8d$)
Ohms:	420 / 4.2k / 42k / 420k Ω ($\pm 2.0\%$ rdg $\pm 4d$), 4.2M Ω (± 5.0 rdg $\pm 4d$), 42M Ω ($\pm 10.0\%$ rdg $\pm 4d$)
Continuity:	420 Ω ($\pm 2.0\%$ rdg $\pm 6d$), buzzer $<50\Omega$
Wire Size:	1.3" (33mm) max diameter
Allowable Current:	2000A AC rms max continuous
Overload Protection:	DCV/ACV: 600V DC/AC rms; Ω /Continuity: 250V DC/AC rms
Operating Temperature:	0 to 40 °C, $<80\%$ RH (non-condensing)
Standards:	CAT III 600V(AC A), CAT II 600V(AC/DC V)
Dimensions:	2.2"W x 6.9"H x 0.6"D

Hioki Testers

INFRARED THERMO HITESTER



Also in
HPK-1 Kit

- Pistol Style with Backlit LCD
- Laser Aiming Marker
- Selectable °F/°C
- Min/Max Function
- Upper/Lower Alarm Settings
- Stores 50 Measurements

◀ **3419-20**

CE

SPECIFICATIONS

Measurement Range:	-35 to 500 °C (-31 to 932 °F)
Display Resolution:	0.1 °C (0.2 °F)
Wavelength:	6 to 14 μm
Emissivity:	0.17 to 1.00 by steps of 0.01
Field of View:	8 : 1 distance to spot
Sighting:	Red laser marker, 1 mW (class 2)
Accuracy:	-35.0 to -0.1°C : ± 10 % rdg. ± 2 °C 0.0 to 100.0°C : ± 2 °C 100.1 to 500.0°C : ± 2 % rdg.
Battery (Life):	9V alkaline (80 hrs with laser & backlight off)
Operating Temperature:	0-50°C (32-122°F), <80%RH (non-condensating)
Dimensions:	1.81" × 6.77" × 4.65" (46×172×118 mm)

LAN TESTER



- Verify Wire Destinations
- Detect Split Pairs
- Measure Cable Length
- Check Wire & Shield Condition

◀ **3665-10**

CE

SPECIFICATIONS

Cable Types:	Twisted-pair, 100Ω shielded/unshielded, CAT 3, 4, 5, 5e, 6
Connectors:	RJ-45 plugs
Errors Detected:	Open, short, reversed, transposed, split pairs & miswires
Cable Length:	2-300 m, (6.6-984 ft) with 0.1 m (0.3 ft) resolution
Direction Check:	Up to 21 cables can be identified using the supplied 9690 terminator & optional 9690-01 to 9690-04
Display:	LCD with backlight & beeper
Switch:	Select between meters or feet
Battery (Life):	Two AA (50 hours)
Dimensions:	3.4" × 5.2" × 1.3" (85×130×33 mm)

PENCIL DMM

CE

▶ **3246**



- Backlit 4199 Count LCD
- Auto or Manual Ranging
- Data Hold, Continuity Beeper
- Pushbutton Penlight

SPECIFICATIONS

DC Volts:	420m / 4.2 / 42 / 420 / 600V (±1.3 % rdg ± 4d)
AC Volts (50-500Hz):	4.2 / 42 / 420 / 600V (±2.3 % rdg ±8d)
Ohms:	420 / 4.2k / 42k / 420k / 4.2M / 42MΩ (±2.0 % rdg ±4d), plus diode check
Rating:	CAT III 600 V
Dimensions:	1.2" × 1.0" × 7.2" (31×26×84 mm)

NEW

TRMS AC CLAMP METER WITH LEAKAGE



- Measure to 200A TRMS AC
- Leakage with 10μA Resolution
- Recorder/Waveform Output
- Min/Max & Display Hold
- Switchable Filter

◀ **3283**

CE

SPECIFICATIONS

AC Amps:	10.00 mA to 200 A, 5 ranges
Accuracy (50/60Hz):	±1.0 % rdg. ±5 dgt. (1.5 % on 200 A range)
Frequency Response:	40 Hz to 2 kHz (on AC Amps)
Frequency Measure:	100.0 or 1000 Hz, 2 ranges (±0.3 % rdg. ±1 dgt.)
Switchable Filter:	180 Hz ±30 Hz /-3 dB
Analog Output:	1 V /f.s, DC or AC mode
Display:	1000 count digital, 35 segment bargraph
Sampling Rate:	2 or 4 times/sec (Slow: 1 time/3 sec)
Crest Factor:	2.5 (1.5 on 200 A range)
Circuit Voltage:	300 V AC rms max. (insulated wire)
Power:	9V battery or AC adapter
Wire Dia.:	Ø 40 mm (1.57") max.
Dimensions:	2.44" × 8.86" × 1.54" (62×225×39 mm)
Rating:	CAT III 300V

TRMS AC CLAMP METER



- 1000A & 600V TRMS AC
- Ohms, Frequency & Continuity
- Waveform Distortion Check
- Inrush Peak Capture
- Min/Max & Display Hold

◀ **3282**

CE

SPECIFICATIONS

AC Amps:	30.00 / 300.0 / 1000 A (±1.0% rdg. ±5 dgt)
AC Volts (50/60Hz):	300.0 / 600 V (±1.0 % rdg. ±3 dgt.)
Frequency Response:	40 Hz to 1 kHz (on AC Amps/Volts)
Frequency Measure:	100.0 or 1000 Hz (±0.3 % rdg. ±1 dgt.)
Resistance Measure:	1k & 10k ranges
Temperature Measure:	-50 to 150 °C (with Probe 9462, sold separately)
Display:	3000 count digital, 35 segment bargraph
Sampling Rate:	2 or 4 times/sec (Slow: 1 time/3 sec)
Crest Factor:	2.5 (1.7 on 1000 A or 600 V range)
Circuit Voltage:	300 V AC rms max. (insulated wire)
Power:	9V battery (45 hours)
Wire Dia.:	Ø 46 mm (1.8") max.
Dimensions:	2.44" × 9.06" × 1.54" (62×230×39 mm)
Rating:	CAT III 1000V, CAT IV 600V

ORDERING INFORMATION

HK/3246	Pencil DMM, battery included
HK/3282	TRMS AC Clamp Meter
HK/3283	TRMS AC Clamp Meter & Leakage Tester, with case & strap
HK/3419-20	Infrared Thermo Hitester, with carrying case
HK/3665-10	LAN Tester, with carrying case & 9690 Terminator
HK/HPK-1	HVAC/Electrical Contractor Kit (includes 3120 Voltage Probe, 3280-10 Clamp-on Meter, 3419-20 IR Tester, 3804 DMM)