Clamp Meters with innovative features that fit the way you work

Fluke 330 Series Clamp Meters
Five models offer an impressive array of innovative features with current ranges up to 1000 A. Choose the model that matches the jobs you do:

- Large, backlit display (on most models) is easy to see
- Auto shut-off maximizes battery life so the meter works when you need it
- Inrush current function (on most models) for measuring starting current for motors, lighting, etc.
- Small body and jaws fit perfectly in your hand and into tight places
- Improved low current measurement accuracy from new microprocessor technology
- Meter controls are positioned so current measurements can be done with one hand
- Handy display hold keeps measurements on the display
- Backed by Fluke technical phone support, repair, parts and calibration service
- Three-year warranty

Fluke 320 Series
Clamp Meters
Now everyone on your crew can have a Fluke Clamp Meter. Two smaller sized models offer accurate low current measurements, continuity test function and Fluke reliability. Two-year warranty.

New!

LVD1
Combines a bright LED light and dual sensitivity volt detection in one convenient, compact design. Detects voltage from 40 V to 300 V ac. Flashlight has bright white LED and uses one AAA battery.

H5 Holster
Rugged holster with built-in pocket and velcro flap for test lead storage. Convenient belt loop with snap. Recommended for the 330 Series Clamp Meters.

Electrical testers for basic measurements

Fluke T5-600 and T5-1000
A great frontline troubleshooting tool
Electrical tester for continuity, ohms, ac amps and 600 (model T5-600) or 1000 (model T5-1000) volts ac/dc. New Openjaw™ technology for up to 100 amps ac, with 0.1 amp resolution. Optional holsters available. Two-year warranty.

Fluke T3 Tester
A safer alternative to solenoid testers
Easy-to-use, economical, two-pole tester with 7-level LED indicator for ac and dc voltage and continuity. Auto-on light lets you know it’s working and automatically turns off after eight minutes. Test leads and probes included. Optional holster available. One year warranty.

Fluke 7-600
For fast, accurate tests of electrical power, automatic readings of ac and dc voltage, and ohms. Two-year warranty.

Fluke VoltAlert™ Voltage Detectors
Pocket-sized, non-contact ac voltage detectors glow red when the tip is placed on an outlet or conductor if voltage is present. Available in two voltage levels: the Fluke 1AC for 90 V ac to 600 V ac, and the 1LAC for 24 V ac to 90 V ac.

L520A Leather
Tester Case
Oiled, top grain cowhide case with large belt loop holds Fluke T3 electrical testers. Internal size (H x L x W) 44 mm x 288 mm x 50 mm (1.75” x 9” x 2”).

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Belt loop holster designed for carrying the T3 and T5 electrical testers.

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Fluke T3 Starter Kit
For those who already own a T3, kit includes a case, TP220 test probes and AC285 large alligator clips. Probes and clips rated to 1000 V CAT III, 600 V CAT IV.
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T5 Starter Kit
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Fluke 333 334 335 336 337
Backlight ••••
Amps AC 400.0 600.0 600.0 600.0 999.9
Amps DC 600.0 999.9
TRMS •••
Volts 600.0 600.0 600.0 600.0 600.0
AC & DC Basic current 2% 2% 2% 2% 2% accuracy Resistance (Ohms) 600 600 600/6K 600/6K 600/6K Continuity beeper • • • • • Frequency Hz 60/60
MIN/MAX • capture
Inrush ••••
DC zero •• button
Jaw size 1.2"/30 mm 1.2"/30 mm 1.2"/30 mm 1.7"/43 mm 1.7"/43 mm
Maximum wire size **
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The new Fluke 87V Industrial True-rms Multimeter with Temperature

**Versatile meters for field service**

This meter has the features needed to find electrical problems:

- **Wide 1000 V measurement range**
- **True-rms for precise measurements on distorted signals**
- **Resistance, continuity, frequency, and capacitance**
- **Built-in thermometer**
- **Backlight for work in dim areas**
- **Min/Max to record signal fluctuations**

Significant improvements over Fluke’s original 70 Series include:

- **True-rms**
- **More measurement functions**
- **Conformance to the latest safety standards**
- **20% larger display**

The causes of this discrepancy are bandwidth and shielding. Many of today’s true-rms digital multimeters have bandwidths out to 20 kHz or more. So they respond not only to the fundamental component, which is what the meter really responds to, but also to all of the high-frequency components generated by the pwm drive. And if the DMM isn’t shielded for high-frequency noise, the drive controller’s high noise levels make the measurement discrepancies even more extreme.

