FLUKE®

Fluke digital multimeters

Solutions for every need

How to choose the best DMM for your job

Choosing the right digital multimeter (DMM) requires thinking about what you'll be using it for. Evaluate your basic measurement needs and job requirements and then take a look at special features/functions built into many multimeters. Think about whether you need to do basic measurements, or if you need the more advanced troubleshooting options offered by special features.

Factors to consider:

- Your work environment (voltage level, types of equipment, types of measurements, applications)
- Specialty features/functions (capacitance, frequency, temperature, non-contact voltage, low impedance mode, min/max record, data logging, trending)
- Resolution and accuracy (6,000, 20,000, or 50,000 count resolution)

Safety

The increased occurrence and levels of transient overvoltages in today's power systems have given rise to more stringent safety standards for electrical measurement equipment. Transients that ride on top of power sources (mains, feeder or branch circuits) can trigger a sequence of events that may lead to serious injury. Test equipment must be designed to protect people working in this high-voltage, high-current environment.

Measurement categories at a glance

Measurement category	In brief	Examples
CAT IV	Three-phase at utility connection, any outdoor mains conductors. Expected short circuit current above 50 kA.	• Refers to the "origin of installation," i.e., where low-voltage connection is made to utility power • Electricity meters, primary overcurrent protection equipment • Outside and service entrance, service drop from pole to building, run between meter and panel • Overhead line to detached building, underground line to well pump
CAT III	Three-phase distribution, including single-phase commercial lighting. Expected short circuit current above 10 kA up to 50 kA.	• Equipment in fixed installations, such as switchgear and polyphase motors • Bus and feeder in industrial plants • Feeders and short branch circuits, distribution panel devices • Lighting systems in larger buildings • Appliance outlets with short connections to service entrance
CAT II	Single and three-phase receptacle connected loads. Expected short circuit current up to 10 kA.	• Appliance, portable tools, and other household and similar loads • Outlet and long branch circuits
0 (non-CAT rated)	Other circuits not directly connected to MAINS	• Protected electronic equipment • Equipment connected to (source) circuits in which measures are taken to limit transient overvoltages to an appropriately low level – Telecommunication circuits – Battery sourced circuits – Generator sourced auxiliary circuits, etc. • Any high-voltage, low-energy source derived from a high-winding resistance transformer, such as the high-voltage section of a copier

The largest system of software and wireless test tools in the world.

Download on the App Store

ANDROID APP ON Google play

Wirelessly relay data with Fluke Connect® meters

Meters can be used as a stand-alone tool or as part of the Fluke Connect system

ir3000 FC Connector

Adds the power of the Fluke Connect® mobile app to your measurements.

- Fits over the IR port of your existing Fluke tools (289, 287 or 789)
- Enables you to graph, save, and share readings with your team from your smart phone

a3000 FC Wireless AC Current Clamp Meter

- Measure up to 400 A ac true-rms
- Inrush function
- Logging function for recording and saving up to 65,000 readings

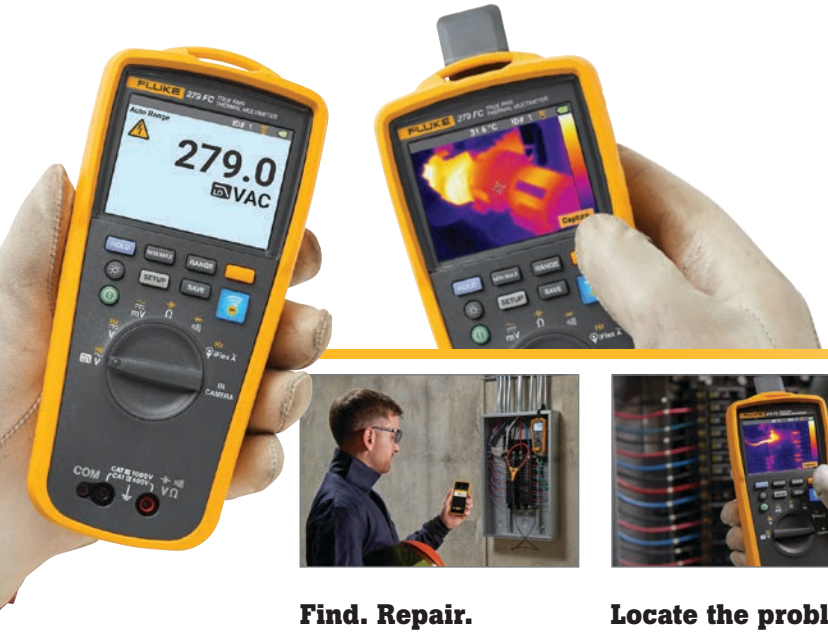
a3001 FC Wireless iFlex AC Current Clamp Meter

