FLUKE®

2015–2016

TEST TOOLS CATALOG

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

FLUKE CONNECT™

Contents

Fluke web and electronic newsletter
New from Fluke 2-4
Fluke Combo Kits 5-6
Fluke After Sales Service 7
Fluke where safety is built in 8-9
Fluke campaigns 10-12

Fluke Connect 13
Fluke Connect: the concept 14-17
Fluke connect kits 18

Digital Multimeters 19
DMM Selection Guide 20
3000FC Wireless Digital Multimeter 21
v3000 / v3001 FC Wireless AC + DC Voltage Module 22
280 Series Digital Multimeters 23
233 Remote Display Multimeter 24
80 Series V Digital Multimeters 25
170 Series Digital Multimeters 26
110 Series II Digital Multimeters 27
27 II / 28 II Rugged Industrial Multimeters 28
77 IV Digital Multimeter 29
88V Automotive Meter 30
8845A/8846A 6.5 Digit Precision Multimeters 31
8808A 5.5 Digit Multimeter 32

Clamp Meters and Electrical Testers 33
Clamp Meter selection guide 34
a3000FC / a3001FC/ a3002FC FC Wireless Current Clamp and Modules 35
320 series Clamp Meters 36
381/365 Clamp Meters 37
370 Series Clamp Meters 38
353/355 AC/DC Clamp Meters 39
360 Current Leakage Clamp Meter / 902 HVAC Clamp Meter 40
T100 Series Voltage/Continuity Testers 41
T5/T5-H5-1AC Kit Electrical Testers 42
2AC/1AC-II/LVD1/LVD2 Voltage Detectors 43
9040/9062 Phase Rotation Indicators 44
2042 Cable Locator 45
1000FLT Lamp Tester 46

Battery Tester 47
500 Series Battery Tester 48

Insulation Testers/Earth Ground Testers 49
Insulation Tester Selection Guide 50
1577/1587 Insulation Multimeters 51
1503/1507 Insulation Testers 52
1555/1550C Insulation Resistance Testers 53
1620-2 Series Earth Ground Testers 54
1621 Earth Ground Tester 55
1630 Ground Loop Tester 56

Installation Testers/Portable Appliance Testers 57
1650 Series Multifunction Installation Testers 58-59
6000-2 Series Portable Appliance Testers 60-61
1650/6000-2 Series Accessories 62

Digital Thermometers 63
Infrared Thermometer Selection Guide 64
572-2 Precision Infrared Thermometer 65
62 MAX /62 MAX+ Infrared Thermometers 66
566/568 Multipurpose Thermometers + 568Ex 67
561 Multipurpose Thermometer 68
50 Series II Thermometers 69
T3000FC Wireless K-Type Temperature Module 70

Visual Thermometers 71
VT04/VT04A Visual Thermometers 72-73

Thermal Imagers 74
Ti Series Thermal Imagers 75
The Performance Series Ti95/Ti90/Ti125/Ti110/Ti105/Ti100 Thermal Imagers 76-78
The Professional Series Ti400/Ti300/Ti200 Thermal Imagers 79-82
The Expert Series TiX1000/TiX660/TiX640/TiX560/TiX520 Thermal Imagers 83-88
CV Series ClirVu® IR Windows 89

Laser Distance Meters 90
414D/419D/424D Laser Distance Meters 91

Indoor Air Quality Tools 92
975 Air Meter 93
922 Airflow Meter 94
971 Temperature Humidity Meter 95
985 Particle Counter 96

ScopeMeter® Test Tools 97
ScopeMeter® 190 Series II 98-100
ScopeMeter® 120 Series 101
ScopeMeter® Accessories 102
ScopeMeter® General 103

Power Quality Tools 104
Power Quality Selection Guide 105
345 Power Quality Clamp Meter 106
43B Single-phase Power Quality Analyzer 107
1710 Single-Phase Voltage Quality Recorder 108
430 II Series Three-phase Power Quality Analyzers 109-110
1730 Three-Phase Electrical Energy Logger 111
1735 Power Logger 112
1740 Series Power Quality Loggers 113
1750 Power Recorder 114
1760 Power Quality Recorder 115
Power Quality Current Clamp Accessories 116
Norma 4000/5000 Series 117-118

Field Calibrators 119
Field Calibrator Selection Guide 120
750 Series Documenting Process Calibrators 121
726/725/725Ex Multifunction Process Calibrators 122
724 Temperature Calibrator 123
712B/714B Temperature Calibrators 124
717/718/718Ex/719/719Pro Pressure Calibrators 125
721 Pressure Calibrator 126
787/789 ProcessMeters 127
700G Gauges 128
709/709H Precision Loop Calibrators 129
705/707/717/707Ex/715 Loop Calibrators 130
771/772/773 mA Clamp Meters 131
Field Calibrator Accessories 132

ATEX Certified Test Tools 133
A brief look at ATEX 134
Fluke intrinsically safe tools 135

Vibration Tester 136
805 Vibration Tester 137
810 Vibration Tester 138
820-2 LED Stroboscope 139
830 Laser Shaft Alignment Tool 140

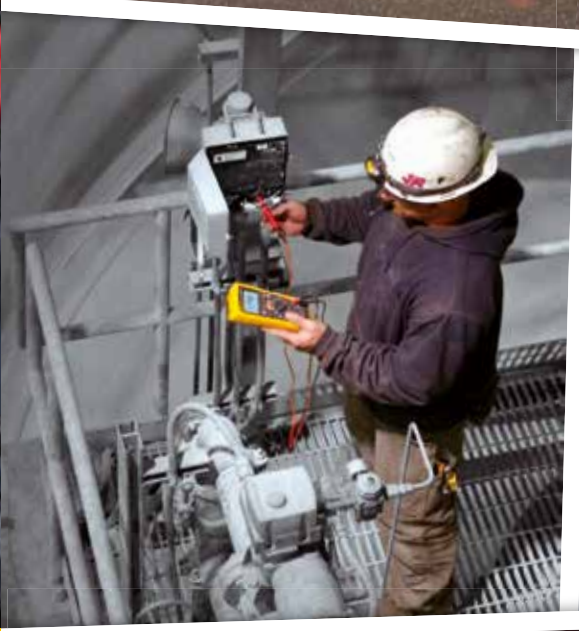
Radation Meter 141
481 Radation Meter 142

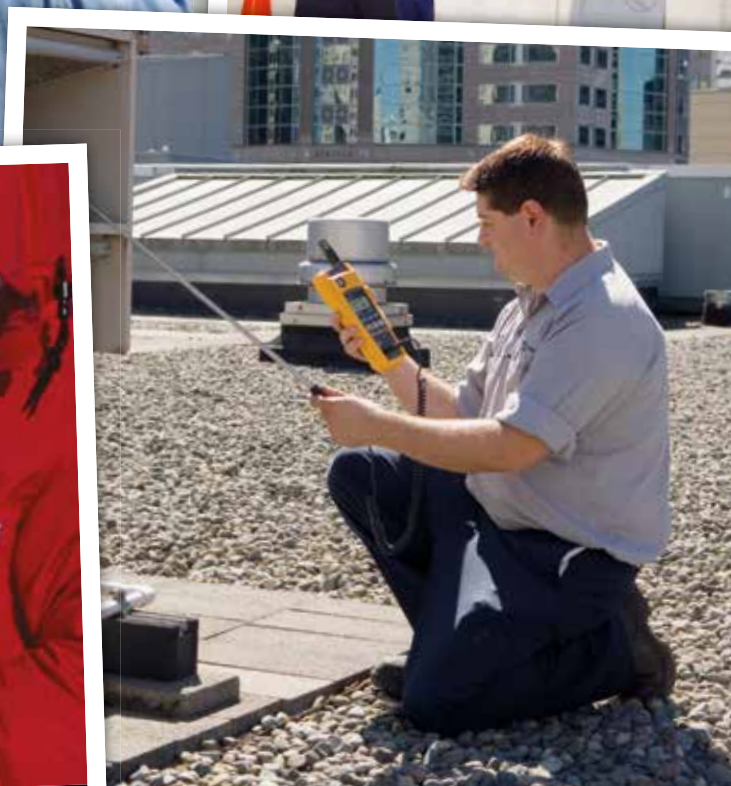
General Accessories 143
Electronic Test Leads, Probes & Clips 144
Industrial Test Leads, Probes & Clips 145-147
Current Clamps 148-149
Temperature Accessories 150-151
Cases and Holsters 152-153
Automotive Accessories 154
Software and Other Accessories 155-156
Fuse and Warranty Information 157

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

Keeping your world up and running

FLUKE®





Fluke Corporation is the world leader in the manufacture, distribution and service of electronic test tools and software.

From industrial electronic installation, maintenance and service, to precision measurement and quality control, Fluke tools help keep your business and industry around the globe up and running. Typical customers and users include technicians, engineers, metrologists, medical-device manufacturers, and computer network professionals - people who stake their reputations on their tools. Fluke Tools are well known for portability, ruggedness, safety, ease of use and rigid standards of quality. Therefore professionals choose Fluke.

Seminars and training program

If you want in-depth information sign up for one of our seminars and learn about managing your processes efficiently and reducing energy costs in your facility.

- Energy measurement principles
- Motors and Drives troubleshooting
- Theory and practice of Process calibration
- Power Quality seminars
- Thermography seminars

Visit your local Fluke website for more information.

Find more information about Fluke on our website ...

www.fluke.co.uk

... register yourself for our Newsletter ...

... watch our latest videos on our own YouTube Channel ...

www.youtube.com/user/FlukeEurope

... and download our App!

Every Fluke tool is built around one idea... You!

FLUKE®

Solutions

- Preventive Maintenance
- Energy
- Online Solution Centers

Academy

- Local hands-on seminars & trainings
- Webinar Programs
- Product Evaluation Center
- Application Notes

Products & Services

- Technical field support
- Customer Support
- Newsletters
- Innovations
- Lifetime Warranty
- Diagnostic Software
- Connectivity/Wireless T&M

New from Fluke

See it. Save it. Share it.

All the facts, right in the field.
Introducing the largest system of connected test tools in the world.

Fluke 3000FC Wireless Digital Multimeter

The Fluke 3000 FC True-RMS Wireless Multimeter and Fluke Connect wireless test tools put tools, not your body, near live electrical panels. The Fluke 3000 FC Series Wireless Multimeter can send measurement data to your smartphone, so you can save and share measurements from the field with your team anytime, from anywhere.

Fluke v3000FC and v3001FC Wireless AC or DC Voltage Module

All the facts, right in the field. The Fluke v3000 FC Wireless AC Voltage Module and Fluke v3001 FC Wireless DC Voltage Module are members of a family of wireless test tools that let you share test data using the Fluke Connect™ app with ShareLive™ video call.

a3000FC / a3001FC/ a3002FC FWireless Current Clamp and Modules

True –rms current clamp meters and an AC/DC current module that wirelessly relays measurements to other Fluke Connect™ enabled master units.

Fluke t3000FC Wireless K-Type Temperature Module

The Fluke t3000 FC Wireless K-Type temperature module is one member of a family of wireless test tools that let you share test data using the Fluke Connect™ app with ShareLive™ video call.

New from Fluke

Fluke Ti90/Ti95 Industrial-Commercial Thermal Imagers

Wireless with superior image quality, easy-to-use and rugged, the Ti90 and Ti95 thermal imagers are designed for your next thermal inspection. They come standard with Fluke Connect™, the world's largest system of test and measurement tools, and are the only wireless industrial infrared cameras in their price class.

76-79

Fluke 1000FLT lamp tester

The Fluke 1000FLT allows you to perform 5 tests with 1 compact tool. If your job requires keeping large numbers of fluorescent lights shining, the Fluke 1000FLT is an indispensable tool. This tester is a real time and money saver.

46

Fluke 500 Series Battery Analyzers

The new Fluke 500 Series Battery Analyzer is the ideal test tool for maintenance, troubleshooting and performance testing of individual stationary batteries and battery banks used in critical battery back-up applications.

47-48

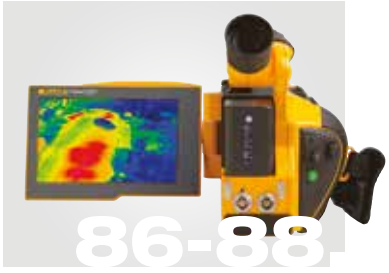
Fluke 1620-2 Series Earth Ground Testers GEO

The new Fluke 1620-2 series offer data storage and download capabilities via USB port, have a new large display and world class accessories will simplify and speed up testing time.

54

Fluke TiX1000, TiX660 and TiX640 Thermal Imagers - The Fluke Expert Series

Take the guesswork out of your inspection and analysis. Infrared inspection in high definition for the user who demands the ability to see the smallest details because they are the most important.


86-88

New from Fluke

Fluke 712B/714B Temperature Calibrators

The new Fluke 712B and 714B are designed for both simplicity-ease of use and high accuracy. They are a powerful combination of temperature and loop calibration.

Fluke 750P Series Pressure Modules A complete family of pressure modules

A family of 48 pressure modules covers pressure calibrations from 2.5 mBar to 690 bar. The 750P Series Pressure Modules are the ideal pressure modules to enable gage, differential and absolute pressure measurement with Fluke 750 and 740 series DPCs and 725, 726 MPCs to measure pressure.

Fluke 820-2 LED Stroboscope

The Fluke 820-2 LED Stroboscope is a rugged, compact, portable strobe with high intensity LED head, ideal for stop motion diagnostics, mechanical troubleshooting, and process or product research and development.

Fluke 830 Laser Shaft Alignment Tool

The ideal test tool to precision-align rotating shafts in your facility. Fluke 830 Laser Alignment Tool uses laser sensors and guides you step by step through the alignment procedure that results in a precision aligned machine and saves you costs on energy and maintenance.

Fluke TiX560/TiX520 Thermal Imagers – The Expert Series

Your view on infrared technology is about to change 180°.

Fluke Combo Kits

Buy a Combo Kit and save

Fluke 87V/E2 Industrial Electrician Combo Kit

- Fluke 87V True RMS Multimeter
- TL224 SureGrip™ Silicone Test Lead Set
- TP38 Slim Reach Test Probe Set (insulated)
- AC220 SureGrip™ Alligator Clip Set
- TPAK Magnetic Hanger
- 80BK-A Integrated DMM Temperature Probe
- C35 Soft Meter Case

Fluke 87V/i410 Combo Kit for Industrial Applications

- 87V Industrial Multimeter
- TL75 Test Leads
- AC175 Alligator Clips
- i410 400A AC/DC Current Clamp
- 80BK-A Temperature Probe
- C115 Soft Carrying Case

(Not available in all countries)

Fluke 116/62 MAX+, HVAC Multimeter and IR Thermometer Combo Kit

- Fluke 116 HVAC Multimeter with Temperature and Microamps
- Fluke 62 MAX+
- TL175 Hard Point Test Lead Set
- TPak ToolPak Magnetic Meter Hanging Strap
- Flexible Cuff Pipe clamp Thermocouple
- 80BK Integrated Temperature Probe
- 80AK-A Thermocouple Adapter
- C115 Deluxe soft carrying case with shoulder strap

Fluke 116/323, HVAC True RMS Multimeter and Clamp Meter Combo Kit

- Fluke 116 HVAC Multimeter with Temperature and Microamps
- Fluke 323 Clamp Meter
- TL175 Hard Point Test Lead Set
- TPak ToolPak Magnetic Meter Hanging Strap
- Flexible Cuff Pipe clamp Thermocouple
- 80BK Integrated Temperature Probe
- 80AK-A Thermocouple Adapter
- C115 Deluxe soft carrying case with shoulder strap

Fluke 117/323 Kit Electrician's Combo Kit

- Fluke 117 True RMS Multimeter
- Fluke 323 Clamp Meter
- Silicon test lead set
- TPAK Magnetic Hanger
- C115 Deluxe carrying case

Fluke 179/TPAK 179/ToolPak Combo Kit

- Fluke 179 True RMS Multimeter
- TPAK ToolPak Meter Hanging Kit

Fluke 179/MAG2 Kit Industrial Combo Kit

- Fluke 179 True RMS Multimeter
- TL224 SureGrip™ Silicone Test Lead Set
- AC220 SureGrip™ Alligator Clip Set
- TP74 lantern tip test probe set
- TPAK Magnetic Hanger
- 80BK-A Integrated DMM Temperature Probe
- C35 Soft Meter Case
- + Maglite flashlight

Fluke 179/EDA2 Kit Electronics Combo Kit

- Fluke 179 True RMS Multimeter
- TL224 SureGrip™ Silicone Test Lead Set
- TL910 Electronic Test Probe Set
- AC280 SureGrip™ Hook Clip Set
- TPAK Magnetic Hanger
- 80BK-A Integrated DMM Temperature Probe
- C35 Soft Meter Case

Ordering Information

Fluke 87V/E2
Fluke 87V/i410
Fluke 116/62 MAX+ kit
Fluke 116/323 Kit
Fluke 117/323 Kit
Fluke 179/TPAK
Fluke 179/MAG2 Kit
Fluke 179/EDA2 Kit

Fluke Combo Kits

Buy a Combo Kit and save

Fluke 289/FVF Industrial Logging Multimeter and Software Combo Kit

- Fluke 289 True-RMS Multimeter
- FVF-SC2 FlukeView Forms Software and cable
- Silicon Test Lead Set
- AC175 Alligator Clips
- 80BK-A Integrated DMM Temperature Probe
- TPAK Magnetic Meter Hanger
- C280 Soft

Fluke 287/FVF FlukeView Forms Combo Kit

- Fluke 287 True RMS Electronic Logging Multimeter with TrendCapture
- FVF-SC2 FlukeView Forms Software and cable
- 80BK-A Thermocouple Probe
- CAT III 1000 V 10 A Modular Test Leads (red, black)
- CAT II 300 V 5 A Alligator Clips (red, black)
- C280 Soft Case for meter protection and accessory storage

Fluke 1587/ET Advanced Electrical Troubleshooting Kit

- Fluke 1587 Insulation Multimeter
- Fluke 62 MAX+ IR Thermometer
- i400 Current Clamp

Fluke 1587/MDT Advanced Motor & Drive Troubleshooting Kit

- Fluke 1587 Insulation Multimeter
- Fluke 9040 Phase Rotation Indicator
- i400 Current Clamp

Fluke T5-H5-1AC Kit

- Fluke T5-1000 Electrical Tester
- H5 Holster
- 1AC-II Volt Alert

Fluke T5-600/62 MAX+/1AC-E Kit

- Fluke T5-600 Electrical Tester
- Fluke 62 MAX+ IR Thermometer
- Fluke 1AC-II Volt Alert
- C115 Soft Meter Case

Fluke 62 MAX+/323 1AC Kit

- Fluke 62 MAX+ IR Thermometer
- Fluke 323 Clamp Meter
- Fluke 1AC-II Volt Alert

Fluke 414D/62 MAX+Kit

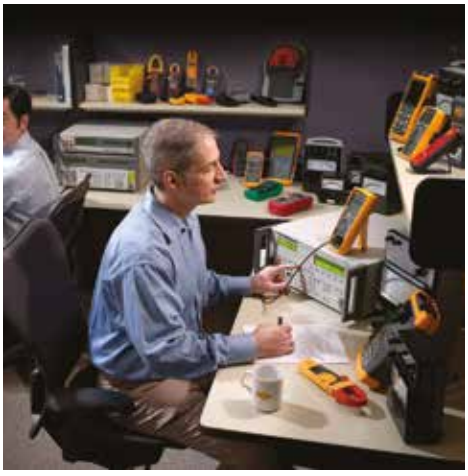
- Fluke 414D Laser Distance Meter
- Fluke 62 MAX+ IR Thermometer
- Soft case for each model

Ordering Information

Fluke 287/FVF
Fluke 289/FVF
Fluke 1587/ET
Fluke 1587/MDT
Fluke T5-H5-1AC Kit
Fluke T5-600/62MAX+/IAC-E Kit
Fluke 62 MAX+/323/1AC Kit
Fluke 414D/62 MAX+ Kit

Let Fluke After Sales Service help you further

Did you know that the Fluke after sales service team can offer you much more than just repairing and calibrating your instrument when it is needed? Across our whole Fluke European service organization we have a vast range of capabilities, which can be utilized via your local service centre. Behind the scenes Fluke draws on the expertise of over 150 service staff that are focused on offering only the best and most comprehensive after sales service.



Fluke service centres handle a wide range of equipment.
As part of Fluke's continuing focus on improving our service to our customer we now offer a comprehensive range of repairs and calibrations on a vast range of equipment.
Fluke manufactures equipments such as:

Fluke Brands	Instrument Types
Fluke	Digital Multimeters
Hart Scientific	Electrical Standards
Fluke Networks	Biomedical Equipment
Fluke Biomedical	Data Loggers
Raytek	Thermal Imagers
Reliable Power Meters	Thermometers
Robin	Pressure
LEM Instruments	Function Generators
BEHA	Oscilloscopes
Norma	Installation Testers
Wavetek/Datron	PAT Testers
Metron	Clamp Meters
DHI	Power Analyzers
Comark	EX meters
Amprobe	Plus many more

So why should you use Fluke service?
- Original manufacturers' parts used
- All instruments reviewed for latest updates
- Repair warranty that covers whole unit
- In depth product knowledge
- Accredited calibrations available
- Traceable calibrations available on all products
- Full check of unit during verification cycle
- Full safety test on mains powered units

What other instruments can we help you with?
We also offer a range of calibrations and repairs on other manufacturer's equipment upon request. Manufacturers such as:
- Tektronix
- Agilent
- Bruel & Kjaer
- Philips
- Megger
- Seaward
- Kewtech
- Lecroy
- Hioki
- Yokogawa
- Druck
- Iwatzu
- plus many more ...

What other value added services do we offer?
- Gold Support for Fluke Networks
- Gold CarePlans for calibration products
- A full range of maintenance contracts
- Extended warranty programs
- Instrument upgrades
- Option retrofits
- Asset management
- Calibration reminders

What services do we offer you?
- 5 day repairs on all current products
- 5 days or less on all calibrations (excl. repairs)
- 3 days for all Gold CarePlan calibrations
- 1-2 days on all Networks Gold calibration
- Pick up services where available

On-Line booking in system
Why not use our On-Line booking in system where you can book your unit in, get pricing and receive a RMA number for a smooth return.
www.fluke.com/servicerma

Contact Information

	Eindhoven	Norwich	Cologne
Telephone	+31 (0)40 267 5300	+44 (0)1603 256620	+49 (0)69 2222 20210
Telefax	+31 (0)40 267 5321	+44 (0)1603 256688	+49 (0)69 2222 20211
Email	servicedesk@fluke.nl	service.uk@fluke.com	servicedeskgermany@fluke.com
Address	Science Park 5108 Eindhoven 5692 EC Son Netherlands	52 Hurricane Way Norwich Norfolk NR6 6JB United Kingdom	Heinrich-Pesch-Str. 9-11 50739 Köln Germany

Fluke: Where safety is built in

As distribution systems and loads become more complex, the possibilities of transient overvoltages increase. Motors, capacitors and power conversion equipment such as variable speed drives can be prime generators of spikes. Lightning strikes on outdoor transmission lines also cause extremely hazardous high-energy transients. If you're taking measurements on electrical systems, these transients are "invisible" and largely unavoidable hazards. They occur regularly on low-voltage power circuits, and can reach peak values in the many thousands of volts. To protect you against transients, safety must be built into the test equipment.

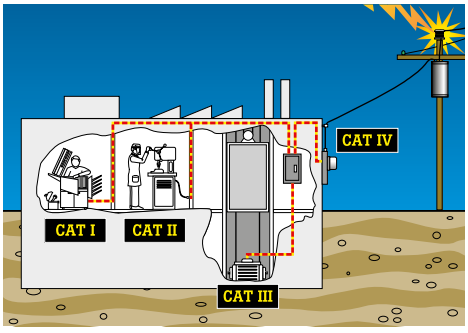


Figure 1. Understanding categories: location

Who Develops Safety Standards?

The IEC (International Electrotechnical Commission) develops international general standards for safety of electrical equipment for measurement, control and laboratory use. IEC61010-1 is used as the basis for the following national standards:

- US ANSI/ISA-S82.01-94
- Canada CAN C22.2 No.1010.1-92
- Europe EN61010-1:2001

Overvoltage Installation Categories

IEC61010-1 specifies categories of overvoltage based on the distance the piece of equipment is from the power source (see Fig. 1 and Table 1) and the natural damping of transient energy that occurs in an electrical distribution system. Higher categories are closer to the power source and require more protection.

Within each installation category there are voltage classifications. It is the combination of installation category and voltage classification which determines the maximum transient withstand capability of the instrument.

IEC 61010 test procedures take into account three main criteria: steady-state voltage, peak impulse transient voltage and source impedance. These three criteria together will tell you a multimeter's true voltage withstand value.

Within a category, a higher working voltage (steadystate voltage) is associated with a higher transient, as would be expected. For example, a CAT III 600 V meter is tested with 6000 V transients while a CAT III 1000 V meter is tested with 8000 V transients. So far, so good. What is not as obvious is the difference between the 6000 V transient for CAT III 600 V and the 6000 V transient for CAT II 1000 V. They are not the same. This is where the source impedance comes in. Ohm's Law (Amps = Volts/Ohms) tells us that the 2 Ω test source for CAT III has six times the current of the 12 Ω test source for CAT II. The CAT III 600 V meter clearly offers superior transient protection compared to the CAT II 1000 V meter, even though its so-called "voltage rating" could be perceived as being lower. See Table 2.

Independent testing is the key to safety compliance

How can you tell if you're getting a genuine CAT III or CAT II meter? Unfortunately it's not always that easy. It is possible for a manufacturer to self-certify that its meter is CAT II or CAT III without any independent verification. The IEC (International Electrotechnical Commission) develops and proposes standards, but it is not responsible for enforcing the standards. Look for the symbol and listing number of an independent testing lab such as UL, CSA, VDE, TÜV or other recognized approval agency.

These symbols can only be used if the product successfully completed testing to the agency's standard, which is based on national and international standards. UL 3111, for example, is based on EN61010-1. In an imperfect world, this is the closest you can come to ensuring that the meter you choose was actually tested for safety.

Table 1

Overvoltage category	In brief	Examples
CAT IV	Three-phase at utility connection, any outdoor conductors	• 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	• 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-phase receptable connected loads	• Appliance, portable tools, and other household and similar loads. • Outlet and long branch circuits. • Outlets at more than 10 meters (30 feet) from CAT III source. • Outlets at more than 20 meters (60 feet) from CAT IV source.
CAT I	Electronic	• Protected electronic equipment. • Equipment connected to (source) circuits in which measures are taken to limit transient overvoltages to an appropriately low level. • Any high-voltage, low-energy source derived from a high-winding resistance transformer, such as the high-voltage section of a copier.

Overvoltage installation categories. IEC 61010-1 applies to low-voltage (< 1000V) test equipment

Fluke: Where safety is built in

Safety is everyone's responsibility but ultimately it is in your hands.
No tool by itself can guarantee your safety when working with electricity. It's the combination of the right tools and safe work practices that gives you maximum protection. Here are a few tips to help you in your work:

Make sure you always comply with (local) regulations.

Work on de-energized circuits whenever possible.
Use proper lock-out/tag-out procedures. If these procedures are not in place or enforced, assume that the circuit is live.

Use protective gear when working on live circuits:
- Use insulated tools
- Wear safety glasses or a face shield
- Wear insulated gloves, remove watches or jewelry
- Stand on an insulated mat
- Wear flame resistant clothing, not ordinary work clothes

Use protective equipment such as safety glasses and insulated gloves

Use meters with these markings: 1000 V CAT III or 600 V CAT IV

Select the right test tool:
- Choose a test tool rated to the highest category and voltage for which it could possibly be used (most often 600 or 1000 volt CAT III and/or 600 volt CAT IV).
- Look for the category and voltage marking near the recessed input connectors of your test tool and a "double insulated" symbol on the back.
- Verify your test tool has been tested and certified by two or more independent testing laboratories, such as UL in the United States and VDE or TüV in Europe by looking for the symbols of these agencies on (the back of) your test tool.
- Make sure that the test tool is made of a high-quality, durable non-conductive material.
- Check the manual to verify that the ohms, continuity and capacitance circuits are protected to the same level as the voltage test circuit, to reduce hazards when the test tool is used incorrectly in ohms, continuity or capacitance mode (if applicable).
- Verify that the test tool has internal protection to prevent instrument damage when voltage is incorrectly applied to an amperage measurement function (if applicable).
- Make sure that the amperage and voltage of your test tool's fuses meets specifications. Fuse voltage must be as high or higher than the test tool's voltage rating.
- Be sure to use test leads that have:
  - Shrouded connectors
  - Finger guards and a non-slip surface
  - Category ratings that equal or exceed those of the test tool
  - Double insulation (look for the symbol)
  - A minimum of exposed metal on the probe tips

Inspect and test your test tool:
- Check for a broken case, worn test leads or a faded display.
- Make sure the batteries still deliver sufficient power to get reliable readings. Many test tools have a low battery indicator on the display.
- Check the test leads resistance for internal breaks while moving the leads around (good leads measure 0.1-0.3 Ohm).
- Use the meter's own test capability to ensure that the fuses are in place and working right (see manual for details).

Apply the appropriate working practices when measuring on live circuits:
- Hook on the ground clip first, then make contact with the hot lead. Remove the hot lead first, the ground lead last.
- Use the three-point test method, especially when checking to see if a circuit is dead. First test a known live circuit. Second, test the target circuit. Third, test the live circuit again. This verifies that your test tool worked properly before and after the measurement.
- Hang or rest the test tool if possible. Try to avoid holding it in your hands, to minimize personal exposure to the effects of transients.
- Use the old electrician's trick of keeping one hand in your pocket. This lessens the change of a closed circuit across your chest and through your heart.

Table 2

Overvoltage Installation Category	Working Voltage (DC or AC RMS to ground)	Peak Impulse Transient (20 repetitions)	Test Source (Ω = V/A)
CAT I	600 V	2500 V	30 Ohm source
CAT I	1000 V	4000 V	30 Ohm source
CAT II	600 V	4000 V	12 Ohm source
CAT II	1000 V	6000 V	12 Ohm source
CAT III	600 V	6000 V	2 Ohm source
CAT III	1000 V	8000 V	2 Ohm source
CAT IV	600 V	8000 V	2 Ohm source

Transient test values for overvoltage installation categories. (50 V/150 V/300 V values not included)

FLUKE®

WHY PROFESSIONALS CHOOSE FLUKE

From industrial electronic installation, maintenance and service, to precision measurement and quality control, Fluke tools help to keep your business and industry around the globe up and running.

Fluke Tools are well known for portability, ruggedness, safety, ease of use, accuracy and rigid standards of quality. Therefore professionals choose Fluke.

Through connecting with you Fluke exactly knows the condition of your product, this ensures your product will work anywhere you go and can connect with anything you want. Fluke offers you the technical support and knowledge to keep your world up and running anywhere and anytime.

www.fluke.co.uk

DISCOVER WHY FLUKE

- Safe. Accurate. Reliable.
- Designed by you
- Increase your efficiency
- Prevent major problems
- Dedicated training

FLUKE®

ENERGY EFFICIENCY

Energy is a critical issue for facilities around the world. Undiscovered and uncorrected energy waste represents tremendous savings. The resources provided in this Energy Efficiency Solution Center will help you use measurement data to support the decisions and actions that reduce energy consumption, while increasing energy efficiency.

www.fluke.co.uk

HOW FLUKE CAN SUPPORT YOUR WORK

- Core components of energy
- Types of energy waste measurement
- How to find waste with Fluke
- See what your system may be hiding
- Dedicated training

FLUKE®

PREVENTIVE MAINTENANCE

Constant condition monitoring reduces downtime by identifying problems before they occur. Fluke tools are all you need to cut plant energy costs and minimize downtime and production stops.

On this platform we will be discussing questions like: 'How much does unexpected downtime cost your facility per minute, hour, or day? In your facility, how much of that unexpected downtime can you prevent?

www.fluke.co.uk

HOW FLUKE CAN SUPPORT YOUR WORK

- Benefits of proactive maintenance
- Maintenance program types
- Gathering data
- See where the issue is
- Extend machinery lifetime
- Motor and drive troubleshooting
- Process calibration
- Dedicated training

FLUKE CONNECT™

Introducing the largest system of connected test tools in the world.

The Fluke Connect™ app and connectable tools are the most comprehensive way to stay in contact with your team without leaving the field. With over 20 connectable tools, confidently diagnosing and solving problems has never been easier.

FLUKE CONNECT™

SEE IT. SAVE IT. SHARE IT.

All the facts, right in the field.

Fluke Connect™ is a system of wireless test tools, which when connected to a smartphone app, allow maintenance technicians, electricians and reliability engineers to capture, store and share* data across their entire team without leaving the field. It provides instant access to data and measurements from smartphones to review images, check reports, spot trends, and more, helping teams get their jobs done better and faster.

* Within provider's wireless service area

FLUKE CONNECT™

FLUKE®

Connect your tools, Connect your data

Share from anywhere

Stay on the same page even when you and your team are in different places, only with ShareLive™ video call. Securely connect and collaborate with others, so they can see what you see. Get approvals without leaving the field.

Troubleshoot faster

Instantly trend and monitor intermittent problems with TrendIt™ graphs so you can easily identify trends and stop problems before they happen. Seeing is believing-trend data over time and prove your point.

Save Time Reporting

Make better decisions faster than before. Organize your measurements by asset in one location with EquipmentLog™ history. Measure once, and cut out the paper with AutoRecord™ measurements.

When your measurements are associated with equipment, there is no need to record in the field and then transcribe into an office computer. Make decisions quicker than before by viewing temperature, mechanical, electrical and vibration measurements from one location.

Lock down your data

The Fluke Cloud™ storage infrastructure has been built to be one of the most flexible and secure cloud computing environments available today. Our cloud service provider uses state-of-the art electronic surveillance, multi-factor access controls and 24/7 data center staffing to make Fluke Cloud one of the most flexible and secure cloud computing environments available.

Reasons to connect your tools

WORK FASTER

The Fluke Connect™ app helps you conduct routine maintenance tasks and solve problems faster than ever before. Log, track,and share equipment records without leaving the plant floor. Troubleshoot issues from afar with live measurements and video. And securely store and access all of your images and data. With Fluke Connect™ enabled tools, you can do all of this using your phone-anytime, anywhere.

WORK MORE COLLABORATIVELY

With the Fluke Connect™ app and enabled tools, you can collaborate with others no matter where they are. See what your team is seeing, and vice versa. Share and watch live video and readings to troubleshoot problems from any location. And save yourself the time and effort of going to the plant floor or back to the office every time there's a question or issue.

REDUCE YOUR PAPERWORK

The Fluke Connect™ app allows you to enter data, create reports, and compare past with present findings using the app on your phone. Create and share equipment records on the spot. And easily access and graph all of your maintenance data to identify trends and make fast decisions. With Fluke Connect™ tools, you can throw away the clipboard and say goodbye to manual data entry.

IMPROVE SAFETY

The Fluke Connect™ app and enabled tools improve the safety and convenience of electro-mechanical maintenance and troubleshooting. Take live readings of energized circuits and operational mechanical equipment from a safe distance. And correlate different measurements (i.e., temperature and amperage or three-phase amperage) by using multiple instruments simultaneously (i.e., temperature and current measurement modules).

EXPERIENCE MORE THAN CONNECTIVITY

With a range of powerful functions, the Fluke Connect™ system delivers far more than connectivity. Collaborate and troubleshoot with others using ShareLive™ video call, so they can see what you are seeing. Easily create, access, and manage maintenance records with EquipmentLog™ history. Identify and monitor deteriorating equipment and maintenance needs with TrendIt™ graphs. And lock down your data while making it accessible anytime, anywhere using Fluke Cloud™ storage.

UTILIZE THE WORLD'S LARGEST SUITE OF CONNECTED TEST TOOLS

Fluke Connect™ is already the world's largest wireless test and measurement system, and it's growing. More than 20 Fluke tools can be connected, including a range of thermal imagers, digital multimeters, and insulation resistance testers. Vibration testers and other tools will also soon be connected. And all of them come with legendary Fluke quality, ruggedness, and support.

FLUKE CONNECT™

FLUKE®

Fluke Connect™ features

SHARELIVE™ VIDEO CALLS
Save and share measurements from the field with your team anytime, from anywhere.

TRENDIT™ GRAPHS
Evaluate the trends. Eliminate the trouble.

EQUIPMENT-LOG™ HISTORY
Acces equipment history so your equipment doesn't become history.

AUTORECORD™ MEASURE-MENTS
Instantly save measurements to your phone.

FLUKE CLOUD™ STORAGE
Securely access equipment records anywhere.

FLUKE CONNECT™

The free app that turns your phone into a Fluke tool

Download the FREE app!

By using the **Fluke Connect™ app**, you can efficiently and safely capture, store and share maintenance data without leaving the field. You can securely connect and collaborate with others, so they can see what you see.

ANDROID APP ON Google play

Download on the App Store

FLUKE CONNECT™

Connect™ kits

Kits of Fluke Connect™ tools based on applications. You can customize your own kit or use one of these pre-defined kits for additional savings.

Fluke 3000 FC General Maintenance Kit

- Fluke 3000 FC Series Wireless Multimeter
- Fluke v3000 AC Voltage Module
- Fluke v3001 DC Voltage Module
- Fluke a3001 FC Wireless iFlex AC Current Module
- TL224 Test Leads
- TL222 Test Leads
- TL175 Test Leads
- AC285 Alligator Clips
- AC220 Alligator Clips
- AC175 Alligator Clips
- iFlex i2500-10 Flexible Current Probe
- Magnetic hanging strap

Fluke 3000 FC HVAC Kit

- Fluke 3000 FC Series Wireless Multimeter
- Fluke a3000 FC Wireless AC Current Clamp Module
- Fluke t3000 Thermocouple Thermometer
- TL175 Test Leads
- AC175 Alligator Clips
- 80PK-1 K-Type Bead Thermocouple
- Magnetic hanging strap

Fluke 3000 FC Industrial Kit

- Fluke 3000 FC Series Wireless Multimeter
- Fluke a3001 FC Wireless iFlex AC Current Module (3)
- Fluke v3000 Voltage Module
- TL224 Test Leads
- TL175 Test Leads
- AC285 Alligator Clips
- AC175 Alligator Clips
- iFlex i2500-10 Flexible Current Probe (3)
- Magnetic hanging strap

Fluke a3000 FC Wireless AC Current Clamp Kit

- Fluke 3000 FC Series Wireless Multimeter
- Fluke a3000 FC Wireless AC Current Clamp Module
- TL175 Test Leads
- AC175 Alligator Clips

Fluke a3001 FC Wireless AC Current Clamp Kit

- Fluke 3000 FC Series Wireless Multimeter
- Fluke a3001 FC Wireless iFlex AC Current Module
- TL175 Test Leads
- AC175 Alligator Clips
- iFlex i2500-10 Flexible Current Probe

Fluke t3000 FC Wireless Temperature Kit

- Fluke 3000 FC Series Wireless Multimeter
- Fluke t3000 K-Type Thermocouple Thermometer
- TL175 Test Leads
- AC175 Alligator Clips
- Other K-Type temperature probes also available
- Magnetic hanging strap

Fluke v3000 FC Wireless AC Voltage Kit

- Fluke 3000 FC Series Wireless Multimeter
- Fluke v3000 AC Voltage Module
- TL175 Test Leads
- TL224 Test Leads
- AC175 Alligator Clips
- AC285 Alligator Clips
- Magnetic hanging strap

Fluke v3001 FC Wireless DC Voltage Kit

- Fluke 3000 FC Series Wireless Multimeter
- Fluke v3001 DC Voltage Module
- TL175 Test Leads
- TL222 Test Leads
- AC175 Alligator Clips
- AC220 Alligator Clips
- Magnetic hanging strap

Fluke v3003 FC Wireless AC/DC Voltage Measurement Kit

- Fluke 3000 FC Series Wireless Multimeter
- Fluke v3000 AC Voltage Module
- Fluke v3001 DC Voltage Module
- TL175 Test Leads
- TL224 Test Leads
- TL222 Test Leads
- AC175 Alligator Clips
- AC285 Alligator Clips
- AC220 Alligator Clips
- Magnetic hanging straps

Digital Multimeters

Safety, quality and performance: three words that sum up the benefits of our extensive range of digital multimeters. Designed to help you do your job faster, more efficiently and with greater accuracy, there is a model for every budget and application. Choose from handheld troubleshooters to ultra smart instruments packed with features, including the ability to log and graph data, as well as high-precision bench units.

Watch our latest videos on our own YouTube Channel *www.youtube.com/user/FlukeEurope*

DMM Selection guide

	Highest accuracy		Remote display	High-end Industrial		Industrial maintenance and field service			Electrical	HVAC/R	Field Service	Basic Electrical		Heavy duty (IP67)		General Purpose	Auto-motive	Loop calibration		Insulation test		Fluke Connect™ Multimeter
Basic features	**289**	**287**	**233**	**87V**	**83V**	**179**	**177**	**175**	**117**	**116**	**115**	**114**	**113**	**27II**	**28II/28IIEx**	**77IV**	**88V**	**789**	**787**	**1587**	**1577**	**3000 FC**
Counts	50000	50000	6000	20000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	20000	6000	20000	4000	4000	6000	6000	6000
True RMS readings	AC+DC	AC+DC	AC	AC		AC	AC	AC	AC	AC	AC	AC	AC		AC			AC	AC	AC	AC	AC
Basic DC accuracy	0,03%	0,03%	0,25%	0,05%	0,10%	0,09%	0,09%	0,15%	0,50%	0,50%	0,50%	0,50%	2,00%	0,10%	0,05%	0,30%	0,10%	0,10%	0,10%	0,09%	0,20%	0,09%
Wide bandwidth	100 kHz	100 kHz		20 kHz	5 kHz									20 kHz	50 kHz							
Auto/manual ranging	●/●	●/●	●/●	●/●	●/●	●/●	●/●	●/●	●/●	●/●	●/●	●/●	●/●	●/●	●/●	●/●	●/●	●/●	●/●			●/●
Measurements																						
Voltage AC/DC	1000 V	1000 V	1000 V	1000 V	1000 V	1000 V	1000 V	1000 V	600 V	600 V	600 V	600 V	600 V	1000 V	1000 V	1000 V	1000 V	1000 V	1000 V	1000 V	1000 V	1000 V
Current AC/DC	10 A	10 A	10 A	10 A	10 A	10 A	10 A	10 A	10 A	200 µA	10 A			10 A	10 A	10 A	10 A	1 A	1 A	400 mA	400 mA	400 mA
Resistance	500 MΩ	500 MΩ	40 MΩ	50 MΩ	50 MΩ	50 MΩ	50 MΩ	50 MΩ	40 MΩ	40 MΩ	40 MΩ	40 MΩ	60 kΩ	50 MΩ	50 MΩ	50 MΩ	50 MΩ	40 MΩ	40 MΩ	50 MΩ	50 MΩ	50 MΩ
Frequency	1 MHz	1 MHz	50 kHz	200 kHz	200 kHz	100 kHz	100 kHz	100 kHz	50 kHz	50 kHz	50 kHz			200 kHz	200 kHz	100 kHz	200 kHz	20 kHz	20 kHz	100 kHz		100 kHz
Capacitance	100 mF	100 mF	10 mF	10 mF	10 mF	10 mF	10 mF	10 mF	10 mF	10 mF	10 mF		10 mF	10 mF	10 mF	10 mF	10 mF			10 mF		10 mF
Temperature	+1350°C	+1350°C	+400°C	+1090°C		+400°C				+400°C					+1090°C		+1090°C			+500°C		
dB	60 dB	60 dB																				
Conductance	50 nS	50 nS		60 nS	60 nS									60 nS	60 nS		60 nS					
Duty cycle/pulse width	●/●	●/●		●/-	●/-									●/●	●/●		●/●					
Continuity with beeper/Diode test	●/●	●/●	●/●	●/●	●/●	●/●	●/●	●/●	●/●	●/●	●/●	●/●	●/●	●/●	●/●	●/●	●/●	●/●	●/●	●/●	●/●	●/●
4-20mA loop current as % readout																		●	●			
Motor drive measurement	●			●											●					●		
RPM/Dwell																	●/-					
VoltAlertTM, Non-contact voltage detection									●													
LoZ: low input impedance	●								●	●		●										
VCHEKTM LoZ													●									
Microamps	●	●		●	●					●												
Insulation test																				●	●	
Number of insulation test ranges																				5	2	
Display																						
Dual display	●	●																●	●			●
Analog bargraph	●	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●				
Backlight	●	●	●	●	●	●	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●
Remote display			●																			
Data storage and exchange																						
Fluke Connect™ enabled	●	●																●				●
Min-Max recording/ with time stamp	●/●	●/●	●	●/-	●/-	●/-	●/-	●/-	●/-	●/-	●/-	●/-	●/-	●/-	●/-	●/-	●/-	●/-	●/-	●/-		●/-
Fast Min-Max	250 µs	250 µs		250 µs											250 µs		250 µs					
Display Hold/Auto (Touch) Hold	●/●	●/●	●	●/●	●/●	●/●	●/●	●/●	●/-	●/-	●/-	●/-	●/-	●/●	●/●	-/●	●/●	-/●	-/●	●/●		●/-
Relative	●	●		●	●									●	●		●	●	●			
Stand alone logging/TrendCapture	●/●	●/●																				
USB interface/RS232 interface	●/●	●/●																●/●				
Readings memories	10000	10000																				
Other features																						
Source 4-20mA loop current/24V loop supply																		●/●	●/-			
Automatic selection, AC/DC volts									●	●		●										
Real time clock	●	●																				
Smoothing						●	●	●												●		
Integrated holster	●	●	●			●	●	●								●		●				●
Removable holster				●	●				●	●	●	●	●	●	●		●		●	●	●	
Closed case calibration	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●	●
Seperate battry/fuse access	●/●	●/●	●/●	●/-	●/-	●/●	●/●	●/●	●/-	●/-	●/-	●/-	●/-	●/●	●/●		●/-	●/●	●/-	●/●	●/●	●/●
Completely sealed/watertight														●	●							
Automatic power off	●	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Low battery indication	●	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Warranty and safety																						
Lifetime warranty/warranty (years)	●	●	3	●	●	●	●	●	3	3	3	3	3	●	●	●	●	3	3	3	3	3
Input alert	●	●		●	●									●	●		●					●
Dangerous voltage indication	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			●	●	●
EN61010-1 CAT III	1000 V	1000 V	1000 V	1000 V	1000 V	1000 V	1000 V	1000 V	600 V	600 V	600 V	600 V	600 V	1000 V	1000 V	1000 V	1000 V	1000 V	1000 V	1000 V	1000 V	1000 V
EN61010-1 CAT IV	600 V	600 V	600 V	600 V	600 V	600 V	600 V	600 V						600 V	600 V	600 V	600 V			600 V	600 V	600 V

3000 FC
Wireless Digital Multimeter

FLUKE®

ANDROID APP ON Google play
Download on the App Store

Built with FLUKE CONNECT™

Fluke 3000 FC

See it. Save it. Share it.

The Fluke 3000 FC True-RMS Wireless Multimeter and Fluke Connect wireless test tools put tools, not your body, near live electrical panels. It's simple. Just de-energize the cabinet, open the panel while wearing PPE and connect the remote modules, whether they are voltage modules, current clamps, flexible current loops or thermometers. Then read the results on the 3000 FC Wireless Multimeter from a safe distance. You can display the meter measurement, plus readings from up to 3 wireless modules, while reducing the risk of arc flash by separating yourself from hazardous measurement situations.
Better still, the Fluke 3000 FC Series Wireless Multimeter can send measurement data to your smartphone, so you can save and share measurements from the field with your team anytime, from anywhere.

Other capabilities of Fluke Connect and the FC 3000 Multimeter.

- Connect to your PC with USB dongle (optional) for analysis and diagnosis in detail.
- Perform for analysis with your smarthphone and the FC App and share the results using Fluke Cloud™ storage and ShareLive™ video call. View data or graphs to get input from team members.

The Fluke 3000 FC Series Wireless Multimeter with the Fluke Connect™ app has all the essentials for convenient test and measurement troubleshooting.

- AC and DC voltage measurements to 1000V
- AC and DC current with 0.01 mA resolution
- Continuity, resistance, diode test, capacitance and frequency measurements
- MIN/MAX Recording
- CAT III 1000 V, Cat IV 600 V; IP54

CAT III 1000V
CAT IV 600V

True RMS

For more information on Fluke Connect, see pages 13-18.

Specifications

Functions	Range and resolution	Basic accuracy
AC voltage	600.0 mV, 6.000 V, 60.00 V, 600.0 V, 1000V	1.0 % + 3
DC voltage	600.0 mV, 6.000 V, 60.00 V, 600.0 V, 1000V	0.09 % + 2
Continuity		Meter beeps at < 25 Ω, beeper detects opens or shorts of 250 µs or longer
Resistance	600 Ω, 600.0 Ω, 6.000 kΩ, 60.00 kΩ, 60.00 kΩ, 600.0 kΩ, 50.00 MΩ	0.5 % + 1
Diode test	2.000 V	1 % + 2
Capacitance	1000 nF, 10.00 µF, 100.0 µF, 9999 µF[1]	1.2 % + 2
mA AC (45 Hz to 1 kHz)	60.00 mA, 400.0 mA[3]	1.5 % + 3
mA DC[2]	60.00 mA, 400.0 mA[3]	0.5 % + 3
Frequency	0.01 Hz, 0.1 Hz, 0.001 kHz, 0.01 kHz	0.1 % + 1

[1] In the 9999 µF range for measurements to 1000 µF, the measurement accuracy is 1.2 % + 2.
[2] Input burden voltage (typical): 400 mA input 2 mV/mA.
[3] 400.0 mA accuracy specified up to 600 mA overload.

For all specifications: accuracy is specified for one year after calibration, at operating temperatures of 18 °C to 28 °C, with relative humidity at 0 % to 90 %. Accuracy specifications take the form of ± ([% of Reading] + [Number of least significant digits]).

Included Accessories

TL175 Test Leads, AC175 Alligator Clips, manual information pack.

Ordering Information

Fluke 3000FC FC Wireless Digital Multimeter

Recommended Accessories

TPAK
See page 155

TL238
See page 145

C35
See page 152

TL175
See page 147

PC adapter
See page 155

v3000 FC Wireless AC Voltage Module / v3001 FC Wireless DC Voltage Module

FLUKE®

ANDROID APP ON Google play
Download on the App Store

Built with FLUKE CONNECT™

Fluke v3000 FC

Fluke v3001 FC

See it. Save it. Share it.

All the facts, right in the field. The Fluke v3000 FC Wireless AC Voltage Module and Fluke v3001 FC Wireless DC Voltage Module are members of a family of wireless test tools that let you share test data using the Fluke Connect™ app with ShareLive™ video call.

Fluke v3000 FC Wireless True-RMS AC Voltage Module
A fully functional True RMS voltage meter that wirelessly relays AC voltage measurements to other Fluke Connect™ enabled master units.

v3000 FC main features include:
- True-RMS AC voltage module
- Measure up to 1000 V
- Use as a standalone meter or as part of the system
- Logging function for recording and saving up to 65,000 readings

Fluke v3001 FC Wireless DC Voltage Module
A fully functional DC voltage meter that wirelessly relays DC voltage measurements to other Fluke Connect™ enabled master units.

v3001 FC main features include:
- Measure up to 1000 V DC
- Use as a standalone meter or as part of the system
- Logging function for recording and saving up to 65,000 readings

AC voltage

Range[1]	Resolution	Accuracy[2,3,4]	
		45 Hz to 500 Hz	500 Hz to 1 kHz
6.000 V	0.001 V	1.0 % + 3	2.0 % + 3
60.000 V	0.01 V		
600.0 V	0.1 V		
1000 V	1 V		

DC voltage

Function	Range	Resolution	Accuracy
mV dc	600.0 mV	0.1 mV	0.09 % +3
V dc	6.000 V	0.001 V	0.09 % +3
	60.00 V	0.01 V	
	600.0 V	0.1 V	
	1000 V	1 V	0.15 % + 2

[1] All ac voltage ranges are specified from 1 % of range to 100 % of range.
[2] Crest factor of ≤ 3 at full scale up to 500 V, decreasing linearly to crest factor ≤ 1.5 at 1000 V.
[3] For non-sinusoidal waveforms, add -(2 % of reading + 2 % full scale) typical, for crest factor up to 3.
[4] Do not exceed 106 V-Hz.

Fluke V3000FC Wireless AC Voltage Module with test leads and alligator clips

CAT III 1000V
CAT IV 600V

True RMS

For more information on Fluke Connect, see pages 13-18

Specifications

Model / specification	v3000 / v3001
LCD w/backlight	3½ digits, 6000 counts, updates 4/sec
Battery type	2 AA, NEDA 15 A, IEC LR6
Log rate/Interval	Adjustable by PC from 1 sec to 1 hr, default 1 min
Battery life	400 hours
Memory	Record up to 65000 readings
RF communications	2.4 GHZ ISM Band
RF communication range	Open air, unobstructed: Up to 20 m Obstructed, sheetrock wall: Up to 6.5 m Obstructed, concrete wall or steel electrical enclosure: Up to 3.5 m
Operating temperature	-10 °C to +50 °C
Storage temperature	-40 °C to +60 °C
Temperature coefficient	0.1 X (specified accuracy)/°C (< 18 °C or > 28 °C)
Operating humidity	90 % at 35 °C, 45 % at 40 °C, 45 % at 50 °C
Altitude	Operating: 2,000 m Storage: 12,000 m
EMC	EN 61326-1:2006
Safety compliance	ANSI/ISA 61010-1 / (82.02.01): 3rd edition CAN/CSA-C22.2 No 61010-1-12: 3rd edition UL 61010-1: 3rd edition IEC/EN 61010-1:2010
Safety rating	CAT IV 600 V, CAT III 1000 V
Certifications	CSA, CE, FCC: T68-FBLE IC: 6627A-FBLE
Ingress Protection (IP) rating	IP42
Pollution Degree	2
Size (hxwxd)	16.5 cm x 6.35 cm x 1.4 cm
Weight	0.22 kg

Included Accessories

TL224 Test leads, AC285 Alligator Clips, Magnetic hanging strap

Ordering Information

Fluke v3000FC	FC Wireless AC Voltage Module
Fluke v3001FC	FC Wireless DC Voltage Module

Recommended Accessories

AC87
See page 147

AC220
See page 147

PC adapter
See page 155

280 Series Digital Multimeters

FLUKE®

ANDROID APP ON Google play
Download on the App Store

FLUKE CONNECT™

Fluke 289 Fluke 287

Now compatible with the Fluke Connect™ mobile app

Precise performance

View logged data graphically on screen

Lifetime Warranty!

CAT III 1000V
CAT IV 600V

TÜV PRODUCT SERVICE GS LISTED UL SP

True RMS

For more information on Fluke Connect, see pages 13-18

Included Accessories

TL175 test leads, AC175 alligator clips, probe holder, 6 AA batteries (installed), user manual, Calibration Certificate Sheet.

Ordering Information

Fluke 287	True-RMS Electronic logging multimeter with TrendCapture
Fluke 289	True-RMS Industrial logging multimeter with TrendCapture
Fluke 289/FVF	Industrial logging multimeter and Software Combo Kit (see page 6)
Fluke 287/FVF	FlukeView Forms Combo Kit (see page 6)
FVF-SC2	FlukeView Forms software including IR/USB cable
ir3000FC	FC Connector

Advanced diagnostic and logging functionality for maximizing productivity

Replacing the popular 180 Series, the Fluke 289 and Fluke 287 represent the next generation of high-performance industrial logging multimeters, including higher accuracy and greater troubleshooting convenience than ever before. With the ability to log data and review it graphically on the large display, you can solve problems faster and help minimize downtime, while working at several locations.

- Large 50,000 count 320 x 240 (1/4 VGA) dot matrix display
- Logging function with TrendCapture for easy review of logged data
- Multiple readings per display provide more information at a glance
- "I"-info button for convenient on-board help
- PC interface for easy data transfer

In addition, the Fluke 289 provides:

- Lo Pass filter for motor drive measurements
- LoZ – Low impedance function prevents false "ghost voltage" readings
- 50 Ω range for motor winding and low ohm measurements

Features

	287	289
True-RMS measurements	AC, AC+DC	AC, AC+DC
Bandwidth (voltage/current)	100 kHz / 100 kHz	100 kHz / 100 kHz
Digital display counts (default/selectable)	50.000 / 50.000	50.000 / 50.000
Logging function with TrendCapture	●	●
Records events and trends	●	●
Internal memory	Up to 180 h	Up to 180 h
Saves measurements	●	●
Optical USB PC communications interface	●	●
Low input impedance function (LoZ)		●
Motor winding and low ohm measurement range		50 Ω
Low pass filter		●
Field upgradeable/expandable meter	●	●
Navigation keys	●	●
F1-F4 soft keys/user function menus	●	●
I-info button/on board help screens	●	●
Multilingual interface	●	●
Saves preferred measurement setups	●	●
Current measurement: 20 A (30 seconds momentary; 10 A continuous)	●	●
Peak capture (records transients as fast as 250 µs)	●	●
Continuity measurement	●	●
Min/Max/Average with Time Stamp (records signal fluctuations)	●	●
IP Rating 54	●	●

Specifications

(Check the Fluke web for detailed specifications)

Functions	Maximum	Max. resolution	287 and 289**
Voltage DC	1000 V	1 µV	±(0.025% + 5)
Voltage AC	1000 V	1 µV	±(0.4% + 40)
Current DC	10 A	0.01 µA	±(0.15% +2)
Current AC	10 A	0.01 µA	±(0.7% + 5)
Temperature	-200 °C to 1350 °C	0.1 °C	±(1.0% + 1 °C)
Resistance	500 MΩ	0.01 Ω	±(0.05% + 2)
Conductance	50 nS	0.01 nS	±(1.0% + 10)
Capacitance	100 mF	0.001 nF	±(1.0% + 5)
Frequency	1 MHz	0.01 Hz	±(0.005% + 1)

Accuracies are best accuracies for each function.
** 287 and 289 accuracy and resolution are stated for 50.000 counts

Battery life: 50 hours minimum, 180 hours in logging mode
Size (HxWxD): 222 mm x 102 mm x 60 mm
Weight: 0,871 kg
Lifetime warranty

Recommended Accessories

TLK289
See page 146

ir3000FC Connector
See page 155

TLK287
See page 144

TPAK
See page 155

C280
See page 152

233 Remote Display Multimeter

FLUKE®

Fluke 233

Ultimate flexibility with removable display

The Fluke 233 remote display digital multimeter allows you to be in two places at once. The removable display solves the problems of holding both the meter and the test leads to make a measurement, making measurements in hard-to-reach places, and making measurements in machines or panels that are physically separated from a limit switch or an isolator switch. Wireless technology allows the display to be carried up to 10 meters away from the point of measurement. 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.