With the bandwidth and shielding issues combined, many true-rms meters will display readings as much as 20 to 30% higher than what the drive controller is indicating. These meters may read frequencies on the output side of the ASD in kilohertz: a thousand times higher than the frequency that matters to the motor.

The Fluke 87V: push-button solution

The new Fluke 87V solves such problems with a button-controlled filter that enables the 87V to precisely measure voltage and frequency on ASDs.

Until now, there hasn’t been a ‘multimeter on the market able to accurately measure adjustable-speed ac motor drives. ‘Technicians had to carry a costly oscilloscope, rely on the voltage and frequency readings calculated by the drive itself, or guess. But a new Fluke digital multimeter (DMM), the 87V, incorporates a selectable low pass filter that delivers accurate drive output measurements with the push of a button.

ASDs: useful, but tough to measure

Adjustable-speed drives (ASDs) deliver big benefits for industry. They save energy, enable more precise process control and help motors and equipment last longer. But the pulse width modulated (pwm) ac signals from ASDs contain electrical noise that “blows the minds” of ordinary true-rms DMMs, producing wildly inaccurate readings.

In the past, this left the troubleshooter with few good choices. If they didn’t have a scope, what they would have to do is take a look on the drive, and just hope that its voltage reading is correct,” says Rockwell Automation’s Rick Hoadley, Technical Program Manager, Allen-Bradley Engineered Drives.

“Those are two parameters which are critical for operating a motor properly,” says Hoadley. “Because, for a motor to work right, it has to have the right volts-per-hertz ratio. If you’re low in the volts-per-hertz, you’re going to be in low in the torque available out of the motor. And if you’re high on the volts-per-hertz, that means you’re likely saturating the motor, and that could be a reason why the motor’s running hot.”

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**Marketing:** Because the ASD output voltage value is calculated, and not an actual reading, the technician could not rule out problems with the ASD itself. In addition, because a motor could be hundreds of feet distant, the voltage at the motor could be significantly different from the reading shown by the ASD.

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The new 87V Industrial True-rms Multimeter with Temperature

The new 87V offers more problem-solving power, safety, and convenience than the classic 87. The 87V has improved measurement functions to solve more problems even on motor drives.

Features include:

- Unique function for accurate voltage and frequency measurements
- True-rms measurement of distorted signals
- Measures capacitance to 10,000 µF
- Peak/Min/Max captures spikes as short as 250 µS
- More safety category safety standards
- Large digit display with bright, two-level backlight makes the 87V easier to read
- Limited lifetime warranty

The new 87V Industrial True-rms Multimeter

This meter has the features needed to find electrical problems.

- Wide 1000 V measurement range
- True-rms for precise measurements on distorted signals
- Resistance, continuity, frequency, and capacitance
- Built-in thermometer (thermocouple included)
- Backlight for work in dim areas
- Min/Max to record signal fluctuations

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- More measurement functions
- Conformance to the latest safety standards
- 20% larger display

The new Fluke 87V cuts through the clutter to accurately measure adjustable-speed motor drives.

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ADs: useful, but tough to measure

Adjustable-speed drives (ADs) deliver big benefits for industry. They save energy, enable more precise process control and help motor and equipment last longer. But the pulse width modulated (PWM) ac signals from ADs contain electrical noise that "blows the minds" of ordinary true-rms DMMs, producing wildly inaccurate readings.

The causes of this discrepancy are bandwidth and shielding. Many of today’s true-rms digital multimeters have bandwidths out to 20 kHz or more. So they respond not only to the fundamental component, which is what the motor really responds to, but also to all of the high-frequency components generated by the PWM drive. And if the DMM isn’t shielded for high-frequency noise, the drive controller’s high noise levels make the measurement discrepancies even more extreme.