- Measure up to 2500 A ac with a true-rms flexible current meter
- Record over time (up to 65,000 readings) to monitor circuit load changes for an hour, a shift or a week
- Inrush function

a3003 FC Wireless DC 2000 A Current Meter

- Measure up to 2000 A dc
- Large jaw size (64 mm) for measuring large or parallel current conductors
- Logging function for recording and saving up to 65,000 readings

Learn more at flukeconnect.com



Fluke 279 FC Thermal Multimeter

Find. Repair. Validate. Report.

The 279 FC is a full-featured digital multimeter with integrated thermal imaging and is designed to increase your productivity and confidence. The thermal multimeter helps you find, repair, validate, and report many electrical issues quickly so that you are confident problems are solved.

Locate the problem immediately

Thermal imaging multimeters are a first-line troubleshooting tool for electrical equipment that can check hot spots on high-voltage equipment and transformers, detect heating of fuses, wires, insulators, connectors, splices and switches. Scanning with the 279 FC's thermal imager reveals many electrical issues rapidly and from a safe distance. By combining two tools into one, the thermal multimeter lightens the load and increases productivity.

Expanded functionality

Compatible with iFlex® (a flexible current clamp) to expand your measurement capabilities and get into tight, hard to reach spaces for current measurement (up to 2500 A ac). The large full-color LCD screen makes for easier and clearer viewing of images and readings. The 10 hour+ rechargeable battery keeps you going all day long under normal conditions.

Communicate your results

With built-in Fluke Connect®, transmit results wirelessly to a smartphone and save time on reporting to validate work is complete. Troubleshoot better by instantly trending and monitoring measurements live on your smartphone screen. Create and email reports right from the field.

FLUKE CONNECT®

a3004 FC Wireless DC 4–20 mA Current Meter

- Measure 4 to 20 mA dc signals without breaking the loop
- Logging function for recording and saving up to 65,000 readings

v3000 FC Wireless AC Voltage Meter

- Measure up to 1000 V true-rms ac
- Logging function for recording and saving up to 65,000 readings

v3001 FC Wireless DC Voltage Meter

- Measure up to 1000 V dc
- Logging function for recording and saving up to 65,000 readings

t3000 FC Wireless Temperature Meter

- Measure –200 °C to 1372 °C with k-type thermocouple
- Logging function for recording and saving up to 65,000 readings

Meters designed for the way you work

	ADVANCED METERS		GENERAL PURPOSE		
					
	289/287	**87V**	**3000 FC**	**233**	**179**
Basic features					
Counts	50000	20000	6000	6000	6000
True-rms readings	ac+dc	ac	ac	ac	ac
Basic dc accuracy	0.025 %	0.05 %	0.09 %	0.25 %	0.09 %
Wide bandwidth	100 kHz	20 kHz			
Auto/manual ranging	• / •	• / •	• / •	• / •	• / •
Digits	4-1/2	4-1/2	3-1/2	3-1/2	3-1/2
ATEX II 2G Eex ia IICT4 safety rating Zone 1 and Zone 2					
Measurements					
Voltage ac/dc	1000 V	1000V	1000 V	1000 V	1000 V
Current ac/dc	10 A	10 A	400 mA	10 A	10 A
Resistance	500 MΩ	50 MΩ	50 MΩ	40 MΩ	50 MΩ
Frequency	1 MHz	200 kHz	100 kHz	50 kHz	100 kHz
Capacitance	100,000 µF	10,000 µF	10,000 µF	10,000 µF	10,000 µF
Temperature	(+) 1350 °C	(+) 1090 °C		(+) 400 °C	(+) 400 °C
Conductance / dB	50 nS / 60 dB	50 nS / -			
Duty cycle / pulse width	• / •	• / -			
Continuity / diode test	•	•	•	•	•
Motor Drive (ASD) Measurements	• (289)	•			
VoltAlert™, non-contact voltage detection					
VCHEK™					
LoZ: low input impedance	• (289)				
Lo ohms	• (289)				
Microamps	•	•			
Display					
Fluke Connect®-enabled	•*		•		
Dot matrix display	•		•		
Dual display	•		•		
Analog bargraph	•	•			•
Backlight	Two level	Two level	•	•	•
Graphical trend display	•				
Diagnostics and data					
Min/Max recording / with time stamp	• / •	• / -	• / -	• / -	• / -
Fast min/max	250 µs	250 µs			
Display Hold/Auto (Touch) Hold	• / •	• / •	• / •	• / •	• / •
Relative reference	•	•			
Stand alone logging	•				
Trend capture	•				
Readings memories	10,000		(With FC app)		
USB interface	•				
Other features					
Automatic selection, ac/dc volts					
Overmolded case, integrated holster	•		•	•	•
Removable holster		•			
Infrared camera resolution					
Infrared camera Range					
iFlex compatibility			(With separate modules)		
Insulation test voltages					
Pi/DAR timed ratio test					
Completely sealed and watertight					
Operating temperature range	-20 °C, +55 °C	-20 °C, +55 °C	-10 °C, +50 °C	-10 °C, +50 °C	-10 °C, +50 °C
Warranty and electrical safety					
Warranty (years)	Lifetime	Lifetime	3	3	Lifetime
Input alert	•	•			
Dangerous voltage indication	•	•	•	•	•
IP rating		IP 30	IP 54		
EN61010-1 CAT III	1000 V	1000 V	1000 V	1000 V	1000 V
EN61010-1 CAT IV	600 V	600 V	600 V	600 V	600 V

