FLUKE®

Test Tools Catalog
Volume 41, 2011

Keeping your world up and running.

What's new

Fluke 381 Remote Display Clamp Meter with iFlex™

Part of Fluke's new family of clamp meters, the Fluke 381 Clamp Meter combines iFlex flexibility with remote reading capability—the best of both worlds.

- Remote display reads measurements up to 30 feet away
- Measure up to 2500 A ac with the iFlex flexible current probe
- 1000 A ac and dc current measurement with fixed jaw
- 1000 V ac and dc voltage measurement
- Min/Max/Avg and inrush recording
- CAT IV 600 V, CAT III 1000 V

For information on the new 381 Remote Display Clamp Meter with iFlex™ see page 4.

Remote display and iFlex

Fluke 810 Vibration Tester

The Fluke 810 Vibration Tester is the most advanced troubleshooting tool for mechanical maintenance teams who need an answer now.

- Utilizes a simple step-by-step process to report on machine faults, without needing prior measurement history
- On-board identification and location of most common mechanical faults: bearings, misalignment, unbalance, looseness
- 2 GB expandable on-board memory
- Four-level fault severity scale
- Tri-axial accelerometer reduces measurement time by 2/3 over single axis accelerometers

For information on the new 810 Vibration Tester see page 52.

Powerful vibration testing

1555 Insulation Resistance Tester

From motors and generators to cables and switchgear, Fluke now takes you all the way to 10 kV.

- Ideal for testing a wide range of high voltage equipment
- Automatic calculation of Dielectric Absorption (DAR) and Polarization Index (PI) with no additional setup
- Long battery life allows for over 750 tests between charges
- Measurements can be stored in up to 99 memory locations, with each location assigned a unique, user defined label for easy recall

For information on the new 1555 Insulation Resistance Tester see page 25.

Ranges up to 10 kV

TiS Building Diagnostic Thermal Imaging Scanner

Finally! An entry level thermal imager for quick, easy and accurate problem identification and troubleshooting, designed specifically for the building inspection professional.

- Most affordable thermal imager on the market that meets proposed RESNET infrared inspection standard
- 120 x 120 resolution
- Large, 3.7 inch display–30 percent larger than comparable imagers
- Rugged body withstands 2 m (6.5 ft) drop test
- Award winning ergonomic design

For information on the new TiS Thermal Imager see page 47.

Display 30% larger

2AC VoltAlert™ Voltage Tester

2AC is the latest addition to the VoltAlert™ ac non-contact voltage tester family from Fluke, and is designed to be pocket-sized and easy to use. The 2AC tests for energized circuits and defective grounds. The tip of the pocket-sized tester will glow red if voltage is present.

- Voltage detection from 90 V ac to 1000 V ac
- Always on, using special low power circuitry to sustain battery life and ensure your 2AC is always ready
- Innovative 'Battery Check' button function ensures battery is in good condition
- CAT IV 1000 V overvoltage rated product for best in class user protection

For information on the new 2AC VoltAlert see page 21.

Battery check button

190 Series II ScopeMeter® Portable Oscilloscopes

Multiply your diagnostic powers with the first CAT III 1000 V/CAT IV 600 V rated, four-channel portable scope on the market. The new Fluke 190 Series II brings an unprecedented combination of performance and ruggedness into the field.

- Fast sample rate: up to 2.5 GS/s with up to 400 ps resolution
- Deep memory: 10,000 point per trace waveform capture
- Single shot, pulse width and video triggering
- Seven-hour, high-performance Li-ion battery is standard
- Two isolated USB ports for memory devices and PC connectivity

For information on the new 190 Series II ScopeMeter see page 42.

4 channel testing

Test Tools Catalog
Volume 41, 2011
Contents

FLUKE ®

Fluke Corporation is the world leader in compact, professional electronic test tools.

From industrial maintenance to commercial building operations, Fluke tools deliver the testing and troubleshooting capabilities to keep global commerce and industry up and running. Fluke customers are technicians, engineers, electricians, and building diagnostics professionals— people who stake their reputations on their tools.

Fluke 381 Remote Display True-rms AC/DC Clamp Meter with iFlex™

New

All the bells and whistles

The Fluke 381 Clamp Meter combines iFlex flexibility with remote reading capability for the ultimate in innovation and safety.

- Remote display reads measurements up to 30 feet away
- iFlex flexible current probe included, 18-inch circumference
- 2500 A ac current measurement with iFlex
- 1000 A ac and dc curret measurement with fixed jaw
- 1000 V ac and dc voltage measurement
- Frequency measurement to 500 Hz
- 60 kΩ resistance measurement
- Min/Max/Avg and inrush recording
- CAT IV 600 V, CAT III 1000 V
- Three-year warranty

See specifications chart on page 7.

Fluke 365 Detachable Jaw True-rms AC/DC Clamp Meter

New

Where rugged meets reliable

The Fluke 365 Clamp Meter offers a small, detachable jaw—with four feet of coil—that makes it easy to take and read measurements in tight or hard-to-reach places.

- 200 A ac and dc current measurement
- 600 V ac and dc voltage measurement
- 6000 Ω resistance measurement
- Built-in flashlight
- Large, easy-to-read backlight display
- Three-year warranty

See specifications chart on page 7.

Ordering information

Included accessories	Models	
18-inch iFlex™ Flexible Current Probe, test leads, soft carrying case, instruction card, safety information sheet, five AA alkaline batteries.	FLUKE-381	Remote Display True-rms AC/DC Clamp Meter with iFlex™
Test leads, soft carrying case, instruction card, safety information sheet, five AA alkaline batteries.	FLUKE-365	Detachable Jaw True-rms AC/DC Clamp Meter

Fluke 370 Series Clamp Meters
Be ready for anything

FLUKE ®

Fluke 376 with iFlex

Our new family of true-rms clamp meters provides a range of state of-the-art features to meet even the most demanding job requirements.

All four of the new clamp meters have improved base features such as a large, backlit display, true-rms standard, CAT IV safety rating and a durably constructed body. Additionally, the 376, 375 and 374 are compatible with the iFlex flexible current probe (included with the 376, sold separately for the 375 and 374), and provide increased measurement readings to 1000 A and 1000 V ac and dc.

See specifications chart on page 7 for details per model.

Fluke 375   Fluke 374   Fluke 373

iFlex™ Flexible Current Probe

Unprecedented measurement flexibility.
The new iFlex flexible current probe expands the measurement range of select Fluke clamp meters to 2500 A ac while providing increased display flexibility, improved wire access and the ability to measure awkward-sized conductors.

Available in 18-inch and 10-inch coil sizes. Visit **www.fluke.com/iFlex-18** for additional specs.

Recommended accessories

TL223
SureGrip™ Electrical Test Lead Set
See page 57

TL71
Premium Test Lead Set
See page 57

i2500-10
10 inch iFlex™ Flexible Current Probe
See page 5

i2500-18
18 inch iFlex™ Flexible Current Probe
See page 5

AC285
SureGrip™ Alligator Clips
See page 57

TL175
TwistGuard™ Test Leads
See page 57

Quick reference guide conversion table

Old model	New model	Feature changes		
Fluke 337	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 336	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 336 features (except low pass filter) plus: • CAT IV 600 V, CAT III 1000 V • Optional iFlex 2500 A ac	• 1000 µF	• Min/Max/Avg
Fluke 335	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 373	Includes all 335 features (except inrush) plus: • CAT IV 300 V, CAT III 600 V	• 1000 µF	
Fluke 334	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 334 features (except inrush) plus: • CAT IV 300 V, CAT III 600 V	• True-rms	• 1000 µF
Fluke 333	Fluke 373	Includes all 333 features plus: • CAT IV 300 V, CAT III 600 V • True-rms	• 600 A ac • 6000 Ω	• 1000 µF

Ordering information

Included accessories	Models	
18-inch iFlex™ flexible current probe, test leads, soft carrying case, instruction card, safety information sheet, two AA alkaline batteries.	FLUKE-376	True-rms AC/DC Clamp Meter with iFlex™
Test leads, soft carrying case, instruction card, safety information sheet, two AA alkaline batteries.	FLUKE-375	True-rms AC/DC Clamp Meter
Test leads, soft carrying case, instruction card, safety information sheet, two AA alkaline batteries.	FLUKE-374	True-rms AC/DC Clamp Meter
Test leads, soft carrying case, instruction card, safety information sheet, two AA alkaline batteries.	FLUKE-373	True-rms AC Clamp Meter

Check price and availability at **www.fluke.com/wtb-clamps**

Fluke 320 Series
Clamp Meters

Get more done
The Fluke 321 and 322 are designed to verify the presence of load current, ac voltage and continuity of circuits, switches, fuses and contacts. These small and rugged clamp meters are ideally suited for current measurements up to 400 A in tight cable environments.
- Precised measurements with 1.8 % basic accuracy
- Resolution up to 0.01 A and 0.1 V
- Measures ac current 40.00 A/400.0 A
- Measures ac and dc volts to 600 V
- Resistance measurement to 400 Ω
- Continuity for quick checking of shorts

See specifications chart on page 7 for details per model.

Fluke 322   Fluke 321

Fluke 902 True-rms HVAC
Clamp Meter

Just for our HVAC pros
HVAC (heating, ventilation, air conditioning) technicians require a service tool that can consistently keep up with their demands. The Fluke 902 expands the existing line of quality Fluke clamp meters by delivering the features necessary to diagnose and repair HVAC systems. Combined with true-rms technology and a CAT III 600 V rating, the Fluke 902 helps technicians do their jobs safely and accurately.
- Designed for HVAC applications with capacitance, dc current (µA), and temperature measurements
- Small body and jaws fit perfectly in your hand and into tight places
- Handy "Display Hold" button keeps measurements on the display
- Meter controls are positioned so current measurements can be done with one hand (index finger on clamp opening lever and thumb on rotary switch)
- Three-year warranty

See specifications chart on page 7.

Ordering information

Included accessories	Models	
Test leads, soft carrying case, instruction card, safety information sheet, two AA alkaline batteries.	FLUKE-321	Clamp Meter
	FLUKE-322	Clamp Meter
Test leads, temperature probe, soft carrying case, users manual, two AA alkaline batteries.	FLUKE-902	True-rms HVAC Clamp Meter
Soft carrying case, instruction card, safety information sheet, five AA alkaline batteries.	FLUKE-353	AC/DC True-rms Clamp Meter, 2000 A, amps only
1.5 m silicone rubber test leads, test probes, alligator clips, soft carrying case, six AA batteries, users manual.	FLUKE-355	AC/DC True-rms Clamp Meter, 2000 A

Check price and availability at
www.fluke.com/wtb

Fluke 353/355 AC/DC True-rms Clamp Meters, 2000 A

Versatile, professional, accurate

Confidently take reliable readings with the true-rms Fluke 355 and 353 clamp meters—the tools of choice for high current clamp-on amp meter measurement up to 2000 A.

- Reliably handle a wide range of high-current applications with 2000 A ac + dc true-rms, 1400 A ac, and 2000 A dc
- Large 58 mm (2.3 in) jaw
- In-rush current measurement
- High voltage measurement of 1000 V ac + dc true-rms, 600 V ac, and 1000 V dc (355 only)
- Resistance to 400 KΩ (355 only)
- Continuity beeper (355 only)
- Frequency measurement to 1 KHz
- Selectable low pass filter mode
- Min/Max/Avg
- Large display with backlight

Ordering information on page 6.

Application note

Clamp Meter ABCs

What is a clamp meter and what can it do? What measurements can be made with a clamp meter? How do you get the most out of a clamp meter? Which clamp meter is best suited to the environment the meter will be used in? The answers to these questions can be found in this application note.

Download this application note at **www.fluke.com/ClampABCs**

Specifications – Clamp meters

	Residential/commercial electrical		General purpose				Industrial electrical		HVAC/R	High end industrial, utility		iFlex accessory	Leakage
	321	322	365	373	374	375	376	381	902	353	355	i2500-10/ i2500-18	360
Measurements													
AC current	•	•	•	•	•	•	•	•	•	•	•	•	•
AC voltage	•	•	•	•	•	•	•	•	•		•		
Resistance	•	•	•	•	•	•	•	•	•		•		
Continuity	•	•	•	•	•	•	•	•	•		•		
DC volts		•	•	•	•	•	•	•	•		•		
DC current			•		•	•	•	•	•	•	•		
True-rms			•	•	•	•	•	•	•	•	•	•	
Frequency						•	•	•		•	•		•
AC + DC voltage											•		
AC + DC current										•	•		
Min/Max/Avg					•	•	•	•	•	•	•		
Temperature										•			
Capacitance				•	•	•	•	•					
Special features													
Inrush current mode					•	•	•	•		•	•	•	
Low pass filter						•	•	•		•	•		
18-inch iFlex Flexible Current Probe					Optional	Optional	Included	Included					
10-inch iFlex Flexible Current Probe					Optional	Optional	Optional	Optional					
Remote display									•				
Flashlight/torch			•										•
Display													
Display hold	•	•	•	•	•	•	•	•	•	•	•		•
Backlight			•	•	•	•	•	•	•	•	•		
Specifications													
Jaw opening	1 in	1 in	0.7 in	1.3 in	1.3 in	1.3 in	1.3 in	1.3 in	1.2 in	2.3 in	2.3 in	5.7 in/3.2 in	1.5 in
Max wire size	500 MCM	500 MCM	17 mm (0.67 in)	750 MCM	750 MCM	750 MCM	750 MCM	750 MCM	750 MCM	750 MCM or three 500 MCM	750 MCM or three 500 MCM		1250 MCM
Current range ac rms	0 to 400.0 A	0 to 400.0 A	0 to 200.0 A	0 to 600.0 A	0 to 600.0 A	0 to 600.0 A	0 to 999.9 A	0 to 999.9 A	0 to 600.0 A	0 to 1400 A	0 to 1400 A	0 to 2500 A	0 to 60 A
Accuracy ac current (50/60 Hz)	1.8 % ± 5 counts	1.8 % ± 5 counts	2 % ± 5 counts	2 % ± 5 counts	2 % ± 5 counts	2 % ± 5 counts	2 % ± 5 counts	2 % ± 5 counts	2 % ± 5 counts	1.5 % ± 5 counts	1.5 % ± 5 counts	3 % ± 5 counts	1 % ± 5 counts
AC Response	Averaging	Averaging	True-rms	True-rms	True-rms	True-rms	True-rms	True-rms	True-rms	True-rms	True-rms	True-rms	Averaging
Current range dc			0 to 200 A	0 to 600.0 A	0 to 600.0 A	0 to 600.0 A	0 to 999.9 A	0 to 999.9 A	0 to 200 µA	0 to 2000 A	0 to 2000 A		
Accuracy dc current			2 % ± 5 counts	2 % ± 5 counts	2 % ± 5 counts	2 % ± 5 counts	2 % ± 5 counts	2 % ± 5 counts	1 % ± 5 counts	1.5 % ± 5 counts	1.5 % ± 5 counts		
Voltage range ac	0 to 600.0 V	0 to 600.0 V	0 to 600.0 V	0 to 600.0 V	0 to 600.0 V	0 to 600.0 V	0 to 1000 V	0 to 1000 V	600.0 V	0 to 600.0 V	0 to 600.0 V		
Accuracy ac voltage	1.2 % ± 5 counts	1.2 % ± 5 counts	2 % ± 5 counts	1 % ± 5 counts	1.5 % ± 5 counts	1.5 % ± 5 counts	1.5 % ± 5 counts	1.5 % ± 5 counts	1 % ± 5 counts	1 % ± 5 counts	1 % ± 5 counts		
Voltage range dc			0 to 600.0 V	0 to 600.0 V	0 to 600.0 V	0 to 600.0 V	0 to 1000 V	0 to 1000 V	0 to 600.0 V	0 to 1000 V	0 to 1000 V		
Accuracy dc voltage		1 % ± 5 counts	2 % ± 5 counts	1 % ± 5 counts	1 % ± 5 counts	1 % ± 5 counts	1 % ± 5 counts	1 % ± 5 counts	1 % ± 5 counts	1 % ± 5 counts	1 % ± 5 counts		
Resistance range	0 to 400 Ω	0 to 400 Ω	0 to 6000 Ω	0 to 6000 Ω	0 to 6000 Ω	0 to 6000 Ω	0 to 60 kΩ	0 to 60 kΩ	0 to 9999 Ω	0 to 400 KΩ	0 to 400 KΩ		
Frequency measurement range					500 Hz	500 Hz	500 Hz	500 Hz		5 to 1000 Hz	5 to 1000 Hz		500 Hz

Pick the right digital multimeter for you
Digital multimeter selection guide

	Highest accuracy **289**	Industrial troubleshooting **87V**	Built-in thermometer **179**	Building maintenance **117**	HVAC/R technicians **116**	Remote Display **233**	Insulation Multimeter **1587**	IP 67 Industrial **28 II**
Models								
Best for	Data logging	Variable speed drives	Every day use	Wide variety of electrical work	HVAC troubleshooting	Perform two-man jobs alone	Troubleshooting and preventive maintenance	Harsh environments
Basic features								
True-rms readings	AC+DC	AC	AC	AC	AC	AC	AC	AC
Basic dc accuracy	0.025 %	0.05 %	0.09 %	0.5 %	0.5 %	0.25 %	0.09 %	0.05 %
Wide bandwidth	100 kHz	20 kHz						20 kHz
Auto/manual ranging	•	•	•	•	•	•	•	•
Digits	4-1/2	4-1/2	3-1/2	3-1/2	3-1/2	3-1/2	3-1/2	4-1/2
Counts	50000	20000	6000	6000	6000	6000	6000	20000
Measurements								
Voltage ac/dc	1000 V	1000 V	1000 V	600 V	600 V	1000 V	1000 V	1000 V
Current ac/dc	10 A	10 A	10 A	10 A	600 µA	10 A	400 mA	10 A
Resistance	500 MΩ	50 MΩ	50 MΩ	40 MΩ	40 MΩ	40 MΩ	50 MΩ	50 MΩ
Frequency	1 MHz	200 kHz	100 kHz	50 kHz	50 kHz	50 kHz	100 kHz	200 kHz
Capacitance	100 mF	10 mF	10 mF	10 mF	10 mF	10 mF	10 mF	10 mF
Temperature	+1350 °C	+1090 °C	+400 °C		+400 °C	+400 °C	+500 °C	+1090 °C
dB	60 dB							
Conductance	50 nS	60 nS						60 nS
Duty cycle/pulse width	•	•/–						•/–
Motor drive measurements/low pass filter	•	•					•	•
Continuity with beeper/diode test	•	•	•	•	•	•	•	•
Low ohms (50 Ω)	•							
Display								
Dual display	•							
Analog bargraph	•	•	•	•	•			•
Backlight	•	•	•	•	•	•	•	•
Remote display						•		
Data storage and exchange								
Min/Max recording	Time stamp	•	•	•	•	•	•	•
Fast Min/Max	250 µs	250 µs						250 µs
Display Hold/Auto (Touch) Hold	•	•	•	•	•	•		•
Relative reference	•	•						•
PC interface	•							
Data logging	•							
Readings memories	10,000							
Other features								
Automatic selection, LoZ	•			•	•			
Insulation test range							0.01 MΩ to 2 GΩ	
Non-contact ac voltage detector				•				
Real-time clock	•							
Overmolded case, integrated holster	•		•			•		
Removable holster		•		•	•		•	•
ToolPak compatibility	•	•	•	•	•	•	•	•
Closed case calibration/separate battery door	•	•	•	•	•	•	•	•
Completely sealed/watertight								•
Automatic power off	•	•	•	•	•	•	•	•
Low battery indication	•	•	•	•	•	•	•	•
Operating temperature ranges	–20 °C, +55 °C	–20 °C, +55 °C	–10 °C, +50 °C	–10 °C, +50 °C	–10 °C, +50 °C	–10 °C, +50 °C		–40 °C, +55 °C
IP rating	IP 42	IP 30		IP 42	IP 42		IP 30	IP 67
Warranty and electrical safety								
Warranty	Limited lifetime	Limited lifetime	Limited lifetime	Three-years	Three-years	Three-years	Three-years	Limited lifetime
Input alert	•	•						•
Dangerous voltage indication	•	•	•	•	•	•	•	•
CAT III measurements	1000 V	1000 V	1000 V	600 V	600 V	1000 V	1000 V	1000 V
CAT IV measurements	600 V	600 V	600 V			600 V	600 V	600 V
See page	**11**	**12**	**13**	**14**	**15**	**9**	**17**	**10**

For more information, go to **www.fluke.com/dmm**

Fluke 233 Remote Display Digital Multimeter

The Fluke 233 Remote Display Digital Multimeter allows you to be in two places at once. The removable display solves several problems. First, you no longer have to hold both the meter and the test leads to make a measurement. Second, making measurements in hard-to-reach places is much easier, and third, it allows you to take measurements in machines or panels that are physically separated from a limit switch or an isolator switch. The Fluke 233 is also designed to work in areas where the operator can't be close to the active measurement point, like clean rooms or hazardous areas.

- Wireless technology allows the display to be carried up to 30 feet away from the point of measurement for added flexibility
- The removable magnetic display can be conveniently mounted where it is easily seen
- Low-power 802.15.4 wireless technology does not interfere with measurement accuracy
- Use as a conventional multimeter when the display is connected
- True-rms ac voltage and current
- Built-in thermometer
- Auto power off maximizes battery life (400 hours)
- Radio transmitter automatically turns off when the display is connected to the meter
- Record signal fluctuations using the Min/Max function

Product video

View this product demonstration to learn more about the Fluke 233.
www.fluke.com/233video

Application note

The new Fluke 233 wireless digital multimeter

What if, as an electrical professional, you could take a clamp-on ammeter reading using your digital multimeter (DMM) with the disconnect door or MCC cubicle door closed?

Download this application note at **www.fluke.com/233dmm**

Recommended accessories

TPAK
Magnetic Meter Hanger
See page 62

TL220
SureGrip Industrial Test Lead Set
See page 53

80PK-9
General Purpose Probe
See page 58

i400s
AC Current Clamp
See page 60

80AK-A
Thermocouple Adapter
See page 59

C35
Soft Carrying Case
See page 54

Features

Features
Measure up to 1000 V ac and dc
Measure up to 10 A (20 A for 30 seconds)
10,000 µF capacitance range
Frequency to 50 kHz
Resistance, continuity and diode test
Min/Max and average recording to capture variations automatically
Three-year warranty

Specifications

Functions	Specifications	
DC voltage	Range	0.1 mV to 1000 V
	Accuracy	0.25 % + 2
AC voltage	Range	0.1 mV to 1000 V
	Accuracy	1.0 % + 3
DC current	Range	0.1 mA to 10 A
	Accuracy	1.0 % + 3
AC current	Range	0.1 mA to 10 A
	Accuracy	1.5 % + 3
Resistance	Range	0.1 Ω to 40 MΩ
Capacitance		1000 nF to 9999 µF
Frequency		0.1 Hz to 50.00 kHz
Temperature		-40 °C to +400 °C (-40 °F to 752 °F)
Power		Three AA batteries main body, two AA batteries display module
Battery life		400 hours
Compliance		CAT IV 600 V , CAT III 1000 V
Size (HxWxL)		5.3 cm x 5.3 cm x 19.3 cm (2.08 in x 2.08 in x 7.6 in)
Weight		604 g (1.3 lb)

Ordering information

Included accessories	Models	
Test leads, temperature probe, alligator clips, batteries, users manual.	FLUKE-233	Remote Display Multimeter

Check price and availability at
www.fluke.com/wtb

Fluke 27 II/28 II Industrial Digital Multimeters

The 27 II and 28 II Digital Multimeters are designed for tough work environments. Both meters have IP 67 waterproof and dustproof rating. They both have an extended operating temperature range of –15 °C to + 55 °C (5 °F to 131 °F) and 95 % humidity.

- Unique function for accurate voltage and frequency measurements on adjustable speed motor drives and other electrically noisy equipment (28 II)
- Built-in thermometer conveniently allows you to take temperature readings without having to carry a separate instrument (28 II)
- Hi-resolution 20,000 count display mode (28 II)
- Resistance and continuity. Relative mode to remove test lead resistance from low ohms measurements
- Large digit display with bright, two-level backlight
- Backlit keypad buttons allow for easy visibility in low-lit areas
- Optional magnetic hanger for easy setup and viewing freeing your hands for other tasks
- U.S. Mine Safety and Health Administration (MSHA) approved

Application note

Tough places, tough tools

Out on the job site, concrete finishers stand ready to shape wet ready-mix into a new stretch of highway. Mixer trucks are lined up at the concrete batch plant, waiting to take on their loads. But hold on—an electrical problem has shut down the plant. It's time to call Keithly Electric.

Features

Features
Tested to withstand a 3 m (10 ft) drop
Wide 1000 V measurement range
True-rms ac voltage and current for accurate measurements on non-linear signals (28 II)
Average responding voltage and current measurements (27 II)
10 A continuous (20 A for 30 seconds)
Frequency and capacitance
Record signal fluctuations using the Min/Max function

Specifications

Specification		27 II	28 II
DC voltage	Range	0.1 mV to 1000 V	
	Accuracy	0.05 % +1	0.05 % + 1
AC voltage	Range	0.1 mV to 1000 V	
	Accuracy	0.5 % +3	0.7 % +4
DC current	Range	0.1 µA to 10 A	
	Accuracy	0.2 % + 4	0.2 % + 4
AC current	Range	0.1 µA to 10 A	
	Accuracy	1.5 % + 2	1.0 % + 2
Resistance	Range	0.1 Ω to 50 MΩ	
Display counts		6000	6000 / 19,999
Capacitance		1 nF to 9999 µF	
Frequency		0.5 Hz to 199.99 kHz	
Temperature		–200 °C to +1090 °C	
Low pass filter (measurement on VSD's)			Yes
Compliance		CAT IV 600 V , CAT III 1000 V	
Measurement method		Avg. responding	True-rms
Power		Three AA batteries	
Battery life		800 hours	
Dimensions (DxWxH)		2.5 in x 3.93 in x 7.8 in	
Weight with holster		698.5 g (1.54 lb)	

Ordering information

Included accessories	Models	
Test leads, temperature probe, alligator clips, batteries, holster, users manual.	FLUKE-27-II	Industrial Multimeter
	FLUKE-28-II	Industrial Multimeter

Recommended accessories

TPAK
Magnetic Meter Hanger
See page 62

TLK-225
SureGrip Master Accessory Set
See page 55

PV350
Pressure-Vacuum Module
See page 63

i410
AC/DC Current Clamp
See page 60

CXT80
Extreme Hard Case
See page 54
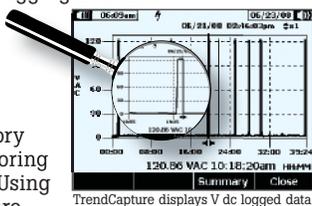
C550
Tool Bag
See page 54

Fluke 289 and 287 True-rms Logging Multimeters

Find little problems before they become big ones.
The Fluke 289 and 287 are the next generation in high performance industrial logging multimeters.

- Large 50,000 count, 1/4 VGA dot matrix display with white backlight
- Logging function with expanded memory for unattended monitoring of signals over time. Using on-board TrendCapture, users can graphically review logged readings without needing a PC. Store up to 10,000 recorded events
- Save, name, and recall multiple logging sessions before PC download is necessary
- Zoom on trend, provides unprecedented ability to view and analyze TrendCapture data; zoom in up to 14 times
- Two terminal 50 ohm range with 1 milliohm resolution, 10 mA source current. Useful for measuring and comparing differences in motor winding resistance or contact resistance (289)
- Low pass filter for accurate voltage and frequency measurements on adjustable speed motor drives and other electrically noisy equipment (289)
- LoZ volts. Low impedance voltage function for eliminating ghost voltages. Also recommended when testing for absence or presence of live power (289)

TrendCapture displays V dc logged data.

Recommended accessories

TLK289
Industrial Test Lead Set
See page 55

TLK287
Electronic Test Lead Set
See page 55

TPAK
Magnetic Meter Hanger
See page 62

i410
AC/DC Current Clamp
See page 61

FVF-SC2
FlukeView Forms
See page 63

C280
Soft Case
See page 54

Recommended kits

289/FVF kit includes:
- True-rms industrial logging multimeter with TrendCapture
- FlukeView Forms Software and cable
- Temperature probe
- Silicone test lead set
- Alligator clips
- Meter hanging accessory
- Soft case

287/FVF kit includes:
- True-rms electronic logging multimeter with TrendCapture
- FlukeView Forms Software and cable
- Temperature probe
- Modular test leads (red, black)
- Modular test probes (red, black)
- Alligator clips (red, black)
- Soft case

Features

Features	
Multiple on screen displays	Yes
True-rms ac bandwidth	100 kHz
dBV/dBm	Yes
DC mV resolution	1 µV
Megohm range	up to 500 MΩ
Conductance	50.00 nS
Continuity beeper	Yes
Elapse time clock/time of day clock	Yes
Min/Max/Avg/duty cycle/pulse width	Yes
Isolated optical DMM interface with USB PC connection	Yes
Auto/touch hold	Yes
Over 200 hours logging capacity with new power saving function	Yes
Warranty	Limited lifetime

Specifications

Functions	Range and resolution	Basic Accuracy
AC volts or dc volts	50.000 mV, 500.00 mV, 5.0000 V, 50.000 V, 500.00 V, 1000.0 V	0.025 % 0.4 % (true-rms) (AC)
AC current dc current	500.00 µA, 5000.0 µA, 50.000 mA, 400.00 mA, 5.0000 A, 10.000 A	0.15 % 0.7 % (true-rms)
Temperature (excluding probe)	–200.0 °C to 1350.0 °C (–328.0 °F to 2462.0 °F)	1.0 %
Resistance	50.000 Ω, 500.00 Ω, 5.0000 kΩ, 50.000 kΩ, 500.00 kΩ, 5.0000 MΩ, 50.00 MΩ, 500.0 MΩ	0.05 %
Capacitance	1.000 nF, 10.00 nF, 100.0 nF, 1.000 µF, 10.00 µF, 100.0 µF, 1000 µF, 10.00 mF, 100 mF	1.0 %
Frequency	99.999 Hz, 999.99 Hz, 9.9999 kHz, 99.999 kHz, 999.99 kHz	.005 %

Ordering information

Included accessories	Models	
Test leads, alligator clips, holster, 9 V battery (installed), users manual on CD, getting started guide.	FLUKE-289	True-rms Industrial Logging Multimeter with TrendCapture
	FLUKE-287	True-rms Electronics Logging Multimeter with TrendCapture
	FLUKE-289/FVF	True-rms Industrial Logging Multimeter Combo Kit with TrendCapture
	FLUKE-287/FVF	True-rms Electronics Logging Multimeter Combo Kit with TrendCapture

Check price and availability at **www.fluke.com/wtb**

For more information, go to **www.fluke.com/dmm**

Fluke 87V Industrial Multimeter
For industrial productivity

The Fluke 87V has measurement functions, trouble-shooting features, resolution and accuracy to solve more problems on motor drives, in-plant automation, power distribution and electro-mechanical equipment.
- Unique function for accurate voltage and frequency measurements on adjustable speed motor drives and electrically noisy equipment (87V and 87V Ex)
- Large digit display with bright two level backlight makes the 87V significantly easier to read
- Measure 20 A for up to 30 sec, 10 A continuously
- Optional magnetic hanger for easy setup and viewing while freeing your hands for other tasks (TPAK)
- Expanded capacitance range to 10,000 µF

Electrical safety
All inputs are protected to CAT III 1000 V and CAT IV 600 V. They can withstand impulses in excess of 8,000 V to help protect you from arc blast resulting from surges and spikes.