Features

	233
Removable magnetic display	●
True-RMS measurement	●
Digital display counts	6000
Display backlight	●
Built in thermometer	●
Resistance, continuity and diode test	●
Min/Max and average recording	●
Auto power off maximizes battery life	●
Radio transmitter automatically turns off when the display is connected to the meter	●
Use as conventional multimeter when the display is connected	●
Safety rating	CAT IV 600 V / CAT III 1000 V
Auto and manual ranging	●
Display Hold and AutoHOLD®	●
Unsafe voltage alert warns for voltages above 30V	●
2 Low batteries indication	●
Ergonomic case with integrated holster	●
Selectable sleep mode preserves battery life	●

CAT III 1000V
CAT IV 600V
On all inputs

True RMS

Specifications

Functions	Fluke 233		
	Maximum	Max. Resolution	Accuracy
Voltage DC	1000 V	0.1 mV	±(0.25% + 2)
Voltage AC	1000 V	0.1 mV	±(1.0% + 3)
Current DC	10 A	1 mA	±(1.0% + 3)
Current AC	10 A	1 mA	±(1.5% + 3)
Resistance	40 MΩ	0.1 Ω	±(0,9% + 1)
Capacitance	9999 µF	1 nF	±(1,9% + 2)
Frequency	50.00 kHz	0.01 Hz	±(0,1% + 2)
Temperature	-40 °C to +400 °C	0,1 °C	±(1% + 10)
Wireless frequency: 2.4 GHz ISM Band 10 meter range			

Accuracies are best accuracies for each function

Battery Life: AA alkaline (3 for main body, 2 for display), 400 hrs typical
Size (HxWxD): 193 x 93 x 53 mm

Weight: 0.6 kg
Three year warranty

Included Accessories

Test leads with 4mm lantern tips, AC 175 alligator clips, 80BK-A temperature probe, CD-ROM, AA batteries and user manual.

Ordering Information

Fluke 233 Remote Display Multimeter

Recommended Accessories

80AK-A
See page 150

80PK-9
See page 150

i410
See page 149

Tpak
See page 155

C35
See page 152

80 Series V Digital Multimeters

FLUKE®

Fluke 87V

Fluke 83V

83V/87V

On all inputs

True RMS

Performance and accuracy for maximum industrial productivity

The Fluke 80 Series V have improved measurement functions, troubleshooting features, resolution and accuracy to solve more problems on motor drives, in plant automation, power distribution, and electro-mechanical equipment.

The Fluke 87V has a unique function for accurate voltage and frequency measurements on adjustable speed motor drives and other electrically noisy equipment. A built-in thermometer conveniently allows you to take temperature readings without having to carry a separate instrument.

Features

	83V	87V
True-RMS voltage and current for accurate measurements on non linear signals		●
Bandwidth (voltage/current)	5 kHz	20 kHz
Digital display counts (default/selectable)	6000	20000 / 6000
Selectable filter for accurate voltage and frequency measurements on motor drives		●
Large display with analog bargraph and 2 level bright white backlight	●	●
Auto and manual ranging for maximum flexibility	●	●
Built-in thermometer lets you carry one less tool		●
Peak capture to record transients as fast as 250 µs		●
Relative mode to remove test lead resistance from low ohms measurements	●	●
Min-Max-Average recording with Min/Max Alert to capture variations automatically	●	●
AutoHOLD® to capture stable readings avoiding noisy signals	●	●
Audible continuity, diode test and duty cycle	●	●
Input Alert	●	●
"Classic" design with new removable holster with built in test lead and probe storage	●	●
Improved selectable sleep mode for long battery life	●	●
Easy battery exchange without opening the complete case	●	●

Specifications

(Check the Fluke web for detailed specifications)

Functions	Maximum Range	83V		87V*	
		Max. resolution	Accuracy	Max. resolution	Accuracy
Voltage DC	1000 V	0.1 mV	±(0.1%+1)	10 µV	±(0.05%+1)
Voltage AC	1000 V	0.1 mV	±(0.5%+2)	10 µV	±(0.7%+2)
Current DC	10 A **	0.1 µA	±(0.4%+2)	0.01 µA	±(0.2%+2)
Current AC	10 A **	0.1 µA	±(1.2%+2)	0.01 µA	±(1.0%+2)
Resistance	50 MΩ	0.1 Ω	±(0.4%+1)	0.01 Ω	±(0.2%+1)
Conductance	60 nS	0.01 nS	±(1.0%+10)	0.001 nS	±(1.0%+10)
Capacitance	9999 µF	0.01 nF	±(1.0%+2)	0.01 nF	±(1.0%+2)
Frequency	> 200 kHz	0.01 Hz	±(0.005%+1)	0.01 Hz	±(0.005%+1)
Temperature	-200 to 1090 °C		-	0.1 °C	1.0%
80BK temperature probe	-40 to 260 °C		-	-	2.2 °C or 2%

Accuracies are best accuracies for each function.
* 87V accuracy is stated for 6000 counts and resolution for 20000 counts
** 20 A up to 30 seconds

Battery Life: Over 400 hours typical (alkaline).
Size (HxWxD):
200 mm x 95 mm x 48 mm

Weight: 0.6 kg
83V/87V: Lifetime Warranty

Included Accessories

TL175 test leads, AC175 alligator clips, yellow holster (H80M excl. TPAK), 80BK temperature probe (87V only), 9 V battery (installed), CD-ROM (user's manual and technical notes) and operator's guide.

Ordering Information

Fluke 83V	Multimeter
Fluke 87V	True RMS Multimeter
Fluke 87V/E2	Industrial Electrician Combo Kit

See page 5

Recommended Accessories

C25
See page 152

TL238
See page 145

i410/i1010
See page 149

TPAK
See page 155

L215
See page 146

170 Series Digital Multimeters

FLUKE®

Fluke 179

Fluke 177

Fluke 175

Lifetime Warranty!

CAT III 1000V
CAT IV 600V
On all inputs

LISTED UL · CSA · TÜV PRODUCT SERVICE · GS · VDE · True RMS

Versatile meters for field service or bench repair

These meters have the features needed to find most electrical, electro-mechanical and heating and ventilation problems. They are simple to use and have significant improvements over Fluke's original 70 Series like True-RMS, more measurement functions, conformance to the latest safety standards, and a much larger display that's easier to view.

Features

	175	177	179
True-RMS measurements	AC	AC	AC
Digital display counts, updates 4 times per second	6000	6000	6000
Display backlight		●	●
Analog bargraph / 33 segments, updates 40 times per second	●	●	●
Auto and Manual ranging	●	●	●
Display Hold and AutoHOLD®	●	●	●
Min-Max-Average recording mode with Min/Max Alert	●	●	●
Temperature readings (bead thermocouple probe included)			●
Smoothing mode allows filtering of rapidly changing inputs	●	●	●
Audible continuity and diode test	●	●	●
Test lead alert	●	●	●
Unsafe voltage alert warns for voltages above 30V	●	●	●
Low battery indication	●	●	●
Ergonomic case with integrated holster	●	●	●
Easy battery and fuse exchange without opening the complete case	●	●	●
Selectable sleep mode preserves battery life	●	●	●

Specifications

(Check the Fluke web for detailed specifications)

Functions	Maximum	Max. resolution	175	177	179
Voltage DC	1000 V	0.1 mV	±(0.15%+2)	±(0.09%+2)	±(0.09%+2)
Voltage AC	1000 V	0.1 mV	±(1.0%+3)	±(1.0%+3)	±(1.0%+3)
Current DC	10 A	0.01 mA	±(1.0%+3)	±(1.0%+3)	±(1.0%+3)
Current AC	10 A	0.01 mA	±(1.5%+3)	±(1.5%+3)	±(1.5%+3)
Resistance	50 MΩ	0.1 Ω	±(0.9%+1)	±(0.9%+1)	±(0.9%+1)
Capacitance	10000 µF	1 nF	±(1.2%+2)	±(1.2%+2)	±(1.2%+2)
Frequency	100 kHz	0.01 Hz	±(0.1%+1)	±(0.1%+1)	±(0.1%+1)
Temperature	-40 °C/+400 °C	0.1 °C			±(1.0%+10)

Accuracies are best accuracies for each function

Battery Life: Alkaline, 200 hrs typical
Size (HxWxD): 190 mm x 85 mm x 45 mm
Weight: 0.42 kg
Lifetime Warranty

Included Accessories

Test leads with 4 mm lantern tips, installed 9V battery and users manual. The 179 also includes the 80BK temperature probe.

Ordering Information

Fluke 175	True RMS Multimeter
Fluke 177	True RMS Multimeter
Fluke 179	True RMS Multimeter
Fluke 179/EDA2 Kit	Electronics Combo Kit
Fluke 179/MAG2 Kit	Industrial Combo Kit

See page 5

Recommended Accessories

i400
See page 148

C90
See page 152

TLK-220
See page 145

SV225
See page 156

i410-i1010
See page 149

110 Series Digital Multimeters

Fluke 117

Fluke 115

Fluke 114

Fluke 116

Fluke 113

600V CAT III
On all inputs

LISTED UL · CSA · TÜV PRODUCT SERVICE GS · VDE · True RMS

Compact design for ergonomic one-handed operation

The Fluke 110 Series has five true-rms DMMs, each for specific users. The compact instruments offer convenient one-handed operation and a backlit display with large, easy-to-read digits.

Fluke 117 Electrician's Multimeter with Non-Contact Voltage

The 117 is for electricians working in commercial and non-commercial premises (like hospitals and schools). It includes extras like non-contact voltage detection for faster and safer operation.

Fluke 116 Multimeter with Temperature and Microamps

The 116 is for heating, ventilation and air conditioning (HVAC) engineers. It includes temperature measurement and microamp current ranges to quickly troubleshoot HVAC problems.

Fluke 115 Field Service Testing Multimeter

An everyday multimeter for technicians, the 115 is for electrical and electronic testing in field service, industrial, and applications where more than the basic functions simplify work.

Fluke 114 Electrical Multimeter

The 114 is for electrical troubleshooting and straightforward 'go/no-go' in residential/commercial testing. It has all the basic functions plus a special feature to prevent false readings caused by ghost voltage.

Fluke 113 Multimeter

The 113 is for basic electrical tests and repairing most electrical problems. Features include Fluke's VCHEK™, added measurement functions, backlight and conformance to the latest safety standards.

Features

	113	114	115	116	117
True RMS readings	AC	AC	AC	AC	AC
Counts	6000	6000	6000	6000	6000
Backlight	●	●	●	●	●
Analog bargraph	●	●	●	●	●
AutoVolt: Automatic AC/DC voltage selection		●		●	●
VoltAlert™, Non-contact voltage detection					●
Built-in thermometer for HVAC applications				●	
LoZ: low input impedance to prevent ghost voltage		●		●	●
VCHEK™ LoZ low impedance measurement function to simultaneously test for voltage or continuity	●				
Min/Max/Average to record signal fluctuations	●	●	●	●	●
Resistance, continuity	●	●	●	●	●
Frequency, Capacitance, Diode test	-/ ●/ ●		●	●	●
Microamps to test flame sensors				●	
Display hold	●	●	●	●	●
Auto/manual ranging	●	●	●	●	●
Low battery indication	●	●	●	●	●
Compact case with removable holster	●	●	●	●	●

Specifications

(Check the Fluke web for detailed specifications)

Functions	Maximum	Max. resolution	113	114	115	116	117
Voltage DC	600V	1mV	±(0.5%+2)	±(0.5%+2)	±(0.5%+2)	±(0.5%+2)	±(0.5%+2)
Voltage AC	600V	1mV		±(1.0%+3)	±(1.0%+3)	±(1.0%+3)	±(1.0%+3)
Current DC	10.00A	1mA			±(1.0%+3)		±(1.0%+3)
Current AC	10.00A	0.01A			±(1.5%+3)		±(1.5%+3)
Resistance	40MΩ (113: 60KΩ)	0.1Ω	±(0.9%+2)	±(0.9%+1)	±(0.9%+1)	±(0.9%+1)	±(0.9%+1)
Capacitance	10000µF	1nF	±(1.9%+2)		±(1.9%+2)	±(1.9%+2)	±(1.9%+2)
Frequency	50kHz	0.01Hz			±(0.1%+2)	±(0.1%+2)	±(0.1%+2)
Temperature	-40°C/+400°C	0.1°C				±(1.0%+10)	
VCHEK™	600.0V AC/DC	0.1V	±(2.0%+3)				

Accuracies are best accuracies for each function

Battery type: 9 volt Alkaline, 400 hours typical
Size (HxWxD): 167 mm x 84mm x 46 mm
Weight: 0.55 kg (including batteries)
Three Year Warranty

Included Accessories

Test leads with 4 mm lantern tips, holster, installed 9V battery and users manual

Ordering Information

Fluke 113	True RMS Multimeter
Fluke 114	True RMS Multimeter
Fluke 115	True RMS Multimeter
Fluke 116	True RMS Multimeter
Fluke 117	True RMS Multimeter
Fluke 117/323 Kit	Electricians Combo Kit
Fluke 116/62 MAX+ Kit	Combo Kit
Fluke 116/323 Kit	Combo Kit

(see page 5)

Recommended Accessories

C50
See page 152

TL223-1
See page 145

MC6
See page 156

TPAK
See page 155

27II / 28II Rugged IP67 Industrial Multimeters

FLUKE®

Fluke 27 II

Fluke 28 II

True RMS

Lifetime Warranty!

Lifetime Warranty!

Fluke 28II Ex

CAT III 1000V CAT IV 600V

On all inputs

LISTED

Designed to survive water, dust and rough handling and yet troubleshoot most electrical problems

The Fluke 27 II and 28 II digital multimeters define a new standard for operating in harsh conditions with the features and accuracy to troubleshoot most electrical problems. Both meters have IP 67 (waterproof and dustproof) rating, MSHA approvals, extended operating temperature range of -15° C to + 55°C and 95% humidity, and a 3-meter drop. They withstand hazardous 8.000 volt spikes caused by load switching and faults on industrial circuits and complies with second edition IEC and ANSI electrical safety standards.
Furthermore, the 28 II has a unique function for accurate voltage and frequency measurements on adjustable speed motor drives and other electrically noisy equipment.
The new Fluke 20 series multimeters are built to work in the toughest environments.
For 28II Ex see also page 135 and 136.

Features

	27 II	28 II / 28 II Ex
IP 67 waterproof & dustproof protection	●	●
Withstands 3 meter drop (with holster)	●	●
True-RMS measurements		●
Digital display counts	6000	20000/6000
Bright, two-level backlight	●	●
Backlit keypad buttons	●	●
Reversible, rubber holster	●	●
Built-in thermometer		●
Resistance, continuity and diode test	●	●
Min/Max and average recording	●	●
Improved sleep mode for long battery life	●	●
Relative mode to remove test lead resistance from low ohms measurements	●	●
Auto and manual ranging	●	●
Safety rating	CAT III 1000 V CAT IV 600 V	CAT III 1000 V CAT IV 600 V
ATEX Ⓔx safety rating II 2 G Ex ia IIC T4 Gb II 2 D Ex ia IIIC T130 °C Db I M1 Ex ia I Ma		28 II Ex

Specifications

Functions	Maximum	Max. Resolution	27 II	28 II / 28 II Ex
Voltage DC	1000 V	0.1 mV	±(0.1% + 1)	±(0.05% + 1)
Voltage AC	1000 V	0.1 mV	±(0.5% + 3)	±(0.7% + 4)
Current DC	10 A	0.1 µA	±(0.2% + 4)	±(0.2% + 4)
Current AC	10A	0.1 µA	±(1.5% + 2)	±(1.0% + 2)
Temperature	-200°C to +1090°C	0.1°C		±(1% + 10)
Resistance	50MΩ	0.1Ω	±(0.2% + 1)	
Low pass filter (Measurement on VSD's)				yes
Capacitance	9999µF	0.01nF	±(1% + 2)	
Frequency	200 kHz	0.01 Hz	0.005% + 1	
Peak transient capture				250 µS

Accuracies are best accuracies for each function

Battery Life: 3x AA alkaline, 800 hrs typical
Size (HxWxD): 198 x 100 x 63.5 mm

Weight: 0.75 kg
Lifetime Warranty

Included Accessories

TL175 Test leads, AC175 alligator clips, 80BK-A temperature probe (28 II), holster, manual, CD-ROM, three AA batteries (installed)

Ordering Information

Fluke 27 II	IP 67 Industrial Multimeter
Fluke 28 II	IP 67 True-RMS Industrial Multimeter
Fluke 28 II Ex	Intrinsically safe True-RMS Industrial Multimeter

Recommended Accessories

PV 350
See page 154

i200
See page 148

i410
See page 149

80K-6
See page 156

77IV Digital Multimeter

Fluke 77 IV

Versatile multimeter for field service or bench repair

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.

Features

	77 IV
Digital display counts	6000
Large display with backlight	●
Min-Max-Average recording mode with Min/Max Alert	●
High contrast digital display with large digits	●
Analog bargraph/segments	31
Auto and Manual ranging	●
Automatic Touch Hold®	●
Audible continuity / diode test	●
Ergonomic case with integrated holster	●
Sleep Mode preserves battery life	●
EN 61010-1 safety rating	CAT IV 600 V / CAT III 1000 V

Specifications

Function	Maximum	Max. resolution	Accurancy
Voltage DC	1000 V	1 mV	±(0.3%+1)
Voltage AC	1000 V	1 mV	±(2.0%+2)
Current DC	10 A	0.01 mA	±(1.5%+2)
Current AC	10 A	0.01 mA	±(2.5%+2)
Resistance	50 MΩ	0.1 Ω	±(0.5%+1)
Capacitance	9999 µF	1 nF	±(1.2%+2)
Frequency	99.99 kHz	0.01 Hz	±(0.1%+1)

Accuracies are best accuracies for each function.

Battery Life: 400 hours typical
Size (HxWxD): 185 mm x 90 mm x 43 mm
Weight: 0.42 kg
Lifetime Warranty

Lifetime Warranty!

CAT III 1000V
CAT IV 600V

On all inputs

Included Accessories

Test leads with 4mm lantern tips, operator's manual, 9V battery (installed)

Ordering Information

Fluke 77IV Multimeter

Recommended Accessories

i400
See page 148

C35
See page 152

Tpak
See page 155

TL225
See page 156

TLK-225
See page 146

88V Automotive Meter

Fluke 88V/A

Lifetime Warranty!

CAT III 1000V
CAT IV 600V

On al inputs

LISTED

The right meter for auto-electric diagnosis

Perhaps the most important tool you'll use in troubleshooting auto electrical systems is the multimeter. Basic multimeters measure voltage, current and resistance, while automotive multimeters like the Fluke 88V have features that can check frequency, duty cycle, make diode tests, and measure temperature, pressure and vacuum.

Features

	88V/A
Continuity for detecting open and shorts	●
Frequency for "pulsed-DC" and AC tests	●
Duty cycle to verify operation of feedback carburetors	●
Diode test for alternator testing	●
Built-in thermometer; thermocouple probe included	●
Min/Max/Average recording with Min/Max Alert	●
Peak capture to record transients as fast as 250 µs	●
Relative mode to remove test lead resistance from low ohms measurements	●
Millisecond pulse width measurements for fuel injectors	●
AutoHOLD® to capture stable readings	●
Large display with bright, two-level backlight	●
Magnet hanger to attach meter to the vehicle	●
RPM80 Inductive Pickup for both conventional and distributorless (DIS) ignitions	●
Hard Meter Case	●
Safety rating	CAT III 1000 V, CAT IV 600 V

Specifications

	Fluke 88V		
	Range	Resolution	Accuracy
Voltage DC	1000V	0.1mV	0.1%
Voltage AC	1000V (5 kHz)	0.1mV	0.5%
Current DC	10A	0.1µA	0.4%
Current AC	10A	0.1µA	1.2%
Resistance	50MΩ	0.1Ω	0.4%
Capacitance	10mF	0.01nF	1%
Frequency	200kHz	0.01Hz	0.01%
Temperature	1090°C	0.1°C	1%

Battery Life: 88V – Over 400 hours typical (alkaline)
Size (HxWxD): 88V – 186 mm x 86 mm x 32 mm
Weight: 88V – 0.36 kg
Lifetime Warranty

Included Accessories

H80M Holster with TPAK Meter Hanging Solution, TL224 SureGrip Silicone Test Lead Set, TP74 Test Probe Set, AC285 SureGrip Large Jaw Alligator Clip Set, 80BK Integrated Temperature Probe, RPM80 Inductive Pick-up Probe, C800 Hard Case, User's Manual + Quick Reference Guide

Ordering Information

Fluke 88V/A Automotive Meter Combo Kit

Recommended Accessories

TL82
See page 154

TLK-282-1
See page 154

90i-610s
See page 154

80PK-27 (requires 80AK)
See page 150

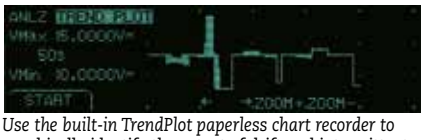
PV350
See page 154

8845A/8846A
6.5 Digit Precision Multimeters

FLUKE®

Fluke 8845A

Fluke 8846A



Use the built-in TrendPlot paperless chart recorder to graphically identify the extent of drift and intermittent events in analog circuits

View results in Histogram mode to reveal stability or noise problems in analog circuits

Handle even the most demanding measurements with high accuracy and 6.5 digit resolution

LISTED UL CSA True RMS

Included Accessories

LCI Line Power Cord, Test Lead Set, Spare Line Power fuse, Programmers Manual/ User Manual on CD-ROM, 884X-USB USB to RS232 Cable Adapter, FVF-BASIC FlukeView Forms Software Basic Version.

Ordering Information

Fluke 8845A	6.5 Digit Precision Multimeter
Fluke 8845A/SU	6.5 Digit Precision Multimeter (software + cable)
Fluke 8846A	6.5 Digit Precision Multimeter
Fluke 8846A/SU	6.5 Digit Precision Multimeter (software + cable)
Calibration & Service agreements	

Precision and versatility for bench or systems applications

The Fluke 8845A and 8846A, 6.5 digit precision multimeters have the precision and versatility to handle your most demanding measurements on the bench or in a system.

Dual Display offers versatile graphical capabilities: The 8845A and 8846A features a unique graphical display that can reveal signal quality issues like drift, intermittent and stability by viewing the measurement data as a real time TrendPlot™, Histogram or Statistics using the unique analyze mode.
Wide Measurement Ranges: Resistance or current has been extended to cover the widest range possible.

Perform 4-wire measurements easily with two leads: Patented split terminal jacks for 2x4 Ohms function allows you to perform precise 4-wire measurements with only two leads instead of four. Optional Kelvin leads accessories are available to enable you to establish a 4-wire connection even in tight spaces.
Systems Capabilities: Both instruments include an RS-232, IEEE-488 and Ethernet interface as standard, with popular DMM emulation modes makes systems integration a simple task.
Software: Transfer data points from your meter to your PC with the free copy of FlukeView Forms Basic. To customize your forms upgrade with FVF-UG.

Features

	8845A	8846A
Display	Dual VFD Dot Matrix	
Resolution	6.5 Digits	
Measurement Rate (Rdgs/s)	1000	
Continuity / Diode Test	Yes	
Analytical Functions	Statistics, Histogram, TrendPlot™, Limit Compare	
Math Functions	NULL, Min/Max, dB/dBm	
USB Device Port	–	USB Memory Drive port
Real Time Clock	–	Yes
Interfaces	RS232, IEEE-488.2, Ethernet	
Programming Languages/ Emulation Modes	SCPI (IEEE-488.2), Agilent 34401A, Fluke 45	
Safety	Designed to comply with IEC 61010-12000-1, ANSI / ISA-S82.01-1994, CAN / CSA-C22.2 No.1010.1-92 1000V CATI / 600V CATII	

Specifications

(Check the Fluke web for detailed specifications)

	8845A			8846A		
Function*	**Range**	**Resolution**	**Accuracy* (%)**	**Range**	**Resolution**	**Accuracy* (%)**
Voltage DC	1000 V	100 nV	0.0035	1000 V	100 nV	0.0024
Voltage AC (Freq 300 Hz)	750 V	100 nV	0.06	1000 V	100 nV	0.06
Resistance (2x4 Wire)	100 MΩ	100 µΩ	0.01	1 GΩ	10 µΩ	0.01
Current DC	10 A	100 pA	0.05	10 A	100 pA	0.05
Current AC (Freq. 3Hz-10kHz)	10 A	10 µA	0.10	10 A	100 pA	0.10
Freq/Period	300 kHz	1 µHz	0.01	1 MHz	1 µHz	0.01
Capacitance	-	-	-	1 nF to 100 mF	1 pF	1
Temperature RTD	-	-	-	-200 to +600°	0.001°	0.06

* Accuracy =+/- (% of reading)

Size (HxWxD): 88 mm x 215 mm x 293 mm
Weight: 3.6 kg
Three Year Warranty

Recommended Accessories

884X-case
Hard case

TL2X4W-TWZ
2x4 Wire Ohms Tweezer Test Leads

TL2X4W-PT II
2x4 Wire Ohms Test lead 2mm Probe Tip

884X-512M
USB Memory 512M

FVF-UG
FlukeView Forms Software Upgrade

8808A 5.5 Digit Multimeter

Fluke 8808A

The Fluke 8808A includes two low impedance low current ranges for measuring sensitive leakage currents

Use setup keys (S1-S6) for fast access to repetitive measurements. Setups can include limit compare mode with pass/fail indicators

Dual Display

LISTED UL CSA True RMS

Included Accessories

LCI Line Power Cord, Test Lead Set, Spare Line Power fuse, 884X-USB USB to RS232 Cable Adapter, FlukeView Forms Software Basic Version, Programmers Manual/User Manual on CD-ROM.

Ordering Information

Fluke 8808A	5.5 digit multimeter
Fluke 8808A/SU	5.5 digit multimeter, (software & cable)
Fluke 8808A/TL	5.5 digit multimeter, 2X4W Test Lead Kit

Versatile multimeter for manufacturing, development and service applications

Manufacturing test, R&D, development and service applications demand performance and flexibility from a bench meter. The Fluke 8808A delivers a wide variety of measurement functions, including volts, ohms, and amps, plus frequency - all at superior accuracy and resolution with a basic V DC accuracy of 0.015 %.

Measure sensitive leakage current: The Fluke 8808A includes two low impedance low current ranges for measuring sensitive leakage currents (i-Leakage).

Perform routine manufacturing functional tests with consistency: Use setup keys (S1 – S6) for fast access to repetitive measurements. Operators no longer need to press multiple buttons to make routine measurements.

Eliminate production mistakes: The 8808A has a limit compare mode with built in display enunciators that clearly show whether a test is within or out of limits.

Perform 4-wire measurements with only two leads: Patented split terminal jacks for 2x4 Ohms function allow you to perform precise 4-wire low ohms measurements with only two leads instead of four. Optional test lead accessories are available to enable you to establish a 4-wire connection even in tight spaces or on surface mount devices.

Features

	8808A
Display	VFD multi segment
Resolution	5.5 digits
Measurements	V ac, V dc, I dc, I ac, Ω, Cont, Diode
Advanced Measurements	2X4 Wire Ohms, Freq, i-Leakage
Continuity / Diode Test	Yes
Analytical Functions	Limit Compare
Math Functions	dBm, dB, Min, Max
Interfaces	RS-232, USB via optional adapter
Programming Languages/Modes	Simplified ASCI, Fluke 45
Safety Rating	CAT I 1000 V, CAT II 600 V

Specifications

(Check the Fluke web for detailed specifications)

Functions	Range	Resolution	Accuracy*
Voltage DC	200 mV to 1000 V	1 µV	0.015
Voltage AC (Freq. 10 Hz to 100 kHz)	200 mV to 750 V	1 µV	0.2
Resistance (2x4 Wire)	200 Ω to 100 MΩ	1 mΩ	0.02
Current DC	200 µA to 10 A	1 nA	0.02
Current AC (Freq. 20 Hz to 2 kHz)	20 mA to 10A	0.1 µA	0.3
Freq. Period	20 Hz to 1 MHz (Freq. only)	0.1 mHz	0.01

* Accuracy = +/- (% of reading)

Size (HxWxD): 88 mm x 217 mm x 297 mm
Weight: 2.1 kg
Three year Warranty

Recommended Accessories

TL2X4W-TWZ
2x4 Wire Ohms Tweezer Test Leads

884X-case
Hard case

TL2X4W-PT II
2x4 Wire Ohms Test lead 2mm Probe Tip

884X-short
4-Wire Short

FVF-UG/SC4/SC5
FlukeView Forms Software

Clamp Meters and Electrical Testers

The ergonomic clamp meters feature wide opening jaws for safe, fast non-contact current measurement. The Fluke leakage clamp meter is ideal for non-invasive checks of insulation resistance.
The range of electrical testers includes two-pole testers for taking quick measurements in tight spaces, phase rotation indicators to take the guess work out of checking phase/motor rotation, a multipurpose cable locator and handy voltage alerts.
The new Fluke iFlex flexible current probes expand the measurement range of select Fluke meters to 2500 A AC and allow technicians to reach crowded spaces.

Watch our latest videos on our own YouTube Channel *www.youtube.com/user/FlukeEurope*

	Residential/commercial electrical			General purpose				Industrial electrical	HVAC/R	High end industrial, utility		iFlex accessory	Fluke Connect™			Leakage
	323	324	325	365	373	374	375	376/381	902	353	355	i2500-10/ i2500-18	a3000FC	a3001FC[1]	a3002FC[1]	360
Measurements																
AC current	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
AC volts	●	●	●	●	●	●	●	●	●		●				●	
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							●	●		●	●					
Harmonics, power, data logging													- / - / ●	- / - / ●	- / - / ●	
18" iFlex Flexible Current Probe						Optional	Optional	Included								
10" iFlex Flexible Current Probe						Optional	Optional	Optional						●		
Remote display								- / ●								
Flashlight/torch				●												
Display																
Display hold	●	●	●	●	●	●	●	●	●	●	●					●
Backlight		●	●	●	●	●	●	●	●	●	●		●	●	●	
Specifications																
Jaw opening	30 mm	30 mm	30 mm	18 mm	32 mm	34 mm	34 mm	34 mm	30.5 mm	58 mm	58 mm	7.5 mm coil	34 mm	254 mm		40 mm
Current range ac rms	0 to 400.0 A	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 600.0 A	0 to 1400 A	0 to 1400 A	0 to 2500 A	0.5 to 400 A	0.5 to 2500 A	0.5 to 600 A	0 to 60 A
Accuracy ac current (50/60 Hz)	2,00% ± 5 counts	1,50% ± 5 counts	2,00% ± 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	2% ± 5 counts	3% ± 5 counts	AC: 1.0% ±3 counts DC: 0.5% ±3 counts	1 % ± 5 counts
AC Response	True-rms	True-rms	True-rms	True-rms	True-rms	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 400A	0 to 200 A		0 to 600.0 A	0 to 600.0 A	0 to 999.9 A	0 to 200 µA	0 to 2000 A	0 to 2000 A				0 to 1000 A	
Accuracy dc current			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				0,5 % ± 3 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 600.0 V	0 to 1000 V	600.0 V		0 to 600.0 V					
Accuracy ac voltage	1,5% ± 5 counts	1,5% ± 5 counts	1,5% ± 5 counts	2 % ± 5 counts	1 % ± 5 counts	1,5 % ± 5 counts	1,5 % ± 5 counts	1,5 % ± 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 600.0 V	0 to 600.0 V	0 to 600.0 V	0 to 1000 V	0 to 600.0 V		0 to 1000 V					
Accuracy dc voltage	1 % ± 5 counts	1 % ± 5 counts	1 % ± 5 counts	2 % ± 5 counts	1 % ± 5 counts	1 % ± 5 counts	1 % ± 5 counts	1 % ± 5 counts	1 % ± 5 counts		1 % ± 5 counts					
Resistance range	0 to 4000 Ω	0 to 4000 Ω	0 to 4000 Ω	0 to 6000 Ω	0 to 6000 Ω	0 to 6000 Ω	0 to 6000 Ω	0 to 60 kΩ	0 to 9999 Ω		0 to 400 kΩ					
Frequency measurement range			500 Hz				500 Hz	500 Hz		5 to 1000 Hz	5 to 1000 Hz	500 Hz				
Unit power																
Auto off	●	●	●		●	●	●	●	●	●	●		●	●	●	●
Warranty and safety																
Warranty (years)	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	1
Category ratings (EN61010-1)	CAT III 600 V, CAT IV 300 V	CAT III 600 V, CAT IV 300 V	CAT III 600 V, CAT IV 300 V	CAT III 600 V	CAT III 600 V, CAT IV 300 V	CAT III 1000 V, CAT IV 600 V	CAT III 1000 V, CAT IV 600 V	CAT III 1000 V, CAT IV 600 V	CAT III 600 V	CAT III 1000 V, CAT IV 600 V	CAT III 1000 V, CAT IV 600 V	CAT III 1000 V, CAT IV 600 V	CAT III 600 V	CAT III 1000 V, CAT IV 600 V	CAT III 1000 V, CAT IV 600 V	CAT III 300 V

[1] Clamp not included

a3000FC / a3001FC / a3002FC
FC Wireless Current Clamp and Modules

FLUKE®

Built with FLUKE CONNECT™

ANDROID APP ON Google play

Download on the App Store

600V CAT III

Fluke a3000 FC

CAT III 1000V CAT IV 600V

Fluke a3001 FC

CAT III 1000V CAT IV 600V

Fluke a3002 FC

True RMS

Fluke a3000FC
Wireless AC Current Clamp Module

A fully functional True rms current clamp meter that wirelessly relays measurements to other Fluke Connect™ enabled master units.

a3000FC main features include:
- Measure up to 400 A AC
- Logging function for recording and saving up to 65,000 readings
- Use as a standalone meter or as part of a system
- Inrush function

Fluke a3001FC
Wireless iFlex AC Current Module

A true-rms current clamp meter that wirelessly relays measurements to other Fluke Connect™ enabled masterunits. The iFlex™ Wireless Current Module allows you to measure around awkward sized conductors or get into tight spaces and makes wire access easier.

a3001FC main features include:
- Measure up to 2500 A AC
- Logging function for recording and saving up to 65,000 readings
- Use as a standalone meter or as part of a system
- Inrush function

Fluke a3002FC
Wireless AC/DC Current Module

Designed to be used with the i410 or i1010 AC/DC current clamps (not included with module). AC/DC current module that wirelesly relays measurements from the i410 or i1010 clamp accessory to other Fluke Connect™ enabled master units.

a3002FC main features include:
- Measure up to 400 A AC or 400 A DC with i410 (sold separately)
- Measure up to 600 A AC or 1000 A DC with i1010 (sold separately)
- Use as a standalone meter or as part of a system
- Logging function for recording and saving up to 65,000 readings

Specifications

Model / specification	a3000	a3001	a3002
Range	0.5 A to 400.0 A AC	0.5 A to 2500 A AC	600 A AC to 1000 A AC
Resolution	0.1 A		
Accuracy	400.0 A: 2 % ± 5 digits (10 Hz to 100 Hz), 2.5 % ± 5 digits (100 Hz to 500 Hz)	3 % ± 5 digits (5 Hz to 500 Hz)	AC: 1.0% + 3 DC: 0.5% + 3 (45 Hz to 1000 Hz)
Inrush	Max displayed reading: 999.9A		
Crest Factor (50Hz/60Hz)	3 at 500 A, 2.5 at 600 A, 1.42 at 1000 A, add 2 % for C.F. > 2	3.0 at 1100 A, 2.5 at 1400 A, 1.42 at 2500 A, add 2 % for C.F. > 2	
Maximum voltage between terminal and earth ground (module)	n.a.	n.a.	30 V DC or AC rms
LCD w/backlight	3½ digits		3 ½ digits, 6000 counts, 4/sec update rate
Log rate/interval	1 sec minimum/adjustable by PC or FC App		
Battery type/Battery life	2 AA, NEDA 15 A, IEC LR6 / 400 hours		
Memory	Record up to 65,000 readings		
RF communications / RF communication range	2.4 GHZ ISM Band / Open air, unobstructed: Up to 20 m. Obstructed, sheetrock wall: Up to 6.5 m. Obstructed, concrete wall or steel electrical enclosure: Up to 3.5 m		
Operating and Storage temperature	-10 °C to +50 °C / -40 °C to +60 °C		
Temperature coefficient	Add 0.1 X (specified accuracy)/ °C (<18 °C or >28 °C)		
Operating humidity	0 % to 90 % (0 °C to 35 °C), 0 % to 75 % (35 °C to 40 °C), 0 % to 45 % (40 °C to 50 °C)		
Altitude	Operating: 2,000 m Storage: 12,000 m		
EMC	EN 61326-1:2006		
Safety compliance	IEC 61010-1, 600 V CAT III, 3rd edition Pollution Degree 2	IEC 61010-1, 600 V CAT IV/1000 V CAT III, 3rd edition Pollution Degree 2	
Safety rating	CAT III 600 V	CAT IV 600 V, CAT III 1000 V	
Certifications	CSA, CE, FCC: T68-FBLE IC: 6627A-FBLE		
Ingress Protection (IP) rating	IP30	IP42	
Pollution Degree	2		
Jaw Opening	34 mm	25.4 cm coil	
Size (hxwxd)	20.3 cm x 7.49 cm x 3.55 cm	16.5 cm x 6.35 cm x 1.4 cm	16.0 cm x 6.6 cm x 3.8 cm
Weight	0.22 kg	0.22 kg	0.255 kg
Warranty (in years)	3		

Included Accessories

iFlex i2500 Flexible Current Probe (a3001FC), magnetic hanging strap (a3002FC)

Ordering Information

Fluke a3000FC	Wireless AC Current Clamp Module
Fluke a3001FC	Wireless iFlex AC Current Module
Fluke a3002FC	Wireless AC/DC Current Module

Recommended Accessories

i410/i1010
Current Clamp
(for a3002FC)
See page 151

PC adapter
See page 155

For more information on Fluke Connect, see pages 13-18.

320 Series True-rms Clamp Meters

FLUKE®

Fluke 325

Fluke 324

Fluke 323

Work with the best

The Fluke 323, 324 and 325 Clamp Meters are designed to perform in the toughest environments and provide noise-free, reliable results users can trust to confidently diagnose problems. True-rms measurements and optimized ergonomics make the 320 Series Clamp Meters the best general troubleshooting tools for commercial and residential electricians.

- Slim, ergonomic design
- Large, easy to read backlight display (324 and 325 only)
- CAT IV 300 V/CAT III 600 V safety rating
- Hold button
- Two-year warranty
- Soft carrying case
- 400 A AC current measurement (AC and DC current; 325 only)
- 600 V AC and DC voltage measurement
- True-rms AC voltage and current for accurate measurements on non-linear signals
- Resistance measurement to up to 40 kΩ with continuity detection
- Temperature and capacitance measurement (324 and 325 only)
- Frequency measurement (325 only)

Specifications

		323	324	325
AC current	Range	400.0 A	40.00 A / 400.0 A	40.00 A / 400.0 A
	Accuracy	2 % ± 5 digits (45 Hz to 65 Hz) 2.5 % ± 5 digits (65 Hz to 400 Hz)	1.5 % ± 5 digits (45 Hz to 400 Hz) Note: Add 2 % for position sensitivity	2 % ± 5 digits (45 Hz to 65 Hz) 2.5 % ± 5 digits (65 Hz to 400 Hz)
DC current	Range	-	-	40.00 A / 400.0 A
	Accuracy	-	-	2 % ± 5 digits
AC voltage	Range	600.0 V	600.0 V	600.0 V
	Accuracy	1.5% ± 5 digits	1.5% ± 5 digits	1.5% ± 5 digits
DC voltage	Range	600.0 V	600.0 V	600.0 V
	Accuracy	1.0 % ± 5 digits	1.0 % ± 5 digits	1.0 % ± 5 digits
Resistance	Range	400.0 Ω/4000 Ω	400.0 Ω/4000 Ω	400.0 Ω/4000 Ω/40.00 kΩ
	Accuracy	1 % ± 5 digits	1 % ± 5 digits	1 % ± 5 digits
Continuity		≤ 70 Ω	≤ 30 Ω	≤ 30 Ω
Capacitance		-	100.0 µF to 1000 µF	100.0 µF to 1000 µF
Frequency		-	-	5.0 Hz to 500.0 Hz
AC response		True-rms	True-rms	True-rms
Backlight		-	Yes	Yes
Data hold		Yes	Yes	Yes
Contact temperature		-	-10.0 °C to 400.0 °C	-10.0 °C to 400.0 °C
Min / Max		-	-	Yes
Max wire diameter		30 mm (600 MCM)	30 mm (600 MCM)	30 mm (600 MCM)
Category rating		CAT III 600 V CAT IV 300 V	CAT III 600 V CAT IV 300 V	CAT III 600 V CAT IV 300 V

Size (HxWxD): 207 mm x 75 mm x 34 mm
Weight: 323: 0,265 kg
324: 0,280 kg
325: 0,283 kg
Two Year Warranty

True RMS

Included Accessories
Test leads, soft case, users manual

Ordering Information
Fluke 323 True-rms Clamp Meter
Fluke 324 True-rms Clamp Meter
Fluke 325 True-rms Clamp Meter

Recommended Accessories

TL223-1
See page 145

TL175
See page 147

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

CAT III 1000V
CAT IV 600V

True RMS

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 current 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 34.

365 Detachable Jaw True-rms AC/DC Clamp Meter

600V
CAT III

True RMS

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 34.

Included Accessories

18-inch iFlex™ Flexible Current Probe (Fluke 381), test leads, soft carrying case, instruction card, safety information sheet, two AA alkaline batteries.

Ordering Information

Fluke 381	Remote Display True-rms AC/DC Clamp Meter with iFlex™
Fluke 365	Detachable Jaw True-rms AC/DC Clamp Meter

Recommended Accessories

TL223-1
See page 145

TL175
See page 147

370 Series Clamp Meters

FLUKE®

Fluke 376
(with i2500)

Fluke 375 Fluke 374 Fluke 373

CAT III 1000V
CAT IV 600V

Fluke i2500

LISTED UL · CSA · TÜV PRODUCT SERVICE · GS · True RMS

Be ready for anything

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.

Features

	373	374	375	376
True-rms	●	●	●	●
AC current	●	●	●	●
AC voltage	●	●	●	●
Resistance	●	●	●	●
Continuity	●	●	●	●
DC volts	●	●	●	●
DC current		●	●	●
Frequency			●	●
Low pass filter			●	●
Inrush current mode		●	●	●
18-inch iFlex Flexible Current Probe		Optional	Optional	Included
10-inch iFlex Flexible Current Probe		Optional	Optional	Optional

Specifications

Functions	Range	373	374	375	376
Current AC	0 to 600.0 A	2% ± 5 counts	2% ± 5 counts	2% ± 5 counts	
	0 to 999.9 A				2% ± 5 counts
Current DC	0 to 600.0 A		2% ± 5 counts	2% ± 5 counts	
	0 to 999.9 A				2% ± 5 counts
Voltage AC	0 to 600.0 V	1% ± 5 counts	1.5% ± 5 counts	1.5% ± 5 counts	1.5% ± 5 counts
Voltage DC	0 to 600.0 V	1% ± 5 counts	1% ± 5 counts	1% ± 5 counts	
	0 to 1000 V				1% ± 5 counts
Resistance range		0 to 6000 Ω	0 to 6000 Ω	0 to 6000 Ω	0 to 60 kΩ
Jaw opening		32 mm	34 mm	34 mm	34 mm
Max. wire size		750 MCM	750 MCM	750 MCM	750 MCM
Frequency measurement range				500 Hz	500 Hz

iFlex™ Flexible Current Probe

The Fluke iFlex flexible current probes expand the measurement range of select Fluke meters to 2500 A AC and allow technicians to reach crowded spaces.

- Expands the measurement range to 2500 A AC while providing increased display flexibility, ability to measure awkward sized conductors and improved wire access
- Compatible to Fluke 374, 375, 376 and 381
- CAT IV 600 V, CAT III 1000 V
- 7.5 mm coil diameter allows measurement in tight spaces
- Ergonomic design allows easy operation with one hand
- 1.8 m cable
- Three-year warranty

Included Accessories

18-inch iFlex™ flexible current Probe (Fluke 376), test leads, soft carrying case, instruction card, safety information sheet, two AA alkaline batteries.

Ordering Information

Fluke 376	True-rms AC/DC Clamp Meter with iFlex™
Fluke 375	True-rms AC/DC Clamp Meter
Fluke 374	True-rms AC/DC Clamp Meter
Fluke 373	True-rms AC Clamp Meter
i2500-10 iFlex™	Flexible Current Probe 25 cm
i2500-18 iFlex™	Flexible Current Probe 45 cm

Recommended Accessories

TL223-1
See page 145

AC285
See page 147

TL175
See page 147

350 Series AC/DC Clamp Meters

Fluke 353

Fluke 355

True-RMS, 2000 A Clamp Meters for industrial and utility applications

Confidently take reliable readings with the true-rms, Fluke 353/355 Clamp Meters; the tools of choice for high current measurement up to 2000 A. The extra-wide jaw easily clamps around large conductors, typically found in high current applications. The rugged design and CAT IV 600 V, CAT III 1000 V ratings add an extra element of protection when taking high-powered measurements.

Accurate peak measurements can be taken using the in-rush current mode - ideal for motors and inductive loads. The 355 also measures voltage and resistance, making this the most versatile tool for utilities, electrical contractors and industrial service technicians.

Features

	353	355
True-RMS measurements	●	●
Display backlight	●	●
Motor start-up current	●	●
Min/Max/Average	●	●
Voltage AC/DC		●
Resistance measurement		●
Continuity measurement with beeper		●

Specifications

(Check the Fluke web for detailed specifications)

Functions	Range	353	355
Current AC/DC	0-40.00 A	1.5% ± 15 counts	1.5% ± 15 counts
	0-400.0 A	1.5% ± 5 counts	1.5% ± 5 counts
	0-2000 A; 1400 AC rms		
Crest Factor		2.4	2.4
Voltage AC/DC	0-4.000 V		1% ± 10 counts
	0-40.00 V		1% ± 5 counts
	0-400.0 V		
	0-600 V AC rms		
	0-1000 V DC		
Resistance	0-400.0 Ω		1.5% ± 5 counts
	0-4.000 kΩ		
	0-40.00 kΩ		
	0-400.0 kΩ		
Continuity beeper	Appr. ≤ 30 Ω		
Frequency	5.0Hz to 100.0Hz		0.2% ± 2 counts
	100.1Hz to 999Hz		0.5% ± 5 counts

600V CAT IV

1000V CAT III

LISTED UL CSA True RMS

Power Supply: 6 x 1.5V AA NEDA 15A or IEC LR6

Battery Life: 100 hours (with typical usage, backlight off)

Size (HxWxD): 300 mm x 98 mm x 52 mm
Jaw opening: 58 mm
Weight: 0.814 kg
Three year warranty

Included Accessories

Fluke 353: C43 Soft Meter Case, 6 AA batteries, users manual
Fluke 355: C43 Soft Meter Case, 6 AA batteries, TL224 SureGrip® Silicone Test Lead Set, TP2 Slim Reach Test Probe Set (2 mm), AC285 SureGrip® Alligator Clip Set, users manual

Ordering information

Fluke 353	AC/DC Clamp Meter
Fluke 355	AC/DC Clamp Meter

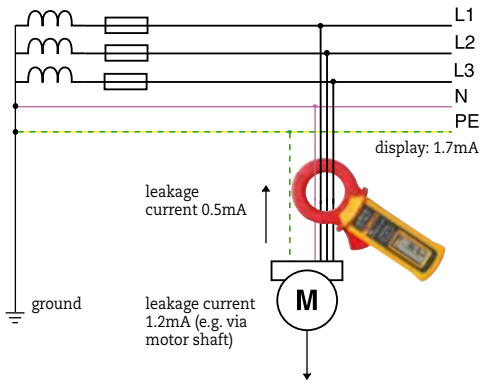
Recommended Accessories

TL223-1 (Fluke 355)
See page 145

L215 (Fluke 355)
See page 146

360 Leakage Clamp Meter

Fluke 360



Leakage current measurements with a tough, pocket sized clamp meter

Features

- Measurement of leakage protectives conductor and touch current with a resolution of 1µA
- Advanced shielding to ensure accurate results when measuring near other conductors
- Automatic ranging within the manually selected mA or A range
- Easily viewed measurements on digital and bargraph display and HOLD when measuring in hard to see locations
- Broad range of measurements currents up to 60 A for all installation needs
- Easy carrying, pocket sized clamp with wide 40 mm jaw size
- Display-Hold for convenience in use
- Auto power off with audible warning buzzer
- Conformance to IEC61010 and EMC standard
- Meets all the applications and performance classes in safety standard VDE0404-4 and the new VDE0702

Specifications

(Check the Fluke web for detailed specifications)

Functions	Range	Resolution	Accuracy
Current AC	3mA 30mA	0.001A 0.01mA	1% ± 5 counts
	30A 60A	0.01A 0.1A	1% ± 5 counts (0~50A) 5% ± 5 counts (50~60A)
Frequency	50 and 60Hz		

902 True-rms HVAC Clamp Meter

Fluke 902

True RMS

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 34

Specifications

Functions	Range	902
Current AC	0 to 600.0 A	2% ± 5 counts
Current DC	0 to 200.0 µA	1% ± 5 counts
Voltage AC	0 to 600.0 V	1% ± 5 counts
Voltage DC	0 to 600.0 V	1% ± 5 counts
Resistance range		0 to 9999 Ω
Jaw opening		30.5 mm
Max. wire size		750 MCM

Included accessories

Test leads, temperature probe (Fluke 902), soft carrying pouch and users manual

Ordering information

Fluke 360 Leakage Clamp Meter
Fluke 902 True-rms HVAC Clamp Meter

T90/T110/T130/T150
Voltage and Continuity Testers

FLUKE®

Fluke T150

Fluke T130

Fluke T110

Fluke T90

Fluke T90

Fluke T110, T130, T150

Rugged, high-quality testers for fast test results the way you need them

All electricians need a two-pole tester. Experienced professionals know that they can—and should–trust their job, their reputation and even their personal safety to Fluke electrical test tools. Our new family of Two-Pole Voltage Testers is no exception. Built with state-of-the art measurement and safety technology, these testers offer everything you expect from Fluke, and a little bit more.

- Rugged, high-quality construction is built to last. This includes a heavy duty molded case, a thicker cord with wear indicator, sturdy battery case, and well fitting and durable probe protector.
- Fast test results the way you need them, with large, easy-to-use buttons, bright backlights, and clear audible and physical indicators designed for any work situation.
- Enhanced ergonomic design feels good in your hand, is easy to use (even with gloves on) and quick, secure probe docking.
- Compliant with regulation HSE GS 38 (tip caps) and IEC EN 61243-3: 2010

Features

	T90	T110	T130	T150
Backlit LED indicator	●	●	●	●
Backlit LCD Digital Display			LCD	LCD
Continuity test – visual results	●	●	●	●
Continuity test – audible results	●	● with on/off	● with on/off	● with on/off
Vibratory indicator under load		● with on/off	● with on/off	● with on/off
Display Hold			●	●
Voltage test	●	●	●	●
Indication of polarity	●	●	●	●
Resistance measurement				●
Switchable Load		●	●	●
Single pole test for phase detection	●	●	●	●
Rotary field indicator		●	●	●
Probe tip protection	●	●	●	●
Voltage display with discharged batteries	●	●	●	●
Electrical torch function		●	●	●
Wear indicator test lead wire	●	●	●	●

Specifications

	T90	T110	T130	T150
Voltage AC/DC	12V - 690V	12V - 690V	6V - 690V	6V - 690V
Continuity	0 - 400 kΩ			
Frequency	0 - 60 Hz	0 - 400 Hz		
Phase rotation	-	100 V - 690 V		
Resistance measurement	-	-	-	Up to 1999 Ω
Response Time (LED ladders)	< 0.1 s			
200 kΩ input impedance	Current draw 3,5 mA @ 690 V Current draw 1,15 mA @ 230 V			
7k Ω input impedance (with load buttons pressed)	-	Current draw 30 mA @ 230 V		
Safety rating	CAT II 690V CAT III 600V	CAT III 690V CAT IV 600V		
IP rating	IP54	IP64	IP64	IP64

Size T90 (HxWxD):
230 mm x 65 mm x 38 mm
Size T110, T130, T150 (HxWxD):
26 mm x 70 mm x 38 mm

Weight T90: 0.18 kg
Weight T110, T130, T150: 0.28 kg
Two year warranty

Recommended Accessories

H15
See page 153

C150
See page 152

Included Accessories

Two 2-AA batteries and instruction sheet

Ordering Information

Fluke T90	Voltage/Continuity Tester
Fluke T110	Voltage/Continuity Tester with switchable load
Fluke T130	Voltage/Continuity Tester with LCD, switchable load
Fluke T150	Voltage/Continuity Tester with LCD, Ohms, switchable load

T5 Electrical Testers

Fluke T5-1000

Fluke T5-600

The fast and easy solution to basic electrical testing

The Fluke T5 testers let you check voltage, continuity and current with one compact tool. Select volts, ohms or current and the instrument does the rest. Model T5-600 measures 600 volts AC/DC, model T5-1000 is designed for 1000 volts. OpenJaw™ current technology lets you check current up to 100 A, without breaking the circuit. The optional H5 holster keeps the test probes and leads ready to test and lets you clip the T5 onto your belt.

Features and Specifications

	T5-600	T5-1000
Display Count	1000	1000
Automatic Selection	●	●
Continuity and Bleeper	●	●
Sleep Mode	●	●
AC Voltage	600 V	1000 V
DC Voltage	600 V	1000 V
AC Current	100 A	100 A
Resistance	1000 Ω	1000 Ω
Safety range	600V CAT III	1000 V CAT III / 600 V CAT IV

Battery life: 400 hours
Size (HxWxD):
203 mm x 51 mm x 30.5 mm

Weight: 0.38 kg
Two year warranty

Fluke T5-H5-1AC Kit

Fluke T5-600/62 MAX+/1AC-E Kit

Fluke T5-H5-1AC Kit

The ideal kit for busy electrical contractors and electricians. The benefits of a voltage and current meter and non-contact voltage detector all in one kit. A holster for the T5 is also included.

Kit includes:
- Fluke T5-1000
- H5 holster
- Free Fluke 1AC-II

Fluke T5-600/62 MAX+/1AC-E Kit

This kit is designed to help electricians and HVAC technicians solve problems quicker. Test first for overheated electrical devices using an IR thermometer; then use elecrtrical test tools to find out more about the problem.

Kit includes:
- Fluke T5-600
- Fluke 62 MAX+
- Fluke 1AC II
- C115

Included Accessories

Detachable probes and instruction sheet

Ordering Information

Fluke T5-600	Electrical Tester
Fluke T5-1000	Electrical Tester
Fluke T5-H5-1AC Kit	Electrical Tester with holster and IAC
Fluke T5-600/62 MAX+/1AC-E	Electrical Tester, IR Thermometer, Voltage Detector Kit

Recommended Accessories

H5
See page 153

ACC-T5-Kit
See page 146

AC285
See page 147

1AC II/2AC Volt Alerts
LVD1/LVD2 Volt Lights

Fluke 1AC II

Fluke 1AC II VoltAlert™

The Fluke VoltAlert AC voltage detector is very easy to use – just touch the tip to a terminal strip, outlet or cord. When the tip glows red and the unit beeps, you know there is voltage on the line.

- It continually tests its battery and its circuit integrity with a periodic double flash visual indication.
- Highest safety rating: CAT IV 1000 V
- Detects voltage without metallic contact

Operating range: 200 – 1000 V AC
Batteries: Two AAA Alkaline
Size (H): 148 mm
Two Year Warranty

Fluke 1AC II VoltAlert™ 5-pack

- Buy 4 get 1 FREE

Fluke 2AC VoltAlert™

2AC VoltAlert™

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, whether it's for an electrician on the factory floor or the do-it-yourselfer around the house. The tip of the pocket-sized tester will glow red when within close proximity of an outlet, terminal strip, or power cord where voltage is present.

- Voltage detection from 200 to 1000 V AC, suitable for a wide range of residential, commercial and industrial needs.
- NEW! Always on, using special low power circuitry to sustain battery life and ensure your 2AC is always ready.
- NEW! Innovative 'Battery Check' button function ensures battery is in good condition*
- Category IV – 1000 V overvoltage rated product for best in class user protection
- Integrated clip design, optimized for pocket storage
- Powered by 2x AAA batteries (included)
- Fluke ruggedness and reliability
- Two-year warranty storage.
- Powered by 2x AAA batteries (included)- Fluke reliability and ruggedness, Two-year warranty.

Operating range: 200 – 1000 V AC
Batteries: Two AAA Alkaline
Size (H): 148 mm
Two Year Warranty

Fluke 2AC VoltAlert™ 5-pack

- Buy 4 get 1 FREE

LVD2

LVD1

LVD2 Volt Light

Combines bright light and voltage detection in one pen style design

- Dual sensitivity
- Detects voltage from 90 V to 600 V AC
- Blue light means you're close
- Red light means you're at the source
- Rated to CAT IV 600 V

LVD1 Volt Light

Dual sensitivity voltage detector

- Detects voltage from 40 V to 300 V AC
- Blue light means you're close
- Red light means you're at the source
- Comes with a versatile clip to secure light to pocket, hat or even panel door

Features	2AC 200-1000 V AC CAT IV 1000 V	1AC-II 200-1000 V AC CAT IV 1000 V	LVD2 90-600 V AC CAT IV 600 V
Voltage Detection	■	■	■
Battery Included	■	■	■
Battery Check	■		
On/Off Button		■	■
Voltbeat™		■	
Audible/Silent		■	
Dual Sensitivity			■
LED Flashlight			■

Ordering Information

Fluke 1AC II	Volt Alert
Fluke 1AC II	Volt Alert (5-pack)
Fluke 2AC	Volt Alert
Fluke 2AC	Volt Alert (5-pack)
LVD2	Volt Light
LVD1	Volt Light

9040/9062
Phase Rotation Indicators

FLUKE®

Fluke 9040

Fluke 9062

Take the guess work out of phase/motor rotation measurements

Fluke 9040
The Fluke 9040 is effective for measuring phase rotation in all areas where three-phase supplies are used to feed motors, drives and electrical systems. The Fluke 9040 is a rotary field indicator and can provide clear indication of the 3 phase via an LCD display and the phase rotation direction to determine correct connections. It allows rapid determination of phase sequence and has a voltage (up to 700 V) and frequency range suitable for commercial and industrial applications. Test probes supplied with the instrument have a variable clamping range for safe contact, especially in industrial sockets.

Fluke 9062
The unique Fluke 9062 provides rotary field and motor rotation indication with the benefits of contact-less detection. Purpose made for commercial and industrial environments, the Fluke 9062 provides rapid indication of 3 phase rotation using test leads supplied or can be used to determine motor rotation on synchronous and asynchronous 3 phase motors. The contact-less detection is ideal for use on motors where the shaft is not visible.
Test probes supplied with the instrument have a variable clamping range for safe contact, especially in industrial sockets.

Features

	9040	9062
3 phase indication	Via LCD	Via LED
Indication of phase rotation	●	●
Indication of motor rotation direction		●
Contact free determination of the rotation direction of running motors		●
Clear LCD display	●	
No battery required	●	

9040:

9062:

Specifications

	9040	9062
Voltage range	40 - 700 V	Up to 400 V
Phase display	-	120 - 400 V AC
Frequency range	15 - 400 Hz	2-400 Hz
Operating time	Continuous	Continuous

Size (HxWxD) Fluke 9040:
124 mm x 61 mm x 27 mm
Size (HxWxD) Fluke 9062:
124 mm x 61 mm x 27 mm

Power supply 9040: from unit under test
Power supply 9062: 1 x 9V
Weight 9040: 0.20 kg
Weight 9062: 0.15 kg
Two Year Warranty

Included Accessories

Fluke 9040: Alligator clips - black (3)
Standard test probes - black (3)
Flexible test probes - black (3)
Fluke 9062: Alligator clips - black (3)
Flexible test probes - black (3)
Test leads - black (3)

Ordering Information

Fluke 9040	Phase Rotation Indicator
Fluke 9062	Motor and Phase Rotation Indicator

Fluke 9062 Applications

Determine the presence of phase sequence of multiphase electrical supplies.

Determine the rotation of running motors simply by placing the instrument on the motor casing.

Check the correct rotation of motors prior to connection.