With the bandwidth and shielding issues combined, many true-rms meters will display readings (as much as 20 to 30% higher than what the drive controller is indicating). These meters may read frequencies on the output side of the AD in kilohertz: a thousand times higher than the frequency that matters to the motor.

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The new Fluke 87V is designed to overcome the problem of measuring ADs. It incorporates a selectable low pass filter that delivers accurate drive output measurements with the push of a button.
**Power quality test tools**

**Power quality case study**

Three phase motor failure

For three years in a row, a particularly large three-phase motor would fail twice a year. Neither the electrical contractor nor the motor manufacturer could fix the problem. So, the facility manager asked a consultant to perform a complete power quality survey of the motor’s electrical distribution system.

The consultant connected his handheld Fluke 434 three-phase power quality analyzer to the circuit supplying energy to the motor. First, he punched a few keys to match the instrument setup to the circuit.

The Fluke 434 and 433 three-phase power quality analyzers help you locate, predict and troubleshoot problems in power distribution systems.

- **Complete three-phase troubleshooting tool:** measure everything with unbeatable resolution!
- **AutoTrend:** don’t waste time setting up recordings!
- **SystemMonitor:** quickly check system performance
- **Automatic transient display:** don’t miss an event
- **Four current and four voltage channels**
- **Highest safety rating:** meets 600 V CAT IV safety standards
- **Fast and easy to use:** menu-driven interface
- **Two models to choose from**

Fluke 43B Power Quality Analyzer

- **The Fluke 43B Power Quality Analyzer** performs the measurements you need to maintain power systems, troubleshoot power problems and diagnose equipment failures. All in a rugged hand-held package.
- **Combines capabilities of power quality analyzer, multimeter and scope**
- **20 measurement memories to save/recall screens and data with cursor readings**
- **Calculates three-phase power on balanced loads, from a single-phase measurement**
- **Measure power consumption, harmonics, and catch intermittents**
- **Toggles through the most commonly used power quality modes with a single keystroke**
- **Monitoring functions help track intermittent problems and power system performance**
- **FlukeView® software can log harmonics and other readings over time**
- **FlukeView software provides complete harmonics profile up to the 51st harmonic**
- **Three-year warranty**

Measurements taken

The consultant connected his handheld Fluke 434 three-phase power quality analyzer to the circuit supplying energy to the motor. First, he punched a few keys to match the instrument setup to the circuit.

Then, using the SCOPE display, he verified connection, voltage and current waveforms, and checked the phase sequence for accurate data collection.

He continued his power quality survey by using Volts/Amps/Hertz function to evaluate voltage and current levels. There it was – a balance problem between phases.

Then, he captured the inrush and start-up current, using the Inrush Currents function to evaluate the starting characteristics of the motor and determine if it was functioning within the manufacturer’s specifications.

Analysis

By comparing all of that recorded data against the manufacturer’s specifications and industry standards, the consultant could see that excessive voltage and current unbalance values were causing the problem. Moreover, an unbalance was causing a phase current value in excess of the rated FLA (Full Load Amperage) of the motor, causing the motor to fail.

Looking into the details he found that the current unbalance was caused by a voltage unbalance. The consultant traced the voltage unbalance to a set of equipment installed three years ago. It turned out that all of the internal single-phase loads were connected to the same phase. That last new equipment installation caused such a significant power system voltage unbalance that it created a current unbalance at the motor, increasing the operating temperature of the conductors and motor windings to beyond the limits.

The perfect solution

To resolve the situation, the consultant balanced the internal single-phase loads between the three phases, reducing the overall voltage unbalance and thus the current unbalance at the motor. In so doing, he also reduced the elevated phase current value and operating temperature at the motor.

This was a classic example of unnecessary motor repair and downtime costs. To prevent further problems, the consultant recommended testing power quality before and after every new equipment installation. Of course, having seen how easy the 434 was to use, the facility manager was already weighing the advantages of having a portable analyzer on site.