Available in intrinsically safe version as the Fluke 87V Ex.

Also available as 83V average responding multimeter, see below for specifications.

Specialty models

Fluke 87V Ex Intrinsically Safe True-rms Multimeter
See page 39 for more information.

Recommended accessories

TPAK
Magnetic Meter Hanger
See page 62

TL220
SureGrip Industrial Test Lead Set
See page 55

PV350
Pressure-Vacuum Module
See page 63

i400
AC Current Clamp
See page 60

L210
Probe Extender with Light
See page 62

CXT80
Extreme Case
See page 54

Recommended kits

Fluke 87V/E2 Industrial Electrician's Combo Kit
- Industrial multimeter
- Lightweight soft case to provide optimal protection and storage
- 1.5 m silicone leads resist heat
- Removable probes with 4 mm of exposed metal for use on industrial circuits
- Retractable long reach alligator clips
- Meter hanging accessory
- Type K temperature probe

Features

Features	87V Ex	87V	83V
Peak capture to record transients as fast as 250 µs	•	•	
Measure up to 1000 V ac and dc	•	•	•
Auto and manual ranging for maximum flexibility	•	•	•
Analog bargraph	•	•	•
Frequency to 200 kHz and % duty cycle	•	•	•
Min/Max and average recording to capture variations automatically	•	•	•
Relative mode to remove test lead resistance from low ohms measurements	•	•	•
Access door for fast battery changes without breaking the calibration seal	•	•	•
Limited lifetime warranty	One-year	•	•

Specifications

Functions	Range and resolution	Basic accuracy 87V	Basic accuracy 83V
DC volts	600.0 mV, 6.000 V, 60.00 V, 600.0 V, 1000 V	0.05 %	0.1 %
AC volts	600.0 mV, 6.000 V, 60.00 V, 600.0 V, 1000 V	0.7 % (true-rms)	0.5 %
DC current	600.0 µA, 6000 µA, 60.00 mA, 600.0 mA, 6.000 A, 10.00 A	0.2 %	0.4 %
AC current	600.0 µA, 6000 µA, 60.00 µA, 600.0 mA, 6.000 A, 10.00 A	1.0 % (true-rms)	1.2 %
Temperature (excl. probe)	–200 °C to 1090 °C (–328 °F to 1994 °F)	1.0 %	
80BK Temperature Probe	–40 °C to 260 °C (–40 °F to 500 °F)	2.2 °C or 2 %	
Resistance	600.0 Ω, 6.000 kΩ, 60.00 kΩ, 600.0 kΩ, 6.000 MΩ, 50.00 MΩ	0.2 %	0.4 %
Capacitance	10.00 nF, 100.0 nF, 1.000 µF, 10.00 µF, 100.0 µF, 9,999 µF	1.0 %	1.0 %
Frequency	199.99 Hz, 1.9999 kHz, 19.999 kHz, 199.99 kHz	0.005 %	0.005 %

Battery life: 400 hours typical with backlight off. **Size (LxWxD):** 201 mm x 98 mm x 52 mm (7.9 in x 3.8 in x 2 in).
Weight: 355 g (22 oz).

Ordering information

Included accessories	Models	
Test leads, alligator clips, holster, 9 V battery (installed), temperature probe (87V only), users manual on CD, operator's guide.	FLUKE-87-5	Industrial True-rms Multimeter with Temperature
	FLUKE-83-5	Industrial Multimeter
	FLUKE-87V Ex	Intrinsically Safe True-rms Multimeter
	FLUKE-87-5/E2	Industrial Electrician's Combo Kit

Check price and availability at
www.fluke.com/wtb

For more information, go to **www.fluke.com/dmm**

Fluke 170 Series Digital Multimeters
For maintenance and field service

The Fluke 179 True-rms Multimeter has the features needed to find most electrical and HVAC problems. Simple to use with significant improvements over the original Fluke 70 Series.

- Wide 1000 V measurement range
- True-rms for precise measurement of non-linear signals
- Capacitance, resistance, continuity and frequency
- Built-in thermometer (Fluke 179 only)
- Large, easy-to-read display
- Backlight for work in dimly lit areas (Fluke 177 and179 only)
- Min/Max/Avg to record signal fluctuations
- Display hold and auto hold
- Manual and automatic ranging

Electrical safety

All inputs are protected to measurement CAT III 1000 V and CAT IV 600 V. This meter can withstand transient impulses in excess of 8000 V to help protect you from arc blasts resulting from surges and spikes.

Recommended accessories

TPAK
Magnetic Meter Hanger
See page 62

TL238
Test Lead Set for High Energy Environments
See page 57

FOM
Fiber Optic Meter
See page 63

i2000 Flex
AC Current Clamp
See page 60

LVD2
Volt Light
See page 62

C35
Soft Carrying Case
See page 54

Recommended kits

179/EDA2 Electronics Multimeter and Deluxe Accessory Combo Kit
- True-rms digital multimeter
- Soft case
- Electronic test probes
- SureGrip™ silicone test leads
- SureGrip™ heavy duty hook clips
- Type K temperature probe
- Meter hanging accessory

179/1AC-II Electrician's Multimeter and Voltage Tester Combo Kit
- True-rms digital multimeter
- Non-contact voltage detector
- Soft case
- Alligator clips
- SureGrip™ test probes
- Silicone test leads, 1.5 m
- Type K temperature probe
- Meter hanging accessory

Features

Features	179	177	175
Max voltage	1000	1000	1000
True-rms	•	•	•
Temperature	•		
Basic dc accuracy	0.09 %	0.09 %	0.15 %
Backlight	•	•	
Min/Max/Avg	•	•	•
ToolPak meter hanging kit with magnet	Opt	Opt	Opt
Limited lifetime warranty	•	•	•

Specifications

Functions	Range and resolution	Best accuracy
DC voltage	600.0 mV, 6.000 V, 60.00 V, 600.0 V, 1000 V	± 0.09 % (Models 177 and 179) ± 0.15 % (Model 175)
AC voltage[1]	600.0 mV, 6.000 V, 60.00 V, 600.0 V, 1000 V	± 1.0 % of reading
DC current	60.00 mA, 400.0 mA, 6.000 A, 10.00 A[2]	± 1.0 % of reading
AC current[2]	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 kHz, 99.99 kHz	± 0.1 % of reading
Temperature (Model 179)	–40 °C to +400 °C (–40 °F to +752 °F)	1.0 % of reading

[1] All ac voltage and ac current ranges are specified from 5 % of range to 100 % of range.
[2] 10 A continuous, 20 A for up to 30 seconds.
[3] Voltage 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 (HxWxL): 4.3 cm x 9.0 cm x 18.5 cm (1.7 in x 3.5 in x 7.3 in).

Ordering information

Included accessories	Models	
Test leads, 9 V battery (installed) and manual. The Fluke 179 comes with an additional temperature probe.	FLUKE-179	Digital Multimeter
	FLUKE-175	Digital Multimeter
	FLUKE-177	Digital Multimeter
	FLUKE-179/1AC-II	Electricians Combo Kit
	FLUKE-179/EDA2	Electronics Combo Kit

Fluke 117 and 115
True-rms Digital Multimeters

Fluke 117

The 117 Digital Multimeter includes integrated non-contact voltage detection to help get the job done faster.

The Fluke 115 Digital Multimeter is the solution for a wide variety of electrical and electronic testing applications.

- VoltAlert™ technology for integrated non–contact voltage detection (117)
- AutoVolt feature for automatic ac/dc voltage selection (117)
- LoZ: Low input impedance prevents false readings due to "ghost voltage" (117)
- Large display and white LED backlight to work in poorly lit areas more effectively
- Compact ergonomic design for one–handed operation
- Min/Max/Avg to record signal fluctuations
- Compatible with optional magnetic hanger (TPAK) for hands free operation
- Current measurement 20 A (30 seconds momentary; 10 A continuous)
- Resistance, continuity, frequency and capacitance

Fluke 115

Specialty model

Fluke 113

- Basic electrical and utility multimeter
- VCHEK™ LoZ low impedance measurement function to simultaneously test for voltage or continuity
- True-rms for accurate ac measurements on non-linear loads
- Record signal fluctuations using the Min/Max function
- Diode and capacitance measurements
- Integral holster with probe holders for easy storage
- Auto and manual ranging for added user functionality
- Meets CAT III 600 V and CAT IV 300 V standards for a higher level of safety

Recommended accessories

TPAK
Magnetic
Meter Hanger
See page 62

TL220
SureGrip Industrial
Test Lead Set
See page 55

LVD2
Volt Light
See page 62

C35
Soft Carrying Case
See page 54

Recommended kits

117/322 Electrician's Combo Kit
- True-rms digital multimeter with non-contact voltage detection
- Compact clamp meter
- Test lead set
- Magnetic meter hanging strap
- Deluxe carrying case with shoulder strap

Features

Features	117	115	113
VoltAlert™	•		
AutoVolt/LoZ	•		LoZ
Analog bargraph	•	•	•
Large backlit digital display	•	•	•
True-rms for accurate measurements on non-linear loads	•	•	•
Min/Max recording	•	•	•
Display hold	•	•	•
3-1/2 digits	•	•	•
6000 counts	•	•	•
CAT III 600 V safety rated	•	•	•
Three-year warranty	•	•	•

Specifications

Functions	117	115	113	Accuracy
Volts ac/dc	600 V	600 V	600 V	0.5 % + 2
Current ac/dc	10 A	10 A		1.0 % + 3
Resistance	40 MΩ	40 MΩ	60 kΩ	0.9 % + 2
Capacitance	1 nF to 9,999 µF	1 nF to 9,999 µF		1.9 % + 2
Diode test	Yes	Yes	Yes	
Frequency	5 Hz to 50 kHz	5 Hz to 50 kHz		0.1 % + 2

Ordering information

Included accessories	Models	
Test leads, holster, users manual and 9 V battery (installed).	FLUKE-117	Multimeter with Non-Contact Voltage
	FLUKE-115	Multimeter
	FLUKE-113	Utility Meter
	FLUKE-117/322	Electrician's Combo Kit

Fluke 116 and 114 Digital Multimeters
HVAC/R and electrical troubleshooting

The Fluke 116 Digital Multimeter was specifically designed for the HVAC professional.

The Fluke 114 Digital Multimeter is the best trouble-shooting tool for "go/no-go" testing.

- Built in thermometer for HVAC applications (116)
- Microamps to test flame sensors (116)
- AutoVolt: Automatic ac/dc voltage selection (114)
- LoZ: Helps prevent false readings due to ghost voltage
- Min/Max/Avg to record signal fluctuations
- Resistance, continuity, frequency and capacitance
- Large white LED backlight to work in poorly lit areas
- Compact ergonomic design for one–handed operation
- Compatible with optional magnetic hanger (TPAK)

Fluke 116

Fluke 114

Recommended accessories
Fluke 116

80AK-A
DMM Adapter
See page 59

80PK-24
SureGrip Air
Temperature Probe
See page 58

80PK-18
Pipe Clamp
Temperature Probe Kit
See page 58

80BK-A
Integrated
Temperature Probe
See page 58

Recommended kits

116/322 HVAC Combo Kit
- HVAC multimeter with temperature and microamps
- Compact clamp meter
- Test lead set
- Pipe wrap thermocouple
- Thermocouple adapter
- Thermocouple bead probe
- Meter hanging accessory
- Deluxe carrying case with shoulder strap

116/62 HVAC Combo Kit
- HVAC multimeter with temperature and microamps
- Infrared thermometer
- Test lead set
- Pipe wrap thermocouple
- Thermocouple adapter
- Type K integrated temperature probe
- Magnetic meter hanging strap
- Deluxe carrying case with shoulder strap

Features

Features	116	114
Temperature	•	
Microamps	•	
Frequency	•	
Capacitance	•	
Diode test	•	
AutoVolt/LoZ	•	•
Analog bargraph	•	•
Large backlit digital display	•	•
True-rms for accurate measurements on non-linear loads	•	•
Min/Max recording	•	•
Display hold	•	•
3-1/2 digits	•	•
6000 counts	•	•
CAT III 600 V safety rated	•	•
Three-year warranty	•	•

Specifications

Functions	Range and resolution	Best accuracy
Volts ac/dc	600 V	0.5 % + 2
Current ac/dc (116 only)	600.0 µA	1.0 % + 2
Temperature (116 only)	+400 °C	1.0 % + 18
Resistance	40 MΩ	0.9 % + 2
Capacitance (116 only)	1 nF to 9,999 µF	1.9 % + 2
Frequency (116 only)	5 Hz to 50 kHz	0.1 % + 2

Ordering information

Included accessories	Models	
Test leads, integrated temperature probe (116 only), holster, users manual and 9 V battery (installed).	FLUKE-116	HVAC Multimeter with Temperature and Microamps
	FLUKE-114	Electrical Multimeter
	FLUKE-116/62	HVAC Combo Kit
	FLUKE-116/322	HVAC Combo Kit

Check price and availability at
www.fluke.com/wtb

Fluke 88V and 77 IV Digital Multimeters
For automotive, field service or bench repair

Fluke 88V Automotive Multimeter

The Fluke 88V Automotive Multimeter is designed to help automotive professionals solve problems faster. This DMM has the measurement functions, troubleshooting features and accuracy to solve virtually any problem with conventional and hybrid vehicles.

- Automotive test functions include dc and ac voltage, resistance and current
- Min/Max recording for logging the highest and lowest readings over time
- Frequency measurements for magnetic sensors and ac/dc frequency signals
- Duty cycle for variable duty cycle signals with selectable trigger, slope and level
- Pulse width for fuel injector on–time measurements
- Conductance testing for secondary ignition coils
- RPM measurements for DIS and conventional ignition systems
- Built–in thermometer

Fluke 77 IV Digital Multimeter

The 77 IV Digital Multimeter has the features needed to repair most electrical and electronic problems. This meter is simple to use and has significant improvements over Fluke's original 70 Series with more measurement functions, conformance to the latest safety standards, and a much larger display that's easier to view.

- Wide 1000 V measurement range
- Average responding ac measurements
- 0.3 % accuracy
- 10 amps continuous
- Frequency and capacitance
- Resistance and continuity
- Large display
- Backlight for work in dim areas
- Min/Max to record signal fluctuations
- Integral holster with probe holders
- Free your hands with the optional TPAK magnetic hanger
- Auto and manual ranging

Specifications (77 IV)

Functions	Range	Best accuracy	Best resolution
V dc	600.0 mV to 1000 V	± (0.3 % + 1)	0.1 mV
V ac	6.000 V to 1000 V	± (2.0 % + 2)	1.0 mV
A dc	60.00 mA to 10 A	± (1.5 % + 2)	0.01mA
A ac	60.00 mA to 10 A	± (2.5 % + 2)	0.01 mA
Resistance	600.0 Ω to 50 MΩ	± (0.5 % + 1)	0.1 Ω
Capacitance	1 nF to 9,999 µF	± (1.2 % + 2)	1 nF
Frequency	99.99 Hz to 99.99 kHz	± (0.1 % + 1)	0.01 Hz

Ordering information

Included accessories	Models	
Test leads, carrying case (88V only), users manual and 9 V battery (installed).	FLUKE-88-5	Automotive Multimeter
	FLUKE-77-4	Digital Multimeter
	FLUKE-88-5/A KIT	Automotive Multimeter Combo Kit

Recommended accessories
Fluke 88V

TP40
Automotive Back Probe Pin Set
See page 56

TP88
Rigid Back Probe Pin Set
See page 56

TLK281
Automotive Test Lead Kit
See page 56

TLK282
Deluxe Automotive Test Lead Kit
See page 56

Fluke 77 IV

TPAK
Magnetic Meter Hanger
See page 62

i400
AC Current Clamp
See page 60

TL225
SureGrip Stray Voltage Adapter Test Lead Kit

TLK-225
SureGrip Master Accessory Kit
See page 55

Recommended kits

Buy Combo Pack and Save

88V/A Combo Kit
- Automotive multimeter
- Heat resistant silicone test leads
- Removable sharp point test probes
- Large jaw alligator clips
- Temperature probe
- Inductive pick-up
- Automotive backprobe pins
- Insulation piercing probe
- Meter hanging accessory
- Durable carrying case

Check price and availability at
www.fluke.com/wtb

Fluke 1587 and 1577 Insulation Multimeters

Fluke 1587

Two powerful tools in one

The Fluke 1587 and 1577 Insulation Multimeters combine a digital 1 kV insulation tester with a full–featured, true–rms digital multimeter in a single compact, handheld unit, which provides maximum versatility for both troubleshooting and preventive maintenance.

- Insulation test (1587: 0.01 MΩ to 2 GΩ) (1577: 0.1 MΩ to 600 MΩ)
- Insulation test voltages (1587: 50 V, 100 V, 250 V, 500 V, 1000 V), (1577: 500 V, 1000 V) for many applications
- Live circuit detection prevents insulation test if voltage > 30 V is detected for added user protection
- Auto–discharge of capacitive voltage for added user protection
- Filter for motor drive measurements (1587 only)
- AC/DC voltage, dc millivolts, ac/dc milliamps, resistance (W), and continuity
- Capacitance, diode test, temperature, Min/Max, and frequency (Hz) (1587 only)
- Auto power off to save battery power
- Large display with backlight and large digits
- Included accessories: Remote probe, test leads and probes, alligator clips, (Type K thermocouple, 1587 only)
- Accepts optional Fluke TPAK magnetic hanging system to free your hands for other work
- Rugged, utility hard case allows you to bring everything you need for the job

Fluke 1577

Recommended accessories

TPAK
Magnetic Meter Hanger
See page 62

i400s
AC Current Clamp
See page 60

C25
Meter Case
See page 54

TL27
Heavy Duty
Test Leads

Recommended kits

Get more value and productivity
Establishing a preventive maintenance program is becoming critical to maintaining the uptime of electrical equipment and can significantly reduce both planned and unplanned downtime. Unplanned downtime costs are difficult to calculate, but are often significant. For some industries, it can represent 1 % to 3 % of revenue (potentially 30 % to 40 % of profits) annually.

These kits can help you be proactive and efficient with your maintenance and can save you up to 10 % off the individual price of the tools.

Fluke 1587/ET Advanced Electrical Troubleshooting Kit includes:
- Fluke 1587 Insulation Multimeter
- Fluke i400 Current Clamp
- Fluke 62 Mini Infrared Thermometer

Fluke 1587/MDT Advanced Motor and Drive Troubleshooting Kit includes:
- Fluke 1587 Insulation Multimeter
- Fluke i400 Current Clamp
- Fluke 9040 Phase Rotation Indicator

Specifications

Features	1587	1577	1507	1503
Insulation test voltages 50 V, 100 V, 250 V, 500 V, 1000 V	•		•	
Insulation test voltages 500 V, 1000 V		•		•
Insulation resistance	0.01 MΩ to 2.0 GΩ	0.1 MΩ to 600 MΩ	0.01 MΩ to 10 GΩ	0.1 MΩ to 2 GΩ
Auto–discharge of capacitive voltage	•	•	•	•
Insulation test smoothing reading	•			
Frequency	•			
Capacitance	•			
Diode test	•			
Temperature	•			
Min/Max	•			
Low-pass filter (for work on VSDs)	•			
AC/DC Voltage	•	•		
DC millivolts	•	•		
AC/DC milliamps	•	•		
Resistance	0.1 Ω to 50 MΩ	0.1 Ω to 50 MΩ	0.1 Ω to 20.00 KΩ	0.1 Ω to 20.00 KΩ
Continuity	•	•		
Warranty	Three-year	Three-year	One-year	One-year
Remote probe, test leads, alligator clips	•	•	•	•
Type K thermocouple	•			
Rugged, utility hard case	•	•	•	•
Auto power off	•	•	•	•
Page number	17	17	24	24

Ordering information

Included accessories	Models	
Remote probe, test leads, alligator clips, Type K thermocouple (1587 only), hard case and users manual.	FLUKE-1577	Insulation Multimeter
	FLUKE-1587	Insulation Multimeter
	FLUKE-1587/ET	Advanced Electrical Troubleshooting Kit
	FLUKE-1587/MDT	Advanced Motor and Drive Troubleshooting Kit

Check price and availability at www.fluke.com/wtb

Fluke 421D, 416D and 411D Laser Distance Meters

Fluke 421D

The Fluke laser distance meters offer the most advanced measuring technology available. Unlike ultrasonic distance meters with laser pointers, these meters use a precision narrow laser beam that helps avoid the common errors caused by extraneous objects near measurement targets.

- Eliminate estimation errors, saving both time and money
- Instant measurement with one-button operation
- Easy targeting with bright laser
- Quick calculation of area (square footage) and volume
- Easy addition and subtraction of measurements
- Two-year warranty

Fluke 416D

Fluke 411D

Specifications

Features	Fluke 421D	Fluke 416D	Fluke 411D
Range (for extended distances, use a target plate)*	0.05 m to 100 m (0.16 ft to 330 ft)	0.05 m to 60 m (0.16 ft to 200 ft)	0.1 m to 30 m (0.33 ft to 100 ft)
Measuring accuracy**	± 1.5 mm (± 0.059 in)	± 1.5 mm (± 0.059 in)	± 3 mm (0.118 in)
Laser class	II	II	II
Laser type	635 nm, < 1 mW	635 nm, < 1 mW	635 nm, < 1 mW
Automatic power off	After 180 seconds	after 180 seconds	after 180 seconds
Continuous measurement	•	•	•
Addition/subtraction	•	•	•
Battery life	up to 5,000 measurements	up to 3,000 measurements	up to 3,000 measurements
LCD illumination	•	•	–
Data locations	20	10	–
Min/Max	•	•	–
Audible feedback	•	•	–
Pythagoras (Indirect measurement)	Full	Full	Simple
Room angle and stakeout	•	–	–
±45 ° Tilt sensor/indirect measure	•	–	–
Ingress protection	IP54	IP54	IP40
Dimensions	127 mm x 52 mm x 29 mm (5.00 in x 2.06 in x 1.13 in)	135 mm x 46 mm x 31 mm (5.31 in x 1.81 in x 1.22 in)	123 mm x 50 mm x 26 mm (4.84 in x 1.97 in x 1.02 in)
Weight	125 g (4.40 oz)	110 g (3.88 oz)	150 g (5.29 oz)
Temperature range Storage	–25 °C to 70 °C (–13 °F to 158 °F)	–25 °C to 70 °C (–13 °F to 158 °F)	–25 °C to 70 °C (–13 °F to 158 °F)
Operation	0 °C to 40 °C (32 °F to 104 °F)	0 °C to 40 °C (32 °F to 104 °F)	0 °C to 40 °C (32 °F to 104 °F)
Operating altitude (ISO 9022)	up to 3500 m	up to 3500 m	up to 3500 m
Storage humidity (at 35 °C)	maximum 85 % for 24 h	maximum 85 % for 24 h	maximum 85 % for 24 h
Batteries	AAA (2)	AAA (2)	AAA (2)

* In favorable conditions (optimal target surface, room temperature) up to 10 m (33 ft). In unfavorable conditions, such as intensive sunshine, very weakly reflecting target surface, or large temperature fluctuations, measuring accuracy may deteriorate to approx. ± 0.25 mm/m (± 0.003 in/ft) for distances above 10 m (33 ft).

** In favorable conditions (optimal target surface, room temperature) up to 10 m (33 ft). In unfavorable conditions, such as intensive sunshine, very weakly reflecting target surface, or large temperature fluctuations, the deviation over distances 10 m (33 ft) can increase by approx. ± 0.15 mm/m (± 0.0018 in/ft).

Ordering information

Included accessories	Models	
Two AAA batteries, users manual on CD, quick start guide, nylon carrying case.	FLUKE-421D	Laser Distance Meter
	FLUKE-416D	Laser Distance Meter
	FLUKE-411D	Laser Distance Meter
	FLUKE-411D/62	411D Laser Distance Meter and 62 IR Thermometer Kit
Three self-retaining test probes (black), alligator clip, users manual.	FLUKE-9040	Rotary Field Indicator

Fluke 1625 and 1623
Geo Earth Ground Testers

Fluke 1625

Fluke 1623

The Fluke 1625 and 1623 Earth Ground Testers not only measure ground resistance using the classic "fall of potential test," but also enable time saving testing using "selective" and "stakeless" methods. "Selective" testing does not require the electrode under test to be disconnected during the measurement, thus increasing safety. The simple "stakeless" method quickly checks ground connections using two current transformers (probes) clamped around the ground conductor under test. Offering "one-button" simplicity, the 1623 is an all-in-one earth ground tester, while the 1625 has extra versatility for more demanding applications.

The 1623 is perfect for performing predictive maintenance checks of commercial and industrial applications. The 1625 is intended for electrical utility or other electrically noisy environments.

Earth ground resistance and soil resistivity should be measured when:
- Designing earth ground systems
- Installing new ground system and electrical equipment
- Periodically testing ground and lightning protection systems
- Installing large electrical equipment such as transformers, switchgears, machines, etc.

Recommended accessories

EI-1623
Selective/stakeless clamp set for 1623

EI-1625
Selective/stakeless clamp set for 1625

ES-162P3
Stake/reel set for 3-pole measurements

ES-162P4
Stake/reel set for 4-pole measurements

EI-162BN
Split Core Transformer for use with Fluke 1625

Recommended kits

Fluke 1625 Kit
- Fluke 1625 tester
- 2 test leads
- 4 earth ground stakes
- 3 cable reels with wire (2-25 m, 1-50 m)
- 2 clamps (one inducing, one sensing)
- Rugged carrying case

Fluke 1623 Kit
- Fluke 1623 tester
- 2 test leads
- 4 earth ground stakes (2-25 m)
- 3 cable reels with wire (2-25 m, 1-50 m)
- 2 clamps (one inducing, one sensing)
- Rugged carrying case

Specifications

Features	1625	1623	1621
One-button measurement concept		•	•
3-pole earth ground measurement	•	•	•
4-pole earth ground measurement	•	•	
4-pole soil resistivity testing	•	•	
2-pole resistance measurement ac	•	•	•
2-and 4-pole resistance measurement dc	•		
Selective testing, no disconnection of ground conductor (1 clamp)	•	•	
Stakeless testing, quick ground loop testing (2 clamps)	•	•	
Measuring frequency 128 Hz		•	•
Earth impedance measurement at 55 Hz	•		
Automatic frequency control (AFC), 94 Hz to 128 Hz	•		
Measuring voltage switchable 20 V/48 V	•		
Programmable limits, settings	•		•
Continuity with buzzer	•		
Dust/water resistance	IP 56	IP 56	IP 40
Safety rating	CAT II 300 V	CAT II 300 V	CAT II 600 V
Two-year warranty	•	•	•

* In favorable conditions (optimal target surface, room temperature) up to 10 m (33 ft). In unfavorable conditions, such as intensive sunshine, very weakly reflecting target surface, or large temperature fluctuations, measuring accuracy may deteriorate to approx. ± 0.25 mm/m (± 0.003 in/ft) for distances above 10 m (33 ft).

** In favorable conditions (optimal target surface, room temperature) up to 10 m (33 ft). In unfavorable conditions, such as intensive sunshine, very weakly reflecting target surface, or large temperature fluctuations, the deviation over distances 10 m (33 ft) can increase by approx. ± 0.15 mm/m (± 0.0018 in/ft).

Ordering information

Included accessories	Models	
Test leads, alligator clips, users manual.	FLUKE-1625	Advanced GEO Earth Ground Tester
	FLUKE-1623	Basic GEO Earth Ground Tester
Test leads, alligator clips, stake/reel set 4-pole, selective/ stakeless clamp set, rugged carrying case, users manual.	FLUKE-1625 KIT	Advanced GEO Earth Ground Tester Kit
	FLUKE-1623 KIT	Basic GEO Earth Ground Tester Kit

These products are for unpowered installations measuring grounding connections.

Check price and availability at
www.fluke.com/wtb

Fluke 1621 Basic Earth Ground Tester
Earth ground tester for resistance measurement

The Fluke 1621 Earth Ground Tester is a rugged, easy-to-use tester for three-pole ground resistance measurements and two-pole ac resistance measurements.

Earth ground resistance is measured by installing earth ground test electrodes, and testing with the Fluke 1621. Earth ground resistance measurements are used to ensure safe operation and reduce power quality problems. With a simple user interface and intuitive functionality, the large, clear LCD display provides high visibility results in daylight or poor lighting conditions. The 1621 is lightweight making it ideal to test for lightning protection levels and periodic check-ups during routine maintenance.

• Three-pole earth resistance measurements
• Two-pole ac resistance measurements
• AC/DC voltage measurement
• Large dual backlit display
• Limit settings for automatic measurement evaluation
• CAT II 600 V
• Two-year warranty

Feature comparison on page 19.

Fluke 1630 Earth Ground Clamp Meter

The Fluke 1630 Earth Ground Clamp Meter is able to measure ground loop resistances—using the stakeless testing method. This test technique eliminates the dangerous, and time con- suming activity, of disconnecting parallel grounds, as well as the process of finding suitable locations for auxiliary ground stakes. You can also perform earth ground tests in places you have not considered before: inside buildings, on power pylons or anywhere you don't have access to soil.

With the stakeless testing method, the Fluke 1630 Earth Ground Clamp Meter is placed around the earth ground rod or the connecting cable. No earth ground stakes are used at all. A known voltage is induced by one half of the clamp and the current is measured by the other half. The tester automati- cally determines the ground loop resistance at this grounding connection. Gone are the days of spending time placing and connecting stakes for each earth ground rod on your system—a major time saver.

• Quick and easy use—no earth ground stakes are necessary
• Large, 35 mm (1.35 in) jaw opening
• Measures ground resistance from 0.025 Ω to 1500 Ω
• Measures ground leakage current from 0.2 mA to 30 A
• High and low alarming
• Automatic self calibration
• Rugged carrying case and resistance check loop included
• Two-year warranty

Recommended accessories

Cable Reel 50 m
Ground/earth wire (162.5 ft)

Cable Reel 25 m
Ground/earth wire (81.25 ft)

ES-162P3
Stake/reel set for 3-pole measurements

Ground/earth stake

Recommended kits

Fluke 1621 Tester
• 2 cable reels with wire (1-50m, 1-25m)
• 3 earth ground stakes
• 1 Test lead (red and black 2m)
• 2 Alligator Clips
• Hard carrying case

Ordering information

Included accessories	Models	
Two measuring leads with alligator clips, 2 m (6 ft), yellow protective holster, 9 V alkaline battery (LR61), users manual, CD.	FLUKE-1621	Basic Earth Ground Tester
1-50 m cable reel, 1-25 m cable reel, 3 earth stakes, 2 test leads, 2 alligator clips, carrying case, yellow protective holster, 9 V alkaline battery (LR61), users manual, CD.	FLUKE-1621 KIT	Basic Earth Ground Tester Kit
Rugged carrying case with belt, resistance test loop, 9 V battery, users manual.	FLUKE-1630	Earth Ground Clamp Meter

These products are for unpowered installations measuring grounding connections.