Recommended Accessories

TLK290
See page 146

TLK291
See page 146

C25
See page 152

2042 Cable Locator

The multipurpose solution to cable location

The Fluke 2042 is a professional general purpose cable locator. It is ideal for tracing cables in walls and underground, locating fuses/breakers on final circuits and locating interruptions and short-circuits in cables and electrical floor heating systems.
It can also be used for tracing metallic water and heating pipes. The unit is supplied as a complete kit comprising of a transmitter and receiver in a purpose-made carry case. The receiver also incorporates a torch function for working in dimly lit locations.

- For all applications (live or dead cables) without additional instruments
- Set includes a transmitter and a receiver
- Proven digitally coded sender signal guarantees clear signal identification
- Transmitter with LCD-display for transmitting level, transmitting code and external voltage
- Receiver with a backlight LCD-display for level of receiving signal, code of receiving signal and live voltage indication
- Automatic or manual adjustment of receiving signal sensitivity
- Switchable acoustic receiving signal
- Auto-Power-Off
- Additional torch lamp function for working in dark environments
- Additional transmitters are available for extension or to distinguish between several signals.

Fluke 2042

300V CAT III

Included Accessories

TL27 Heavy Duty Test Lead Set (2)
TP74 Lantern Tip Test Probe Set
AC285 Alligator Clip Set
Soft carrying case
Hard case

Ordering Information

Fluke 2042	Cable Locator (transmitter + receiver)
Fluke 2042T	Cable Locator Transmitter

Specifications

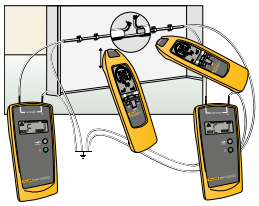
	Transmitter	Receiver
Voltage Measurement Range	12V, 50V,120V, 230V, 400V	
Frequency Range	0..60 Hz	
Output signal	125 kHz	
Voltage	Up to 400V AC/DC	
Tracing depth cable location		0...2.5m wall/underground cables
Main voltage detection		0...0.4m

Batteries Transmitter: 6 pc Batteries 1.5V
Batteries Receiver: 1 pc Battery 9V
Size (HxWxD) Transmitter:
190 mm x 85 mm x 50 mm
Size (HxWxD) Receiver:
250 mm x 65 mm x 45mm
Weight Locator: 0.45 kg
Weight Receiver: 0.36 kg
Two Year Warranty

Fluke 2042 applications

Location of fuses/breakers and assignment to circuits

Tracing of underground cables (max. depth 2.5 m)


Precise location of cable interruptions with additional transmitter

Recommended Accessories

Fluke 2042T

1000FLT lamp tester

Fluke 1000FLT

The most complete lamp tester helps save you time, reduce costs

The Fluke 1000FLT allows you to perform 5 tests with 1 compact tool. If your job requires keeping large numbers of fluorescent lights shining, the Fluke 1000FLT is an indispensable tool. This tester is a real time and money saver.

Save time, reduce costs
The Fluke 1000FLT offers 5 essential lighting tests:

- **Lamp test:** test bulb without removing from fixture.
- **Ballast test:** easily determine if ballast is working.
- **Non-contact voltage:** quickly check for voltage presence.
- **Pin continuity test:** tests if fila¬ments have continuity.
- **Ballast-type test:** determine if ballast is electronic or magnetic without taking fixture apart– identify energy wasting ballasts.

Other key benefits:
- **Survives on-the-job handling:** drop-tested to survive from a six foot (two meter) ladder.
- **Easy to use:** bright indicator light plus audible alert.
- **Rugged:** backed with a three-year warranty.

Specifications

Test specifications	
Lamp Test Max Output	3000 V peak-peak
Ballast Test	20 kHz
Ballast Type Discriminator	≤3 m distance
Pin Continuity Test	< 1 kΩ
NCV (VoltAlert™)	85 to 277 V AC, 45 to 67 Hz, ≤10 cm distance
Environmental specifications	
Temperature	Operating -10 °C to +50 °C Storage -40 °C to +60 °C
Relative Humidity	85 % maximum
Safety specifications	
Safety rating	IEC 61010-1, pollution degree 2
Mechanical & General Specifications	
Size	21.5 cm x 3.0 cm x 6.5 cm
Weight	0.37 kg
Battery type	4 x AA alkaline IEC LR6
Battery life	40 hours
Auto Power Off	20 minutes after non-use
Low Battery Indicator	Power button light blinks when power is low (typically 85 % of capacity depleted)
Operating altitude	< 2000 m
Electromagnetic Environment	EN 61326-1: Portable
Resistance to impact	2 meter drop
Warranty	3 years

Included Accessories
Four AA alkaline batteries, H1000 holster, quick reference guide

Ordering Information
Fluke 1000FLT Fluorescent Light Tester

Battery Analyzer

The new Fluke 500 Series Battery Analyzer is the ideal test tool for maintenance, troubleshooting and performance testing of individual stationary batteries and battery banks used in critical battery back-up applications. The intuitive user interface, compact design and rugged construction ensure optimum performance, test results and reliability.

Watch our latest videos on our own YouTube Channel *www.youtube.com/user/FlukeEurope*

500 Series Battery Analyzers

FLUKE®

New

Fluke BT521

Fluke BT510

Fluke BT520

600V CAT III

Fluke BT521 included accessories

Included Accessories

4-wire test pin (set), BTL10 Basic Test Lead (set), TL175 TwistGuard™ Test Leads with adapter, L300 Attachable LED Flashlight (2) (BT520 and BT521 only), BTL20 Intelligent Test Probe Set, with extender (no temperature sensor)(BT520 only), BTL21 Intelligent Test Probe Set, with extender and temperature sensor (BT521 only), i410 AC/DC Current Clamp (BT521 only), BP500 lithium-ion battery, BC500 AC charger, Mini-USB cable, Shoulder strap, Belt strap, Magnetic hanging strap, FlukeView® Battery Management Software, Soft carrying case, Spare fuses (2), Battery tags (BT520 and BT521 only)

Ordering Information

Fluke BT510	Basic Battery Analyzer
Fluke BT520	Battery Analyzer
Fluke BT521	Advanced Battery Analyzer

More battery tests. Less time. Results you can trust.

Fluke 500 Series Battery Analyzers cover a broad range of battery test functions ranging from DC voltage and resistance tests to full condition testing using an automated string function testing and the test probe integrated infra-red temperature measurement system. 500 Series Battery Analyzers are designed for measurements on stationary batteries of all types.

- The world's fastest battery measurements- reduce time of a typical battery measurement with 50% from 8 seconds to 4 seconds.
- Unique CATIII 600V safety rating
- Hands free wearable design
- Key measurements: Battery resistance, dc and ac voltage, dc and ac current, ripple voltage, frequency and battery temperature.
- Sequence measurement mode: Automatic or manual sequence testing of battery strings with automatic measurement storage including voltage, resistance and temperature (with BTL21 intelligent test probe).
- Optimized user interface: Quick, guided setup ensures you're capturing the right data every time.
- Threshold comparison: Configure multiple reference values and thresholds for resistance and voltage. Comparison result feedback after each measurement via visual and verbal cues.
- Intelligent test probe set (BT520 and BT521): Integrated LCD display, infrared temperature measurement (BT521 only), verbal audio feedback and captures voltage readings and temperature logging automatically or via integrated save button.
- Enhanced data analysis: Quickly compare trends, analyze results and create reports with included battery management software.
- Easy reporting: Generate PDF report on the PC software with analysis graphics and data table or quick email format report with csv file on the mobile app.

Intelligent test probe with integrated LCD display

Specifications

Functions	Range	Resolution	Accuracy	BT510	BT520	BT521
Battery resistance[1]	3 mΩ	0.001 mΩ	1 % + 8	●	●	●
	30 mΩ	0.01 mΩ	0.8 % + 6	●	●	●
	300 mΩ	0.1 mΩ	0.8 % + 6	●	●	●
	3000 mΩ	1 mΩ	0.8 % + 6	●	●	●
Vdc	6 V	0.001 V	0.09 % + 5	●	●	●
	60 V	0.01 V	0.09 % + 5	●	●	●
	600 V	0.1 V	0.09 % + 5	●	●	●
	1000 V	1 V	0.09 % + 5			●
Vac (45 Hz to 500 Hz with 800 Hz filter)	600 V	0.1 V	2 % + 10	●	●	●
Frequency (displayed with Vac and Aac)[2]	500 Hz	0.1 Hz	0.5 % + 8	●	●	●
AC voltage ripple (20 KHz Max)	600 mV	0.1 mV	3 % + 20	●	●	●
	6000 mV	1 mV	3 % + 10	●	●	●
Adc/Aac (with accessory Fluke i410)	400 A	1 A	3.5 % + 2			●
Temperature	0 °C to 60 °C	1 °C	2 °C (4 °F)			●
Meter mode	999 records for each measurement position with time stamp					
Sequence mode	Up to 100 profiles and 100 profile templates (Each profile stores up to 450 batteries) with time stamp					

	BT510	BT520	BT521
Size (hxwxd)	220 x 103 x 58 mm		
Weight	850 g		
Screen dimensions	77 x 56 mm		
Interface	USB mini		
Operating temperature	0 °C to 40 °C		
Lithium-ion battery charging temperature	0 °C to 40 °C		
Operating humidity	Non-condensing (10 °C) <=80 % RH (at 10 °C to 30 °C) <=75 % RH (at 30 °C to 40 °C)		
IP rating	IP40		
Radio	FCC Class A		
Vibration requirements	MIL-PRF-28800F: Class 2		
Drop test requirements	1 meter		
Temperature coefficients	Add 0.1 x specified accuracy for each degree C above 28 °C or below 18 °C		
Safety compliance	600 V CAT III		

[1] The measurement is based on ac injection method. The injected source signal is <100 mA, 1 kHz.
[2] Trigger level VAC: 10 mV, Aac: 10 A

Insulation Testers and Earth Ground Testers

With a 10kV insulation resistance tester and a range of compact hand-held instruments, we offer a solution for every troubleshooting and preventive application.
Two of the digital hand-held insulation testers also include full-featured multimeters.
The Fluke Earth Ground Testers can perform all four types of earth ground measurement, including stakeless testing with earth ground loop resistances using only clamps.

Watch our latest videos on our own YouTube Channel *www.youtube.com/user/FlukeEurope*

Insulation Tester Selection Guide

FLUKE®

	1577	1587	1587T	1503	1507	1550C	1555
InstallationTest Functionality							
Test voltages	500V, 1000V	50V, 100V, 250V, 500V, 1000V	50V, 100V	500V, 1000V	50V, 100V, 250V, 500V, 1000V	250V, 500V, 1000V, 2500V, 5000V	250V, 500V, 1000V, 2500V, 5000V, 10000V
Insulation Resistance Test Range	0.1MΩ - 600MΩ	0.01 MΩ - 2GΩ	0.01MΩ - 100MΩ	0.1MΩ - 2GΩ	0.01MΩ - 10GΩ	200KΩ - 1TΩ	200KΩ - 2TΩ
Polarization Index/Dielectric Absorption Ratio					●	●	●
Auto Discharge	●	●	●	●	●	●	●
Time Ramp test (Breakdown)						●	●
Pass/Fail Comparison					●		
Estimated Number of Insulation resistance Tests	1000	1000	1000	1000	1000	1000 @ 5000 V	1000 @ 10000 V
Voltage > 30V Warning	●	●	●	●	●	●	●
Memory						(99 locations)	(99 locations)
Remote Test Probe	●	●	●	●	●		
Lo Ohms				●	●		
Display	Digital LCD	Digital LCD	Digital LCD	Digital LCD	Digital LCD	Digital LCD / Analog Bar Graph	Digital LCD / Analog Bar Graph
Continuity	●	●	●	(200mA)	(200mA)		
Multimeter Functionality							
AC/DC Volts	●	●	●	●	●		
Current	●	●	●				
Resistance	●	●	●	●	●		
Temperature (contact)		●	●				
Lo-Pass Filter		●	●				
Capacitance		●	●			●	●
Diode Test		●	●				
Frequency		●	●				
MIN/MAX		●	●				
Other							
Hold/Lock	●	●	●	●	●	●	●
Backlight	●	●	●	●	●		
Software						(Fluke View® Forms Basic)	(Fluke View® Forms Basic)
Warranty (in years)	3	3	3	1	1	3	3
Battery	4 AA (NEDA 15A or IEC LR6)	4 AA (NEDA 15A or IEC LR6)	4 AA (NEDA 15A or IEC LR6)	4 AA (NEDA 15A or IEC LR6)	4 AA (NEDA 15A or IEC LR6)	Rechargeable	Rechargeable

Fluke 1587/ET

Fluke 1587/MDT

Buy a Fluke 1587 Combo Kit and save

Fluke 1587/ET Advanced Electrical Troubleshooting Kit

This kit contains:
- Fluke 1587 Insulation Multimeter
- Fluke 62 MAX+ IR Thermometer
- i400 Current Clamp

Perform insulation tests with the Fluke 1587 plus a wide-range of DMM tasks with confidence and ease. Use the i400 with your Fluke 1587 to accurately measure AC current without breaking the circuit. Check for hot spots and measure temperature with the Fluke 62 MAX+ IR thermometer.

Fluke 1587/MDT Advanced Motor & Drive Troubleshooting Kit

This kit contains:
- Fluke 1587 Insulation Multimeter
- Fluke 9040 Phase Rotation Indicator
- i400 Current Clamp

Perform insulation tests with the Fluke 1587 plus a wide-range of DMM tasks with confidence and ease. Use the i400 with your Fluke 1587 to accurately measure AC current without breaking the circuit. Check the phase-rotation of three-phase motors easily and safely with the Fluke 9040.

1577/1587 Insulation Multimeters

Fluke 1577

Fluke 1587
Fluke 1587T

CAT III 1000V
CAT IV 600V

Two powerful tools in one

The Fluke 1587 and 1577 Insulation Multimeters combine a digital 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.

Whether you work on motors, generators, cables, or switch-gear, the Fluke 1587/1577 Insulation Multimeters are ideally suited to help you with your tasks.

The Fluke 1587T is specially designed for the telecom environment.

Features

Multimeter Features	1577	1587	1587T
True RMS Voltage and Current for accurate measurements	●	●	●
Digital display counts	6000	6000	6000
Autorange and manual range for easy testing.	●	●	●
Selectable filter for accurate voltage and frequency measurements on motor drives		●	●
Min Max Recording, Diode test, temperature, capacitance & frequency measurement for maximum flexibility.		●	●
Insulation features			
User selectable test voltages for many applications	●	●	
Additional test voltages 50V, 100V, 250V		●	
Special remote control probe for easy and safe measurements	●	●	●
Auto-discharge of capacitive voltage for added user protection	●	●	●
Live circuit detection prevents insulation test if voltage > 30V is detected for added user protection	●	●	●
General features			
Auto Power off to save batteries	●	●	●
Large display with backlight	●	●	●
Input Alert to warn for incorrect connections	●	●	●
Continuity	●	●	●

Insulation Specifications

Functions	1577	1587	1587T
Measurement range	0.1MΩ to 600MΩ	0.01MΩ to 2GΩ	0.01MΩ to 100MΩ
Test voltages	500V, 1000V	50V, 100V, 250V, 500V, 1000V	50V, 100V
Test voltage accuracy	+ 20%, -0%	+ 20%, -0%	+ 20%, -0 %
Insulation test current	1mA nominal	1 mA nominal	1 mA nominal
Auto discharge	Discharge time < 0.5s for C = 1 µF or less	Discharge time <0.5s for C = 1 µF or less	Discharge time <0.5s for C = 1 µF or less
Maximum capacitive load	Up to 1 µF load	Up to 1 µF load	Up to 1 µF load

Multimeter Specifications

Functions	Maximum	Max. resolution	1577	1587/1587T
Voltage DC	1000V	1 mV	± (0.2% + 2)	± (0.09% + 2)
Voltage AC	1000V	0.1mV	± (2% + 3)	± (2% + 3)
Current DC	400mA	0.01mA	± (1.0% + 2)	± (0.2% + 2)
Current AC	400mA	0.01mA	± (2% + 2)	± (1.5% + 2)
Resistance	50.0MΩ	0.1Ω	± (1.2% + 2)	± (0.9% + 2)
Capacitance	9999µF	1 nF	-	± (1.2% + 2)
Frequency	99.99kHz	0.01 Hz	-	± (0.1% + 1)
Temperature	-40°C to +537°C	0.1°C	-	± (1% + 10)

Battery life: Meter: 1000 hrs, Insulation Test: >1000 tests

Weight: 0.55 kg

Three Year Warranty

Size (HxWxD):
203 mm x 100 mm x 50 mm

Included Accessories

C101 Rugged Utility Hard Case
TL224 SureGrip Silicone Test Lead Set
AC285 SureGrip Alligator Clip Set
80BK Integrated DMM Temperature Probe (Type K)
TP165X Remote Test Probe

Ordering Information

Fluke 1577	Insulation Multimeter
Fluke 1587	Insulation Multimeter
Fluke 1587T	Insulation Multimeter (for Telecom)

Recommended Accessories

C25
See page 152

i400
See page 148

TPAK
See page 155

L215
See page 146

TL238
See page 145

1503/1507 Insulation Testers

Fluke 1503

Fluke 1507

Truly portable insulation resistance testers

When you need a low cost solution to general purpose insulation testing look no further than the new Fluke insulation tester range. The Fluke 1507 and 1503 Insulation Testers are compact, rugged, reliable and easy to use.

The multiple test voltages on both models make them ideal for many troubleshooting, commissioning and preventive maintenance applications. Additional features like the remote probe save both time and money when performing tests.

Features

	1503	1507
User selectable test voltages for many applications	●	●
Additional test voltages 50V, 100V, 250V		●
Special remote control probe for easy and safe measurements	●	●
Auto-discharge of capacitive voltage for added user protection	●	●
Live circuit detection prevents insulation test if voltage > 30 V is detected for added user protection	●	●
Save both time and money with Automatic calculation of Polarization Index and Dielectric Absorption Ratio		●
Auto Power off to save batteries	●	●
Large display with backlight	●	●
Continuity function (200 mA)	●	●
Compare function (pass/fail) for fast repetitive tests		●

Specifications

Insulation specifications	1503	1507
Insulation test range	0.1 MΩ to 2 GΩ	0.01 MΩ to 10 GΩ
Test voltages	500 V, 1000 V	50 V, 100 V, 250 V, 500 V, 1000 V
Test voltage accuracy	+ 20 %, - 0 %	+ 20 %, - 0 %
Insulation test current	1mA nominal	1mA nominal
AC/DC Voltage measurement	600 V (0.1 V resolution)	600 V (0.1 V resolution)
Resistance measurement range	0.01 Ω to 20 kΩ	0.01 Ω to 20 kΩ
Auto discharge	Discharge time < 0.5 second for C = 1 µF or less	Discharge time < 0.5 second for C = 1 µF or less
Maximum capacitive load	Up to 1 µF	Up to 1 µF
Open circuit test voltage	> 4 V , < 8 V	> 4 V , < 8 V
Short circuit current	> 200 mA	> 200 mA

Battery life: Insulation Test: > 1000 tests
Size (HxWxD):
203 mm x 100 mm x 50 mm

Weight: 0.55 kg
One Year Warranty

600V CAT IV

Included Accessories

TP165x Remote Test Probe
TL224 SureGrip Silicone Test Lead Set
TP74 Lantern Tip Test Probe Set
Alligator clips

Ordering Information

Fluke 1503 Insulation Tester
Fluke 1507 Insulation Tester

Fluke 1503/1507 Applications

Insulation test at a distribution panel

Wiring test in a small distribution box – all in one spot

Recommended Accessories

C101
See page 153

PAK
See page 155

TLK 225
See page 146

AC285
See page 145

L210
See page 156

1555/1550C Insulation Resistance Testers

FLUKE®

Fluke 1555 Fluke 1550C

Digital insulation testing up to 10kV

The 1555 and redesigned Fluke 1550C insulation resistance testers offer digital insulation testing up to 10kV, making them ideal for testing a wide range of high voltage equipment including switchgear, motors, generators and cables. Fluke insulation testers can now conduct the entire range of test voltages specified in IEEE 43-2000 with a best in class, 3-year warranty and CAT IV 600 V safety rating. With measurement storage and PC interface, the 1555 and 1550C are perfect tools for preventative or predictive maintenance programs designed to identify potential equipment failures before they occur.

- Test voltages up to 10 kV (1555) provides solutions for all applications
- CAT III 1000 V, CAT IV 600 V safety rating
- Voltage breakdown detection alerts the user that voltage is present and gives the voltage reading up to 600 V AC or DC for increased user safety
- Selectable test voltages in 50 V steps from 250 to 1000 V, and 100 V steps above 1000 V
- Measurements can be stored in up to 99 memory locations, with each location assigned a unique, user defined, label for easy recall
- Long battery life gives the user over 750 tests between charges
- 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
- Resistance measurements up to 2TΩ
- Timer settings up to 99 minutes for timed tests
- 3-year warranty

Specifications

(Check the Fluke web for detailed specifications)

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

Bar Graph Range	0 to 1 TΩ & 0 to 2 TΩ (1555 only)
Insulation test voltage accuracy	-0 %, +10 % at 1 mA load current
Induced AC mains current rejection	2 mA maximum
Charging rate for capacitive load	5 seconds per µF
Discharge rate for capacitive load	1,5 s/µF

	Range	Accuracy
Leakage current measurement	1 nA to 2 mA	± (5% + 2 nA)
Capacitance measurement	0,01 uF to 15,00 µF	± (15% rdg + 0,03 µF)

Timer	Range	Resolution
	0 to 99 minutes	Setting: 1 minute Indication: 1 second
Live circuit warning	**Warning range**	**Voltage accuracy**
	30 V to 660 V AC/DC, 50/60 Hz	± (15% + 2 V)

Temperature (operating):
-20 °C to 50 °C
Temperature (storage):
-20 °C to 65 °C
Humidity: 80 % to 31 °C decreasing linearly to 50 % at 50 °C

Enclosure sealing: IP40
Altitude: 0 to 2000 m
Power: 12 V lead-acid rechargeable battery, Yuasa NP2.8-12
Dimensions: 170 mm x 242 mm x 330 mm
Weight: 3,6 kg
3-year warranty

Included accessories

Test Cables with Alligator Clips (red, black, green)
Infrared adapter with interface cable
FlukeView Forms Basic CD-ROM
AC Power Cord
Soft Carrying Case (base models only)
English Manual
Users Manual on CD-ROM
Quick Reference Card
Software License Agreement
Registration Card
FlukeView Forms Installation Guide
USB-IR Cable Installation Guide
IP67 Hard Case (kit only)
Certificate of Calibration (kit only)
Ruggedized Alligator Clips (kit and 1555 only)

Software specifications

Fluke ViewForms basic software requires a PC running Windows 2000, Windows XP and Windows Vista.

Optional Accessories

TL1550EXT 25 Foot Extended Test Lead Set

Ordering information

Fluke 1550C 5 kV	Insulation Tester
Fluke 1555 10 kV	Insulation Tester
Fluke 1550C/Kit 5 kV	Insulation Tester Kit
Fluke 1555/Kit 10 kV	Insulation Tester Kit

1620-2 Series
Earth Ground Testers GEO

FLUKE®

New

Fluke 1625-2

Fluke 1623-2

Fluke 1625-2 kit

The new Fluke 1625-2 kit: with improved, easy to use reels, heavy-duty stakes, color coded wires and a professional carrying case

Included accessories

Fluke 1623-2: Protective holster, 2 test leads, 2 alligator clips, users manual

Fluke 1623-2 Kit: same as above plus stake/reel Set 4 pole and selective/stakeless clamp set

Fluke 1625-2: Protective holster, 2 test leads, 2 alligator clips, users manual

Fluke 1625-2 Kit: same as above plus stake/reel set 4 pole and selective/stakeless clamp set

Ordering information

Fluke 1623-2	Basic GEO Earth Ground Tester
Fluke 1623-2 Kit	Basic GEO Earth Ground Tester Kit
Fluke 1625-2	Advanced GEO Earth Ground Tester
Fluke 1625-2 Kit	Advanced GEO Earth Ground Tester Kit

The most complete Earth Ground Testers

The new Fluke 1620-2 series offer data storage and download capabilities via USB port, have a new large display and world class accessories will simplify and speed up testing time.

These unique earth ground testers that can perform all four types of earth ground measurement:
- 3- and 4-Pole Fall-of-Potential (using stakes)
- 4-Pole Soil Resistivity testing (using stakes)
- Selective testing (using 1 clamp and stakes)
- Stakeless testing (using 2 clamps only)

Plus:
- IP56 rated for outdoor use
- Professional carrying case
- USB data storage and transfer

In addition, the Fluke 1625-2 offers these advanced features:
- Automatic Frequency Control (AFC) -identifi es existing interference and chooses a measurement frequency to minimize its effect, providing more accurate earth ground value
- R* measurement – calculates earth ground impedance at 55 Hz to more accurately refl ect the earth ground resistance that a faulttoearth ground would see
- Adjustable limits – for quicker testing

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.

Features

	1623-2	1625-2
One-button measurement concept	●	
3- and 4-pole Fall of Potential, earth resistance loop testing	●	●
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 – 128 Hz)		●
Measuring voltage switchable 20/48V		●
Programmable limits, settings		●
Continuity with buzzer		●
Dust/water resistance	IP56	IP56
Safety rating	CAT II 300 V	CAT II 300 V

Specifications

(Check the Fluke web for detailed specifications)

	1623-2	1625-2
Resistance ranges	0 to 20 kΩ	0 to 300 kΩ
Operating error	± 10%	± 5%
Test voltage	48 V	20 / 48 V
Short circuit current	> 50mA	250 mA

Battery type: 6 x AA alkaline cells
Size (wxhxd): 250 x 133 x 187 mm
Weight – 1623-2 Geo: 1.1 kg (including batteries)
1625-2 Geo: 1.1 kg (including batteries)
Two Year Warranty

Recommended Accessories

EI-1623
Selective/stakeless clamp set for 1623

EI-1625
Selective/stakeless clamp set for 1625

ES-162P3-2
Stake set for 3-Pole Measurement

ES-162P4-2
Stake set for 4-Pole Measurement

Cable reel
Ground/Earth cable reel

1621 Earth Ground Tester

Fluke 1621

Handheld earth ground testing for mobile use

The Fluke 1621 is an easy-to-use earth ground tester. The first line of defense in detecting reliable ground connections, the unit features basic ground testing methods including 3-pole Fall-of-Potential as well as 2-pole ground resistance. Its convenient size, rugged holster, and large, clear LCD display make it an ideal field earth tester, for most work environments. With a simple user interface and intuitive functionality, the Fluke 1621 is a handy tool for electrical contractors, utility test engineers, and earth ground specialists.

Features

- 3-pole Fall-of-Potential earth testing for basic measurements
- 2-pole resistance measurements for added versatility
- Easily capture values with single-button operation
- Ensure accurate measurements with automatic 'noise' voltage detection
- Hazardous voltage warning offers increased user protection
- Clearly read and record data with a large, backlit display
- Rugged holster and design for tough work environments
- Portable size allows for easy transportation
- Instantly be alerted to measurements outside of your set limit, when you use the adjustable limit setting
- Safety rating CAT II 600 V

Specifications

(Check the Fluke web for detailed specifications)

	1621
Resistance range	0.15 Ω to 2 kΩ
Basic accuracy	± 6% of measured value + 5D
Operating error according EN61557	± 18% of measured value +5D
Test voltage	23 to 24 V AC
Short circuit current	> 50 mA AC

Battery type: 1 x 9 V alkaline (LR61)
Size (HxWxD): 216 mm x 113 mm x 54 mm
Weight: 0.850 kg
Two Year Warranty

Included accessories

Two measuring leads with alligator clips - 2 m, protective holster, users manual, CD-ROM

Ordering information

Fluke 1621 Earth Ground Tester

Recommended Accessories

Cable reel
Ground/Earth cable reel
25 M (green, blue) / 50 M (red)

ES-162P3-2
Stake set
for 3-Pole Measurement

1630 Earth Ground Clamp Meter

FLUKE®

Fluke 1630

Fast and easy earth ground loop testing

The Fluke 1630 earth ground clamp meter simplifies ground loop testing and enables non-intrusive leakage current measurement. The ground loop testing is also known as "stakeless" earth ground testing. To carry out the measurement there is no need for placing earth stakes and disconnecting the earth system from the electrical installation. The Fluke 1630 combines the two current clamps needed to perform the stakeless ground loop test in one compact and easy to use instrument.

- Ground loop resistance testing without any disconnection or additional earth stakes
- Earth ground leakage current measurement for system troubleshooting
- True RMS AC current measurement range up to 30 A
- Rapid evaluation of continuity without disconnection and audible HI/LO alarm
- Display-HOLD function to freeze measurements
- Recording function for automatic storage of measured values, which can be recalled later on the LCD display
- Automatic self calibration ensures correct measurement every time

The Fluke 1630 is ideally suited for the following applications:

- Ground loop checks on any earthing system
- Continuity tests on earth bonding circuits and connections
- Inspection of lightning protection systems
- Leakage current measurement for troubleshooting on earth ground systems

Specifications

(Check the Fluke web for detailed specifications)

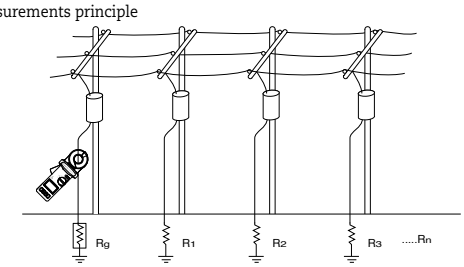
	Range	Max. resolution
Resistance	0.025 to 1500 Ω	0.002 Ω
Continuity buzzer	< app. 40 Ω	
Leakage current	0.2 to 1000 mA	0.001 mA
Current	0.2 to 30 A	0.01 A

Weight: 0.64 kg
Conductor Size: 35 mm approx.
Size (HxWxD): 257 mm x 100 mm x 47 mm
Battery type: 9 V IEC 6 LR 61
Two Year Warranty

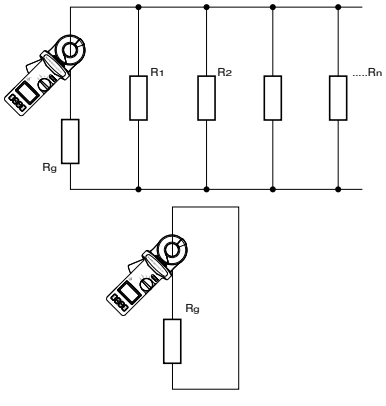
300V CAT III

Ground resistance measurements principle

Ground resistance measurements principle



Equivalent circuit diagram



Included Accessories

Rugged carrying case with belt, Resistance test loop, 9 V battery, Operating instructions.

Ordering Information

Fluke 1630 Earth Ground Clamp Meter

Installation Testers/ Portable Appliance Testers

Our multifunction testers have redefined the standards for ease-of-use. With new features like the fast, high current loop test, RCD Type B compatibility, extended memory, and the fact they are designed for ensuring fixed wiring installed according to IEC 60364, they perform all tests required to verify safety. Our Portable Appliance Testers verify the safety and operation of portable appliances, and are designed for 'one-touch' operation and a fast throughput.

Watch our latest videos on our own YouTube Channel *www.youtube.com/user/FlukeEurope*

1650 Series Multifunction Installation Testers

FLUKE®

Fluke 1654B

Fluke 1653B

Fluke 1652C

EN 61557 COMPLIANT

500V CAT III

DVE

BS7671 17th Edition IEE Wiring Regulations IEC 60364.6.61, HD 384

Included Accessories

6 AA Cell batteries
C1600 Hard carrying case
Zero Adapter
Mains test cord
TL165X STD Standard Test Lead Set
TL165/UK Fused Test Lead Set (UK only)
Padded carrying strap
Quick reference guide
TP165X Remote control probe and lead
Users manual on CD-ROM

Ordering Information

Fluke 1652C Multifunction Installation Tester
Fluke 1653B Multifunction Installation Tester
Fluke 1654B Multifunction Installation Tester

Check the Fluke website for the various software modules

Extra functionality, faster testing, and as rugged as ever

Safer, easier installation testing. The 1650 Series builds on the rugged reputation of the earlier 1650 Series, only it's re-designed to meet your need for more productive test tools. With new features like the fast, high current loop test (including a non-trip test) and a variable RCD trip current setting, accuracy is even better and the test cycle even faster. With the addition of a unique zero adapter accessory for accurate mains test lead compensation, the 1650 Series continues to set the standard in installation testers. The 1650 Series testers verify the safety of electrical installations in domestic, commercial and industrial applications. They can ensure that fixed wiring is safe and correctly installed to meet the requirements of IEC 60364, HD 384 and BS 7671 17th Edition wiring regulations.

1654B - The complete tester for advanced users
This is the instrument that has it all, in a word: it's complete. From all the test functions you need to in-built memory for documenting results. This makes it the complete solution for professionals, especially contractors, everyone who would want to have the best tool available and always understands (or know) how to use.

1653B - The ideal tester for professional trouble-shooters
This is the instrument that is indeed ideal for professional users due to its additional functionality. It is also ideal since even though it has high-end features, it is still easy to use – even after longer periods of non-use; because operating it is intuitive and not forgotten easily.

1652C - The everyday tester, for every electrical installer
This is the instrument that can be used every single day (day in, day out), and covers all the basic needs. It is the preferred tester for every front-line electrician/installer.

Features

Measurement Function	1652C	1653B	1654B
Voltage & Frequency	●	●	●
	●	●	●
Insulation Resistance	●	●	●
Continuity & Resistance	●	●	●
Loop & Line Resistance	●	●	●
Loop & Line Resistance–mΩ resolution			●
Prospective Earth Fault Current (PEFC/IK) Prospective Short-Circuit current (PSC/IK)	●	●	●
RCD switching time	●	●	●
RCD tripping level	ramp test ●	ramp test ●	ramp test ●
RCD variable current	●	●	●
Automatic RCD test sequence	●	●	●
Test pulse current sensitive RCDs (Type A)	●	●	●
Test smooth dc sensitive RCDs (Type B)			●
Earth Resistance		●	●
Phase Sequence Indicator	●	●	●
Other Features			
Self-test	●	●	●
Illuminated Display	●	●	●
Memory, Interface			
Memory		●	●
Extended Memory			●
Computer Interface		●	●
Time and date (When used with FlukeView software)		●	●
Software (optional)		●	●
Included Accessories			
Hard case	●	●	●
Remote control probe	●	●	●
Zero Adapter	●	●	●

Recommended Accessories

See also page 62 for more details

TLK290

MTC1363 (UK)

MTC77 (Europe)

ES165X 1653B & 1654B

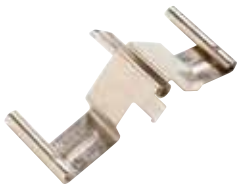
DMS0100/INST

1650 Series Multifunction Installation Testers

FLUKE®

Extra functionality, faster testing, and as rugged as ever

Slim probe design
Thanks to its slim probe with integral test button, you can safely make one-handed measurements on hard to reach points, while keeping your eyes on the panel. This remote probe is powered by the tester so always operable (does not require additional batteries!).



Zero Adapter
For easy, always reliable and accurate compensation for test leads and mains cords. This adapter can be used for all different kind of mains plugs as well as test accessories like probes, alligator clips etc.

Complete kit
All 1650 models are equipped with detachable leads that can be replaced in case of damage or loss. A durable hard case will protect your instrument in tough field conditions.

Specifications

(Check the Fluke web for detailed specifications)

AC Voltage Measurement

Range	Resolution	Accuracy 50 Hz - 60 Hz	Input Impedance	Overload Protection
500 V	0.1 V	± (0.8% + 3 digits)	3.3 MΩ	660 Vrms

Continuity Testing

Ratnge (autoranging)	Resolution	Test Current	Open Circuit Voltage	Accuracy
20 Ω	00.1 Ω	> 200 mA	> 4 V	± (1.5%+3 digits)
200 Ω	0.1 Ω			
2000 Ω	1 Ω			

Insulation Resistance Measurement

Model	Test Voltage	Insulation Resistance Range	Resolution	Test Current	Accuracy
1653B / 1654B	50 V	10 kΩ to 50 MΩ	0.01 MΩ	1 mA @ 50 kΩ	± (3%+ 3 digits)
1653B / 1654B	100 V	20 kΩ to 100 MΩ	0.01 MΩ 0.1 MΩ	1 mA @ 100 kΩ	± (3%+ 3 digits)
1653B / 1654B 1653B / 1654B	250 V	20 kΩ to 200 MΩ	0.01 MΩ 0.1 MΩ	1 mA @ 250 kΩ	± (1.5%+ 3 digits)
1653B / 1654B 1652C 1653B / 1654B	500 V	20 MΩ 200 MΩ 500 MΩ	0.01 MΩ 0.1 MΩ 1 MΩ	1 mA @ 500 kΩ	± (1.5%+ 3 digits) + 10%
1653B / 1654B 1652C	1000 V	20 MΩ 200 MΩ 1000 MΩ	0.1 MΩ 1 MΩ	1 mA @ 1 MΩ	± (1.5%+ 3 digits) + 10%

Loop Impedance Measurement

Range	Resolution	Accuracy [1]
10 Ω	0.001 Ω (1654B)	Hi Current mΩ mode: ± (2 % + 15 digits)
20 Ω	0.01 Ω	No Trip mode: ± (3 % + 6 digits)
		Hi Current mode: ± (2 % + 4 digits)
200 Ω	0.1 Ω	No Trip mode: ± (3 %)
		Hi Current mode: ± (2 %)
2000 Ω	1 Ω	±6 % [2]

Notes
[1] Valid for resistance of neutral circuit <20 Ω and up to a system phase angle of 30°. Test leads must be zeroed before testing.
[2] Valid for mains voltage >200 V.

PFC. PSC Test

Range	1000A / 10kA(50kA)
Resolution and Units	1A / 0.1kA
Accuracy	Determined by accuracy of loop resistance and mains voltage measurements

Computation
Prospective Earth Fault Current (PEFC) or Prospective Short Circuit Current (PSC) determined by dividing measured mains voltage by measured loop (L-PE) resistance or line (L-N) resistance, respectively.

RCD Testing

RCD Type [6]		Model 1652C	Model 1653B	Model 1654B
AC [1]	G [2]	▪	▪	▪
AC	S [3]	▪	▪	▪
A [4]	G	▪	▪	▪
A	S	▪	▪	▪
B [5]	G			▪
B	S			▪

Notes
[1] AC - Responds to ac
[2] G - General, no delay
[3] S - Time delay
[4] A - Responds to pulsed signal
[5] B - Responds to smooth dc
[6] RCD test inhibited for V >265 ac
RCD tests permitted only if the selected current, multiplied by earthing resistance, is <50 V.

Tripping Time Test (ΔT)

Current Settings	Multiplier	Test Current Accuracy	Trip Time Accuracy
10, 30, 100, 300, 500, 1000 mA, VAR	x 1/2	+ 0% - 10%	± (1% Reading + 1 digit)
10, 30, 100 mA	X 5	+ 10% - 0%	± (1% Reading + 1 digit)

Tripping Current (Ramp) Test

Current Range	Step Size	Dwell Time		Measurement Accuracy
		Type G	Type S	
30 % to 110 % of RCD rated current [1]	10 % of I Δ N [2]	300 ms/step	0 ms/step	±5 %

Notes
[1] 30 % to 150 % for Type A Δ N >10 mA
30 % to 210 % for Type A Δ N =10 mA
20 % to 210 % for Type B
Specified trip current ranges (EN 61008-1):
50 % to 100 % for Type AC
35 % to 140 % for Type A (>10 mA)
35 % to 200 % for Type A (≤10 mA)
50 % to 200 % for Type B
[2] 5% for Type B

Earth Resistance Test (RE) – Fluke 1654B and 1653B only

Range	Resolution	Accuracy
200 Ω	0.1 Ω	± (2% + 5 digits)
2000 Ω	1 Ω	± (3.5% + 10 digits)

Battery type: Alkaline supplied. usable with 1.2 V NiCD or NiMH rechargeable batteries
Size (HxWxD): 100 mm x 250 mm x 125 mm

Weight: 1.3 kg
Three Year Warranty

6000-2 Series PAT Testers

Fluke 6200-2

Fluke 6500-2

Also available with UK mains socket.

300V CAT II

EN61010-1

Included Accessories

Test lead, Test probe, Crocodile clip, Mains cord, Hard carrying case, USB stick, USB cable, user manual

Ordering Information

Fluke 6200-2	PAT Tester
Fluke 6500-2	PAT Tester

Not available in all countries

Perform more tests each day

The low weight, small size, one-touch solutions.

The Fluke 6200-2 and 6500-2 PAT testers have redesigned auto-test capabilities to help you increase the number of portable appliance tests completed each day. It is designed to enable you to work faster without compromising safety – yours or your customer's.

Fluke simplifies portable appliance testing

The Fluke 6200-2 offers:

- Dedicated key for each test for 'one-touch' testing
- Pre-set pass/fail levels to save time
- Large backlit display for easy reading
- Single mains socket for appliance connection
- Separate IEC socket for easy mains/ extension lead testing
- Detachable test leads for quick field replacement
- Integral carrying handle
- USB port for data transfer

The Fluke 6500-2 delivers all of this capability, plus:

- Integral QWERTY keyboard for rapid data entry
- Additional Compact Flash memory card capability for back-up data storage and transfer to PC
- Large backlit graphics display
- Pre-set, auto-test sequences for user convenience
- Integral site, location and description codes for faster data processing
- Memory review facility for more on-site control

Features

Measurement functions	6200-2	6500-2
LN mains volts	●	●
Outside limits indicators	●	●
Null out facility for earth bond lead	●	●
Protective earth resistance PE (200 mA)	●	●
Protective earth resistance PE (25 A)	●	●
Insulation 500 V dc	●	●
Insulation 250 V dc		●
Protective earth conductor current	●	●
Touch current	●	●
RCD test		●
Substitute leakage current	●	●
Appliance power kVA	●	●
Appliance load current	●	●
Seven segment custom LCD	●	
Color dot matrix display		●
Back light	●	●
USB flash drive port	●	●
USB port • printing / downloading		●
External printer output	●	●
Front Panel QWERTY Key pad		●
IEC Lead Test	●	●
Auto-testing		●
Pass / Fail Level Programmable Indicators		●
Data Storage		●
Limited data storage	●	
Polarity Checks		●
Graphical Help Menu On Line		●
Programme Mode		●
Real time clock		●
Front panel results management		●
230V BS1363 Test socket / 230V Mains BS1363 input power plug	●	●
110 V appliance test compatible with adapter		●

6000-2 Series PAT Testers

Separate hard case
The compact Fluke PAT testers are supplied with a hard carrying case that not only offers protection during transit but also includes extra storage space for accessories and other tools. They're extremely light, weighing approximately 3 kg (without case) and have integral carrying handles for extra convenience.

Special PAT Kit
If you need a complete PAT tester solution, a purpose made kit is available.
Fluke 6500-2/UK Kit Contains:
- 6500-2, Mainframe
- EXTL 100, Extension lead test adaptor
- SP Scan6000, Barcode scanner
- Fluke DMS 0702/PAT software
- Pass 560R, Appliance pass labels
- Fail 100S, Appliance fail labels APP 1000, Barcode appliance number labels

(Kit contents may vary per country)

Fluke 6200-2 display screen

Specifications

The accuracy specification for the display range is defined as ± (%reading + digit counts) at 23 °C ± 5 °C, ≤ 75 % RH. Between 0 °C and 18 °C and between 28 °C and 40 °C, accuracy specifications may degrade by 0.1 x (accuracy specification) per °C. The measurement range meets the service operating errors specified in EN61557-1: 1997, EN61557-2: 1997, EN61557-4: 1997, EN61557-6:1997, DIN VDE0404-2.

Power-on Test	
The test indicates reversed L-N, missing PE, and measures the mains voltage and frequency.	
Display Range	90 V to 264 V
Accuracy at 50 Hz	± (2% + 3 counts)
Resolution	0.1V (1V - model 6200-2)
Input Impedance	> 1 MΩ // 2.2 µF
Maximum Input Mains Voltage	264 V
Earth Bond Test	
Display Range	0 to 19.99 Ω
Accuracy (after Bond Test zeroing)	± (2.5% +4 counts)
Resolution	0.01Ω
Test Current	200 mA AC - 0% + 40% into 1.99Ω 25 A AC ± 20% into 25 mΩ at 230 V
Open Circuit Voltage	> 4 V AC, < 24 Vac
Bond Test zeroing	can subtract up to 1.99Ω
Insulation Test (Riso)	
Display Range	0 to 299 MΩ
Accuracy	± (5% + 2 counts) from 0.1 to 50 MΩ ± (10% + 2 counts) from 50 to 299 MΩ
Resolution	0.01 MΩ (0 to 19.99 MΩ) 0.1 MΩ (20 to 199,9 MΩ) 1 MΩ (200 to 299 MΩ)
Test Voltage	500 V DC - 0% + 10% at 500 kΩ load 250 V DC - 0% + 10% at 250 kΩ load (6500-2 only)
Test Current	> 1 mA at 500 kΩ load, < 15 mA at 0 Ω
Auto discharge time	< 0.5 s for 1 µF
Max. Capacitive Load	Operational up to 1 µF
RCD Test: Trip Current (6500-2 only)	
Operational Error	±10 %
Nominal	30 mA
Accuracy	±5 %
RCD Test: Trip Time (6500-2 only)	
Standard requirement	61557 Part 6; tolerance of rated test current 0 % to +10 %
Operational Error	±10 %
RCD Type	AC General-Purpose 30 mA
Display Range	310 ms
Resolution	0.1 ms
Accuracy	3 ms
Trip Time Limit at 100 % (30 mA)	300 ms
Trip Time Limit at 500 % (150 mA)	40 ms

Touch Current Test	
Display Range	0 to 1.99 mA ac
Accuracy	± (4% + 2 counts)
Resolution	0.01 mA
Internal Resistance (via probe)	2 kΩ
Measuring method	Probe
The appliance under test is energized at mains potential.	

Substitute Leakage Current Test	
Display Range	0 to 19.99 mA ac
Accuracy	± (2.5% + 3 counts)
Resolution	0.01 mA
Test Voltage	100 V AC ± 20%
Operational Error	10%
Load/Leakage Test: Load Current	
Display Range	0 to 13 A*
Accuracy	± (4% + 2 counts)
Resolution	0.1 A
The appliance under test is energized at mains potential	
* UK: 0 to 13 A, Austria: 0 to 10A, Germany/The Netherlands: 0 to 16A	
Load/Leakage Test: Load Power	
Display Range 230V mains UK: Austria: Germany/The Netherlands:	0.0 VA to 3.2 kVA 0.0 VA to 2.4 kVA 0.0 VA to 3.7 kVA
Accuracy	± (5% + 3 counts)
Resolution	1 VA (0 to 999 VA), 0.1 kVA (>1.0 kVA)
The appliance under test is energized at mains potential	
Load/Leakage Test: Leakage Current	
Display Range	0 to 19.99 mA
Accuracy	± (4% + 4 counts)
Resolution	0.01 mA
The appliance under test is energized at mains potential	
PELV Test	
Accuracy at 50 Hz	± (2% + 3 counts)
Overload protection	300 Vrms
Warning threshold	25 Vrms

Size (HxWxD): 200 mm x 275 mm x 100 mm
Weight: 3 kg
Two Years Warranty

Recommended Accessories

See also page 62 for more details

Fluke DMS 0702/PAT
software

SP6000
Printer

SP-SCAN-6000
Barcode scanner
(6500-2 Fluke only)

BDST3 Snap Tags
Cable Tie

PASS
Appliance 560R
Pass Labels

1650 Series/6000-2 Series Accessories

Accessories for Fluke 1650 Series Installation Testers

ES165X Earth Spike Test Kit (Fluke 1653B and 1654B)
Earth Spike Test kit contents:
- Auxiliary earth probes
- Test connection leads and crocodile clips
- Purpose-made carry case

FVF-SC2 Fluke ViewForms Software (Fluke 1653B)
To address the increasing demands for reporting and documentation, Fluke presents FlukeView Forms documenting software. Download the data from the Fluke 1653B and create an easy report. The Fluke ViewForms Software also supports other Fluke tools.
See page 155.

TLK 290 Test Probe Kit
- Kit includes three flexible socket probes and a large alligator clip
- To be used on three phase sockets
- Probes have flexible width test points that fit securely in 4 to 8 mm sockets
- CAT III 1000 V, 8 A

MTC1363 *MTC77*

Mains Test Cord for 1650B series

MTC1363	UK plug
MTC77	Schuko plug

110 V Lead adapter kit Fluke 6500-2 UK
Enables 6500-2 to be powered from a 110V AC center tapped supply and 110V appliances to be tested via the 110V test socket.

Accessories for Fluke 6500 Series Portable Appliance Testers

PASS560R Appliance Pass Labels
Quantity 500

APP1000/APP2000 Bar Code Appliance Number Labels
APP1000: Labels numbered 0001-1000
APP2000: Labels numbers 1001-2000
Label number >2000 on request

BDST3/BDST4 Snap Tags
BDST3: Cable Tie
BDST4: Clip On
Quantity 20. Without labels.

EXTL100-02 (UK plug)

EXTL100-02 (Schuko plug)

EXTL100 Extension Lead Test Adaptor
Adaptor for testing extension leads. Allows the earth test lead to be connected to the extension leads to perform insulation and earth bond tests.

SPScan6000 Barcode Scanner
Easy to use, low current, intelligent barcode reader. SPScan6000 can be used to scan barcodes attached to curved surfaces or where actual contact with the barcode surface is difficult.

SP6000 Mini Printer
Without using any additional software the SP6000 can be used to directly printout stored test records on to thermal paper. The printer is compact and easily transported and is ideal for test professionals who need to issue an immediate written account of work carried out. The printer is powered by a rechargeable battery and comes complete with mains charger.

SP6000 Paper
Replacement thermal paper for the SP6000 Printer

Fluke DMS software for 1650/6000 Series

The Fluke DMS (Data Management Software) is an efficient program for administration and reporting of installation tests in compliance with EN 60364, DIN VDE 0100/0105, BS7671 17th edition wiring resulation and appliance tests in compliance with DIN VDE 0701/0702, ÖVE E 8701.

DMS 0100/INST Software for Installation Tester Fluke 1653B and 1654B
Supporting reports for Austria, Germany, UK, Switzerland, Netherlands

DMS 0702/PAT Software for Portable Appliance Tester Fluke 6500
Supporting reports for Austria, Germany, UK, Netherlands

DMS COMPL PROF Software for the Fluke 1654B, 1653B and Fluke 6500
Supporting reports for Austria, Germany, UK, Switzerland, Netherlands

Digital Thermometers

For troubleshooting systems where temperature is a critical symptom, our digital thermometers provide you with laboratory accuracy wherever you need it. We offer a choice of non-contact, laser-guided infrared thermometers for safely getting at hard-to-reach, electrically live or particularly hot targets, and contact thermometers with a full range of thermocouple probes.

Watch our latest videos on our own YouTube Channel *www.youtube.com/user/FlukeEurope*

Infrared Thermometer Selection Guide

Infrared Thermometer Selection Guide	Fluke 60 Series				Fluke 560 Series			Fluke 570 Series
	Fluke 61	**Fluke 62 MAX**	**Fluke 62 MAX+**	**Fluke 63**	**Fluke 561**	**Fluke 566**	**Fluke 568/568Ex**	**Fluke 572-2**
Temperature range	-18 to 275 °C	-30 to 500 °C	-30 to 650 °C	- 32 to 535 °C	- 40 to 550 °C	- 40 to 650 °C	- 40 to 800 °C	- 30 to 900 °C
Distance to spot	8:1	10:1	12:1	12:1	12:1	30:1	50:1	60:1
Laser sighting	single-point laser	Single laser	Dual laser	single-point laser	single-point laser	single-point laser	single-point laser	offset dual laser, output <1 mW
Accuracy	2%	1,50%	1,00%	1%	1%	1%	1%	1%
Response time	< 500 mSec	< 500 mSec	< 300 mSec	< 500 mSec	< 500 mSec	< 500 mSec	< 500 mSec	< 500 mSec
Recommended distance to spot	Up to 2 m	Up to 2 m	Up to 2 m	Up to 2.5 m	Up to 2.5 m	Up to 4.5 m	Up to 7.5 m	Up to 9 m
Adjustable emissivity		●	●		●	●	●	●
MIN/MAX readings		●	●	-/●	●	●	●	●
AVG readings		●	●			●	●	●
DIF readings		●	●		●	●	●	●
Backlit LCD	●	●	●	●	●	●	●	●
Audible Hi/Lo alarm						●	●	●
Visible Hi/Lo alarm						●	●	●
Includes contact probe					●	●	●	●
Probe input (types)					Type K Thermocouple	Type K Thermocouple	Type K Thermocouple	Type K Thermocouple
Data logging (number of measurements)						20 points	99 points	99 points
PC interface							USB	USB 2.0
Compatible with FlukeView Forms software							●	●

Recommended Applications

Contact thermometers
For our complete range of contact thermometers, see page 69.

Plant/facilities maintenance
Preventive and predictive maintenance
Energy audits
Vehicle and fleet maintenance programs
Faulty electrical/circuit connections
Petrochemical/hazardous locations
Motors, pumps and bearings

Heating/ventilation/air conditioning/ refrigeration
Leaky ductwork
Thermostats
Temperature balancing
Steam distribution systems
Compressor lines

Manufacturing processes
Molding temperature measurement
Printing, paper and converting
Thermoforming plastics
Electronics
Paint curing/drying
Food
Chemical and pharmaceutical

Safety and protection
Fire localization
Hazardous materials
Faulty ballasts
Search and rescue
Smoldering embers
Equipment maintenance

572-2 High Temperature Infrared Thermometer

FLUKE®

Fluke 572-2

The best choice when things are really hot

The Fluke 572-2 Infrared Thermometer is the one product you can use in high-temperature industrial environments all around the world. Whether you work in power utility, metal refining and smelting, glass, cement or petrochemical environments, the new 572-2 allows you to carry the most trusted name in test tools anywhere you need accurate, high temperature and high distance-to-spot measurements.

With a rugged, easy-to-use, ergonomic design, the Fluke 575-2 can stand up to tough industrial, electrical, and mechanical environments.

Features

- Measure -30 °C to 900 °C
- 60:1 distance to spot ratio with dual laser sighting for fast, accurate targeting
- Multi-language interface (user select)
- Current Temperature plus MAX, MIN, DIF, AVG temperature displays
- Compatible with standard mini-connector K-type thermocouples, including ones you already own and have installed
- Adjustable emissivity and predefined emissivity table
- Infrared and thermocouple temperature on backlit display
- Last reading Hold (20 seconds)
- High and low temperature alarm
- Data storage and review (99 data sets)
- Tripod mount
- 12 or 24 hour clock
- USB 2.0 computer interface cable
- FlukeView® Forms Documenting Software

Specifications

Infrared temperature range	-30 °C to 900 °C
IR accuracy (Calibration geometry with ambient temperature 23 °C ± 2 °C)	≥ 0 °C: ± 1°C or ± 1 % of the reading, whichever is greater ≥-10 °C to <0 °C: ± 2 °C <-10 °C: ± 3 °C
IR Repeatability	± 0.5 % of reading or ± 0.5 °C, whichever is greater
Display Resolution	0.1 °C
Distance:Spot	60:1 (calculated at 90 % energy)
Minimum spot size	19 mm
Laser sighting	Offset dual laser, output <1 mW
Spectral Response	8 µm to 14 µm
Response Time (95 %)	<500 ms
Emissivity	Digitally adjustable from 0.10 to 1.00 by 0.01 or via built-in table of common materials
Hi/Low alarms	Audible and two-color visual
Min/Max/Avg/Dif	Yes
Switchable celsius and fahrenheit	Yes
Backlight	Two levels, normal and extra bright for darker environments
Trigger lock	Yes
Data storage	99 points
Display	Dot matrix 98 x 96 pixels with function menus
Communication	USB 2.0
K-type thermocouple input temperature range	-270 °C to 1372 °C
K-type thermocouple input accuracy (with ambient temperature 23 °C ± 2 °C)	< -40 °C: ± (1 °C + 0.2 °/1 °C) ≥ -40 °C: ± 1 % or 1 °C, whichever is greater

Operating temperature: 0 °C to 50 °C
Storage temperature: -20 °C to 60 °C
Size (HxWxD): 177 x 164 x 52 mm
Weight: 0.322 kg
Power: 2 AA Batteries

Battery life: 8 hours with laser and backlight on; 100 hours with laser and backlight off, at 100 % duty cycle (thermometer continuously on)
Two years warranty

Included Accessories

K-type thermocouple bead probe, USB 2.0 computer interface cable, FlukeView® Forms Documenting Software, hard carrying case, getting started guide (print) and user's manual (CD).

Ordering Information

Fluke 572-2 Infrared Thermometer

Recommended Accessories

80-PK-1
See page 150

80PK-8
See page 150

80PK-9
See page 150

80PK-11
See page 150

80PK-25
See page 150

80PK-26
See page 150

62 MAX / 62 MAX+ Infrared Thermometers

FLUKE®

Fluke 62 MAX

Fluke 62 MAX+

Small in size. Big on toughness.

Designed with your on-the-job needs in mind, the new Fluke 62 MAX and 62 MAX+ infrared thermometers are everything you'd expect from the experts in measurement tools. Small in size, extremely accurate and very easy to use. IP54 rated for dust and water resistance. Precise yet rugged enough to take a 3-meter drop. In fact, the 62 MAX and 62 MAX+ are so tough, they're the only IR thermometers around you can handle without care.

Key Benefits

- Dust and water-resistant: IP54 rated for dust and water resistance.
- Rugged: 3-meter drop tested.
- Ergonomically designed: Completely redesigned for a more natural hand fit.
- Small and lightweight; clips to your tool belt or belt loop or easily fits into your tool box.

The Fluke 61 and Fluke 63 handheld infrared thermometers enable professionals to monitor the status of electrical motors and electrical panels, research heating and ventilation problems and diagnose car malfunctions with ease. Check the Fluke web for more information.

The Fluke FoodPro™ thermometer series provide advanced temperature measurement solutions for the foodservice industry. Check the Fluke web for more information.