* ir3000 FC Adapter required-sold separately

FLUKE®

	COMPACT METERS			SPECIALTY METERS			
							
	117/115	**116**	**114/113**	**279 FC**	**1587 FC**	**28 II / 28 II Ex**	**27 II**
Basic features							
Counts	6000	6000	6000	6000	6000	20000	6000
True-rms readings	ac	ac	ac	ac	ac	ac	
Basic dc accuracy	0.5 %	0.5 %	0.5 %	0.09 %	0.09 %	0.05 %	0.1 %
Wide bandwidth					5 kHz	20 kHz	30 kHz
Auto / manual ranging	• / •	• / •	• / •	• / •	• / •	• / •	• / •
Digits	3-1/2	3-1/2	3-1/2	3-1/2	4-1/2	3-1/2 / 4-1/2	3-1/2
ATEX II 2G Eex ia IICT4 safety rating Zone 1 and Zone 2						28 II Ex	
Measurements							
Voltage ac/dc	600 V	600 V	600 V	1000 V	1000V	1000 V	1000 V
Current ac/dc	10 A	600 µA		2500 A ac (with iFlex)	400 mA	10 A	10 A
Resistance	40 MΩ	40 MΩ	40 MΩ	50 MΩ	50 MΩ	50 MΩ	50 MΩ
Frequency	100 kHz	100 kHz		100 kHz	100 kHz	200 kHz	200 kHz
Capacitance	10,000 µF	10,000 µF		10,000 µF	10,000 µF	10,000 µF	10,000 µF
Temperature		(+) 400 °C		Infrared Camera -10 °C to 200°C	(+) 537 °C	(+) 1090 °C	
Conductance / dB						60 nS / -	60 nS / -
Duty cycle / pulse width						• / -	• / -
Continuity / diode test	•	•	•	•	•	•	•
Motor Drive (ASD) Measurements				•	•	•	
VoltAlert™, Non-contact voltage detection	• (117)						
VCHEK™			• (113)				
LoZ: low input impedance	• (117)	•	•				
Lo ohms							
Microamps		•			•	•	•
Display							
Fluke Connect®-enabled				•			
Dot matrix display				•			
Dual display				•			
Analog bargraph	•	•	•			•	•
Backlight	•	•	•	•	•	Two level	Two level
Graphical trend display							
Diagnostics and data							
Min/Max recording / with time stamp	• / -	• / -	• / -	• / -	• / -	• / -	• / -
Fast min/max						250 µs	
Display Hold/Auto (Touch) Hold	• / -	• / -	• / -	• / •	• / •	• / •	• / •
Relative reference						•	•
Stand alone logging							
Trend capture							
Readings memories				(With FC app)	(With FC app)		
USB interface				•			
Other features							
Automatic selection, ac/dc volts	• (117)	•	•				
Overmolded case, integrated holster							
Removable holster	•	•	•	•	•	•	•
Infrared camera resolution				80 x 60			
Infrared camera Range				-10 °C, +200 °C			
iFlex compatibility				•			
Insulation test voltages					50 V, 100 V, 250 V, 500 V, 1000 V		
Pi/DAR timed ratio test					•		
Completely sealed and watertight						•	•
Operating temperature range	-10 °C, +50 °C	-10 °C, +50 °C	-10 °C, +50 °C	-10 °C, +50 °C	-20 °C, +55 °C	-40 °C, +55 °C / -15 °C, +50 °C	-40 °C, +55 °C
Warranty and electrical safety							
Warranty (years)	3	3	3	3	3	Lifetime / 3	Lifetime
Input alert					•	•	•
Dangerous voltage indication	•	•	•	•	•	•	•
IP rating	IP 42	IP 42	IP 42	IP 40	IP 40	IP 67	IP 67
EN61010-1 CAT III	600 V	600 V	600 V	1000 V	1000 V	1000 V	1000 V
EN61010-1 CAT IV			600 V (113)	600 V	600 V	600 V	600 V