Fluke 430 Series three-phase power quality analyzers

Pinpoint power quality problems faster, safer and in greater detail!
The Fluke 434B Power Quality Analyzer performs the measurements you need to maintain power systems, troubleshoot power problems and diagnose equipment failures in a rugged handheld package.

- Combines capabilities of power quality analyzer, multimeter and scope
- 20 measurement memories to save/recall screens and data with cursor readings
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AutoTrend: don't waste time setting up

SystemMonitor: quickly check system

Saves time setting up

Four current and four voltage channels

Complete three-phase troubleshooting tool: measure everything with unbeatable resolution!

Trending automatically records all parameters in the background. Toggle between data and trend view and use cursors and zoom to analyze measurements without interrupting the recording.

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Switching to the Unbalance display, he verified connections, voltage and current waveforms, and checked the phase sequence for accurate data collection.

The consultant traced the voltage unbalance to a set of equipment installed three years ago. It turned out that all of the internal single-phase loads were connected to the same phase. That last new equipment installation caused such a significant power system voltage unbalance that it created a current unbalance at the motor, increasing the operating temperature of the conductors and motor windings to beyond the limits.

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Power quality case study

Three phase motor failure

Three-phase power quality analyzers

Pinpoint power quality problems faster, safer and in greater detail

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- AutoTrend: don’t waste time setting up recordings!
- SystemMonitor: quickly check system
- Four current and four voltage channels
- Highest safety rating: meets 600 V CAT IV
- Trending automatically records all parameters in the background. Toggle between data and trend view and use cursors and zoom to analyze measurements without interrupting the recording.
- Three-year warranty
- FlukeView software provides complete three-phase troubleshooting tool: measure everything with unbeatable resolution!
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Then, the consultant connected his handheld Fluke 434 three-phase power quality analyzer to the circuit supplying energy to the motor. First, he punched a few keys to match the instrument setup to the circuit.

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This was a classic example of unnecessary motor repair and downtime costs. To prevent further problems, the consultant recommended testing power quality before and after every new equipment installation. Of course, having seen how easy the 434 was to use, the facility manager was already weighing the advantages of having a portable analyzer on site.

Measurements taken

The consultant connected his handheld Fluke 434 three-phase power quality analyzer to the circuit supplying energy to the motor. First, he punched a few keys to match the instrument setup to the circuit.

Then, he captured the inrush and start-up current, using the Inrush Currents function to evaluate the starting characteristics of the motor and determine if it was functioning within the manufacturer’s specifications.

He continued his power quality survey by using Volts/Amps/Hertz function to evaluate voltage and current levels. There it was – a balance problem between phases.

Switching to the Unbalance display, he verified connections, voltage and current waveforms, and checked the phase sequence for accurate data collection.

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The Fluke 1520 and 1550B MegOhmMeters

Fluke 1520 MegOhmMeter
- Automatic calculation of Dielectric Absorption and Polarization Index with no setup
- Standard test voltages of 250 V, 500 V, 1000 V, 2500 V, and 6000 V
- Additional test voltages available in 10 volt steps from 250 to 1000 volts, 100 volt steps from 1000 to 5000 volts.
- Large digital/analog LCD delivers detailed measurement data
- Automatically stores test data in up to 60 locations that user can name for quick recall later
- High-capacity rechargeable batteries
- Ramp function (0-5000 V dc) for breakdown testing
- Warning voltage function alerts the user that line voltage is present and gives the voltage reading up to 600 V ac or dc
- Guard system eliminates the effect of surface leakage current on high-resistance measurements
- Timer for dielectric absorption and polarization index test
- Measures up to 1 Tera-ohm
- Includes Quicklink 1550B Software and Optical Interface cable for downloading to a Windows® PC
- Measures up to 1 Tera-ohm
- Includes heavy-duty leads, probes and alligator clips
- Two-year warranty

Recommended accessories
- SH100 Shoulder Strap
- TPAK Meter Hanging Kit
- C43 Software

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Insulation resistance testing

One of the most important reasons for insulation testing is to protect and prolong the life of electrical systems and motors. Over the years, electrical systems are exposed to environmental factors such as dirt, grease, temperature, stress, and vibration. These conditions can lead to insulation failure, resulting in loss of production or even fires. Periodic maintenance tests can provide valuable information about the state of deterioration and help in predicting possible failure of the system. Correcting problems will not result only in a trouble-free system, but will also extend the operating life for a variety of equipment. The following are some commonly applied 3C test voltages and maintenance tests performed.