Specifications

	Fluke 62 Max	Fluke 62 Max+
Temperature Range	-30 °C to 500 °C	-30 °C to 650 °C
Distance to spot	10:1 (calculated at 90% energy)	12:1 (calculated at 90% energy)
Laser sighting	Single laser	Dual laser
Accuracy	±1.5 °C or ±1.5% of reading, whichever is greater -10 °C to 0 °C: ±2.0 -30 °C to -10 °C: ±3.0	±1.0 °C or ±1.0% of reading, whichever is greater -10 °C to 0 °C: ±2.0 -30 °C to -10 °C: ±3.0
Repsonse Time (95%)	<500 ms (95% of reading)	<300 ms (95% of reading
Spectral Response	8 to 14 microns	
Emissivity	0.10 to 1.00	
Display Resolution	0.1 °C	
Repeatability of readings	±0.8% of reading or <±1.0 °C, whichever is greater	±0.5% of reading or <±0.5 °C, whichever is greater
Operating Humidity	10 % to 90 % RH non-condensing at 30 °C	
Operating Altitude	2000 meters above mean sea level	
Storage Altitude	12.000 meters above mean sea level	
IP Rating	IP 54 per IEC 60529	
Drop Test	3 meters	
Vibration and Shock	IEC 68-2-6 2.5 g, 10 to 200 Hz, IEC 68-2-27, 50 g, 11 ms	
EMC	EN 61326-1:2006 EN 61326-2:2006	

Power: AA battery
Size (HxWxD): 175 x 85 x 75 mm
Battery life: 10 hrs 62 Max+, 8 hrs 62 Max, with laser and backlight on
Weight: 0,255 kg

Operating Temperature: 0 °C to 50 °C
Storage Temperature: -20 °C to 60 °C, (without battery)
3 years warranty

Ordering Information

Fluke 62 MAX	Single laser infrared thermometer
Fluke 62 MAX+	Dual laser infrared thermometer
Fluke 62 MAX+/323 Kit	
Fluke T5-600/62 MAX+/1AC2 Kit	
Fluke 116/62MAX+ Kit	
Fluke 414D/62MAX+ Kit	
Fluke 61	Infrared Thermometer
Fluke 63	Infrared Thermometer
Fluke FP	FoodPro™ Food Safety Thermometer
Fluke FP Plus	FoodPro™ Plus Food Safety Thermometer

Kits

Fluke 116/62MAX+

Fluke 414D/62MAX+

Fluke 62MAX+/323/1AC-II

Fluke T5-600/62MAX+/1AC-II

566, 568 and 568Ex Multipurpose Thermometers

FLUKE®

The two-in-one infrared and contact thermometer with an innovative graphical display

With a straight-forward, menu-driven user interface and graphical display, the Fluke 566 and 568 multipurpose thermometers make even complex temperature measurements easy. Quickly navigate and adjust emissivity, start data logging, or turn on and off alarms, with just a few pushes of a button. For added convenience, both rugged handheld thermometers combine contact and non-contact temperature measurement capability, providing a total temperature measurement solution for any service and maintenance program.

- Easily access advanced features with the soft-key buttons and graphical display
- Measure smaller targets from farther away using the IR thermometer
- Adjustable emissivity and built-in table of common materials for higher IR accuracy
- Quickly identify problems with the MIN, MAX, AVG, and DIF functions
- 2-color flashing alarm alerts you visually when measurements exceed limits
- Includes Type K thermocouple bead probe
- Compatible with all standard mini-connector K-type thermocouples
- Data logging with a date/time stamp
- Soft rubber boot for increased ruggedness
- User interface available in 6 languages

The Fluke 568 Ex Intrinsically Safe Infrared Thermometer is the one product you can use in Class I Div 1 and Div 2 or Zone 1 and 2 hazardous environments anywhere in the world.

Choose your language

Select the measurement surface

See complete measurement details in seconds

Specifications

(Check the Fluke web for detailed specifications)

	566	568/568 Ex
Infrared temperature range	-40 °C to 650 °C	-40 °C to 800 °C
Infrared accuracy	< 0 °C : ± (1.0 °C + 0.1°/1 °C); > 0 °C : ± 1 % or ± 1.0 °C, whichever is greater	
Display resolution	0.1 °C	
Infrared spectral response	8 µm to 14 µm	
Infrared response time	< 500 msec	
Input temperature range	-270 °C to 1372 °C	
Input accuracy	-270 °C to -40 °C: ± (1 °C + 0.2 °/1 °C) -40 °C to 1372 °C: ± 1 % or 1 °C, whichever is greater	
D:S (Distance to measurement spot size)	30:1	50:1
Laser sighting	Single-point laser < 1 mw output Class 2 (II) operation, 630 nm to 670 nm	
Minimum spot size	19 mm	
Emissivity adjustment	By built-in table of common materials or digitally adjustable from 0.10 to 1.00 by 0.01	
Data logging with Date/Time stamp	20 points	99 points
PC interface and cable	None	USB 2.0 with FlukeView® Forms software
Hi/Low alarms	Audible and two-color visual	
Min/Max/Avg/Dif	Yes	
Display	Dot matrix 98 x 96 pixels with function menus	
Backlight	Two levels, normal and extra bright for darker environments	
Trigger Lock	Yes	
Switchable between Celsius and Fahrenheit	Yes	

Power: 2 AA/LR6 Batteries (566); 2 AA/LR6 Batteries and USB for use with a PC (568)
Battery life: Used continuously; laser and backlight on: 12 hours (568 Ex 4 hours); laser and backlight off: 100 hours
Weight: 0.965 kg (566); 1.026 kg (568)

Size (HxLxW): 254 x 191 x 69 mm
Operating temperature: 0 °C to 50 °C
Storage temperature: -20 °C to 60 °C
Safety rating Zone 1 and 2 IECEx EPS 13.0006X Ex ia IIC T4 Gb 568 Ex
Two years warranty

Included accessories

FlukeView® Forms software (568 only), USB cable (568 only), K-type thermocouple bead probe, 2 AA batteries, hard carrying case, quick start guide, and users manual.

Ordering information

Fluke 566	Infrared thermometer
Fluke 568	Infrared thermometer
Fluke 568 Ex	Intrinsically safe infrared thermometer

Recommended Accessories

H6
See page 153

80PK-8
See page 150

80PK-9
See page 150

80PK-11
See page 150

80PK-25
See page 150

80PK-26
See page 150

561 Multipurpose Thermometer

Fluke 561

Combined Infrared and Contact Thermometer

The Fluke 561 combines the temperature measurement functions that industrial, electrical, and HVAC/R professionals need, all in one tool. It measures both IR and contact temperature, replacing several other test tools. It's fast, efficient, and easy to use, saving you valuable time and effort. With the Fluke 561, you can take contact and ambient temperatures in the way that's best for you. Use the IR thermometer to measure hot, moving, electrically energized, and hard-to-reach objects instantly. Check motors, insulation, breakers, radiant heating, pipes, corroded connections, and wires. Plus, scan ducts, and other hard-to-reach objects from the floor—leave your ladder in the truck. You can use the Fluke 561's handy Velcro® pipe probe or, plug in any industry standard, K-type mini-connector thermocouple probe you already own.

- IR thermometer for quick measurements up close or at a distance
- Single-point laser sighting
- Easy emissivity adjustment for measuring pipes and ducts more accurately
- Includes a Velcro pipe probe for super-heat and sub-cooling as well as other surface contact measurements
- Also compatible with all standard mini-connector K-type thermocouples
- MIN, MAX and DIF temperature readings
- Lightweight (only 340 grams) and portable
- Includes measurement guide

The Fluke 561 includes everything you need for immediate inspections.

Specifications

Temperature range	-40° to 550°C
Display resolution	0.1° of reading
D:S (Distance to spot size)	12:1
Easy emissivity selector	Adjustable with three settings: low (0.3), medium (0.7), high (0.95)
Display accuracy (Assumes ambient operating temperature of 23° to 25°C)	± 1.0% of reading or ± 1°C, whichever is greater; below 0°C, ± 1°C, ± 1°/1°
Response time	500 mSec (95% or reading)
Repeatability	± 0.5% of reading or ± 1°C, whichever is greater
Spectral focus	8 µm to 14 µm
Laser sighting	Single-point laser
Laser shutoff	Laser turns off above ambient temperature of 40°C
Laser power	Class 2 (II) operation; output ‹ 1 mW, wavelength 630 nm to 670 nm
Relative humidity	10% to 90% RH non-condensing, at < 30°C
Power	2 AA batteries (alkaline or NiCD)
Display hold	7 seconds
Backlit display	Yes, LCD with dual temperatures (current and MAX/MIN/DIF/KTC), low battery, F/C indicator, and Scan/Hold options
Operating temperature	0° to 50°C
Storage temperature	-20 to 65°C
MAX, MIN, DIF temperatures	Yes
Thermocouple type K mini-adapter input	Yes, compatible with industry standard type K probes with mini-connector
Thermocouple type K Velcro pipe probe	Yes, with a temperature range of 0° to 100°C and accuracy of ± 2.2°C
Measurement guide	Yes

Battery Life (alkaline): 12 hours
Size (HxLxW): 176,9 x 163,6 x 51,8 mm
Weight: 0.34 kg
Two years warranty

Included accessories

Thermocouple K-type Velcro pipe probe, hand carrying case, 2 AA batteries and user manual with measurement guide.

Ordering information

Fluke 561 HVACPro Thermometer

Recommended Accessories

H6
See page 153

80-PK-1
See page 150

80PK-8
See page 150

80PK-25
See page 150

50 Series II Thermometers

Fluke 54 II B

Fluke 51 II

Fluke 52 II

Fluke 53 II B

Laboratory accuracy. Wherever you go.

The Fluke 50 Series II contact thermometers offer fast response and laboratory accuracy (0.05% + 0.3°C) in a rugged handheld test tool.

- Large backlit dual display shows any combination of T_1, T_2 (52 and 54 only), T_1-T_2 (52 and 54 only) plus MIN, MAX, or AVG
- Relative time clock on MIN, MAX, and AVG provides a time reference for major events
- Electronic Offset function allows compensation of thermocouple errors to maximize overall accuracy
- Readout in °C, °F, or Kelvin (K)
- Sleep mode increases battery life
- Battery door allows easy battery replacement without breaking the calibration seal

Additional features for the 53 and 54 Series II:

- Data Logging up to 500 points of data with user adjustable recording interval
- Real time clock captures the exact time of day when events occur
- Recall function allows logged data to be easily reviewed on the meter display
- IR communication port allows data to be exported to optional FlukeView® PC software

Features

	51 II	52 II	53 II B	54 II B
Thermocouple types	J,K,T,E	J,K,T,E	J,K,T,E,N,R,S	J,K,T,E,N,R,S
Number of inputs	Single	Dual	Single	Dual
Time stamp	Relative Time	Relative Time	Time of Day	Time of Day
Splash/Dust resistant	●	●	●	●
Dual display with backlight	●	●	●	●
Min/Max/Avg recording	●	●	●	●
(T_1-T_2) True differential		●		●
Data logging up to 500 points			●	●
IR data port for interface to PC			●	●
Compatible with optional FlukeView Software			●	●

Specifications

Temperature range:	
J-type Thermocouples	-210°C to 1200°C
K-type Thermocouples	-200°C to 1372°C
T-type Thermocouples	-250°C to 400°C
E-type Thermocouples	-150°C to 1000°C
N-type** Thermocouples	-200°C to 1300°C
R** and S-type** Thermocouples	0°C to 1767°C
Temperature accuracy	
Above –100°C (-148°F):	
J, K, T, E, and N-type**	± [0.05% + 0.3°C]
R** and S-type**	± [0.05% + 0.4°C]
Below –100°C (-148°F):	
J, K, E, and N-types	± [0.20% + 0.3°C]
T-type	± [0.50% + 0.3°C]

**Only the Fluke Models 53 and 54 Series II thermometers are capable of measuring N, R, and S-type

Battery life: 1000 hours typical, AA
Size (HxWxD): 173 x 86 x 38 mm
Weight: 0.4 kg
Three Year Warranty

Included Accessories

Impact absorbing holster
Two bead probe thermocouples 80PK-1 (54+52)
One bead probe thermocouple 80PK-1 (51+53)

Ordering Information

Fluke 51 II	Thermometer
Fluke 52 II	Thermometer
Fluke 53 II B	Thermometer
Fluke 54 II B	Thermometer
FVF-SC2	FlukeView Forms Software including USB interface cable

Recommended Accessories

C25
See page 152

80PK-26
See page 150

80PK-25
See page 150

FVF-SC 2
See page 155

TPAK
See page 155

t3000 FC Wireless K-Type Temperature Module

FLUKE®

Built with FLUKE CONNECT™

ANDROID APP ON Google play

Download on the App Store

Fluke t3000 FC

For more information on Fluke Connect, see pages 13-18

Included Accessories

80PK-1 K-Type Bead Thermocouple
Magnetic hanging strap

Ordering Information

Fluke t3000 FC	FC Wireless K-Type Temperature Module

See it. Save it. Share it.

All the facts, right in the field. The Fluke t3000 FC Wireless K-Type Temperature Module is one member of a family of wireless test tools that let you share test data using the Fluke Connect™ app with ShareLive™ video call.

It's simple. Connect the t3000 FC wireless temperature module, or any of the other Fluke Connect remote modules, and read the results on the Fluke Connect Wireless Multimeter or a portable PC from a safe distance. Better still, the Fluke Connect test tools can send measurement data to your smartphone, so you can save and share measurements from the field with your team anytime, from anywhere.

Fluke t3000 FC Wireless K-Type Temperature Module

A versatile K-type thermocouple thermometer wirelessly relays measurements to other Fluke Connect™ enabled master units.

t3000 FC main features include:

- K-type Thermocouple Thermometer
- 80PK-1 K-type Bead Thermocouple
- Use as a standalone meter or as part of the system
- Logging function for recording and saving up to 65,000 readings
- Magnetic hanging strap
- Other K-type temperature probes also available, see pages 150-151.

Specifications

Range	K-type: -200 °C to 1000 °C
Resolution	0.1 °C
Accuracy	± [0.5 % + 0.3 °C] counts
Input terminals	K-type mini
LCD w/backlight	3 ½ digits
Log rate/interval	1 sec minimum/adjustable by PC and FC app on smart phone
Battery type	2 AA, NEDA 15 A, IEC LR6
Battery life	400 hours
Memory	Record up to 65,000 readings
RF communications	2.4 GHZ ISM Band
RF communication range	Open air, unobstructed: Up to 20 m Obstructed, sheetrock wall: Up to 6.5 m Obstructed, concrete wall or steel electrical enclosure: Up to 3.5 m
Operating temperature	-10 °C to +50 °C
Storage temperature	-40 °C to +60 °C
Temperature coefficient	0.01 % of reading +0.03 °C per °C
Temperature scale	ITS-90
Operating humidity	90 % at 35 °C, 76 % at 40 °C, 45 % at 50 °C
Altitude	Operating: 2,000 m Storage: 12,000 m
EMC	EN 61326-1:2006
Safety compliance	IEC 61010-1, CAT I, 3rd edition Pullution Degree 2
Certifications	CSA, CE, FCC: T68-FBLE IC: 6627A-FBLE
Ingress Protection (IP) rating	IP45
Pullution Degree	2
Size (HxWxD)	16.5 cm x 6.35 cm x 1.4 cm (6.5 in x 2.5 in x 1.4 in)
Weight	.22 kg (8 oz)

(Not compatible with Fluke CNX test tools)

Recommended Accessories

80PK-24 (714)
See page 150

80-PK-1
See page 150

80PK-9
See page 150

PC adapter
See page 155

Visual IR Thermometers

The Fluke Visual IR Thermometer combines the convenience of an infrared thermometer with the visual advantage of a thermal imager creating a brand new tool category – a troubleshooting camera with infrared heat map.

Watch our latest videos on our own YouTube Channel *www.youtube.com/user/FlukeEurope*

VT04 and VT04A Visual IR Thermometers

FLUKE®

Fluke VT04 and VT04A

Detect Issues Instantly

Eliminate the need for multiple temperature measurements. Fluke Visual IR Thermometers combine the convenience of a spot thermometer with the visual advantage of an infrared heat map.

Key features of a visual IR thermometer:

Fits your budget
Fluke VT04 and VT04A Visual IR Thermometers give you bold temperature features at a price that allows you to outfit your entire team.

Intuitive interface
Get to work as soon as you take it out of the box.

Pocket-size design
Blend digital image with heat map overlay at 0 %, 25 %, 50 %, 75 %, and full infrared with one button.

Infrared heat map blending
Blend digital image with heat map overlay at 0 %, 25 %, 50 %, 75 %, and full infrared with one button.

Center-point temperature and hot and cold markers
Hot and cold markers automatically identify hottest and coldest spots within field of view.

SmartView® reporting software
Store up to 10,000 images per GB on included SD card and make reports with Fluke's professional reporting software.

Batteries that work as long as you
Choose between a rechargeable Lithium-ion battery (VT04) and 4 AA batteries (VT04A). Both options last 8 hours.

See more with PyroBlend® Plus optics
- Excellent field of view for tight spaces: 28° x 28°

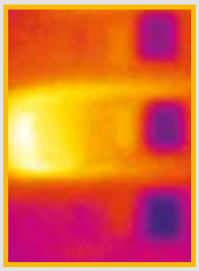
Alarm and time lapse features
- High/low temperature alarms—high and low temperature alarms flash whenever the temperature threshold is exceeded
- Time-lapse image capture—automatically capture images at set intervals of time without being there
- Auto-monitor alarm—automatically capture images after a user-selected temperature threshold has been exceeded

See the difference

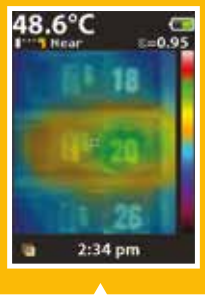
See how a traditional IR thermometer and an entry level infrared camera make it challenging to communicate the issue on breaker 20.

Visual inspection
No issues are obvious to the naked eye.

Traditional IR thermometer
Optimized for single point measurements.



Entry level infrared camera
Challenging to see the exact location.



Visual IR Thermometer
Digital image with heat map overlay detects the exact location of the issue.

VT04 and VT04A Visual IR Thermometers

FLUKE®

Specifications

Key features	VT04	VT04A
Built-in digital camera	Yes	
Thermal heat map overlay	Yes, five blending modes	
Image optics system	PyroBlend™ Plus optic	
Field of view	28° x 28°	
Hi-Lo temperature alarms	Yes	
Time lapse image capture	Yes	
Auto-monitor alarm	Yes	
Battery type	Li-Ion rechargeable	Four (4) AA batteries
Training	No training required	
Ergonomics	Slim pocket-sized design	
Hot and cold markers	Yes	
General features		
Battery life	Eight (8) hours	
Temperature measurement range	-10 °C to +250 °C	
Temperature measurement accuracy	+/- 2 °C or +/- 2 %	
Temperature measurement	Yes, centerpoint	
Storage medium (micro SD card)	Stores up to 10,000 images per Gb (Four (4) Gb card included)	
Infrared spectral band	6.5 µm to 14 µm	
Level and span	Auto	
Focus mechanism	Focus free, no training required with built-in intelligence	
Focus options—exclusive user selectable NEAR/FAR options	NEAR > 23 cm; FAR < 23 cm	
Dimensions (HxWxD), Weight	210 x 75 x 55 mm, 300 g	
File format	.is2 format saved to SD card. User can create professional reports or export images in Smartview (BMP, DIB, GIF, SPE, FIF, SPEG, JPG, PNG, TIF and TIFF)	
Safety and compliance	CFR47: 2009 Class A. Part 15 subpart B; CE: EN 61326:2006; IEC/EN 61010-1:2010	
Warranty	Two (2) years	

VT04 Maintenance Kit
Includes a VT04 Visual IR Thermometer and a 1587 Insulation Multimeter

VT04 Electrician's Kit
Includes a VT04 Visual IR Thermometer, a 117 Electricians MultiMeter and a 376 AC/DC True-RMS Clamp Meter

VT04 HVAC kit
Includes a VT04 Visual IR Thermometer, 902 True-RMS HAVC Clamp Meter and a 116 Digital Multimeter

Included Accessories

Hard Case, hand strap, mini SD card and adapter, SmartView® software on CD, Lithium Ion batteries and Micro USB Charger/ Power Supply (including mains adapters) (VT04) or 4 AA batteries (VT04A), Quick Start Guide, Users manual

Ordering Information

Fluke VT04 Visual IR Thermometer
Fluke VT04A Visual IR Thermometer

Fluke VT04 Maintenance Kit
Fluke VT04 HVAC Kit
Fluke VT04 Electrician's Kit

Recommended accessories

Fluke VT04 charger

Battery

C90

Thermal Imagers

Get the infrared solution you need to conduct thorough and accurate inspections in any environment.

From the affordable and easy-to-use Performance Series, to the Professional Series that offers superior image quality and advanced features, to the Expert Series that gives you a superior viewing experience, an extensive feature set, Fluke has the infrared camera you need to solve the problems you face every day at your job.

Plus every camera in our Performance, Professional, and Expert Series comes standard with Fluke Connect™, so you can store asset images in one location for comparison over time and get work order approvals or questions answered without leaving the field.

Watch our latest videos on our own YouTube Channel *www.youtube.com/user/FlukeEurope*

Performance Series

Professional Series

Expert Series

Ti Series Thermal Imagers

Performance Series
Affordable and easy to use

The Performance Series infrared cameras offer good image quality at an affordable price. With better spatial resolution and a large screen, you can see more detail in every image, even from a distance - detail that could indicate a potential issue.

Ti90, Ti95, Ti100, Ti105, Ti110, Ti125

- Good image quality
- Affordable
- Fluke Connect™ enabled
- Easy to use

Professional Series
Superior quality images and advanced features

The Professional Series infrared cameras give you in-focus, crisp, detailed images. Focus with laser speed and accuracy on your designated target despite obstacles in your view with LaserSharp® Auto Focus. View images on a high resolution touchscreen LCD.

Ti200, Ti300, Ti400

- Superior image quality
- LaserSharp® Auto Focus
- Fluke Connect™ enabled
- Advanced features

Expert Series
Superior viewing experience

With the Expert series infrared cameras you can capture tough shots with ease and quickly identify issues on the large 5.6 inch articulating LCD display.

TiX520, TiX560

- Superior image quality
- 5.6 inch articulating LCD display
- Fluke Connect™ enabled
- Extensive feature set

Find out more about Fluke Thermography applications and solutions on pages 86 to 88.

Ti90, Ti95 - Performance Series

FLUKE®

ANDROID APP ON Google play
Download on the App Store

FLUKE CONNECT™

Fluke Ti95

Fluke Ti90

Finding potential problems and implementing a preventive maintenance program has never been easier or more affordable

Wireless with superior image quality, easy-to-use and rugged, the Ti90 and Ti95 thermal imagers are designed for your next thermal inspection. They come standard with Fluke Connect™, the world's largest system of test and measurement tools, and are the only wireless industrial infrared cameras in their price class.

Key features

Wireless via Fluke Connect™ app (where available)
Collaborate and analyze with over 20 different Fluke test tools from anywhere, with any member of your team, at any time. With ShareLive™ video call, get approvals without leaving the field.

5.6 mRad — Best-in-class* spatial resolution
Get superior quality images so you can conduct an infrared inspection from a safe distance with up to 84% better spatial resolution than other competitive models*.

Removable storage
Removable 8 Gb SD memory card and 8 Gb wireless SD card (where available).

IR-Fusion® Picture-in-Picture
Get context for the infrared image with Picture-in-Picture on the Ti95 and full visible on both cameras. IR-Fusion® AutoBlend™ and Picture-in-Picture modes are available in SmartView® software, so that you can perform all of your analysis and image adjustments/ enhancements with the included SmartView® software.

Large 3.5 inch LCD
Up to 32% larger screen than other competitive models* lets you clearly see what you are measuring.

*Compared to industrial hand-held infrared cameras in the same price range, based on MSRP as of May 1, 2014.

Additional Features

- Designed to withstand a 2 m drop
- Hand strap (Ti95 only) and integrated lens cap
- Rugged, rechargeable lithium-ion smart battery pack with five-segment LED display to show charge level
- One-handed operation so your other hand is free to hold the ladder or your tool bag
- Focus-free system takes the hassle out of focusing – optimized for 18 inches and beyond
- Quick access level/span adjustment for faster image optimization in the field
- Fast auto rescale in manual mode for quick adjustment in dynamic situations
- Hot and cold spot markers (Ti95 only)
- SmartView® analysis and reporting software included (with free upgrades through life of product)

Included Accessories
AC power adapter, Lithium ion smart battery (1), USB cable, SD memory card, Fluke Connect™ wireless SD Card (where available, shipped separately in non-European countries), Soft transport bag, Adjustable hand strap (left- or right- handed use), Users' manual, SmartView® software, Warranty registration card.

Ordering Information

Fluke Ti95 9Hz	General Use Thermal Imager
Fluke Ti90 9Hz	General Use Thermal Imager

For more information on Fluke Connect, see pages 13-18

Recommended Accessories

Ti-Car Charger
Car charger

FLK-TI-SPB3
Extra battery

FLK-TI-SBC3
Charging base

Fluke Ti Visor 2

Fluke Ti Tripod 2

Ti125, Ti110, Ti105, Ti100 Performance Series

FLUKE®

ANDROID APP ON Google play
Download on the App Store

FLUKE CONNECT™

Ti110

Ti125

Ti100

Ti105

The lightest, most rugged and easiest-to-use professional thermal imagers around.

Start finding potential problems fast with the Performance Series Thermal Imagers - with Fluke Connect™ securely connect and collaborate with others, so they can see what you see. With the innovative features and functionality in the Fluke Ti125, Ti110, Ti105 and Ti100 imagers, you can perform infrared inspections faster and more efficiently and thoroughly document problem areas for additional follow-up.

Key features

Exclusive IR-OptiFlex™ focus system ensures that images are in good focus from 1.2 meters (4 feet) and beyond for optimum image clarity and scanning convenience. For shorter distances change to manual mode with the touch of a finger (Ti110 and Ti125).

Always have references handy IR-PhotoNotes™ annotation system Quickly identify and keep track of inspection locations by adding digital images of important information and surrounding areas (Ti110 and Ti125).

Find problems faster and easier IR-Fusion® with AutoBlend™ mode (Ti125 only) Accurately identify potential issues by combining digital and IR images with AutoBlend. It blends digital and partially transparent IR images into a single information-filled image.

Multi-mode video recording focus-free video in visible light and infrared with full IR-Fusion. (Ti110 and Ti125 only).

Easily communicate the location of problems with the Electronic Compass (8-Point Cardinal).

Rugged one-hand operation Experience the most rugged and reliable, lightweight professional camera around. One-touch focus, laser pointer, and torch. Point-and-shoot simplicity. No one builds more rugged, ergonomic tools than Fluke.

Spend less time finding problems and more time solving them with the innovative, rugged and easy to use Ti125, Ti110, Ti105 and Ti100 Performance Series.

For more information on Fluke Connect, see pages 13-18

Industrial, mechanical, electromechanical and general building maintenance.

Process, refractory insulation, tank and vessel levels, steam systems and traps, pipes and valves, etc.

Electrical, unbalanced loads, overloaded systems, wiring problems or component failure, etc.

Included Accessories

SmartView® software, AC power adapter Lithium ion smart battery, USB cable, 2 GB SD memory card, Hard carrying case, Soft transport bag, Adjustable hand strap, User manual, Two-bag charging base and multi-format USB memory card reader (Ti125 only)

Ordering Information

Fluke Ti125	Industrial-Commercial Thermal Imager
Fluke Ti110	Industrial-Commercial Thermal Imager
Fluke Ti105	Industrial-Commercial Thermal Imager
Fluke Ti100	General Use Thermal Imager

Recommended Accessories

Ti-Car Charger
Car charger

FLK-TI-SPB3
Extra battery

FLK-TI-SBC3
Charging base

Fluke Ti Visor 2

Fluke Ti Tripod 2

General Specifications Performance Series

FLUKE®

	Ti125	Ti110	Ti105	Ti100	Ti95	Ti90
Key features						
IFOV (spatial resolution)	3.39 mRad				5.6 mRad	
Resolution	160x120 (19,200 pixels)				80x80 (6,400 pixels)	80x60 (4,800 pixels)
Field of view	22.5 °H x 31 °V				26 °H x 26 °V	19.5 °H x 26 °V
Wireless connectivity	Yes					
Fluke Connect™ App compatible	Yes, with included wireless SD card (where available)					
IR-Fusion® technology						
Picture-In-Picture (PIP)	Yes		PIP (1.2 m to 4.6 m)	—	PIP (46 cm) and beyond)	—
Focus system	IR-OptiFlex™ focus system 15 cm and beyond		Fixed focus 122 cm (48 in) and beyond		Fixed focus 46 cm (18 in) and beyond	
Ruggedized display	3.5 inch diagonal (portrait format)					
Thermal sensitivity (NETD)	≤ 0.10 °C at 30 °C target temp (100 mK)					≤ 0.15 °C at 30 °C target temp (150 mK)
Temperature measurement range (not calibrated below -10 °C)	-20 °C to +350 °C	-20 °C to +250 °C				
Level and span	Smooth auto and manual scaling					
Minimum span (in manual mode)	2.5 °C					
Minimum span (in auto mode)	5 °C					
Built-in digital camera (visible light)	2 megapixel industrial performance			None - IR Only	2 megapixel industrial performance	
Frame rate	9 Hz or 30 Hz versions			9 Hz only		
Data storage and image capture						
Extensive SD memory system	Removable 8 Gb SD memory card and 8 Gb wireless SD card (where available); direct download via USB-to-PC connection					
Image capture, review, save mechanism	One-handed image capture, review, and save capability					
File formats image	Non-radiometric (.bmp) or (.jpeg) or fully-radiometric (.is2); No analysis software required for non-radiometric (.bmp, .jpg) files					
Memory review	Thumbnail view navigation and review selection					
Export file formats with SmartView® software	BMP, DIB, GIF, JPE, JFIF, JPEG, JPG, PNG, TIF, and TIFF					
Voice annotation	60 seconds maximum recording time per image; reviewable playback on camera		—			
Battery						
Batteries (field-replaceable, rechargeable)	Two lithium ion smart battery packs with five-segment LED display to show charge level	One lithium ion smart battery pack with five-segment LED display to show charge level				
Battery life	Four+ hours continuous use per battery pack (assumes 50 % brightness of LCD and average usage)					
Battery charge time	2.5 hours to full charge					
Battery						
AC battery charging system	Two-bay ac battery charger (110 V AC to 220 V AC, 50/60 Hz) (included), or in-imager charging. AC mains adapters included in 9 Hz versions. Optional 12 V automotive charging adapter	In-imager charging. AC mains adapters included in 9 Hz versions. Optional two-bay ac battery charger (110 V AC to 220 V AC, 50/60 Hz) or optional 12 V automotive charging adapter.				
Temperature measurement						
Accuracy	± 2 °C or 2 % (at 25 °C nominal, whichever is greater)					
On-screen emissivity correction	Yes (both number and table)					
On-screen reflected background temperature compensation	Yes					
On-screen transmission correction	Yes		—			
Color Palettes						
Standard Palettes	8: Ironbow, Blue-Red, High-Contrast, Amber, Amber Inverted, Hot Metal, Grayscale, Grayscale Inverted		7: Ironbow, Blue-Red, High-Contrast, Amber, Hot Metal, Grayscale, Grayscale Inverted	4: Ironbow, Blue-Red, Amber, Grayscale	6: Ironbow, Blue-Red, High-Contrast, Amber, Hot Metal, Grayscale	3: Ironbow, Blue-Red, Grayscale
General specifications						
Infrared spectral band	7.5 µm to 14 µm (long wave)				9 µm to 15 µm (long wave)	
Operating - / Storage temperature	-10 °C to +50 °C / -20 °C to +50 °C					
Center-point temperature measurement	Yes					
Spot markers	User selectable hot spot and cold spot markers, 3 user definable spot markers on camera and in Smartview® Software	3 user definable spot markers on camera and in Smartview® Software		—	Hot and cold spot markers	—
Center box (MIN-MAX-AVG)	Expandable-contractable measurement box with MIN-MAX-AVG temp				Fixed-size measurement box with MIN-MAX-AVG temp	
Drop	Engineered to withstand 2 meter (6.5 feet) drop					
Size (H x W x L) / Weight (battery included)	28.4 cm x 8.6 cm x 13.5 cm / 0.726 kg					
Enclosure rating	IP54 (protected against dust, limited ingress; protection against water spray from all directions)					
Warranty	Two-years (standard), extended warranties are available					
Recommended calibration cycle	Two-years (assumes normal operation and normal aging)					
Supported Languages	Czech, Dutch, English, Finnish, French, German, Hungarian, Italian, Japanese, Korean, Polish, Portuguese, Russian, Simplified Chinese, Spanish, Swedish, Traditional Chinese, and Turkish					

Ti400, Ti300 and Ti200 Professional Series

FLUKE®

Built with FLUKE CONNECT™

ANDROID APP ON Google play | Download on the App Store

Fluke Ti400

Fluke Ti300

Fluke Ti200

A new generation of tools with next generation performance.

This trio of new Fluke thermal imagers is equipped with LaserSharp™ Auto Focus. Yes, there are other auto focus systems on the market but Fluke took it one step further so you get in-focused images, Every. Single. Time.

Ti400 Thermal Imager with LaserSharp™ Auto Focus and Fluke Connect™

- Optimized for electrical, industrial and building applications
- -20 °C to +1200 °C
- 320x240 detector
- Detect and communicate issues faster with patented Fluke IR-Fusion® with AutoBlend™ mode
- Faster communication with wireless image transfer directly to your PC, Apple® iPhone® or iPad®
- With Fluke Connect™ securely connect and collaborate with others, so they can see what you see without leaving the field
- One-handed, easy-to-use user interface
- Ruggedized capacitive high-resolution 640X480 touch screen for quick menu navigation

Ti300 Thermal Imager with LaserSharp™ Auto Focus and Wireless Connectivity

- Optimized for electrical, industrial and building applications
- -20 °C to +650 °C
- 240x180 detector
- Detect and communicate issues faster with patented Fluke IR-Fusion® with AutoBlend™ mode
- Faster communication with wireless image transfer directly to your PC, Apple® iPhone® or iPad®
- With Fluke Connect™ securely connect and collaborate with others, so they can see what you see without leaving the field
- Video recording both standard and radiometric
- Rechargeable, field replaceable smart batteries with LED display to show charge levels for excellent field flexibility

Ti200 Thermal Imager with LaserSharp™ Auto Focus and Wireless Connectivity

- Optimized for electrical, industrial and building applications
- -20 °C to +650 °C
- 200x150 detector
- Detect and communicate issues faster with patented Fluke IR-Fusion® with AutoBlend™ mode
- Faster communication with wireless image transfer directly to your PC, Apple® iPhone® or iPad®
- With Fluke Connect™ securely connect and collaborate with others, so they can see what you see without leaving the field
- Optional interchangeable lenses for greater flexibility in specialized applications
- Cardinal Compass

Included accessories

SmartView® software
AC charger/power supply
2 battery packs
Micro SD memory card with SD adapter
USB cable/HDMI video cable
rugged hard carrying case
Soft transport bag
Adjustable hand strap
User manual

Ordering information

Fluke Ti400 9 Hz	Thermal Imager, 9 Hz
Fluke Ti400 60 Hz	Thermal Imager, 60 Hz, upon request
Fluke Ti300 9 Hz	Thermal Imager, 9 Hz
Fluke Ti300 60 Hz	Thermal Imager, 60 Hz, upon request
Fluke Ti200 9 Hz	Thermal Imager, 9 Hz
Fluke Ti200 60 Hz	Thermal Imager, 60 Hz, upon request

For more information on Fluke Connect, see pages 13-18

Recommended Accessories

FLK-LENS/TELE2
Telephoto infrared lens (2X magnification)

FLK-LENS/WIDE2
Wide-angle infrared lens

FLK-TI-VISOR3
Thermal imager visor

TI-TRIPOD3
Tripod mounting base accessory

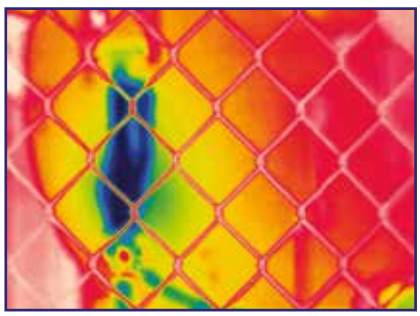
Ti400, Ti300 and Ti200 Professional Series

FLUKE®

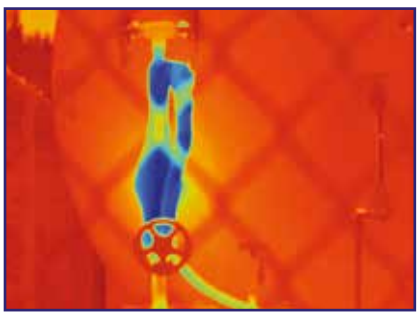
Fluke introduces the only thermal imagers with LaserSharp™ Auto Focus for consistently in-focus images. generation performance. Every. Single. Time.

LaserSharp auto focus tells you exactly where you are focusing. It uses a laser to calculate the distance to your target before it focuses. Place the red laser dot on the object you are inspecting, then pull and release the trigger for a perfect in-focus image.

Many inspection sites are difficult for certain auto focus systems



Passive auto focus systems often only capture the near-field subject, in this case the chain link fence



Fluke LaserSharp™ Auto Focus clearly captures what you want to inspect. Every. Single. Time. The red dot from the laser confirms what the camera is focusing on.

FOCUS is the single most important thing to ensure when conducting an INFRARED INSPECTION.

General Specifications Professional Series

FLUKE®

	Ti400	Ti300	Ti200
Temperature			
Temperature measurement range (not calibrated below -10 °C)	-20 °C to +1200 °C	-20 °C to +650 °C	
Temperature measurement accuracy	± 2 °C or 2 % (at 25 °C nominal, whichever is greater)		
On-screen emissivity correction	Yes (by number and table)		
On-screen reflected background temperature compensation	Yes		
On-screen transmission correction	Yes		
Imaging performance			
Image capture frequency	9 Hz refresh rate or 60 Hz refresh rate depending upon model variation		
Detector type	Focal Plane Array, uncooled microbolometer, 320 x 240 pixels	Focal Plane Array, uncooled microbolometer, 240 X 180 pixels	Focal Plane Array, uncooled microbolometer, 200 X 150 pixels
Thermal sensitivity (NETD)	≤ 0.05 °C at 30 °C target temp (50 mK)		≤ 0.075 °C at 30 °C target temp (75 mK)
Total pixels	76,800	43,200	30,000
Infrared spectral band	7.5 µm to 14 µm (long wave)		
Visual (visible light) camera	Industrial performance 5.0 megapixel		
Standard infrared lens type			
Field of view	24 ° x 17 °		
Spatial resolution (IFOV)	1.31 mRad	1.75 mRad	2.09 mRad
Minimum focus distance	15 cm		
Optional telephoto infrared lens type, available soon			
Field of view	12 ° x 9 °		
Spatial resolution (IFOV)	0.65 mRad	0.87 mRad	1.05 mRad
Minimum focus distance	45 cm		
Optional wide-angle infrared lens type, available soon			
Field of view	46 ° x 34 °		
Spatial resolution (IFOV)	2.62 mRad	3.49 mRad	4.19 mRad
Minimum focus distance	15 cm		
Focus mechanism			
LaserSharp™ Auto Focus System	Yes		
Advanced Manual Focus	Yes		
Image presentation			
Palettes			
Standard	Ironbow, Blue-Red, High Contrast, Amber, Amber Inverted, Hot Metal, Grayscale, Grayscale Inverted		
Ultra Contrast™	Ironbow Ultra, Blue-Red Ultra, High Contrast Ultra, Amber Ultra, Amber Inverted Ultra, Hot Metal Ultra, Grayscale Ultra, Grayscale Inverted Ultra		
Level and span	Smooth auto-scaling and manual scaling of level and span		
Fast auto toggle between manual and auto modes	Yes		
Fast auto-rescale in manual mode	Yes		
Minimum span (in manual mode)	2.0 °C		
Minimum span (in auto mode)	3.0 °C		
IR-Fusion® information			
Picture-In-Picture (PIP)	Yes		
Full screen infrared	Yes		
AutoBlend™ mode	Yes		
Color alarms (temperature alarms)	High-temperature , low-temperature, and isotherm (user-selectable)		
Image capture and data storage			
Image capture, review, save mechanism	One-handed image capture, review, and save capability		
Storage medium	Micro SD Memory Card, on-board flash memory, save-to-USB capability, direct download via USB-to-PC connection		
File formats	Non-radiometric (.bmp) or (.jpeg) or fully-radiometric (.is2) Video*: non-radiometric (MPEG - encoded .AVI) and fully-radiometric (.IS3)		
	No analysis software required for non-radiometric (.bmp, .jpg and .avi*) files		
Export file formats w/SmartView® software	BMP, DIB, GIF, JPE, JFIF, JPEG, JPG, PNG, TIF, and TIFF		
Memory review	Thumbnail view navigation and review selection		
Other time-saving and productivity features			
Voice annotation	60 seconds maximum recording time per image; reviewable playback on imager		
IR-PhotoNotes™	Yes		
Wi-Fi connectivity	Yes, to PC, iPhone®, iPad® and WiFi to LAN*		
Text annotation*	Yes		
Video recording*	Standard and Radiometric		
Streaming Video	Via USB to PC and HDMI to HDMI compatible screen		
CNX™ Wireless System*	Yes*		
Cardinal Compass*	Yes*		
Auto capture (temperature and interval)*	Yes*		
Remote control and operation (for special and advanced applications)	Yes	No	No
General			
Batteries	Two lithium ion rechargeable smart battery packs with five-segment LED display to show charge level, all models		
Battery life	Four+ hours continuous use per battery pack (assumes 50 % brightness of LCD and average usage)		
Size (H x W x L)	27.7 cm x 12.2 cm x 16.7 cm		
Weight (battery included)	1.04 Kg		
Warranty	Two-years (standard), extended warranties are available		

** Coming soon via firmware update. Users notified via SmartView software when available.*

Thermal Imagers Series

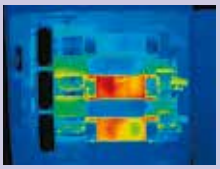
FLUKE®

Find it, fix it, fast!

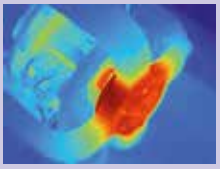
Temperature changes can indicate problems in many areas you see everyday, some include:

- **Inside electrical distribution and service** (Switch gear, panels, controls, fuses,transformers, receptacles, lighting, conductors, bus bars, motor control centers)
- **Motors, pumps and mechanical** (Electric motors and generators, pumps, compressors, evaporators, bearings, couplings, gearboxes, gaskets/seals, belts, rollers, disconnects)
- **Process** (Tanks and vessels, pipes, valves and traps, reactors, process insulation)
- **HVAC/R** (air conditioning, heating, air handlers, refrigeration)
- **Outside electrical distribution - utilities** (Transformers, bushings, insulators, transmission lines, other exterior conductors, service connections, disconnects, capacitor banks)

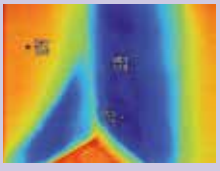
Overheating bearing cap



Three-phase switch-gear load imbalance



Overheated motor



Cool corner in a building

FLUKE CONNECT™

Fluke Connect™

Fluke Connect™ is the best way to stay in contact with your team without leaving the field. Get started saving time and increasing productivity now.With over 20 different Fluke test tools Fluke Connect allows you to identify and diagnose problems quickly and confidently, while securely sharing your data when you want, with who you want.

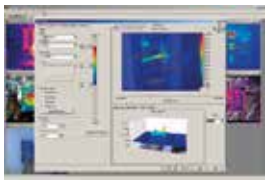
LaserSharp™ Autofocus

Most Fluke thermal imagers are equipped with precision laser technology. LaserSharp™ Autofocus uses a laser to pinpoint exactly where the camera should focus for precisely focused images every time.Get the correct image and temperature measurements you need.

IR-Fusion™

IR-Fusion® Technology: Infrared and visual images fused together in one image

Patented IR-Fusion® Technology, only available from Fluke, simultaneously captures a digital photo and the infrared image and fuses them together taking the mystery out of IR image analysis.



SmartView® Software

Fluke SmartView® software is included with each Fluke Thermal Imager. This powerful software is a modular suite of tools that annotates, views, edits and analyzes IR images. It also generates fully customizable and professional-looking reports in a few easy steps. The IR-Fusion technology is fully supported.

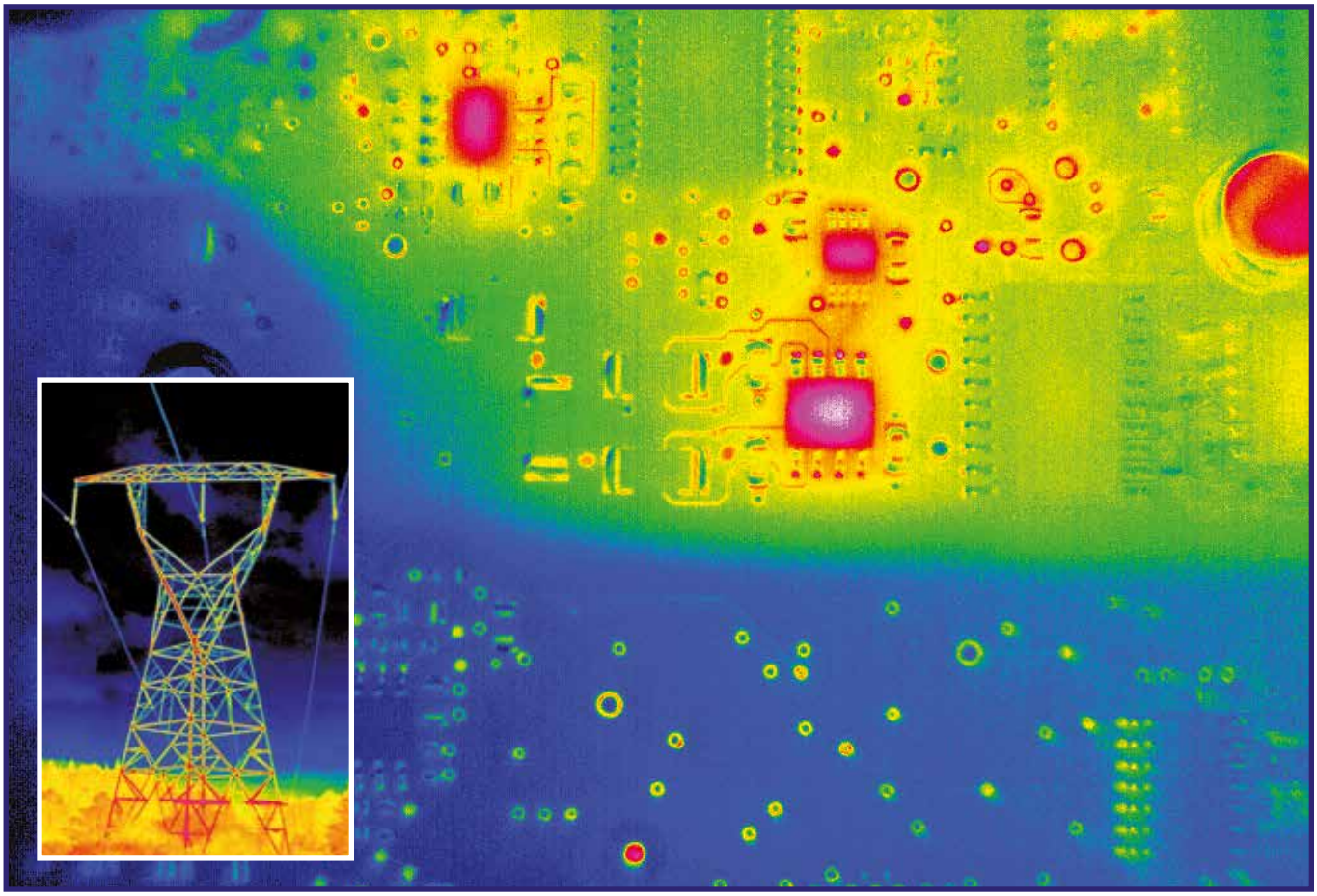
FACT
Fluke Academy of Certified Training

FREE webinars/webcasts on Thermal Imaging

Keep up-to-date on the latest troubleshooting techniques. Attend a FREE Fluke webinar (web-based seminar) about thermal imaging applications.
Go to the Fluke website for more information.

Introducing the advantages of the new Expert Series TiX560 and TiX520

FLUKE®



The most advanced focus options

Save time focusing. Get the most advanced focus options available in one camera.

LaserSharp® Auto Focus

Get an in-focus image like never before with just a touch of a button. LaserSharp® Auto Focus, exclusive to Fluke, uses its built-in laser distance meter to calculate the distance to your designated target with pinpoint accuracy. On target and in-focus. Every. Single. Time.

Brilliant Image Quality

- Improved image quality and a superior level of detail with leading spatial resolution for a 320x240 resolution infrared camera.
- Enhanced image quality and temperature measurement accuracy - turn your 320 x 240 images into 640 x 480images. That's 4x the resolution and pixels with SuperResolution.

Super Resolution: The most spectacular images ever from a Fluke Thermal Imager

Being able to see such remarkably clear definition in your images means you can now identify potential issues you might have missed with other Thermal Imagers. Select the Super Resolution mode before you capture images and transfer them to the included SmartView® software.

TiX560 / TiX520 Expert Series

FLUKE®

ANDROID APP ON Google play
Download on the App Store

Built with FLUKE CONNECT™

New

TiX520

TiX560

Your view of infrared technology is about to change 180°

With a 180° articulating FlexCam® lens, the largest LCD touchscreen and leading spatial resolution for a 320x240 thermal imager in its class[1], the answer is right before your eyes, even when your target isn't.

- **Easily navigate**
  over, under and around objects with the 180° articulating FlexCam lens and see the image before you capture it.

- **See improved image**
  quality and a superior level of detail with leading spatial resolution for a 320x240 resolution thermal imager.

- **Premium in-field viewing**
  experience with the largest 5.7inch responsive touchscreen LCD in its class[1]– 150% more viewing area than the standard 3.5-inch screen in its class[1].

- **Get an in-focus image**
  with the touch of a button. LaserSharp® Auto Focus, exclusive to Fluke, uses a built-in laser distance meter that calculates and displays the distance to your designated target[2] with pinpoint accuracy[2] - 2 tools in 1.

- **Navigate and capture images**
  faster with the only 5.7 inch responsive touchscreen LCD with on-camera analytics for in-field image analysis[1].

- **See, save and share**
  from the field and connect to the largest selection of wireless test and measurement tools with Fluke Connect™.

- **Meet every challenge**
  and make every shot count with optional wide angle lenses to capture the big picture and telephoto lenses to get in close.

[1]Compared to industrial handheld thermal imagers with 320x240 detector resolution as of October 14, 2014.
[2]Up to 30 meters (100 feet)

For more information on Fluke Connect, see pages 13-18

Included Accessories

Thermal imager with standard infrared lens; ac power supply and battery pack charger (including main adapters); two, rugged lithium ion smart battery packs; USB cable; HDMI video cable; rugged, hard carrying case; soft transport bag; adjustable hand strap; warranty registration card, calibration certificate, CD includes product manuals and SmartView® software

Ordering Information

Fluke TiX560	Thermal Imager
Fluke TiX520	Thermal Imager

Recommended Accessories

FLK-LENS/TELE2
Telephoto infrared lens (2X magnification)

FLK-LENS/WIDE2
Wide-angle infrared lens

General Specifications
TiX560 / TiX520 Expert Series

FLUKE®

	TiX560	TiX520
Key features		
Touchscreen display	14.4 cm diagonal landscape color VGA (640 x 480) LCD with backlight	
Articulating Lens	Rotatable >180 degrees	
Image quality		
IFOV with standard lens (spatial resolution)	1.31 mRad	
Detector resolution	320 x 240 (76,800 pixels)	
Field of view	24 °H x 17 °V	
Minimum focus distance	15 cm	
IFOV with optional telephoto lens	0.65 mRad	
Field of view	12 °H x 9 °V	
Minimum focus distance	45 cm	
IFOV with optional wide-angle lens	2.62 mRad	
Field of view	46 °H x 34 °V	
Minimum focus distance	15 cm	
Image sharpening	Yes	
Thermal sensitivity (NETD)	≤ 0.045 °C at 30 °C target temp (45 mK)	≤ 0.05 °C at 30 °C target temp (50 mK)
Filter Mode (NETD improvement)	≤ 0.03 °C at 30 °C target temp (30 mK)	≤ 0.04 °C at 30 °C target temp (40 mK)
Infrared spectral band	7.5 µm to 14 µm (long wave)	
Wireless connectivity	**Yes, to PC, iPhone® and iPad® (iOS 4s and later), Android™ 4.3 and up, and WiFi to LAN (where available)**	
Fluke Connect™ app compatible	Yes (where available)	
Fluke Connect™ tool compatible	Yes (where available). Connects wireless to select Fluke Connect™ enabled tools. Five simultaneous connections supported.	
IR-Fusion® technology		
LaserSharp® Auto Focus	Yes	
Laser distance meter	Yes	
Advanced manual focus	Yes	
Temperature measurement		
Temperature measurement range (not calibrated below -10 °C)	-20 °C to +1200 °C	-20 °C to +850 °C
Accuracy	± 2 °C or 2 % (at 25 °C nominal, whichever is greater)	
On-screen emissivity correction	Yes (both value and table)	
On-screen reflected background temperature compensation	Yes	
On-screen transmission correction	Yes	
Data storage and image capture		
Memory options	Removable micro SD memory card, on-board flash memory, save-to-USB capability, direct download via USB-to-PC connection	
Post-capture Image Editing (on camera)	Yes	
Advanced text Annotation	Yes. Including standard shortcuts as well as user programmable options.	
File formats	Non-radiometric (.bmp) or (.jpeg) or fully radiometric (.is2); no analysis software required for non-radiometric (.bmp, .jpg and .avi) files	
Software	SmartView® software, Fluke Connect™ (where available), and SmartView® Mobile App — full analysis and reporting software	
Export file formats with SmartView® Software	BMP, DIB, GIF, JPE, JFIF, JPEG, JPG, PNG, TIF, and TIFF	
Voice annotation	Yes*	
IR-PhotoNotes™	Yes	
Text annotation	Yes	
Video recording	Standard and radiometric	
File formats video	Non-radiometric (MPEG - encoded .AVI) and fully radiometric (.IS3)	
Streaming video (remote display)	Via USB or WiFi hot spot to PC or via HDMI to HDMI compatible screen	
Remote control and operation (for special and advanced applications)	Yes	—
Auto capture (temperature and interval)	Yes	
Color palettes		
Palettes: Standard and Ultra Contrastt™	8: Ironbow, Blue-Red, High Contrast, Amber, Amber Inverted, Hot Metal, Grayscale, Grayscale Inverted, Ironbow Ultra, Blue-Red Ultra, High Contrast Ultra, Amber Ultra, Amber Inverted Ultra, Hot Metal Ultra, Grayscale Ultra, Grayscale Inverted Ultra	
General specifications		
Built-in digital camera (visible light)	5 megapixel industrial performance	
Frame rate	60 Hz or 9 Hz versions	
Laser pointer	Yes	
LED light (torch)	Yes	
Digital Zoom	2x, 4x, 8x	2x, 4x
Replaceable Smart Batteries with LED level indicator	Two	
AC operation	AC operation with included power supply (100 V AC to 240 V AC, 50/60 Hz)	
Color alarms (temperature alarms)	High-temperature and low-temperature	
Operating temperature	-10 °C to +50 °C	
Storage temperature	-20 °C to +50 °C without batteries	
Relative humidity	10 % to 95 % non-condensing	
Center-point temperature measurement	Yes	
Spot temperature	Hot and cold spot markers	
User-definable spot markers	3 user-definable spot markers	
Center box	Expandable-contractible measurement box with MIN-MAX-AVG temp	
Drop	Engineered to withstand 1 meter drop with standard lens	
Size (H x W x L)	27.3 cm x 15.9 cm x 9.7 cm	
Weight (battery included)	1.5 Kg	
Enclosure rating	IP54 (protected against dust, limited ingress; protection against water spray from all directions)	
Warranty	Two-years (standard), extended warranties are available	
Recommended calibration cycle	Two-years (assumes normal operation and normal aging)	
Supported languages	Czech, Dutch, English, Finnish, French, German, Hungarian, Italian, Japanese, Korean, Polish, Portuguese, Russian, Simplified Chinese, Spanish, Swedish, Traditional Chinese, and Turkish	

* Bluetooth not available in all countries

Ti Series Thermal Imagers

FLUKE®

Fluke has launched an information-rich web portal that collects together all the company's key thermography videos, application notes and related publications. The portal provides installers, energy surveyors and maintenance engineers with in-depth information and guidance to assist them in using thermography to detect and prevent expensive energy waste in buildings and processes. Fluke believes that successful detection and prevention is first about having the right tools, and then about acquiring the expertise to use them correctly. To support this approach, the portal helps to select the right model of thermal camera. For those seeking to grow their expertise, the many downloads and viewable assets on the portal discuss how to inspect electrical and electromechanical equipment, how to check motor efficiencies, and how to detect faults, electrical unbalance and overloading in electrical circuits.

www.fluke.co.uk/ti-solution-center

Built with FLUKE CONNECT™

ANDROID APP ON Google play | Download on the App Store

Fluke Thermal Imaging

AN IMAGER FOR EVERY APPLICATION

Which Thermal Imager serie from Fluke best suits you?

Performance Series

Affordable **Performance** camera's for routine maintenance.

Ti90 / Ti95 / Ti105 / Ti110 / Ti125

Professional Series

Professional versions give you in-focus, crisp, detailed images for more detailed inspections.

Ti200 / Ti300 / Ti400

Expert Series

Top-of-the-rang Expert models offer a superior viewing experience.

TiX520 / TiX560

Ti Series Thermal Imagers

Performance Series

Who?
Technicians and contractors

Where?
The widest range of maintenance applications including:
- Electrical, mechanical
- HVAC
- Building diagnostics/envelope
- Domestic/commercial/industrial facilities

Why?
Affordable and feature-rich cameras producing quality images, with easy operation for quick scans and/or intermittent inspections.

With IR-OptiFlex™ IR-Fusion® with AutoBlend™, Fluke Connect™, and SmartView® software.

Professional Series

Who?
Professional in-house,contract and service thermographers

Where?
Industrial and commercial:
- Industrial maintenance
- Heavy commercial facility maintenance
- Oil and gas maintenance
- Reliability inspections

Why?
High quality images and advanced features like LaserSharp™ Auto Focus. One-handed easy-to-use touch screen interface.

With IR-OptiFlex™ IR-Fusion® with AutoBlend™, Fluke Connect™, and SmartView® software.

Expert Series

Who?
Engineers, researchers, designers and advanced thermographers

Where?
R&D, quality control and predictive maintenance, particularly for demanding sectors like:
- Industrial
- Oil and gas
- Utilities(generation transmission, distribution)
- Electrical, mechanical
- Medical, biological/sciences

Why?
Needle-sharp resolution on an extra-large 5.6 inch articulating colour TFTLCD display with daylight operation. Field swappable lenses extend applications. HD quality images give greater impact in reports. Integral camcorder.

With IR-OptiFlex™ IR-Fusion® with AutoBlend™, Fluke Connect™, and SmartView® software.

Ti Series Thermal Imagers

8 REASONS
TO CHOOSE FLUKE INFRARED CAMERAS

Superior image quality

Fluke maximizes the performance of every pixel with industry leading spatial resolution to give you crisp detailed images and more accurate measurements, even when you have to take them from further distances. Patented IR-Fusion® technology with AutoBlend™ mode produces a transparent infrared and visible light image that shows brilliant detail and pinpoints the exact location of the problem making your job easier.

Fluke Connect™ Tools

The largest system of connected test tools in the world. The Fluke Connect™ app and connectable tools are the most comprehensive way to stay in contact with your team without leaving the field. With over 20 connectable tools, confidently diagnosing, solving and communicating problems has never been easier. See it. Save It. Share It. All the facts, right in the field.

Fluke Connect™ App

With the Fluke Connect™ app and enabled tools, you can collaborate with others no matter where they are. See what your team is seeing, and vice versa. Share and watch live video and readings to troubleshoot problems from any location. And save yourself the time and effort of going to the plant floor or back to the office every time there's a question or issue.

Best-in-class focus systems

Every infrared camera user knows that focus is the single most important aspect when conducting an infrared inspection. Without an in-focus image, temperature measurements may be off by as much as 20 degrees, making it easier to miss a problem. That's why Fluke engineered the only infrared cameras on the market with LaserSharp® Auto Focus—instantly capture an in-focus image with the touch of a button for consistently in-focus images. EVERY. SINGLE. TIME. Another option gives you optimum focus flexibility with the IR-OptiFlex™ Focus System which combines focus free ease-of-use with manual focus.