Check price and availability at
www.fluke.com/wtb

Fluke T5, T+PRO, T+ Electrical Testers and VoltAlert™

Fluke T+PRO

Fluke T5-1000

Fluke LVD2

Fluke 1AC-II   **Fluke 2AC**

Fluke T+PRO and T+ Electrical Testers
- Three forms of ac/dc voltage detection: Light, sound and vibration
- Detects live voltage even when batteries are dead
- Extra heavy-duty, replaceable test leads
- Rotary field indicator for trouble-shooting three-phase systems
- Continuity beeper, LED flashlight and GFCI trip

Fluke T5 Voltage, Continuity and Current Testers
- Excellent front-line troubleshooting and measurement tool
- Available in 600 V and 1000 V models
- Digital display
- OpenJaw™ current measurement
- Rotary switch selects volts, amps and ohms functions
- Heavy-duty test leads

Fluke VoltAlert™ Family
The next generation VoltAlert™ ac non-contact voltage testers from Fluke are easy to use. Electricians, maintenance, service and safety personnel, and homeowners can quickly test for energized circuits in the workplace or at home. Certified up to CAT IV 1000 V.

Recommended accessories

H5
Electrical Tester Holster
See page 54

Meter Cleaner
Cleaning Wipes

T5 Kit
Starter Kit
See page 55

C520A
Premium Leather Holster
See page 54

Recommended kits

T+PRO-1AC Kit
- Fluke T+Pro Electrical Tester
- 1AC-II VoltAlert™

62/T+PRO/1AC-II Kit
- Fluke 62 Non-contact Thermometer
- T+RO Electrical Tester
- 1AC-II VoltAlert™
- Carrying case

T5-1000 Tester Kit
- Fluke T5-1000 Voltage Electrical Tester
- 2AC VoltAlert™ Voltage Detector
- Fluke H5 Holster

VoltAlert™ Multi Pack
Includes five Fluke VoltAlert™ voltage detectors. The special kit pricing gets you the fifth VoltAlert™ free.

Specifications

Functions	T+PRO	T+	T5-1000	T5-600
Measure ac/dc voltage	Preset 12 V, 24 V, 48 V, 120 V, 208 V, 240 V, 277 V (Canada 347 V), 480 V, 600 V		1000 V	600 V
Measure ac current (average)			100 A	100 A
Measure continuity	Yes	Yes	< 25 Ω	< 25 Ω
Measure resistance	9.99 kΩ		1000 Ω	1000 Ω
DC polarity indicator			Yes	Yes
Detachable probe tips with optional probe tips styles	Yes	Yes	Yes	Yes
Digital display	Yes	No	Yes	Yes
Safety rating	CAT IV 600 V/ CAT III 1000 V	CAT IV 600 V/ CAT III 1000 V	1000 V Overvoltage CAT III	600 V Overvoltage CAT III
Warranty	Two-year	Two-year	Two-year	Two-year

*Voltage levels will vary depending on country of intended use.

Functions	2AC	1AC-II	1LAC-II	LVD2
Voltage range	90 V ac to1000 V ac	90 V ac to1000 V ac	20 V ac to 90 V ac	90 V ac to 600 V ac
Audible alert		•	•	•
Flashlight				•
On/Off	Always on	•	•	•
Safety rating	CAT IV 1000 V	CAT IV 1000 V	CAT IV 1000 V	CAT IV 600 V

Ordering information

Included accessories	Models	
The T+ and T+PRO come with attached test probes, lead wrap, users manual.	T+PRO and T+PRO CAN	Electrical Tester
	T+ and T+ CAN	Electrical Tester
	T+PRO-1AC KIT	Electrical Tester and AC Voltage Detector Kit
	T+PRO CAN-1AC KIT	Electrical Tester and AC Voltage Detector Kit
	62-T+PRO-1AC KIT	IR Thermometer, Electrical Tester and AC Voltage Detector Kit
The T5-1000 and T5-600 come with detachable probes and instruction sheet.	T5-1000	1000 V Voltage, Continuity and Current Tester
	T5-600	600 V Voltage, Continuity and Current Tester
	T5-H5-1AC KIT	Voltage, Continuity and Current Tester Kit
	2AC	VoltAlert™ Voltage Detector
	2AC 5PK	VoltAlert™ Voltage Detector 5 Pack
	1AC-II	VoltAlert™ Voltage Detector
	1AC-II 5PK	VoltAlert™ Voltage Detector 5 Pack
	1LAC-II	VoltAlert™ Voltage Detector
	LVD2	Volt Light

Check price and availability at
www.fluke.com/wtb

Fluke 975 AirMeter™
Simple, one-touch air velocity

The Fluke 975 AirMeter™ combines five powerful air quality tools into one. Identify and diagnose indoor air quality issues quickly and easily with one rugged, handheld device. The Fluke 975 measures and simultaneously displays temperature, humidity, CO_2 and CO. At the press of a button, it quickly measures air flow and percentage of outside air.

- Simultaneously measures, logs and displays temperature, humidity, CO_2 and CO on a bright, backlit LCD display
- % of outside air calculation
- One-touch air flow and velocity with available probe*
- Dew point and wet bulb temperature
- CO_2 and CO field calibration feature
- Min/Max/Avg on all measured and calculated readings
- Audible and visual threshold alarms
- Extensive discrete or continuous data logging capacity, downloadable to PC via USB interface
- Includes NIST-traceable certificate of calibration
- Automatically compensates for barometric pressure changes
- Two-year warranty

*Included with Fluke 975V, optional with Fluke 975.

Fluke 922 Airflow Meter/Micromanometer
Make airflow measurements easy by combining differential pressure, air flow, and velocity into a single, rugged meter. Used with any pitot tube, the Fluke 922 is the perfect entry point for technicians measuring air flow for the first time, yet powerful enough for advanced users.

- Measures differential and static pressure, air velocity and flow readings
- User-defined duct shape and size for maximum airflow accuracy
- Bright, backlit display
- Min/Max/Avg/Hold functions
- Auto power off

Recommended accessories
Fluke-975VP
AirMeter Velocity Probe for use with Fluke 975 AirMeter.

Recommended kits
Fluke-975CK
AirMeter Calibration Kit includes the gases and tools necessary to keep your Fluke 975 AirMeter calibrated.

Fluke 975V
- AirMeter™
- Calibration cap
- Air velocity probe
- FlukeView® Forms software
- Power adapter
- International power plugs
- Hard carrying case
- Three AA alkaline batteries
- Users manual with safety information

Fluke 922/Kit
- Airflow meter
- 12 inch pitot tube
- Two rubber hoses
- TPak magnetic strip
- TPak strap, 9 inches
- TPak latch tab
- Four AA 1.5 V alkaline batteries
- Users manual
- Hard carrying case

Specifications

975 features	Range	Display resolution	Accuracy
Temperature	–20 °C to 50 °C (–5 °F to 122 °F)	0.1 °C (0.1 °F)	± 0.9 °C/± 1.62 °F from 40 °C to 60 °C ± 0.5 °C/ ± 1.00 °F from 5 °C to 40 °C ± 1.1 °C/± 1.98 °F from –20 °C to 5 °C
Relative humidity	10 % to 90 % RH non-condensing	1 %	± 2 % RH (10 % RH to 90 % RH)
Air velocity	50.0 fpm to 3000 fpm 0.25 m/sec to 15 m/sec	1 fpm (0.005 m/sec)	± 4 % or 4 fpm* ± 4 % or 0.02 m/sec* whichever is greater * Accuracy specification only valid for velocity readings above 50 fpm
CO_2	0 to 5000 ppm	1 ppm	Warm up time 1 min (5 minutes for full specification) 2.75 % + 75 ppm
CO	0 to 500 ppm	1 ppm	± 5 % or ± 3 ppm, whichever is greater, @ 20 °C and 50 % RH

922 features	Range	Accuracy
Air pressure	± 4000 Pascals / ± 16 in H2O / ± 400 mm H2O / ± 40 mbar / ± 0.6 PSI	± 1 % + 1 Pascal / ± 1 % + 0.01 in H2O / ± 1 % + 0.1 mm H2O / ± 1 % + 0.01 mbar / ± 1 % + 0.0001 PSI
Air velocity	250 to16,000 fpm (1 to 80 m/s)	± 2.5 % of reading at 2000 fpm (10.00 m/s)
Air flow (volume)	0 to 99,999 cfm; 0 to 99,999 m 3/hr; 0 to 99,999 l/s	Accuracy is a function of velocity and duct size
Temperature	0 °C to 50 °C (32 °F to 122 °F)	0.1 °C (0.1 °F)
Data storage	99 readings	
Warranty	Two-year	
Power	Four AA batteries	

Ordering information

Included accessories	Models	
Calibration cap, air velocity probe (Fluke 975V only), FlukeView® Forms software, power adapter, international power plugs, hard carrying case, three AA alkaline batteries, users manual with safety information.	FLUKE-975	AirMeter™
	FLUKE-975V	AirMeter™ with Velocity
Two rubber hoses, soft carrying case, four AA alkaline batteries 1.5 V, users manual.	FLUKE-922	Airflow Meter
12 inch pitot tube, two rubber hoses, ToolPak Magnetic Meter Hanging Kit, hard carrying case, four AA alkaline batteries 1.5 V, users manual.	FLUKE-922/KIT	Airflow Meter Kit

Check price and availability at
www.fluke.com/wtb

For more information, go to **www.fluke.com/IAQ**

Indoor Air Quality Tools
Tools to help you maintain good IAQ

Fluke 971 Temperature Humidity Meter

Temperature and humidity are two important factors in maintaining optimal comfort levels and good indoor air quality. Quickly and conveniently take accurate humidity and temperature readings with the Fluke 971. The Fluke 971 is invaluable for facility maintenance and utility technicians, HVAC-service contractors, and specialists who assess indoor air quality (IAQ). Lightweight and easy to hold, the Fluke 971 is the perfect tool for monitoring problem areas. With a rugged holster and twist-open protective sensor cover, the Fluke 971 is built to perform and made to last.

Features:
- New and improved digital sensor for faster response times
- Backlit dual display of humidity and temperature
- Measures dew point and wet bulb temperatures
- 99 record storage capacity
- Ergonomic design with belt clip and protective holster
- Compact and lightweight at 188 g (6.6 oz)
- Temperature range from –20 °C to 60 °C (–4 °F to 140 °F)
- Relative humidity from 5 % to 95 %
- Min/Max/Avg/Hold functions
- Low battery indicator
- One-year warranty

Fluke 983 Particle Counter

The Fluke 983 Particle Counter measures and displays six channels of particle size distribution. The Fluke 983 holds 5000 logged samples including date, time, counts, sample volume, temperature and relative humidity. Data is easily downloaded using the included windows compatible utility software. The Fluke 983 is invaluable for IAQ investigations, allowing you to determine size distribution of airborne particles or track down a particle source.

Features:
- Compact and easy to operate
- Graphic liquid crystal display with backlight
- Simple connection to computer or printer
- Selectable sample time, count data and programmable delay
- Set sample size to cubic feet or liters, set temperature measurements to °C or °F
- Data displayed in totalize or concentration modes
- Automatic turn-off when battery voltage drops below safe operating level
- Meets JISB9921:1997 and CE standards
- Battery or ac operation with internal rechargeable battery
- Protective holster
- Rugged, hard shell carrying case
- One-year warranty

Specialty models

Fluke RLD2 UV Refrigerant Leak Detector Flashlight

Leak detection made easy. The compact, easy-to-use, RLD2 UV flashlight uncovers refrigerant leaks instantly. Use the UV light to find the leakage area, then, use the laser pointer to pinpoint the exact leak location. With 100,000 hours of life, and four operating modes, this versatile leak detector is a must have for HVAC technicians.
- Six UV LEDs (395 nm wavelength) detect leak detection dyes
- Laser pointer clearly locates center of the UV field for accuracy
- Three LED flashlight with 100,000 hour LED life
- Operating temperature 0 °C to 50 °C
- Four operating modes: flashlight, UV light, laser light, UV/laser light combination
- Convenient detachable key chain carabiner and AAA battery included

CO-220 Carbon Monoxide Meter
- Stand-alone CO meter that does not require a digital multimeter
- Large backlit LCD displays CO levels from 0 to 1000 ppm
- Beeper triggers with increasing frequency as CO levels rise
- MAX hold function stores and displays the maximum CO level
- Automatic sensor zeroing and self-test upon startup

CO-205 Aspirator Kit
The CO-205 flue gas sampling accessory kit includes:
- Stainless steel sampling tube
- Aspirator to draw flue sample
- Replaceable particulate filter
- Nose cap for connection to the Fluke CO-210/CO-220

Ordering information

Included accessories	Models	
Certificate of Calibration (NIST), Windows compatible software download utility, DB9 to RS-232 adapter and cable, isokinetic probe, high purity tubing, 1/8 inch hose barb adapter, power supply, zero count filter, protective holster and hard molded plastic case, users manual.	FLUKE-983	Particle Counter
Four AAA alkaline batteries, users manual.	FLUKE-971	Temperature Humidity Meter
	FLUKE-983TPK 220	Thermal Printer Kit, 220 V
	FLUKE-983TPK 120	Thermal Printer Kit, 120 V
	FLUKE-CO-205	Aspirator Kit
	FLUKE-CO-220	Carbon Monoxide Meter
	FLUKE-RLD2	Refrigerant Leak Detector Flashlight

Check price and availability at www.fluke.com/wtb

Fluke 1507/1503 Insulation Resistance Testers
Troubleshooting and predictive maintenance tools

These lightweight, affordable insulation testers are perfect for troubleshooting, commissioning and preventive maintenance applications.

Features
- Automatic calculation of polarization index and dielectric absorption ratio (1507 only)
- Multiple test voltages: 50 V, 100 V, 250 V, 500 V, 1000 V (1507 only)
- Remote test probe for rapid testing
- Insulation test range 0.01 MΩ to 10 GΩ (1507), 0.1 MΩ to 2000 MΩ (1503)
- Compare (Pass/Fail) function for repetitive tests (1507 only)
- Live circuit detection prevents insulation test if voltage > 30 V is detected
- Auto-discharge of capacitive voltage
- AC/DC voltage: 0.1 V to 600 V
- Lo ohms/Earth-bond continuity (200 mA) for checking connections and motor windings
- Resistance: 0.01 Ω to 20.00 Ω
- One-year warranty

Specialty models

Fluke 360 AC Leakage Current Clamp Meter

Calculate insulation resistance while equipment is under load by measuring insulation leakage current. The unique jaw design of the Fluke 360 eliminates the influence of adjacent current conductors and measures leakage current down to 1 µA for monitoring of insulation. The ergonomic design of the Fluke 360 ensures easy measuring. The measuring clamp fits into tight spaces and the wide display angle clearly shows the measurement result. The Data Hold button keeps the measured value on the display after removing the clamp for the measured conductor.

The Fluke 360 offers the widest range of current measurement. Use the rugged Fluke 360 when it's not possible to power down and break the circuit.

Current measurement
- Automatic ranging within the manually selected mA or A range
- Ranges 3/30 mA and 30/60 A
- Current resolution 1 µA/0.01 mA and 0.01 A/0.1 A
- Frequency range 50 and 60 Hz
- Jaw size: 40 mm (1.55 in) maximum conductor diameter
- Auto power off

Selection guide

Features	1555	1550C	1507	1503	1587	1577
Insulation test voltages 50 V, 100 V, 250 V, 500 V, 1000 V			•		•	
Insulation test voltages 500 V, 1000 V				•		•
Insulation test voltages: User selectable 250 V to 5000 V		•				
Insulation test voltages: User selectable 250 V to 10,000 V	•					
Insulation resistance	2 TΩ	1 TΩ	0.01 MΩ to 10 GΩ	0.1 MΩ to 2 GΩ	0.01 MΩ to 2.0 GΩ	0.1 MΩ to 600 MΩ
Auto-discharge of capacitive voltage	•	•	•	•	•	•
Insulation test smoothing reading					•	
Frequency					•	
Capacitance	•	•			•	
Diode test					•	
Temperature					•	
Min/Max					•	
Low-pass filter (for work on VSDs)					•	
AC/DC voltage					•	•
DC millivolts					•	•
AC/DC milliamps					•	•
Resistance			0.1 Ω to 20.00 KΩ	0.1 Ω to 20.00 KΩ	0.1 Ω to 50 MΩ	0.1 Ω to 50 MΩ
Continuity					•	•
Warranty (years)	3	3	1	1	3	3
Remote probe, test leads, alligator clips	•	•	•	•	•	•
Type K thermocouple					•	
Rugged, utility hard case	•	•	•	•	•	•
Auto power off	•	•	•	•	•	•
Page number	25	25	24	24	17	17

Recommended accessories

TPAK
Magnetic Meter Hanger
See page 62

TL225
Stray Voltage Adapter
Test Lead Kit

C25
Meter Case
See page 54

C101
Hard Case
See page 54

Ordering information

Included accessories	Models	
Remote probe, test leads, test probes, alligator clips, holster, users manual.	FLUKE-1507	Insulation Tester
	FLUKE-1503	Insulation Tester
Soft carrying pouch, users manual.	FLUKE-360	AC Leakage Current Clamp Meter

For more information, go to **www.fluke.com/1507**

Check price and availability at **www.fluke.com/wtb**

1555 and 1550C Insulation Resistance Testers

New

Powerful troubleshooting and predictive maintenance tools

The new Fluke 1555 and redesigned Fluke 1550C insulation resistance testers offer digital insulation testing up to 10 kV, making them ideal for testing a wide range of high voltage equipment including switchgear, motors, generators and cables.

- Test voltages up to 5 kV (1550C) and 10 kV (1555) provide solutions for all applications
- Warning function alerts the user that line voltage is present and gives a voltage reading up to 600 V ac or dc for increased user safety
- Measurements can be stored in up to 99 memory locations, and each location is assigned a unique, user-defined label for easy recall
- Long battery life gives the user over 750 tests between changes
- Automatic calculation of Dielectric Absorption (DAR) and Polarization Index (PI) with no additional setup
- Guard system eliminates the effect of surface leakage current on high-resistance measurements
- Large digital/analog LCD for easy viewing
- Capacitance and leakage current measurement
- Ramp function for breakdown testing
- Three-year warranty

Application note

Insulation resistance testing

Insulation resistance testers can be used to determine the integrity of windings or cables in motors, transformers, switch-gear, and electrical installations. The test method is determined by the type of equipment being tested and the reason for testing. For instance, when testing electrical cabling or switchgear (low-capacitance equipment) the time-dependent capacitive leakage and absorption leakage currents become insignificant and decrease to zero almost instantly. A steady conductive leakage current flow is reached almost instantly (a minute or less) providing perfect conditions for the spot-reading/short-time resistance test.

www.fluke.com/IRT

Recommended kits

1550C/Kit includes:
- 1550C insulation resistance tester
- Ruggedized alligator clips
- IP67 hard case
- NIST traceable certificate of calibration

1555/Kit includes:
- 1555 insulation resistance tester
- Ruggedized alligator clips
- IP67 hard case
- NIST traceable certificate of calibration

Specifications

The tester's accuracy is specified for one year after calibration at operating temperatures of 0 °C to 35 °C. For operating temperatures outside the range (–20 °C to 0 °C and 35 °C to 50 °C), add ± .25 % per °C, except on the 20 % bands add ± 1 % per °C.

Insulation resistance measurement		
Test voltage (dc)	Range	Accuracy (± reading)
250 V	< 200 kΩ 200 kΩ to 5 GΩ 5 GΩ to 50 GΩ > 50 GΩ	unspecified 5 % 20 % unspecified
500 V	< 200 kΩ 200 kΩ to 10 GΩ 10 GΩ to 100 GΩ > 100 GΩ	unspecified 5 % 20 % unspecified
1000 V	< 200 kΩ 200 kΩ to 20 GΩ 20 GΩ to 200 GΩ > 200 GΩ	unspecified 5 % 20 % unspecified
2500 V	< 200 kΩ 200 kΩ to 50 GΩ 50 GΩ to 500 GΩ > 500 GΩ	unspecified 5 % 20 % unspecified
5000 V	< 200 kΩ 200 kΩ to 100 GΩ 100 GΩ to 1 TΩ > 1 TΩ	unspecified 5 % 20 % unspecified
10000 V (1555 Only)	< 200 kΩ 200 kΩ to 200 GΩ 200 GΩ to 2 TΩ > 2 TΩ	unspecified 5 % 20 % unspecified

Functions	Range	Accuracy (± reading)
Leakage current	1 nA to 2 mA	± (5 % + 2 nA)
Capacitance measurement	0.01 uF to 15.00 µF	± (15 % rdg + 0.03 µF)
Live circuit indicator	30 V to 600 V ac/dc, 50/60 Hz	± (5 % + 2 V)

Ordering information

Included accessories	Models	
Test leads with alligator clips, ruggedized alligator clips (kits and 1555 only), infrared adapter with interface cable, FlukeView Forms software, ac power cord, soft carrying case, quick reference guide, users manual.	FLUKE-1550C	5 kV Insulation Tester
	FLUKE-1550C/Kit	5 kV Insulation Tester Kit
	FLUKE-1555	10 kV Insulation Tester
	FLUKE-1555/Kit	10 kV Insulation Tester Kit

Check price and availability at
www.fluke.com/wtb

Fluke 345 Power Quality Clamp Meter
The ideal meter to troubleshoot modern electrical loads

The Fluke 345 is more than a power meter. Combining the functions of a clamp meter, oscilloscope, data logger and digital power meter into one handy device, the Fluke 345 is ideal for working with variable frequency motor drives, high efficiency lighting and other loads using switching electronics.

- **AC/DC current:** Clamp-on measurement of ac current up to 1400 A rms and dc current up to 2000 A without breaking the circuit
- **Highest safety rating:** 600 V CAT IV power analyzer is rated for use at the service entrance
- **Accurate in noisy environments:** Clamp meter performs even with distorted waveforms present on electronic loads with low-pass filter
- **Data logging:** Identify intermittent faults by logging any power quality parameter for minutes, or over a month, including harmonics
- **Verify batteries:** Direct measurement of dc ripple (%) for battery and dc systems
- **Troubleshoot harmonics:** Analyze and log harmonics digitally or graphically
- **Inrush current:** Capture and analyze nuisance tripping, from 3 seconds to 300 seconds
- **Easy to use:** Easily confirm power meter setup with large backlit color display of waveforms and trends
- **View graphs and generate reports:** Use power analyzer with included Power Log software

Selection guide

Basic measurements	Application use	Single Phase VR1710	345	43B	Three Phase 1735	1740	430	1750	1760
Energy studies									
Measure V, I, kW, Cos/DPF, kWhr	Get detailed power and energy consumption profiles during energy audits and pinpoint savings opportunities.		•	•	•	•	•	•	•
Measure MIN/MAX and AVG values			•	•	•	•	•	•	•
10 day logging			•	•	•	•	•	•	•
Basic harmonics study									
THD measurement (V & I)	Discover the source of distortion in your installation, so that you can filter those loads or move them to separate circuits.	•	•	•	•	•	•	•	•
Harmonics 1 to 25 for V & I		•	•	•	•	•	•	•	•
Advanced harmonics study									
Full harmonic spectrum	If distorting loads are causing problems in your installation, you need comprehensive data to identify the source and create a solution.		•	•	•		•	•	•
Power harmonics			•	•			•	•	•
Basic industrial PQ troubleshooting*									
Oscilloscope function	When troubleshooting in the field, graphical data enables you to trace the source of the problem at hand.		•	•	•		•	•	•
Voltage dips and swells		•		•		•	•	•	•
Advanced industrial PQ troubleshooting**									
Comprehensive logging capability	Complex installations often require a deeper dive into measurement data. Multiple loads may be interacting randomly to cause a single problem.		•	•		•	•	•	•
Transient capture		•		•			•	•	•
Flicker		•				•	•	•	•

Ordering information

| Included accessories	Models	
Test leads, alligator clips, test probes, Power Log software, USB cable, international ac adapter/battery eliminator, soft carrying case, users manual, multi-language manual CD.	FLUKE-345	Clamp-On Power Meter

Fluke 430 Series Three-Phase Power Quality Analyzers

Pinpoint power problems faster, safer and in greater detail

The Fluke 435 and 434 Three-Phase Power Quality Analyzers help you locate, predict, prevent and troubleshoot problems in three- and single-phase power distribution systems. Troubleshooting is faster with on-screen display of trends and captured events, even while background recording continues.

- **Logged data analysis:** PowerLog software provide download, analysis reporting in minutes
- **AutoTrend:** Every measurement you see is always automatically recorded, without any setup
- **Automatic Transient Mode:** Capture 200 kHz waveform data on all phases simultaneously up to 6 kV
- **Fully Class-A compliant:** Conduct tests according to the stringent international IEC 61000-4-30 Class-A standard
- **Inrush mode:** For troubleshooting nuisance circuit breaker tripping
- **Logger function:** Configure for any test condition with memory for over 400 parameters at user defined intervals
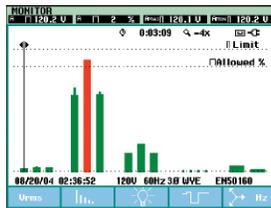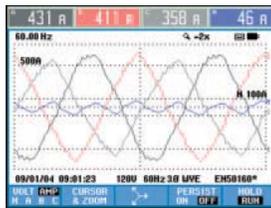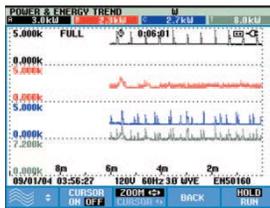
- **Troubleshoot real-time:** Analyze the trends using the cursors and zoom tools—even while background recording continues

- **Measure all three phases and neutral:** With included four current probes

- **System-Monitor:** Up to ten power quality parameters on one screen according to EN50160 power quality standard

Recommended accessories

I5sPQ3
3 pack of 5 A precision current clamps

i430-flex-4pk
4 pack of 3000 A flexible current probes

C435
Water-tight hard case with rollers

GPS430
GPS time synchronization module

Resources

More PQ info online at www.fluke.com/pq

Get a free PQ training DVD
www.fluke.com/PQ-DVD

Sign up for a PQ seminar
www/fluke.com/FPQseminar

What's included

Fluke 435

Fluke 434

Features

Features	435	434*
Measures voltage, current, dips, swells, interruptions, harmonics, inter-harmonics, flicker, power, energy, transients, frequency, unbalance, inrush, EN50160 overview	•	•
Logger function with multi-parameter logging	•	Optional*
Mains signaling	•	Optional*
Memory size	16 MB	8 MB
Current probes	3000 A flexible (4)	40 A/400 A clamp (4)
Carrying case	Water-tight hard case with rollers	Rugged hard case
Software	Fluke Power Log and FlukeView®	FlukeView®
Three-year warranty	•	•

*Optional functionality can be added with upgrade kit.

Ordering information (basic versions do not include current probes)

| Included accessories	Models	
Four flexible current probes (i430 Flex), five test leads and clips, battery charger, FlukeView software, Power Log software, optical USB cable, color localization set, hard carrying case with rollers, getting started manual, users manual on CD.	FLUKE-435	Three-Phase Power Quality Analyzer
Four current probes (i400s), five test leads and clips, battery charger, FlukeView software, optical USB cable, color localization set, hard carrying case, getting started manual, users manual on CD.	FLUKE-434	Three-Phase Power Quality Analyzer

Check price and availability at
www.fluke.com/wtb

Fluke 43B Power Quality Analyzer
## Power quality analysis plus a scope and a meter
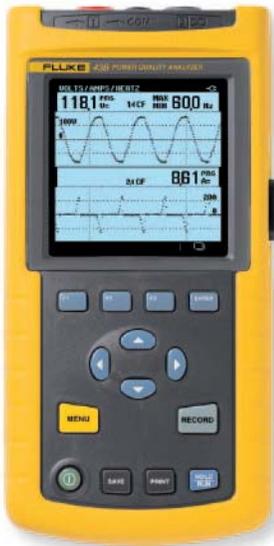
The Fluke 43B Power Quality Analyzer performs the measurements you need to maintain power systems, troubleshoot power problems, and diagnose equipment failures. The 43B has 20 storage locations and can store data as well as screens.

- **Basic measurements:** Voltage, current, and power harmonics up to 51st, THD
- **Oscillioscope function:** View voltage and current waveforms
- **Transients:** Capture up to 40 voltage transients and waveform events
- **Detailed event capture:** Cursors give time and date of sags and swells
- **FlukeView® software:** Analysis and reporting, supplied with USB connection lead
- **Battery operated:** 6.5 hours of operation from NiMH battery
- **Warranty:** Three-years for analyzer, one-year for accessories
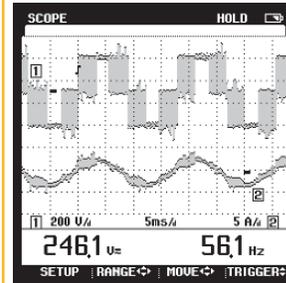
The wide band scope can display the details of PWM drives waveforms.
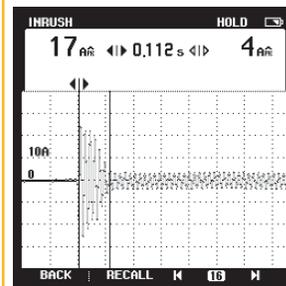
The inrush screen shows the effects of load start up.

Fluke Norma 4000 and 5000 Precision Power Analyzers

Fluke Norma 4000

Fluke Norma 4000 and 5000 are ideal for field and laboratory testing

Fluke Norma Analyzers offer easy and straight-for–ward operation with unmatched price performance. Features include: 1 to 6 power phases, 5.7 in/144 mm color display, harmonic analysis, scope mode, vector diagram display, recorder function, Fluke NormaView PC software and 4 MB RAM data memory.

- **Choose the right model for your application:** a variety of standard configurations allows users to choose the exact functionality required for their unique application
- **Electrical measurement integrity and safety:** inputs are galvanically isolated to avoid short circuits in all applications and simultaneous parallel acquisition of all phases allows accurate viewing of dynamic events dc to 3 MHz/10 MHz bandwidth for reliable measurement precision
- **Voltage, current and power harmonics FFT analysis:** to the 40th harmonic, vector diagram, and Digital Oscilloscope (DSO) mode included in the base unit for complete analysis capability
- **Complete electrical and mechanical analysis:** PI1 process interface to measure torque and speed with external sensors, plus four analog outputs for easy use on motor and drive applications
- **Data download, analysis and report writing with:** supplied Fluke Norma-View PC software
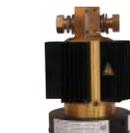
Fluke Norma 5000

Ordering information (basic versions do not include current probes)

Included accessories	Models	
Voltage and current probes, FlukeView® software, power quality instructional CD, USB interface cable, line voltage adapter/ battery charger, hard case, users manuals.	FLUKE-43B	Power Quality Analyzer
Power supply cable, NormaView PC software, test certificate, calibration values, users manual.	Norma 4000	High Precision Power Analyzer
	Norma 5000	High Precision Power Analyzer

Check price and availability at
www.fluke.com/wtb

Fluke 1735 Three-Phase Power Logger
General power quality logging

The Fluke 1735 Three-Phase Power Logger is the ideal electrician or technician's tool for conducting energy studies and basic power quality logging. Set up the 1735 in seconds, with the included flexible current probes and color display. The 1735 logs most electrical power parameters and harmonics and captures voltage events.