Spot tests:
For spot tests, the MegOhmMeter is connected directly across the equipment being tested and a test voltage is applied for about 60 seconds. When testing on good equipment, you should notice a steady increase in insulation resistance due to decrease in capacitive and absorption currents. Spot tests are one of the quickest tests to perform, but may take longer on equipment with high insulation capacitance and also require taking temperature and humidity into account (tests should be taken above the dew point at standard temperature, about 30 °C/86 ºF).

Time-resistance testing
The time resistance test is independent of equipment size and temperature. It compares the absorption characteristics of contaminated insulation with the absorption characteristics of good insulation. The test voltage is applied over a 1 minute period, with the data recorded every 10 seconds for the first minute and then every minute thereafter. The interpretation of the slope of the plotted graph will determine the condition of the insulation (see figure 3). A continuous increase in graphed resistance indicates good insulation. A flat or downward curve indicates cracked or contaminated insulation.

Polarization index/dielectric absorption ratio
Conducting time-resistance tests and plotting graphs is one of the most effective insulation tests but it is also one of the most time consuming. A quicker method for determining the quality of insulation is to use the polarization index (PI) test. It is particularly valuable for uncovering moisture and oil ingress that have a flattening effect on the PI curve, causing leakage current and eventually shortened windings. The polarization index is the ratio of two time-resistance readings: one is taken after 1 minute and the other is taken after 10 minutes. With good insulation, the insulation resistance will start toow and get higher as the capacitive leakage current and absorption current get smaller. Results are obtained by dividing the 10 minute test value by the one-minute test value. A low polarization index usually indicates problems with the insulation. (See figure 2 for approximate ratios.) When calculation time is even further constrained, a shortcut to the polarization index test is the dielectric absorption ratio, which is to take the 60 second resistance value divided by the 30 second resistance value.

Table 1. Approximate ratios

<table>
<thead>
<tr>
<th>Resistance Condition</th>
<th>60/30 Second Ratio</th>
<th>10/1 Minute Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent</td>
<td>1.6 and above</td>
<td>4 and above</td>
</tr>
<tr>
<td>Good</td>
<td>1.3-1.6</td>
<td>2-4</td>
</tr>
<tr>
<td>Poor</td>
<td>1.0-1.3</td>
<td>1-2</td>
</tr>
<tr>
<td>Dangerous</td>
<td>0-1.0</td>
<td>0-1</td>
</tr>
</tbody>
</table>

Figure 1. Time-resistance test for good and contaminated curves

Figure 2. Approximate ratios
The Fluke 1520 and 1550B MegOhmMeters

The Fluke 1520 and 1550B are designed to:
- C43 Softcase
- TPAK Meter Hanging Kit
- SH100 Shoulder Strap

Recommended accessories
- Three-year warranty
- AC/DC voltage measurement up to 600 V
- Rugged, splash-proof case with impact-absorbing holster
- Autodischarge of capacitive voltage charges
- Last reading memory display
- Lo-Ohms function for testing connections
- Three output voltages for insulation resistance testing: 250 V, 500 V, 1000 V
- Large, backlit LCD with analog bar graph and digital display
- Autodischarge of capacitive voltage charges
- Four C-cell batteries for up to 5,000 tests per IEC61557-2, with battery-life indicator and auto shut-off
- Rugged, splash-proof case with impact-absorbing holster
- AC/DC voltage measurement up to 600 V
- Three-year warranty