Customer driven design

Our design team is on the job, in the factory and out in the field for countless hours with our customers to continually deliver better products based around your applications and how you work. The resulting intelligent 3 button menu design allows you to operate our simple, intuitive on-screen menu interface- even while wearing gloves. We pay attention to even the smallest details providing you with an LED charge indicator on your battery insuring you don't unexpectedly lose power and offering replaceable SD cards so you don't have to delete your work to add to it. Not only can you operate a Fluke infrared camera with one hand behind your back, but you may never have to open the operating manual either.

Legendary ruggedness

We test our cameras to exceed specifications, so we drop them, soak them, shock them, and shake them for hours on end. Our tools are relentless, built tough to withstand the harsh environments where you work, for years to come.

Reputation for quality

Fluke is well known for designing and building "Best in Class," top quality products. With over 65 years of experience and a line of award winning products, such as Product of the Year from Plant Engineering and the 2013 Engineering Choice Award from Control Engineering, we continue to maintain our long time reputation and commitment to quality.

Dedicated Training

Learn how to use a Fluke thermal camera to reach your full business potential. If you are interested in improving your skills, knowledge or business, we offer seminars, webinars and product training. Learn how to get started, what to do, understanding what the results mean, and then being able to identify the best solutions.

CV Series ClirVu® IR Windows

Fluke CV400

Compliance without compromise. Safety without sacrifice: Your results matter

Increase the safety and speed of your electrical thermal imaging inspections with the new Fluke ClirVu® infrared windows. Reduce the risk of arc-flash and electrocution, increase the safety of your personnel and reduce the time and cost of preventive maintenance.

Features:

- Save time with quick and easy installation - 5 minutes or less
  - One technician
  - One hole with standard Greenlee® punch
  - Panel door does not need to be removed
  - Grounds instantly to metal enclosure with patent-pending AutoGround™ process
  - Maintains panel arc test ratings up to 63kA when properly installed
- Torture Tested™ to the highest arc blast test ratings
  - IEEE C37.20.7: 63 kA Arc tested at KEMA, UL50/50E/50V, UL1558, IEC60529-1: IP67, IEC 60068, NEMA 4/12, CSA C22.2 NO. 14-13:2012, and CE
- Convenience of both quick turn or security keyed access
- Fluke IR Windows offered in three sizes 50 mm, 75 mm and 95 mm (2 in, 3 in and 4 in)
- Work permit requirements and NFPA 70E processes are significantly reduced
- Full PPE is often not required so inspections are done faster and more comfortable

Specifications

Model	CV400	CV401	CV300	CV301	CV200	CV201
Size	95 mm		75 mm		50 mm	
General						
Voltage Range	Any					
NEMA Environment Type	Type 4/12 (indoor/outdoor)					
AutoGround™	Yes					
ClirVu® Optic	Yes					
Operating temperature	-40 °C to + 232 °C and + 260°C Intermittent					
Body material	EZAC & ZA-27 HIGH STRENGTH ZINC/ ALUMINUM ALLOY					
Ratings and testing						
Arc-Tested (IEEE C37.20.7)	63 kA for 30 cycles @ 60Hz at KEMA					
UL 50V component recognition	Yes					
UL 50/NEMA Environmental Rating	NEMA Type 4/12					
UL 1558	Yes					
CSA C22.2 No.	Yes					
CSA Type Rating	Type 4					
IP rating	IP67 at TUV					
Lloyds Register	Up to 11 kV marine switchgear, indoor or outdoor (offshore only)					
Vibration rating	IEC60068-2-6 at TUV					
Humidity rating	IEC60068-2-3 at TUV					
Install						
Actual mounting hole diameter required	115.42 mm		89.89 mm		61.37 mm	
Greenlee Punch Kit = Punch/Die	742BB = 2984AV/2983AV		739BB = 1431AV/1432AV		76BB = 441AV/442AV	
Door Latch	Hand Turn	Security Key	Hand Turn	Security Key	Hand Turn	Security Key
Optics						
Optic insert diameter	95 mm		95 mm		50 mm	
Warranty	Lifetime replacement against manufacturing defects					

Ordering Information

Fluke-CV200	50mm IR Window, hand turn door latch
Fluke-CV201	50mm IR Window, security turn door latch
Fluke-CV300	75mm IR Window, hand turn door latch
Fluke-CV301	75mm IR Window, security turn door latch
Fluke-CV400	95mm IR Window, hand turn door latch
Fluke-CV401	95mm IR Window, security turn door latch

Laser Distance Meters

The Fluke Laser Distance Meters bring you the most advanced measuring technology. Unlike ultrasonic distance meters with laser pointers, these meters use a precision narrow laser beam that can avoid the common errors caused by extraneous objects near measurement targets.

Watch our latest videos on our own YouTube Channel *www.youtube.com/user/FlukeEurope*

424D, 419D and 414D Laser Distance Meters

Fluke 424D

Fluke 419D

Fluke 414D

Professional-grade distance measuring tools that are fast, easy to use, and fit in your pocket.

The Fluke laser distance meters use the most advanced distance measuring technology. These meters are fast, accurate, durable, and easy to use—just point and shoot.

Their simple design and easy one-button operation means you spend less time measuring while increasing the reliability of the answers that you need.

Features

	414D	419D	424D
Reduction of estimation errors, saving both time and money	●	●	●
The most advanced laser technology for distance measurement	●	●	●
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	●	●	●
Minimum/maximum function	●	●	●
Improved battery life from automatic shut-off feature	●	●	●
Pythagoras calculation for determining distance indirectly from two other measurements	●	●	●
Pouch with Fluke logo	●	●	●
Improved visibility with backlit screen		●	●
Instantly measure up to	50 m	80 m	100 m
Tripod mode allows you to mount to a tripod for measuring long distances		●	●
Stake out function		●	●
Enhanced Pythagoras calculation for determining distance indirectly from three other measurements		●	●
Audible keypad feedback		●	●
Storage of the last twenty measurements for quick recall of distance		●	●
Strong environmental protection with IP54 (water spray and dust proof) sealing		●	●
Inclination sensor for taking measurements in hard to reach areas			●
Compass provides a "heading" for distance measurement			●
Automated endpiece correction: when measuring from an edge or corner, a built-in sensor detects the position of this bracket and automatically changes the reference point			●

414D/62 MAX+ Kit
Combo kit includes:
- Fluke 62 MAX+ IR Thermometer
- Fluke 414D Laser Distance Meter

Included Accessories

Two AAA batteries, users manual on CD, Quick reference guide, vinyl carrying pouch

Ordering Information

Fluke 414D	Laser Distance Meter
Fluke 419D	Laser Distance Meter
Fluke 424D	Laser Distance Meter

Temperature range: storage: -25°C to 70°C
operation: 0°C to 40°C

Battery Life:
414D: up to 3000 readings
419D, 424D: up to 5000 readings

Size (HxWxD):
414D: 116 mm x 53 mm x 33 mm
419D, 421D: 127 mm x 56 mm x 33 mm
Weight: 414D: 113 g
419D: 153 g
421D: 158 g
Warranty: 3 years

Indoor Air Quality Tools

In response to the growing importance of air quality in buildings, workplaces and homes, Fluke offers you a range of tools that monitor temperature, humidity, air velocity, particulate, and carbon monoxide levels. These tools help you to quickly and easily troubleshoot and maintain indoor air quality, as well as to verify the efficient operation of heating, ventilation and air conditioning systems.

Watch our latest videos on our own YouTube Channel *www.youtube.com/user/FlukeEurope*

975 AirMeter

Fluke 975

Combined inspection tool for complete air quality inspections

The Fluke 975 AirMeter combines five air monitoring tools into one, rugged and easy-to-use handheld tool. Use the Fluke 975 to verify the efficient operation of heating, ventilation and air conditioning systems, and test for dangerous carbon monoxide leaks in all types of buildings.

- Simultaneously measures, logs, and displays temperature, humidity, CO_2, and CO on a bright, backlit LCD display
- One-touch air flow and velocity measurements with available probe
- Min/Max/Average on all measured and calculated readings
- Audible and visual threshold alarms
- Multi-language user interface
- Extensive discrete or continuous data logging capacity, down-loadable to PC via USB interface

Specifications

(Check the Fluke web for detailed specifications)

Feature	Range	Display resolution	Accuracy
Measured specifications			
Temperature	-20 °C to 60 °C	0.1 °C	± 0.9 °C from 40 °C to 60 °C ± 0.5 °C from 5 °C to 40 °C ± 1.1 °C 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 fpm to 3000 fpm 0.25 m/sec to 15 m/sec	1 fpm 0.005m/sec	4 % or 4 fpm* 3 % or 0.015 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
Calculated specifications			
Dew point temperature	-44 °C to 57 °C	0.1 °C	± 1 °C when temp: -20 °C to 60 °C RH: 40 % to 90 % ± 2 °C when temp: -20 °C to 60 °C RH: 20 % to 40 % ± 4 °C when RH: 10 % to 20 %
Wet bulb temperature	-16 °C to 57 °C	0.1 °C	± 1.2 °C when RH: 20 % to 90 % temp: -20 °C to 60 °C ± 2.1 °C when RH: 10 % to 20 %
Volume flow rate (in a duct)	0 to 3,965 M^3/m 0 to 140,000 cfm)	0.001 M^3/min (1 cfm)	N/A: The volume flow calculation will be a simple average of the data points times the duct area
% outside air (based on temperature)	0 to 100 %	0.1 %	N/A
% outside air (based on CO_2)	0 to 100 %	0.1 %	N/A

Operating temperature
(CO and CO_2 sensors): -20 °C to 50 °C
Operating temperature
(all other functions): -20 °C to 60 °C
Storage temperature: -20 °C to 60 °C
Humidity: 10% to 90%
Altitude: Up to 2000 m

Shock and vibration: MIL-PRF-28800F, Class 2
Battery: Rechargeable Li-Ion (primary), three-AA (backup)
Weight: 0.544 kg
Size (HxWxD): 28.7 cm x 11.43 cm x 5.08 cm
Data logging: 25,000 records (continuous), 99 records (discrete)
Multilanguage interface: English, French, Spanish, Portuguese and German
Two-year warranty

Included Accessories

A4 alkaline batteries (3), Users Manual, Calibration Cap, FlukeView Forms Software, Power Adapter, International Power Plugs, Air Velocity Probe (Fluke 975V only)

Ordering Information

Fluke 975	AirMeter
Fluke 975V	AirMeter with Velocity
975VP	Air Velocity Probe

Recommended Accessories

975VP
AirMeter Velocity Probe

922 Airflow Meter

Measures pressure, air flow and velocity for maintaining balanced and comfortable ventilation

The Fluke 922 makes airflow measurements easy by combining pressure, air flow, and velocity into a single, rugged meter. Compatible with most Pitot tubes, the Fluke 922 allows technicians to conveniently enter their duct shape and dimensions for maximum measurement accuracy.

Use the Fluke 922 to: Ensure proper air flow balance and maintain a comfortable environment; measure pressure drops across filters and coils; match ventilation to occupant loads; monitor indoor vs. outdoor pressure relationships and manage the building envelope; and perform duct traversals for accurate airflow readings.

- Provides differential and static pressure, air velocity and flow readings
- Convenient colored hoses help you properly diagnose pressure readings
- Bright, backlit display for clear viewing in all environments
- Min/Max/Average/Hold functions for easy data analysis
- Auto power off saves battery life

Fluke 922

Specifications

(Check the Fluke web for detailed specifications)

Feature	Range	Resolution	Accuracy
Operating Specifications			
Air Pressure	± 4000 Pascals ± 16 in H_2O ± 400 mm H_2O ± 40 mbar ± 0.6 PSI	1 Pascal 0.001 in H_2O 0.1 mm H_2O 0.01 mbar 0.0001 PSI	± 1% +1 Pascal ± 1% + 0.01 in H_2O ± 1% + 0.1 mm H_2O ± 1% +0.01 mbar ± 1% + 0.0001 PSI
Air Velocity	250 to 16,000 fpm 1 to 80 m/s	1 fpm 0.001 m/s	± 2.5 % of reading at 10 m/s (2000 p/min)
Air Flow (Volume)	0 to 99,999 cfm 0 to 99,999 m^3/hr 0 to 99,999 l/s	1 cfm 1 m^3/hr 1 l/s	Accuracy is a function of velocity and duct size
Temperature	0 °C to 50 °C	0.1°C	± 1 % + 2 °C

General Specifications

General specifications	
Operating Temperature	0 °C to +50 °C
Storage Temperature	-40 °C to +60 °C
Operating Relative Humidity	Non condensing (<10 °C) 90% RH (10 °C to 30 °C) 75% RH (30 °C to 40 °C) 45% RH (40 °C to 50 °C) Without Condensation
IP Rating	IP40
Operating Altitude	2000 m
Storage Altitude	12000 m
EMI, RFI, EMC	Meets requirements for EN61326-1
Vibration	MIL-PREF-28800F, Class 3
Max Pressure at Each Port	10 PSI

Data Storage: 99 readings
Size (HxWxD): 175 mm x 77.5 mm x 41.9 mm
Weight: 0.64 kg
Battery: Four AA batteries
Battery Life: 375 hours without backlight, 80 hours with backlight
Two Year Warranty

Fluke 922/Kit

Included Accessories

Fluke 922: Two Rubber Hoses, Wrist Strap, Four AA Batteries 1.5 V Alkaline, Users Manual and Soft Carrying Case
Fluke 922 Kit Includes: Fluke 922 Airflow Meter, 30.48 cm Pitot tube, ToolPak, Two Rubber Hoses, Wrist Strap, Four AA Batteries 1.5 V Alkaline, Users Manual and Hard Carrying Case

Ordering Information

Fluke 922	Air Flow Meter
Fluke 922/Kit	Airflow Meter with 30.48 cm Pitot Tube

Recommended Accessories

PT12
Pitot Tube, 30.48 cm

TPAK
Toolpak
See page 155

971 Temperature Humidity Meter
Carbon Monoxide Meters

FLUKE®

Fluke 971

Fluke 971
Temperature Humidity Meter

Quickly take accurate humidity and temperature readings in the air. Temperature and humidity are two important factors in maintaining optimal comfort levels and good indoor air quality. The Fluke 971 is invaluable for facility maintenance and utility technicians, HVAC-service contractors, and specialists who assess indoor air quality (IAQ). Lightweight, rugged, and easy to hold, the Fluke 971 is the perfect tool for monitoring problem areas.

- Simultaneously measures humidity and temperature
- Measures dew point and wet bulb
- 99 record storage capacity
- Min/Max/Avg Data Hold
- Ergonomic design with built-in belt clip and protective holster
- Backlit, dual readings display
- Twist-open protective cap
- Low battery indicator

Specifications

Temperature range	-20 °C to 60 °C
Temperature accuracy 0 °C to 45 °C -20 °C to 0 °C and 45 °C to 60 °C	 ± 0.5 0C ± 1.0 °C
Resolution	0.1 °C
Response time (temperature)	500 ms
Temperature sensor type	NTC
Relative humidity range	5% to 95% R.H.
Relative humidity accuracy 10% to 90% R.H. @ 23 °C <10%, >90% R.H. @ 23 °C	 ± 2.5 % R.H. ± 5.0 % R.H.
Humidity sensor	Electronic capacitance polymer film sensor
Data storage	99 points
Response time (humidity)	For 90% of total range - 60 sec with 1 m/s air movement

Operating temperature:
Temperature: -20 °C to 60 °C
Humidity: 0 °C to 60 °C
Storage temperature: : -20 °C to 55 °C
Battery life: 4 AAA alkaline, 200 hours

Safety: Complies with EN61326-1
Weight: 0.188 kg
Size (HxWxD): 194 mm x 60 mm x 34 mm
One Year Warranty

Other useful tools

Fluke 561
Combined Contact and Non-contact Thermometer
See page 68.

Fluke 419D
Laser Distance Meter
See page 91.

Included Accessories

Fluke CO-220:	C50 soft carrying case and battery

Ordering Information

Fluke 971	Temperature Humidity Meter
Fluke CO-220	Carbon Monoxide Meter
CO-205	Aspirator Kit

Carbon Monoxide Meters

CO-220 Carbon Monoxide Meter
The CO-220 Carbon Monoxide Meter makes it easy to take quick and accurate measurements of CO levels. A large, backlit LCD display shows CO levels from 0 to 1000 PPM. The MAX Hold function stores and displays the maximum CO level.
1 year warranty.

Fluke CO-220

CO-205 Aspirator Kit
Allows flue gas samples up to 371°C to be drawn with the CO-220 for carbon monoxide measurement.
1 year warranty.

Fluke CO-205

985 Particle Counter

FLUKE®

Fluke 985

Take a new look at indoor air quality.

The Fluke 985 Particle Counter is the preferred choice for HVAC and IAQ professionals. From filter testing to IAQ investigations, the Fluke 985 is the portable solution for determining airborne particle concentrations. Use the Fluke 985 to immediately respond to occupant complaints, or as part of a comprehensive preventive maintenance program. With a large screen, intuitive icons for navigation and on-screen data presentation, the Fluke 985 allows users to run more tests quickly, with less time spent cycling through screens to obtain the data. The Fluke 985 is lightweight and easy to use in any position and with easy data export options using USB cable, memory stick it's easy to review and analyze the data anywhere and anytime.

With the Fluke 985, you can:

- Measure filter efficiency
- Monitor industrial cleanrooms
- Pre-screen indoor air quality and confidently work with IAQ specialists
- Locate particle sources for remediation
- Report the effectiveness of repairs to customers
- Drive additional business by demonstrating the need for maintenance and repair

RLD2 Leak Detector Flashlight.
Leak detection made easy. The compact RLD2 uncovers refrigerant leaks instantly. Use the UV light to find the leakage area, then, use the laser pointer to pinpoint the exact leak location.

- Six UV LEDs detect leak detection dyes
- Laser pointer clearly locates center of the UVfield 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
- One year warranty

- **Six channels and particle size range of 0.3 - 10.0 µm:** Assures accurate measurements even for critical locations requiring ISO Class 5 – 9 certification.
- **Ultra-lightweight and ergonomic design:** Promises easy single-hand operation in tight or awkward spaces with less operator fatigue
- **Long battery life:** Ten hours of standard-use battery life to last a full work day
- **Large 3.5" QVGC Color display:** Easy navigation and viewing with the intuitive icons and large font options
- **10,000 record storage:** Quick access to historical data
- **On-screen data presentation:** Data can be viewed in a traditional tabular or trend graph view at the user's preference
- **Personalized setting and configurations:** Customizable settings for the display, sample methods, and alarm settings for sample count
- **Data export options:** Download data to a PC using a USB memory stick, USB cable or Ethernet connection. No special software is required to download or view data.
- **Option password control:** Confirms security when required
- **USB/Ethernet charge cradle:** Assures device is always ready to go when needed

Specifications

Channels	0.3 µm, 0.5 µm, 1.0 µm, 2.0 µm, 5.0 µm, 10.0 µm
Flow rate	0.1 cfm (2.83 L/min)
Light source	775 nm to 795 nm, 90mW class 3B laser
Count modes	Raw counts, #/m3, #/ft3, #/liter in Cumulative or Differential mode
Counting efficiency	50 % @ 0.3 µm; 100 % for particles > 0.45 µm (per ISO 21501)
Zero count	1 count/5 minute (JIS B9921)
Concentration limits	10 % at 4,000,000 particles per ft3 (per ISO 21501)
Data storage	10,000 records (rotating buffer)
Alarms	Counts, low battery, sensor fail
Delay time	0 to 24 hours
Sample inlet	Isokinetic probe
Security	Administrator password control (optional)
Communication mode	USB or Etheret
Calibration	PSL particles in air (NIST traceable)

Dimensions (HxWxD): 272 x 99 x 53 mm
Weight: 0.68 kg
Power adapter: 100 V ac to 240 V ac, 12 V dc, 2.5 A
Rechargeable battery: Li-ion 7.4 V 2600 mAh; 10 hours typical use (5 hours continuous sampling) / 3.5 hours
Operating environment: 10 °C to 40 °C / < 95 % non-condensing relative humidity
Storage environment: -10 °C to 50 °C /Up to 98 % non-condensing relative humidity
One Year Warranty

Included Accessories

Getting started manual and users manual CD, Cradle for charging and convenient USB and Ethernet Communications, ENET CAT5E 7-foot cable, USA-A to MINI-B 6-foot cable, 12 V dc power supply, Zero count inlet-filter, Filter adapter, Sample inlet protective cap, Hard Case

Ordering Information

Fluke 985	Particle counter
Fluke RLD2	Leak Detector Flashlight

ScopeMeter® Portable Oscilloscopes

ScopeMeter® portable oscilloscopes take you into territory standard bench scopes can't go: where it's harsh, hazardous and dirty – without sacrificing any capabilities. They provide you with unmatched speed, performance and analysis power while working on site.

Watch our latest videos on our own YouTube Channel *www.youtube.com/user/FlukeEurope*

ScopeMeter® Portable Oscilloscopes 190 Series II

The toughest portable scopes ever built

The 190 Series II in a nutshell:

- The 190 Series II covers the bandwidth of 60MHz to 500MHz with ScopeMeter models
- 190-XX4 models with four independent isolated inputs and DMM readout
- 190-XX2 models with two independent isolated scope inputs and a DMM input
- Up to four user selectable channels
- Up to 33 user selectable readings
- Fast sample rate: up to 5Gs/s with up to 200ps resolution
- Single shot, pulse width and video triggering
- Deep memory: 10000 points per trace waveform capture
- CAT III 1000V / CAT IV 600V safety rated
- IP 51 rated: Dust- and drip water proof
- Isolated USB ports for memory devices and PC connectivity
- Up to seven hours of operation with high performance Li-Ion batteries
- Easy access to the battery compartment
- Security slot to lock down instrument using standard Kensington® lock.
- Connect-and-View™ triggering for intelligent, automatic triggering on fast, slow and even complex signals
- Conversion to a frequency domain using FFT analysis
- Automatic Capture and Replay of 100 screens
- ScopeRecord™ mode gives 30000 points per input channel for low frequency signal analysis.
- Trendplot™ paperless recorder mode with deep memory for long-term logging of automatic measurements

The toughest portable scopes ever built

Fluke introduces the 500MHz version equipped with 4 isolated channels. This new ScopeMeter® test tool, the 190-504, brings its wide bandwidth in the palm of your hand with a maximum flexibility of measuring channels. Conveniently verify the systems performance right “on the spot “, fully safely without carrying bulky lab equipment around.

What could you do with four channels?

What could you do with four channels? The 190-504 opens up a new generation of applications where a four channel ScopeMeter can proof its functionality. You can hook on voltage probes and current clamps in combination with a temperature probe to get the best information out of your signals without sacrificing a probe input. In a Motor and Drive environment you need at least three inputs to get a good insight in the quality of the signal coming from the VFD. You can switch over to a DMM reading without swapping probes.

Rated all the way to CAT IV

ScopeMeter test tools are rugged solutions built for industrial troubleshooting. The Fluke 190 Series II are double-insulated floating oscilloscopes safety rated for measurements up to CAT III 1000 V /CAT IV 600 V environments.

Measure from mV to kV safely

Independently isolated inputs allow you to make measurements in mixed circuits having different ground references reducing the risk of accidental short circuits. Conventional bench oscilloscopes without special differential probes and isolation transformers can only reference measurements to line power earth ground. The 190 Series II are ready for the most challenging tasks. With standard probes that cover a wide application range from mV to kV, you are ready for anything from micro-electronics to heavy-duty higher voltage electrical applications.

IP-51 rated for harsh environments

Rugged and shock-proof, ScopeMeter portable oscilloscopes are built for dirty, hazardous environments. With its sealed case, it can endure dust, drips, humidity and airborne pollutants. Every time you reach for your ScopeMeter you can be confident it will work reliably wherever your work takes you.

ScopeMeter® Portable Oscilloscopes 190 Series II

New

Fluke 190-504

Fluke 190-202

Fluke 190-204

CAT III 1000V
CAT IV 600V

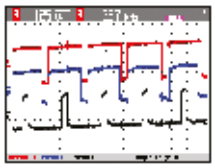
True RMS

USB connectivity makes it easy to capture and share waveforms

The Fluke 190 Series II offers two USB ports, electrically isolated from measurement input circuits. Easily transfer data to a PC. Archive and share waveforms with OEMs, colleagues and support staff. Store waveforms, screen captures and instrument setups onto USB memory devices.

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

If you've used other scopes, you know how tricky triggering can be. If settings are incorrect, results can be unstable or incorrect. Connect-and-View™ automatically sets up correct triggering by recognizing signal patterns. Without touching a button, you get a stable, reliable and repeatable display of virtually any signal including motor drive and control signals. It's especially fast and convenient when you're measuring a number of test points in rapid succession.



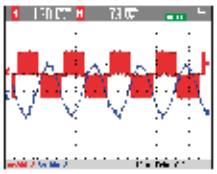
Connect-and-View™ captures even the most complex motor drive signals.

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-II! Now you can look back in time with the touch of a button. In normal use, the instrument continuously memorizes the most recent 100 screens. At any moment in time, you can 'freeze' these latest screens and scroll through them picture-by-picture or replay them as a 'live' animation. Cursors and zoom can be used for further analysis. You can even use the advanced trigger capabilities to capture up to 100 specific events. Ten sets of 100 screens with individual time stamps can be stored for later recall or download to a PC.

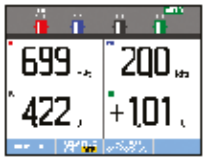
See dynamic signal behavior instantly

The digital Persistence mode helps to find anomalies and to analyze complex dynamic signals by showing the waveforms amplitude distribution over time using multiple intensity levels and user selectable decay time – it's as if you're looking at the display of an analog, real time oscilloscope! A fast display update rate reveals signal changes instantaneously, useful for instance when making adjustments to a system under test.



Built-in 5000 count digital multimeter (2 channel models)

Conveniently switch from waveform analysis to precise multimeter measurements using the built in 5000 count digital multimeter. Measurement functions include Vdc, Vac, Vac+dc, resistance, continuity and diode test. Measure current and temperature using suitable shunt, probe or adapter with wide range of scaling factors.



The built in multimeter provides convenient precision measurements.

For all optional accessories for the Fluke 190 Series, see page 102

ScopeMeter® Portable Oscilloscopes 190 Series II

A range of application notes is available.
See the Fluke website.

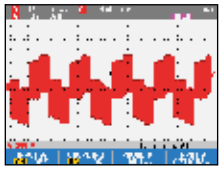
Included Accessories

Fluke 190 Series II 4-channel instruments include a set of four probes, hanging strap, handstrap, USB cable with mini-B connector, double capacity Li-ion battery BP291, battery charger/power adapter BC190, a FlukeView demo package and users manuals on CD-ROM.
The 2-channel models come with two probes plus a set of TL175 test leads and a single capacity battery BP290.
The 190-504 also includes 4 pcs TRM50 coaxial feedthrough terminator.

Ordering Information

Fluke-190-504	Color ScopeMeter (500 MHz, 4 channel)
Fluke-190-504/S	Color ScopeMeter (500 MHz, 4 channel), with SCC290-kit
Fluke190-502	Color ScopeMeter (500MHz, 2 Channel)
Fluke190-502/S	Color ScopeMeter (500MHz, 2 Channel), with SCC290-kit
Fluke-190-204	Color ScopeMeter (200 MHz, 4 channel)
Fluke-190-204/S	Color ScopeMeter (200 MHz, 4 channel), with SCC290-kit
Fluke-190-202	Color ScopeMeter (200 MHz, 2 channel)
Fluke-190-202/S	Color ScopeMeter (200 MHz, 2 channel), with SCC290-kit
Fluke-190-104	Color ScopeMeter (100 MHz, 4 channel)
Fluke-190-104/S	Color ScopeMeter (100 MHz, 4 channel), with SCC290-kit
Fluke-190-102	Color ScopeMeter (100 MHz, 2 channel)
Fluke-190-102/S	Color ScopeMeter (100 MHz, 2 channel), with SCC290-kit
Fluke-190-062	Color ScopeMeter (60 MHz, 2 channel)
Fluke-190-062/S	Color ScopeMeter (60 MHz, 2 channel), with SCC290-kit

Application driven



Find problems in industrial systems including:
- Circuit voltage/current overloading
- Attenuation/input impedance mismatch
- Signal fluctuation/drift
- Conditioning circuits signal integrity
- Test point verification for critical signals
- Input/output/feedback timing issues
- Induced noise and disturbances
- Random shutdowns/reset

Diagnose VFDs* or power inverters and converters

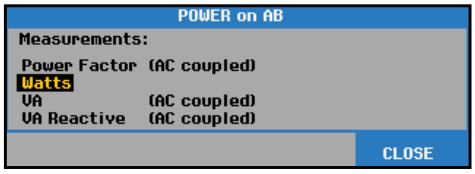
- Harmonics, transients and loads in three phase power input
- Troubleshoot dc to ac converters for faulty control circuits or output IGBT gate stages
- Cable interface - test PWM output for reflections and transients
- Vpwm measurement to measure the effective voltage on drive outputs
- Determine V/Hz ratio to find outif that fits the specification of the motor.

Applications made visible with a simple push of a button.

Vpwm measurements
The output signal of a VFD is very complex. When selecting the Vpwm function, the ScopeMeter automatically switches over to a dedicated piece of software which is capable of analyzing the waveform.

Volt/Herz ratio measurements
The output torque for a motor is determined on the basis of the ratio of the motor's applied voltage and frequency, known as the Volts per Hertz (V/Hz) ratio. Failure to maintain the proper ratio will have influences on the motor torque, the speed of the shaft and the motor noise. Next to that the motor will draw more current leading to an increased temperature. For a motor to produce its rated torque at variable speeds, it also is necessary to control the voltage and frequency supplied to the motor. A VFD maintains a preset V/Hz ratio in supplying power to a motor at the variable speeds. This critical V/Hz ratio can be monitored by a special function which is part of the readings.

Power measurements
With today's fluctuations on the power grid it is important to get detailed information about parameters such as Power Factor, VA and VA reactive. The ScopeMeter can measure these factors with a push of the button.



For all optional accessories for the Fluke 190 Series, see page 102

ScopeMeter® Portable Oscilloscopes 120 Series

FLUKE®

Fluke 124

Fluke 123

Three-in-one simplicity

The compact ScopeMeter 120 Series is the rugged solution for industrial troubleshooting and installation applications. It's a truly integrated test tool, with oscilloscope, multimeter and "paperless" recorder in one affordable, easy-to-use instrument. Find answers to problems in machinery, instrumentation, control and power systems quickly and easily.

- Dual-input 40 MHz or 20 MHz digital oscilloscope
- Two 5,000 counts true-RMS digital multimeters
- A dual-input TrendPlot™ recorder
- Bus Health Test for industrial bus systems (Fluke 125)
- Connect-and-View™ trigger simplicity for hands-off operation
- Power Measurements and Harmonics Measurement (Fluke 125)
- Shielded test leads for oscilloscope, resistance and continuity measurements
- Up to 7 hours battery operation
- 600 V CAT III safety certified
- Optically isolated interface for PC connection (optional)
- Rugged, compact case

Use TrendPlot™ to help find intermittents fast

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. You may not be around to see it – your Fluke ScopeMeter will. In this "paperless recorder" mode, you can plot the minimum and maximum peak values and average over time – up to 16 days.

Bus Health mode (Fluke 125)

Bus Health mode gives a clear "Good/Bad" indication for the electrical signals on industrial buses and networks, such as CAN-bus, Profi-bus, RS-232 and many more. The Fluke 125 validates the quality of the electrical signals as soon as any electrical signals are passed along the network.

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

Scope users know how difficult triggering can be. Wrong settings show unstable and sometimes wrong results. Fluke's unique Connect-and-View recognizes signal patterns, and automatically sets up correct triggering. It provides a stable, reliable and repeatable display of virtually any signal - including motordrive and control signals - without touching a button. Signal changes are instantly recognized and settings adjusted for - once again - a stable display.

Connect-and-View captures even the most complex motor drive signals.

True RMS

600V CAT III

Included Accessories

PM 8907 line adapter/charger, STL120-III shielded test leads set (1 red, 1 grey) including hook clips, BB120 shielded BNC adapter, BP120MH NiMH battery pack, VPS40-III wide bandwidth Voltage Probe (Fluke 124/125), TL175 Safe-guard testlead, i400s current clamp (Fluke 125), Getting Started booklet, user's manual (cd-rom)

Ordering Information

Fluke 123	Industrial ScopeMeter® (20MHz)
Fluke 123/S	Industrial ScopeMeter® (20MHz) + SCC120 kit
Fluke 124	Industrial ScopeMeter® (40MHz)
Fluke 124/S	Industrial ScopeMeter® (40MHz) + SCC120 kit
Fluke 125	Industrial ScopeMeter (40 MHz)
Fluke 125/S	Industrial ScopeMeter (40 MHz) + SCC120 kit

Optional accessories Fluke 120 series

AC120	Alligator Clip
BB120	Adapter BNC (female) to Shielded Banana plug
BHT190	Bus Health Test Break-out Adapter Set
BP120MH	High Capacity NiMH Battery Pack
C120	Hard shell Protective Carrying case
C125	Protective Carrying case
C195	Protective Carrying case
HC120	Hook Clips for STL120-III
OC4USB	Optically Isolated Interface Cable for USB port
PM8907	Line Voltage Adapter and Battery charger
PM8907/820	SMPS Power Adapter and Battery charger
PM9080/101	Optically isolated RS-232C Interface Adapter
RS120-III	Replacement Set of Probe Accessories
SCC120	Software, Cable and carrying case Kit
SCC128	Automotive Troubleshooting Kit
STL90	Set of Shielded Test Leads
STL120-III	Shielded Test lead Set (Improved Safety Design)
TP920	Test Probe Adapter Kit
SW90W	FlukeView® ScopeMeter® software for Windows®
VPS40-III	Voltage Probe Set

ScopeMeter® Portable Oscilloscopes Accessories

FLUKE®

TRM50

VPS410-II-X

VPS420-X

VPS510-X

STL120-III

VPS40-III

ScopeMeter Series	190 Series-II			120 Series	
Type of Accessory	**VPS410-X-II**	**VPS420-X**	**VPS510-X**	**STL120-III**	**VPS40-III**
Description	Voltage Probe	Voltage Probe	Voltage Probe	Shielded Test Leads	Voltage Probe
Colors available	Red, Grey, Blue, Green	Red-Black, Grey-Black, Blue-Black, Green-Black	Red, Grey, Blue, Green	Red, Grey	Black
Attenuation	10:1	100:1	10:1	1:1	10:1
Bandwidth	500MHz	150MHz	500MHz	12.5MHz	40MHz
Length	1.2m	1.2m	1.2m	1.2m	1.2m
Safety Rating CAT II	--	--	--	1000V	1000V
Safety Rating CAT III	1000V	1000V*	300V	600V	600V
Safety Rating CAT IV	600V	600V*	--	--	--

*High working Voltage Probe is specified for working voltages (between probe tip an reference lead) up to 2000V in CATII or 1200V in CAT IV environment.
Reference lead voltage (between reference lead and earth ground): 1000V in CATIII, 600V in CATIV. These specifications apply only when used with Fluke 190 Series-II Test Tool.

VPS420

PM9091 / PM9092

PM9081

PM9082

PM9093

	PM9091	PM9092	PM9081	PM9082	PM9093
Description	Safety designed 50Ω, BNC cable Set (1 Red, 1 Black, 1 Grey)		Dual banana plug male to female BNC	Dual banana jack female to male BNC	Male BNC to dual female BNC (T-piece)
Length	1.5 m each	0.5 m each	--	--	--
Safety Rating CAT III	600 V	600 V	600 V	600 V	600 V

RS400

AS400

BP290

BP291

OC4USB

EBC290

Optional accessories Fluke 190 Series-II

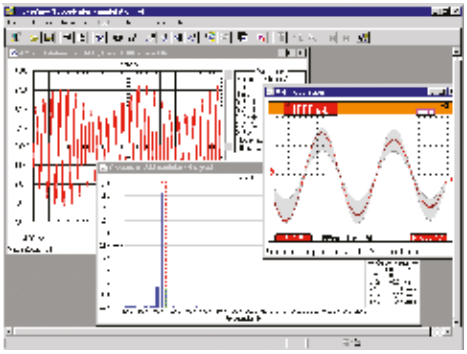
AS400	Probe Accessory Extension Set for VPS400 Series Voltage Probes
BC190	Line Voltage Adapter and Battery charger
BC190/820	SMPS Power Adapter and Battery charger
BP290	Single Capacity, Rechargeable Li-Ion Battery Pack, 2400 mAh
BP291	Double Capacity, Rechargeable Li-Ion Battery Pack, 4800 mAh
C195	Protective Carrying Case
C290	Hard Shell Protective Carrying Case
C437-II	Hard Shell, Protective Carrying Case with rollers
EBC290	External Battery Charger
HC200	Hook Clip Replacement Set
HH290	Hanging Hook
MA190	Medical Applications Accessory Kit
RS400	Probe Accessory Replacement Set for VPS400 Series Voltage Probes
RS500	Probe Accessory Replacement Set for VPS510 Series Voltage Probes
SCC290	Software and Carrying Case Kit
SCC298	Automotive Troubleshooting Kit for Fluke Series-II
SKMD-001	Motors & Drive Tool Kit
SW90W	FlukeView® ScopeMeter® software for Windows®
TL175	TwistGuard™ Test Lead Set
TRM50	Coaxial Feed-through BNC male to BNC female Cable terminator, 50 ohm
VPS101	Double isolated Voltage probe Set, 1:1, 30MHz, Black
VPS220-X	Voltage Probe Set, 100:1, 200MHz. X= Red or Grey color
VPS410-II-X	Industrial type Voltage Probe, 10:1, 500MHz. X= B(Blue) or G(Grey) or R(Red) or V(Green) color
VPS420-X	High Working Voltage Probe 100:1, 150MHz. X= B(Blue-Black) or G(Grey-Black) or R(Red-Black) or V(Green-Black) Bicolor
VPS510-X	Compact, Wide Bandwidth probe for electronic applications, 10:1, 500MHz, X= B(Blue) or G(Grey) or R(Red) or V(Green) color

General ScopeMeter® Portable Oscilloscopes

FlukeView® ScopeMeter® software for documenting, archiving and analysis of waveforms

Get more out of your ScopeMeter with FlukeView® ScopeMeter® SW90W software for Windows®.

- Documentation of waveforms, screens and data by storing them to your PC for printing or importing data into a report
- Add text to ScopeMeter settings to give operators guidance when recalling settings
- Archive to create a library of waveforms for easy reference, waveform comparison, or pass/fail testing
- Analyze the waveform by using cursors
- Export data to another analysis program
- Zoom-in functionality to see more details of the waveform
- FlukeView® offers remote control of the ScopeMeter
- On-line recording of your current waveform
- Take a snapshot of the actual waveform and archive it as a BMP
- Convert the waveform into an FFT read-out to see the presence of harmonics



General ScopeMeter® specifications

Model:	190-504	190-502	190-204	190-202	190-104	190-102	190-062	125	124	123
Specifications										
Bandwidth	500 MHz		200 MHz		100 MHz		60 MHz	40 MHz		20 MHz
Max. real time sample rate	5 GS/s		2.5 GS/s		1.25 GS/s		625 MS/s	25 MS/s + equivalent time sampling		
Input sensitivity	2mV/div to 100V/div, plus variable attenuation							5 mV/div.		
Max. time base speed	1 ns/div.		2 ns/div.		4 ns/div.		10 ns/div.	10 ns/div.		20 ns/div.
Number of Channels	4	2	4	2	4	2	2	2		
External trigger	No	Yes	No	Yes	No	Yes	Yes	Yes		
Independently floating isolated inputs (CAT Rating)	1000 V CAT III, 600 V CAT IV							No		
Max.record length ... in Scope Mode ... in Scoperecord Mode	10000 samples per channel 30000 min/max pairs per channel							512 min/max samples per channel		
Glitch capture	8 ns peak detect at full timebase range							40 ns		
True RMS multimeter built-in		5000 counts		5000 counts		5000 counts		Dual 5000 counts		
Dedicated test capabilities	V/Hz ratio, mAs, Wh, FFT							Harmonics		
General Specifications										
Mains adapter/battery charger included (type number)	BC190 Line Voltage Adapter / Battery Charger BC190/820 Universal Switch Mode Power supply / Battery Charger							PM8907 Line Voltage Adapter / Battery Charger		
Battery included	BP291	BP290	BP291	BP290	BP291	BP290	BP290	BP120MH		
Size (mm)	265x190x70							232x115x50		
Weight (kg)	2,2	2,1	2,2	2,1	2,2	2,1		1,2		
Safety certified	1000V CATIII / 600V CAT IV							600V CAT III		

Power Quality Tools and Power Analyzers

We offer an extensive range of power quality test tools for troubleshooting, predictive maintenance and long-term recording in industrial and utility applications. For the development and test of electrical equipment, our high-precision power analyzers enable easy and reliable use in the field or as a bench unit in test laboratories. Additionally, the Fluke-patented energy loss algorithm, Unified Power Measurement, measures and quantifies energy losses due to harmonics and unbalance issues, allowing the user to pinpoint the origin of energy waste within a system.

Watch our latest videos on our own YouTube Channel *www.youtube.com/user/FlukeEurope*

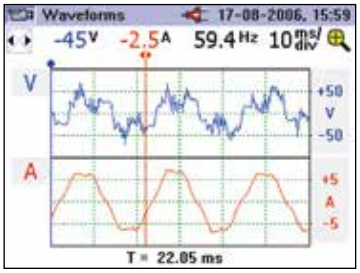
Power quality tools help pinpoint problems fast

Basic measurements	Application use	Single phase			Three phase					
		VR1710	345	43B	430 II	1735	1740	1750	1760	1730
RMS voltage	Detailed RMS trending shows how connected loads behave.	●	●	●	●	●	●	●	●	●
RMS Current			●	●	●	●	●	●	●	●
Energy studies										
Measure V, I, kW, Cosϕ/DPF, kWh	Get detailed power and energy consumption profiles during energy audits and pinpoint savings opportunities.		●	●	●	●	●	●	●	●
Measure MIN/MAX and AVG values			●	●	●	●	●	●	●	●
10 day logging			●	●	●	●	●	●	●	●
Energy aggregation			●		●	●	●		●	●
Power (Eff. kW, Reactive kVAR, Unbalance kVAR, Distortion kVAR, Neutral kVAR)			●	●	●	●	●	●	●	
Energy loss calculator					●					
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		●	●	●	●	●	● (not 1743)	●	●	
Tabular values					●	●	●	●	●	
Neutral current measurement					●	●	●	●	●	
Crest factor			●	●	●		●	●	●	
Advanced harmonics study										
Full harmonic spectrum	If distorting loads are causing problems in your installation, you need comprehensive data to intentify the source and create a solution.		●	●	●	●	●	●	●	
Power harmonics			●	●	●			●	●	
Harmonics 1 to 50 and dc			●	●	●		● (no DC) (not 1743)	●	●	
k-factor				●	●			●	●	
%Fundamental and %RMS			●	●	●		●	●	●	
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		●		●	●	●	●	●	●	
Phasor diagram					●			●	●	
Trend recording		●	●	●	●			●	●	●
Inrush current			●	●	●				●	
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		●			●		●	●	●	
EN50160 analysis					●		●	●	●	
Complex System interaction event capture (manual threshold setting)									●	
Random/variable system event capture (Adaptive threshold setting)								●		
400 Hz					● (only 437-II)					
Utility PQ benchmarking										
Phase sequence components	Before you install sensitive loads, make sure you understand the existing quality of power delivered by your utility. Comparing benchmarks over time can help pinpoint potential areas of concern.				●			●	●	
Interharmonics					●		●	●	●	
Mains signaling					●		●	●	●	
IEC61000-4-30 Class A					●				●	
Software										
Power Log	To make use of the power data you collect, you need software that can help analyze your findings and share them with equipment providers and plant management.	●	●		●	●				
PQ Log							●			
Power Analyze								●		
PQ Analyze									●	
FlukeView Power Quality				●						
SD card (max 32 GB)					8 GB			8 GB		
Fluke Energy Analysis										●

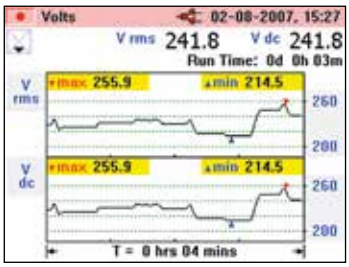
345
Power Quality Clamp Meter

FLUKE®

Fluke 345



View waveforms for equipment checking and setup



Log parameters over time to track down intermittent faults

600V CAT IV

Included Accessories

Soft carrying case, Power Log software, Test probes, Test leads, Alligator clips, International AC adapter / battery eliminator, Printed English User manual, Multi-language manual on CD

Ordering Information

Fluke 345 Power Quality Clamp Meter

The ideal troubleshooting tool for modern electrical loads

The Fluke 345 measures a wide range of electrical parameters for troubleshooting power disturbances in single- and three-phase electrical loads. With a bright color display to see waveforms and trends, a low-pass filter to remove high frequency noise, and a high EMC immunity design, the Fluke 345 is ideal for measurements on switching loads such as variable speed drives, electronic lighting and UPS systems.

- **High safety rating:** 600V CAT IV / 1000V CAT III rated for use at the service entrance
- **ac/dc current measurements:** Clamp-on measurement of AC peak and DC current up to 2000 A without breaking the circuit
- **Harmonic analysis:** Analyze, display and log harmonics up to the 30th harmonic (40th harmonic for 15 Hz to 22 Hz)
- **Verify batteries:** Direct measurement of DC ripple (%) for battery and DC systems

Specifications

(Check the Fluke web for detailed specifications)

Current measurement	
DC, DC rms, AC rms	All measurements DC and 15 Hz to 1 kHz. Maximum overload 10,000 A or RMS x frequency < 400,000. Amps rms is a true rms measurement (AC + DC).
Measuring range	0 – 2000 A DC or 1400 AC rms
Harmonics	All measurements up to 30th harmonic (40th harmonic for 15 Hz to 22 Hz); Frequency range F0 : 15 Hz to 22 Hz and 45 Hz to 65 Hz; Iacrms > 10A
Voltage measurement	
DC, DC rms, AC rms	All measurements DC and 15 Hz to 1 kHz. Maximum overload 1,000 V rms. Volts rms is a true-rms measurement (AC + DC).
Measuring range	0 – 825 V DC or AC rms
Harmonics	All measurements up to 30th harmonic; Frequency range F0 : 15 Hz to 22 Hz and 45 Hz to 65 Hz; Vacrms > 1V
Watts measurement (single- and three-phase)	DC, DC rms, AC rms
Measuring range	0 – 1650 kW DC or 1200 kW ac
VA measurement (single- and three-phase)	DC, DC rms, AC rms
Measuring range	0 -1650 kVA DC or 1200 kVA ac
VAR measurement (single- and three-phase)	
Measuring range	0 – 1250 kVAR
Power factor (single- and three-phase)	
Measuring range	0.3 cap…1.0… 0.3 ind (72.5° cap…0°… 72.5° ind)
Displacement power factor	
Measuring range	0.3 cap … 1.0 … 0.3 ind (72.5° cap … 0° … 72.5° ind)
Kilowatt Hour (kWHr)	
Measuring range	40,000 kWHr
Scope function	
Time base	2.5 ms, 5 ms, 10 ms, 25 ms, 50 ms/div
Current management:	
Ranges	10 A / 20 A / 40 A / 100 A / 200 A / 400 A / 1000 A / 2000 A
Voltage measurement:	
Ranges	4 V / 10 V / 20 V / 40 V / 100 V / 200 V / 400 V / 1000 V
Inrush current function	All measurements DC and 15 Hz to 1 kHz
Ranges	40, 400 and 2000 A
Memory	Up to 50 screen shots and over 150,000 individual measurement values

Power supply: 1.5 V Alkaline AA MN 1500 or IEC LR6 x 6 Battery
Battery life (typical): >10 hours (backlight on full); >12 hours (backlight reduced)
Safety: IEC 61010-1 600 V CAT IV, 1000V CAT III (maximum input phase-phase 825V rms) double or reinforced insulation, pollution degree 2
Protection: IP40; EN60529
Operating temperature: 0 °C to 50 °C

Display: Color transmissive LCD 320 x 240 pixels (70 mm diagonal) with 2 level backlight
Digital output: USB interface to a PC
Size (HxWxD): 300 mm x 98 mm x 52 mm
Jaw opening: 60 mm
Jaw capacity: 58 mm diameter
Weight (including batteries): 0.82 kg
Two Year Warranty

Recommended Accessories

TLK291
See page 146

TP220-1
See page 146

AC220
See page 147

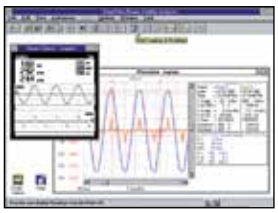
TP1-1
See page 146

C345
See page 152

43B Single-phase Power Quality Analyzer

FLUKE®

Fluke 43B



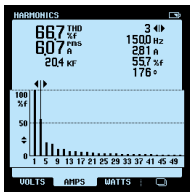
600V CAT III

On all inputs

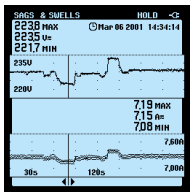
True RMS

The perfect tool for tracking down single-phase power-related problems

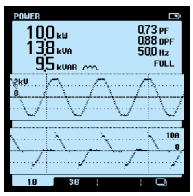
The Fluke 43B is the choice for diagnosing and troubleshooting power quality and general equipment failures. Ease to use thanks to menu selection of the power modes, it combines the capabilities of a power quality analyzer, a 20 MHz oscilloscope, a multimeter and a data recorder in a single instrument.



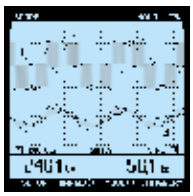
- *Voltage, current, and power harmonics*
- *Up to 51st harmonic*
- *Total harmonic distortion (THD)*
- *Phase angle of individual harmonics*



- *Continuously measure volts and amps on a cycle-by-cycle basis for up to 16 days*
- *Use cursors to read time and date of sags and swells*



- *Watts, power factor, COS ϕ, VA and VAR*
- *Voltage and current waveforms*



- *Connect-and-View™ scope for quick waveform display*
- *View voltage and current channels simultaneously*

Specifications

(Check the Fluke web for detailed specifications)

Menu items	Measurements	Ranges	Accuracy
Volts/Amps/Hz	Volts Amps Mains frequency CF Crest Factor	5.000 V - 1250 V 50.00A - 50.00 kA 10 - 400 Hz 1,0 à 10,0	±(1%+10) ±(1%+10) ±(0.5%+2) ±(5%+1)
Power	Watts, VAR, VA PF, DPF, COS ϕ	250 W - 1.56 GW 0.25 - 0.9 0.90 - 1.00	±(4%+4) ±0.04 ±0.03
Harmonics	Volts Amps Watts K-factor	1 st to 51 st harmonic 1 st to 51 st 1 st to 51 st 1.0 to 30.0	±(3%+2) to ±(15%+5) ±(3%+8) to ±(15%+5) ±(5%+2) to ±(30%+5) ±10%
Sags & Swells	Voltage and Current	4 min-16 days selectable	±(2%+10)
Transient Capture	40 ns pulse width Up to 40 transients	Select 20/50/100/200% above or below line voltage	± 5% of full scale
Inrush Current	1 sec. to 5 min selectable	1 A to 1000 A	± 5% of full scale
Ohms/Continuity/ Capacitance/Range	Ohms Capacitance	500.0 Ω to 30.00 MΩ 50.00 nF to 500.0 µF	± (0.6%+5) ± (2%+10)
Temperature (with accessory)	°C °F	-100.0°C to 400.0°C -200.0°F to 800.0°F	± (0.5%+5)
Scope	DC, AC, AC+DC, peak, peak-peak, Hz, duty cycle, phase, pulse width, crest factor	Sampling rate: Bandwidth: Voltage BW (Channel 1) Current BW (Channel 2)	25 MS/sec 20 MHz 15 kHz
Screen saves	All functions	20 screens	
Recording	V/A/Hz, Power, Harmonics, Ω/Cap, Temperature, Scope	4 min - 16 days selectable	Select any two parameters display mode in each

Battery life: Rechargeable Ni-MH pack (charger included), 6 hrs typical (continuous)
Shock & Vibration: Mil 28800E, Type 3, Class III, Style B.
Operating temperature: 0°C to 50°C; Case: IP51 (dust, drip, waterproof)
Size (HxWxD): 232 mm x 115 mm x 50 mm; Weight: 1.1 kg
Three Years Warranty

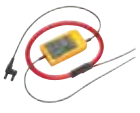
Included Accessories

TL224 test lead set, AC220 alligator clip set, TP4 test probe set, BP120MH rechargeable battery pack, BB120 shielded BNC adapter, PM8907 line adapter/charger, i400s AC current clamp, TP1-1 test probe set, C120 hand carrying case, OC4USB interface cable, SW43W FlukeView software, VPS 40 voltage probe, user and application manual.

Ordering information

Fluke 43B	Power Quality Analyzer (single-phase)

Recommended Accessories



i2000flex
See page 148

i1000s
See page 148

80TK
See page 150

VR1710 Single-Phase Voltage Quality Recorder

Fluke VR1710

Easy-to-use solution for detecting and recording voltage quality problems

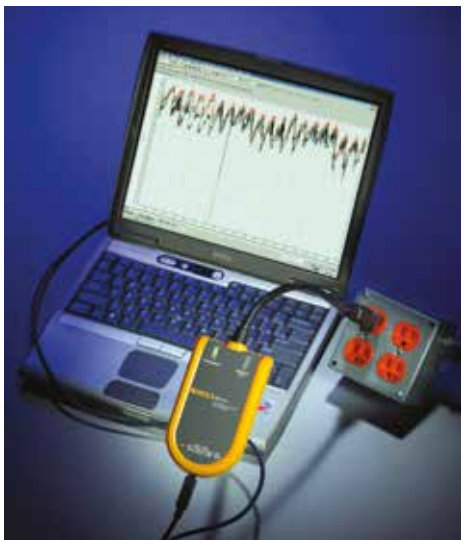
The Fluke VR1710 is a single-phase, plug-in voltage quality recorder that provides fast and easy recording of voltage trends, dropouts, harmonics and general power quality including dips and surges to help maintenance and facilities management personnel easily pinpoint the root cause of voltage problems. Voltage quality parameters including RMS average, transients, flicker, and harmonics up to the 32nd are recorded using a user-selected average period from 1 second to 20 minutes.

- Clear graphical summary of data and quick overview of key power quality parameters
- Get the complete picture with Min, Max, Average RMS values (1/4 cycle) with time stamps
- See the detailed with actual transient display (> 100 µs) with time stamp
- Comprehensive analysis of Individual harmonic and THD values with trends

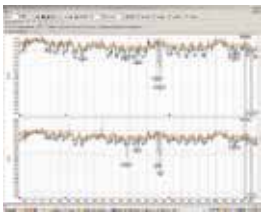
Fluke VR1710 and included accessories

Applications

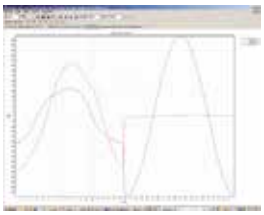
- **Voltage recording** – Monitors and records supply voltage; measures RMS average, minimum and maximum values, and checks whether the socket outlet is providing voltage within tolerance.
- **Distortion measurement** – Measure frequency and harmonics; check whether the distorting loads (UPS systems, drives, etc.) are affecting your other equipment.
- **Flicker measurement** – Quantify the affects of switching loads on lighting systems.
- **Voltage transients** – Capture those intermittent, momentary events that may be affecting your equipment; the full waveform is captured with date, timestamp, and duration.



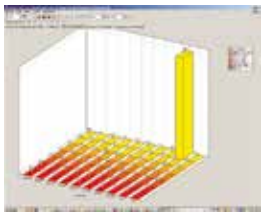
Includes PowerLog software



PowerLog Setup – *Simple set up of internal clock, logging periods, and intervals with default values for quick results.*
PowerLog View – *Data presentation showing RMS voltage and harmonic trends, actual transients, summary information and statistics in accordance with EN50160.*



Actual transient display (> 100 µs) with time stamp– *Quickly identify issues with included graphical software.*



Statistical analysis of voltage event *– reduces analysis time by tracking event quantities and magnitudes.*

Specifications

(Check the Fluke web for detailed specifications)

Operating voltage	70 V to 300 V
Min/Max/Avg RMS value	Resolution 0.125 V
Number of events	175,000
Dips/Interruptions	Yes
Time resolution	5 ms
Voltage resolution)	0.125 V
Over-voltages	Yes
Frequency	Yes
Harmonics measurement	EN 61000-4-7 (up to 32nd)
Flicker measurement	EN 61000-4-15
Number of recording channels	1 Phase to Neutral 2 Phase/Neutral to Ground
Recording time	1 day to 339 days depending on average time from 1 second to 20 minutes
Transients	Yes (> 100µs)
Frequency range	50 Hz ± 1 Hz and 60 Hz ± 1 Hz
Safety category rating	CAT II 300 V

Display: LED
Size (HxWxD): 23 x 19.75 x 22.2 cm

Weight: 0.8 kg
Two years warranty

Included Accessories

Plug-in Fluke VR1710, USB cable, PowerLog software CD, universal power cord adapters.

Ordering Information

Fluke VR1710 Voltage Quality Recorder

430 Series II Three-Phase Power Quality and Energy Analyzers

FLUKE®

Fluke 437-II

Fluke 435-II

Fluke 434-II

Class A
IEC 61000-4-30
Compliant
Fluke
435 II / 437 II

CAT III 1000V
CAT IV 600V

On all inputs

True RMS

C SP US

More detailed power quality analysis capability, and a Fluke-patented energy monetization function

The Fluke 434, 435 and 437 Series II models help locate, predict, prevent, and troubleshoot power quality problems in three-phase and single-phase power distribution systems. Additionally, the Fluke-patented energy loss algorithm, Unified Power Measurement, measures and quantifies energy losses due to harmonics and unbalance issues, allowing the user to pinpoint the origin of energy waste within a system.

- Energy loss calculator: Classic active and reactive power measurements, unbalance and harmonic power, are quantified to pinpoint true system energy losses in dollars.
- Power inverter efficiency: Simultaneously measure AC output power and DC input power for power electronics systems using optional DC clamp.
- PowerWave data capture: 435 and 437 Series II analyzers capture fast RMS data, show half-cycle and waveforms to characterize electrical system dynamics (generator start-ups, UPS switching etc.).
- Waveform capture: 435 and 437 Series II models capture 100/120 cycles (50/60Hz) of each event that is detected in all modes, without set-up.
- Automatic Transient Mode: 435 and 437 Series II analyzers capture 5 µs transient data on all phases simultaneously up to 6 kV.
- Fully Class-A compliant: 435 and 437 Series II analyzer conduct tests according to the stringent international IEC 61000-4-30 Class-A standard with 435 and 437 Series II analyzers.
- 400 Hz measurement: 437 Series II analyzer captures power quality measurements for avionic and military power systems.
- Troubleshoot real-time: Analyze the trends using the cursors and zoom tools.
- Highest safety rating in the industry: 600 V CAT IV/ 1000 V CAT III rated for use at the service entrance.
- Automatic Trending: Every measurement is always automatically recorded, without any set-up.
- System-Monitor: Ten power quality parameters on one screen according to EN50160 power quality standard
- Logger function: Configure for any test condition with memory for up to 150 parameters on each phase/neutral at user defined intervals.