- **Ideal for field operation:** Compact, rugged instrument; easy to use, quickly confirm instrument setup with color display of waveforms and trends
- **Full system electrical measurement capability:** Three phases and neutral with included four flexible current probes
- **Prove the benefit of efficiency improvements:** Record power and associated parameters for up to 45 days. Monitor maximum power demand over user-defined averaging periods
- **Check the power quality effects energy saving devices:** Measure harmonics and distortion caused by loads and improve reliability by capturing voltage dips and swells from load switching
- **Easy PC connectivity and operation:** USB interface for plug and play operation; download, view graphs and automatically generate reports with included Power Log software
- **Reliable operation:** Two-year warranty

Fluke VR1710
Power Quality Recorder

Detect and record voltage quality problems

- **Fast and easy recording of voltage trends, dropouts, and power quality:** easily pinpoint the root cause of single phase voltage problems
- **Extremely easy to use:** plugs directly into the mains power socket and capture data
- **Continuous recording of all values with no gaps:** save testing time by getting the whole picture with one instrument that records both events and voltage
- **Clear graphical summary of data and quick overview of key power quality parameters:** Take the guesswork out of diagnosing voltage quality problems
- **Quickly see what happened and when:** Min, Max, and Average RMS values (1/4 cycle) with time stamp, transient display (>100 µs) with time stamp
- **Easily identify problems:** Power quality or equipment related Flicker recording to EN 61000-4-15, individual harmonic and THD values with trends
- **Statistical analysis of single phase voltage events:** Reduces analysis time by tracking event quantities and magnitudes
- **Includes PowerLog software:** For quick download, analysis, and automatic reporting
- **Save time:** Generate power quality reports automatically with pre-set templates
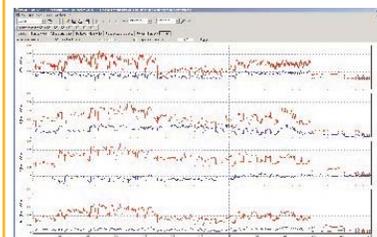- **New:** Transient sensitivity setting

Check fluke.com support area for firmware and software upgrades for Fluke power quality products.

Application tip

The Fluke 1735 provides the important data for electrical energy surveys.

Detailed power information enables load balancing.

Supplied PowerLog software enables detailed energy analysis.

What's included

Fluke 1735

Fluke VR1710

Ordering information

Included accessories	Models	
Four flexible current probes (15 A/150 A/3000 A), Power Log software, voltage leads and clips, color localization set, PC interface cable, international ac adapter (115 V/230 V, 50 Hz/60 Hz), soft carrying case, users manual and multi-language manual CD.	FLUKE-1735	Three-Phase Power Logger
USB cable, Power Log software CD, universal power cord adapters.	FLUKE-VR1710	Voltage Quality Recorder

Check price and availability at
www.fluke.com/wtb

Fluke 1750 Three-Phase Power Recorder
## Never miss capturing a disturbance

- **Power quality that meets the standard:** All measurements comply with IEC61000-4-30 standards for correct evaluation of all measured values including voltage, current, power, harmonics, flicker etc.
- **Quick and reliable configuration:** PDA wireless "front panel interface" provides a window into what the instrument is recording, enabling quick and reliable configuration even in awkward test locations
- **Threshold-free set up:** Apply thresholds after data is collected with Fluke Power Analyze Software—no need to worry about missed information due to incorrect setups
- **Captures everything:** Cross-channel and current triggering capture every measurement, on every channel, every time
- **Intuitive PC software:** Easily analyze data and generate reports with automated EN50160 reporting and compliance
- **Measure every parameter:** Voltage and current on three phases, neutral, and ground
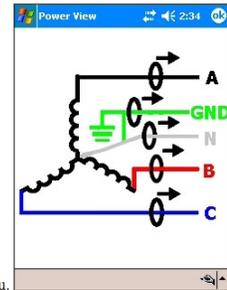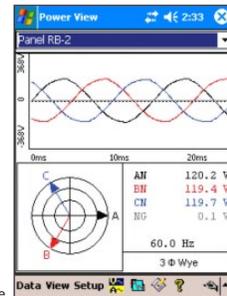
Fluke 1740 Series Three-Phase PQ Loggers Memobox

Fluke 1744/1743

Fluke 1745

The Fluke 1740 Series Three-Phase Power Quality Loggers are instruments for technicians who troubleshoot and analyze power distribution systems. The included PQ Log software quickly assesses the quality of power at the service entrance, substation, or at the load, according to the latest EN50160 standard.

- **Plug and play:** Setup in minutes with automatic current probe detection and powering
- **Installs inside the cabinet:** Compact, fully-insulated housing and accessories fit easily in tight spaces, next to live power
- **Determines the root cause:** Included PQ Log software quickly analyzes trends, creates statistical summaries, and generates detailed graphs and tables
- **Measure voltage with premium accuracy:** IEC61000-4-30 Class-A compliant voltage accuracy (0.1 %)

Specifications

Features	1743/1744	1745	1750
Measures common power parameters: V, A, W, VA, VAR, PF, energy, flicker, voltage events, and THD	•	•	•
Measures voltage and current harmonics to the 50th, unbalance, and mains signaling	•	•	•
Transient capture			•
PDA support			•
GPS clock synchronization			
UPS ride through	3s	>5 hours	5 min per interruption, 60 min total
Dimensions	170 mm x 125 mm x 55 mm (6.9 in x 5.1 in x 2.2 in)	282 mm x 216 mm x 74 mm (11.5 in x 8.8 in x 3 in)	215 mm x 310 mm x 35 mm (8.5 in x 12.2 in x 3.5 in)
Weight (approx.)	0.9 kg (2 lb)	1.4 kg (3 lb)	6.3 kg (14 lb)

Ordering information

Included accessories	Models	
Acquisition unit, PDA and charger, power plug adapters, four 400 A current probes, five test leads and clips, SD memory card, Fluke Power View and Fluke Power Analyze software, power cord with international plug set, ethernet cable, color localization set, users manual and CD.	FLUKE-1750	Three-Phase Power Recorder
Four flexible probes 15/ 150/1500/3000 A with 2 m cable, PQ Log software, RS-232 interface cable and USB adapter, four dolphin clips, test leads for voltages and power supply, color localization kit, carrying bag, test certificate with measurement values, users manual, multi-language manual CD.	FLUKE-1745	Power Quality Logger – Memobox
	FLUKE-1744	Power Quality Logger – Memobox
	FLUKE-1743	Power Quality Logger – Memobox

In the U.S., these power quality recorders are sold exclusively through power quality representatives. To request a demonstration, or to order, call 1-888-257-9897 or email questions to fpqsupport@fluke.com.

What's included

Fluke 1750

Sample PDA screens

Configurations are simple with wiring diagrams to guide you.

View measurements real-time with wireless PDA interface.

Online resources

Learn how to do what you need to do, using Fluke power quality tools.

Go to:
www.fluke.com/pqtraining

Product demo:
www.fluke.com/1750

Online training:
www.fluke.com/pqonlinetraining

Application notes:
www.fluke.com/pqappnotes

Hands-on seminars:
www.fluke.com/pqtrngseminars

Product information:
www.fluke.com/pqproducts

Check price and availability at
www.fluke.com/wtb

Pick the right process tool for you
Process Tools Selection Guide

FLUKE ®

	Process mA Clamp Meter	ProcessMeter® Test Tool	Loop Calibrator	Pressure Calibrator	Temperature Calibrator	Precision Multifunction Process Calibrator	Intrinsically Safe Calibrator	Documenting Process Calibrator
Models	773	789	715	719	724	726	725Ex	744
Measure								
V dc	30 V	1000 V	25 V		30 V	30 V	30 V	300 V
V ac (true-rms)		1000 V						300 V
Resistance		40 MΩ			3200 Ω	4000 Ω	3200 Ω	11 kΩ
A dc	20.99, 99.9 mA	30 mA, 1 A	24 mA	24 mA	24 mA	24 mA	24 mA	110 mA
A ac		•						
Frequency		20 kHz				15 kHz	10 kHz	50 kHz
Pressure				1 psi, 30 psi, 100 psi and 300 psi[2]		•[1]	•[5]	•[1]
Temperature: RTDs					7 types	8 types	7 types	8 types
Temperature: TCs					12 types	13 types	12 types	13 types
Source/Simulate								
V dc	10 V		20 V		10 V	20 V	10 V	15 V
Resistance					3200 Ω	4000 Ω	3200 Ω	11 kΩ
mA dc	24 mA	24 mA	24 mA	24 mA		24 mA	24 mA	22 mA
mA source; auto step, auto ramp	•	•	•	•		•	•	•
Frequency						15 kHz	10 kHz	50 kHz
Temperature: RTDs					7 types	8 types	7 types	8 types
Temperature: TCs					12 types	13 types	12 types	13 types
Record								
Min/Max		•		•				•
Hold	•	•		•				•
As found/As left results								•
Log data								•
Upload data to PC								•
Remote operation		•				•		
Features								
24 V loop supply	•	•	•	•	•	•	12 V	•
Non-contact mA measurement	•							
HART communication								•
Integrated hand pressure pump				Electric				
Intrinsically safe (ATEX)							•	
Warranty	Three-year	Three-year	Three-year	One-year	Three-year	Three-year	Three-year	Three-year
NIST traceable certification		•	•	•	•	•	•	•
Accessories[3]		A/B	A/B	C	A/B	A/B		
Pressure enabled[4]				•		•	•	•
See page	32	33	34	38	37	36	39	35

[1]Fluke 700 Pressure Modules required.
[2]Either the internal sensor or a Fluke 700 Pressure Module may be used.
[3]Accessories: A. Compatible with LockPak B. Compatible with TPAK C. Accepts hanging straps from TPAK D. Optional accessories.
[4]Fluke Process Calibrators in this guide displaying the Pressure Enabled symbol display readings from the 700 Series Pressure Modules.
[5]Fluke 700PEx Pressure Module required.

Check price and availability at
www.fluke.com/wtb

Fluke 771, 772 and 773
mA Process Clamp Meters

Fluke 771   Fluke 772   Fluke 773

CE   CSA c US   N10140

Use the Fluke 771, 772 and 773 to:
- Measure 4–20 mA signals without "breaking the loop," save time and money troubleshooting 4–20 mA signals

Use the Fluke 772 and 773 to:
- Source 4–20 mA signals for testing control system I/O or I/Ps
- Simulate 4–20 mA signals for testing control system I/O
- Measure 4–20 mA signals with in-circuit measurement
- Power a transmitter with the 24 V loop power supply
- Automatically ramp and step change the 4–20 mA output for remote testing

Use the Fluke 773 to:
- DC voltage measurement to verify 24 V power supplies or voltage I/O signals
- Source dc voltage to test voltage input devices
- Scaled mA output signal enables a logging DMM (289) to record 4–20 mA signal without breaking the loop
- mA in/out: simultaneously source a mA signal while measuring a mA signal with the clamp

Application tip

With the 77X family of millamp clamp meters you can measure 4 to 20 mA I/O signals without "breaking the loop". Once a bad signal is found the sourcing functions of the 772 and 773 can be used to further troubleshoot the loop.

Features

	mA measure w/jaw	mA measure In circuit	mA source	mA sim	Loop power 24 V	DCV source 0-10 V	DCV measure 0-30 V	Scaled mA output to mA input	mA in/out
771	•								
772	•	•	•	•	•				
773	•	•	•	•	•	•	•	•	•

Specifications

	Function	Resolution and range	Accuracy	Notes
771, 772, 773	mA measurement	0 to 20.99 mA	0.2 % + 5 counts	Measured by clamp
		21.0 mA to 100.0 mA	1 % + 5 counts	
772 and 773	mA measurement	0 to 24.00 mA	0.2 % + 2 counts	Measured in series with test jacks
772 and 773	mA source	0 to 24.00 mA	0.2 % + 2 counts	Maximum mA drive: 24 mA into 1,000 ohms
772 and 773	mA simulate	0 to 24.00 mA	0.2 % + 2 counts	Maximum voltage 50 V dc
773	Voltage source	0 to 10.00 V dc	0.2 % + 2 counts	2 mA maximum drive current
773	Voltage measure	0 to 30.00 V dc	0.2 % + 2 counts	

General specifications	771	772	773
Battery	2 1.5 V, Alkaline, IEC LR6	4	
Working hours	20 hours typical	12 hours @ 12 mA source into 500 ohms	
Size (HxWxL)	59 mm x 38 mm x 212 mm (2.32 in x 1.5 in x 8.35 in)	41.3 mm x 76 mm x 248 mm (1.625 in x 3 in x 9.75 in)	
Weight	260 g (9.1 oz)	415 g (14 oz)	
Operating temperature	–10 °C to 50 ºC		
IP rating	IP 40		
Warranty	Three-year, one-year on mA clamp assembly and cable		

Ordering information

Included accessories	Models	
Soft carrying case, users manual.	FLUKE-771	Milliamp Process Clamp Meter
Test leads, alligator clips and hanging strap, soft carrying case, users manual.	FLUKE-772	Milliamp Process Clamp Meter
	FLUKE-773	Milliamp Process Clamp Meter

Fluke 789 and 787
ProcessMeter™ Test Tools

Fluke 789 ProcessMeter

With the Fluke 789 ProcessMeter, process technicians can do a lot more while carrying a lot less.

- 24 V loop power supply
- HART mode setting with loop power (adds 250 ohm resistor)
- Double–sized, dual display
- 20 mA drive into 1200 ohms
- Backlight with two brightness settings
- 0 % to 100 % mA Span Check buttons to toggle between 4–20 mA
- Infrared I/O serial port compatible with FlukeView® Forms Software
- Improved battery power with four AA batteries
- Plus all the proven 787 features

Fluke 787 ProcessMeter

- Simultaneous mA and % of scale readout on mA output
- 25 % Manual Step plus Auto Step and Auto Ramp on mA output
- Min/Max/Average/Hold/ Relative modes
- Externally accessible battery for easy changes

Fluke 789

IEC 1010-1 1000V CAT III
IEC 1010-1 600V CAT IV
True RMS
CE
UL LISTED
CSA
TÜV 900

(Fluke 789 only)

Fluke 787

Specifications

Measurement function	Best accuracy range and resolution	(% of reading + LSD)
V dc	400.0 mV, 4.000 V, 40.00 V, 400.0 V, 1000 V	0.1 % + 1
V dc (true–rms)	400.0 mV, 4.000 V, 40.00 V, 400.0 V, 1000 V	0.7 % + 2
mA dc	30.000 mA	.05 % + 2
A dc	1.000 A (0.440 A continuous)	0.2 % + 2
A ac	1.000 A (0.440 A continuous)	1 % + 2
Resistance	400.0 Ω, 4.000 k, 40.00 k, 400.0 k, 4.0 M, 40 M	0.2 % + 1
Frequency (0.5 Hz to 20 kHz)	199.99 Hz, 1999.9 Hz, 19.999 kHz	.005 % + 1
Diode test	789: 2.000 V (shows diode voltage drop) 787: 2.400 V (shows diode voltage drop)	2 % + 1 2 % + 1
Continuity	Beeps for resistance < approx. 100 ohms	

Output function	Range and resolution	Drive capability	Accuracy (% of span)
DC current output (internal battery operation)	0.000 mA to 20.000 mA or 4.000 mA to 20.000 mA (selectable at power-up) Over-range to 24.000 mA	789: 24 V compliance or, 1,200 ohms, @ 20 mA 787: 12 V compliance or, 500 ohms, @ 20 mA	.05 %
DC current simulate (external 24 V loop supply, up to 48 V on 789 only)	0.000 mA to 20.000 mA or 4.000 mA to 20.000 mA, (selectable at power-up) Over-range to 24.000 mA	1000 ohms, @ 20 mA	.05 %
24 V loop supply	789: Minimum 24 V 787: Not available	250 ohms @ 20 mA	> 24 V
Current adjustment modes	Manual: Coarse, Fine, 25 % and 100 % step (100 % step 789 only) Automatic: slow ramp, fast ramp, 25 % step		

Temperature range of 18 °C to 28 °C, for one year after calibration.
Maximum voltage applied between any jack and earth ground: 1000 V rms. **Storage temperature:** –40 °C to 60 °C.
Operating temperature: –20 °C to 55 °C. **Relative humidity:** 95 % up to 30 °C; 75 % up to 40 °C; 45 % up to 50 °C; 35 % up to 55 °C.
Safety: Designed in accordance with EN61010, ANSI/ISA S82.01–1994 and CAN/CSA C22.2 No. 1010.1–92 Over-voltage CAT III.
Size (HxWxL)/weight (787 with holster): 52 mm x 98 mm x 201 mm (2.06 in x 3.86 in x 7.93 in)/638 g (1.4 lb).
Size (HxWxL)/weight (789): 50 mm x 100 mm x 203 mm (1.97 in x 3.94 in x 8.00 in)/600 g (1.3 lb).
Warranty: Three–year.

Ordering information

Included accessories	Models	
Test leads, alligator clips, 4 AA alkaline batteries (installed), quick reference guide, users manual, multi–language manual CD.	FLUKE-789	ProcessMeter
Test leads, alligator clips, holster with test lead storage, one 9 V alkaline battery (installed), quick reference guide, users manual, multi–language manual CD.	FLUKE-787	ProcessMeter

For more information, go to **www.fluke.com/processmeters**

Fluke 715, 707 and 705 Loop Calibrators
Complete family of volt/mA calibrators

Fluke 715

$C\epsilon$

Fluke 715 Volt/mA Calibrator
- Source voltage to 200 mV or 20 V
- Measure loop current (0 to 20 mA, 4 to 20 mA) signals with 0.01 % accuracy and 1 µA resolution
- Measure voltage output process signals from PLCs, transmitters
- Source or simulate 4–20 mA loop current
- 24 V loop supply with simultaneous current measurement
- Ramp and Step Ramp output functions

Fluke 707 and 705
- Innovative output adjustment dial on 707 provides 1 µA and 100 µA resolution and one–hand operation
- Large display and simple interface for ease of use
- Simultaneous mA and % readout for quick, easy interpretation of readings
- mA accuracy of 0.015 % on the Fluke 707 and 0.02 % on the 705
- HART™ mode on 707 connects 250 ohm resistor in series with 24 V loop for compatibility with HART communicators
- Push button 25 % steps for fast, easy linearity checks
- "Span Check" for fast confirmation of zero and span
- Selectable slow and fast linear step ramp provide ramping outputs for valve slewing, remote testing and loop functional tests
- 24 V internal loop supply, so you can power and read a transmitter at the same time without carrying a DMM
- 0–20 mA or 4–20 mA default start up modes

Fluke 707

Specialty models

Fluke 707 Ex Intrinsically Safe Loop Calibrator

See page 39 for more information.

Resources

More info online at www.fluke.com/processtools

Check out our latest videos at **www.fluke.com/ptoolsvideos**

All the information you need at **www.fluke.com/processsolutions**

Recommended accessories

TL28A
Heavy Duty
Test Lead Set

TL220
SureGrip Industrial
Test Lead Set
See page 55

C550
Tool Bag
See page 54

PV350
Pressure Vacuum
Module
See page 63

Specifications

Functions	Fluke 705 and 707	Fluke 715	
Voltage measurement			
Range	0 V to 28 V	0 mV to 200 mV	0 V to 25 V
Resolution	1 mV	10 µV	1 mV
Accuracy	705: 0.025 % Rdg + 1 LSD 707, 707Ex: 0.015 % Rdg + 2 LSD	0.01 % Rdg + 2 LSD	
Current measurement			
Range	0 mA to 24 mA	0 mA to 24 mA	
Resolution	0.001 mA	0.001 mA	
Accuracy	705: 0.02 % Rdg + 2 LSD 707, 707Ex: 0.015 % Rdg + 2 LSD	0.01 % + 2 LSD	
Current sourcing			
Range	0 mA to 20 mA or 4 mA to 20 mA	0 mA to 20 mA or 4 mA to 20 mA	
Accuracy	705: 0.025 % Rdg + 2 LSD 707, 707Ex: 0.015 % Rdg + 2 LSD	0.01 % Rdg + 2 LSD	
Drive capability	705: 1000 Ω @ 24 mA 707: 1200 Ω @ 24 mA 707Ex: 700 Ω @ 20 mA	1000 Ω @ 24 mA	
Loop power while measuring mA	24 V	24 V	
Voltage sourcing		0 mV to 200 mV or 0 V to 20 V	
Display current and % of span	Yes	mA or %	
Auto step, auto ramp	Yes	Yes	
Span Check	Yes	Yes	
Battery life	18 hours typical, at 12 mA	18 hours typical, at 12 mA	
Warranty	Three-year		

Will over–range to 24 mA.

Ordering information

Check price and availability at **www.fluke.com/wtb**

Fluke 741B, 743B and 744 Calibrators
Calibrate/troubleshoot process control instrumentation

- Calibrate temperature, pressure, voltage, current, resistance and frequency instruments
- Built-in procedures for transmitters, square root transmitters, pressure and temperature switches
- Simultaneously measure and source
- Automatically capture calibration results
- Document procedures and results to meet ISO 9000, EPA, FDA, OSHA, and other government requirements
- Measure/simulate 13 types of thermocouples and eight RTDs
- Store up to 8,000 readings in data logging mode (743B and 744 only)
- Protected against dirt, dust and moisture; unaffected by vibration
- Includes a PC interface (743B and 744 only)
- Operate in English, French, German, Italian and Spanish
- One- and two-year calibration cycles and a three-year warranty (one-year for pressure modules)

Fluke 744

744: Get HART-ability
The Fluke 744 offers all of the capabilities of the 743B, plus the ability to calibrate, maintain, and troubleshoot HART instrumentation. Integrated HART communication functions permit you to monitor, control, and calibrate HART instrumentation. It handles fast pulsed instruments such as RTD transmitters and PLCs, with pulses as short as 1 ms.

See **www.fluke.com/744upgrade** for the latest list of HART instruments.

741B: A complete documenting calibrator
The 741B is the economical choice for plants that don't use PCs or that require traditional paper forms. It has storage capacity for a day's calibration and measurement data. When you're back at the shop, recall the data on-screen to fill out calibration forms.

743B: More memory, plus a PC interface and data logging
The 743B has all the capabilities of the 741B plus a PC interface that lets you load procedures, lists, and instructions created with software—or unload data for printing, archiving, and analysis. With its expanded memory, the 743B can hold a full week of calibrations and procedures.

Fluke 743B

Recommended software

Instrumentation management software
The Fluke 743B and 744 are compatible with Fluke 700SW DPC/TRACK software and with software from Cornerstone, Emerson, Honeywell, On Time Support, Prime Technologies, Yokogawa, Intools, Meridium and Beamex.

For more information, visit **www.fluke.com/software**

Resources

More info online at www.fluke.com/processtools

All the information you need at **www.fluke.com/processsolutions**

Check out our latest videos at **www.fluke.com/ptoolsvideos**

Recommended accessories

700Pxx
Pressure Modules
See page 38

80PK-25
SureGrip Piercing
Temperature Probe
See page 58

700PTP-1
Pneumatic
Test Pump
See page 59

C789
Meter and
Accessory Case
See page 54

Specifications

Functions	Measure	Sourcing
DC voltage	0.025 % reading + 0.005 % full scale	0.01 % output + 0.005 % full scale
DC current	0.01 % reading + 0.015 % full scale	0.01 % output + 0.015 % full scale
Resistance	0.05 % reading + 50 mΩ	0.01 % output + 40 mΩ
Frequency	0.05 %	0.01 %
Thermocouples	0.3 °C	0.2 °C
RTDs	0.3 °C	0.1 °C
Pressure	To 0.25 % of full scale, per pressure module specifications	

Summary specifications: best case, mid-range, one year.
Battery life: Typically over eight hours
Internal battery pack: NiMH 3500 mAh
Battery replacement: Via snap-shut door without opening calibrator; no tools required
Weight: 1.4 kg (3 lb, 1 oz)
Size (HxWxD): 236 mm x 130 mm x 61 mm (9.3 in x 5.1 in x 2.4 in)

Ordering information

Included accessories	Models	
Industrial test leads (2 sets), test clips (2 sets), test probes, NiMH battery pack, battery charger, serial port cable, DPC/TRACK sample version with free PC communication utility software, HART communications cable, HART user's manual, NIST traceable calibration certificate and data, instruction manual.	FLUKE-744	Documenting Process Calibrator
Industrial test leads (2 sets), test clips (2 sets), test probes, battery pack, battery charger, serial port cable (743B only), DPC/TRACK sample version with free PC communication utility software (743B only), NIST traceable calibration certificate and data, instruction manual.	FLUKE-743B	Documenting Process Calibrator
	FLUKE-741B	Documenting Process Calibrator
	FLUKE-700S	DPC/Track Software

Check price and availability at
www.fluke.com/wtb

Fluke 726 and 725 Multifunction Process Calibrators

Fluke 726 Precision Multifunction Process Calibrator

The Fluke 726 measures and sources almost all process parameters and can calibrate almost anything. Interpret results without the help of a calculator and store measurement data for later analysis.

- Precise measurement and calibration source performance, accuracies of 0.01 %
- Transmitter error% calculation, interpret calibration results without a calculator
- Memory storage for up to eight calibration results, return stored calibration data from the field for later analysis
- Frequency totalizer and frequency pulse train source mode for enhanced flowmeter testing
- HART mode inserts 250 ohm resistor in mA measure and source for compatibility with HART instrumentation
- Integrated pressure switch test allows you to capture the set, reset and deadband of a switch
- Custom RTD curves, add calibration constants for certified RTD probes for temperature measurement
- Voltage input protection design for improved reliability

Fluke 725 Multifunction Process Calibrator

- Measure volts, mA, RTDs, thermocouples, frequency and ohms to test sensors and transmitters
- Source/simulate volts, mA, thermocouples, RTDs, frequency, ohms and pressure to calibrate transmitters
- Measure/source pressure using any of 29 Fluke 700Pxx Pressure Modules
- Source mA with simultaneous pressure measurement to conduct valve and I/P tests
- Support flow meter testing with frequency and counts per minute (CPM) functions
- Perform fast linearity tests with auto step and auto ramp features

Take the 725 virtual demo tour at
www.fluke.com/725demo

Intrinsically safe version available (see page 39)

Specifications

Measure and source

Functions	Range or type	Resolution	Accuracy	Notes
Voltage	0 to 100 mV 0 to 10 V (source) **0 to 20 V (source)** 0 to 30 V (measure)	0.01 mV 0.01 V 0.01 V 0.01 V	**0.01 %,** 0.02 % Rdg + 2 LSD	Max load, 1 mA
mA	0 to 24	0.001 mA	**0.01 %,** 0.02 % Rdg + 2 LSD	Max load, 1000 Ω
mV (TC terminals)	–10.00 mV to +75.00 mV	.01 mV	**0.01 %,** 0.02 % of range + 1 LSD	
Ohms	15 Ω to 3,200 Ω **5 Ω to 4,000 Ω**	0.01 Ω	0.10 Ω to 1.0 Ω **0.015 %**	
Hz – CPM	2.0 to 1,000 CPM 1 to 1000 Hz 1.0 to 10.0 kHz **10.0 to 15.0 kHz**	0.1 CPM 1 Hz 0.1 kHz **0.1 kHz**	± 0.05 % ± 0.05 % ± 0.25 % **± 0.05 %**	Source; 5 V p-p **1 V to 20 V p-p** squarewave, –0.1 V offset
Loop supply	24 V dc	N/A	10 %	
T/C	J, K, T, E, L, N, U, XK	0.1 °C, 0.1 °F	to 0.7 °C **to 0.2 °C**	
T/C	B, R, S, BP	1 °C, 1 °F	to 1.7 °C **to 1.2 °C**	
RTDs	**Cu (10)**, Ni120 (672) Pt 100, 200, 500, 1000 (385) Pt 100 (3916), Pt 100 (3926)	**0.01 °C, 0.01 °F** 0.1 °C, 0.1 °F	to 0.15 °C to 0.2 °C	

Unique 726 specifications are bolded.

Simultaneous function capability	Channel A	Channel B
24.000 mA dc	M	M or S
24.000 mA dc with 24 V loop supply	M	
100.00 mV dc		M or S
30.000 V dc measure	M	
20.000 V dc measure; 10.000 V dc source; 20.000 V dc source		M or S
15 to 3200 Ohms (725); 5 to 4000 Ohms (726)		M or S
Thermocouple J, K, T, E, R, S, B, M, L, U, N, XK, BP		M or S
RTD Cu 10, Ni120; Pt100 (392); Pt100 (JIS); Pt100, 200, 500, 1000 (385), XK and BP		M or S
Pressure (requires Fluke 700PXX Modules)	M	M used as S
Frequency; 10 kHz; (15 KHz 726)		M or S

M = Measure, S = Source/Simulate

General specifications
Storage temperature: –20 °C to 71 °C
Operating temperature: –10 °C to 55 °C
Relative humidity:
90 % (10 °C to 30 °C);
75 % (30 °C to 40 °C);
45 % (40 °C to 50 °C);
35 % (50 °C to 55 °C)
Shock: 1 meter drop test
Safety: CSA C22.2 No. 1010.1:1992
EMC: EN50082-1:1992 and EN55022:1994 Class B
Size (HxWxD): 200 mm x 96 mm x 47 mm (7.9 in x 3.8 in x 1.9 in)
Weight: 650 g (23 oz)
Battery: Four AA alkaline batteries
Battery life: 25 hours typical
Warranty: Three-years

Recommended accessories

TPAK
Magnetic Meter Hanger
See page 62

80PK-27
Industrial Surface Temperature Probe
See page 58

700Pxx
Pressure Modules
See page 38

C125
Soft Carrying Case

Ordering information

Included accessories	Models	
Test leads, test clips, one pair of stackable test leads, product overview manual, users manual in 14 languages on CD.	FLUKE-726	Precision Multifunction Process Calibrator
	FLUKE-726 Ex	Intrinsically Safe Precision Multifunction Process Calibrator
	FLUKE-725	Multifunction Process Calibrator

Check price and availability at
www.fluke.com/wtb

Fluke 712, 714 and 724 Temperature Calibrators

The Fluke 710 Series temperature calibrators deliver outstanding performance, durability and reliability. And with a push-button interface, similar to the multifunction Fluke 740 Series Documenting Process Calibrators, the 710 Series are easy to use. Each calibrator is EMI tolerant, dust- and splash-resistant, and features a removable battery door for quick battery changes.

Fluke 714 Thermocouple Calibrator
- Measure temperature from TC probes
- Simulate TC output
- Operable with nine types of thermocouples
- Calibrate linear TC transmitter with mV source function
- Selectable °F or °C
- 25 % stepping, auto-step and auto-ramp
- Available as accessories: Fluke 700TC1 and TC2 Thermocouple Mini-plug Kits
- Ramp and Step Ramp output functions

Fluke 712 RTD Calibrator
- Compatible with pulsed current transmitters
- Measure temperature from an RTD probe
- Simulate RTD output
- Operates with seven types of RTD
- Measure additional RTDs using ohms measurement function
- Simulate additional RTDs using ohms source function
- °F or °C selectable
- 25 % stepping, auto-step and auto-ramp
- Ramp and Step Ramp output functions

Specialty model

Fluke 724 Temperature Calibrator
- Source/measure TCs, RTDs, volts and ohms
- Measure mA while supplying loop power
- 25 % and 100 % stepping, auto-step and auto ramp

Resources

Information for the classroom at **www.fluke.com/education**

Fluke Education Partnership Program
Fluke brings the latest application information and tools into the classroom.