Fluke 1520 MegOhmMeter
A handy insulation resistance tester that also measures voltage and checks connections with its Lo-Ohms function
- Insulation resistance testing up to 4000 M Ohm
- Additional test voltages available in 50 volt steps from 250 to 1000 volts, 100 volt steps from 1000 to 5000 volts.
- Large digital/analog LCD deliver detailed measurement data
- Automatically stores test data in up to 99 locations that user can name for quick recall later
- High-capacity rechargeable batteries
- Ramp function (0-5000 V dc) for breakdown testing
- Warming voltage function alerts the user that line voltage is present and gives the voltage reading up to 600 V ac or dc
- Guard system eliminates the effect of surface leakage current on high-resistance measurements
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<td>1-2</td>
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Three-year warranty.
Splash, dust and drop resistant case.
Powerful data logging capabilities on the Fluke 53 and 54 allow the user to log temperatures displayed in °F, °C, or Kelvin (K).
Support for a wide range of thermocouple types.
Electronic offset function allowing user to compensate for thermocouple errors.
MIN, MAX and AVG – with time references to capture major events.

Fluke 50 Series II Digital Thermometers

<table>
<thead>
<tr>
<th>Feature</th>
<th>50 Series II</th>
<th>53 Series II</th>
<th>52 Series II</th>
<th>51 Series II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of inputs</td>
<td>Dual</td>
<td>Single</td>
<td>Dual</td>
<td>Single</td>
</tr>
<tr>
<td>Time stamp</td>
<td>Time of Day</td>
<td>Time of Day</td>
<td>Automatic Time</td>
<td>Automatic Time</td>
</tr>
<tr>
<td>Rugged design</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Splash/dust resistant</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Dual display with backlight</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>MIN/MAX/Hold recorded</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Compatible with ToolPak</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Hi-Lo Alarms</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Locking up to 500 points</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>All points for downloading to PC</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Fluke 50 Series II Digital Thermometers

Four models that provide laboratory accuracy in a rugged, fast responding, handheld tool with:
- Large backlit dual display.
- MIN, MAX and AVG – with time references to capture major events.
- Electronic offset function allowing user to compensate for thermocouple errors.
- Support for a wide range of thermocouple types.
- Temperatures displayed in °F, °C, or Kelvin.
- Powerful data logging capabilities on the Fluke 53 and 54 allow the user to log temperatures displayed in °F, °C, or Kelvin (K).
- Splash, dust and drop resistant case.
- Three-year warranty.
Three-year warranty.

Splash, dust and drop resistant case.

Powerful data logging capabilities on the Fluke 53 and 54 allow the user to log up to 500 points of data to internal memory.

Support for a wide range of thermocouple types.

MIN, MAX and AVG – with time references to capture major events.

Large backlit dual display.

Handheld and portable, the single dot laser sighting system guides measurement to the right target to measure surface temperatures. The 60 series can quickly locate potential blockages or malfunctioning systems while reducing your work time and improving performance.

New!

Accurate temperature solutions to go

Fluke 60 Series Infrared Thermometers

HVAC technicians can research heating and ventilation problems, monitor electrical motor performance and check electrical panel status – all with one great tool: the Fluke 60 Series infrared thermometers.

The Fluke 60 Series Infrared Thermometers add significant benefits to your job site.

They are easy to use with the right target to measure surface temperatures. The 60 series can quickly locate potential blockages or malfunctioning systems while reducing your work time and improving performance.

Fluke 50 Series II Specifications

<table>
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<th>51 Series II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emissivity</td>
<td>Fixed at 0.95</td>
<td>Fixed at 0.95</td>
<td>Fixed at 0.95</td>
<td>Fixed at 0.95</td>
</tr>
<tr>
<td>Number of inputs</td>
<td>Dual</td>
<td>Single</td>
<td>Dual</td>
<td>Single</td>
</tr>
<tr>
<td>Suffix</td>
<td>-18°C to 23°C</td>
<td>-18°C to 23°C</td>
<td>-18°C to 23°C</td>
<td>-18°C to 23°C</td>
</tr>
<tr>
<td>Resolution</td>
<td>8:1</td>
<td>8:1</td>
<td>50:1</td>
<td>30:1</td>
</tr>
<tr>
<td>Temp. Readout</td>
<td>(T1 – T2) readout</td>
<td>(T1 – T2) readout</td>
<td>(T1 – T2) readout</td>
<td>(T1 – T2) readout</td>
</tr>
<tr>
<td>Emissivity</td>
<td>Fixed at 0.95</td>
<td>Fixed at 0.95</td>
<td>Fixed at 0.95</td>
<td>Fixed at 0.95</td>
</tr>
<tr>
<td>MIN/MAX/AVG record</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Dual display with backlight</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Water resistant</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Rugged design with holster</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Backlit display for use in poorly lit areas</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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Fluke 50 Series II Digital Thermometers