Unified Power Measurement

Fluke's patented Unified Power Measurement system (UPM) provides the most comprehensive view of power available, measuring:

- Parameters of Classical Power (Steinmetz 1897) and IEEE 1459-2000 Power
- Detailed Loss Analysis
- Unbalance Analysis
- These UPM calculations are used to quantify in local currency the cost of energy loss caused by power quality issues.

Energy savings

The cost of power quality could only be quantified in terms of downtime caused by lost production and damage to electrical equipment. The Unified Power Measurement (UPM) method now goes beyond this to achieve energy savings by discovering the energy waste caused by power quality issues. Using the Unified Power Measurement, Fluke's Energy Loss Calculator will determine how much money as facility is losing due to waste energy.

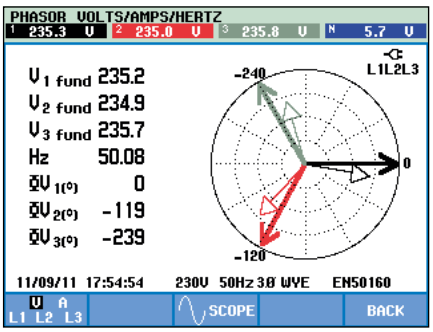
Unbalance

UPM gives a more comprehensive breakdown of the energy consumed in the plant. In addition to measuring reactive power (caused by poor power factor), UPM also measures the energy waste caused by unbalance; the effect of unevenly loading each phase in three-phase systems.

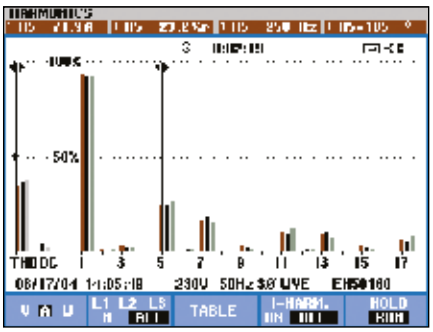
Harmonics

UPM also provides details of the energy wasted in your facility due to the presence of harmonics. The presence of harmonics in your facility can lead to:

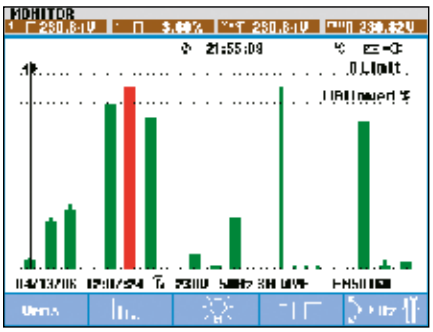
- Overheating transformers and conductors
- Nuisance tripping of circuit breakers
- Early failures of electrical equipment



Phasor diagram.



Track harmonics up to the 50th, and measure and record THD in accordance with IEC61000-4-7 requirements.



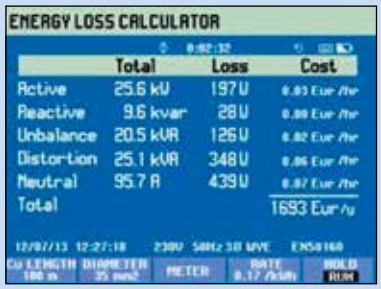
The System-Monitor overview gives instant insight into whether the voltage, harmonics, flicker, frequency and the number of dips and swells fall outside the set limits. A detailed list is given of all events falling outside the set limits.

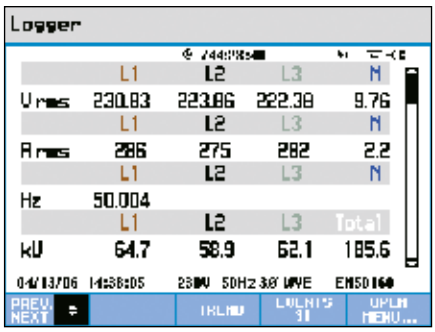
430 Series II Three-Phase Power Quality and Energy Analyzers

FLUKE®

Energy Loss Calculator

Line losses due to:
Active power
Reactive power
Unbalance
Distortion (Harmonics)
Neutral current





Logging provides instantaneous analysis of user selectable parameters.

Fluke 437 II with all standard accessories.

Input characteristics

Voltage inputs	
Number of inputs	4 (3 phase + neutral) dc-coupled
Maximum input voltage	1000 Vrms
Nominal voltage range	Selectable 1 V to 1000 V
Max. peak measurement voltage	6 kV (transient mode only)
Input impedance	4 MΩ//5 pF
Bandwidth	> 10 kHz, up to 100 kHz for transient mode
Scaling	1:1, 10:1, 100:1, 1,000:1 10,000:1 and variable
Current inputs	
Number of inputs	4 (3 phase + neutral) dc- or ac-coupled
Type	Clamp or current transformer with mV output or i430flex-TF
Range	0.5 Arms to 600 Arms with included i430flex-TF (with sensitivity 10x) 5 Arms to 6000 Arms with included i430flex-TF (with sensitivity 1x) 0.1 mV/A to 1 V/A and custom for use with optional AC or DC clamps
Input impedance	1 MΩ
Bandwidth	> 10 kHz
Scaling	1:1, 10:1, 100:1, 1,000:1 10,000:1 and variable
Measurement modes	
Scope	4 voltage waveforms, 4 current waveforms, Vrms, Vfund. Arms, A fund, V @ cursor, A @ cursor, phase angles
Volts/amps/hertz	Vrms phase to phase, Vrms phase to neutral, Vpeak, V Crest Factor, Arms Apeak, A Crest Factor, Hz
Dips and swells	Vrms½, Arms½, Pinst with programmable threshold levels for event detection
Harmonics dc, 1 to 50, up to 9th harmonic for 400 Hz	Harmonics Volts, THD, Harmonic Amps, K factor Amps, Harmonic Watts, THd Watts, K factor Watts, Interharmonic Volts, Interharmonic Amps, Vrms, Arms (relative to fundamental or to total rms)
Power and energy	Vrms, Arms, Wfull, Wfund., VAfull, VAfund., VAharmonics, VAunbalance, var, PF, DPF, CosQ, Efficiency factor, Wforward, Wreverse
Energy loss calculator	Wfund, VAharmonics, VAunbalance, var, A, Loss Active, Loss Reactive, Loss Harmonics, Loss Unbalance, Loss Neutral, Loss Cost (based upon user defined cost / kWh)
Inverter efficiency (requires optional DC current clamp)	Wfull, Wfund, Wdc, Efficiency, Vdc, Adc, Vrms, Arms, Hz
Unbalance	Vneg%, Vzero%, Aneg%, Azero%, Vfund, Afund, V phase angles, A phase angles
Inrush	Inrush current, Inrush duration, Arms½, Vrms½
Monitor	Vrms, Arms, harmonic Volts, THD Volts, PLT, Vrms½, Arms½, Hz, dips, swells, interruptions, rapid voltage changes, unbalance and mains signalling. All parameters are measured simultaneously in accordance with EN50160 Flagging is applied according to IEC61000-4-30 to indicate unreliable readings due to dips or swells
Flicker (435-II and 437-II only)	Pst(1min), Pst, Plt, Pinst, Vrms ½, Arms ½, Hz
Transients (435-II and 437-II only)	Transient waveforms 4x Voltage 4x Amps, triggers: Vrms ½, Arms ½, Pinst
Mains Signaling (435-II and 437-II only)	Relative signaling voltage and absolute signaling voltage averaged over three seconds for up to two selectable signaling frequencies
UPower Wave (435-II and 437-II only)	Vrms½, Arms½ W, Hz and scope waveforms for voltage amps and watts
Logger	Custom selection of up to 150 PQ parameters measured simultaneously on 4 phases

Battery life: 7 hours operating time per charge on Li-ion battery pack
Safety: EN61010-1 (2nd edition) pollution degree 2; 1000 V CAT III / 600 V CAT IV
Case: Rugged, shock proof with integrated protective holster, IP51 (drip and dust proof)
Shock: 30 g; **Vibration:** 3g according to MIL-PRF-28800F Class 2
Operating temperature: 0°C to +50°C
Size (HxWxD): 265 mm x 190 mm x 70 mm; **Weight:** 2.1 kg
Three Years Warranty

Included Accessories

TL430 test lead and alligator clip set,
i430flex-TF-II, 60 cm, 4 clamps,
BC430 power adapter,
BP290 single capacity Li-ion battery,
International plug adapter set,
WC100 color coding clips and regional decals,
8 GB SD card,
PowerLog on CD,
USB cable A-Bmini,
C1740 softcase (434-II, 435-II),
C437 hard case (437-II)

Ordering information

Fluke 434-II	Three-Phase Energy Analyzer
Fluke 435-II	Three-Phase Power Quality and Energy Analyzer
Fluke 437-II	Three-Phase Power Quality and Energy Analyzer

Recommended Accessories

i430-FLEXI-TF-4PK
See page 116

i5sPQ3
See page 116

BP291
See page 103

See page 116 for power quality current clamps

1730 Three-Phase Electrical Energy Logger

FLUKE®

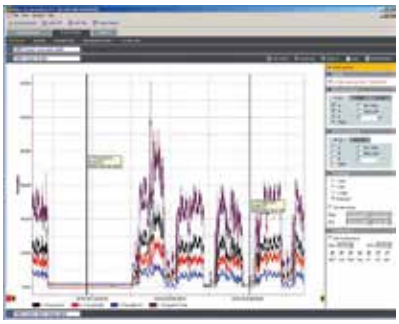
Fluke 1730

Fluke 1730 with all standard accessories

CAT III 1000V
CAT IV 600V

Energy logging is now within your reach – discover where you're wasting energy, optimize your facility's energy use and reduce your bill

- Key measurements: voltage, current, power, power factor and associated values enable energy saving strategies to be implemented.
- Bright, color touch screen: perform convenient in-the-field analysis and data checks with full graphical display.
- All new, Energy Analyze application software: download, analyze and automated reporting for a complete picture of energy saving potential.
- Comprehensive logging: all measured values are automatically logged and can be reviewed during logging and before downloading for on the-go analysis. More than 20 separate logging sessions can be stored on the instrument.
- Optimized user interface: quick, guided, graphical setup ensures you're capturing the right data every time, and the intelligent verification function indicates correct connections have been made, reducing user uncertainty.
- Complete 'in-the-field' setup through the front panel: no need to return to the workshop for download and setup or to take a computer to the electrical panel.
- Wide range power: power instrument directly from the measured circuit eliminating the need to find a power outlet while allowing the instrument to be secured safely inside electrical panels.
- Two USB ports: one for PC connection and another for fast, simple download to standard USB thumb drives, or other USB devices.
- Compact size: designed to fit in tight spaces and panels.
- Optimized measurement accessories: flat voltage cable and thin flexible current probes ensure easy installation even in tight spaces.
- Security: safeguard against theft with a Kensington lock.



Fluke Energy Analyze software

Included Accessories

3 x i1730-flex 1500 (iFlex flexible current probe 1500A 12 inch)
2 x 1730TL0.1M (Test lead; straight plug; 0.1 m; silicon; red)
3PHVL-1730 (Cable Assembly, Voltage test lead 3-Phase+N)
1730-TL2M (Test lead, straight plug; 2 m; PVC red)
C1730 Soft case
WC100 Color localization set
4 x Dolphin clamps
Basic model: excl. current probes

Ordering Information

Fluke 1730/BASIC	Three-Phase Electrical Energy Logger
Fluke 1730	Three-Phase Electrical Energy Logger

Specifications

(Check the Fluke web for detailed specifications)

Data acquisition	
Circuit types	1-ϕ, 1-ϕ IT, Split phase, 3-ϕ delta, 3-ϕ wye, 3-ϕ wye IT, 3-ϕ wye balanced, 3-ϕ, Aron/Blondel (2-element delta), 3-ϕ delta open leg, Currents only (load studies)
Parameter	Active Power, Apparent Power, Reactive Power Voltage Min/Max, Current Min /Max, Cosϕ, PF, THD on Current and Voltage
Inputs	
Voltage Inputs	4(3 phases and Neutral)
Current Inputs	3 phases

Recommended Accessories

1730 hanger

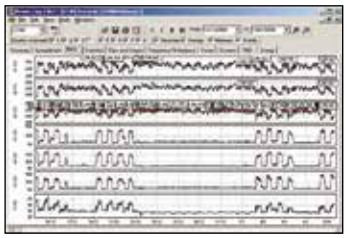
i1730-flex 3000/3pk

i1730-flex 6000/3pk

i40s-EL/3pk

1735 Power Logger

Fluke 1735



View recorded data in simple graphs and tables with Fluke Power Log software.

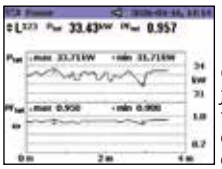
Customize the report generator to easily generate professional looking reports.

Performs electrical load studies, energy consumption testing, and general power quality logging

The Fluke 1735 Power Logger is the ideal tool for electricians and maintenance technicians for conducting energy studies and basic power quality logging. The 1735 is easy to set up with its color display and four included new thinner flexible current probes.

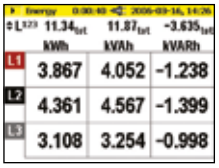
The 1735 logs most electrical power parameters, harmonics and captures voltage events. View graphs and generate reports with the included Fluke Power Log software.

- Record power and associated parameters for up to 45 days
- Monitor maximum power demand over user-defined averaging periods
- Prove the benefit of efficiency improvements with energy consumption tests
- Measure harmonic distortion caused by electronic loads
- Improve reliability by capturing voltage dips and swells from load switching
- Confirm instrument setup easily with color display of waveforms and trends

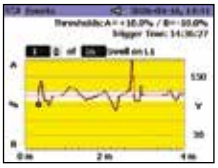


Conduct load studies for up to 45 days and view saved data on-screen or on a computer.

Access voltage and current harmonics up to the 50th.



Quantify energy consumption quickly on-screen or log to memory for extended periods.



Capture voltage events using user-defined thresholds.

Specifications

(Check the Fluke web for detailed specifications)

Volts rms	V-rms wye measurement ranges: 57 V/66 V/110 V/120 V/127 V/220 V/230 V/240 V/260 V/277 V/347 V/380 V/ 400 V/417 V/480 V AC V-rms delta measurement ranges: 100 V/115 V/190 V/208 V/220 V/380 V/400 V/415 V/450 V/480 V/600 V/660 V/ 690 V/720 V/830 V AC
Amps rms	Flexi set measurement range: 15 A/150 A/3000 A rms (at sine) Current clamp measurement range: 1 A/10 A
Frequency	Measurement range: 46 Hz to 54 Hz and 56 Hz to 64 Hz
Harmonics and THD	To 50th harmonic (< 50 % of nom)
Power measurement (P - Active, S - Apparent, Q - Reactive, D - Distorting)	Measuring range: see V-rms and A-rms measurement ranges
Energy Measurement (kWh, KVAh, kVARh)	Measuring range: see V-rms and A-rms measurement rangeso
PF (Power factor)	0.000 to 1.000
Events	Detection of voltage dips, voltage swells and voltage interruptions with a 10 ms resolution and measuring error of the half period sine wave of rms.

General	
Memory	4 MB Flash memory, 3.5 MB for measuring data
Sample rate	10.24 kHz
Line frequency	50 Hz or 60 Hz, user-selectable, with automatic synchronization

Display: VGA Graphic Color transmissive displays 320 x 240 pixels with additional background lighting and adjustable contrast, text and graphics in color
Interface: USB with Mini USB B socket. Firmware updates are possible with the USB interface
Housing: IP65; EN60529 (refers only to the main housing without the battery compartment)

Power supply: NiMH battery-pack, with AC adapter (15 V to 20 V/0.8 A)
Battery Life: Typical > 16 hours without backlight and > 6 hours with backlight high
Operating temperature: 0°C to +40°C
Size (HxWxD): 240 mm x 180 mm x 110 mm
Weight: 1.7 kg, including battery
Two Year Warranty

Included Accessories

FS17X5-TF-II 4-phase flexible current clamp set, VL1735/1745 voltage lead set, Power Log software, color localization set, PC interface cable, international AC adapter, BC1735 battery charger, soft carrying case, printed English manual and multi-language manual on CD.

Ordering Information

Fluke 1735	Power Logger
FS17X5-TF	4-phase thin flexi current clamp set, 3000 A
3000/6000A-TF-4	4-phase thin flexi current clamp set, 6000 A

See page 116 for power quality current clamps

1740 Series Three-Phase Power Quality Loggers *Memobox*

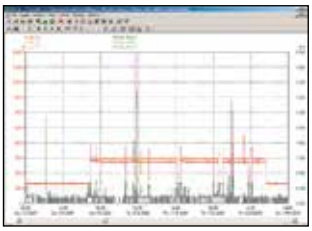
FLUKE®

Fluke 1743

Fluke 1744

Fluke 1745

600V CAT III



The included PQ Log software helps you to quickly identify the root cause of a disturbance.

Assess power quality and conduct long-term studies with ease

Compact, rugged and reliable, the Fluke 1740 Series three-phase power quality loggers are everyday instruments for technicians who troubleshoot and analyze power distribution systems. Capable of simultaneously logging up to 500 parameters for up to 85 days and capturing events, the Fluke 1740 Series helps uncover intermittent and hard-to-find power quality issues. There are three models to choose from to meet your basic or advanced power logging needs.

Fluke 1743: IP65 waterproof monitor for logging the most common power parameters including V, A, W, VA, VAR, PF, energy, flicker, voltage events and THD.

Fluke 1744: Includes the same features as the Fluke 1743. In addition to common power parameters, the Fluke 1744 also measures voltage and current harmonics, interharmonics, mains signaling, unbalance, and frequency.

Fluke 1745: Advanced IP50 power quality logger with the same measurement capability as the 1744, plus real-time LCD, five hour UPS.

- **Plug and play:** Set up 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
- **Monitors power for the long-term:** Data can be downloaded during recording without interruption
- **Measure voltage with premium accuracy:** IEC61000-4-30 Class-A compliant voltage accuracy (0.1%)
- **Quickly validate quality of power:** Assess power quality according to EN50160 power quality standard with statistical overview

Specifications

(Check the Fluke web for detailed specifications)

	1745	1744	1743
Measurement of common power parameters: V, A, W, VA, VAR, PF, energy, flicker, voltage events (dips, swells, interruptions), and THD	●	●	●
Measurement of voltage and current harmonics to the 50th, unbalance, frequency and mains signaling	●	●	
Dust/water resistance	IP 50	IP 65 waterproof	
Display	LED + LCD	LED	LED
Memory	8 MB	8 MB	8 MB
UPS ride-through	> 5 hrs	3s	3s
EN 50160	●	●	●

Power supply: 88 V ... 660 V AC
Safety: IEC/EN 61010-1 600 V CAT III, 300 V CAT IV, pollution degree 2, double insulation
Housing: Fully insulated housing and accessories
Operating temperature: 0 °C to 35°C
Interface: RS 232, 9600 ... 115 000 Baud, automatic Baud rate selection, 3-wire communication

Size: Fluke 1745: 282 mm x 216 mm x 74 mm; Fluke 1743/44: 170 mm x 125 mm x 55 mm
Weight: Fluke 1745 – approx. 3 kg; Fluke 1743/44: approx. 2 kg
Two Year Warranty

Included Accessories

Fluke 1743/1744/1745: FS17XX IP65-TF-II thin flexible current clamp set (1743 & 1744), FS17X5-TF-II thin flexible current clamp set (1745), VL1735/1745 voltage lead set (1745 only), Power Log software, RS232 interface cable and RS232-USB adapter, 4 black dolphin clips, WC17XX color localization set, carrying bag, test certificate with measurement values, printed English manual and multi-language manual on CD.
Basic models: Excl. current clamps FS17XX-TF

Ordering Information

Fluke 1743 Basic	Power Quality Logger Memobox
Fluke 1743	Power Quality Logger Memobox
Fluke 1744 Basic	Power Quality Logger Memobox
Fluke 1744	Power Quality Logger Memobox
Fluke 1745	Power Quality Logger Memobox
FS17x5-TF	4-phase thin flexi current clamp set, 3000 A
3000/6000A-TF-4	4-phase thin flexi current clamp set, 6000 A

See page 116 for power quality current clamps

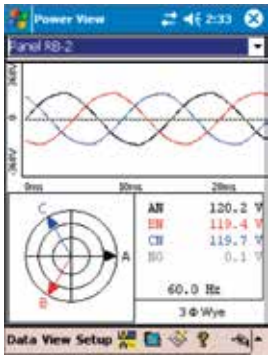
1750 Three-Phase Power Recorder

FLUKE®

Never miss capturing a disturbance

With its exclusive threshold-free measurement system, the Fluke 1750 Power Recorder captures every measurement, every event, on every cycle, all the time. Outstanding accuracy and resolution provide complete visibility into your installation or distribution system.

- **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:** TABLET wireless "front panel interface" provides the ability to verify setup without a laptop along with a window into what the instrument is recording, even in awkward test locations.
- **Threshold-free setup:** Apply thresholds after data is collected with Fluke Power Analyzer Software so there is no need to worry about missed information due to incorrect set-up.
- **Captures everything:** Cross-channel and current triggering capture every measurement, on every channel, every time.
- **Intuitive PC software:** Easily analyze data and generate reports. Automated EN50160 reporting and compliance.
- **Plug and play:** Set up in minutes with selfidentifying current probes and single-lead voltage connections.
- **No need to reconnect wires:** Swap channels internally with the wireless TABLET or PC when connections are not correct.
- **Measure every parameter:** Voltage and current on three phases, neutral, and ground.
- **5 MHz, 8000 Vpk waveform capture:** Get a detailed picture of even the shortest events.
- **Quickly retrieve data:** With included SD memory card or via the 100BaseT high-speed Ethernetv connection



View measurements real time with wireless TABLET interface

Fluke 1750-TF

Included Accessories

TABLET and charger power plug adapters, 4 current probes, 5 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, soft carrying case, Printed Getting Started manual, CD with software and users manual PDF
4 iFlex thin flexis (Fluke 1750-TF only)
Basic model: excl. 4 current probes

Ordering Information

Fluke 1750/B	Three-Phase Basic Power Recorder
Fluke 1750	Three-Phase Power Recorder
Fluke 1750-TF	Three-Phase Power Recorder (incl. four flexis)

Specifications

(Check the Fluke web for detailed specifications)

Power quality measurement standards	
Conformance	IEC 61999-1-4 Class 1, IEC 61000-4-30, IEEE519, IEEE1159, IEEE1459 and EN50160
Clock/calendar	Leap years, 24-hour clock
Real-time clock accuracy	Not more than ± 1 s/day
Internal memory capacity for data	At least 1 GB
Maximum recording period	At least 31 days
Measurement time control	Automatic
Maximum number of events	Limited only by the size of the internal memory
Power requirements	100 to 240 V rms ± 10 %, 47-63 Hz, 40 W
Operating time during interruptions (internal UPS operation)	5 minutes per interruption, 60 minutes total operating time without recharging

Safety: EN 61010-1 2nd Edition; 2000
Weight: 6.3 kg
Size (H x W x D): 215 x 310 x 35 mm
One Year Warranty

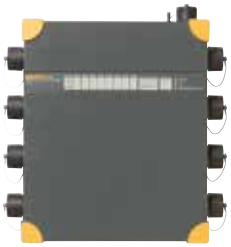
Recommended Accessories

Model	Description
3210-PR-TF-II	1000A Thin flexible current transformer 61 cm (24") (20 A - 1000 A)
3310-PR-TF-II	5000A Thin flexible current transformer 61 cm (24") (100 A - 5000 A)
3312-PR-TF-II	5000A Thin flexible current transformer 122 cm (48") (100 A - 5000 A)
3140-PR	Clamp-on current transformer (2 A - 400 A)
i40S-PR	Clamp-on current transformer (0,1 A - 40 A)
i4S-PR	Clamp-on current transformer (0,01 A - 5 A)
FLUKE-1750/SEAT-L	Fluke Power Analyze – Additional SEAT LICENSE
FLUKE-1750/SITE-L	Fluke Power Analyze – Additional SITE LICENSE
FLUKE-1750/CASE	Hard Case
CS1750	Soft Case
FLUKE-1750-TABLET	Additional Wireless Interface TABLET
FLUKE-1750/MC	Additional 512 MB SD Memory Card

1760 Three-Phase Power Quality Recorder *Topas*

FLUKE®

Fluke 1760



The included PQ Analyze software provides a detailed overview of several power quality parameters on one dashboard according to the EN50160 power quality standard.

Class-A compliance for the most demanding power quality tests

The Fluke 1760 Three-Phase Power Quality Recorder is fully compliant to IEC 61000-4-30 Class-A, for advanced power quality analysis and consistent compliance testing. Designed for analysis of utility and industrial power distribution systems, in medium and low-voltage networks, the Fluke 1760 provides the flexibility to customize thresholds, algorithms, and measurement selections. It has 8 input channels (4 currents/4 voltages or 8 voltages), and captures the most comprehensive details on user selectable parameters.

- **GPS time synchronization:** Correlate data with events or datasets from other instruments with precision
- **Uninterrupted power supply (40 minutes):** Never miss important events - even record the beginning and end of interruptions and outages
- **10 MHz, 6000 Vpk waveform capture:** Get a detailed picture of even the shortest event
- **2 GB data memory:** Enables detailed, simultaneous recording of numerous power parameters for long periods of time
- **Includes Comprehensive software:** Provides trend diagrams for root cause analysis, statistical summaries, report writing and real-time data monitoring in the online mode

Features

(Check the Fluke web for detailed specifications)

	1760 Basic	1760TR Basic	1760	1760TR
Power quality statistics according to EN50160	●	●	●	●
Voltage event list (dips, swells and interruptions)	●	●	●	●
Continuous recording of:				
Voltage	●	●	●	●
Current	●	●	●	●
Power P, Q, S	●	●	●	●
Power factor	●	●	●	●
kWh	●	●	●	●
Flicker	●	●	●	●
Unbalance	●	●	●	●
Frequency	●	●	●	●
Voltage and current harmonics to the 50th/ Interharmonics	●	●	●	●
THD	●	●	●	●
Mains signaling	●	●	●	●
Triggered recordings	●	●	●	●
Online mode (Oscilloscope, transients and events)	●	●	●	●
Fast transient analysis up to 10 MHz		●		●
4 voltage probes			●	●
4 dual-range flexible current probes (1000 A / 200 A ac)			●	●
GPS time sync receiver			●	●
Memory	2 GB Flash memory			

Power supply: 83 V to 264 V, 45 to 65 Hz
Battery pack: NIMH, 7.2 V, 2.7 Ah (up to 40 minutes back-up power supply)
Safety: 600V CAT IV/1000V CAT III (Rated for use at the service entrance)
Housing: Fully insulated robust plastic housing

Operating temperature: 0 °C to 35°C
Interfaces: Ethernet (100 MB/s), RS-232, external modem via RS-232
Size (HxWxD): 325 mm x 300 mm x 65 mm
Weight: Approxiamtely 4.9 kg
Two Year Warranty

Included Accessories

4 x TPS Flex 24-TF-II flexible current probe, 4 x TPS VoltProbe 600V, 2 GB internal flash memory, ST1760 standard Ethernet cable, RS232 interface cable and RS232-USB adapter, CS1760 crossover Ethernet cable, 1 mains cable, PC software on CD-ROM, WC17xx color localization set, GPS-time sync (1760TR only) CS 1750/1760 carrying bag, hardware and software manual

Basic models: Excl. current clamps TPS Flex 24-TF-II

Ordering Information

Fluke 1760 Basic	Power Quality Recorder Topas
Fluke 1760TR Basic	Power Quality Recorder Topas
Fluke 1760	Power Quality Recorder Topas
Fluke 1760TR	Power Quality Recorder Topas

Recommended Accessories

(Check the Fluke web for complete accessory list)

Model	Description
• TPS VOLTPROBE 10 V	10 V Voltage Probes (Range: 0.1 V to 17 V)
• TPS VOLTPROBE 100 V	100 V Voltage Probes (Range: 1 V to 170 V)
• TPS VOLTPROBE 400 V	400 V Voltage Probes (Range: 4 V to 680 V)
• TPS VOLTPROBE 600 V	600 V Voltage Probes (Range: 10 V to 1000 V)
• TPS VOLTPROBE 1 KV	1000 V Voltage Probes (Range: 10 V to 1700 V)
• TPS FLEX 18-TF-II	Flexible Current Probe (Range: 1 A to 100 A / 5 A to 500 A)
• TPS FLEX 24-TF-II	Flexible Current Probe (Range: 2 A to 200 A / 10 A to 1000 A)
• TPS FLEX 36-TF-II	Flexible Current Probe (Range: 30 A to 3000 A / 60 A to 6000 A)
• TPS CLAMP 10 A / 1 A	Clip-on Current Transformer (Range: 0.01 A to 1 A / 0.1 A to 10 A)
• TPS CLAMP 50 A / 5A	Clip-on Current Transformer (Range: 0.05 A to 5 A / 0.5 A to 50 A)
• TPS CLAMP 200 A / 20 A	Clip-on Current Transformer (Range: 0.2 A to 20 A / 2 A to 200 A)
• TPS SHUNT 20 MA	20 mA ac/dc Shunt (Range: 0 to 55 mA)
• TPS SHUNT 5 A	5 A ac/dc Shunt (Range: 0 to 10 A)

Power Quality Current Clamps

FLUKE®

Fluke model number	i3000 flex ... 4PK	i400s	i430 FLEXI-TF-II-4PK	i5sPQ3	1000A 3210 PR TF Iflex	Fluke-1730 iFlexi 1500A 12 IN	Fluke-1730 iFlexi 3000A 24 IN	Fluke-1730 iFlexi 6000A 36 IN	Fluke-1730 i40s-EL Clamp-on Current Transformer
Description	4 ... phase 3000A Flexible current clamp set	Single phase 400A current clamp (4 required)	4 ... phase 3000A Flexible current clamp set	3 ... phase 5A Current clamp set	1000A Single phase flexible current clamp	1500 A Single phase flexible current clamp (3 required) IP 50	3000 A Single phase flexible current clamp (3 required) IP 50	6000 A Single phase flexible current clamp (3 required) IP 50	4/40A Current clamp (3 required)
Old Fluke model #					3210-PR	n/a	n/a	n/a	n/a
Fluke 1750					●				
Fluke 43X	●	●	●	●					
Fluke 1730						●	●	●	●
Nominal current range(s)	30 A 300 A 3000 A	40 A 400 A	3000 A	5 A		1A to 150A, 10A to 1500A	3A to 300A, 30A to 3000A	6A to 600A, 60A to 6000A	40mA to 4A, 0.4A to 40A
Cont. AC current range	1 A ... 30 A 1 A ... 300 A 1 A ... 2400 A	0.5 A ... 40 A 5 A ... 400 A	0.5 A ... 6000 A	0.01 A ... 6 A	0.5A to 1,000A	1A ... 150A 10A ... 1,500A	1A ... 300A 10A ... 3,000A	1A ... 600A 10A ... 6,000A	1A ... 150A 10A ... 1,500A
Highest current	4000 A	1000 A	100 kA	70 A	1,000A	1,500A	3,000A	6,000A	200A
Lowest measurable current	1 A	0.5 A	0.5 A	10 mA	0.5A	1A	3A	6A	0.04A
Basic accuracy (48 ... 65 Hz) 1)	2% + 2 A	2% + 0.15 A	1%	1%	± 1 % of reading	0,70%	0,70%	0,70%	0,50%
Usable frequency	10 Hz ... 100 kHz	5 Hz ... 10 kHz	10 Hz ... 10 kHz	40 Hz ... 5 kHz	40Hz...5kHz	40Hz...5kHz	40Hz...5kHz	40Hz...5kHz	40Hz...5kHz
Requires battery	●								
Flex head length		Clamp opening: 32 mm	61 cm	Clamp opening: 15 mm	61cm	30.5 cm	61 cm	122 cm	n/a
Output level(s)	10 mV/A 1 mV/A 0.1 mV/A	10 mV/A 1 mV/A	0.085 mV/A @50 Hz	400 mV/A	2mV/A	n/a	n/a	n/a	n/a
Output cable (m)	2,1	2,5	2,5	2,5	3	2	2	2	2
Safety rating	CAT III 600 V	CAT III 1000 V CAT IV 600 V	CAT III 1000 V CAT IV 600 V	CAT III 600 V	CATIII 1000V CAT IV 600V	CATIII 1000V CAT IV 600V	CATIII 1000V CAT IV 600V	CATIII 1000V CAT IV 600V	CATIII 1000V CAT IV 600V
Connection	4 x BNC	4 x BNC	4 x BNC	3 x BNC	one connector	one connector	one connector	one connector	one connector
BNC to banana adapters included	●	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Fluke model number	i1A/10A CLAMP PQ3	i1A/10A CLAMP PQ4	i5A/50A CLAMP PQ3	i5A/50A CLAMP PQ4	i20A/200A CLAMP PQ3	i20A/200A CLAMP PQ4	3000/6000A -TF-4-II	FS17X5-TF-II	FS17xx IP65-TF-II
Description	3 ... phase 1A/10A Mini current clamp set	4 ... phase 1A/10A Mini current clamp set	3 ... phase 5A/50A Mini current clamp set	4 ... phase 5A/50A Mini current clamp set	3 ... phase 20A/200A Mini current clamp set	4 ... phase 20A/2000A Mini current clamp set	4 Phase flexiset	4 Phase flexiset, IP41	4 Phase flexiset, IP65
Old Fluke model #	CURRENT CLAMPS 1A (EPO450A)	MBX CLAMP 1A/10A+N (EPO451A)	MBX CLAMP 5A/50A (EPO452A)	MBX CLAMP 5A/50A+N (EPO453A)	MBX CLAMP 20A/200A (EPO455A)	MBX CLAMP 20/2000A+N (EPO456A)		MBX Lem Flex (15/150/3000) (EP0404A)	MBX Lem Flex (15/150/3000) (EP0404A)
Fluke 1735	●	●	●	●	●	●	●	●	●
Fluke 174X	●	●	●	●	●	●	●	●	●
Nominal current range(s)	1 A 10 A AC	1 A 10 A AC	5 A 50 A AC	5 A 50 A AC	20 A 200 A AC	20 A 200 A AC	30A 300A 3000A 6000A AC	15A 150A 1500A 3000A AC	15A 150A 1500A 3000A AC
Cont. AC current range	10 mA ... 1 A 100 mA ... 10 A	10 mA ... 1 A 100 mA ... 10 A	50 mA ... 5 A 500 mA ... 50 A	50 mA ... 5 A 500 mA ... 50 A	200 mA ... 20 A 2 A ... 200 A	200 mA ... 20 A 2 A ... 200 A	0.8 ... 6.000 A AC	450mA ... 15A 600mA... 150A 6A... 1500A 12A... 3000A	450mA ... 15A 600mA... 150A 6A... 1500A 12A... 3000A
Highest current	20 A	20 A	100 A	100 A	300 A	300 A	0.8 A	3300 A	3300 A
Lowest measurable current	10 mA	10 mA	50 mA	50 mA	200 mA	200 mA		450 mA	450 mA
Basic accuracy (48 ... 65 Hz) 1)	0,50%	0,50%	0,50%	0,50%	0,50%	0,50%		2%+2% position influence	2%+2% position influence
Usable frequency	40 Hz ... 10 kHz	40 Hz ... 10 kHz	40 Hz ... 10 kHz	40 Hz ... 10 kHz	40 Hz ... 10 kHz	40 Hz ... 10 kHz		40Hz ...5kHz	40Hz ...5kHz
Flex head length							92 cm	61 cm	61 cm
Output level(s)	75 mV/A	75 mV/A	15 mV/A	15 mV/A	3.75 mV/A	3.75 mV/A		0.1 mV/A	0.1 mV/A
Output cable (m)	2	2	2	2	2	2	4	2	2
Safety rating	CAT III 600 V	CAT III 600 V	CAT III 600 V	CAT III 600 V	CAT III 600 V	CAT III 600 V	CAT III 1000 V CAT IV 600V	CAT III 1000 V CAT IV 600V	CAT III 1000 V CAT IV 600V
Connection	One connector	One connector	One connector	One connector	One connector	One connector	One connector	One connector	One connector
BNC to banana adapters included	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

1) Basic accuracy: % reading plus floorspec.
n/a = not applicable

Norma 4000/5000 Power Analyzers

FLUKE®

Fluke Norma Series Power Analyzers

Reliable, highly accurate measurements for the test & development of power electronics

The compact Fluke Norma Series Power Analyzers provide the latest measurement technology to assist engineers with the development and testing of motors, inverters, lighting, power supplies, transformers and automotive components.

Based on a patented, high-bandwidth architecture, the instruments deliver high-precision measurements of single or three-phase current and voltage, harmonics analysis, Fast Fourier Transformation (FFT) analysis, as well as calculations of power and other derived values.

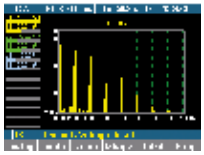
A unique user-configurable system design with plug-in power phases and other optional modules provides the flexibility to meet a variety of application measurement requirements. Recorded data and waveforms can be viewed clearly in the large color display and easily downloaded to a PC for analysis and report writing.

The Series consists of the Fluke Norma 4000 Three-Phase Power Analyzer and the Fluke Norma 5000 Six-Phase Power Analyzer. These rugged analyzers provide unmatched price performance for easy and reliable use in the field, or as a bench unit in laboratories and on test benches.

- Simple user interface ensures easy, intuitive operation
- Unique user-configurable modular design
- Simultaneous parallel acquisition of all phases
- Voltage, current and power harmonics up to the 40th
- Includes FFT analysis, vector diagram display, recorder function, and Digital Oscilloscope (DSO) mode
- User selectable average time – from 15ms to 3600s
- Expandable on-board memory for storage of measured values

Fluke Norma 4000

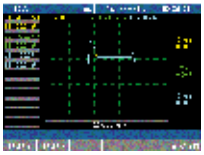
Fluke Norma 5000



Fast Fourier Transformation (FFT) analysis

Digital Oscilloscop (DSO) mode

Vector Display



Recorder function

Specifications

(Check the Fluke web for detailed specifications)

	Fluke Norma 4000	Fluke Norma 5000
Number of Phases	1 or 3	3, 4 or 6
Weight	Approx. 5 kg	Approx. 7 kg
Size (HxWxD)	15 cm x 23.7 cm x 31.5 cm	15 cm x 44.7 cm x 31.5 cm
On-board Printer	No	Yes (optional)
Display	Color, 5.7" / 144 mm - 320 x 240 pixel	
Bandwidth	dc to 3 MHz or dc to 10MHz depending on input module	
Basic Accuracy	0.2%, 0.1% or 0.03% depending on input modules	
Sampling Rate	0.33 MHz or 1 MHz depending on input modules	
Voltage Input Range	0.3 V to 1000 V	
Current Input Range (direct, not via shunt)	0.03 mA – 20 A depending on input module	
Memory for Configurations	4 MB, expandable to 128 MB	
Memory for Settings	0.5 MB	
Fast Fourier Transformation (FFT)	To the 40th harmonic	
RS232 Interface	Standard	
PI1 Process Interface (8 analog/impulse inputs and 4 analog outputs)	Optional	
IEEE 488.2 /GPIB Interface (1 MBit/s Ethernet / 10 MBit/s or 100 Mbit/s)	Optional	
Fluke NormaView PC Software (for data download, analysis & report writing)	Standard	

1000V CAT II

600V CAT III

Operating temperature:
+ 5 °C to 35 °C
Storage temperature:
- 20 °C to 50 °C
Climatic class: KYG DIN 40040, maximum 85% relative humidity, non-condensing.

Housing: Solid metal case
Safety: EN 61010-1 / 2nd Edition, 1000 V CAT II (600 V CAT III)
Two Year Warranty

Included Accessories

Power Supply Cable, RS232 Interface and USB adaptor for Data Download, Fluke NormaView PC Software, User's Manual, Test Certificate, and Calibration Values.

Ordering Information

Fluke Norma 4000	Three-Phase High Precision Power Analyzer
Fluke Norma 5000	Six-Phase High Precision Power Analyzer

Norma 4000/5000 Power Analyzer Accessories

Fluke Norma 4000 (rear view)

Fluke Norma 5000 (rear view)

Power Phases

The Fluke Norma 4000 Power Analyzer can be equipped with up to three power phases and the Fluke Norma 5000 Power Analyzer can be equipped with up to six power phases. Users can select the power phase best suited for their application. Specifications vary depending on the model of the power phase.

Each plug-in power phase consists of a voltage and a current measurement channel. Each measuring channel is available for each basic unit.

Power Phase Overview

	3024770	3024812	3024820	3024835
Channel	PP42	PP50	PP54	PP64
Accuracy	0.2% (0.1% rd + 0.1% rg)	0.1% 0.05% rd + 0.05% rg		0.03% (0.02% rg + 0.01% rg)
Current range	20 A	10 A	10 A	10 A
Sampling rate	341 kHz	1 MHz	341 kHz	341 kHz
Bandwidth	3 MHz	10 MHz	3 MHz	3 MHz

Shunts

The input modules can take up to 10 A or 20 A directly or measure current via wideband precision shunts. The available range of shunts enables measurements up to 1500 A and can be used in conjunction with all of the available input modules.

Optional shunts for Fluke Norma Series Power Analyzers

3024677	32 A Planar Shunt
3024689	Cables for 32 A Planar Shunt
3024886	10 A Triaxial Shunt with Cables (0.333 ., 0 to 0.5 MHz)
3024899	30 A Triaxial Shunt with Cables (0.010 ., 0 to 0.5 MHz)
3024847	100 A Shunt with Cables (0.001 Ω, 0 to 0.5 MHz)
3024858	150 A Shunt with Cables (0.5 mΩ, 0 to 0.5 MHz)
3024864	300 A Shunt with Cables (0.1 mΩ, 0 to 1 MHz)
3024873	500 A Shunt with Cables (0.1 mΩ, 0 to 0.2 MHz)
3024692	LG Shunt Cables for High Current Shunts

32 A Planar Shunt

Cables & Adaptors

3024661	Measurement Cable Set (for one power phase)
3024704	Fluke Norma WYE Adaptor (external accessory box)

Printer Accessories

3024650	Printer Cable for Fluke Norma 5000 (RS232-Centronics)

All accessories have a two-year warranty.

Field Calibrators

Fluke process calibration tools include a full range of calibrators and troubleshooting tools for instrument technicians working in the process industries. The range of process calibrators include: Documenting Process Calibrators, Multifunction Process Calibrators, single function and multifunction temperature calibrators, a variety of mA loop calibrators and a range of intrinsically safe products.

Watch our latest videos on our own YouTube Channel *www.youtube.com/user/FlukeEurope*

Field Calibrator Selection Guide

	Documenting Process Calibators	Multifunction Process Calibrator		Temperature Calibrators			Pressure Calibrators					Loop Calibrators						Process-Meters
Model Measure	**754 / 753**	**725 / 725Ex**	**726**	**724**	**714B**	**712B**	**718 / 718Ex**	**717**	**719**	**719Pro**	**721**	**715**	**705**	**707 / 707Ex**	**709 / 709H**	**771**	**772 / 773**	**789 / 787**
Voltage DC	300 V	30 V	30V	30 V	75 mV					30 V	30 V	10 V	28 V	28 V	30 V		- / 30 V	1000 V
Voltage AC (true RMS)	300 V																	1000 V
Resistance	10 kΩ	3200 Ω	4000 Ω	3200 Ω		4000 Ω												40 MΩ
Current DC	110 mA	24 mA	24 mA	24 mA	24 mA	24 mA	24 mA	24 mA	24 mA	24 mA	24 mA	24 mA	24 mA	24 mA	24 mA	100 mA	100 mA	30 mA, 1 A
Current AC																		●
Frequency	50 kHz	10 kHz	15 kHz															20 kHz
Pressure	●[1]	●[1]	●[1]				-0.85 bar to 20 bar (4 ranges) / up to 700 bar[2]	-0.85 bar to 700 bar (10 ranges)	-0.85 bar to 7 bar (2 ranges) / up to 700 bar[2]	-0,8 to 20 bar (3 ranges)/ up to 700 bar[2]	input 1: -0,97 bar to 2,48 bar input 2: -0,83 bar to 345 bar[3]							
Temperature										-50 to 150°C[4]	-50 to 150°C[4]							
Temperature: RTD types	8	7	8	7		13												
TC types	13	12	12	12	17													
Source/Simulate																		
Voltage DC	15 V	10 V	20 V	10 V	75 mV							10 V					- / 10 V	
Resistance	10 kΩ	3200 Ω	4000 Ω	3200 Ω		4000 Ω												
mA DC/% scale	22 mA	24 mA	24 mA						●	●		24 mA	24 mA	24 mA	●		24 mA	24 mA
mA source; auto step, auto ramp	●	●	●									●	●	●	●		●	●
Frequency	50 kHz	10 kHz	15 kHz															
Temperature: RTD types	8	7	8	7		13												
Temperature: TC types	13	10	10	10	17													
Record																		
Min/Max	●						●	●	●	●	●							●
Hold							●	●	●							●	●	●
As Found/ As Left results	●																	
Log data	●														-/●			
Upload data to PC	●														-/●			●/-
Remote operation		●/-	●															
Features																		
Loop supply	26 V	24 V/12 V	24 V	24 V			24 V/-	24 V	24 V	24 V	24 V	24 V	24 V	24 V	24 V		24 V	24 V/-
Hart communication	●/-														-/●			
Integrated hand pressure pump							●											
Electric Pump									●	●	●							
Intrinsically safe (ATEX)		725Ex					718Ex							707Ex				
NIST traceable certification	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			
Warranty in years	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3

[1] Fluke 700 pressure modules required
[2] Ranges for the internal sensor.
[3] Ranges depending on version
[4] by using optional 720 RTD probe accessory
Ranges for use of Fluke 700 pressure modules, see page 132.

750 Series Documenting Process Calibrators

FLUKE®

Fluke 754

Fluke 753

Work smarter. Work faster

Whether you're calibrating instruments, troubleshooting a problem or running routine maintenance, Fluke 750 series process calibrators can help you get the job done faster. It does so many different tasks, so quickly and so well, it's the only process calibrator you need to carry.

- Measure volts, mA, RTDs, thermocouples, frequency, and ohms to test sensors, transmitters and other instruments
- Source/simulate volts, mA, thermocouples , RTDs, frequency, ohms, and pressure to calibrate transmitters
- Power transmitters during test using loop supply with simultaneous mA measurement
- Measure/source pressure using any of 29 Fluke pressure modules
- Measure and source simultaneously with one compact, rugged, reliable tool
- Create and run automated as-found/as-left procedures to satisfy quality programs or regulations. Record and document results
- Advanced features like autostep, custom units, user entered values during test, one-point and two-point switch testing, square root DP flow testing, programmable measurement delay and more
- Control the temperature of selected Hart Scientific Dry Blocks
- Handle fast pulsed RTD transmitters and PLCs in RTD source mode with 1 ms response time
- English, French, German, Italian, and Spanish languages
- Three-year warranty

753: A complete documenting calibrator

The 753 Documenting Process Calibrator automates calibration procedures and captures your data. Use the PC interface for downloading procedures, lists, and instructions to the 753 and for uploading data for printing, archiving and analysis.

754: Get HART-ability

The 754 offers all of the capabilities of the 753, plus integrated HART communication capability. This rugged, reliable tool is ideal for calibrating, maintaining, and troubleshooting HART and other instrumentation.

Instrumentation Management Software

The Fluke 753 and 754 are compatible with Fluke 700SW DPC/TRACK software and with software from Cornerstone, Fisher-Rosemont, Honeywell, Yokogawa, Prime Technologies and On Time Support.

Included Accessories

Stackable test leads (3 sets), TP220 test probes (3 sets) with extended tooth alligator clips (3 sets), AC280 hook clips (2 sets), BP7240 Li-ion battery pack, BC7240 battery charger, C799 field soft case, USB communication cable, getting started guide, instruction manual on CDROM, NIST traceable certificate of calibration, DPCTrack™ 2 sample software that enables upload and printing of calibration records. HART communication cable (754 only).

Ordering Information

Fluke 753	Documenting Process Calibrator
Fluke 754	Documenting Process Calibrator
700 TLK	Process test lead kit
BP7240	753/754 Spare battery
750 SW	DPC/Track2
BC7240	753/754 Battery charger/eliminator
754HCC	754 HART communication cable

Specifications

(Check the Fluke web for detailed specifications)

Function	Measure	Sourcing
Voltage DC	0.02% + 0.005 mV	0.01% + 0.005 mV
Current DC	0.01% + 5 µA	0.01% + 0.003 mA
Resistance	0.05% reading + 50 mΩ	0.01% output + 10 mΩ
Frequency	0.05 Hz	0.01 Hz
Thermocouples	0.3°C	0.2°C
RTDs	0.07 °C	0.06 °C
Pressure	To 0.05% of full scale. See Pressure Module specifications.	

Operating temperature: -10° C to 50° C
Storage temperature: -20° C to 60° C
Safety: CAT II 300V
Battery Life: Typically over eight hours
Internal Battery Pack: li-ion, 7.2V, 4400 mAh, 30 Wh
Battery Replacement: Via snap-shut door without opening calibrator; no tools required
Weight: 1.2 kg
Size (HxWxD): 245 mm x 136 mm x 63 mm
Three Year Warranty

Recommended Accessories

C799
See page 152

TL220-1
See page 145

80PK-8
See page 150

80PK-25
See page 150

700P27
See page 132

725/725Ex/726 Multifunction Process Calibrators

FLUKE®

Fluke 726

Fluke 725

Fluke 725Ex

More calibration power!

725/725Ex/726 Multifunction Process Calibrators

- Two separate channels; measure, source and view process signals simultaneously
- Measure volts, mA, RTDs, thermocouples, frequency, and resistance to test sensors and transmitters
- Source/simulate volts, mA, thermocouples, RTDs, frequency, and pressure to calibrate transmitters
- Measure or *source pressure using any of 29 Fluke 700Pxx Pressure Modules
- Source mA with simultaneous pressure measurement to conduct valve and I/P tests
- Perform fast linearity tests with auto step and auto ramp features
- Power transmitters during test using 24 V loop supply and simultaneous mA measurement
- Store frequently-used test setups for later use
- For 725Ex version see also page 134 and 135

*Pressure pump required

726 Precision Multifunction Process Calibrator

Additional features:

- More precise measurement and calibration source performance, accuracies of 0.01%
- Transmitter error% calculation
- Memory storage for up to 8 calibration results
- 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 enhanced temperature measurement

Features

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	M or S
100.00 mV DC		M or S
30.000V DC measure	M	M or S
20.000V DC Measure 10.000V DC Source **20.000V DC Source**		M or S
15 to 3200 Ohms **5 to 4000 Ohms**		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)		M or S
Pressure (requires Fluke 700 PXX Modules)	M	M used as S
Frequency; 10 kHz; **(15 kHz)**		M or S

M = Measure S = Source/Simulate
Unique 726 features are **in bold**
725Ex: ATEX cerfified
(Ex ATEX II IG EEX 1a IIB 171°C)

Specifications

Unique 726 features are **in bold**

Function Measure or Source	Range or Type	Resolution	Accuracy	Notes
Voltage	0 to 100 mV 725: 0 to 10V (source) **0 to 20V (source)** 725/726: 0 to 30V (measure)	0.01 mV 0.001 V 0.001 V 0.001 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, 725/726: 1000Ω 725Ex: 250Ω
mV (TC terminals)	-10.00 mV to +75.00 mV	0.01 mV	**0.01%** 0.02% of range + 1 LSD	
Ohms	15Ω to 3200Ω **5Ω to 4000Ω**	0.01Ω to 0.1Ω	0.10Ω to 1.0Ω **0.015%**	
Hz - CPM	2.0 to 1000 CPM 1 to 1100 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; 5V p-p **1V - 20 V p-p** squarewave, -0.1 V offset
Loop Supply	725/726: 24 V DC 725Ex: 12 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),** Ni 120 (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	

Maximum voltage: 30V
Operating temperature: 10°C to 55°C
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
Weight: 0.65 kg
Battery: Four AA alkaline batteries.
Battery life: 25 hours typical; battery door
Warranty: Three years

Included Accessories

Test Leads, AC175 Test Clips, one pair of stackable test leads, user's Manuals on CD-ROM (725Ex also includes CCD control drawing, Statement of Quality Assurance Practices, NIST Traceable calibration certificate)

Ordering Information

Fluke 725	Multifunction Process Calibrator
Fluke 725Ex	Intrinsically Safe Multifunction Process Calibrator
Fluke 726	Precision Multifunction Process Calibrator

Recommended Accessories

(Not for hazardous zones)

C125
See page 152

TL220-1
See page 145

80PK-27
See page 150

TPAK
See page 155

700P27
See page 132

724 Temperature Calibrator

Fluke 724

The temperature solution

The Fluke 724 Temperature Calibrator is a powerful yet easy-to-use calibrator. Use the measure and source functions to test and calibrate almost any temperature instrument.

- Easy to read dual display lets you view input and output simultaneously
- Measure RTDs, thermocouples, ohms, and volts to test sensors and transmitters
- Source/simulate thermocouples, RTDs, volts, and ohms to calibrate transmitters
- Perform fast linearity tests with 25% and 100% steps
- Execute remote tests with auto step and auto ramp
- Power transmitters during test using loop power supply with simultaneous mA measurement
- Store frequently-used test setups for later use

Features

Simultaneous Function Capability	Channel A	Channel B
24.000 mA DC	M	
24.000 mA DC with 24V loop supply	M	
100.00 mV DC		M or S
30.000V DC Measure	M	
20.000V DC Measure 10.000V DC Source		M or S
0 to 3200 Ohms		M or S
Thermocouple J, K, T, E, R, S, B, L, U, N		M or S
RTD Ni120; Pt100 (3926); Pt100 (JIS); Pt100, 200, 500, 1000 (385)		M or S

M = Measure S = Source/Simulate

Specifications

Function Measure or Source	Range	Resolution	Accuracy	Notes
Voltage	0 to 100 mV 0 to 10V (source) 0 to 30V (measure)	0.01 mV 0.01 V 0.001 V	0.02% Rdg + 2 LSD	Max load, 1 mA
mA (measure)	0 to 24 mA	0.001 mA	0.02% Rdg +2 LSD	Max load, 1000Ω
mV	-10.00 mV to +75.00 mV	0.01 mV	0.025% of range + 1 LSD	
Resistance	0Ω to 3200Ω (measure) 15Ω to 3200Ω (source)	0.01Ω to 0.1Ω	0.10Ω to 1.0Ω	
Loop Supply	24V DC	N/A	10%	
Thermocouples	J, K, T, E, L, N, U	0.1 °C	to 0.7 °C	
Thermocouples	B, R, S	1 °C	to 1.4 °C	
RTDs	Ni120 (672) Pt 100, 200, 500, 1000 (385) Pt 100 (3916) Pt 100 (3926)	0.1 °C	to 0.2 °C	

Maximum voltage: 30V
Operating temperature: -10°C to 55°C
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
Weight: 0.65 kg
Battery: Four AA alkaline batteries
Battery life: 25 hours typical; battery door
Three Year Warranty

Included Accessories

Test Leads, AC175 Test Clips, one pair of stackable test leads.

Ordering Information

Fluke 724 Temperature Calibrator

Recommended Accessories

C25
See page 152

TL220-1
See page 145

TL81A
See page 144

80PK-25
See page 150

80PK-3A
See page 150

712B / 714B Temperature Calibrators

FLUKE®

New

Fluke 714B

Fluke 712B

Accuracy and simplicity

The new Fluke 712B and 714B are designed for both simplicity-ease of use and high accuracy. They are a powerful combination of temperature and loop calibration.

For the customer that does not want the complexity that a multifunction test tool brings yet demands high accuracy for temperature calibration, these new calibrators deliver.

Features

The 712B can measure and simulate (13) different RTD types and resistance
The 714B can measure and simulate (17) different thermocouple types and millivolts
Measure 4 to 20 mA signals while simultaneously sourcing a temperature signal
Hanging tool designed in and included with every unit
Configurable 0 % and 100 % source settings for quick 25 % linearity checks
Linear ramp and 25 % step auto ramp based on 0 % and 100 % settings
Dual inputs and backlit display for easy interpretation of measurements
Power down settings remembered at power up for easy restart of tests
1-year and 2-year specifications and traceable certificate of calibration

Specifications

General specifications	712B	714B
Operating temperature	-10 °C to 50 °C	
Operating altitude	2,000 meters	
Relative humidity (% RH operating without condensation)	Non condensing 90 % (10 °C to 30 °C) 75 % (30 °C to 40 °C) 45 % (40 °C to 50 °C) (Without condensation)	
Vibration requirements	MIL-T-28800E, Class 2	
Drop text requirements	1 meter	
IP Rating	IEC 60529: IP52	
Safety	IEC 61010-1, Max 30 V to earth, Pollution Degree 2	
Power supply	4 AA NEDA 1.5A IEC LR6 batteries	
DC mA measurement		
Resolution	0-24 mA	
Range	0.001 mA	
Accuracy (% of reading + counts)	0.010 % + 2 µA	
Ohms measurement		
Ohms range	0.00 Ω to 400.00 Ω, 400.0 Ω to 4000.0 Ω	
Accuracy (% of reading +counts)	0.015 % + 0.05 Ω, 0.015 % + 0.5 Ω	
Ohms source		
Ohms range	1.0 Ω to 400.0 Ω, 1.00 Ω to 400.00 Ω, 400.0 Ω to 1500.0 Ω, 1500.0 Ω to 4000.0 Ω	
Accuracy (% of reading + counts)	0.015 % + 0.1 Ω, 0.015 % + 0.05 Ω, 0.015 % + 0.5 Ω, 0.015 % + 0.5 Ω	
Resolution		
0.00 Ω to 400.00 Ω	0.01 Ω	
400.0 Ω to 4000.0 Ω	0.1 Ω	
Millivolt measurement and source		
Resolution		-10 mV to 75 mV
Range		0.01 mV
Accuracy (% of reading +counts)		0.015 % + 10 µA

Dimensions (HxWxD): 188.5 mm x 84 mm x 52.5 mm
Weight: 0.5 kg
Warranty: Three years

Included Accessories

Magnetic hanging tool, batteries, manual, traceable calibration certificate, and test leads

Ordering Information

Fluke 712B RTD Temperature Calibrator
Fluke 714B TC Temperature Calibrator

Recommended Accessories

80PK-8
See page 150

80PK-10
See page 150

700TC1
See page 151

717/718/718Ex/719/719Pro Pressure Calibrators

FLUKE®

Fluke 719Pro

Fluke 717

Fluke 718Ex

See page 134

Fluke 718

Pump up the pressure

717 Pressure Calibrators
- Measure pressure, 0.025% of full scale with internal sensor
  - 1/8 NPT pressure fitting
  - Compatible with non-corrosive gasses and liquids
- Pressure measurement to 690 bar
- Wide range of selectable measurement units for pressure
- Current measurement with 0.015% accuracy and 0.001mA resolution
- Simultaneous pressure and current measurement for easy P/I testing
- 24 volt loop power supply
- Zero, Min-Max, Hold and Damping functions
- Pressure switch test captures set, reset and deadband values

718 Pressure Calibrators
Same features as Fluke 717 plus:
- Newly designed built-in pressure/vacuum hand pump with vernier and bleed valve helps protect the pump from damage and is easier to clean

719 Electric Pressure Calibrator
Same features as Fluke 717 plus:
- Electric pump for one handed operation
- mA source for calibrating I/P devices and 4-20 mA I/O
- Best in class pressure measurement accuracy of 0.025%
- Programmable pump limit settings can eliminate overpressurization - set 'pump to' pressure values

719Pro Electric Pressure Calibrator
Same features as Fluke 717 and 719 plus:
- Measure both mA (24mA) and Vdc (30V), source/simulate up to 24mA
- Precision temperature measurement (-50 to 150°C) with optional RTD probe
- Included fluid trap to mitigate chance of of fluid damage

Specifications

Model / Ordering Information	Description	Range	Resolution	Accuracy
Fluke 719Pro 30G	Electric Pressure Calibrator	-850 mbar to 2 bar	0.0001 bar	0.025% of range
Fluke 719Pro 150G	Electric Pressure Calibrator	-850 mbar to 10 bar	0.001 bar	0.025% of range
Fluke 719Pro 300G	Electric Pressure Calibrator	-850 mbar to 20 bar	0.001 bar	0.025% of range
Fluke 720RTD	RTD probe for Fluke 721 and 719Pro			
Fluke 720URTDA	Universal RTD adapter for Fluke 721 and 719Pro			
Fluke 72071XTrap	Liquid and dirt trap for Fluke 718, 719 and 719Pro			
Fluke 719 30G	Electric Pressure Calibrator	-850 mbar to 7 bar	0.1 mbar	0.025% of range
Fluke 719 100G	Electric Pressure Calibrator	-850 mbar to 7 bar	1 mbar	0.025% of range
Fluke 718 1G	Pressure Calibrator	-68.9 mbar to 68.9 mbar	0.001 mbar	0.05% of range
Fluke 718 30G	Pressure Calibrator	-850 mbar to 2 bar	0.1 mbar	0.025% of range
Fluke 718Ex 30G	Intrinsically Safe Pressure Calibrator	-850 mbar to 2 bar	0.1 mbar	0.025% of range
Fluke 718 100G	Pressure Calibrator	-850 mbar to 7 bar	0.1 mbar	0.025% of range
Fluke 718Ex 100G	Intrinsically Safe Pressure Calibrator	-850 mbar to 7 bar	0.1 mbar	0.025% of range
Fluke 718 300G	Pressure Calibrator	-850 mbar to 20 bar	1 mbar	0.035% of range
Fluke 717 1G	Pressure Calibrator	-68.9 mbar to 68.9 mbar	0.001 mbar	0.05% of range
Fluke 717 15G	Pressure Calibrator	-830 mbar to 1 bar	0.01 mbar	0.035% of range
Fluke 717 30G	Pressure Calibrator	-850 mbar to 2 bar	0.1 mbar	0.035% of range
Fluke 717 100G	Pressure Calibrator	-850 mbar to 7 bar	0.1 mbar	0.035% of range
Fluke 717 300G	Pressure Calibrator	-850 mbar to 20 bar	1 mbar	0.035% of range
Fluke 717 500G	Pressure Calibrator	0 mbar to 34.5 bar	1 mbar	0.035% of range
Fluke 717 1000G	Pressure Calibrator	0 mbar to 69 bar	1 mbar	0.035% of range
Fluke 717 1500G	Pressure Calibrator	0 bar to 103.4 bar	0.01 bar	0.035% of range
Fluke 717 3000G	Pressure Calibrator	0 bar to 207 bar	0.01 bar	0.035% of range
Fluke 717 5000G	Pressure Calibrator	0 bar to 345 bar	0.01 bar	0.035% of range
Fluke 717 10000G	Pressure Calibrator	0 bar to 690 bar	0.01 bar	0.05% of range

For Fluke 717/718/719 models: Supported Pressure Units; psi, in. H_2O(4°C), in. H_2O(20°C), cm H_2O(4°C), cm H_2O(20°C), bar mBar, kPa, inHg, mmHg, kg/cm2
Functions: Zero, Min, Max, Hold, Damp functions
Max. Voltage: 30 V
Operating temperature: -10°C to 55°C

Safety: CSA C22.2 No. 1010.1:1992
EMC: EN50082-1:1992 and EN55022:1994 Class B
Fluke 717: For use with non corrosive gasses and liquids
Fluke 718/719: For use with Dry Air only
Three Year Warranty (Pump one year)

721 Precision Dual Pressure Calibrator

Fluke 721

Pressure calibration and temperature measurement for custody transfer applications

The Fluke 721 Precision Pressure Calibrator with dual isolated pressure sensors is the ideal tool for gas custody transfer applications allowing you to take simultaneous static and differential pressure measurements with a single tool.