Recommended accessories

TL75 (712/724)
Hard Point
Test Lead Set
See page 57

TL220 (712/724)
SureGrip Industrial
Test Lead Set
See page 55

80PK-24 (714/724)
SureGrip Air
Temperature Probe
See page 58

80PK-3A (712/724)
Surface Probe
See page 58

TPAK
Magnetic Meter Hanger
See page 62

AC220
SureGrip Alligator Clips
See page 57

C101 (724)
Meter Hard Case
See page 54

C25 (712/714)
Large Soft Case
See page 54

Specifications

Models	Functions	Range	Resolution	Accuracy	Notes
Fluke 712	Measure/simulate RTD	–200 °C to 800 °C (Pt 100-385)	0.1 °C, 0.1 °F	0.2 °C, 0.4 °F (Pt 100-385)	Pt; 100 200 500 1000 (385); Pt 100 (392); Pt 100 (392) JIS; Ni 120 (672)
	Measure/simulate resistance	5 Ω to 4000 Ω	0.1 Ω	0.025 %	
Fluke 714	Measure/simulate thermocouple	–200 °C to 1800 °C, depending on type (K, –200 °C to 1370 °C)	0.1 °C or °F (1 °C or °F; BRS)	0.5 °C, 0.8 °F (Type K)	9 TC types;J K T E R S B per NIST 175 and ITS-90 L U per DIN 43710 and PTS-68
	Measure/simulate mV	–10 mV to 75 mV	0.01 mV	0.015 % +10 µV	

General specifications for all Fluke 712 through 718 calibrators.
Maximum voltage: 30 V. **Non-operating temperature:** –40 °C to 60 °C. **Operating temperature:** –10 °C to 55 °C.
Relative humidity: 95 % (10 °C to 30 °C); 75 % (30 °C to 40 °C); 45 % (40 °C to 50 °C); 35 % (50 °C to 55 °C).
Operating altitude: 3,000 m max. **Shock:** 1 m drop test. **Vibration:** Random, 2 g, 5-500 Hz.
Safety: CSA C22.2 No. 1010.1:1992. **EMC:** EN50082-1:1992 and EN55022:1994 Class B.
Size/weight (HxWxD) (712-717): 187 mm x 87 mm x 32 mm (7.35 in x 3.41 in x 1.25 in) 330 g (12 oz).
Size/weight (HxWxD) (712-717 with holster): 201 mm x 98 mm x 52 mm (7.93 in x 3.86 in x 2.06 in) 600 g (21 oz).
Size/weight (HxWxD) (718): 210 mm x 83 mm x 62 mm (8.25 in x 3.27 in x 2.44 in) 737 g (26 oz).
Size/weight (HxWxD) (718 with holster): 216 mm x 94 mm x 66 mm (8.50 in x 3.72 in x 2.60 in) 992 g (35 oz).
Power: 9 V battery ANSI/NEDA 1604A or IEC 6LR619V alkaline; two batteries in 718 .
Battery life: 4 to 20 hours, typical, depending on functions used.
Warranty: Three-year (one-year on pressure pump in Fluke 718).

Ordering information

Included accessories	Models	
Test leads, test clips, one pair of stackable test leads, product overview manual, users manual in 14 languages on CD.	FLUKE-724	Temperature Calibrator
Test leads, alligator clips (excluding model 714), holster with test lead storage, single 9 V alkaline battery and instruction sheet (14 languages).	FLUKE-714	Thermocouple Calibrator
	FLUKE-712	RTD Calibrator

Check price and availability at
www.fluke.com/wtb

Fluke 717, 718 and 719 Pressure Calibrators
Accurate and rugged, temperature calibration tools

Fluke 719

Fluke 719 Electric Pressure Calibrators
- Electric pump enables one handed pressure pumping and makes pressure calibration quicker and easier
- Best in class 0.025 % pressure measurement accuracy
- Programmable pump limit settings can eliminate over-pressurization—set 'pump to' pressure values
- Two ranges, 30 PSI and 100 PSI

Fluke 718 Pressure Calibrators
- 1, 30, 100 and 300 PSI ranges available
- Pump to 300 PSI, 20 bar with internal pump (718-300G)
- 718-1G includes special low volume pump and high measurement resolution for low pressure calibration

Fluke 717 Pressure Calibrators
- Measure up to 5000 PSI/345 bar sensor (5000G model)
- Compatible with non-corrosive gases and liquids

Fluke 718

718 and 719
- Precision vernier for fine pressure adjustment
- Variable release rate bleed valve for controlled pressure release

717, 718 and 719 common features
- Pressure switch test makes a difficult task easy, captures set, reset and deadband values of a pressure switch
- 717 and 718, measure pressure to 0.05 % of full scale with internal sensor
- Measure mA with 0.015 % accuracy and 0.001 mA resolution, while sourcing 24 V loop power

Fluke 717

Specialty model

Fluke 700 Series Pressure Modules
- 29 pressure modules
- 8 intrinsically safe pressure modules*
- Ranges from 1.000 in H_2O (0.2491 kPa) to 10,000 psi (68.948 MPa)
- Gage, differential, dual (compound), absolute, and vacuum modules
- Rugged cases protect the modules from harsh environments
- Full-accuracy performance from 0 °C to 50 °C

*For use with 718Ex and 725Ex only (see page 39 for more information).

 Fluke Process Calibrators in this catalog displaying the Pressure Enabled symbol display readings from the 700 Series Pressure Modules.

Resources

More info online at www.fluke.com/processtools

Check out the 719 video at **www.fluke.com/719video**

Recommended kits

700ILF
In-Line Filter
See page 59

700LTP-1
Low Pressure Test Pump
See page 59

700HTP-1
Hydraulic Test Pump
See page 59

C116
Large Soft Case
See page 54

Specifications

Models	Range	Resolution	Comment
717-1 718-1G	+/- 1 psi, 27.5 in H_2O, (-7 - +7 kPa)	+0.0001 psi, 0.0001 kPa, 0.0001 in H_2O	Fluke-718 dry air only and includes on board pump
717-30G 718-30G* and 719-30G	-12 to + 30 psi, (-83 to 207 kPa)	0.001 psi, 0.001 kPa, 0.001 in H_2O	Fluke-718 and Fluke-719 dry air only and includes on board pump
717-100G 718-100G*	-12 to + 100 psi, (-83 to 690 kPa)	0.01 psi, 0.01 kPa, 0.01 in H_2O	Fluke-718 and Fluke-719 dry air only and includes on board pump
717-300G 718-300G* and 719-100G	-12 to +300 psi, (-83 to +2070 kPa)	0.01 psi, 0.01 kPa, 0.01 in H_2O	Fluke-718 dry air only and includes on board pump
717-500G	0-500 psi, 0-3450 kPa	0.01 psi, 0.1 kPa	Compatible with non-corrosive gases and fluids
717-1000G	0-1000 psi, 0-6900 kPa	0.01 psi, 0.1 kPa	Compatible with non-corrosive gases and fluids
717-1500G	0-1500 psi, 0-10342 kPa	0.1 psi, 1 kPa	Compatible with non-corrosive gases and fluids
717-3000G	0-3000 psi, 0-20700 kPa	0.1 psi, 1 kPa	Compatible with non-corrosive gases and fluids
717-5000G	0-5000 psi, 0-34500 kPa	0.1 psi, 1 kPa	Compatible with non-corrosive gases and fluids
Pressure accuracy	0.05 % of range, one year for 717 and 718. 0.025 % for six months, 0.035 % of range, one year for the 719		
mA measurement	0-24 mA range	0.001 mA resolution	Accuracy: ± 0.015 % + 1 count
Loop power	24 V dc		Accuracy: ± 10 %

*Intrinsically safe models available, see page 39.
Warranty: Three-year on calibrator, one-year on pump.

Ordering information

Included accessories	Models			
Test leads, alligator clips, holster, test hose (719), one 9 V alkaline battery (two 9 V batteries in 718 and 719), safety sheet.	FLUKE-719-30G	Electric Pressure Calibrator	FLUKE-719-100G	Electric Pressure Calibrator
	FLUKE-718 1G	Pressure Calibrator	FLUKE-718 30US	Pressure Calibrator
	FLUKE-718 100US	Pressure Calibrator	FLUKE-718 300G	Pressure Calibrator
	FLUKE-717 1G	Pressure Calibrator	FLUKE-717 30G	Pressure Calibrator
	FLUKE-717 100G	Pressure Calibrator	FLUKE-717 300G	Pressure Calibrator
	FLUKE-717 500G	Pressure Calibrator	FLUKE-717 1000G	Pressure Calibrator
	FLUKE-717 1500G	Pressure Calibrator	FLUKE-717 3000G	Pressure Calibrator
	FLUKE-717 5000G	Pressure Calibrator		

For a full list of Fluke 700 Pressure Modules, visit **www.fluke.com/pressure**.

Check price and availability at www.fluke.com/wtb

Intrinsically Safe Products
Calibrators, thermometers and multimeters designed to intrinsic safety standards

FLUKE ®

What is "Intrinsically Safe"?

Intrinsic safety is a protection method employed in potentially explosive atmospheres. Devices that are certified as "intrinsically safe" are designed to be unable to release sufficient energy, by either thermal or electrical means, to cause ignition of flammable material (gas or dust/particulates).

There are no global intrinsically safe standards or certifications, but there are organizations that influence directives in certain world geographies.

Factory Mutual – In the United States, Factory Mutual Research, managed by Factory Mutual (FM) Global, is a non-profit scientific and testing organization that has tested and certified over 40,000 products in the last 165 years. FM Research has set certification guidelines for equipment used in potentially explosive atmospheres.

Canadian Standards Association (CSA) – Accreditation body for North American regulations, based in Toronto, Canada.

ATEX – The primary intrinsically safe standard, which has been set in the European Union with the Directive 94/9/EC, commonly called ATEX ("Atmosphères Explosibles"), French for explosive atmospheres.

For more information and detailed specifications, turn to the corresponding non-intrinsically safe product pages (Fluke 707, 718, 725, 574, 68) or go to **www.fluke.com/ex**.

Fluke products	ATEX certified	North American Certification	For additional product detail
87V Ex: Intrinsically Safe True-rms Multimeter	II 2 G Ex ia IIC T4		See page 12
707Ex: Intrinsically Safe mA Calibrator	II 2 G Ex ia IIC T4	FM APPROVED N.I. Class I, Div 2, Groups A–D T4	See page 34
718Ex: Intrinsically Safe Pressure Calibrator	II 1 G Ex ia IIC T4	CSA C us LR 110460 I.S. Class I, Div 1, Groups A–D T4	See page 38
725Ex: Intrinsically Safe Multifunction Calibrator	II 1 G Ex ia IIB 171 °C	CSA C us LR 110460 I.S. Class I, Div 1, Groups B–D, 171 °C	See page 36
700PEx: Intrinsically Safe Pressure Modules	II 1 G Ex ia IIC T4	CSA C us 221839 I.S. Class I, Div 1, Groups A–D T4	See page 38
Fluke 574-NI Nonincendive Infrared Thermometer		FM APPROVED Class I, Division 2, Groups A, B, C, D; Class I, Zone 2 IIC	See page 50
Fluke 68IS Intrinsically Safe Infrared Thermometer		FM APPROVED Class I, Division 1, Groups A, B, C, D Class I, Zone 0 AEx ia IIC	

Ordering information

Models		Models	
FLUKE-87VEx	IS True-rms Multimeter	FLUKE-707Ex	IS Loop Calibrator
FLUKE-718Ex	IS Pressure Calibrator	FLUKE-725Ex	IS Multifuction Process Calibrator
FLUKE-700PEx	Pressure Modules (700P: 01, 5, 6, 9, 24, 27, 29, A4Ex)	FLUKE-574-NI	Precision Infrared Thermometer w/Logging SW Nonincendive
FLUKE-68IS	Infrared Thermometer Intrinsically Safe		

Specialty models

Fluke 68IS Intrinsically Safe Infrared Thermometer
- Laser guided sighting system with 1 % accuracy
- 12-point data logging
- Advanced optics
- Adjustable emissivity
- Selectable Max/Min/Dif/Avg functions that display values instantly with Hi/Lo Alarm
- Expanded measurement range up to 760 °C (1400 °F)
- RTD probe accessory included
- Class I, Division 1, Groups A, B, C, D Class I, Zone 0, AEx ia IIC, T4 at 50 °C when used with 9 V alkaline battery

Not available for purchase in Europe.

574-NI Nonincendive Thermometer
For data loading and extra safety the Fluke 574 Nonincendive (NI) Thermometer has the same great features as the 574 model thermometer with the extra confidence of a Factory Mutual approval for use in hazardous environments.

Class I, Division 2, Groups A, B, C, D: Class I, Zone 2 IIC; T4 Ta=50 °C when used with 1.5 V alkaline batteries.

Resources

More info online at www.fluke.com/processtools

Take a look at all the intrinsically safe models at **www.fluke.com/insafety**

Intrinsic Safety — Learn what you need to know about intrinsic safety. Fluke can help.

All the information you need at **www.fluke.com/processsolutions**

Process/Control Solution Center — Maintaining, building and calibrating process systems takes special expertise.

Check price and availability at **www.fluke.com/wtb**

For more information, go to **www.fluke.com/ex**   Process Calibration Tools   39

Fluke ScopeMeter® Test Tools
Handheld oscilloscopes for industrial, instrumentation and electronic applications

Connect and View™

New

Fluke 190–204　　　　Fluke 225C　　　　Fluke 199C　　　　Fluke 124

ScopeMeter test tools are the rugged, safe choice for a wide variety of field service installation and maintenance applications. These handheld battery–powered oscilloscopes tools are easy to use, with a built–in multimeter, paperless recording and analysis capabilities. They are rugged and IP 51 dust- and drip-proof rated to IEC529 standards to withstand harsh environments.

The new 190 Series II, four isolated input channels and 100 MHz or 200 MHz bandwidth are ideal for industrial machinery applications measuring three–phase power electronics or three–axis control systems comparing and contrasting multiple signals simultaneously. These tools are safety, rated at CAT III 1000 V/ CAT IV 600 V with longer battery life and up-to-date USB interface technology.

The 190C Series, with two isolated inputs and 60 MHz, 100 MHz or 200 MHz bandwidth, is the choice for industrial electronic applications like automation and process control. These oscilloscopes are rated for CAT II 1000 V/ CAT III 600 V environments and will operate for up to four hours without a recharge.

The 120 series with 20 MHz or 40 MHz bandwidth, dual DMMs and paperless recording is the optimal choice for electrical and electro–mechanical applications, safety rated to IEC EN61010-1 CAT III 600 V.

For Industrial network applications, Fluke 125, 215C or 225C add industrial network physical layer analog measurement algorithms to validate the network bus health.

Selection guide

	120 Series			190C Series					190 Series II	
	123	124	125	215C	225C	192C	196C	199C	190-104	190-204
Bandwidth										
20 MHz	•									
40 MHz		•	•							
60 MHz						•				
100 MHz				•			•		•	
200 MHz					•			•		•
Input channels										
2Ch + 2 DMM	•	•	•							
2Ch + DMM				•	•	•	•	•		
4Ch									•	•
Isolated inputs				•	•	•	•	•	•	•
Triggering										
Connect-and-View	•	•	•	•	•	•	•	•	•	•
Advanced triggering				•	•	•	•	•	•	•
Advanced measurement function										
Cursors		•	•	•	•	•	•	•	•	•
TrendPlot	•	•	•	•	•	•	•	•	•	•
ScopeRecord				•	•	•	•	•	•	•
100 screen replay				•	•	•	•	•	•	•
Industrial bus health			•	•	•					
Harmonics			•							
FFT				•	•	•	•	•	•	•
Power measurements			•	•	•	•	•	•	•	•
Waveform mathematics			•	•	•	•	•	•	•	•
EN61010-1 safety										
CAT II 1000 V				•	•	•	•	•	•	•
CAT III 600 V	•	•	•	•	•	•	•	•	•	•
CAT III 1000 V				•	•	•	•	•	•	•
CAT IV 600 V									•	•
Interface										
Optical RS-232	•	•	•	•	•	•	•	•		
USB PC interface	Opt	Opt	Opt	Opt	Opt	Opt	Opt	Opt	•	•
USB memory port									•	•
Power										
Ni-MH	•	•	•	•	•	•	•	•		
Li-Ion									•	•
Battery (hours)	7	7	7	4	4	4	4	4	7	7
General specifications										
Size (HxWxD)	9.2 in x 4.5 in x 2 in			10.1 in x 6.7 in x 2.5 in					10.5 in x 7.5 in x 2.8 in	
Weight	2.6 lb			4.4 lb					4.8 lb	

For more information, go to **www.fluke.com/scopemeter**

Fluke 123 and 124
ScopeMeter® Test Tools

Three-in-one simplicity

The compact ScopeMeter 123 and 124 are the rugged solution for industrial trouble-shooting and installation applications. Each is a truly integrated test tool, with oscilloscope, multimeter and "paperless" recorder in one affordable, easy-to-use instrument. Find fast answers to problems in machinery, instrumentation, control and power systems.

- Dual-input 40 MHz or 20 MHz digital oscilloscope
- Two 5,000-count true-rms digital multimeters
- A dual-input TrendPlot™ recorder
- Connect-and-View™ trigger simplicity for hands-off operation
- Shielded test leads for oscilloscope, resistance and continuity measurements
- Up to seven hours battery operation
- CAT III 600 V safety certified
- Optically isolated RS-232 interface
- IP 51 rated, rugged compact case

Connect-and-View™ triggering for an instant, stable display

Scope users know how difficult triggering can be. Incorrect settings show unstable and sometimes incorrect results. Fluke's unique Connect-and-View recognizes signal patterns and automatically and continuously sets up correct triggering. It provides a stable, reliable and repeatable display of virtually any signal.

Use TrendPlot™ to help find intermittents

The toughest faults to find are those that happen only once in a while—intermittents. They can be caused by bad connections, dust, dirt, corrosion or simply broken wiring or connectors. Other factors, like line outages and sags, can also cause a machine to stop. You may not be around to see it—your Fluke Scope-Meter will. In this "paperless recorder" mode, you can plot the minimum and maximum peak values and average over time—up to 16 days.

Battery powered mobility

Up to seven hours of battery operation frees you from mains outlets for true on-the-move working. The rugged and drip proof case assures long life and reliable operation in the harshest industrial environments.

Safety rated

The ScopeMeter 123 and 124 are safety rated for measurements on CAT III 600 V rms industrial power systems with the included test leads.
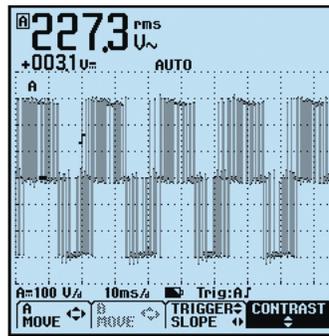
Connect-and-View captures even the most complex motor drive signals.
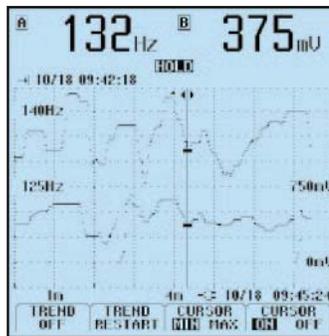
Use TrendPlot to help find intermittents, fast.

Resources

Improve your troubleshooting skills, Fluke can help!

Visit the ScopeMeter Training Center: **www.fluke.com/ScopeMeterTraining Center**

Recommended kits

SCC 120 Kit
- Software
- Cable
- Hard carrying case

SCC 190 Kit
- Software
- Cable
- Hard carrying case

Recommended accessories

PAC91
Printer Adapter Cable

i30s
AC/DC Current Clamp
See page 61

C125
Soft Carrying Case
See page 54

C195
Tool Bag
See page 54

Ordering information

Included accessories	Models	
Test lead set, alligator clips, hook clips, battery pack, battery charger/line voltage adapter, BNC adapter, getting started guide, users manual on CD.	FLUKE-124S	Industrial ScopeMeter, 40 MHz, with SCC120 kit
	FLUKE-124	Industrial ScopeMeter, 40 MHz
	FLUKE-123S	Industrial ScopeMeter, 20 MHz, with SCC120 kit
	FLUKE-123	Industrial ScopeMeter, 20 MHz
Test lead set, alligator clips, hook clips, battery pack, battery charger/line voltage adapter, BNC adapter, OC4USB optically isolated RS-232 adapter/cable, FlukeView for ScopeMeter Windows® software, hard carrying case, getting started guide, users manual on CD.	SCC120	Kit containing FlukeView software for Windows, USB interface adapter/cable and hard case

Check price and availability at
www.fluke.com/wtb

Fluke 190 Series II ScopeMeter® Test Tools
See more, fix more, in harsh industrial environments

Fluke 190-204

Fluke 199C

Goes where ordinary scopes can't go
Safety rated for industrial applications, the 190 Series ScopeMeter combines rugged portability with high performance to take you all the way from troubleshooting microelectronics to power electronic applications.

The first high-performance four-channel scopes built for harsh industrial environments
For the first time, plant maintenance engineers and technicians can take a high-performance four-channel scope into the harsh world of industrial electronics. The new Fluke 190 Series II is the only portable oscilloscope with four independent isolated input channels, a CAT III 1000 V/CAT IV 600 V safety rating, and an IP 51 dust-proof and drip-proof rating. Both the 200 MHz (Fluke 190-204) and 100 MHz (Fluke 190-104) bandwidth models offer these capabilities:

- 4 independent isolated inputs, up to 1000 V
- High-speed sampling: Up to 2.5 GS/sec
- Deep memory: 10,000 points per trace waveform capture
- CAT III 1000 V/CAT IV 600 V safety rated for high voltage environments
- Up to 7 hours of battery operation, standard
- Isolated USB host port for direct data storage to a USB memory
- Device, plus USB device port for easy PC communication
- Easy-access battery door for quick battery swaps in the field
- Compact and only 2.2 kg (4.8 lb)
- Security slot: lock down oscilloscope with Kensington lock while unattended

Automatic capture and replay of 100 screens
Scope users know how frustrating it is to see a one-time anomaly flash by—never to be seen again. Not with the ScopeMeter 190 series. Now you can look back in time with a touch of the replay button. In normal use, the instrument continuously memorizes the last 100 screens, on a first in-first out basis. At any moment you can "freeze" the last 100 screens and scroll through picture-by-picture or replay as a "live" animation. Cursors can be used for further analysis.

ScopeRecord mode for high-resolution waveform recording up to 48 hours
ScopeRecord memory stores up to 27,000 data points per channel, capturing fast intermittents and glitches as short as 8ns.
- Stores events like motion profiles, UPS, power supply and motor start-ups

- In Stop On Trigger mode, ScopeMeter automatically recognizes a power failure and stores the waveform data
- With the waveform zoom (up to 100x) you can look at the smallest details, like individual power cycles

TrendPlot Paperless Recorder
The toughest faults to find are those that happen once in a while. These intermittents can be caused by bad connects, dust, dirt, corrosion, or simple broken wiring or connectors. Line outages, sags or starting and stopping of a motor can also cause a machine to stop. You may not be around when it happens, but the Fluke ScopeMeter will.
- Plot minimum and maximum plot values and average over time up to 16 days
- Plot any combination of voltages, amps, temperature, frequency and phase for all four inputs, all with time and date stamp to pinpoint faults

Sample screens
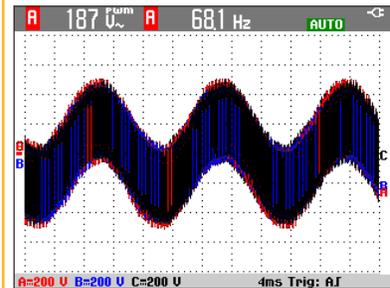
Connect-and-View™ captures even the most complex motor drive signals.
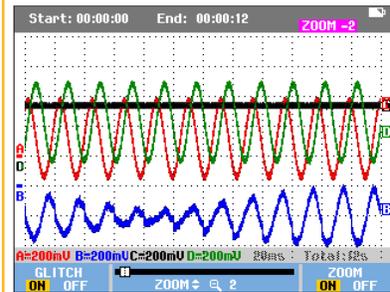
Use the 27,000 points memory of ScopeRecord and zoom in for maximum detail.
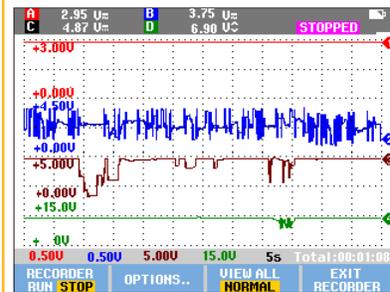
Cursors and zoom features of the Fluke 190 Series help you to analyze the captured TrendPlot.

Resources

Go to **www.fluke.com/fourchannel-scopemeter** for interactive trouble-shooting demonstrations.

Check price and availability at
www.fluke.com/wtb
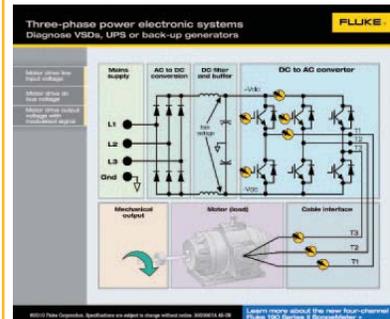
Ordering information

Included accessories	Models	
Test lead set, voltage probes (200 MHz, 10:1)-red and gray, battery charger/line voltage adapter, battery pack, getting started guide, users manual on CD.	FLUKE-190-204	Color ScopeMeter (200 MHz, 2.5 GS/s, 4 channel)
	FLUKE-190-204S	Color ScopeMeter (200 MHz , 2.5 GS/s, 4 channel), with SCC290-kit
	FLUKE-190-104	Color ScopeMeter (100 MHz, 1.25 GS/s, 4 channel)
	FLUKE-190-104S	Color ScopeMeter (100 MHz, 1.25 GS/s, 4 channel), with SCC290-kit
	FLUKE-199C	Color ScopeMeter (200 MHz, 2.5 GS/s)
	FLUKE-199C/S	Color ScopeMeter (200 MHz, 2.5 GS/s) + SCC190
	FLUKE-196C	Color ScopeMeter (100 MHz, 1 GS/s)
	FLUKE-196C/S	Color ScopeMeter (100 MHz, 1 GS/s) + SCC190
	FLUKE-192C	Color ScopeMeter (60 MHz, 500 MS/s)
	FLUKE-192C/S	Color ScopeMeter (60 MHz, 500 MS/s) + SCC190 kit

For more information, go to **www.fluke.com/scopemeter**

Fluke 225C, 215C and 125 ScopeMeter® Test Tools

The Fluke 225C, 215C and 125 are the instruments of choice for maintenance specialists who deal with industrial buses and networks as well as general electronics. You can verify the electrical integrity of your bus and network physical layer, performing tests and getting answers to digital signalling issues quickly and easily.

These instruments offer all the functions found in the 120 or 190C Series, plus added measurement capabilities for industrial networks such as Profi®, Foundation™, Modbus®, CAN-bus, AS-i bus, RS-485 and more.

Bus Health physical layer application measures critical digital signal amplitude, time and noise or distortion characteristics. Find errors like signal attenuation and distortion caused by improper cable connections, bad contacts, incorrect grounding, and missing or superfluous terminators. Signal integrity analysis is extended with the eye–pattern mode. A waveform display is built over successive signal passes to give you a visual indication of overall signal quality, noise levels, and signal jitter.

- Critical bus physical layer amplitude, time and noise or distortion measurements
- Compare measurement results to limits defined by the industry standard
- Display clear "good", "weak" or "bad" indicators.
- Eye pattern mode to visually inspect waveforms quality of transmitted data packets
- 215C or 225C with isolated inputs perform floating differential measurements on balanced two wire bus systems
- 125 dual input measurements performed relative to common reference point
- BHT190 breakout adapter set DB9, RJ45 and M12 simplify probing onto bus signal connectors

Sample screens

Measure critical signal characteristics, compare to industry standard.

Use "eye" diagrams to inspect for issues like signal noise, distortion and other common disturbances.

Recommended accessories

BHT190
Bus Health Test Adapter, DB-9 and M-12

i30S
AC/DC Current Clamp
See page 61

i410
AC/DC Current Clamp
See page 61

Resources

Go to **www.fluke.com/scopemeter-faqs** for answers to frequently asked questions.

Specifications

		Fluke 225C (200 MHz 199C)	Fluke 215C (100 MHz 196C)	Fluke 125 (40 MHz 124)
Dual isolated inputs for differential bus system probing		•	•	
On screen bus system probe connection diagrams		•	•	
Bus Health Physical Layer Standards	AS-i	•	•	•
	CAN-bus (ISO-11898) (DeviceNet)	•	•	•
	Interbus S (EIA–485)			•
	ControlNet (61158 type 2)			•
	Modbus (EIA-232, EIA-485)	•	•	•
	Foundation Fieldbus H1 (61158 type 1)	•	•	•
	Profibus DP (EIA–485), PA (61158 type 1)	•	•	•
	Ethernet 10Base2 (coax), 10BaseT (UTP)	•	•	•
	Ethernet 100BaseT (100 Mb/s)	•	•	
	RS-232 (EIA-232), RS-485 (EIA-485)	•	•	•
Measured parameters		Bias Voltage Level, signal amplitude, pulse width or baud rate, rise/ fall time, jitter, signal distortion, noise HF, noise LF, in-band noise		Baud rate, rise/fall time, high level, low level, distortion, amplitude, jitter
Eye diagram "qualitative" waveform analysis		•	•	
BusHealth breakout adapter set		BHT190 included		BHT190 optional

Ordering information

Included accessories	Models	
Test lead set, battery charger/line voltage adapter, battery pack (installed), getting started guide, multilingual users manual on CD.	FLUKE-225C/003	Color ScopeMeter (200 MHz, 2.5 GS/s) with Bus Health test capabilities built-in
	FLUKE-225C/003S	Color ScopeMeter (200 MHz, 2.5 GS/s) with Bus Health test capabilities built-in, with SCC190 kit
	FLUKE-215C/003	Color ScopeMeter (100 MHz, 1 GS/s) with Bus Health test capabilities built-in
	FLUKE-215C/003S	Color ScopeMeter (100 MHz, 1 GS/s) with Bus Health test capabilities built-in, with SCC-kit
	FLUKE-125	Industrial ScopeMeter, Bus Health, Power & Harmonics
	FLUKE-125S	Industrial ScopeMeter, Bus Health, Power and Harmonics with SCC-Kit

Check price and availability at **www.fluke.com/wtb**

Fluke Thermal Imaging
Find it, fix it, fast

Fluke Ti32

Fluke FlexCam Series

Superior image quality
Just pick up a Fluke imager and you'll immediately see the difference. Fluke delivers the clear, crisp images needed to find and fix problems fast.
- Industry leading thermal sensitivity (NETD) enables you to identify the small temperature differences that could indicate big problems
- Even the smallest details become visible with the large, wide-screen full VGA color LCD display
- Patented IR-Fusion®

Easy to use
When you pick up a tool, you need it to operate and deliver results without having to read a heavy manual
- Intuitive, three-button menu is easy to use… simply navigate with the push of a thumb
- Add comments quickly and easily with voice annotation feature
- Easy, manual focus allows for precise image viewing control

Rugged
Tools are meant to be used, and Fluke thermal imagers are designed to reliably operate in the toughest environments.
- Engineered and tested to withstand a 2 m (6.5 ft) drop—when was the last time you dropped a tool? See the proof at **www.fluke.com/rugged**

- Use in ambient temperatures as low as –10 °C (14 °F) and high as +50 °C (122 °F)
- Protected by two-year warranty, with one- or two-year extended warranties available

Ask your Fluke representative for more details.
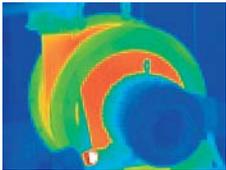
IR-Fusion® Technology
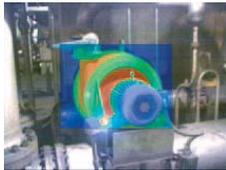## Not all fusion is created equal

Infrared images alone can be difficult to understand, which is why Fluke pioneered IR-Fusion, a revolutionary marriage of visible and infrared images never before seen in commercial or industrial thermal imagers. Automatically capturing a visible image with every infrared image allows you to always know exactly what you're looking at.