Digital multimeter selection chart

Fluke 289

Fluke 287

Fluke 87V

Advanced meters

Best for
Advanced industrial trouble–shooting, including data logging and graphing intermittent problems.

Logging
For unattended monitoring of signals over time, to detect intermittent problems.

Graphing
View logged values graphically in the field right on the meter, without a PC.

Working on VSDs
Take accurate voltage, current and frequency measurements on the output side of the drive at either the drive itself or the motor terminals.

Testing motor windings or contact resistance
Allows testing of resistance up to 50 ohms with one milliohm (0.001 ohm) resolution.

Best for
Advanced electronic applications, including data logging and graphing intermittent problems.

Logging
For unattended monitoring of signals over time, and characterize device performance.

Graphing
View logged values graphically in the field right on the meter, without a PC.

Monitoring two parameters at the same time
Dual display allows for monitoring of two selectable parameters.

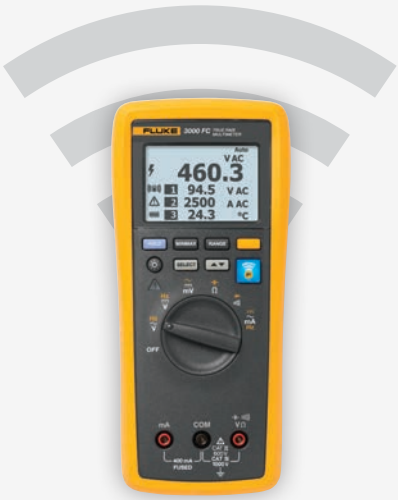
Performance testing
Testing the frequency response of amplifiers and audio transmission line.

Best for
Industrial troubleshooting.

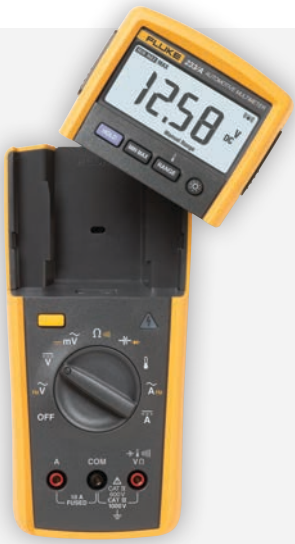
Working on VSDs
Take accurate voltage, current and frequency measurements on the output side of the drive at either the drive itself or at the motor terminals.

Industrial troubleshooting
All of the resolution and accuracy you need to solve more problems on motor drives, in–plant automation, power distribution, and electromechanical equipment.

Checking power quality
Capture glitches and spikes as short as 250 µs. Identify irregular signals.



Fluke 3000 FC



Fluke 233

Fluke 179

General purpose meters

Best for
Fluke FC wireless test tools work together to help you troubleshoot faster.

Work faster, safer and easier with FC wireless test tools
The 3000 FC Multimeter displays the meter measurement, plus readings from up to three wireless modules, connect to your smart phone to see reading directly on your phone.

Build the system as your needs grow
Start with the multimeter and future proof your investment.

Best for
Remote display digital multimeter.

Take measurements in hard to reach places.
With its removable display, you have the flexibility to take measurements in hard to reach places or in areas with restricted access. You can be in two places at once and reduce the risk of arc flash by separating yourself from hazardous measurement situations.

Work more productively
Now one person can complete a test that would have required two people using ordinary test tools.

Best for
Every day use requiring true-rms, accurate, rugged meter.

Industrial troubleshooting
Applications requiring exceptional ease-of-use, ruggedness and reliability.

Electrical maintenance and troubleshooting
Variety of commercial electrical troubleshooting, installation and maintenance.

Temperature measurements
Built-in thermometer conveniently allows you to take temperature readings without having to carry a separate instrument.

Digital multimeter selection chart

Fluke 117

Fluke 116

Fluke 115

Fluke 113

Compact meters

Best for
Wide variety of electrical work.

Electrical maintenance troubleshooting
When you need to eliminate false or "ghost" voltages or perform continuity, connection or basic wiring checks.