The 721 can be configured by selecting either a 1.1 bar or 2.48 bar low pressure sensor then add any of 7 high pressure ranges including 6.9, 20, 24.5, 69, 103.4, 200, 345 bar.

- Ideal for gas flow calibration (custody transfer) applications
- Two isolated, stainless steel, pressure sensors with 0.025 % accuracy
- Pt100 RTD input for temperature measurement, (probe optional)
- Measures 4 to 20 mA signals
- Internal 24 V loop power supply can power a transmitter under test
- Measure up to 30 V DC, chec 24 V loop power supplies
- Extend pressure measurement range with connection to external 700 series pressure modules (29 ranges)
- Large backlit graphic display can display up to three inputs simultaneously
- Store five instrument setups for recall and use

Specifications

(Check the Fluke web for detailed specifications)

		Low pressure sensor			High pressure sensor		
Model number / ordering information		**Range 1**	**Resolution**	**Accuracy**	**Range 2**	**Resolution**	**Accuracy**
Fluke-721-1601	Dual Sensor Pressure Calibrator	-970mbar to 1.1 bar	0.0001 bar	0.025% of range	-830mbar to 6.9 bar	0.0001 bar	0.025% of range
Fluke-721-1603	Dual Sensor Pressure Calibrator	-970mbar to 1.1 bar	0.0001 bar	0.025% of range	-830mbar to 20 bar	0.001 bar	0.025% of range
Fluke-721-1605	Dual Sensor Pressure Calibrator	-970mbar to 1.1 bar	0.0001 bar	0.025% of range	-830mbar to 34.5 bar	0.001 bar	0.025% of range
Fluke-721-1610	Dual Sensor Pressure Calibrator	-970mbar to 1.1 bar	0.0001 bar	0.025% of range	0.00 bar to 69 bar	0.001 bar	0.025% of range
Fluke-721-1615	Dual Sensor Pressure Calibrator	-970mbar to 1.1 bar	0.0001 bar	0.025% of range	0.00 bar to 103 bar	0.01 bar	0.025% of range
Fluke-721-1630	Dual Sensor Pressure Calibrator	-970mbar to 1.1 bar	0.0001 bar	0.025% of range	0.00 bar to 200 bar	0.01 bar	0.025% of range
Fluke-721-1650	Dual Sensor Pressure Calibrator	-970mbar to 1.1 bar	0.0001 bar	0.025% of range	0.00 bar to 345 bar	0.01 bar	0.035% of range
Fluke-721-3601	Dual Sensor Pressure Calibrator	-970mbar to 2.48 bar	0.0001 bar	0.025% of range	-830mbar to 6.9 bar	0.0001 bar	0.025% of range
Fluke-721-3603	Dual Sensor Pressure Calibrator	-970mbar to 2.48 bar	0.0001 bar	0.025% of range	-830mbar to 20 bar	0.001 bar	0.025% of range
Fluke-721-3605	Dual Sensor Pressure Calibrator	-970mbar to 2.48 bar	0.0001 bar	0.025% of range	-830mbar to 34.5 bar	0.001 bar	0.025% of range
Fluke-721-3610	Dual Sensor Pressure Calibrator	-970mbar to 2.48 bar	0.0001 bar	0.025% of range	0.00 bar to 69 bar	0.001 bar	0.025% of range
Fluke-721-3615	Dual Sensor Pressure Calibrator	-970mbar to 2.48 bar	0.0001 bar	0.025% of range	0.00 bar to 103.4 bar	0.01 bar	0.025% of range
Fluke-721-3630	Dual Sensor Pressure Calibrator	-970mbar to 2.48 bar	0.0001 bar	0.025% of range	0.00 bar to 200 bar	0.01 bar	0.025% of range
Fluke-721-3650	Dual Sensor Pressure Calibrator	-970mbar to 2.48 bar	0.0001 bar	0.025% of range	0.00 bar to 345 bar	0.01 bar	0.035% of range
Fluke-720RTD	RTD probe for Fluke 721 and 719Pro						
Fluke-720URTDA	Universal RTD adapter for Fluke 721 and 719Pro						
Fluke 71XTrap	Liquid and dirt trap for Fluke 718, 719 and 719Pro						

Supported Pressure Units; psi, in. H_2O(4°C), in. H_2O(20°C), cm H_2O(4°C), cm H_2O(20°C), bar mBar, kPa, inHg, mmHg, kg/cm^2
Max Voltage: 30V
Operating temperature: -10°C to 50°C
Safety: CSA C22.2 No. 1010.1:1992

EMC: EN50082-1:1992 and EN55022:1994 Class B
Fluke 721: All media compatible with 316SS
Battery: 4 standard AA alkaline batteries
Three year warranty

787/789 ProcessMeters

FLUKE CONNECT™

Download on the App Store | ANDROID APP ON Google play

Fluke 789

Fluke 787

CAT III 1000V
CAT IV 600V

1000V CAT III

LISTED UL | CSA | TÜV PRODUCT SERVICE GS | True RMS

For more information on Fluke Connect™ see pages 13-18

Included Accessories

787: Yellow Holster (H80M excl. TPAK), Hard Point Test Lead Set plus AC175 Alligator Clips, one 9V battery, user manual
789: Test Lead Set plus AC175 Alligator Clips, four 9V AA alkaline batteries, user manual and quick reference guide.

Ordering Information

Fluke 787	ProcessMeter
Fluke 789	ProcessMeter
FVF-SC2	FlukeView Forms Software including interface cable

Double your power

The Fluke 787 and 789 ProcessMeters combine a Digital Multimeter and a Loop Calibrator in one rugged handheld tool, giving process technicians double the power.
The Fluke 789 has a built-in 24 V loop supply which reduces the need for taking a separate power supply when doing offline transmitter testing.

The IR communication port of the Fluke 789 allows data to be logged to optional FlukeView Software for graphical analysis and reporting.

Features

	787	789
DMM and Loop Calibrator in one tool	●	●
Precision 1000 V, 440 mA True RMS Digital Multimeter	●	●
DC current source and Loop Calibrator	●	●
24 V Loop power supply		●
Min/Max / Average / Hold / Relative Modes	●	●
Diode Test and Continuity Beeper	●	●
Manual Step (100%, 25%, Coarse, Fine) plus Auto Step and Auto Ramp	●	●
Simultaneous mA and % of scale read-out	●	●
Externally accessible battery / fuses	●/-	●/●
HART mode setting with loop power and a built-in 250 Ω resistor		●
0% and 100% buttons to toggle between 4 and 20 mA sourcing for a quick span check		●
Infrared I/O serial port		●

Specifications

	787		789	
Voltage measurements				
Range	0-1000 V AC or DC		0-1000 V AC or DC	
Resolution	0.1 mV to 1.0 V		0.1 mV to 1.0 V	
Accuracy	0.1% Rdg+1 LSD (V DC)		0.1% Rdg+1 LSD (V DC)	
Current measurement				
Range	0-1 A	0-30 mA	0-1 A	0-30 mA
Resolution	1 mA	0.001 mA	1 mA	0.001 mA
Accuracy	0.2%+2 LSD	0.05%+2 LSD	0.2%+2 LSD	0.05%+2 LSD
Current Sourcing				
Range	0-20 mA or 4-24 mA		0-20 mA or 4-24 mA	
Accuracy	0.05% of span		0.05% of span	
Other specifications				
Max drive capability	500 Ω		1200 Ω	
Loop power	N/A		24 V	
Resistance measurement	To 40 MΩ, 0.2%+1 LSD		To 40 MΩ, 0.2%+1 LSD	
Frequency	To 19.999 kHz, 0.005%+1 LSD		To 19.999 kHz, 0.005%+ LSD	
Continuity	Beeps for resistance < 100 Ω		Beeps for resistance < 100 Ω	
Span Check	No		Yes	

Maximum voltage: 1000 V
Operating temperature: -20 to 55°C

787
Size (HxWxD): 201 mm x 98 mm x 52 mm
Weight: 0.642 kg
Battery: One 9 V alkaline
Battery life: 12 to 50 hours typical
Three Year Warranty

789
Size (HxWxD): 203 mm x 100 mm x 50 mm
Weight: 0.6 kg
Battery: Four AA alkaline batteries
Battery life: 14 to 140 hours typical
Three Year Warranty

Recommended Accessories

ir3000 FC
See page 155

TL220-1
See page 145

80T-150U
See page 150

i400
See page 148

i410
See page 149

700G Series
Precision Pressure Test Gauges

FLUKE®

Fluke 700G

Accurate and easy to use

The Fluke 700G Series Precision Pressure Test Gauges will give the technicians peace of mind knowing that they offer best-in-class accuracy, standard memory and high durability in a easy to use tool.

- Precision pressure measurement from 20 mbar to 690 bar
- Reference Class Gauges with accuracies to 0.04% of reading
- Normal Gauges accuracy to 0.05% of full scale
- Easy to use, very rugged construction for reliable performance
- Log up to 8493 measurements to memory (requires optional 700G/Track software)
- CSA; Class 1, Div 2, Groups A-D rating
- ATEX rating: II 3 G Ex nA IIB T6
- Absolute pressure range 1, 2, 6.9 and 20 bar absolute
- Combine with 700PTPK or 700HTPK pump kits for a complete pressure testing solution.

Model number / ordering information		Range	Resolution	Accuracy
Fluke -700G01	Pressure Gauge, ±10 inH$_2$O WC (0,4 PSIG)	-20 mbar to 20 mbar	0.001 mbar	0.1% of range
Fluke -700G02	Pressure Gauge, ±30 inH$_2$O WC (1 PSIG)	-70 mbar to 70mbar	0.001 mbar	0.1% of range
Fluke -700G04	Pressure Gauge, ± 15 PSIG	-970mbar to 1 bar	0.0001 bar	positive 0.05% of range, vacuum 0.1% of range
Fluke -700G05	Pressure Gauge, 30 PSIG	-970mbar to 2 bar	0.0001 bar	positive 0.05% of range, vacuum 0.1% of range
Fluke -700G06	Pressure Gauge, 100 PSIG	-830mbar to 6.9 bar	0.0001 bar	positive 0.05% of range, vacuum 0.1% of range
Fluke -700G27	Pressure Gauge, 300 PSIG	-830mbar to 20 bar	0.001 bar	positive 0.05% of range, vacuum 0.1% of range
Fluke -700G07	Pressure Gauge, 500 PSIG	-830 mbar to 34 bar	0.001 bar	positive 0.05% of range, vacuum 0.1% of range
Fluke -700G08	Pressure Gauge, 1000 PSIG	-970mbar to 69 bar	0.001 bar	positive 0.05% of range, vacuum 0.1% of range
Fluke -700G10	Pressure Gauge, 2000 PSIG	-970mbar to 140 bar	0.01 bar	positive 0.05% of range, vacuum 0.1% of range
Fluke -700G29	Pressure Gauge, 3000 PSIG	-970mbar to 200 bar	0.01 bar	positive 0.05% of range, vacuum 0.1% of range
Fluke -700G30	Pressure Gauge, 5000 PSIG	-970mbar to 340 bar	0.01 bar	positive 0.05% of range, vacuum 0.1% of range
Fluke -700G31	Pressure Gauge, 10000 PSIG	-970mbar to 690 bar	0.01 bar	positive 0.05% of range, vacuum 0.1% of range
Fluke -700GA4	Pressure Gauge, 15 PSI A	0 to 1 bar absolute	0.0001 bar	0.05% of range
Fluke -700GA5	Pressure Gauge, 30 PSI A	0 to 2 bar absolute	0.0001 bar	0.05% of range
Fluke -700GA6	Pressure Gauge, 100 PSI A	0 to 6.9 bar absolute	0.0001 bar	0.05% of range
Fluke -700GA27	Pressure Gauge, 300 PSI A	0 to 20 bar absolute	0.001 bar	0.05% of range
Fluke -700RG05	Pressure Gauge, Reference 30 PSIG	-970mbar to 2 bar	0.0001 bar	positive 0.04% of reading + 0.1% of range, vacuum 0.05% of range
Fluke -700RG06	Pressure Gauge, Reference 100 PSIG	-830mbar to 6.9 bar	0.0001 bar	positive 0.04% of reading + 0.1% of range, vacuum 0.1% of range
Fluke -700RG07	Pressure Gauge, Reference 500 PSIG	-830 mbar to 34 bar	0.001 bar	positive 0.04% of reading + 0.1% of range, vacuum 0.1% of range
Fluke -700RG08	Pressure Gauge, Reference 1000 PSIG	-970mbar to 69 bar	0.001 bar	positive 0.04% of reading + 0.1% of range, vacuum 0.1% of range
Fluke -700RG29	Pressure Gauge, Reference 3000 PSIG	-970mbar to 200 bar	0.01 bar	positive 0.04% of reading + 0.1% of range, vacuum 0.1% of range
Fluke -700RG30	Pressure Gauge, Reference 5000 PSIG	-970mbar to 340 bar	0.01 bar	positive 0.04% of reading + 0.1% of range, vacuum 0.1% of range
Fluke -700RG31	Pressure Gauge, Reference 10000 PSIG	-970mbar to 690 bar	0.01 bar	positive 0.04% of reading + 0.1% of range, vacuum 0.1% of range

Dimensions (HxWxD): 12.7 cm x 11.4 cm x 3.7 cm
Pressure connection: ¼ in NPT Male
Housing/Weight: Cast ZNAL 0.56 kg with holster
Display: 5-1/2 digits, 16.53 mm high 20-segment bar graph, 0 to 100%

Power: Three (3) AA alkaline batteries
Battery life: 1,500 hours without backlight (continuous on), 2,000 hours at slow sample rate
Three years warranty

Fluke-700PTPK Pneumatic Test kit

- Pump with hoses, adapters and case
- Combine with any Fluke-700G Gauge up to 69 bar
- Generate pressure up to 40 bar with the 700PTP-1 hand pump
- Hard case protects pump and gauge and allows gauge to stay connected to the pump

Fluke-700HTPK Hydraulic Test kit

- Pump with hoses, adapters and case
- Combine with any Fluke-700G Gauge from 69 bar and higher
- Generate pressure up to 690 bar with the 700HTP-2 hand pump
- Hard case protects pump and gauge and allows gauge to stay connected to the pump

700G Track software

- Use with 700G Series gauges to perform real time data logging to PC
- Configure gauge and download logged data from gauge
- Includes communication cable for USB connection to PC

709 / 709H
Precision Loop Calibrators

FLUKE®

Fluke 709/709H

Fluke reliable. HART compatible.

The Fluke 709 and 709H mA loop calibrators are designed to save time and produce high-quality results. These calibrators are built around a user friendly interface with a Quick-Set rotary encoder knob. This tool reduces the time it takes to measure, or source, current and power up a loop. The protective holster easily fits into a technician's hand and the large backlit display is easy to read, even in dark, cramped worked areas.

In addition, the 709H offers:

- Logging of HART data in the field. Once recorded by the 709H in the field, the 709H/TRACK software can upload the HART configuration of up to (20) HART devices in your plant and output data in either (.csv) or (.txt) format.
- Data logged mA loop measurements and HART data can be recorded from a particular transmitter for troubleshooting and loop tuning. The data log feature offers selectable capture with recording intervals of 1 to 60 seconds and a logging capacity of 9800 records or 99 individual sessions. Each data sample contains the 709H mA measurement, all four process variables, and the standard status conditions.

Features

- Best-in-class accuracy at 0.01% reading
- Compact rugged design
- Intuitive user interface with Quick-Set knob for fast setup, easy use
- 24 V DC loop power with mA measure mode (-25% to 125%)
- Resolution of 1 µA on mA ranges and 1 mV on voltages ranges
- Built in selectable 250 Ω resistor for HART communications
- Simple two wire connection for all measurements
- Auto shutdown to conserve battery life
- Variable step and ramp time in seconds
- Valve test (source and simulate defined mA values with % keys

Specifications

Functions	mA source, mA simulate, mA read, mA read/loop power, and volts read
Ranges	mA (0 to 24mA) and Volts (0 to 30VDC)
Resolution	1uA on mA ranges and 1mV on voltage range
Accuracy	0.01% +/- 2 counts all ranges (@23° +/- 5°C)
Operating temperature Range	-10 °C to 55 °C
Humidity range	10 to 95% non-condensing
Stability	20ppm of F.S. /°C from -10°C to 18°C and 28°C to 55°C
Display	128 x 64 pixels, LCD Graphic w/backlight, .34" high digits
Loop Compliance Voltage	24VDC @ 20mA
Over-Voltage Protection	240VAC
Overload Current Protection	28mA DC
EMC	EN61326 Annex A (Portable Instruments)

Power: 6 AAA alkaline
Dimensions (HxWxD): 150 x 90 x 30 mm
Battery life: ≥ 40 hours continuous use (measure mode using alkaline)

Weight: 0.3 kg
Warranty: Three years

Recommended Accessories

709H Track Software/cable

Included Accessories

Two AC175 alligator clips (709)
TL75 test leads (709)
Extended tooth alligator clip set (709H)
75X-8014 stackable lead set (709H)
TP220 test probes (709H)
AC280 SureGrip™ hook clips (709H)
HART cable (709H only)
Soft case
Six AAA batteries (installed)
709/709H Product manual CD-ROM
709/709H Quick reference guide
709/709H Safety information

Ordering Information

Fluke 709	Precision Loop Calibrator
Fluke 709H	Precision HART Loop Calibrator

705/707/707Ex/715 Loop Calibrators

FLUKE®

Fluke 705

Fluke 715

Fluke 707

Fluke 707Ex

4-20 mA, source, measure, simulate

705 Loop Calibrator
- Simultaneous mA and %
- mA accuracy of 0.02%
- Measure, source and simulate mA
- Push button 25% steps for fast, easy linearity checks
- "Span Check" for fast confirmation of zero and span
- Selectable slow ramp, fast ramp, and step function
- 24 volt internal loop supply
- 0 - 20 mA or 4 - 20 mA default start up modes

707 Loop Calibrator
- Features of the Fluke 705
- "Quick Click" detented rotary knob for one handed operation
- Higher accuracy: 0.015%
- Mains Voltage Input protection
- 250 Ohm loop resistance for with Hart instrumentation

715 Volt/mA Calibrator
- Measure loop current (0-20 mA, 4-20 mA) signals with 0.015% accuracy and 0.001 mA resolution
- Measure voltage output process signals from PLCs, transmitters
- Source or simulate 24 mA loop current
- Source voltage to 100 mV or 10 V
- 24 V loop supply with simultaneous current measurement

707Ex Intrinsically Safe Loop Calibrator
- Same features as Fluke 707
- For use in explosion endangered areas
- ATEX certified (II 2 G Eex ia IIC T4)

Specifications

Functions Voltage measurement	705/707/707 Ex	715
Range	0-28 V DC	0-200 mV, 0-20 V
Resolution	1 mV	10 µV 1 mV
Accuracy	705: 0.025% Rdg + 2 LSD 707/707Ex: 0.015% Rdg + 2 LSD	0.01% Rdg + 2 LSD
Current measurement		
Range	0-24 mA	0-24 mA
Resolution	0.001 mA	0.001 mA
Accuracy	705: 0.025% Rdg + 2 LSD 707/707Ex: 0.015% Rdg + 2 LSD	0.015%
Current sourcing		
Range	0-20 mA or 4-20 mA[1]	0-20 mA or 4-20 mA[1]
Accuracy	705: 0.025% Rdg + 2 LSD 707/707Ex: 0.015% Rdg + 2 LSD	0.015% + 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	N/A	0-100 mV or 0-10 V
Display current and % of span	Yes	mA or %
Auto step, auto ramp	Yes	Yes
Span Check	Yes	Yes

[1] will over-range to 24 mA

Fluke 705, 707, 707Ex
Maximum voltage: 30 V (28 V - 707Ex)
Operating temperature: -10 to 55°C
Safety: CSA C22.2 No. 1010.1: 1992
EMC: EN50082-1:1992 and EN55022: 1994 Class B
Size (HxWxD): 164 mm x 75 mm x 47 mm;
Weight: 0.35 kg
Battery: One 9 V alkaline
Battery life: 18 hours typical, at 12 mA
Three Year Warranty

715
Size (HxWxD): 201 mm x 98 mm x 52 mm
Weight: 0.6 kg
Battery: One 9V alkaline
Battery life: 4 to 20 hours
Three Year Warranty

Included Accessories
Fluke 705/707: C10 Yellow Holster, Test Leads, AC175 Alligator Clips, Single 9V alkaline battery, Instruction Sheet
Fluke 707Ex: Red Ex-holster, Test Leads, AC175 Alligator Clips, Single 9V alkaline battery, Instruction Sheet
Fluke 715: Yellow Holster (H80M excl. TPAK), Test Leads and AC175 Alligator Clips, Single 9V alkaline battery, Instruction Sheet

Ordering Information
Fluke 705	Loop Calibrator
Fluke 707	Loop Calibrator
Fluke 707Ex	Intrinsically Safe Loop Calibrator
Fluke 715	Volt/mA Calibrator

Recommended Accessories
(Not for hazardous zones)

C12A (705/707)
See page 152

C25 (715)
See page 152

TL220-1
See page 145

TP920
See page 144

T PAK (715)
See page 155

771, 772 and 773 mA Process Clamp Meters

FLUKE®

Fluke 771

Fluke 772

Fluke 773

mA measurements without breaking the loop. Save time. Save money.

Fluke 771, 772 and 773

- Measure 4 to 20 mA signals without "breaking the Loop," save time and money troubleshooting 4 to 20 mA signals

Fluke 772 and 773

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

Fluke 773

- 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 to 20 mA signal without breaking the loop
- mA in/out: simultaneously source a mA signal while measuring a mA signal with the clamp

Features

	771	772	773
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			●

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	

Size (HxWxD):
771: 212 mm x 59 mm x 38 mm
772 + 773: 248 mm x 76 mm x 41 mm
Weight: 771: 0.26 kg
772 + 773: 0.42 kg
Battery: 771: 2x 1.5V Alkaline, IEC LR6
772 + 773: 4x 1.5V Alkaline, IEC LR6

Battery Life: 771: 20 hours typical
772 + 773: 12 hours @ 12 mA source into 500 ohms
IP Rating: IP 40
Warranty: 3 years, 1 year on mA clamp accessory and cable

Included Accessories

Fluke 771: soft carrying case and user's manual
Fluke 771 + 772: plus test leads, AC175 alligator clip set and TL940 mini-hook test lead set

Ordering Information

Fluke 771	Milliamp Process Clamp Meter
Fluke 772	Milliamp Process Clamp Meter
Fluke 773	Milliamp Process Clamp Meter

Field Calibrator Accessories

FLUKE®

Fluke 700 Series Pressure Modules

- Ranges from 2.5 mbar to 700 bar.
- Gage, differential, dual (compound), absolute and vacuum modules
- Very high accuracy: up to 0.02% FS
- Features internal temperature compensation from 0°C to 50°C for full-accuracy performance
- Pressure readings update twice per second, and may be displayed in any of 11 different units
- Compatible with Fluke 717, 718, 719, 719Pro, 72X, 74X and 75x series.
- Rugged cases protect the modules from harsh environments
- All modules include NIST traceable certificate and test data
- ATEX certified Ex versions available (Ⓔx II 1 Eex ia IIB T4)

Model	Parameter/ Range	Hi / Lo Side Media[2]	Reference Uncertainty[4]
Differential			
750P00	2.5 mBar	Dry Air / Dry Air	±0.15 %
750P01	25 mBar	Dry Air / Dry Air	±0.1 %
750P02	70 mBar	Dry Air / Dry Air	±0.050 %
750P22	70 mBar	316 SS / Dry Air	±0.050 %
750P03	350 mBar	Dry Air / Dry Air	±0.02 %
750P23	350 mBar	316 SS / Dry Air	±0.02 %
750P04	1 bar	Dry Air / Dry Air	±0.0175 %
750P24	1 bar	316 SS / Dry Air	±0.0175 %
Gage			
750P05	2 bar	316 SS / N/A	±0.0175 %
750P06	7 bar	316 SS / N/A	±0.0175 %
750P27	20 bar	316 SS / N/A	±0.0175 %
750P07	35 bar	316 SS / N/A	±0.0175 %
750P08	70 bar	316 SS / N/A	±0.0175 %
750P09	100 bar	316 SS / N/A	±0.0175 %
750P2000	140 bar	316 SS / N/A	±0.0175 %
High			
750P29	200 bar	316 SS / N/A	±0.0175 %
750P30	340 bar	316 SS / N/A	±0.0175 %
750P31	700 bar	316 SS / N/A	±0.0175 %
Absolute			
750PA3	350 mBar	316 SS / N/A	±0.03 %
750PA4	1 bar	316 SS / N/A	±0.03 %
750PA5	2 bar	316 SS / N/A	±0.03 %
750PA6	7 bar	316 SS / N/A	±0.03 %
750PA27	20 bar	316 SS / N/A	±0.03 %
750PA7	35 bar	316 SS / N/A	±0.03 %
750PA8	70 bar	316 SS / N/A	±0.03 %
750PA9	100 bar	316 SS / N/A	±0.03 %
Vacuum			
750PV3	-350 mBar	316 SS / Dry Air	± 0.03 %
750PV4	-1 bar	316 SS / Dry Air	± 0.03 %
Dual			
750PD2	70 mBar	316 SS / Dry Air	± 0.05 %
750PD3	350 mBar	316 SS / Dry Air	± 0.03 %
750PD10	700 mBar	316 SS / Dry Air	± 0.025 %
750PD4	1 bar	316 SS / Dry Air	± 0.0175 %
750PD5	2 bar	316 SS / —	± 0.0175 %
750PD50	3.5 bar	316 SS / —	± 0.0175 %
750PD6	7 bar	316 SS / —	± 0.0175 %
750PD7	14 bar	316 SS / —	± 0.0175 %
750PD27	20 bar	316 SS / —	± 0.0175 %
Reference			
750R045	1 bar	Dry Air / Dry Air	± 0.01 % of FS
750R065	7 bar	316 SS / —	± 0.01 % of FS
750R27	20 bar	316 SS / —	± 0.01 % of FS
750R07	35 bar	316 SS / —	± 0.01 % of FS
750R085	70 bar	316 SS / —	± 0.01 % of FS
750R29	200 bar	316 SS / —	± 0.01 % of FS
750R30	340 bar	316 SS / —	± 0.01 % of FS
750R315	700 bar	316 SS / —	± 0.01 % of FS
750RD5	2 bar	Dry Air / —	± 0.01 % of FS
750RD65	7 bar	316 SS / —	± 0.01 % of FS
750RD27	20 bar	316 SS / —	± 0.01 % of FS

[1] Total uncertainty, % of full span for temperature range 0 °C to +50 °C, one year interval. Total uncertainty, 1.0% of full span for temperature range -10 °C to 0 °C, one year interval. No 6 month specification available for range -10 °C to 0 °C.
[2] "NONCORROSIVE GASSES" indicates dry air or non-corrosive gas as compatible media. "Stainless Steel 316-SS" indicates media compatible with Type 316 Stainless Steel.
[3] Specifications % of Full Span unless otherwise noted.
[4] * Reference Uncertainty is the specification for as left data for 24 hours.
[5] When reference class modules are used with fixed resolution products (717, 718, 719 series, 725 and 726) calibrators add •] 1 count to the overall accuracy specification.
[6] Burst rating specification refers to the multiplier times full scale of the module for the rated burst pressure.

Other accessories

700LTP-1 Low-pressure Test Pump
- For low pressure applications
- Vacuum to -13 psi / -.90 bar
- Pressure to 100 psi / 6.9 bar
- With fine-control, adjustable relief valve and slow bleed capability

700PTP-1 Pneumatic Test Pump-1
- Handheld pressure pump
- Pressures up to 600 psi, 40 bar

700HTP-2 Hydraulic Test Pump
- Pressures up to 10,000 psi/690 bar.

700PRV-1 Pressure Relief Valve
- Pressure relief valve for 700HTP-1
- Adjustable from 725 to 5800 PSI (50 to 200 bar)

700HTH-1 Hydraulic Test Hose
- Hydraulic test hose is a 10,000 psi, 690 bar

700ILF In-Line Filter for the Fluke 718

700PCK Pressure Module Calibration Kit

BE9005 Battery Eliminator

Fluke 700HTP-2

Fluke 700LTP-1

Fluke 700PTP-1

ATEX Certified Test Tools

The Fluke line of intrinsically safe tools is designed to meet the needs of technicians working in and around hazardous areas. The tools are ideal for environments in chemical plants, petro-chemical plants, oil platforms, refineries and other locations where risk of explosion exists. The products are easily recognizable from standard Fluke products by their lighter grey colour and red holster.

Watch our latest videos on our own YouTube Channel *www.youtube.com/user/FlukeEurope*

A brief look at ATEX

Intrinsic safety is a protection standard 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, dust/ particulates).

What is "Intrinsically Safe"?

Intrinsically safe standards apply to all equipment that can create one or more of a range of defined potential explosion sources:

- Electrical sparks
- Electrical arcs
- Flames
- Hot surfaces
- Static electricity
- Electromagnetic radiation
- Chemical reactions
- Mechanical impact
- Mechanical friction
- Compression ignition
- Acoustic energy
- Ionizing radiation

What industries are intrinsically safe products designed for?

- Petro-chemical
- Oil platforms and refineries
- Pharmaceutical
- Bulk materials (e.g. grain)
- Mining
- Pipelines
- Any environment where explosive gases are present

What is ATEX?

The primary intrinsically safe standard has been set in the European Union with the 9/94/EC Directive, commonly called ATEX ("Atmosphères Explosibles," French for explosive atmospheres). The stated goal of the guidelines is to "help ensure the free movement of products in the European Union" by "minimizing the number of safeguard clause applications, at least those originating from divergent interpretations The ATEX rules have been in place as a voluntary standard since 1 March 1996. The rules are mandatory on electrical and electronic equipment for use in environments subject to explosion hazard sold in the EU starting 1 July 2003. From this date onwards, all products sold for use in explosive atmospheres must have ATEX certification and carry the distinctive symbol: Ex

The Fluke Ex (IS) product line

Fluke is among the first manufacturers to produce handheld test tools according to the latest ATEX standards. The Fluke line of intrinsically safe tools is designed to meet the needs of technicians working in and around hazardous areas:

- Install, maintain and troubleshoot equipment by using the new Fluke 28 II Ex Digital Multimeter
- Maintain and calibrate sensors, transmitters and control loops with the line of Ex field calibrators

The tools are ideal for environments in petro-chemical plants, oil platforms, refineries and other locations subject to risk of explosion.
Apart from having the ATEX markings, the visual difference between a standard Fluke tool and the corresponding Ex version is the different grey body colour and a red, conductive holster designed specifically to eliminate the potential for electrical discharge.
Inside, the Fluke Ex tools have been reengineered to reduce energy avoiding generation of heat and electrical sparks. They are premium products designed for ultimate safety.

Making sense of ATEX certification
Fluke 707Ex is ATEX-compliant and is certified Ex II 2 G EEx ia IIC T4— but what exactly does that mean?

Here a brief explanation of the ATEX certification designations.

ATEX certification 707Ex	
Ex	The ATEX examination mark. This sign is required on all devices used in European hazardous areas.
II 2 G	The classification of zones. "II" designates the tool is approved for all non-mining areas. "2" represents the category of the device, in this case the device is rated for the second most hazardous areas. "G" designates atmosphere, in this case gas, vapors and mist.
EEx	Explosion protection based on European Ex-regulations.
ia	The type of protection from explosion, in this case the energy in a device or connector has been reduced to a safe value.
IIC	Gas Group. "IIC" indicates compatibility with the most dangerous gas group.
T4	Temperature class gives the user the maximum temperature of a surface that may be in contact to the Ex atmosphere under fault conditions. T4 is rated at 135°C.

ATEX-certified Test Tools

Fluke intrinsically safe tools for tough measurement and calibration tasks

Fluke 28 II Ex

Fluke 28 II Ex
Intrinsically safe True-rms Digital Multimeter

Now there's one intrinsically safe digital multimeter (DMM) you can use in IIC (gas) Zone 1 and 2 and IIIC (dust) Zone 21 and 22 areas. Whether you work in petroleum, chemical, or pharmaceutical environments, all the test and troubleshooting power you need is packed into the most rugged intrinsically safe (IS) DMM Fluke has ever built. The Fluke 28II Ex is also water-proof, dust-proof and drop-proof.

- ATEX safety rating
  II 2 G Ex ia IIC T4 Gb
  II 2 D Ex ia IIIC T130 °C Db
  I M1 Ex ia I Ma
- CAT III 1000V/CAT IV 600V electrical safety rating

See also page 28

Fluke 725Ex

Fluke 725Ex
Intrinsically safe Multifunction Process Calibrator

The Fluke 725Ex intrinsically safe Multifunction Process Calibrator is powerful yet easy-to-use. Combined with the Fluke 700PEx Pressure Modules, the 725Ex is able to calibrate almost any process instrument likely to need service in any area where explosive gases may be present.

- ATEX safety rating II IG EEx ia IIB 171°C

See also page 122

568 Ex

Fluke 568 Ex Intrinsically safe Infrared thermometer

With a rugged, easy-to-use, ergonomic design,the Fluke 568 Ex can stand up to tough industrial,electrical, and mechanical environments. Meets intrinsically safe certifications in Class I Div 1 and Div 2 or Zone 1 and 2 hazardous environments from recognized safety agencies around the world.

- ATEX safety rating Zone 1 and 2
  IECEx EPS 13.0006X Ex ia IIC T4 Gb

See also page 67

Fluke 707Ex

Fluke 707Ex
Fast, one-handed tool for loop checks

The Fluke 707Ex is the ideal, stand alone tool for calibration and maintenance of 4 to 20 mA control loops. It provides 24V loop power while measuring mA, and lets you measure and source/simulate mA with 1 µA resolution.

- ATEX safety rating II 2G EEx ia IIC T4

See also page 130

Fluke 718Ex

Fluke 718Ex
Self-contained Pressure Calibrator

The Fluke 718Ex offers a convenient, self contained solution for pressure measurements and calibration. With its internal pressure sensor and pump, it's ready for immediate, stand alone use. The pressure range can easily be extended to up to 200 bar with any of the 8 Fluke 700PEx Pressure Modules.

- ATEX safety rating II IG EEx ia IIC T4

See also page 125

Fluke 700Ex

Fluke 700Ex Pressure Modules

These intrinsically safe pressure modules for use with the Fluke 725Ex Multifunctional Process Calibrator and Fluke 718Ex Pressure Calibrator cover the most commonly used pressure calibration ranges from 0-25 mbar and 0-200 bar. There's a choice of 8 gage, differential and absolute modules.

- ATEX safety rating
  II 1G EEx ia IIC T4

Vibration Tester

In the world of mechanical maintenance, vibration remains one of the earliest indicators of a machine's health.

Now you can get fast, accurate and actionable answers with revolutionary vibration testers from Fluke. These tools redefine vibration testing for mechanical troubleshooting and predictive maintenance.

Watch our latest videos on our own YouTube Channel *www.youtube.com/user/FlukeEurope*

805 Vibration Meter

Fluke 805

The reliable, repeatable, accurate way to check bearings and overall vibration.

Make go or no-go maintenance decisions with confidence. The Fluke 805 Vibration Meter is the most reliable vibration screening device available for frontline mechanical troubleshooting teams that need repeatable, severity scaled readings of overall vibration and bearing condition.

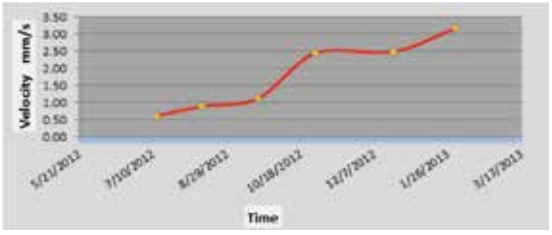
What makes the Fluke 805 the most reliable vibration screening device available?

- Innovative sensor and sensor tip design helps minimize measurement variations caused by device angle or contact pressure
- Four-level severity scale assesses urgency of problems for overall vibration and bearing condition
- Exportable data via USB
- Trending in Excel using built-in templates
- Overall vibration measurement (10 Hz to 1,000 Hz) for acceleration, velocity and displacement units of measurement for a wide variety of machines
- Crest Factor+ feature provides reliable bearing assessment using direct sensor tip measurements between 4,000 Hz and 20,000 Hz
- Temperature measurement with Spot IR Sensor increases diagnostic capabilities
- On-board memory holds and saves up to 3,500 measurements
- Audio output for listening to bearing tones directly
- External accelerometer support for hard to reach locations
- Flashlight for viewing measurement locations in dark areas

Specifications

Vibration meter	
Low frequency range (overall measurement)	10 Hz to 1,000 Hz
High frequency range (CF+ measurement)	4,000 Hz to 20,000 Hz
Severity levels	Good, Satisfactory, Unsatisfactory, Unacceptable
Vibration limit	50 g peak (100 g peak-peak)
A/D converter	16-bit
Signal to noise ratio	80 dB
Sampling rate	
Low frequency	20,000 Hz
High frequency	80,000 Hz
Sensor	
Sensitivity	100 mV / g ± 10%
Resolution	0.01 g
Accuracy	At 100 Hz ± 5 % of measured value
Amplitude units	
Acceleration	g, m/sec^2
Velocity	in/sec, mm/sec
Displacement	mils, mm
Infrared thermometer	
Range	-20 °C to 200 °C
Accuracy	±2 °C
Environmental	
IP rating	IP54
Drop test	1 meter

Battery type: AA (2) Alkaline or Lithium-ion 2V dc
Size (HxWxD): 162 x 257 x 98 mm
Weight: 0.40 kg
1 Year Warranty



TrendPlot made with MS Excel template

Complete set 805 with suitcase, belt holster, manual on CD and quick reference guide

Included Accessories

USB cable, Storage case, Belt holster, Quick reference guide, CD-ROM (includes MS Excel template and documentation), Two (2) AA batteries

Ordering Information

Fluke 805 Vibration Tester

810 Vibration Tester

Fluke 810

Set-up

Measure

Diagnose

Language support:
eng, ger, fre, ita, spa, por

Motor diagnosis and repair in three simple steps

The Fluke 810 Vibration Tester is the most advanced troubleshooting tool for mechanical maintenance teams who need an answer now. The unique diagnostic technology helps you quickly identify and prioritize mechanical problems, putting the expertise of a vibration analyst in your hands.

Use the vibration tester to:

- Troubleshoot problem equipment and understand the root cause of failure
- Survey equipment before and after planned maintenance and confirm the repair
- Commission new equipment and ensure proper installation
- Provide quantifiable proof of equipment condition and drive investment in repair or replacement
- Prioritize and plan repair activities and operate more efficiently
- Anticipate equipment failures before they happen and take control of spare parts inventories
- Train new or less-experienced technicians and build confidence and skill across the team

Features and benefits

- On-board identification and location of the most common mechanical faults (bearings, misalignment, unbalance, looseness) focus maintenance efforts on root cause, reducing unplanned downtime
- Fault severity scale with four severity levels help you prioritize maintenance work
- Repair recommendations advise technicians on corrective action
- On-board context sensitive help provide real-time tips and guidance to new users
- 2 GB expandable on-board memory provide enough space for your machinery's data
- Self-test functions ensure optimal performance and more time on the job
- Laser tachometer for accurate machine running speed promotes confident diagnoses
- Tri-axial accelerometer reduces measurement time by 2/3 over single axis accelerometers
- Viewer PC Software expands data storage and tracking capacity
- Color LCD display and intuitive multilingual, icon-based user interface promote use right out of the box

Specifications

(Check the Fluke web for detailed specifications)

Diagnostic specifications	
Standard faults	Unbalance, looseness, misalignment and bearing failures
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
Electrical specifications	
Ranging	Automatic
A/D converter	4 channel, 24 bit
Usable bandwith	2 Hz to 20 kHz
Sampling	51.2 kHz
Digital signal processing functions	Automatically configured anti-alias filter, high-pass filter, decimation, overlapping, windowing, FFT, and averaging
Sampling rate	2.5 kHz to 50 kHz
Dynamic range	128 dB
Amplitude accuracy	±0.1 dBV
FFT resolution	800 lines
Spectral windows	Hanning
Frequency units	Hz, orders, cpm
Amplitude units	in/sec, mm/sec, VdB (US), VdB (Europe)
Non-volatile nemory	SD micro memory card, 2 GB internal + user accessible slot for additional storage

Battery type: Lithium-ion, 14.8 V 2.55 Ah
Size (HxWxD): 186 x 267 x 70
Weight: 1.9 kg

Warranty: Three years on tester
One year on sensor and tachometer

Included Accessories

Tri-axial TEDS accelerometer, accelerometer magnet mount, accelerometer mounting pad kit with adhesive, accelerometer quick disconnect cable, laser tachometer and storage pouch, smart battery pack with cable and adapters, shoulder strap, adjustable hand strap, Viewer PC application software, mini-USB to USB cable, getting started guide, illustrated quick reference guide, users manual CD-ROM, instructional training CD-ROM, hard carrying case.

Ordering Information

Fluke 810 Vibration Tester

820-2 LED Stroboscope

New

Fluke 820-2

Rugged, easy-to-use, high intensity LED Stroboscope for stop motion diagnostics

The Fluke 820-2 LED Stroboscope is a simple, easy to use tool to stop motion for measurement and diagnostic purposes.

Investigate and observe potential mechanism failure with confidence on a variety of machinery, in a wide range of industries, without making physical contact with the machine. The Fluke 820-2 LED Stroboscope is a rugged, compact, portable strobe with high intensity LED head, ideal for stop motion diagnostics, mechanical troubleshooting, and process or product research and development.

Key features:

- High intensity 7-LED array—4,800 Lux @ 6,000 FPM/30cm
- High efficiency LED solid-state light source with uniform flash characteristics allow for higher flash rates—30-300,000 FPM (flashes per minute)
- Digital pulse width modulation for exceptionally sharp images at high speeds
- Rugged, durable design utilizes solid-state LEDs with no filaments, gases, hollow cavities, or glass—(one meter drop)
- Quartz-accuracy control system provides high accuracy—0.02 % (± 1 digit)
- Multi-line LCD display
- Check the rotating speed of machinery without physical contact or need for reflective tape
- Advance or retard flash timing for viewing gear teeth, cutting surfaces, repeats, or “drifting” equipment.
- Simple push button operation with 2x and ÷2 buttons for easy adjustment

Common applications for the 820-2

The Fluke 820-2 LED Stroboscope is more than just a tool to measure rotational speed of machinery without physical contact. It is also an excellent diagnostic tool for a wide variety of applications:

- Identify belt wear of belt driven machines
- See product tags or markers
- Detect pulley wear and damage
- Inspect condition of rotor blades, bearings and couplings
- Make belt slip visible

Included Accessories

Protective case, external trigger connector

Ordering Information

Fluke 820-2 LED Stroboscope

Specifications

Mechanical specifications	
Size (HxWxL)	5.71 x 6.09 x 19.05 [cm]
Weight	0.24 [kg]
Flash frequency	
Range	30 – 300000 FPM
	0.5 – 5000 Hz
Light	
Color	Approx 6500 K
Emission output	4,800 lx @ 6000 FPM at 30[cm]

830 Laser Shaft Alignment Tool

FLUKE®

New

Fluke 830

The ideal test tool to precision-align rotating shafts in your facility

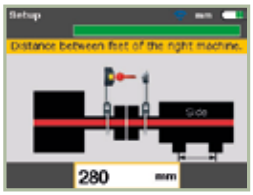
The higher the accuracy of the alignment of rotating machinery, the higher the energy savings and the longer parts like: seals, couplings and bearings wear well. The highest alignment accuracy is achieved with laser sensors instead of rulers or dial indicators. Laser sensors also allow data transfer to a computer, where alignment condition is calculated and adjustments are given.

Fluke 830 Laser Alignment Tool uses laser sensors and guides you step by step through the alignment procedure that results in a precision aligned machine and saves you costs on energy and maintenance.

Feature and benefits

- **Intuitive guided user interface,** in three steps: Set up, Measure and Diagnose
- **Compass Measurement Mode** direct feed back when adjusting machines
- **Rugged design with high IP rating** an absolute need for use in harsh environments
- **Wireless single laser sensor** no fight with cables, quick installation and less sensitive for back lash
- **Automated report out**
- **High accuracy** getting the best out of a well aligned machine
- **Unique extend mode** virtually increasing laser detector size for gross misaligned machines
- **Support of horizontal- and vertical mounted machinery**

Set-up



Measure

Diagnose

Specifications

Computer	
Memory	64MB RAM, 64MB flash
Power Supply	Integrated Li-Ion rechargeable
Typical operating time	17 hours
Display	Type : TFT, transmissive 65.535 colors backlit LED 3.5", 320 x 240 pixel
IP rating	IP 65 (Dustproof and water spray resistant)
Sensor	
Laser	Type: Ga-Al-As semiconductor laser
Detector	Resolution: 1µm,
Prism	90° roof prism

Included Accessories

Laser sensor, laser prism, chain-type mounting bracket with 150 mm support posts (2x), 300 mm support post (4x), micro fiber cleaning cloth, sensor cable, PC cable, USB drive, USB drive cable, tape measure, wireless Bluetooth module, power adapter, instruction kit and carrying case.

Ordering Information

Fluke 830 Laser Shaft Alignment Tool

Recommended Accessories

Fluke 830/MAGNET
Magnet Compact magnetic sensor/prism mounting bracket

Fluke 830/SHIMS
Shims precision alignment shim kit

481 Radiation Detection Meter

Radiation safety quality assurance is top of mind for hospitals, nuclear power facilities, nuclear medicine laboratories, x-ray manufacturers, government agencies, state inspectors, emergency response and HAZMAT (hazardous materials) teams, and police and fire departments around the world.
With the 481 Fluke offers these professionals the versatility they need to get the job done and the quality they trust in a radiation-safety device.

Watch our latest videos on our own YouTube Channel *www.youtube.com/user/FlukeEurope*

481 Radiation Detection Meter

Fluke 481

Fluke 481

Fluke 481 Radiation Detection Meter

The Fluke 481 Radiation Detection Meter is a portable and practical means for discovering irradiated goods, and for helping remediate contaminant and safety issues while minimally affecting performances. Ideal for detecting irradiated goods, equipment, surfaces or environments in industrial settings, the 481 Radiation Meter helps ascertain worker safety and compliance to national regulations.

Use of the Fluke 481 assures employees that radiation dangers are known, monitored and calculated for their security. Whenever radiation is found, a clear and quantifiable result provides handlers to comply with national guidelines while avoiding unnecessary steps that could stop procedures, impact productivity or lead to missed revenue.

- Detects skin-dose (beta particle) and deep-dose (gamma) and X-ray radioactivity
- Requires no adjustments; simple two button process
- Provides promptly read, correct value through autoranging capability
- Easily visible inside truck trailers and other low-light situations with automated backlight
- Works dependably inside or outside thanks to sealed case
- 30 % more precise than other available meters
- Delivers more than one week of uninterrupted functioning with two 9-volt alkaline batteries
- Proven in use by state and local governmental emergency response professionals, state inspectors, HAZMAT teams and nuclear power workers
- Measures both dose and dose-rate
- Valuable for contamination-detection, general radiation area metering, radiation-level monitoring, and hazardous materials assessment
- Rugged Fluke design

Specifications

General specifications	Fluke 481	Fluke 481-DESI
Radiation detected	Beta > 100 keV Gamma > 7 keV	
Operating ranges	0 mR/h to 5 mR/h (8 sec) 0 mR/h to 50 mR/h (2.5 sec) 0 mR/h to 500 mR/h (2 sec) 0 R/h to 5 R/h (2 sec) 0 R/h to 50 R/h (2 sec)	0 µSv/h to 50 µSv/h (8 sec) 0 µSv/h to 500 µSv/h (2,5 sec) 0 mSv/h to 5 mSv/h (2 sec) 0 mSv/h to 50 mSv/h (2 sec) 0 mSv/h to 500 mSv/h (2 sec)
Accuracy	Within 10 % of readings between 10 % and 100 % of full scale indication on any range, exclusive of energy response	
Detector	Chamber (cc volume air ionization) 349 cc Chamber wall (phenolic) 246 mg/cm2 Chamber window (mylar) 6.6 mg/cm2 Beta slide 440 mg/cm2	
Automatic features	Auto-zeroing, auto-ranging, and auto-backlight	
Power requirements	Two 9 V alkaline, 200 hours operation	
Warm-up time	One minute	
Battery life	Four+ hours continuous use per battery pack (assumes 50 % brightness of LCD)	
Dimensions (W x D x H)	10 cm x 20 cm x 15 cm	
Weight	1.11 kg	
Display LCD analog/digital with backlight		
Analog	100 element bar graph 6.4 cm long. Bar graph is divided into 5 major segments, each labeled with the appropriate value for the range of the instrument	
Digital	2.5 digit display is followed by a significant zero digit depending on the operating range of the instrument. The units of measurement are indicated on the display at all times. Digits are 6.4 mm high. Low battery and freeze indicators are also provided on the display	
Modes		
Integrate mode	Operates continuously 30 seconds after the instrument has been turned on. Integration is performed even if the instrument is displaying in mR/h or R/h	
Freeze mode	Will place a tick mark on the bar graph display to hold on the peak displayed value. The unit will continue to read and display current radiation values	
Environmental		
Temperature range	-20 °C to 50 °C	
Relative humidity	0 % to 100 % (at 50 °C)	
Geotropism	< 1 %	

Ordering Information

Fluke 481	Ion Chamber Survey Meter
Fluke 481-DESI	DESI Ion Chamber Survey Meter, dose equivalent SI
190HPS	Single Unit Carrying Case

General Accessories

The best test tools deserve accessories designed and manufactured to the same high quality and safety standards. So we also provide a comprehensive range of test leads, probes and clips, current clamps, temperature accessories and dedicated electronic and automotive accessories. And to protect your valuable instrument, choose a rugged Fluke tailor-made holster or case.

Watch our latest videos on our own YouTube Channel *www.youtube.com/user/FlukeEurope*

Electronic Test Leads, Probes & Clips

FLUKE®

Test Leads

TL910 Electronic Test Lead Set
- Very small 1 mm tips to access hard to reach test points
- Probe tip length up to 100 mm, test lead length: 1 m
- Included: 3 sets of spring loaded gold tips and 2 sets of stainless steel tips
- CAT II 1000 V, 3 A rating

TP912 Replacement Tips for TL910
- Replacement tips for TL910
- Five sets of gold plated and stainless steel tips

TL40 Retractable Tip Test Lead Set
- One pair (red, black) of test leads with sharp needle point tips adjustable to desired length from 0 to 76 mm
- Extra hard probe tips to provide long service life
- Flexible silicone insulated test leads
- CAT III 300 V, 3 A rating

TL940 Mini-Hook Test Lead Set
- 1 pair (red, black) of test leads with multi-stacking 4 mm banana plugs and mini-hooks
- Mini-hooks attach to component leads up to 1.5 mm diameter
- 90 cm long PVC insulated leads
- 30 V rms or 60 V DC, 5 A

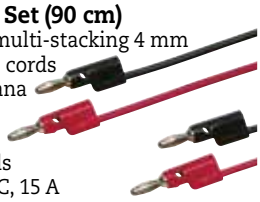
TL950 Mini-Pincer Test Lead Set
- 1 pair (red, black) of test leads with multi-stacking 4 mm banana plugs and mini-pincers
- Mini-pincers open to 2.3 mm
- 90 cm long PVC insulated leads
- 30 V rms or 60 V DC, 5 A

Test Leads / Patch Cords

TL960 Micro-Hook Test Lead Set
- 1 pair (red, black) of test leads with multi-stacking 4 mm banana plugs and micro-hooks
- Micro-hooks attach to component leads up to 1 mm diameter
- 90 cm long PVC insulated leads
- 30 V rms or 60 V DC, 15 A

TL930 Patch Cord Set (60 cm)
- 1 pair (red, black) multi-stacking 4 mm banana plug patch cords
- Nickel-plated banana plugs
- 60 cm long PVC insulated leads
- 30 V rms or 60 V DC, 15 A

TL932 Patch Cord Set (90 cm)
- 1 pair (red, black) multi-stacking 4 mm banana plug patch cords
- Nickel-plated banana plugs
- 90 cm long PVC insulated leads
- 30 V rms or 60 V DC, 15 A

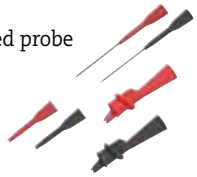


TL935 Patch Cord Kit (60, 90, 120 cm)
- 3 sets (red and black pairs) of multi-stacking 4 mm banana plug patch cords
- Nickel-plated banana plugs
- 60 cm, 90 cm, 120 cm long PVC insulated leads
- 30 V rms or 60 V DC, 15 A

Kits

TL80A-1 Basic Electronic Test Lead Kit
- One pair (red, black) each 1 meter long silicone test lead set, alligator clip and probe tip extender.
- C75 soft carrying case

TP920 Test Probe Adapter Kit
- Set of push-on adapters for TL71 and TL75 test probes
- IC test adapters, extended probe tips, medium alligator clips (max.opening 7.6 mm)
- CAT I 300 V, 5 A rating

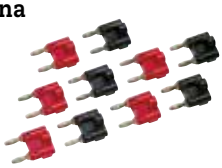


TL970 Hook and Pincer Kit
- TL940 Mini-Hook Test Lead Set
- TL950 Mini-Pincer Test Lead Set
- TL960 Micro-Hook Test Lead Set

TL81A Deluxe Electronic Test Lead Kit
- Includes components of TL80, plus one pair (red, black) each modular 1 meter long silicone test lead, test probe, hook-style and pinch style clip, alligator clip, IC probe tip adapter and spade lugs
- Quadfold soft carrying case

TLK287 Electronic Master Test Lead Kit
- Includes modular leads, probes (black and red), minigrabber/jack set, medium alligator clips (black and red), spade lug/banana jack plated (set), couplers IEC1010 (black and red), micrograbbers and -leads (black and red)
- TL910 Electronic Test Lead Set
- Quadfold Pouch
- CAT III 1000 V (probes only)

BP980 Double Banana Plug Kit
- 5 pair (red, black) of double 4 mm banana plugs
- Each plug has 3.1 mm holes for mounting wires and components
- Brass plugs/jack, beryllium copper springs
- 30 V rms or 60 V DC, 15 A



Industrial Test Leads, Probes & Clips

FLUKE®

Test Leads

TL71-1 Premium Test Lead Set
- One pair (red, black) comfort grip probes with silicone insulated, right-angle test leads
- Recommended for µV measurements
- CAT II 1000 V, 10 A rating
- CAT III 1000 V, CAT IV 600 V with protective cap

TL75-1 Hard Point™ Test Lead Set
- One pair (red, black) comfort grip probes with PVC insulated, test leads with right-angle shrouded banana plugs
- Recommended for general purpose measurements
- CAT II 1000 V, 10 A rating.
- CAT III 1000 V, CAT IV 600 V with protective cap

TL76 All-in-one Test Lead Set
- One pair (red, black) 1.5 meter long silicone test leads with right angle shrouded banana plug
- Lantern tip (removable) for use with European wall sockets (4 mm Ø)
- Lantern tip can be removed for easy access to terminal blocks (2 mm Ø)
- Removable, insulated IC caps allow probing on closely spaced leads and compliance with GS38.
- Cat IV 600 V, CAT III 1000 V, 10 A rating.

SureGrip™ accessories are designed to improve steadiness in slippery hands. Rubber overmolded surfaces and finger-hugging curves give the user a comfortable, reliable grip on the accessory so they can focus on making an accurate measurement.

Modular Test Leads

TL221 SureGrip™ Extension Lead Set
- One pair (red, black) of silicone insulated leads with straight connectors on both ends
- Reinforced strain relief
- Includes one pair (red, black) of female couplers
- Extends test leads by 1.5 m
- 600 V CAT IV, 1000 V CAT III, 10 A rating.