Don't be fooled by imitators. Patented IR-Fusion is the only solution with physical parallax correction, enabling the perfect alignment and smooth blending of both infrared and visible images. While many manufacturers have attempted to duplicate Fluke IR-Fusion, none have been able to match it. Turn to Fluke IR-Fusion to deliver the industry's best thermal images.
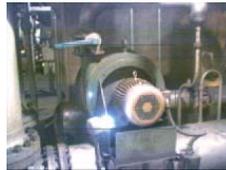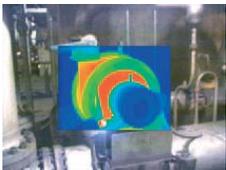
IR-Fusion viewing modes

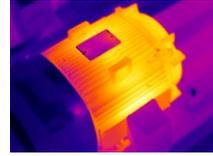Full IR

Alpha Blending

Full Visible Light

Picture in Picture

IR/Visible Alarm

Fluke SmartView® Software
Analysis and reporting software

Powerful

Everything you need for analysis and reporting.

- Extensive annotation, editing and viewing options with full IR-Fusion® capabilities
- Multiple reporting options and templates and 3D-IR™ for unique 3D analysis

Easy to use

- SmartView tools and controls allow easy access to editing functions and its easy drag and drop text annotation feature
- Report Wizard guides you through automatic, professional report generation

Included with every imager

Fluke includes SmartView software with unlimited licenses and lifetime upgrades with every thermal imager

- No need to pay extra for a professional software solution

SmartView® system requirements

Software requirements

- Windows® XP SP2/Vista/7
- A web browser for product registration and web updates
- Internet Explorer 5.0 or newer
- 512 MB of RAM minimum (1 GB for Vista or 7)
- 360 MB of hard disk space for product installation
- Microsoft® Word 2007 for report template modification (optional)

Hardware requirements

- Memory card reader to transfer images to computer (included)
- 512 MB RAM (1GB for Vista), not including the space requirements for web browser and Microsoft® Word
- 16-bit color, 1024x768 resolution video or better
- CD-ROM drive for installing SmartView software

Fluke Training Solutions
Getting started with Fluke Ti Thermal Imagers

Unsure where to begin with your new thermal imager?

Don't worry. Fluke utilizes an extensive network of industry experts to deliver a full portfolio of training solutions.

- **Free in-box training DVD:** This convenient training solution provides a general introduction to thermal imaging, product information, and common applications.
- **Free online webinars:** Fluke offers both pre-recorded and live webinars to meet the needs of busy professionals. Visit **www.fluke.com/titraining** for course listings and schedules.
- **Hands-on training seminars:** Join us for one of our many local seminars where Fluke Thermography experts will teach basic thermography with hands-on demonstrations. Go to **www.fluke.com/titraining** for schedules.
- **Advanced training:** For advanced thermography (Level I to Level III) and application specific training either online, in the classroom or at your site, sign up through Fluke authorized, independent training partners. Visit **www.fluke.com/titraining** for training options and schedules.
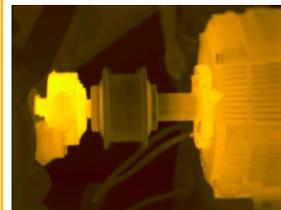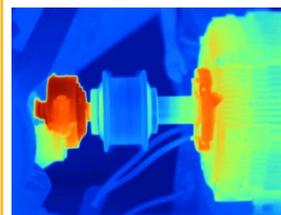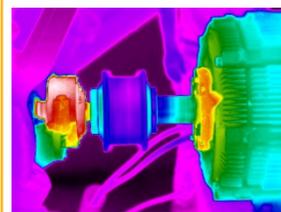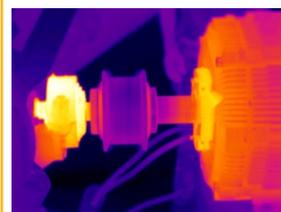
Check price and availability at
www.fluke.com/wtb

Ti Series Industrial Thermal Imagers
The ultimate tools for troubleshooting and maintenance

The perfect tools to add to your problem solving arsenal. Built for tough work environments, these high-performance, fully radiometric imagers are ideal for troubleshooting electrical systems, electro-mechanical equipment, process equipment, HVAC/R equipment and others.

- Enhanced problem detection and analysis capabilities with patent-pending IR-Fusion® Technology—only available from Fluke
- Optimized for field use in harsh work environments
  - Engineered and tested to withstand a 2 m (6.5 ft) drop
  - Withstands dust and water—tested to an IP 54 rating
  - Innovative protective lens cover protects the lens when not in use
- Delivers the clear, crisp images needed to find problems fast
  - Identify even small temperature differences that could indicate problems with excellent thermal sensitivity (NETD)
  - Even the smallest details become visible with the large, widescreen full color LCD display
- Intuitive, three-button menu is easy to use... simply navigate with the push of a thumb

See page 44 for IR-Fusion Technology—only available from Fluke.

See page 48 for recommended accessories.

Ti32 shown with optional telephoto lens

Specialty models

Find problems faster with Fluke thermal imagers.
Turn to the high performance Fluke FlexCam® line when you need a 5 inch high-contrast LCD and superior on-imager analysis capabilities. Images stored on a 1 GB compact flash card can be downloaded to a computer with included USB cable or card reader. Offers video out for live sharing of thermal images. Additional lenses are available. Fluke puts powerful technology within your reach.

Fluke Ti50FT, Ti55FT

Resources

Hands-on training, Webinars, virtual demos and more.
www.fluke.com/titraining

This tool will help determine the return on investment of a Fluke Thermal Imager.
www.fluke.com/roi

Specifications

Features	Ti32	Ti25	Ti10
Temperature measurement range (not calibrated below –10 °C)	–20 °C to +600 °C (–4 °F to + 1112 °F)	–20 °C to +350 °C (–4 °F to + 662 °F)	–20 °C to +250 °C (–4 °F to + 482 °F)
Temperature measurement accuracy	± 2 °C or 2 % (at 25 °C nominal, whichever is greater)		± 5 °C or 5 % (at 25 °C nominal, whichever is greater)
On-screen emissivity correction	Yes		
On-screen reflected background temperature compensation	Yes		
On-screen transmission correction	Yes		
Image capture frequency	60 Hz or 9 Hz refresh rate depending on model		
Detector type	320 X 240 Focal Plane Array, uncooled microbolometer	160 X 120 Focal Plane Array, uncooled	
Thermal sensitivity (NETD)	≤ 0.05 °C at 30 °C target temp. (50 mK)	≤ 0.1 °C at 30 °C target temp. (100 mK)	≤ 0.2 °C at 30 °C target temp. (200 mK)
Field of view (standard lens)	Field of View: 23 ° x 17 °; Minimum Focus Distance: 15 cm (approx. 6 in)		
Spatial resolution (IFOV)	1.25 mRad	2.5 mRad	
Optional telephoto infrared lens	Yes		
Optional wide-angle infrared lens	Yes		
Standard palettes	Ironbow, Blue-Red, High Contrast, Amber, Amber Inverted, Hot Metal, Grayscale, Grayscale Inverted	Ironbow, blue-red, high contrast, amber, hot metal, grey	Ironbow, blue-red, high contrast, grey
Ultra contrast palettes	Ironbow Ultra, Blue-Red Ultra, High Contrast Ultra, Amber Ultra, Amber Inverted Ultra, Hot Metal Ultra, Grayscale Ultra, Grayscale Inverted Ultra		
IR Fusion®	Yes		
Color alarms (user selectable)	High-temperature alarm		
Voice annotation	60 seconds maximum recording time per image; reviewable playback on imager		
Storage medium	SD memory card (2 GB memory card will store at least 1200 fully radiometric (.is2) IR and linked visual images each with 60 seconds voice annotations, or 3000 basic bitmap (.bmp) images, or 3000 jpeg (.jpeg) images; transferrable to PC via included multi-format USB card reader		
Export file formats w/included SmartView® Software	BMP, DIP, GIF, JFIF, JPE, JPEG, JPG, PNG, TIF, and TIFF		
Batteries	Two Lithium Ion rechargeable smart battery packs with 5-segment LED Display to show charge level. Battery life: 4+ hours; Battery charge: 2.5 hours to full charge	Internal rechargeable battery pack (included) Battery life: 3–4 hours Battery charge: 2.5 hours to full charge	
AC battery charging	Two-bay AC battery charger (110 V ac to 220 Vac, 50/60 Hz) (included), or in-imager charging, ac mains adapters included	AC adapter/charger (110 V ac to 220 V ac, 50/60 Hz) (included), charges battery while imager is operating or turned off, ac mains adapters included	
AC operation	AC operation with included power supply (110 V ac to 220 V ac, 50/60 Hz), ac mains adapters included		
Enclosure rating	IP54		
Drop tested	2 m (6.5 ft)		
Warranty	Two-year		

To download detailed specifications for these products go to **www.fluke.com/tispecs**

Ordering information

Included accessories	Models	
In-box training DVD, SmartView® analysis and reporting software, 2 GB SD memory card, multi-function memory card reader, hard carry case, soft carry case, hand strap, two external smart rechargeable batteries, ac charger/power supply.* *Included accessories vary by model.	FLK-Ti25 9HZ	Thermal Imager
	FLK-Ti10 9HZ	Thermal Imager
	FLK-Ti32 9HZ	Industrial-Commercial Thermal Imager
	FLK-Ti32 60HZ	Industrial-Commercial Thermal Imager
AC adapter, video cable, 1 GB compact flash card, compact flash card reader and USB cable, PCMCIA compact flash card adapter, SmartView reporting and analysis software, two rechargeable battery packs, battery charger, neck strap, heavy duty carrying case and users manual on CD.	FLK-Ti40FT-20	IR FlexCam Thermal Imager
	FLK-Ti45FT-20	IR FlexCam Thermal Imager
	FLK-Ti50FT-20	IR FlexCam Thermal Imager
	FLK-Ti55FT-20	IR FlexCam Thermal Imager

Check price and availability at
www.fluke.com/wtb

For more information, go to **www.fluke.com/thermal_imaging**

Ti Series Buildings Thermal Imagers
Optimized for energy audits and moisture detection

The ultimate tools for energy audits, building maintenance, resto-ration and remediation.
- Enhanced problem detection and analysis capabilities with patent-pending IR-Fusion® Technology—only available from Fluke
- Optimized for field use
  - Engineered and tested to withstand a 2 m (6.5 ft) drop
  - Withstands dust and water—tested to an IP 54 rating
  - Innovative protective lens cover protects the lens when not in use
- Delivers the clear, crisp images needed to find problems fast
  - Identify even small temperature differences that could indicate problems with excellent thermal sensitivity (NETD)
  - Even the smallest details become visible with the large, widescreen full color LCD display
- Intuitive, three-button menu is easy to use... simply navigate with the push of a thumb

See page 44 for IR-Fusion Technology—only available from Fluke.

See page 48 for recommended accessories.

IR-Fusion®

TiR32 shown with optional wide angle lens

Specialty models

FlexCam® Thermal Imagers The experts' choice for building diagnostics
The Fluke TiR3FT and TiR4FT Thermal Imagers are for professionals demand-ing the best and most thorough solutions in building diagnostics appli-cations. The Fluke TiR-Series provides the industry's largest LCD to view on-camera images, augmented with the innovative IR-Fusion® Technology to better pinpoint building problems. IR-Fusion is the overlay of IR and vis-ible images, allowing one to clearly identify critical points within the thermal image.

Fluke TiR3/FT, TiR4/FT

Fluke TiS Building Diagnostics Thermal Imaging Scanner
The new Fluke TIS is the top-performing imager in its price class and meets the proposed RESNET infrared inspection standards.
- 120 x 120 resolution
- Largest display in price class, 30 % larger than compa-rable models
- Award winning design, built rugged to withstand 2 m (6.5 ft) drop

New

Fluke TiS

Specifications

Features	TIR32	TIR1	TiR
Temperature measurement range (not calibrated below –10 °C)	–20 °C to +150°C (–4 °F to + 302 °F)	–20 °C to +100 °C (–4 °F to + 212 °F)	
Temperature measurement accuracy	± 2 °C or 2 % (at 25°C nominal, whichever is greater)		± 5 °C or 5 % (at 25°C nominal, whichever is greater)
On-screen emissivity correction	Yes		
On-screen reflected background temperature compensation	Yes		
On-screen transmission correction	Yes		
Image capture frequency	60 Hz or 9 Hz refresh rate depending on model		
Detector type	320 X 240 Focal Plane Array, uncooled microbolometer	160 X 120 Focal Plane Array, uncooled	
Thermal sensitivity (NETD)	≤ 0.05 °C at 30 °C target temp. (50 mK)	≤ 0.07 °C at 30 °C target temp. (70 mK)	≤ 0.1 °C at 30 °C target temp. (100 mK)
Field of view (standard lens)	Field of view: 23 ° x 17 °; minimum focus distance: 15 cm (approx. 6 in)		
Spatial resolution (IFOV)	1.25 mRad	2.5 mRad	
Optional telephoto infrared lens	Yes		
Optional wide-angle infrared lens	Yes		
Standard palettes	Ironbow, Blue-Red, High Contrast, Amber, Amber Inverted, Hot Metal, Grayscale, Grayscale Inverted	Ironbow, blue-red, high contrast, amber, hot metal, grey	Ironbow, blue-red, high contrast, grey
Ultra contrast palettes	Ironbow Ultra, Blue-Red Ultra, High Contrast Ultra, Amber Ultra, Amber Inverted Ultra, Hot Metal Ultra, Grayscale Ultra, Grayscale Inverted Ultra		
IR Fusion®	Yes		
Color alarms (user selectable)	Dew point-temperature alarm		
Voice annotation	60 seconds maximum recording time per image; reviewable playback on imager		
Storage medium	SD Memory Card (2 GB memory card will store at least 1200 fully radiometric (.is2) IR and linked visual images each with 60 seconds voice annotations, or 3000 basic bitmap (.bmp) images, or 3000 jpeg (.jpeg) images; transferrable to PC via included multi-format USB card reader		
Export file formats w/included SmartView® Software	BMP, DIP, GIF, JFIF, JPE, JPEG, JPG, PNG, TIF, and TIFF		
Batteries	Two Lithium Ion rechargeable smart battery packs with 5-seg-ment LED Display to show charge level. Battery life: 4+ hours; Battery charge: 2.5 hours to full charge	Internal rechargeable battery pack (included) Battery life: 3 to 4 hours Battery charge: 2.5 hours to full charge	
AC battery charging	Two-bay ac battery charger (110 V ac to 220 V ac, 50/60 Hz) (included), or in-imager charging, ac mains adapters included	AC adapter/charger (110 V ac to 220 V ac, 50/60 Hz) (included), Charges battery while imager is operating or turned off, ac mains adapters included	
AC operation	AC operation with included power supply (110 V ac to 220 V ac, 50/60 Hz), ac mains adapters included		
Enclosure rating	IP54		
Drop tested	2 m (6.5 ft)		
Warranty	Two-year		

To download detailed specifications for these products go to **www.fluke.com/tispecs**

Ordering information

Included accessories	Models	
In-box training DVD, SmartView® analysis and reporting software, 2 GB SD memory card, multi-function memory card reader, hard carry case, soft carry case, hand strap, two external rechargeable batteries, ac charger/power supply and users manual.* *Included accessories vary by model.	FLK-TiR32 9HZ	Building Diagnostics Thermal Imager
	FLK-TiR32 60HZ	Building Diagnostics Thermal Imager
	FLK-TIR1 9HZ	Thermal Imager
	FLK-TIR 9HZ	Thermal Imager
AC adapter (TiR4FT only), video cable, 1 GB compact flash card, com-pact flash card reader and USB cable, PCMCIA compact flash adapter, SmartView reporting and analysis software on CD, two rechargeable battery packs, battery charger, neck strap, heavy duty carrying case and users manual on CD.	FLK-TiR3/FT-20	IR FlexCam BD Thermal Imager
	FLK-TiR4/FT-20	IR FlexCam BD Thermal Imager
	FLK-TiS 9HZ	IR BD Thermal Imager

Resources

Thermal imaging equipment solution center
These tools can help you find out more about thermal imaging whether you currently own a thermal imager or are considering a purchase.
www.fluke.com/tisolutions

Got Questions? Get Answers.
Choose your application
Electrical Mechanical Process
Air Insula Moistu

Check price and availability at www.fluke.com/wtb

Thermal imaging resources from Fluke
Everything you need to use a Fluke thermal imager

Product demos

Building Inspection with a Fluke thermal imager—a video

If you currently own a Fluke thermal imager or are considering a purchase, please visit the Fluke Thermal Imaging Resource site at **www.fluke.com/titools**.

Learn more about the value of thermal imaging and why Fluke thermal imagers and SmartView® software are the best solutions on the market today.

Watch a video, take a virtual demo, and view or download other useful information and tools.

Find the thermal imager that best fits your application
Go to **www.fluke.com/select**. Use our online product selection guide to find out the best Fluke thermal imager for your application.

SmartView software demo

Sample applications

Moisture detection: Accurately detect moisture behind interior walls, in ceilings, and under carpets.
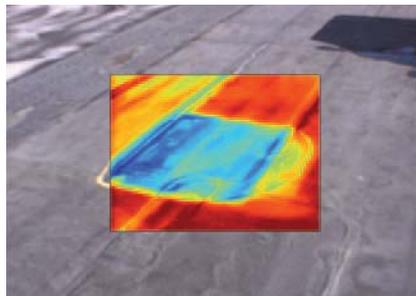
Roofing: Detect water-saturated insulation in flat-roof systems to locate damaged portions of roofing structure.
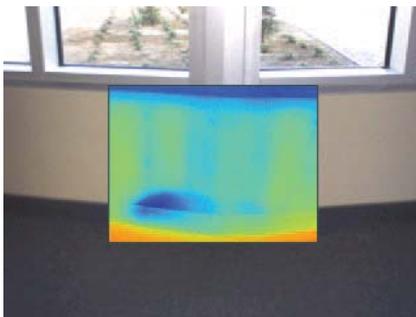
Mold remediation: Control mold by revealing undetected sources of moisture.
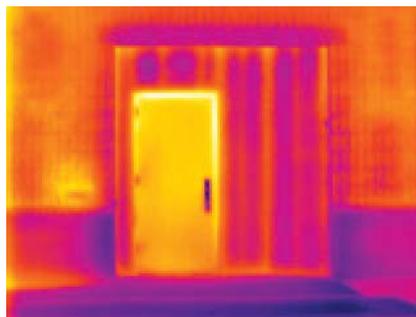
Energy audits: Perform residential and commercial energy audits by scanning for heating or cooling (energy) loss, moisture invasion, and HVAC/R problems.

Check price and availability at **www.fluke.com/wtb**

Fluke 560 Series
Infrared Thermometers

Fluke 566 and 568 IR and Contact Thermometers

Just when you thought advanced IR temperature measurement should be easier! With a straight-forward user interface and soft-key menus, the Fluke 566 and 568 make even complex measurements easy. With just a few pushes of a button you can easily adjust emissivity, start data logging, or turn on and off alarms. With a rugged, easy-to-use design, the Fluke 566 and 568 can stand up to tough industrial, electrical, and mechanical environments.

- Measure up to 800 °C (1470 °F)
- Easily access advanced features with the soft-key buttons and graphical display
- Measure smaller objects from further away
- Compatibility with most type–K thermocouples
- Confidently measure more surfaces, with adjustable emissivity and built–in materials table
- Log and download measurements for reporting (568)
- Two levels of backlight
- Audible and visual alarms alert you to measurements outside of set limits
- Min, Max, Avg, and Dif functions
- Includes KTC bead probe
- 1 % measurement accuracy
- Versatile interface with six languages

Specialty models

Fluke 561 Infrared and Contact Thermometer

The Fluke 561 combines the temperature measurement functions that professionals need for most HVAC and industrial jobs, all in one tool.

- Pipe probe for superheat and sub-cooling and other contact and ambient measurements
- Min, Max and Dif functions help you quickly identify problems
- Scan large areas or small objects quickly and efficiently

Fluke 61 Infrared Thermometers

- Easy to use one button operation
- Easy targeting with bright laser
- Shock-absorbing molding increases ruggedness
- Two–year conditional warranty
- Temperature measurement range up to 275 °C (525 °F)
- 8:1 optics
- Accurate to within ± 2 % of reading or 2 °C, whichever is greater

Specifications

Models	Fluke 561	Fluke 566	Fluke 568	Fluke 68IS	Fluke 62
Infrared temperature range	–40 °C to 535 °C (–40 °F to 1022 °F)	–40 °C to 650 °C (–40 °F to 1200 °F)	–40 °C to 800 °C (–40 °F to 1470 °F)	–32 °C to 760 °C (–25 °F to 1400 °F)	–30 °C to 500 °C (–20 °F to 932 °F)
Accuracy	greater of ± 1 % or ± 1 °C (2 °F)			greater of ± 1 % or ± 1 °C (2 °F)	greater of ± 1.5 % or ± 1 °C (2 °F)
Distance to Spot (D:S)	12:1	30:1	50:1	50:1	10:1
Sighting	Laser point				
Typical distance to target	Up to 2.5 m (7 ft)	Up to 4.5 m (15 ft)	Up to 7.5 m (25 ft)	Up to 7.5 m (25 ft)	Up to 2 m (6 ft)
Probe type	Thermocouple K			RTD	
Contact temperature range	–40 °C to 550 °C (–40 °F to 1022 °F)	–270 °C to 1372 °C (–454 °F to 2501 °F)		–40 °C to 260 °C (–40 °F to 500 °F)	
Number of on-board memory locations		20	99	12	
PC download and software			Yes, with FlukeView® Forms		
Soft-key feature menu navigaton		Yes			
Min/Max/Avg/Dif	Min/Max/Dif	Min/Max/Avg/Dif		Min/Max/Avg/Dif	Max
English, French, Chinese, Spanish, Portuguese, German user interface		Yes			
Material type adjustment (emissivity)	Hi/Med/Lo	Material table or 0.1 to 1.00 by 0.01		0.1 to 1.00 by 0.01	Preset to 0.95
Two levels of backlight		Yes			
High and low alarms		High and low alarms		High and low alarms	
Hazardous location approval				FM approved intrinsically safe	
Hands-free logging			Yes		
Battery		2 AA		9 V	
Included case	Hard case (except 561/R and 561/P)	Hard case			Soft case
Warranty	Two-year				

Ordering information

Included accessories	Models	
USB cable, FlukeView® Forms software, thermocouple K-type bead probe, carrying case, two AA batteries, users manual, quickstart guide.	FLUKE-568	Infrared Thermometer
Thermocouple K-type bead probe, carrying case, two AA batteries, users manual and quickstart guide.	FLUKE-566	Infrared Thermometer
Thermocouple K-type pipe probe, carrying case, two AA batteries, users manual.	FLUKE-561	Infrared Thermometer
9 V battery, instruction sheet.	FLUKE-61	Infrared Thermometer

Recommended accessories

80PK-11
Pipe Clamp Probe
See page 58

80PK-27
Industrial Surface
Temperature Probe
See page 58

80PK-10
Pipe Clamp
Temperature Probe
See page 58

80PK-18
Pipe Clamp
Temperature Probe
See page 54

Check price and availability at
www.fluke.com/wtb

Fluke 62 Mini Infrared Thermometer
Non-contact temperature measurement

The Fluke 62 Mini non-contact thermometer is the perfect introduction to infrared (IR) thermometers for the professional. With the best accuracy in its class, the Fluke 62 mini offers quick and reliable surface temperature readings. This compact and portable tool enables professionals to diagnose heating and ventilation problems and monitor the temperature of electrical motors and electrical panels without contact.

- Accurate to within $\pm$ 1.5 % of reading or $\pm$ 1.5 °C
- Temperature measurement range up to 500 °C (932 °F)
- 10:1 optics
- Backlit display for poorly lit areas
- Laser sighting
- Dual display shows current and max measurements simultaneously

Fluke 50 Series II Thermometers
Lab accuracy in a field thermometer

All models offer:
- Laboratory accuracy: $\pm$ (0.05 % + 0.3 °C)
- Large backlit dual display
- Min/Max/Avg
- Electronic offset function maximizes overall accuracy
- Supports a wide range of thermocouple types
- Temperatures displayed in °C, °F, or Kelvin (K)

Powerful data logging capabilities
The Fluke 53 II B and 54 II B can log up to 500 points of data to internal memory.
- User-adjustable recording intervals
- Real-time clock captures the exact event time
- Recall function lets logged data be easily reviewed
- Download data to optional FlukeView® PC software

Features

Features	54 II B	53 II B	52	51
Thermocouple types	K,J,T,E,N,R,S	K,J,T,E,N,R,S	K,J,T,E	K,J,T,E
Number of inputs	Dual	Single	Dual	Single
Time stamp	Time of day	Time of day		

Ordering information

Included accessories	Models	
Storage pouch and instruction sheet.	FLUKE-62	Mini Infrared Thermometer
	FLUKE-62/T+PRO/1AC	IR Thermometer, Electrical Tester and Voltage Detector Kit
	FLUKE-T5-600/62/1AC	IR Thermometer, Electrical Tester and Voltage Detector Kit
	FLUKE-62/322/1AC	IR Thermometer, Clamp Meter and Voltage Detector Kit
	FLUKE-411D/62	IR Thermometer and Distance Laser Meter Kit
Bead thermocouple(s), batteries, overview manual and instructional guide on CD.	FLUKE-54-2-B	Datalogging Thermometer, Dual Input
	FLUKE-53-2-B	Datalogging Thermometer, Single Input
	FLUKE-52-2	Digital Thermometer, Dual Input
	FLUKE-51-2	Digital Thermometer, Single Input
Thermocouple K probe (574), power supply (574), RS-232 data cable (574), data graphing, storage and analysis software on CD (574), hard case, two AA batteries, operator's guide on CD.	FLUKE-574-CF	Precision Infrared Thermometer w/Logging SW Close Focus
	FLUKE-574	Precision Infrared Thermometer w/Logging SW
	FLUKE-572-CF	Precision Infrared Thermometer with Close Focus Option
	FLUKE-572	Precision Infrared Thermometer

Specialty models

Fluke 570 Series Infrared Thermometers
The Fluke 572 and 574 are ideal diagnostic tools for maintenance professionals requiring accurate temperature readings at all distances. Predictive maintenance professionals requiring analysis and documentation use the 574 model, with 100–point data logging with the included software for graphing and analysis for follow–up reporting and documentation.

- Backlit display for poorly lit areas
- Displays last ten temperature readings
- Enhanced optics (distance to spot ratio up to 60:1)

Intrinsically safe model on page 39.

Recommended kits

62/T+PRO/1AC-II Kit
- 62 Non-contact Thermometer
- T+RO Electrical Tester
- 1AC-II Voltage Detector
- Carrying case

T5-600/62/1AC-II Kit
- Fluke 62 Mini IR Thermometer
- Fluke T5-600 Voltage Electrical Tester
- 1AC-II Voltage Detector
- Carrying case

62/322/1AC-II Kit
- Fluke 62 Mini IR Thermometer
- Fluke 322 Clamp Meter
- 1AC-II Voltage Detector
- Test leads
- Carrying case

62-411D Kit
- Fluke 62 Mini IR Thermometer
- Fluke 411D Laser Distance Meter
- Soft pouch for each model

Check price and availability at
www.fluke.com/wtb

Hawk IR C-Range IR-Windows
Got switchgear?

Fluke CLKT

Use arc–resistant IR Windows with Quadraband™ optic technology

Infrared windows mount into panel doors and covers for switch-gear, transformers, buss bars and other live electrical equipment, allowing thermal, ultraviolet, visual and fusion technologies to be used without exposing personnel to live equipment.

- Reduce the risk associated with electrical thermography
- Reduce labor required to inspect your switchgear from three heads to one
- Stay safety compliant with NFPA 70E and other safety protocols and leave the panels closed
- Extend the life of your equipment with more frequent IR scans
- Easy to install
- Durable enough to withstand extreme outdoor conditions yet practical for indoor applications as well

Fluke CLKTO

Applications

Fluke 1524/1523 Reference Thermometers

The 1523/24 Reference Thermometers from the Hart Scientific Division measure, graph, and record PRTs, thermocouples, and thermistors. You can measure up to 0.3 seconds per sample and plot and scale trends in real time. Both thermometers have memory for up to 25 readings with statistics. The 1524 has 2 inputs with data logging memory for 15,000 measurements with date and time stamps.

Temperature probes are required for measurements and are sold separately as accessories. The universal thermocouple adapter is configurable for different thermocouple types and has memory for calibration coefficients. Free IOToolkit software is included for updating password protected calibration information stored in 1523/1524 probe connectors.

Accuracies of selected readout/probe combinations including read-out accuracy probe calibration and probe drift (± °C).

Recommended accessories
Fluke 1524/1523

5616-12-P
Precision PRT
305 mm x 6.35 mm
(12 in x .25 in)

5610-9-P
Precision Thermistor
229 mm x 3.2 mm
(9 in x 1/8 in)

2373-LTC
Smart connector
with universal
TC adapter

FLK80K1
80PK-1 Type K
Probe and adapter
(2373-LTC)

TPAK
Magnetic Meter Hanger
See page 62

Features

Temperature	5616-12	5610-9
–200 °C (–328 °F)	0.014	
0 °C (32 °F)	0.021	0.009
100 °C (212 °F)	0.027	0.030
300 °C (572 °F)	0.040	
420 °C (788 °F)	0.050	

Equivalent temperature readout accuracy for measuring type K thermocouples is ± 0.24 °C (± 0.43 °F) from 0 °C to 1370 °C (32 °F to 2498 °F) and ± 0.61°C (± 1.10 °F) from –200 °C to 0 °C (–328 °F to 32 °F). Additional errors for thermocouple accuracy or calibration must be added separately.