Non-contact voltage detection
Integrated non-contact voltage detection simplifies many tasks.

Best for
HVAC trouble-shooting.

Residential HVAC maintenance
Lower voltage HVAC residential maintenance, installation and troubleshooting.

Temperature and microamp measurements
Troubleshooting problems with HVAC equipment and flame sensors.

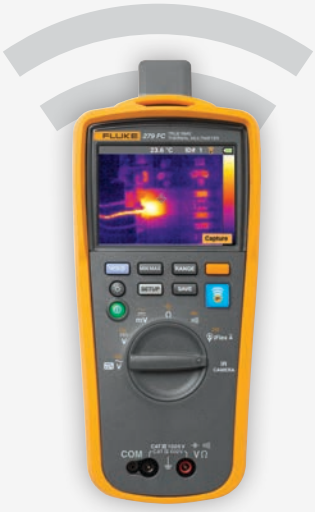
Best for
Electronic and field service applications.

Electronic troubleshooting
Troubleshoot a wide variety of measurement parameters, including frequency and capacitance.

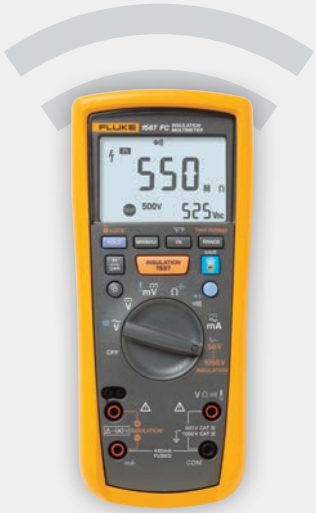
Best for
Utility applications involving basic electrical tests.

Revenue meter tests:
Involving meter sets and reconnects, capacitor checks, detection of absence or presence of voltage, and for continuity, connections or basic wiring checks.

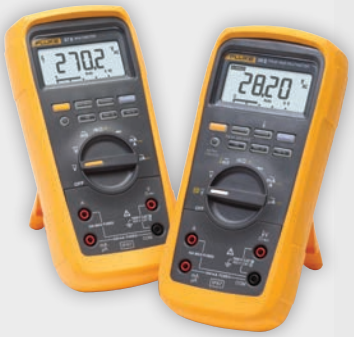
Simultaneous voltage and continuity checks
Check LoZ low impedance function allows users to check voltage and continuity simultaneously.



Fluke 279 FC



Fluke 1587 FC



Fluke 28 II/27 II

Fluke 28 II Ex

Specialty meters

Best for
First-line troubleshooting.

Helping you find, repair, validate and report on electrical issues quickly, gives you the confidence that the problem has been solved.

Locate the problem immediately
Checking for hotspots on high voltage equipment and transforming and motors.

Increased productivity
Use the thermal imager to scan for problems and then use the digital multimeter further troubleshoot.

Preventive maintenance simplified, rework eliminated
Save time and improve the reliability of your maintenance data by wirelessly syncing measurements directly to an asset record or work order using the Fluke Connect® system.

Best for
Troubleshooting and preventative maintenance around motors, generators, and switch gear.

Insulations tests:
The insulation of electrical power systems can be tested for system performance, system safety, system reliability and as part of asset management.

Moisture tests:
Carrying out PI/DAR timed ratio tests with TrendIt™ graphs to identifies moisture and contaminated insulation problems.

Working on VSDs
Take accurate voltage, current and frequency measurements on the output side of the drive at either the drive itself or the motor terminals.

Best for
Harsh environments requiring dustproof and waterproof test equipment.

Industrial trouble-shooting for indoor and outdoor harsh environments
Dustproof, waterproof, shockproof multimeter designed to withstand the toughest environ-ments.

Working on variable speed drives (VSDs)
Take accurate voltage, current and frequency measurements on the output side of the drive at either the drive itself or at the motor terminals. (28 II only)

Best for
Industrial troubleshooting in explosive environments.

Safety and compliance
The Fluke 28 II Ex is an intrinsically safe digital multimeter designed for use in dangerous or explosive atmospheres.

Agency approvals
IECEx Ex ia IIC T4 Gb, Ex ia IIIC T130 °C Db, I M1 Ex ia I Ma.

Industrial troubleshooting
Completely sealed, IP67 rated case; Withstands drops up to 10 feet or 3 meters (with holster); dustproof per IEC60529 IP6x; waterproof per IEC60529 IPx7; meets IEC Overvoltage Electrical Safety Standard No. 61010-1:2001.

FLUKE®

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

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