TL222 SureGrip™ Silicone Test Lead Set
- DMM test leads (red, black) with safety shrouded, standard diameter banana plugs
- Right angle connector on both ends
- Reinforced strain relief
- 1.5 meter silicone-insulated wire resists heat & cold
- CAT IV 600 V, CAT III 1000 V, 10 A rating.

TL224 SureGrip™ Silicone Test Lead Set
- DMM test leads (red, black) with safety shrouded, standard diameter banana plugs
- Right angle connector on one end and straight connector on the other
- Reinforced strain relief
- 1.5 meter silicone-insulated wire resists heat & cold
- CAT IV 600 V, CAT III 1000 V, 10 A rating.

TL27 Heavy Duty Test Lead Set
- DMM test leads (red, black) with safety shrouded, standard diameter banana plugs
- Heavy duty EPDM insulation
- Length 1.5 m
- CAT III 1000V, 10A rating.

H900 Test Lead Holder
- Heavy duty construction with mounting holes
- Holder has 10 slots for wires up to 8 mm in diameter
- Over-all dimensions: 27.9 cm L x 8.9 cm W x 3.2 cm H

Kits

TL220-1 SureGrip™ Industrial Test Lead Kit
- AC220 SureGrip™ Alligator Clip Set
- TP220 SureGrip™ Insulated Test Probe Set
- TL224 SureGrip™ Silicone Test Lead Set (right to right)
- CAT II 1000 V, 10 A (TP220 only)
- CAT III 1000 V, CAT IV 600 V with protective cap

TL223-1 SureGrip™ Electrical Test Lead Kit
- AC220 SureGrip™ Alligator Clip Set
- TP238 SureGrip™ Insulated Test Probe Set
- TL224 SureGrip™ Silicone Test Lead Set (straight to right)

TL238 SureGrip™ High Energy Test Lead Kit
- TP238 SureGrip™ Insulated Tip Test Probes with less than 4 mm of exposed metal (GS38) with flexible removable finger banner
- TP280 20 cm Test Probe Extenders
- TL224 SureGrip™ Silicone Test Lead Set

TLK-220 EUR SureGrip™ Accessory Kit
- AC220 SureGrip™ Alligator Clip Set
- AC285 SureGrip™ Large Jaw Alligator Clip Set
- TP74 Test Probe Set (4 mm)
- TL224 SureGrip™ Silicone Test Lead Set
- Large zippered soft case with moveable divider

Industrial Test Leads, Probes & Clips

FLUKE®

Kits

TLK-225-1 SureGrip™ Master Accessory Kit

- AC220 SureGrip™ Alligator Clip Set
- AC280 SureGrip™ Hook Clip Set
- AC283 SureGrip™ Pincer Clip Set
- AC285 SureGrip™ Large Jaw Alligator Clip Set
- TP238 SureGrip™ Insulated Test Probe Set
- TL224 SureGrip™ Silicone Test Lead Set
- 6-Pocket Storage Pouch

TLK289 EUR Industrial Master Test Lead Kit

- C116, Soft Case
- AC220 Alligator Clip Set
- AC280 Hook Clip Set
- AC285 Large Jaw Alligator Clip Set
- TP74 Lantern Tip Test Probe Set
- TL224 Test Lead Set
- TPAK Hanging Kit
- 80BK-A Temperature Thermocouple

T5-KIT-1 Accessory Kit for use with T5

This kit completes the offering of a T5 with add-on probes and carrying case.

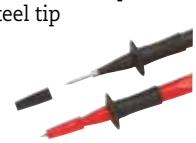
- TP238 SureGrip™ Insulated Test Probe Set
- AC285 SureGrip™ Large Jaw Alligator Clip Set
- C33 Soft Meter Case

L215 SureGrip™ Kit with Probe Light and Extender

- L200 Probe Light
- TP280 20 cm Test Probe Extenders
- TP220 SureGrip Test Probes
- TL224 SureGrip Silicon Test Lead Set
- Foldable soft pouch with six pockets and hook-and-loop

Modular Test Probes
(for use with Modular Test Leads)

TP220-1 SureGrip™ Test Probe Set



- One pair (red, black) of Industrial test probes
- Sharp, 12 mm stainless steel tip provides reliable contact
- Flexible finger barrier improves grip
- Recommended for use with TL222 and TL224 test leads
- CAT II 1000 V, 10 A rating.
- CAT III 1000 V, CAT IV 600 V with protective cap

TP74 Lantern Tip Test Probe Set

- One pair (red, black)
- Tips include banana-style spring contacts with nickel-plated brass ends
- CAT III 1000 V, 10 A rating.

TLK290 Test Probe Kit

- Kit includes three flexible socket probes and a large alligator clip
- To be used on three phase sockets.
- Probes have flexible width test points that fit securely in 4 to 8 mm sockets.
- Test probe set to be used on motor and three phase sockets
- Safe contact e.g. in CEE 16 A and CEE 32 A plugs
- CAT II 1000 V, 8 A

TP1-1, TP2-1, TP38 SlimReach Test Probe Sets

- One pair (red, black) of slender probes for closely spaced or recessed terminals
- **TP1-1:** Flat blade design to hold securely in blade type wall sockets
- **TP2-1:** 2 mm diameter tip for electronics work. Also compatible with AC175.
- **TP38:** Insulated probe tip (designed to meet GS38 specs for United Kingdom).
- **TP1-1/TP2-1:** CAT II 1000 V **TP38:** CAT IV 600 V / CAT III 1000 V 10A rating.

Modular Test Probes
(for use with Modular Test Leads)

TP80 Electronic Test Probe Set

Recommended for use with TL222 and TL224

- One pair (red, black)
- IC insulated cap prevents shortening of IC legs for probing high density components or boards
- CAT III 1000 V, 10 A rating.

TLK291 Fused Test Probe Set

- One pair (red, black) fused test probes
- Designed to meet GS38 specs for United Kingdom
- CAT III 1000V, 0.5A
- Fuse rating: 500 mA/1000 V/FF/50 kA

FTP-1 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 insulted IC caps for probing closely spaced leads
- CAT III 1000 V, CAT IV 600 V, 10A

FTPL-1 SureGrip™ Fused Test Probes with Leads

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

AC285-FTP Alligator Clips and Adapters for FTP-1 or FTPL-1

Enhance the usage of your Fluke fused test leads with this large alligator clip set. This accessory enables the use of AC285 alligator clips with FTP-1 fused probes.

- CAT III 1000 V, CAT IV 600 V, 10 A

All accessories have a one year warranty

Industrial Test Leads, Probes & Clips

FLUKE®

Modular Clips
(for use with Modular Test Leads)

AC220 SureGrip™ Alligator Clip Set
- One pair (red, black) of small, insulated, nickel plated jaws
- Blunt tip grabs round screw heads up to 9.5 mm
- Recommended for use with TL222 and TL224 test leads
- CAT IV 600 V, CAT III 1000 V, 10 A rating.

AC280 SureGrip™ Hook Clip Set
- One pair (red, black) of nickel plated clips
- Profile narrows to 5.6 mm at tip, hook opening 6.4 mm at front, 2 mm at base
- Recommended for use with TL222 and TL224 test leads
- CAT IV 600 V, CAT III 1000 V, 3 A rating.

AC283 SureGrip™ Pincer Clip Set
- One pair (red, black) of nickel plated pincers open to 5 mm
- 11.4 cm flexible insulated shaft
- Recommended for use with TL222 and TL224 test leads
- CAT IV 600 V, CAT III 1000 V, 1 A rating.

Modular Clips
(for use with Modular Test Leads)

AC285 SureGrip™ Large Jaw Alligator Clip Set
- One pair (red, black) of large alligator clips with nickel-plated steel jaws
- Multi-purpose tooth pattern grips anything from fine gauge wire to a 20 mm bolt
- Recommended for use with TL222 and TL224 test leads
- CAT IV 600 V, CAT III 1000 V, 10 A rating.

AC87 Heavy Duty Bus Bar Clip Set
- One pair (red, black) of flat, right angle design for connecting to bus bars
- Adjustable collar provides 2 ranges of jaw openings up to 30 mm
- CAT III 600 V, 5 A rating.

AC89 Heavy Duty Insulation Piercing Test Clip
- Single probe pierces 0.25 to 1.5 mm insulated wire
- Small pin allows self-healing of the insulation
- CAT IV 600V, CAT III 1000 V, 5 A rating.

Push-on Clip
(for use with TL71 and TL75 Test Lead Sets)

AC175 Alligator Clip Set
- Slide-on alligator clips (red, black) for TL175/TL71/TL75
- Jaws provide 8 mm opening
- CAT IV 600 V, CAT III 1000 V,
- 10 A rating.

All accessories have a one year warranty

Fluke TL175 TwistGuard™ Test Leads

Fluke TL175 TwistGuard™ Test Leads

The Fluke Tl175 TwistGuard™ Test Leads are innovative test leads with adjustable length test tips for use in changing measurement situations. By simply twisting the test lead the user can change the exposed probe tip length from 19 mm to 4 mm.

TL175

TL175 TwistGuard™ Test Leads offer:

- Patented extendable tip sheath that meet new electrical safety requirements to reduce tip exposure while providing the versatility needed for most measurements
- New WearGuard™ lead wire wear indication. Each test lead is covered by two layers of silicone insulation; inner contrasting color is exposed when the leads are nicked, scuffed, or otherwise damaged and in need of replacement
- Double insulated silicone leads. TL175 withstands high temperatures and remain flexible in cold temperatures.
- Extra-heavy strain relief on both probe-end and plug-end, testing beyond 30,000 bends without failure.
- Universal input plugs compatible with all instruments that accept standard 4 mm shrouded banana plugs
- Ratings: CAT II 1000 V, CAT III 1000 V, CAT IV 600 V, 10 A max., Pollution Degree 2
- TL175E includes removable 4 mm lantern tips for versatility
- Probes always show correct category rating for tip being used
- Environmental ratings: -20 °C to 55 °C, altitude: 2000 m
- Conforms to latest safety standard EN61010-031: 2008
- One-year warranty
- Also available as Test Probe Set, TP175 and TP175E

TL175E

TP175

Current Clamps

i5s

i200

i200s

i400

i400s

Specifications AC models

	i5s	i200	i200s	i400	i400s
Nominal current range(s)	5 A	200 A	20 A 200 A	400 A	40 A 400 A
Continuous AC current range	0.01 A - 6 A	0.5 A - 200 A	0.1 - 24 A 0.5 A - 200 A	5 A - 400 A	0.5 - 40 A 5 A - 400 A
Highest current	70 A	240 A	240 A	1000 A	1000 A
Lowest measurable current	10 mA	0.5 A	0.5 A	1 A	0.5 A
Basic accuracy (48-65 Hz) [1]	1%	1% + 0.5 A	1.5% + 0.5 A	2% + 0.15	2% + 0.15
Useable frequency	40 Hz - 5kHz	40 Hz - 10 kHz	40 Hz - 10 kHz	45 Hz - 3 kHz	45 Hz - 3 kHz
Max. working voltage	600 V AC	600 V AC	600 V AC	1000 V	1000 V
Maximum conductor diameter	15 mm	20 mm	20 mm	32 mm	32 mm
Output level(s)	400 mV/A	1 mA/A	100 mV/A 10 mV/A	1 mA /A	10 mV/A 1 mV/A
Batttery, battery life					
Output cable (m)	2.5	1.5	2.0	1.5	2.5
Shrouded banana plugs		●		●	
BNC connector	•		●		●
BNC to banana adapter included			●		
Safety	CAT III, 600 V	CAT III. 600 V	CAT III, 600 V	CAT III 1000 V / CAT IV 600 V	CAT III 1000 V / CAT IV 600 V

[1] Basic Accuracy: % reading + floorspec

i800

i1000s

i2000 flex

i3000s flex

i3000s

i6000s flex

	i800	i1000s	i2000 flex	i3000s flex-24 i3000s flex-36	i3000s	i6000 flex-24 i6000s flex-36
Nominal current range(s)	800 A RMS	10 A 100 A 1000 A	20 A 200 A 2000 A	30 A 300 A 3000 A	30 A 300 A 3000 A	60 A 600 A 6000 A AC
Continuous AC current range	0.1 A - 800 A RMS	0.1 A - 10 A 0.1 A - 100 A 1 A - 1000 A	1 A - 20 A 2 A - 200 A AC RMS 30 A - 2000 A	1 A - 30 A 2 A - 300 A AC RMS 30 A - 3000 A	1 A - 30 A 1 A - 300 A 1 A - 2400 A	1 A - 6000 A AC RMS
Highest current	1500 A	2000 A	2500 A AC RMS	3500 A AC RMS	4000 A	6000 A
Lowest measurable current	0.1 A	0.1 A	1 A	1 A	1 A	1 A
Basic accuracy (48-65 Hz) [1]	0.10%	1% + 1 A	1%	1%	2% + 2 A	± 1% of range
Useable frequency	30 Hz - 10 kHz	5 Hz - 100 kHz	10 Hz - 20 kHz (-3dB)	10 Hz - 50 kHz (-3dB)	10 Hz - 100 kHz	10 Hz to 50 kHz
Max. working voltage	600 V AC RMS or DC	600 V AC	600 V AC RMS	600 V AC RMS	600 V AC	600 V AC RMS or DC
Maximum conductor diameter	54 mm	54 mm	178 mm	Flex-24 178 mm Flex-36 275 mm	64 mm	Flex-24 170 mm Flex-36 275 mm
Output level(s)	1 mA/A	100 mV/A 10 mV/A 1 mV/A	100 mV/A 10 mV/A 1 mV/A	100 mV/A 10 mV/A 1 mV/A	10 mV/A 1 mV/A 0.1 mV/A	50 mV/A 5 mV/A 0.5 mV/A
Batttery, battery life			200 hours	400 hours		400 hours
Output cable (m)	1.6	1.6	0.5	0.5	2.1	0.5
Shrouded banana plugs	●		●	n/a		
BNC connector		●	n/a	●	●	●
BNC to banana adapter included			n/a	●	●	●
Safety	CAT III, 600 V	CAT III, 600 V	CAT III, 600 V	CAT III, 600 V	CAT III, 600 V	CAT III, 600 V

[1] Basic Accuracy: % reading + floorspec

Current Clamps

80i-110s

i30

i30s

i310s

i410

i1010

Specifications AC/DC Models

	80i-110s	i30	i30s	i310s	i410	i1010
Measurement type	Hall sensor	Hall sensor	Hall sensor	AC/DC	Hall sensor	Hall sensor
Nominal current range(s)	10 A, AC/DC 100 A, AC/DC	20 A AC RMS or DC	20 A AC RMS or DC	30/300 A AC RMS or 45/450 A DC	400 A, AC/DC	600 A, AC 1000 A, DC
Continuous current range	0.1 A - 10 A AC/DC 1 A - 100 A AC/DC	30 A AC Peak	30 A AC Peak	100 mA - 300 A AC RMS or 450 A DC	1 A - 400 A AC/DC	1 A - 600 A, AC 1 A - 1000 A, DC
Highest current	140 A - 2 kHz	30 A AC Peak	30 A AC Peak	300 A AC RMS or 450 A DC	400 A	1000 A
Lowest measurable current	0.1 A	50 mA	50 mA	100 mA	0.5 A	0.5 A
Basic accuracy [1]	3% + 50 mA (@ 10 A)	± 1% of reading ±2 mA	± 1% of reading ±2 mA	±1% of reading	3.5% + 0.5 A	2% +0.5 A
Useable frequency	DC - 100 kHz	DC to 20 kHz (-0.5dB)	DC to 100 kHz (-0.5dB)	DC to 20 kHz	DC - 3 kHz	DC - 10 kHz
Zero error adjustment	●	manual adjust via thumbwheel	manual adjust via thumbwheel	Manual	●	●
Max. working voltage	600 V	300 V AC RMS	300 V AC RMS	300 V AC RMS or DC	600 V	600 V
Maximum conductor diameter	11.8 mm	19 mm	19 mm	19 mm	30 mm 2 x 25 mm	30 mm 2 x 25 mm
Output level(s)	100 mV/A 10 mV/A	100 mV/A	100 mV/A	10/1 mV/A	1 mV/A	1 mV/A
Battery, battery life	9 V, 55 h	30 hours typical	30 hours typical	30 hours	9 V, 60 h	9 V, 60 h
Output cable length (m)	1.6	1.5	2	2	1.6	1.6
Shrouded banana Plugs		●	n/a		●	●
BNC connector	●	n/a	●	●		
BNC to banana adapter included		n/a	●	●		
Safety	CAT II, 600 V CAT III, 300 V	CAT III, 300 V	CAT III, 300 V	CAT III 300 V	CAT III, 600 V	CAT III, 600 V

[1] Basic Accuracy: % reading + floorspec

i410 Kit AC/DC Current Clamp (400A) with soft case
i1010 Kit AC/DC Current Clamp (1000A) with soft case

- Combination of current clamp with carrying case
- Zipped soft case with moveable divider
- Soft case is large enough to hold a meter

Current Clamp Compatibility Chart

	113/114/115/116/117	175/177/179	233	287/289	27II / 28II	3000FC	8845A/8846/8808A	77 IV	83V/87V/88V	43B	430 Series II	123/124/125	190 Series II	1577/1587	715/724/725	753/754	787/789
AC Models																	
i5s											●		●				
i200	4	●	●	●	●	●	●	●	●					●			●
i200s	●	●	●	●	●	●	●	●	●			●	●	●		●	●
i400		●	●	●	●	●	●	●	●					●			●
i400s	2	2	2	2	2	2	2	2	2	●	●	●	●	2		2	2
i430 flexi-TF-II											●						
i800	4	●	●	●	●	●	●	●	●					●			●
i1000s	2	2	2	2	2	2	2	2	2	●		●	●	2		2	2
i2000 flex (new version)	●	●	●	●	●	●	●	●	●	3	3	3	3	●			●
i3000s	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●
i3000s flex	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●
i6000s flex	●	●	●	●	●	●	●	●	●		●			●		●	●
AC/DC Models																	
i30	●	●	●	●	●	●	●	●	●					●			●
i30s	●	●	●	●	●	●	●	●	●	●	●	●	●				
80i-110s	2	2	2	2	2	2	2	2	2	●	●	●	●	●		2	2
i310s	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●
i410 / i410 kit	●	●	●	●		●	●	●	●			3	3	●	1	●	●
i1010 / i1010 kit	●	●	●	●	●	●	●	●	●			3	3	●	1	●	●
Other																	
90i-610s*	2	2	2	2	2	2	2	2	2			●	●	2		2	2

* For specifications of 90i-610s see page 154
1 For DC only
2 Requires PM 9081 (see page 103)
3 Requires PM 9082 (see page 103)
4 115, 117 only

All accessories have a one year warranty

Temperature Accessories

Contact Probes

80PK-22 SureGrip™ Immersion Probe
- Type-K thermocouple for use in liquids and gels
- Measurement range: -40 to 1090°C
- Probe length: 21.3 cm

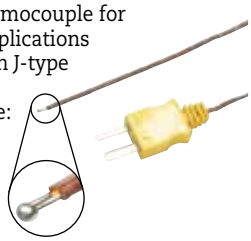
80PK-24 SureGrip™ Air Probe
- Type-K thermocouple for use in air and non-caustic gas measurements
- Bead protected by perforated baffle
- Measurement range: -40 to 816°C
- Probe length: 21.6 cm

80PK-25 and 80PT-25 SureGrip™ Piercing Probe
- 80PK-25: Type-K thermocouple suitable for food industry, liquids and gels
- 80PT-25 operates with T-type thermometers
- Measurement range: 80PK-25: -40 to 350°C 80PT-25: -196 to 350°C
- Probe length: 10.2 cm

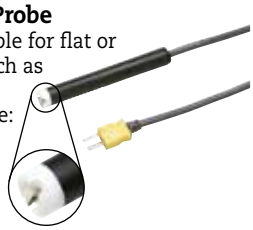
80PK-26 SureGrip™ General Purpose Probe
- Type-K thermocouple with tapered tip for use in air, non-caustic gas and surface applications
- Measurement range: -40 to 816°C
- Probe length: 21.2 cm

80PK-27 SureGrip™ Industrial Surface Probe
- Type-K thermocouple for surfaces in rugged environment
- Durable ribbon sensor
- Measurement range: -127 to 600°C
- Probe length: 20.3 cm

80PK-1 and 80PJ-1 Bead Probe
- 80PK-1: Type-K thermocouple for general purpose applications
- 80PJ-1 operates with J-type thermometers
- Measurement range: -40 to 260°C
- Probe length: 1 m lead wire

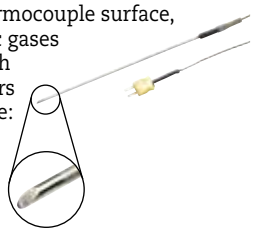


80PK-3A Surface Probe
- Type-K thermocouple for flat or curved surfaces such as plates and rollers
- Measurement range: 0 to 260°C
- Probe length: 9.5 cm



80PK-8 / 80PK-10 Pipe Clamp Temperature Probe
- Type-K thermocouple for fast temperature and superheat measurements of pipe surfaces
- Durable ribbon sensor
- Measurement range: -29 to 149°C for pipe diameters from 6.4 to 34.9mm (80PK-8) and 32 mm to 64 mm (80PK-10)

80PK-9 and 80PJ-9 General Purpose Probe
- 80PK-9: Type-K thermocouple surface, air and non-caustic gases
- 80PJ-9 operates with J-type thermometers
- Measurement range: -40°C to 260°C
- Probe length: 15.3 cm



80PK-11 Velcro Temperature Probe
- Type-K thermocouple for hands free measurement of HVAC temperature measuring applications
- Total length of cable: 1m (0.5m in cable, 0.5m in Velcro cuff insulation material; Hytrel)
- Measurement range: -30°C to 105°C

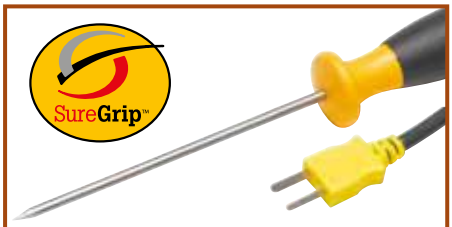
DMM Probes

80AK-A Thermocouple Adapter
- Adapts Type-K thermocouple mini-connector to dual banana plug inputs
- Measurement range and accuracy: probe dependent
- Suitable for low voltage applications (below 30 V AC, 60 V DC)

80BK-A Integrated DMM Probe
- Type-K thermocouple with standard banana jack
- Convenient one piece construction
- Compatible with DMMs with temperature measurement functions
- Measurement range: -40 to 260°C

80TK Thermocouple Module
- Converts a DMM to a thermometer
- For use with type-K thermocouples in low voltage applications (below 24 V AC, 60 V DC)
- Measurement range: -50 to 1000°C (probe dependent)

80T-150UA Universal Temperature Probe
- Compatible with Fluke DMM
- High accuracy, fast reading for low voltage (below 24 V AC, 60 V DC) applications
- Measurement range: -50 to 150°C
- Output: 1 mV/°C or 1 mV/°F (switchable)



SureGrip™ accessories are designed to improve steadiness in s lippery hands. Rubber overmolded surfaces and finger-hugging curves give the user a comfortable, reliable grip on the accessory so they can focus on making an accurate measurement.

Temperature Accessories

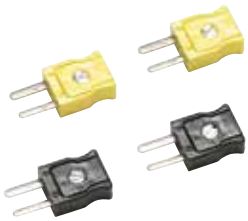
Other Temperature Accessories

80PK-18 Pipe Clamp Temperature Probe Kit

- 80PK-8 Pipe Clamp Temperature Probe
- 80PK-10 Pipe Clamp Temperature Probe
- Soft Case

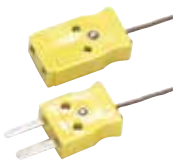
80CK-M & 80CJ-M type K & J Male Mini-Connectors

- Isothermal screw terminal for K or J wire
- Suitable for up to 20 guage thermocouple wire
- Color coded to industry standards (K-yellow, J-black)
- Two per package



80PK-EXT, 80PJ-EXT and 80PT-EXT Extension Wire Kits

- Extending and repairing J, K ot T-type thermocouple wires
- Kit includes 3 meters of thermocouple wire and 1 pair of male/female mini-connectors
- Maximum continuous exposure temperature: 260°C
- 80PK-EXT is compatible with K-type thermometers, 80PJ-EXT is designed for J-type thermometers and PT-EXT for T-type thermometers

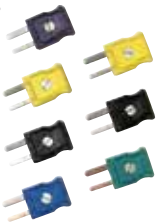


Thermocouple Plug Kits 700TC1

A kit of 10 mini-plug connectors
Type J (black), one
Type K (yellow), one
Type T (blue), one
Type E (purple), one
Type R/S (green), one
Type B or CU (white), one
Type L (J-DIN) (blue), one
Type U (T-DIN) (brown), one
Type C (red), one
Type N (orange), one

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



Temperature Probe Compatibility Chart

	113/114/115/116/117	175/177	179	233	3000FC DMM	287/289	27II / 28II	8845A/8846A/8808A	77IV	83V	87V/88V	43B	120 Series	190 Series II	1577	1587	51/52/53/54 II	561	566/568/572-2	705/707	714	715	724/725	753/754	787/789
Contact Probes																									
80PK-1 … 80PK-27	1	1	2	2	2	2	2	1	1	1	2	1	1	1	1	2	●	●	●	1	●	1	●	●	1
80PJ-1, 80PJ-9																	●				●		●	●	
80PT-25																	●				●		●	●	
DMM probes																									
80AK-A	●3)		●	●	●	●	●				●					●									
80BK-A	●3)		●	●	●	●	●				●					●									
80TK		●						●	●	●		●	●	●	●					●		●		●	●
80T-150UA		●	●	●	●	●	●	●	●	●		●	●	●	●					●		●		●	●
Miscellaneous																									
80CK-M	1	1	2	2	2	2	2	1	1	1	2	1	1	1	1	2	●	●	●	1	●	1	●	●	1
80CJ-M																	●				●		●	●	
80PK-EXT4)	1	1	2	2	2	2	2	1	1	1	2	1	1	1	1	2	●	●	●	1	●	1	●	●	1
80PJ-EXT																	●				●		●	●	
80PT-EXT																	●				●		●	●	
700TC1, 700TC2																	●				●		●	●	

1) Requires 80TK
2) Requires 80AK
3) Fluke 116 only
4) Also requires 80CK-M

All accessories have a one year warranty

Cases and Holsters

Soft Cases

Zipped carrying cases protect your meter; most cases come with belt loops so your meter is stored conveniently on your tool belt.

C12A

C23

C25

C33

C35

C43

C50

C75

C90

C115

C116

C125/C781

C150

C280

C345

C195
- Zipped carrying case with storage compartments
- Allows hand or shoulder use

C789
- Large fabric carrying case with 3 compartments, removable handle and shoulder strap

C550 Tool Bag
- Steel reinforced frame
- Rugged ballistic cloth with heavy duty hardware
- Large zippered storage compartment with 25 pockets
- Weather resistant
- Carry all your tools to the job

Cases & Holsters Compatibility Chart

		113/114/115/116/117	175/177/179	233	3000FC DMM	287/289	27II / 28II	77 IV	83V/87V/88V	T5	T90	T100 Series	323/324/325	333/334/335/336/337/902	353/355	1503/1507/1577/1587	9040/9062	1735/1740 Series	430 Series II	43B/120 Series	190 Series II	922	971	51/52/53/54 II	561/566/568/572-2	705/707	712/714/715/717	718/719	724/725/726	753/754	787	789
Soft Cases	**Size (HxWxD) mm**																															
C12A	172 x 128 x 38	●																								●						
C23	225 x 95 x 58	●						●					●									●	●									
C25	218 x 128 x 64	●	●		●			●	●							●	●					●	●	●			●		●		●	●
C33	280 x 115 x 55							●				●		●																	●	
C35	220 x 140 x 65	●	●	●	●		●	●	●							●						●		●		●	●					●
C43	318 x 230 x 90														●					●								●	●			
C50	192 x 90 x 38	●																						●								
C75	179 x 103 x 26	For multiple test leads and accessories																														
C90	205 x 90 x 72		●					●														●										
C115	240 x 205 x 75	●	●		●			●	●							●				●				●		●	●	●				●
C116	240 x 230 x 65	●	●	●	●	●	●	●	●							●				●				●		●	●					●
C125	192 x 141 x 58				●				●							●				●		●						●	●		●	●
C150	298 x 114 x 56										●	●		●																	●	
C195	231 x 513 x 231																		●	●	●											
C280	230 x 185 x 65	●	●	●	●	●	●	●	●							●				●				●		●	●	●	●		●	●
C345	240 x 360 x 200	For multiple test leads and accessories																														
C437-II																			●		●											
C550	333 x 513 x 231	For multiple test leads and accessories																														
C781	269 x 141 x 90			●	●	●	●									●				●							●	●	●		●
C789	308 x 256 x 77				●															●								●		●	●	
C799	305 x 229 x 165																													●		
Hard cases																																
C20	256 x 154 x 106																															
C100	397 x 346 x 122		●	●			●		●																		●				●	
C101	305 x 360 x 105		●	●	●		●		●	●		●	●	●		●	●						●	●		●	●	●	●		●	●
C120	346 x 397 x 128																			●												
C290	410 x 474 x 135																				●											
C435	565 x 476 x 305																	●	●													
C800	230 x 385 x 115		●	●			●	●	●																		●				●	
C1600	260 x 390 x 200	For multiple test leads and accessories																														
CXT80	28 x 32 x 13				●				●																					●		●
CXT170	28 x 32 x 13							●								●						●					●	●			●	
CXT280	28 x 32 x 13					●																										
Leather Cases																																
C510	287 x 179 x 106		●		●			●	●							●								●			●		●		●	●
C520A	256 x 154 x 106									●																						
Holsters																										●						
C10	154 x 77 x 45																															
H80M	190 x 95 x 43								●										●								●				●	
Other																																
H3	231 x 90 x 64												●	●																		
H5	192 x 90 x 38									●																						
H6	302 x 178 x 57																								●							
H15	279 x 92 x 51										●	●																				
Hanging Kit (see page 155)																																
ToolPak		●	●	●	●	●	●	●	●							●						●		●			●		●	●	●	●

Cases and Holsters

Hard Cases

C20 Meter Case

- Heavy duty case with carrying handle and accessories storage compartment
- Top cover snaps onto back to serve as tilt stand

C100 Meter and Accessory Case

- Tough polyprophylene case

C101 Hard Case

The hard case that fits all Fluke industrial test tools. Configure the diced foam interior to store and protect what you need to carry with you.
- Tough polyprophylene exterior shell
- Interior cavity measures

C120 and C290 Cases

- Heavy duty cases with accessory storage compartments

C435 Hard Rolling Case

- Watertight hard case with rollers for 430 Series, 1735 and 1740 Series Power Quality products and accessories. The configurable foam securely holds any of these instruments during transit.

C1600 Meter and Accessories Case
- Rugged molded plastic case
- Deep interior large enough to hold and protect your tools
- Lift out tray keeps everything organized
- Snap open compartment on top of lid

CXT80, CXT170, CXT280 Rugged Pelican Hard Case

- Unbreakable, watertight, airtight, dustproof, chemical resistant and corrosion proof case

Holsters

C10 Meter Holster

- Snap-on yellow holster absorbs shocks and protects meter from rough handling
- Includes built-in stand and hanger loop

H80M Holster + Magnetic Hanger

- Snap-on yellow holster absorbs shocks and protects meter from rough handling
- Magnet, hook and loop straps
- General purpose hanger

H15 Electrical Tester Holster
- High quality 1000D fabric

H3 Clamp Meter Holster

- Fabric holster absorbs shocks and protects meter from rough handling.
- Built-in pocket for lead storage
- Convenient belt-loop with snap

H5 Electrical Tester Holster
- Rugged fabric holster includes flap for lead storage and built-in belt loop
- Fits Fluke T3 and T5 testers

H6 Infrared Thermometer Holster
- Durable nylon holster
- For Fluke 63, 66 and 68 Infrared Thermometers

Leather Cases

C510 Leather Meter Case
- Oiled genuine top grain cowhide
- Rugged construction with heavy duty stitching and reinforced rivets
- Large tool belt loop and top flap to secure meter
- Holds most Fluke DMMs, Thermometers, and Process Calibrators

C520A Leather Tester Case
- Oiled genuine top grain cowhide
- Oil tanned for long life
- Rugged construction with heavy duty stitching and reinforced rivets
- Large tool belt loop and top flap to secure tester
- Holds Fluke Electrical Testers

All accessories have a one year warranty

Automotive Accessories

FLUKE®

Piercing Clips

TP81 and TP82 Insulation Piercing Clip Set

- Banana jack accepts all DMM and banana jack leads
- Available for 4 mm input, modular connection with TP81 or available as a 2 mm input to slip onto probe tips with the TP82
- Tested to 60 V DC

Probe Pins

TP88 Rigid Back Probe Pin Set

- Slides onto test probes measuring 2 mm
- Tested to 60 V DC

TP40 Automotive Back Probe Pins (five)

- Banana jack accepts all DMM and banana jack leads (4 mm)
- Tested to 60 V DC

Banana Plugs

BP880 BNC to Female Double Stacking Banana Plug
BP881 BNC to Male Double Stacking Banana Plug

- Allows for hands-free testing in controlled voltage environments 500 VRMS maximum
- Banana plug is nickel-plated, beryllium copper for low contact resistance
- The BNC shell is plated for tarnish resistance
- Operating temperature +50°C maximum

Pressure Module

PV350 Pressure Vacuum Module

- Compatible with all Fluke and most popular DMMs
- Digital pressure and vacuum measurements in a single module
- Transducer sealed in 316 stainless steel compatible with variety of liquids and gases
- Measures vacuum to 76 cm Hg
- Display results in English (psig or Hg) or metric (kPa or cm Hg) units
- Measures pressure to 500 psig (3447 kPa)

Test Leads

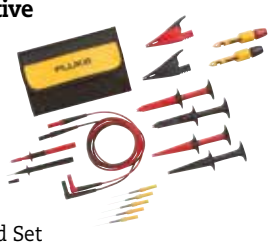
TL28A Automotive Test Lead Set

- Flexible silicone insulated leads are heat and cold resistant
- CAT I 30 V, 10 A

TLK281-1 SureGrip™ Automotive Test Lead Kit

Kit contains:
- TP81 Insulation Piercing Clip Set
- TL224 Suregrip™ Silicone Test Lead Set
- TP220 Suregrip™ Test Probe Set
- AC220 Suregrip™ Alligator Clip Set
- AC285 Suregrip™ Large Jaw Alligator Clip Set
- Soft Case

TLK282-1 SureGrip™ Deluxe Automotive Test Lead Kit



Kit contains:
- TP81 Insulation Piercing Clip Set
- TP40 Automotive Back Probe Pins (five)
- TL224 Suregrip™ Silicone Test Lead Set
- TP238 Suregrip™ Insulated Test Probe Set
- AC220 Suregrip™ Alligator Clip Set
- AC285 Suregrip™ Large Jaw Alligator Clip Set
- AC280 Suregrip™ Hook Clip Set
- Soft Case

TL 82 Automotive Pin & Socket Adapter Kit

This set of male and female adapters allows you to make firm connection to pin and socket connectors.
Kit contains:
- Retractable shrouded test lead set
- Complete set of 8 pin-and-socket adapters with flexible tips
- One red and black in different sizes
- Rated to 60 V DC

Current Probe

90i-610s AC/DC Current Probe (600 A)

- Current Range: 2 to 600A DC or AC Peak
- Basic Accuracy (DC to 400Hz): ± (2% of reading + 1A)
- Output Signal: 100A range: 10mV/A 600A range: 1mV/A
- Frequency Range: 40Hz to 400Hz
- Working Voltage: 600V AC rms
- Maximum Conductor Diameter: 34 mm

Inductive Pick-up

RPM80 Inductive Pick-up

- Provides RPM readings

ScopeMeter Accessory Kits

SCC128 Automotive Accessory Kit (120 Series)

SCC198 Automotive Accessory Kit (190 Series)

These kits provide a host of accessories that allow you to easily and quickly make measurements on automotive electronic systems using a 120 or 190 Series ScopeMeter.

Software and other Accessories

Fluke Connect ir3000FC Connector

Fluke Connect ir3000 FC Connector allows you to wirelessly transfer data from your existing Fluke Tools to your smart phone.

- Get all the benefits of the Fluke Connect™ app, and be on the same page, even while in different places
- Wirelessly share measurements with your team—anywhere, anytime
- Connect the Fluke 289/287 True-rms Logging Multimeter and the 789 ProcessMeter with the ir3000FC Connector

Fluke Connect Wireless PC Adapter pc3000FC

The Fluke 3000 FC Wireless Test Tools are a team and the modules are team players. You connect any of the Fluke Connect™ Modules to your test point and then view the results through Windows® software on your PC - up to 20 meters (65.6 feet) away. Save time and conduct more tests with less trips. The pc3000 FC Adapter and Software wirelessly collects up to 65,000 sets of time stamped min/max/avg readings from FC remote modules.

Fluke Connect Wireless SD Card

Wirelessly enable your Fluke thermal camera with the Fluke Connect™ wireless SD card and you can instantly upload, share and analyze data from anywhere, with anyone on your team, at any time.

Software FlukeView® Forms

FlukeView Forms increases the power of your Fluke tool by enabling you to document, store and analyze individual readings or series of measurements, then convert them into professional-looking documents. FlukeView Forms supports the following multimeters:

FlukeView Forms Compatibility Chart

FVF Option	Instrument	Cable**	Application Level
FVF-UG	Software only upgrade, Any instrument that supports Flukeview Forms Software	No Cable included	FVF Full (includes Designer)
FVF-SC2	Fluke 280 Series, 789, 1550B, 1653B, 568,180 Series*, 53B, 54B	USB / IR	
FVF-SC4	Fluke 8808A, 8845A, 8846A, 45*, 975	USB / Serial	
FVF-BASIC	Fluke 280 Series, 789, 1550B, 1653B, 180 Series*	USB / IR	FVF BASIC
FVF-SC5	8808A, 8845A, 8846A, 45*	USB / Serial	

* Obsolete
** USB cables are not supported for Microsoft Windows NT 4.0

Hanging Kit

ToolPak (TPAK)
The meter hanging solution
- Kit includes, universal hanger clips (2), hook & loop straps (2 lengths) and strong magnet
- Combine components to meet most hanging needs

See page 152 for compatibility chart.

Fiber Optics

FOM Fiber Optic Meter
The Fluke Fiber Optic Meter (FOM) helps you test and maintain fiber optic cables without having to buy a whole new meter. Plug the FOM directly into any DMM with a mV dc function and a 10 MΩ input impedance and quickly and accurately verify fiber optic cable system loss. Light sources and patch cords sold separately.

FOS 850 & FOS 850/1300
Fiber Optic Light Sources
A variety of light sources allow you to test different cable lengths.

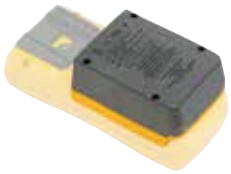
All accessories have a one year warranty

Other Accessories

Make extended logging easier

BP189 High Capacity Battery Enclosure
(for Fluke 180 Series DMM)
- Expand the battery life of your Fluke 187/189 up to 450 hours (over two weeks of continuous use).
- Houses 4 'C' cell batteries.
- CAT III 1000 V, CAT IV 600 V

Batteries and meter sold separately



High Voltage Probes

80K-6 and 80K-40
A high voltage probe that allows a multimeter to measure up to 6,000V or 40,000V respectively.
Intended for low energy applications only

Lights

L200 Probe Light
- Attaches to any Fluke test probe
- Bright white LED
- 120 hours of battery life

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

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.
- 3 super bright white LEDs – never burn out
- Special hard-hat attachment included
- 40-hour battery life
- Includes three AAA batteries

L210 Probe Light + Probe Extender
- Includes L200 Probe Light and TP280 Test Probe Extenders
- 20 cm probe extenders keep hands away from live circuits
- Extender fits between modular test probe and test lead (total reach 30 cm)

Stray Voltage Adapter

SV225 Stray Voltage Adapter
Stray voltage can appear in electrical installations, due to the capacity between wires. This may result in erroneous readings on high impedance meters.

The SV225 solves this without compromising safety.
- On energized wires, the meter will indicate the real voltage.
- On non-energized circuits the meter will read close to zero (even if there are stray voltages).
- It can be used with all modern meters with standard input spacing.
- Rated CAT III 1000 V, CAT IV 600 V

TL225-1 SureGrip™ Stray Voltage Adapter Test Lead Kit
Kit includes:
- SV225 Stray Voltage Eliminator
- TL224 SureGrip™ Silicone Test Lead Set (right to straight)
- TP238 SureGrip™ Insulated Test Probe Set
- C75 Accessory Case

IR189USB
IR to USB interface cable (included with FVF-SC2 and FVF-Basic)
- For customers who want to upgrade from their existing RS232 cable
- Small adapter to connect the cable to the 189, 287, 289, 1653B or the 1550B is included.

Meter Cleaners

MC6 MeterCleaner™ Wipes (6-pack)

MC50 MeterCleaner™ Wipes (50-pack)
- Pre-moistened wipe removes dirt, oil and grease
- One wipe easily cleans one meter
- Safe on rubber, plastic and for environment (non-toxic)

All accessories have a one year warranty

Fuse and Warranty Information

Fuse Replacement Information

A	V	IR	Size in mm	Part nr qty 1
63mA (slow)	250V		6.35x32	163030
125mA (slow)	250V		6.35x32	166488
250mA (slow)	250V		6.35x32	166306
315 mA	1000V	10KA	6.35x32	2279339
440mA	1000V	10kA	10.3x34.9	943121
500mA	250V	1500A	5x20	838151
630mA	250V	1500A	5x20	740670
1A	600V	10kA	10.3x34.9	830828
1A	500V	50kA	6.35x 32	2530449
1.25A	600V		6.35x32	2040349
3.15A	500V		6.35x32	2030852
11A	1000V	17kA	Replaced by 11A, 1000V, 20kA fuse; 803293	
11A	1000V	20kA	10.3x38.1	803293
15A	600V	100kA	10.3x38.1	892583
20A	600V	Replaced by 15A, 600V, 100kA fuse; part nr. 892583		

See the back of your Fluke test tool or user manual for the fuses installed.
For manuals check the Fluke website in the product section.
For Fuse Replacement Guide check the Fluke website in the service section.

Product Warranty

Each Fluke product is warranted to be free from defects in material and workmanship under normal use and service, for the warranty period listed unless local law requires a longer period. The warranty period is listed in the ordering information section of the product specification and begins on the date of shipment. This warranty extends only to the original buyer or end-user customer of a Fluke authorized reseller, and does not apply to fuses, disposable batteries or to any product which, in Fluke's opinion, has been misused, altered, neglected or damaged by accident or abnormal conditions of operation or handling. Fluke warrants that software will operate substantially in accordance with its functional specifications for 90 days and that it has been properly recorded on non-defective media. Fluke does not warrant that software will be error free or operate without interruption.

Lifetime Warranty

Each Fluke 20, 70, 80, 170, 180 and 280 Series DMM purchased after October 1, 1996 will be free from defects in material and workmanship for its lifetime. This warranty does not cover fuses, disposable batteries and damage from accident, neglect, contamination, misuse or abnormal conditions of operation or handling, including overvoltage failures caused by use outside the DMM's specified rating, or normal wear and tear of mechanical components. This warranty covers the original purchaser only and is not transferable. For ten years from the date of purchase, this warranty also covers the LCD. Thereafter, for the lifetime of the DMM, Fluke will replace the LCD for a fee based on then current component acquisition costs.
To establish original ownership and prove date of purchase, please complete and return the registration card accompanying the product.

Service

Fluke will, at its discretion, repair at no charge, replace or refund the purchase price of a defective product purchased through a Fluke authorized sales outlet and at the applicable international price. Fluke reserves the right to charge for importation costs of repair/replacement parts if product purchased in one country is sent for repair elsewhere.

Send defective product with a description of the problem to the nearest Fluke Authorized Service Center, postage and insurance prepaid. Fluke will pay return transportation for product repaired or replaced in-warranty. Before making any non-warranty repair, Fluke will estimate cost and obtain authorization, then invoice you for repair and return transportation.

THIS WARRANTY IS YOUR ONLY REMEDY. NO OTHER WARRANTIES, SUCH AS FITNESS FOR A PARTICULAR PURPOSE, ARE EXPRESSED OR IMPLIED. FLUKE IS NOT LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES OR LOSSES, INCLUDING LOSS OF DATA, ARISING FROM ANY CAUSE OR THEORY. AUTHORIZED RESELLERS ARE NOT AUTHORIZED TO EXTEND ANY DIFFERENT WARRANTY ON FLUKE'S BEHALF.

Since some states do not allow the exclusion or limitation of an implied warranty or of incidental or consequential damages, this limitation of liability may not apply to you.

Product Quick Find List

Model	Page
Fluke 113	27
Fluke 114	27
Fluke 115	27
Fluke 116	27
Fluke 116/323Kit	5
Fluke 116/62 MAX+ Kit	5
Fluke 117	27
Fluke 117/323 Kit	5
Fluke 123	101
Fluke 123/S	101
Fluke 124	101
Fluke 124/S	101
Fluke 125	101
Fluke 125/S	101
Fluke 1503	52
Fluke 1507	52
Fluke 1550/Kit	53
Fluke 1550C	53
Fluke 1550C	53
Fluke 1550C/Kit	53
Fluke 1577	51
Fluke 1587	51
Fluke 1587/ET Kit	6
Fluke 1587/MDT Kit	6
Fluke 1587T	51
Fluke 1621	55
Fluke 1623-2	54
Fluke 1623-2 Kit	54
Fluke 1625-2	54
Fluke 1625-2 Kit	54
Fluke 1630	56
Fluke 1652C	58
Fluke 1653B	58
Fluke 1654B	58
Fluke 1730	111
Fluke 1730/BASIC	111
Fluke 1735	112
Fluke 1743	113
Fluke 1743 Basic	113
Fluke 1744	113
Fluke 1744 Basic	113
Fluke 1745	113
Fluke 175	26
Fluke 1750	114
Fluke 1750-TF	114
Fluke 1750/B	114
Fluke 1760	115
Fluke 1760 Basic	115
Fluke 1760TR	115
Fluke 1760TR Basic	115
Fluke 177	26
Fluke 179	26
Fluke 179/EDA2 Combo Kit	5
Fluke 179/MAG2 Kit	5
Fluke 179/Tpak Combo Kit	5
Fluke 190-062	100
Fluke 190-062/S	100
Fluke 190-102	100
Fluke 190-102/S	100
Fluke 190-104	100
Fluke 190-104/S	100
Fluke 190-202	100
Fluke 190-202/S	100
Fluke 190-204	100
Fluke 190-204/S	100
Fluke 190-502	100
Fluke 190-502/S	100
Fluke 190-504	100
Fluke 190-504/S	100
Fluke 1AC II	43
Fluke 1AC II 5-pack	43
Fluke 2042	45
Fluke 2042T	45
Fluke 233	24
Fluke 27 II	28
Fluke 28 II	28
Fluke 28 II Ex	28, 135
Fluke 287	23
Fluke 287/FVF Combo Kit	6
Fluke 289	23
Fluke 289/FVF Combo Kit	6
Fluke 2AC	43
Fluke 2AC 5 pack	43
Fluke 3000 FC General Maintenance Kit	18
Fluke 3000 FC HVAC Kit	18
Fluke 3000 FC Industrial Kit	18
Fluke 3000FC	21
Fluke 323	36
Fluke 324	36
Fluke 325	36
Fluke 345	106
Fluke 353	39
Fluke 355	39
Fluke 360	40
Fluke 365	37
Fluke 373	38
Fluke 374	38
Fluke 375	38
Fluke 376	38
Fluke 381	37
Fluke 414D	91
Fluke 414D/62 MAX+ Kit	6
Fluke 419D	91
Fluke 424D	91
Fluke 434-II	110
Fluke 435-II	110
Fluke 437-II	110
Fluke 43B	107
Fluke 481	142
Fluke 481-DESI	142
Fluke 51 II	69
Fluke 52 II	69
Fluke 53 II B	69
Fluke 54 II B	69
Fluke 561	68
Fluke 566	67
Fluke 568	67
Fluke 568Ex	67, 135
Fluke 572-2	65
Fluke 61	66
Fluke 62 MAX	66
Fluke 62 MAX+	66
Fluke 62 MAX+/323/1AC Kit	6
Fluke 6200-2	60
Fluke 63	66
Fluke 6500-2	60
Fluke 705	130
Fluke 707	130
Fluke 707 Ex	130, 135
Fluke 709	129
Fluke 709H	129
Fluke 712B	124
Fluke 714B	124
Fluke 715	130
Fluke 717 10000G	125
Fluke 717 1000G	125
Fluke 717 100G	125
Fluke 717 1500G	125
Fluke 717 15G	125
Fluke 717 1G	125
Fluke 717 3000G	125
Fluke 717 300G	125
Fluke 717 30G	125
Fluke 717 5000G	125
Fluke 717 500G	125
Fluke 718 100G	125
Fluke 718 1G	125
Fluke 718 300G	125
Fluke 718 30G	125
Fluke 718Ex 100G	125
Fluke 718Ex 30G	125
Fluke 719 100G	125
Fluke 719 30G	125
Fluke 719Pro 150G	125
Fluke 719Pro 300G	125
Fluke 71XTrap	126
Fluke 72071XTrap	125
Fluke 720RTD	125
Fluke 720URTDA	125
Fluke-721-1601	126
Fluke-721-1603	126
Fluke-721-1605	126
Fluke-721-1610	126
Fluke-721-1615	126
Fluke-721-1630	126
Fluke-721-1650	126
Fluke-721-3601	126
Fluke-721-3603	126
Fluke-721-3605	126
Fluke-721-3610	126
Fluke-721-3615	126
Fluke-721-3630	126
Fluke-721-3650	126
Fluke 724	123
Fluke 725	122
Fluke 725Ex	122, 135
Fluke 726	122
Fluke 753	121
Fluke 754	121
Fluke 77 IV	29
Fluke 771	131
Fluke 772	131
Fluke 773	131
Fluke 787	127
Fluke 789	127
Fluke 805	137
Fluke 810	138
Fluke 820-2	139
Fluke 830	140
Fluke 83V	25
Fluke 87V	25
Fluke 87V/E2	25
Fluke 87V/E2 Combo Kit	5
Fluke 87V/i410 Combo Kit	5
Fluke 8808A	32
Fluke 8845A	31
Fluke 8846A	31
Fluke 88V/A Kit	30
Fluke 902	40
Fluke 9040	44
Fluke 9062	44
Fluke 975	93
Fluke 975V	93
Fluke 975VP	93
Fluke 1000FLT	46
Fluke a3000 FC Wireless AC Current Clamp Kit	18
Fluke a3000FC	35
Fluke a3001 FC Wireless AC Current Clamp Kit	18
Fluke a3001FC	35
Fluke a3002FC	35
Fluke BT510	48
Fluke BT520	48
Fluke BT521	48
Fluke CV200	89
Fluke CV201	89
Fluke CV300	89
Fluke CV301	89
Fluke CV400	89
Fluke CV401	89
Fluke FP	66
Fluke FP Plus	66
Fluke lenses	88
Fluke T110	41
Fluke T130	41
Fluke T150	41
Fluke t3000 FC	70
Fluke t3000 FC Wireless Temperature Kit	18
Fluke T5-1000	42
Fluke T5-600	42
Fluke T5-600/62 MAX+/1AC-E Kit	6
Fluke T5-H5-1AC Kit	6
Fluke T90	41
Fluke Ti200	79
Fluke Ti300	79
Fluke Ti400	79
Fluke Ti520	84
Fluke Ti560	84
Fluke Ti90	76
Fluke Ti95	76
Fluke TiX1000	86
Fluke TiX640	86
Fluke TiX660	86
Fluke v3000 FC Wireless AC Voltage Kit	18
Fluke v3000FC	22
Fluke v3001 FC Wireless DC Voltage Kit	18
Fluke v3001FC	22
Fluke v3003 FC Wireless AC/DC Voltage Measurement Kit	18
Fluke VR1710	108
Fluke VT04	73
Fluke VT04 Electrician's Kit	73
Fluke VT04 HVAC Kit	73
Fluke VT04 Maintenance Kit	73
Fluke VT04A	73
FlukeView Software	155
FVF-SC2 FlukeView Forms software	23
FVF-SC2 FlukeView Forms software	62, 155
190HPS	142
3000/6000A-TF-4	112, 113
700 TLK	121
700TC1	151
700TC2	151
700G02	128
700G04	128
700G05	128
700G06	128
700G07	128
700G08	128
700G10	128
700G27	128
700G29	128
700G30	128
700G31	128
700GA27	128
700GA4	128
700GA5	128
700GA6	128
700RG05	128
700RG06	128
700RG07	128
700RG08	128
700RG29	128
700RG30	128

Product Quick Find List

Model	Page
700RG31	128
750 SW	121
750P00	132
750P01	132
750P02	132
750P03	132
750P04	132
750P05	132
750P06	132
750P07	132
750P08	132
750P09	132
750P2000	132
750P22	132
750P23	132
750P24	132
750P27	132
750P29	132
750P30	132
750P31	132
750PA27	132
750PA3	132
750PA4	132
750PA5	132
750PA6	132
750PA7	132
750PA8	132
750PA9	132
750PD10	132
750PD2	132
750PD27	132
750PD3	132
750PD4	132
750PD5	132
750PD50	132
750PD6	132
750PD7	132
750PV3	132
750PV4	132
750R045	132
750R065	132
750R07	132
750R085	132
750R27	132
750R29	132
750R30	132
750R315	132
750RD27	132
750RD5	132
750RD65	132
754HCC	121
80AK-A	150
80BK-A	150
80CJ-M	151
80CK-M	151
80i-110s	149
80K-40	156
80K-6	156
80PJ-1	150
80PJ-9	150
80PJ-EXT	151
80PK-1	150
80PK-10	150
80PK-11	150
80PK-18	151
80PK-22	150
80PK-24	150
80PK-25	150
80PK-26	150
80PK-27	150
80PK-3A	150
80PK-8	150
80PK-9	150
80PK-EXT	151
80PT-EXT	151
80T-150UA	150
80TK	150
90i-160s	154
AC120	101, 102
AC175	147
AC220	147
AC280	147
AC283	147
AC285	147
AC285-FTP	146
AC87	147
AC89	147
APP1000/APP2000	62
AS400	101, 102
BB120	101, 102
BC190	101, 102
BC190/820	101, 102
BC7240	121
BDST3/BDST4	62
BHT190	101, 102
BP120MH	101, 102
BP189	156
BP290	101, 102
BP291	101, 102
BP7240	121
BP880	154
BP881	154
BP980	144
C10	152, 153
C100	152, 153
C101	152, 153
C115	152, 153
C116	152, 153
C120	101, 102
C120	152, 153
C125	101, 102
C125	152, 153
C12A	152, 153
C150	152, 153
C1600	152, 153
C195	101, 102
C195	101, 102
C195	152, 153
C20	152, 153
C23	152, 153
C25	152, 153
C280	152, 153
C290	101, 102
C290	152, 153
C33	152, 153
C345	152, 153
C35	152, 153
C43	152, 153
C435	152, 153
C437-II	101, 102
C437-II	152, 153
C50	152, 153
C510	152, 153
C520A	152, 153
C550	152, 153
C75	152, 153
C781	152, 153
C789	152, 153
C799	152, 153
C800	152, 153
C90	152, 153
CXT170	152, 153
CXT280	152, 153
CXT80	152, 153
EBC290	101, 102
ES165X	62
EXTL100	62
FC SD card	155
FOM	155
FOS850	155
FOS850/1300	155
FS17X5-TF	112, 113
FTP-1	146
FTPL-1	146
H15	152, 153
H3	152, 153
H5	152, 153
H6	152, 153
H80M	152, 153
H900	145
HC120	101, 102
HC200	101, 102
HH290	101, 102
i1000s	148
i1010	149
i200	148
i2000 flex	148
i200s	148
i2500-10 Flex	38
i2500-18 iFlex	38
i30	149
i3000s	148
i3000s flex	148
i30s	149
i310s	149
i400	148
i400s	148
i410	149
i5s	148
i6000s flex	148
i800	148
IR189USB	156
ir3000 FC Connector	155
ir3000FC Connector	155
L200	156
L205	156
L206	156
L210	156
L215	146
LVD1	43
LVD2	43
MA190	101, 102
MC50	156
MC6	156
OC4USB	101, 102
PASS560R	62
pc3000FC adapter	155
PM8907	101, 102
PM8907/820	101, 102
PM9080/101	101, 102
PV350	154
RPM80	154
RS120-III	101, 102
RS400	101, 102
RS500	101, 102
SCC120	101, 102
SCC128	101, 102
SCC128	154
SCC198	154
SCC290	101, 102
SCC298	101, 102
SKMD-001	101, 102
SP6000	62
SPScan600	62
STL120-III	101, 102
STL90	101, 102
SV225	156
SW90W	101, 102
SW90W	101, 102
T5-KIT-1	146
TL175	101, 102
TL175	147
TL175E	147
TL220-1	145
TL221	145
TL222	145
TL223-1	145
TL224	145
TL225-1	156
TL238	145
TL27	145
TL28A	154
TL40	144
TL71-1	145
TL75-1	145
TL76	145
TL80A-1	144
TL81A	144
TL82	154
TL910	144
TL930	144
TL932	144
TL935	144
TL940	144
TL950	144
TL960	144
TL970	144
TLK-220	145
TLK-225-1	146
TLK281-1	154
TLK282-1	154
TLK287	144
TLK289	146
TLK290	62, 146
TLK290	146
TLK291	146
ToolPak	152, 153
Toolpak	155
TP1-1	146
TP175	147
TP2-1	146
TP220-1	146
TP38	146
TP40	154
TP74	146
TP80	146
TP81	154
TP82	154
TP88	154
TP912	144
TP920	101, 102
TP920	144
TRM50	101, 102
VPS101	101, 102
VPS220-X	101, 102
VPS40-III	101, 102
VPS410-II-X	101, 102
VPS420-X	101, 102
VPS510-X	101, 102

Fluke Connect™
Digital Multimeters
Clamp Meters
Electrical Testers
Battery Testers
Insulation Testers
Earth Ground Testers
Installation Testers
Portable Appliance Testers
Digital Thermometers
Thermal Imagers
Distance Meters
Indoor Air Quality Tools
ScopeMeter® Test Tools
Power Quality Tools
Visual Infrared Thermometers
Field Calibrators
Vibration Tester
Radiation Tester
EX Test Tools
Accessories

FLUKE®

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

Fluke (UK) Ltd.
52 Hurricane Way
Norwich
Norfolk
NR6 6 JB
United Kingdom

Tel.: +44 (0)20 7942 0700
Fax.: +44 (0)20 7942 0701
E-mail: industrial@uk.fluke.nl
Web: www.fluke.co.uk

Fluke Corporation
P.O. Box 9090
Everett, WA USA 98206
Web: www.fluke.com

Fluke Europe B.V.
P.O. Box 1186
5602 BD Eindhoven
The Netherlands
Web: www.fluke.com

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 2 675 200)
or Fax +31 (0)40 2 675 222
In Canada (905) 890-7600
or Fax (905) 890-6866
From other countries +1 (425) 446-5500
or Fax +1 (425) 446-5116

© Copyright 2015, Fluke Corporation.
All rights reserved.
Printed in the Netherlands, 01/15
Data subject to alteration without notice.
Pub_ID: 13285-eng