Ordering information

Included accessories	Models	
IR Windows are supplied complete, assembled and ready for installation. In addition to the IR Window each carton contains an installation CD, self-adhesive drilling template, security access key, warranty statement.	FLK-050-CLKT	50 mm (2 in) C-Range IR Window, Kwik Twist
	FLK-075-CLKT	75 mm (3 in) C-Range IR Window, Kwik Twist
	FLK-100-CLKT	100 mm (4 in) C-Range IR Window, Kwik Twist
	FLK-075-CLKTO	75 mm (3 in) C-Range IR Window, Kwik Twist
12 V dc universal power supply, RS-232 cable, NIST traceable calibration certificate, technical manual and 9940 I/O ToolKit software on CD, three AA batteries, users guide.	FLUKE-1524	Thermometer Readout (2 inputs)
	FLUKE-1523	Thermometer Readout (1 input)
TPAK, 2373-LTC, carrying case.	FLUKE-1524-P1	1524 Bundled with 5616 PRT
	FLUKE-1523-P1	1523 Bundled with 5616 PRT

Check price and availability at www.fluke.com/wtb

Fluke 810 Vibration Tester
Take a vibration expert along

Get answers now!
The Fluke 810 Vibration Tester is the most advanced troubleshooting tool for mechanical maintenance teams who need an answer NOW. It is a unique new kind of troubleshooting tool, engineered to detect and evaluate the most common mechanical problems.

The Fluke 810 Vibration Tester uses a simple step-by-step process to report on machine faults the first time measurements are taken, without prior machine history.

Use the Fluke 810 to:
• Easily determine the root cause, location and severity of common mechanical faults
• Efficiently prioritize and plan equipment repair or replacement
• Effectively deploy maintenance resources at the point of greatest impact

Simple 3 step process
The Fluke 810 helps you locate and diagnose common mechanical problems and prioritize repair actions in three simple steps:

1. Setup: Vibration testing has never been easier The Fluke 810 asks for basic machine information you already know, like RPM and horsepower. Its onboard Info feature gives you field tips for setting up and taking measurements like a pro.

2. Measure: The Fluke 810 fits easily into your maintenance routine. Use it to quickly troubleshoot problems or monitor machine condition.

3. Diagnose: Fix it right the first time: With the press of a button, the Fluke 810 identifies the root cause, its location, and the problem's severity.
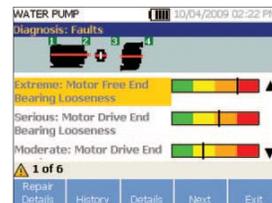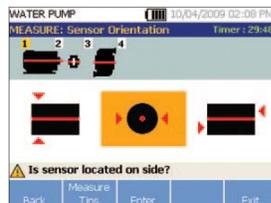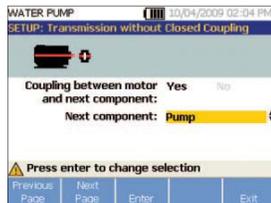
Software

Viewer PC Software
• Store and track your data
• Generate diagnostic reports and track the severity of your machine's condition
• Import and store JPEG and Fluke IS2 thermal images
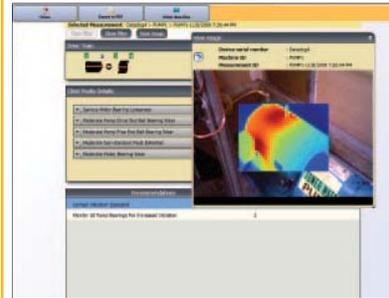
Application tips

Breakthrough diagnostic technology
The Fluke 810's diagnostic technology combines powerful algorithms with a database of real-world measurement experience, making the Fluke 810 the most advanced troubleshooting tool for mechanical maintenance teams.

Analyze most common equipment:
• Motors
• Fans and blowers
• Belt and chain drives
• Gearboxes
• Pumps
• Compressors
• Spindles

Detect the most common causes of mechanical failure:
• Bearing problems
• Misalignment
• Unbalance
• Looseness

Resources

Interactive, self-paced training on DVD
Learn more about the basics of vibration and how to fully utilize the features and functionality of the Fluke 810. Fluke has partnered with Mobius Institute, an industry leader in vibration training, to develop an interactive training DVD included with each Fluke 810.

Specifications

Diagnostic specifications	
Analysis for	Motors, fans, blowers, belts and chain drives, gearboxes, couplings, centrifugal pumps, piston pumps, sliding vane pumps, propeller pumps, screw pumps, rotary thread/gear/lobe pumps, piston compressors, centrifugal compressors, screw compressors, closed coupled machines, spindles
Machine rotational speed range	200 rpm to 12000 rpm
Diagnosis details	Plain-text diagnosis, fault severity (slight, moderate, serious, extreme), repair details, cited peaks, spectra
Tester specifications	
IP rating	IP 54
A/D converter	4 channel, 24 bit
Dynamic range	128 dB
FFT resolution	800 lines
Battery	Lithium-ion, rechargeable, 8 hours operating life
Onboard storage capacity	2 GB internal micro SD card
Warranty	Three-years (tester), One-year (sensor and tachometer)
Sensor specifications	
Sensor type	Tri-axial accelerometer , 100 mV/g (± 5 %, 25 °C)
Tachometer specifications	
Tachometer type	Laser Diode Class 2

Ordering information

Included accessories	Models	
Tri-axial accelerometer, magnet mount, mounting pad kit with adhesive, quick-disconnect accelerometer cable, laser tachometer with storage pouch, battery pack with cable and adapters, shoulder strap, adjustable hand strap, Viewer PC software, mini USB to USB cable, carrying case, training DVD, getting started guide, quick reference guide, users manual on DVD.	FLUKE-810	FLUKE-810 Vibration Tester

Check price and availability at
www.fluke.com/wtb

FLUKE ®

Accessories as tough as your meter

TPAK Meter Hanger—hang your meter from magnetic surfaces and free both hands

Master Accessory Set

SureGrip

TLK-225

AC285 SureGrip Alligator Clips—SureGrip rubber provides a reliable, ergonomic grip in slippery hands

TL175 TwistGuard Test Leads—get two category ratings with one set of test leads and a wire that changes color when the leads need to be replaced

When your job depends on your meter... your meter depends on Fluke Genuine Accessories

Genuine **Fluke** Accessory

Fluke cases and holsters
A premium meter deserves a premium case

Genuine Fluke Accessory

C35	C550	CXT80	C510	H5

Soft cases

C12A Meter Case
- Made of vinyl
- Dimensions (HxWxD): 172 x 128 x 38 mm (6.8 x 5 x 1.5 in)

C75 Accessory Case
- Made of vinyl
- Dimensions (HxWxD): 179 x 103 x 26 mm (7 x 4 x 1 in)

C50 Meter Case
- Made of vinyl
- Dimensions (HxWxD): 192 x 90 x 38 mm (7.56 x 3.5 x 1.5 in)

C25 Large Soft Case for DMMs
- Made of vinyl
- Dimensions (HxWxD): 218 x 128 x 64 mm (8.6 x 5 x 2.52 in)

C90 Soft Case for DMMs
- Made of vinyl
- Dimensions (HxWxD): 205 x 90 x 72 mm (8 x 3.5 x 2.8 in)

C35 Soft Carrying Case
- Made of durable polyester 600D
- Dimensions (HxWxD): 220 x 140 x 65 mm (8.7 x 5.5 x 2.6 in)

C23 Soft Carrying Case
- Made of durable vinyl
- Dimensions (HxWxD): 225 x 95 x 58 mm (8.9 x 3.75 x 2.3 in)

C280 Soft Case
- Made of durable polyester 600D
- Dimensions (HxWxD): 230 x 185 x 65 mm (9 x 7.3 x 2.6 in)

C115 Soft Carrying Case
- Made of durable polyester 600D
- Dimensions (HxWxD): 240 x 205 x 75 mm (9.5 x 8 x 3 in)

C116 Soft Carrying Case
- Made of durable polyester 600D
- Dimensions (HxWxD): 240 x 230 x 65 mm (9.5 x 9 x 2.6 in)

C570 Soft Case
- Made of vinyl
- Dimensions (HxWxD): 240 x 89 to 170 x 56 mm (9.5 x 3.5 to 6.7 x 2.2 in)

C781 Meter Case
- Made of durable polyester 600D
- Dimensions (HxWxD): 269 x 141 x 90 mm (10.6 x 5.6 x 3.5 in)

C33 Soft Carrying Case
- Made of vinyl
- Dimensions (HxWxD): 280 x 115 x 55 mm (11 x 4.5 x 2.2 in)

C789 Meter and Accessory Case
- Made of durable polyester 600D
- Dimensions (HxWxD): 308 x 256 x 77 mm (12 x 10 x 3 in)

C43 Soft Carrying Case
- Made of durable polyester 600D
- Dimensions (HxWxD): 318 x 230 x 90 mm (12.5 x 9.1 x 3.5 in)

C550 Tool Bag
- Made of ballistic cloth with heavy-duty hardware
- Dimensions (HxWxD): 333 x 513 x 231 mm (13 x 20.2 x 9.1 in)

C345 Soft Case
- Made of durable polyester 600D
- Dimensions (HxWxD): 360 x 200 x 240 mm (14 x 8 x 9.5 in)

Hard cases

CXT Series Extreme Cases
- Models CXT80, CXT170, and CXT280 for various meter compatibility
- Unbreakable, watertight, airtight, chemical resistant and corrosion proof

C800 Meter and Accessory Case
- Dimensions (HxWxD): 230 x 385 x 115 mm (9 x 15 x 4.5 in)

C20 Hard Case
- Made of polyprophylene
- Dimensions (HxWxD): 256 x 154 x 106 mm (10 x 6.1 x 4.2 in)

C101 Hard Case
- Exterior dimensions (HxWxD): 305 x 360 x 105 mm (12 x 14.2 x 4.1 in)
- Interior dimensions (HxWxD): 230 x 290 x 65 mm (9 x 11.5 x 2.5 in)

C100 Universal Carrying Case
- Dimensions (HxWxD): 397 x 346 x 122 mm (15.7 x 13.6 x 4.8 in)

C1600 Gear Box
- Includes five hook and loop straps to wrap cords and test leads
- Dimensions (HxWxD): 260 x 390 x 200 mm (10 x 15 x 7.8 in)

Leather cases

C520A Leather Tester Case
- Dimensions (HxWxD): 256 x 154 x 106 mm (10 x 6 x 4 in)

C510 Leather Meter Case
- Dimensions (HxWxD): 287 x 179 x 106 mm (11 x 7 x 4 in)

Holsters

C10 Meter Holster
- Compatible with Fluke 10 Series Multimeters
- Dimensions (HxWxD): 154 x 77 x 45 mm (6 x 3 x 1.8 in)

H80M Protective Holster
- Includes a hanging magnet, general purpose hanger, and hook and loop straps
- Dimensions (HxWxD): 190 x 95 x 43 mm (7.5 x 3.7 x 1.7 in)

H5 Electrical Tester Holster
- Dimensions (HxWxD): 192 x 90 x 38 mm (7.5 x 3.5 x 1.5 in)

H3 Clamp Meter Holster
- Dimensions (HxWxD): 231 x 90 x 64 mm (9 x 3.5 x 2.5 in)

H6 IR Thermometer Holster
- Dimensions (HxWxD): 302 x 178 x 57 mm (11.9 x 7 x 2 in)

Selection Guide

Selection Guide	10/11/12/12B	110/111/112	114/115/116/117	20/70 Series	27 II/28 II/27	175/177/179	80 Series III/83V 87V/89 IV	233	287/289/187/189	39/41B	43B	120 Series	50S/50D	50 Series II	63/66/68	321/322	330 Series	705/707	712/713	714/715/716/717	718	725/726	741/743/744	787/789	T3/T5	1503/1507/1577/1587
C280		•				•			•	•	•			•										•		
C345	The perfect case for carrying a wide range of Fluke handheld test tools and accessories																									
CXT80					•		•	•	18x														•	•		
CXT170		•				•										•				•	•			•		•
CXT280									28x																	
C50	•	•	•											•												
C520A																									•	
C550/C1600	The C550 and C1600 are large enough to hold accessories and multiple test tools																									
C12A	•	•	•														•									
C25			•	•	•	•	•	•	•				•	•		•				•		•		•		•
C33										•	•													•		
C35			•		•		•		•															•		
C43					•	•	•	•	•														•	•		
C90		•	•	•		•							•	•												
C115/C116	•	•	•	•		•			•										•	•	•	•		•		•
C125				•																						
C781									•		•											•	•	789		•
C789						•	•	•														•	•			
C101	•	•	•	•	•	•			•				•		•	•	•	•				•		•	•	•
C510					•								•	•										787		
C100				•	•	•																•		787		
C800			•																			•		787		

54 Accessories

Fluke accessory sets and kits
Save money on our most popular accessories

TL220 Industrial Test Lead Set
- Starter kit for industrial applications
- TP220 has round, stainless steel tip
- Includes 1 pair: AC220, TP220, TL222
- CAT III 1000 V, CAT IV 600 V, 10 A

TL223 Electrical Test Lead Set
- Starter kit for electrical applications
- TP1 has flat blades for wall sockets
- Includes 1 pair: AC220, TP1, TL224
- CAT III 1000 V, CAT IV 600 V, 10 A

TLK-220 SureGrip™ Accessory Kit with Meter Carry Case
- Plunger style alligator clips
- Large jaw alligator clips
- Sharp test probes
- Right to straight test leads
- Zippered vinyl carry case with moveable divider
- Holds large DMMs

TLK287 Electronics Master Test Lead Set
The perfect test lead kit for today's electronics test and design
- Precision electronic probes with multiple spring-loaded sharp tips to maximize contact with SMD test points
- Micro-grabbers and leads to enable fine SMD test
- Modular mini-alligator clips, grabbers, leads, probes, and couplers for virtually every electronics need

TLK289 Industrial Master Test Lead Set and Case
Designed for electrical and electronics test in today's industrial environment
- SureGrip™ alligator clips, grabbers, hook clips and industrial test probes for dependable contact with a variety of test points
- Magnetic hanger for suspension of your DMM
- Temperature adapter with K-Type thermocouple for direct temperature measurement with your DMM's

TLK-225 SureGrip™ Master Accessory Kit
- Plunger style alligator clips
- Plunger style hook clips
- Plunger style pincer clips
- Large jaw alligator clips
- Sharp test probes
- Right to straight test leads
- 6-pocket storage pouch, keeps the entire set together

T5 Tester Starter Kit
Getting started kit for electricians who already own a Fluke T5 Tester.
- Test probes
- Large jaw alligator clips
- Zippered soft case

Selection Guide	10/110 Series	114/115/116/117	20/70 Series	27 II/28 II/27	125/177	179	80 Series	87V/233	287/289/187/189	39/41B/43B	90 Series	120 Series	190 Series	321/322	330 Series	705/707	715	716/717	718	725/726	741/743	744	787/789	1587	1577
TLK287	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
TLK289		116				•		•	•																•
TL220	•	•	•	•	•	•	•	•	•		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
TL223	•	•	•	•	•	•	•	•	•		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
TL225	•	•	•	•	•	•	•	•	•		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
TL238	•	•	•	•	•	•	•	•	•		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
TL80A	•	•	•	•	•	•	•	•	•		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
TL81A	•	•	•	•	•	•	•	•	•		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
TL71	•	•	•	•	•	•	•	•	•		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
TL76	•	•	•	•	•	•	•	•	•		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
80K-8, 80K-15, 80K-40	dc only	dc only	•	•	•	•	•	•	•															•	

Fluke test leads, probes and clips
The best leads for all your measurement needs

For electronic applications

TL80A Basic Electronic Test Lead Set
- 6 piece set with zippered case
- Probes, alligator clips and tip extenders for electronic applications
- CAT II 300 V

TL910 Electronic Test Probes with Replacement Tips
- Small profile provides accessibility
- Comes with 5 sets of replaceable tips
- Replacement tips: TP912
- CAT III 1000 V, 3 A

TP80 Electronic Test Probes
- Tapered tip ideal for probing electronic components or boards
- Removable guard for IC probing
- CAT III 1000 V, 10 A

TP920 Test Probe Adapter Kit
- IC test tip adapters, extended tips, medium alligator clips fit over TL71 and TL75 test lead sets
- IC test tip Adapter, 3 A
- Extended probe tip, 3 A
- Med. alligator clip, 5 A
- CAT II 300 V

TL40 Retractable Probe Assembly
- Retractable, insulated sharp probe tip
- CAT III 300 V, 3 A

TL26A Telecom Test Lead Set
- 5-way multipoint test clips for telecommunications applications
- Flexible silicone insulated leads are heat and cold resistant
- CAT I 30 V, 8 A

For automotive applications

TP81 and TP82
- Stainless steel probe pierces insulation on 14, 16 and 18 gauge wire
- Design provides complete insulation while working on fuel injectors or sensors
- TP81 for use with modular test leads (Fluke TL224)
- TP82 slips over probe tips (Fluke TL71)
- Rated to 60 V dc

TP88 Rigid Backprobe Pin Set
- 2 inch long pins pass between the weather pack seal and wire
- Use with Fluke TL71 or TL75 test lead sets
- Rated to 60 V dc

TLK281 Automotive Test Lead Kit
- Insulation piercing probes
- Suregrip silicone test leads
- Suregrip test probes
- Suregrip plunger style alligator clips
- Suregrip alligator clips
- Carrying case

TLK282 Deluxe Automotive Test Lead Kit
- Insulation piercing probes
- Set of five automotive back probe pins
- Suregrip silicone test leads
- Suregrip test probes
- Suregrip plunger style alligator clips
- Suregrip alligator clips
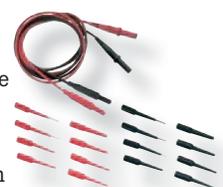- Suregrip hook clips
- Carrying case

TP40 Automotive Back Probe Pin Set
- Set of five 1.5 inch pins
- Rated to 60 V dc
- Provide an easy connection past weather pack seals to connector conductors
- Use with Fluke TL71 or TL75 test lead sets

TL82 Automotive Pin & Socket Adapter Set
- Collection of male and female adapters allows you to make firm connection to pin and socket connectors
- Adapters with flexible tips come in the following sizes: 22, 20, 16 and 12
- Rated to 60 V dc

High-voltage probes

80K-6, 80K-15, 80K-40 High Voltage Probes
- Allows a digital multimeter to measure up to 6,000 volts peak, 15,000 volts peak and 40,000 volts peak respectively
- 1000:1 division ratio output when connected to 10 MΩ multimeter
- Ground clip included
- Intended for low energy applications that are referenced to ground
- 80K-15 (not available in Europe)

Fluke SureGrip™ accessories
As tough as your meter

FLUKE ®

SureGrip accessories provide a reliable grip in slippery hands. Rubber-overmolded surfaces and finger-hugging curves give the user a comfortable, steady hold on the accessory so they can focus on making an accurate measurement.

Modular test leads and test probes (use test probes with test leads)

FTPL SureGrip™ Fused Test Probes with Leads
- FTP Fused Test Probes with built-in fuses for added protection
- TL224 Silicone Insulated Test Leads
- CAT III 1000 V, CAT IV 600 V, 10 A

TL221 SureGrip™ Silicone Test Lead Extension Kit
- Superior strain relief
- Includes two adapters to extend leads 1.5 m
- CAT III 1000 V, 10 A, CAT IV 600 V, 10 A

TL222 SureGrip™ Silicone Insulated Test Leads
- Superior strain relief
- Recommended for use with AC220, AC280, AC283 test clips
- CAT III 1000 V, 10 A, CAT IV 600 V, 10 A

TL224 SureGrip™ Silicone Insulated Test Leads
- Superior strain relief
- 1.5 m silicone-insulated wire resists heat and cold
- CAT III 1000 V, 10 A, CAT IV 600 V, 10 A

FTP SureGrip™ Fused Test Probes
- Built-in fuses for added protection
- 2 mm threaded probe tips include removable 4 mm lantern-style spring contacts
- Removable GS38 insulated IC caps for probing closely spaced leads
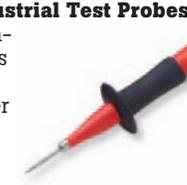- CAT III 1000 V, CAT IV 600 V, 10 A

TP1, TP2, TP4 and TP38 Slim Reach™ Test Probes
- Slender probe bodies for probing closely spaced or recessed points
- TP1 has a flat blade
- TP2 has 2 mm diameter tip
- TP4 has 4 mm diameter tip
- TP38 has stainless steel insulated probe to help lessen the risk of arc flash explosion
- CAT III 1000 V, 10 A, CAT IV 600 V, 10 A

TP220 SureGrip™ Industrial Test Probes
- Sharp, 1/2 inch stainless steel tip provides reliable contact
- Flexible finger barrier improves grip
- CAT III 1000 V, 10 A, CAT IV 600 V, 10 A

Modular clips (use with test leads, includes one red, one black)

AC220 SureGrip™ Alligator Clips
- Insulated, nickel plated jaws grip objects up to 3/8 in.
- Blunt tip grabs round screw heads
- CAT III 1000 V, CAT IV 600 V, 10 A

AC72 Alligator Clips
- Slide-on style for test probes
- Jaws open to 8 mm
- For use with TL71 and TL75 test lead and probe sets
- CAT III 1000 V, 10 A, CAT IV 600 V, 10 A

AC280 SureGrip™ Hook Clips
- Profile narrows to .22 in. at tip
- Hook opening .20 in. at front, .08 in. at base
- CAT III 1000 V, CAT IV 600 V, 3 A

AC283 SureGrip™ Pincer Clips
- 4.5 in. flexible, insulated shaft
- Nickel plated pincers open to .20 in.
- CAT III 1000 V, CAT IV 600 V, 1 A

AC285 SureGrip™ Alligator Clips
- Multi-purpose tooth pattern grips anything from fine gauge wire to a 3/4 in. nut
- Nickel-plated steel jaws
- CAT III 1000 V, CAT IV 600 V, 10 A

The new standard for safer electrical measurements

TL175 TwistGuard™ Test Leads
- Probes meet new IEC 61010-031 requirements for safety
- Patented extendable tip sheath meets new CAT III 1000 V, CAT IV 600 V requirements while providing the flexibility you need for CAT II measurements
- New WearGuard™ test lead wear indicator that changes color when leads are damaged and in need of replacement
- Probes always show correct category rating for tip being used
- Advanced strain relief exceeds 5,000 bend life
- TP175 probes fit standard test leads

TL238 SureGrip™ Test Lead Set for high energy environments
- Insulated tip probes help lessen risk of arc flash explosion
- Probe extenders keep hands away from live current
- Includes one pair each, insulated test tip probes, probe extenders and TL224 Test Leads
- Probes and leads CAT III 1000 V, CAT IV 600 V, 10 A, extenders CAT III 1000 V 10 A

TL71 Premium DMM Test Lead Set
- Flexible silicone insulated leads are heat and cold resistant
- Distinctive comfort grip probes
- Recommended for µV measurements
- CAT III 1000 V, 10 A, CAT IV 600 V, 10 A

TL75 Hard Point Test Lead Set
- Extremely hard alloy tips resist wear
- Distinctive comfort grip probes
- 1.5 m PVC leads
- CAT III 1000 V, 10 A, CAT IV 600 V, 10 A

Fluke Temperature accessories
Turn your digital multimeter into a thermometer

Genuine Fluke Accessory

Other temperature accessories

80TK Thermocouple Module
- Converts K-Type thermocouple signals into mV output
- Connects to DMM via standard banana plugs
- Switch selectable °C or °F
- Range: –50 °C to 1000 °C (–58 °F to 1832 °F)
- Includes 80PK-1 probe

80T-150UA Universal Solid State Temperature Probe
- For measurement of air, surface and non-corrosive materials
- Measurement range: –50 °C to 150 °C (–58 °F to 302 °F)
- Output: 1 mV/°C or 1 mV/°F (switch selectable)
- Connects to DMM via standard banana plugs

80AK-A DMM Adapter
- Adapts K-type thermocouple mini-connector to dual banana plug inputs
- Compatible with all Fluke DMMs with temperature measurement functions
- Measurement range and accuracy is not affected by the 80AK-A adapter

80BK-A Integrated DMM Temperature Probe
- Compatible with all Fluke DMMs with temperature measurement functions
- K-Type thermocouple with standard banana jack
- Convenient one-piece construction
- Measurement range: –40 °C to 260 °C (–40 °F to 500 °F)

Thermocouple Plug Kits

700TC1
A kit of 10 mini-plug connectors. One each of the following:
Type J (black)
Type K (yellow)
Type T (blue)
Type E (purple)
Type R/S (green)
Type B or Cu (white)
Type L (J-DIN) (blue)
Type U (T-DIN) (brown)
Type C (red)
Type N (orange)

700TC2
A kit of 7 mini-plug connectors.
Type J (black), two
Type K (yellow), two
Type E (purple), one
Type T (blue), one
Type R/S (green), one

80PR-60 RTD Temperature Probe
- Resistance temperature detector probe designed to add contact measurements to your Fluke 66 and 68 Non-Contact Infrared Thermometers
- Measurement range: –40 °C to 260 °C (–40 °F to 500 °F)
- 3.5 mm phono type jack is only appropriate for Fluke 66 and 68 Thermometers

80CK-M and 80CJ-M Type K and J Male Mini-Connectors
- Isothermal screw terminal for K or J wire
- Suitable for up to 20 gauge thermocouple wire
- Color coded to industry standards (K-yellow, J-black)
- Two per package

80PJ-EXT, 80PK-EXT, 80PT-EXT Thermocouple Wire Extension Kits
For extending and repairing J, K or T-type thermocouple wires.
- Kit includes 3 m (approx. 9 ft.) of thermocouple wire and 1 pair of male/female mini-connectors
- Maximum continuous exposure temperature: 260 °C (500 °F)
- 80PK-EXT is compatible with K-type thermometers; 80PJ-EXT is designed for J-Type thermometers, and 80PT-EXT is designed for T-type thermometers

Process tools accessories

BP7217
- NiCd rechargeable battery; nominal 7.2 volt, 1700 mA hr
- Use in 867B meters or 700 and 740 Series Calibrators

BP7235
- NiMH rechargeable battery; nominal 7.2 volt, 3500 mA hr
- Use in 700 and 740 Series Calibrators

700LTP-1 Low Pressure Test Pump
Hand operated pressure pump designed to generate either vacuum to –13 psi/ –.90 bar or pressures to 100 psi/6.9 bar. Ideal for low pressure applications requiring accurate low pressure testing.

700ILF In-line Filter
The Fluke 700ILF can be used to isolate the calibrator from incidental contact with fluids. Particularly useful with the 718 calibrator to help keep moisture or oils from contaminating the on-board pump.

700PTP-1 Pneumatic Test Pump
The Fluke 700PTP is a handheld pressure pump designed to generate either vacuum to –11.6 psi/–0.8 bar or pressure to 600 psi/40 bar.

700HTP-1 Hydraulic Test Pump
The Fluke 700HTP is designed to generate pressures up to 10,000 psi/700 bar. Use the Fluke-700PRV adjustable relief valves to limit pressures from 1360 psi to 5450 psi.

700HTH Hydraulic Test Hose
The 700HTH is a 10,000 psi, 700 bar test hose that connects to a calibration unit under test from a Fluke 700HTP hydraulic test pump.
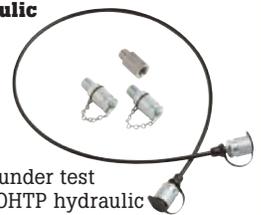
700PMP Pressure Pump
The 700PMP is a hand-operated pressure pump to provide pressures up to 150 psi/1000 kPa. Output fitting is 1/8 FNPT.