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• Support for a wide range of thermocouple types.
• Temperatures displayed in °F, °C, or both °F.
• Powerful data logging capabilities on the Fluke 53 and 54 allow the user to log up to 500 points of data to internal memory.
• Splash, dust and drop resistant case.
• Three-year warranty.

TL71 Premium DMM Test Lead Set

Flexible silicone insulated leads are heat and cold resistant. Distinctive comfort grip probes. Recommended for UV measurements. CAT III 1000 V, CAT IV, 600 V, 10 A

TL220 SureGrip™ Industrial Test Lead Set

Test lead set has TL224 modular leads, TP220 probes and AC220 plugger-style alligator clips. All feature improved functionality and new color-coded design. CAT III 1000 V, CAT IV 600 V

L210 Probe Light and Probe Extenders

Make test probes 8 inches longer by attaching extenders in series with your test leads and test probes. Small white LED light illuminates the contact area. CAT III 1000 V

AC285 SureGrip™ Alligator Clips

Multi-purpose tooth pattern grips. Anything from line gauge wire to a 3/4” nut. Nickel-plated steel jaws. Recommended for use with TL224

80PK-8 Pipe Clamp Temperature Probe

Type-K thermocouple for fast temperature and super heat measurements of pipe surfaces. Measurement range: ~29 to 149 °C (~20 to 300 °F) for pipe surfaces from 6.4 mm to 34.9 mm.

80AK Adapter

80AK Adapter for suregrit™ alligator clips. Measures up to 600 A and 1000 A dc.

80PK-26 SureGrip™ Tapered Temperature Probe

8 inch stainless steel probe with new SureGrip handle design makes both air and surface measurements. K type thermocouple, measures to 886 °C. Requires 80AK Adapter to use with DMMs.

1400 AC Current Clamp

AC current clamp with safety shrouded banana plugs for multimeters. Measured current range: 1 A to 400 A. Output to meter is 1 mA, 2 mA. Measuring range: 0 Hz to 40 kHz. Maximum conductor size: 20 mm (0.79”).

1200 AC Current Clamp

AC current clamp with safety shrouded banana plugs for multimeters. Measured current range: 1 A to 400 A. Output to meter is 1 mA, 2 mA. Measuring range: 200 Hz to 40 kHz. Maximum conductor size: 14 mm (0.55”)

DMM Test Lead Set

Flexible silicone insulated leads are heat and cold resistant. Distinctive comfort grip probes. Recommended for UV measurements. CAT III 1000 V, CAT IV, 600 V, 10 A

Test leads, probes, clips, clamps and cases
We created special offer kits* with combinations of Fluke instruments and accessories that give you more problem-solving power at a great price.

**Industrial Electrician Combo Kit**
87V digital multimeter (page 4) with heat resistant silicone test leads, removable test probes, retractable alligator clips, temperature probe and magnetic hanger in a durable carrying case.

**Electrician’s multimeter and Clamp Meter Combo Kit**
Digital multimeter for general measurement tasks plus a current clamp meter in a durable carrying case.

**HVAC multimeter and Clamp Meter Combo Kit**
Rugged digital multimeter with temperature and capacitance plus a compact 400 A current clamp meter in a durable carrying case.

**Fluke 189 Logging Digital Multimeter and FlukeView® Forms Combo Pack**
Use the 189 DMM with FlukeView® Forms software to create custom forms and documentation.

* Kit content may vary by country.