Fluke 700-IV Current Shunt
Conversion factor: 10 mV = 1 mA
Accuracy (% of input, 1 year): 0.025 %
Input current: 0 to 55 mA
Input resistance: 250 Ω nominal
Output resistance: 10 Ω nominal
Accuracy specification applies from +18 °C and 28 °C to 50 °C
Maximum input voltage: 30 V dc

Fluke current clamps
For use with multimeters, ScopeMeters and power quality analyzers

AC current clamp specifications

	i200	i200s	i400	i400s	i800	i1000s	i3000s	i2000 flex	i3000s flex
AC current range	1 A to 200 A	1 A to 200 A	1 A to 400 A	0.5 A to 400 A	1 A to 800 A	0.2 A to 1000 A	1 A to 3000 A	2 A to 2000 A	3 A to 3000 A
Accuracy	≤ 3 % + 0.5 A 48 to 65 Hz	≤ 1 % + 0.5 A 48 Hz to 65 Hz	2 % + 0.06 A 45 Hz to 400 Hz	.5 A to 40 A, 2 % + .015 A, 5 A to 400 A, 2 % + .04 A, 45 to 400 Hz	0.1 A to 10 A ± 3 % + .01 A, 10 A to 200 A ± 2 %, 200 A to 800 A ± 1 %	0.2 to 10 A: 3 % + 0.1 A 10 A to 100 A: 2 % + 0.5 A 100 A to 1000 A: 1 % + 1 A 48 to 65 Hz	1 to 30 A: 2 % + 0.1 A 1 A to 300 A: 2 % + 0.5 A 1 to 3000 A: 2 % + 2 A 48 to 65 Hz	± 1 % of range 45 to 65 Hz Ranges: 20 A, 200 A, 2000 A	± 1 % of range, 45 Hz to 65 Hz Ranges: 30 A, 300 A, 3000 A
Bandwidth (–3 dB)	40 Hz to 40 kHz	40 Hz to 40 kHz	5 kHz to 20 kHz	5 Hz to 10 kHz	30 Hz to 10 kHz (typical)	5 Hz to 100 kHz	10 Hz to 100 kHz	10 Hz to 20 kHz	10 Hz to 50 kHz
Maximum conductor diameter	20 mm (0.8 in)	20 mm (0.8 in)	32 mm (1.25 in)	32 mm (1.25 in)	54 mm (2.13 in)	54 mm (2.13 in)	64 x 100 mm (2.52 x 3.94 in)	177 mm (7 in)	177 mm (7 in) or 265 mm (10.4 in)
Maximum conductor size	300 MCM	300 MCM	750 MCM	750 MCM	2–500 MCM or 1–1000 MCM	2–500 MCM or 1–1000 MCM	64 mm (2.52 in)	610 mm (24 in) circumference	610 mm or 915 mm circumference
Output levels	1 mA/A	10 mV/A 100 mV/A	1 mA/A	10 mV/A 1 mV/A	1 mA/A	1 mV/A 10 mV/A 100 mV/A	10 mV/A 1 mV/A 0.1 mV/A	100 mV/A 10 mV/A 1 mV/A	100 mV/A 10 mV/A 1 mV/A
Output cable	1.5 m shrouded banana plugs	2 m to BNC termination	1.5 m shrouded banana plugs	2.5 m to BNC termination	1.6 m shrouded banana plugs	1.6 m to BNC termination	2.1 m to BNC termination	2 m with double shrouded banana plugs	2.1 m to BNC termination
Warranty	One-year	One-year	One-year	One-year	One-year	One-year	One-year	One-year	One-year
Safety rating	CAT III 600 V	CAT III 600 V	CAT III 1000 V CAT IV 600 V	CAT III 1000 V CAT IV 600 V	CAT III 600 V	CAT III 600 V	CAT III 600 V	CAT III 600 V	CAT III 600 V

AC current clamp selection guide

Meter	i200	i200s	i400	i400s	i800	i1000s	i3000s	i2000 Flex[1]	i3000s Flex
10/11/12/12B/16/18		1 A to 200 A		1 A to 400 A*		0.1 A to 1000 A*	1 A to 3000 A	2 A to 2000 A	3 A to 3000 A
110/111/112		3 A to 200 A		30 A to 400 A*		3 A to 1000 A*	30 A to 3000 A	3 A to 2000 A	3 A to 3000 A
114/116		1 A to 200 A		0.6 A to 400 A*		0.6 A to 1000 A*	1 A to 3000 A	2 A to 2000 A	3 A to 3000 A
115/117	60 A to 200 A	1 A to 200 A	60 A to 400 A	0.6 A to 400 A*	60 A to 800 A	0.6 A to 1000 A*	1 A to 3000 A	2 A to 2000 A	3 A to 3000 A
21/23/73/75/77 Series III	1 A to 200 A	1 A to 200 A	1 A to 400 A	1 A to 400 A*	1 A to 800 A	0.1 A to 1000 A*	1 A to 3000 A	2 A to 2000 A	3 A to 3000 A
26/79 Series III	1 A to 40 A	1 A to 200 A	1 A to 40 A & 200 A to 400 A	2 A to 400 A*	1 A to 40 A & 200 A to 800 A	0.2 A to 1000 A*	2 A to 3000 A	2 A to 2000 A	3 A to 3000 A
27	1 A to 200 A	1 A to 200 A	1 A to 400 A	1 A to 400 A*	1 A to 800 A	0.1 A to 1000 A*	1 A to 3000 A	2 A to 2000 A	3 A to 3000 A
233	60 A to 200 A	1 A to 200 A	60 A to 400 A	0.6 A to 400 A*	60 A to 800 A	0.6 A to 1000 A*	1 A to 3000 A	2 A to 2000 A	3 A to 3000 A
27II	2 A to 200 A	1 A to 200 A	2 A to 400 A	1 A to 400 A*	2 A to 800 A	0.1 A to 1000 A*	1 A to 3000 A	2 A to 2000 A	3 A to 3000 A
28II	1.8 A to 200 A	1 A to 200 A	1.8 A to 400 A	1.8 A to 400 A*	1.8 A to 800 A	0.2 A to 1000 A*	2 A to 3000 A	2 A to 2000 A	3 A to 3000 A
70 Series III		1 A to 200 A		1 A to 400 A*		0.1 A to 1000 A*	1 A to 3000 A	2 A to 2000 A	3 A to 3000 A
175/177/179	3 A to 200 A	1 A to 200 A	3 A to 400 A	1 A to 400 A*	3 A to 800 A	0.3 A to 1000 A*	3 A to 3000 A	2 A to 2000 A	3 A to 3000 A
1577/1587 Insulation Meter	3 A to 200 A	1 A to 200 A	3 A to 400 A	3 A to 400 A*	3 A to 400 A	0.3 A to 1000 A*	3 A to 3000 A	2 A to 2000 A	3 A to 3000 A
83III/83V/88V	2 A to 200 A	1 A to 200 A	2 A to 400 A	1 A to 400 A*	2 A to 800 A	0.1 A to 1000 A*	1 A to 3000 A	2 A to 2000 A	3 A to 3000 A
85/87 Series III 87 Series V	2 A to 200 A	1 A to 200 A	2 A to 400 A	2 A to 400 A*	2 A to 800 A	0.2 A to 1000 A*	2 A to 3000 A	2 A to 2000 A	3 A to 3000 A
87/89 Series IV 187/189	2.5 A to 200 A	1 A to 200 A	2.5 A to 400 A	1 A to 400 A*	2.5 A to 800 A	0.1 A to 1000 A*	1 A to 3000 A	2 A to 2000 A	3 A to 3000 A
287/289	1 A to 200 A	1 A to 200 A	1 A to 400 A	0.5 A to 400 A*	1 A to 800 A	0.2 A to 1000 A*	1 A to 3000 A	2 A to 2000 A	3 A to 3000 A
8060A/8062A DMMs	2 A to 200 A	1 A to 200 A	2 A to 400A	2 A to 400 A*	2 A to 800 A	0.2 A to 1000 A*	2 A to 3000 A	2 A to 2000 A	3 A to 3000 A
860 Series Graphical Multimeters	1 A to 200 A	1 A to 200 A	1 A to 400 A	3 A to 400 A*	1 A to 800 A	0.3 A to 1000 A*	3 A to 3000 A	2 A to 2000 A	3 A to 3000 A
39/41B Power Meter		1 A to 200 A[2]		1 A to 400 A[2]		0.1 A to 1000 A[2]	1 A to 3000 A[2]	2 A to 2000 A[2]	3 A to 3000 A[2]
43B Power Quality Analyzer		1 A to 200 A		0.35 A to 400 A		0.1 A to 1000 A	1 A to 3000 A	2 A to 2000 A	3 A to 3000 A
434/435 Power Quality Analyzer		1 A to 200 A		1.2 A to 400 A		0.3 A to 1000 A	1.2 A to 3000 A	Best to use i430Flex	Best to use i430Flex
9X ScopeMeter Series		1 A to 200 A		1 A to 400 A		0.1 A to 1000 A	1 A to 3000 A	2 A to 2000 A	3 A to 3000 A
120 Series ScopeMeters		1 A to 200 A		2.5 A to 400 A		0.25 A to 1000 A	2.5 A to 3000 A	2 A to 2000 A	3 A to 3000 A
190 Series Scopemeters		1 A to 200 A		1 A to 400 A		0.1 A to 1000 A	1 A to 3000 A	2 A to 2000 A	3 A to 3000 A
45 DMM	1.5 A to 100 A	1 A to 200 A	1.5 A to 100 A	1.5 A to 400 A*	1.5 A to 100 A & 500 A to 800 A	0.15 A to 1000 A*	1.5 A to 3000 A	2 A to 2000 A	3 A to 3000 A
8808A	1 A to 200 A	1 A to 200 A	1 A to 400 A	0.5 A to 400 A*	1 A to 800 A	0.1 A to 1000 A*	1 A to 3000 A	2 A to 2000 A	3 A to 3000 A
8845A/8846A	1 A to 200 A	1 A to 200 A	1 A to 400 A	1 A to 400 A*	1 A to 800 A	0.2 A to 1000 A*	1 A to 3000 A	2 A to 2000 A	3 A to 3000 A
74X Series Process Calibrators		1.1 A to 200 A		11 A to 400 A*		1.1 A to 1000 A*	11 A to 3000 A	2 A to 2000 A	3 A to 3000 A
787/789 Process Meters	50 A to 200 A	1 A to 200 A	50 A to 400 A	2 A to 400 A*	50 A to 440 A	0.2 A to 1000 A*	2 A to 3000 A	2 A to 2000 A	3 A to 3000 A

* Requires PM9081/001 Adapters.
[1] Three range version.
[2] Current and watt readings will be multiples of 10 higher or lower than actual on some ranges.

AC only models

i200s

i400s

i800

i1000s

i2000 Flex

i3000s Flex

i6000s
- 6 A to 6000 A
- Compatible with most products except 434/435

For more information, go to www.fluke.com/accessories

Fluke current clamps

For use with multimeters, ScopeMeters and power quality analyzers

AC/DC current clamp specifications

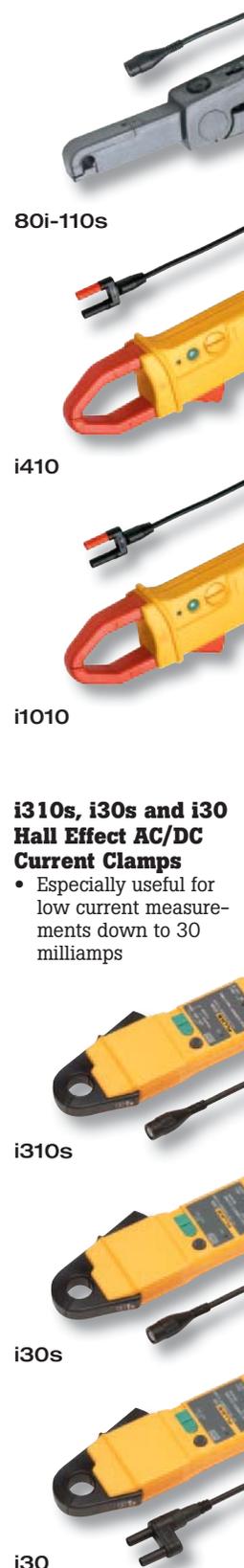|	80i-110s	i410	i1010	i30	i30s	i310s
DC range	0.1 A to 100 A	1 to 400 A	1 to 1000 A	30 mA to 30 A	30 mA to 30 A	0.1A to 450A
AC range	0.1 A to 70 A	1 A to 400 A	1 A to 600 A	30 mA to 20 A rms	30 mA to 20 A rms	0.1A to 300A
Accuracy	0.1 A to 10 A; dc to 1 kHz: ± 3 % + 50 mA; up to 100 A add 15 %; up to 20 kHz add 12 %	3.5 % + 0.5 A for dc or ac (45 to 400 Hz)	2 % + 0.5 A for dc or ac (45 to 400 Hz)	± 1 % of reading, ± 2 mA	± 1 % of reading, ± 2 mA	30 A range: 1 % + 50 mA 300 A range: 1 % + 300 mA
Bandwidth (–3 dB)	100 kHZ	3 kHz	10 kHz	dc to 20 kHz (–0.5 dB)	dc to 100 kHz (–0.5 dB)	DC to 20 kHz
Zero error adjustment	Yes	Yes	Yes	Yes	Yes	Yes
Maximum conductor diameter	11.8 mm (0.46 in)	30 mm (1.18 in)	30 mm (1.18 in)	19 mm (0.75 in)	19 mm (0.75 in)	19 mm (0.75 in)
Maximum conductor size	1 AWG	750 MCM or 2-500 MCM	750 MCM or 2-500 MCM	250 MCM	250 MCM	250 MCM
Output levels	10 mV/A, 100 mV/A	1 mV/A	1 mV/A	100 mV/A	100 mV/A	1 mV/A, 10 mV/A
Output cable	1.6 meter with BNC termination	1.2 meter with shrouded banana plugs	1.2 meter with shrouded banana plugs	1.5 meter with shrouded dual banana plue	2 meter with BNC termination	2 meters with BNC termination and a BNC to safety shrouded banana adapter
Battery life	40 hours	60 hours	60 hours	30 hours	30 hours	30 hours
Warranty	One-year	One-year	One-year	One-year	One-year	One-year
Safety	CAT II 600 V; CAT III 300 V	CAT III 600 V	CAT III 600 V	CAT III 300 V	CAT III 300 V	CAT III 300 V

AC/DC current clamp selection guide

Meter	80i-110s	i410	i1010	i30	i30s	i310s
10/11/12/12B/16/18	0.1 A to 100 A dc/ 0.1 A to 70 A ac*	5 A to 400 A dc/ 7 A to 400 A ac	5 A to 1000 A dc/ 7 A to 600 A ac	40 mA to 30 A dc/ 60 mA to 20 A ac	40 mA to 30 A dc/ 60 mA to 20 A ac	0.4 A to 450 A dc/ 0.6 A to 300 A ac
110/111/112	0.14 A to 100 A dc/ 3 A to 70 A ac*	5 A to 400 A dc/ 300 A to 400 A ac	5 A to 1000 A dc/ 300 A to 600 A ac	40 mA to 30 A dc/ 3 A to 20 A ac	40 mA to 30 A dc/ 3 A to 20 A ac	0.4 A to 450 A dc/ 30 A to 300 A ac
114/115/116/117	0.1 A to 100 A dc/ 0.1 A to 70 A ac*	5 A to 400 A dc/ 6 A to 400 A ac	1.4 A to 1000 A dc/ 6 A to 600 A ac	30 mA to 30 A dc/ 60 mA to 20 A ac	30 mA to 30 A dc/ 60 mA to 20 A ac	0.1 A to 450 A dc/ 0.6 A to 300 A ac
21/23/70/73/75/77 Series III	0.1 A to 100 A dc/ 0.1 A to 70 A ac*	1 A to 400 A dc/ 5 A to 400 A ac	1 A to 1000 A dc/ 5 A to 600 A ac	30 mA to 30 A dc/ 40 mA to 20 A ac	30 mA to 30 A dc/ 40 mA to 20 A ac	0.1 A to 450 A dc/ 0.4 A to 300 A ac
26/79 Series III	0.1 A to 100 A dc/ 0.2 A to 70 A ac*	1 A to 400 A dc/ 20 A to 400 A ac	1 A to 1000 A dc/ 20 A to 600 A ac	30 mA to 30 A dc/ 200 mA to 20 A ac	30 mA to 30 A dc/ 200 mA to 20 A ac	0.1 A to 450 A dc/ 2 A to 300 A ac
233	0.1 A to 100 A dc/ 0.1 A to 70 A ac*	1.4 A to 400 A dc/ 6 A to 400 A ac	1.4 A to 1000 A dc/ 6 A to 600 A ac	30 mA to 30 A dc/ 60 mA to 20 A ac	30 mA to 30 A dc/ 60 mA to 20 A ac	0.1 A to 450 A dc/ 0.6 A to 300 A ac
27	0.1 A to 100 A dc/ 0.1 A to 70 A ac*	1 A to 400 A dc/ 1 A to 400 A ac	1 A to 1000 A dc/ 1 A to 600 A ac	30 mA to 30 A dc/ 30 mA to 20 A ac	30 mA to 30 A dc/ 30 mA to 20 A ac	0.1 A to 450 A dc/ 0.1 A to 300 A ac
27II	0.1 A to 100 A dc/ 0.1 A to 70 A ac*	1 A to 400 A dc/ 1 A to 400 A ac	1 A to 1000 A dc/ 1 A to 600 A ac	30 mA to 30 A dc/ 30 mA to 20 A ac	30 mA to 30 A dc/ 30 mA to 20 A ac	0.1 A to 450 A dc/ 0.1 A to 300 A ac
28II	0.1 A to 100 A dc/ 0.2 A to 70 A ac*	1 A to 400 A dc/ 6 A to 400 A ac	1 A to 1000 A dc/ 6 A to 600 A ac	30 mA to 30 A dc/ 60 mA to 20 A ac	30 mA to 30 A dc/ 60 mA to 20 A ac	0.1 A to 450 A dc/ 2 A to 300 A ac
77-IV	0.1 A to 100 A dc/ 0.1 A to 70 A ac*	1 A to 400 A dc/ 5 A to 400 A ac	1 A to 1000 A dc/ 5 A to 600 A ac	30 mA to 30 A dc/ 40 mA to 20 A ac	30 mA to 30 A dc/ 40 mA to 20 A ac	0.1 A to 450 A dc/ 0.4 A to 300 A ac
175/177/179	0.11 A to 100 A dc/ 0.3 A to 70 A ac*	1.6 A to 400 A dc/ 30 A to 400 A ac	1.6 A to 1000 A dc/ 30 A to 600 A ac	30 mA to 30 A dc/ 300 mA to 20 A ac	30 mA to 30 A dc/ 300 mA to 20 A ac	0.1 A to 450 A dc/ 3 A to 300 A ac
1577/1587 Insulation Meter	0.1 A to 100 A dc/ 0.3 A to 70 A ac*	1.2 A to 400 A dc/ 30 A to 400 A ac	1.2 A to 1000 A dc/ 30 A to 600 A ac	30 mA to 30 A dc/ 300 mA to 20 A ac	30 mA to 30 A dc/ 300 mA to 20 A ac	0.1 A to 450 A dc/ 3 A to 300 A ac
83-III/83-V/88-V	0.1 A to 100 A dc/ 0.1 A to 70 A ac*	1 A to 400 A dc/ 1 A to 400 A ac	1 A to 1000 A dc/ 1 A to 600 A ac	30 mA to 30 A dc/ 30 mA to 20 A ac	30 mA to 30 A dc/ 30 mA to 20 A ac	0.1 A to 450 A dc/ 0.1 A to 300 A ac
85-III/87-III/87-V	0.1 A to 100 A dc/ 0.2 A to 70 A ac*	1 A to 400 A dc/ 20 A to 400 A ac	1 A to 1000 A dc/ 20 A to 600 A ac	30 mA to 30 A dc/ 200 mA to 20 A ac	30 mA to 30 A dc/ 200 mA to 20 A ac	0.1 A to 450 A dc/ 2 A to 300 A ac
87-IV/89-IV/ 187/189	0.1 A to 100 A dc/ 0.1 A to 70 A ac*	1 A to 400 A dc/ 2.5 A to 400 A ac	1 A to 1000 A dc/ 2.5 A to 600 A ac	30 mA to 30 A dc/ 30 mA to 20 A ac	30 mA to 30 A dc/ 30 mA to 20 A ac	0.1 A to 450 A dc/ 0.25 A to 300 A ac
287/289	0.1 A to 100 A dc/ 0.1 A to 70 A ac*	1 A to 400 A dc/ 1 A to 400 A ac	1 A to 1000 A dc/ 1 A to 600 A ac	30 mA to 30 A dc/ 30 mA to 20 A ac	30 mA to 30 A dc/ 30 mA to 20 A ac	0.1 A to 450 A dc/ 0.1 A to 300 A ac
8060A/8062A DMMs	0.1 A to 100 A dc/ 0.2 A to 70 A ac*	1 A to 400 A dc/ 20 A to 400 A ac	1 A to 1000 A dc/ 20 A to 600 A ac	30 mA to 30 A dc/ 200 mA to 20 A ac	30 mA to 30 A dc/ 200 mA to 20 A ac	0.1 A to 450 A dc/ 2 A to 300 A ac
860 Series Graphical Multimeters	0.1 A to 100 A dc/ 0.3 A to 70 A ac*	1 A to 400 A dc/ 30 A to 400 A ac	1 A to 1000 A dc/ 30 A to 600 A ac	30 mA to 30 A dc/ 300 mA to 20 A ac	30 mA to 30 A dc/ 300 mA to 20 A ac	0.1 A to 450 A dc/ 3 A to 300 A ac
39/41B Power Meter	Usable but will read 10 or 100 times higher	1 A to 400 A ac** Not spec'd for dc	1 A to 600 A ac** Not spec'd for dc	Usable but will read 100 times higher**	Usable but will read 100 times higher	Not spec'd for dc 0.6 A to 300 A ac
9X ScopeMeter Series	0.1 A to 100 A dc/ 0.1 A to 70 A ac	1 A to 400 A dc/ 5 A to 400 A ac**	1 A to 1000 A dc/ 5 A to 600 A ac**	30 mA to 30 A dc/ 50 mA to 20 A ac**	30 mA to 30 A dc/ 50 mA to 20 A ac	0.1 A to 450 A dc/ 0.5 A to 300 A ac
123/124 ScopeMeters	0.1 A to 100 A dc/ 0.25 A to 70 A ac	1 A to 400 A dc/ 25 A to 400 A ac**	1 A to 1000 A dc/ 25 A to 600 A ac**	30 mA to 30 A dc/ 250 mA to 20 A ac**	30 mA to 30 A dc/ 250 mA to 20 A ac	0.1 A to 450 A dc/ 2.5 A to 300 A ac
190 Series Scopemeters	0.1 A to 100 A dc/ 0.1 A to 70 A ac	1 A to 400 A dc/ 5 A to 400 A ac**	1 A to 1000 A dc/ 5 A to 600 A ac**	30 mA to 30 A dc/ 50 mA to 20 A ac**	30 mA to 30 A dc/ 50 mA to 20 A ac	0.1 A to 450 A dc/ 0.5 A to 300 A ac
45 DMM	0.1 A to 100 A dc/ 0.15 A to 70 A ac	1 A to 400 A dc/ 15 A to 400 A ac	1 A to 1000 A dc/ 15 A to 600 A ac	30 mA to 30 A dc 150 mA to 20 A ac	30 mA to 30 A dc 150 mA to 20 A ac	0.1 A to 450 A dc/ 1.5 A to 300 A ac
8808A	0.1 A to 100 A dc/ 0.1 A to 70 A ac*	1 A to 400 A dc/ 2 A to 400 A ac	1 A to 1000 A dc/ 2 A to 600 A ac	30 mA to 30 A dc/ 30 mA to 20 A ac	30 mA to 30 A dc/ 30 mA to 20 A ac	0.1 A to 450 A dc/ 0.2 A to 300 A ac
8845A/8846A	0.1 A to 100 A dc/ 0.1 A to 70 A ac*	1 A to 400 A dc/ 1 A to 400 A ac	1 A to 1000 A dc/ 1 A to 600 A ac	30 mA to 30 A dc/ 30 mA to 20 A ac	30 mA to 30 A dc/ 30 mA to 20 A ac	0.1 A to 450 A dc/ 0.1 A to 300 A ac
705/707	0.1 A to 100 A dc, No ac*	4 A to 400 A dc, No ac	4 A to 1000 A dc, No ac	40 mA to 30 A dc, No ac	40 mA to 30 A dc, No ac	0.4 A to 450 A dc, No ac
715	0.1 A to 100 A dc, No ac*	4 A to 400 A dc, No ac	4 A to 1000 A dc, No ac	40 mA to 30 A dc, No ac	40 mA to 30 A dc, No ac	0.1 A to 450 A dc, No ac
74X Series Process Calibrators	0.1 A to 100 A dc/ 1.1 A to 70 A ac*	1 A to 400 A dc/ 110 A to 400 A ac	1 A to 1000 A dc/ 110 A to 600 A ac	30 mA to 30 A dc/ 1.1 A to 20 A ac	30 mA to 30 A dc/ 1.1 A to 20 A ac	0.1 A to 450 A dc/ 11 A to 300 A ac
787/789 Process Meters	0.1 A to 100 A dc/ 0.2 A to 70 A ac*	1 A to 400 A dc/ 20 A to 400 A ac	1 A to 1000 A dc/ 20 A to 600 A ac	30 mA to 30 A dc/ 200 mA to 20 A ac	3 mA to 30 A dc/ 200 mA to 20 A ac	0.1 A to 450 A dc/ 2 A to 300 A ac

* Requires PM9081 Adapter
** Requires PM9082/001 Adapter
***Only for use with the 430 Series Power Quality Analyzers

AC/DC models

80i-110s

i410

i1010

i310s, i30s and i30 Hall Effect AC/DC Current Clamps
- Especially useful for low current measurements down to 30 milliamps

i310s

i30s

i30

Fluke lights and hangers
Free your hands and shed light on the contact point

LVD1 Volt Light
- Exclusive dual-sensitivity
- Detects voltages from 40 V ac to 300 V ac
- Voltage detector glows blue at 50 Hz to 60 Hz or 2.5 cm to 38 cm (1 in to 5 in) away from source
- Ultra-bright white LED with 100,000 hour bulb life
- AAA battery included

L206 Deluxe LED Hat Light
(hard hat not included)
Attach it to a hard hat, a baseball cap, or even a panel door for all the light you need.
- Three super bright white LEDs—never burn out
- Special hard-hat attachment included
- 40-hour battery life
- Includes three AAA batteries

L210 Probe Light and Probe Extenders
- 8 inch probe extenders fit modular test probes
- Probe and extender length complies with NFPA recommendations
- Bright white LED illuminates contact area
- Probe light fits on extender or test probe

LVD2 Volt Light
- Non-contact ac voltage detector and bright white LED flashlight
- Detects voltage from 90 V to 600 V ac from 1 to 5 inches away
- CAT IV rated, one-year warranty

L215 SureGrip™ Kit with Probe Light and Probe Extenders
- L200 probe light
- TP220 SureGrip test probes
- TL224 SureGrip test leads
- TP280 test probe extenders
- Soft foldable pouch, keeps the entire set together

L205 Mini Hat Light
Rugged, high-intensity Xenon worklight.
- Attaches to a baseball cap
- Includes a hat clip
- Includes two AAA batteries
- Waterproof

TPAK ToolPak™ Magnetic Meter Hanger
- Free both hands to make measurements
- Hang your meter from metallic surfaces like panels and pipes
- Kit includes universal hanger clips (two), hook and loop straps (two lengths), adapter and strong magnet
- Attaches to back of many Fluke meters, including 110, 170, 180, 280 Series, 87V and 83V DMMs, 724, 725 and 789 Process Calibrators, 70 Series III DMMs, 1503, 1507, 1577 and 1587 Insulation Multimeters and 50 Series II Digital Thermometers

For more information, go to **www.fluke.com/accessories**

Specialty accessories and software
Get more out of your multimeter

Genuine Fluke Accessory

FLUKE ®

Stray voltage

SV225
- Eliminates stray voltage due to capacitance between wires in electrical installations
- Compatible with all instruments and test leads that accept standard 4 mm shrouded banana connectors

Pressure and vacuum

PV350 Pressure Vacuum Module
- Digital pressure and vacuum measurements in a single module
- Measures HVAC/R, hydraulic and pneumatic pressures to 350 psig/2413 kPa (usable to 500 psig)
- Measures to 76 cm Hg (29.9 in Hg) vacuum (not intended for measuring microns of vacuum)
- Compatible with most digital multimeters

Fiber optics

FOM Fiber Optic Meter
The Fluke Fiber Optic Meter (FOM) helps you test and maintain fiber optic cable without having to buy a whole new meter. Plug the FOM directly into any DMM with a mV dc funtion and a 10 mW input impedance, and quickly and accurately verify fiber optic cable system loss. Light sources and patch cords sold separately.
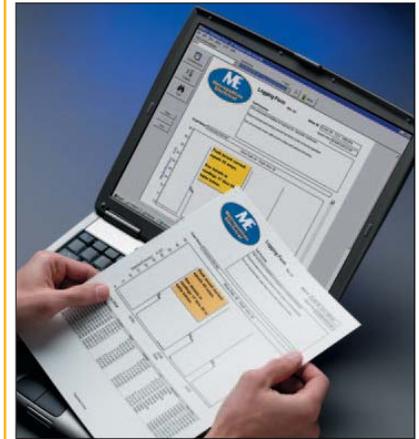
FOS 850 and FOS 850/1300 Fiber Optic Light Sources
A variety of LED light sources allow you to test different cables.

Fuse selection guide

Replacement fuses for Fluke DMMs are available from your distributor. To order direct from Fluke call 1-800-44-FLUKE (U.S.) or email fluke-info@fluke.com.

Model	Fuse Requirements
21-III/75-III/73-III	P/N 871173 630mA 250V fuse P/N 803293 11A 1000V fuse
27 (S/N<7247001)	P/N 871173 630mA 250V fuse P/N 871202 3A 600V fuse P/N 892583 15A 600V fuse
27 (S/N>7247001)	P/N 943121 440mA 1000V fuse P/N 803293 11A 1000V fuse
83/85/87 (S/N>6565000)	P/N 943121 440mA 1000V fuse P/N 803293 11A 1000V fuse
83-III/85-III/87-III 87-IV/89-IV/187/189/287/289/77-III/79-III/23-III/26-III/175/177/179/77-IV/27-II/28-II	P/N 943121 440mA 1000V fuse P/N 803293 11A 1000V fuse
111/112/115/117/233	P/N 803293 11A 1000V fuse
1577/1587	P/N 943121 440mA 1000V fuse
1503/1507	P/N 2279339 315mA 1000V fuse
787/789	P/N 943121 440mA 1000V fuse (Qty 2)

Logging software

FlukeView® Forms
Harness the power of the data logging function on your Fluke Digital Multimeter, Thermometer or ProcessMeter. Log live readings while connected to a PC, or leave your Fluke 289, 789 or 54-II in place to capture up to 1,000 readings for download to a PC.

Choose the model that's right for you:
- **FVF-SC2:** Includes software and cable used with 280 Series DMMs and 789 ProcessMeters, and the 1550B Insulation Tester
- **FVF-SC3:** Includes software and cable used with 45 Bench Meters
- **FVF-SC4:** Includes software and cable used with 8845A and 8846A Multimeters

Go to **www.fluke.com/flukeviewforms** to download the demo.

FlukeView® Forms Basic
An abridged version of FlukeView Forms.
- Available for use with 280 Series DMMs and 789 ProcessMeters, only
- Upgrade to the full FlukeView Forms with FVF-UG
- Compatible with the 280 and 789 series only

Selection Guide	10/11/12/12B	110/111/112	114/115/116/117	20/70 Series	27 II/28 II/27	70/73 III	175/177	179	80 Series III/83V	87/89 IV	87V	233	287/289/187/189	43B	90 Series	120 Series	190 Series	51/52/53/54 II	705/707	715	225/726	741/743	744	787/789	1587	1577
FlukeView Forms Software									•	•	•		•					•*						789		
TPak		•	•		•	•	•	83V	•	•	•	•	•					•				•		789	•	•
PV350 (pressure)	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
FOM (fiber optic)	•	•	•	•	•	•	•	•	•	•	•	•	•	•				•	•		•	•	•			
CO-210	•	•	•	•	•	•	•	•	•	•	•	•	•	•				•	•		•	•	•			

*53 B II, 54 B II only.

FLUKE ®

Join the conversation

We design our products with you in mind. Yeah, we have guys in lab coats, developing and testing our tools in rooms we dare not enter. But our ideas, the things that drive our intense development process, come straight from the job site—from pros like you. You are the voice of Fluke's innovation. Tell us what you think. Visit our social media sites, and get the conversation started. **We're listening.**

www.facebook.com/fluke.corporation

www.twitter.com/flukecorp

www.youtube.com/flukecorporation

More Fluke info online

- **Complete digital catalog**
- **Measurement safety**
- **Newest products**
- **Where to buy**
- **Extended specs**
- **Online Store**
- **How-to information**

www.fluke.com/catalog

Contact us:

United States
General product and sales information: 1–800-44-FLUKE
fluke-info@fluke.com

Fluke Thermal Imagers: 1–800-760-4523 (U.S. only) all other regions 1–425-446-4620

Service and calibration: 1–888-99-FLUKE
Parts: 1–800-526-4731

Canada
General product, sales, service, parts and calibration information: 1–800-36-FLUKE
canada@fluke.com

Australia
General product and sales information: (02) 8850-3333
Parts: (02) 8850-3333
Service and calibration: (02) 9771-9300

Singapore
General product and sales information: (65) 6799-5566
info.asean@fluke.com
Service, parts and calibration: (65) 6799-5588
service.asean@fluke.com

Japan
General product and sales information: +81-3-3434-0181
Service, parts and calibration: +81-3-3434-0188

Other countries: 1+(425) 446-5500

Fluke. *Keeping your world up and running.*®

Fluke Corporation
PO Box 9090,
Everett, WA 98206 U.S.A.

Fluke Europe B.V.
PO Box 1186, 5602 BD
Eindhoven, The Netherlands

For more information call:
In the U.S.A. (800) 443-5853 or Fax (425) 446-5116
In Europe/M-East/Africa +31 (0) 40 2675 200 or Fax +31 (0) 40 2675 222
In Canada (800)-36-FLUKE or Fax (905) 890-6866
From other countries +1 (425) 446-5500 or Fax +1 (425) 446-5116
Web access: http://www.fluke.com