Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

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FLUKE®

Fluke 345

Power Quality Clamp Meter

Technical Data

The ideal meter for commissioning and troubleshooting modern electrical loads

With a bright color display to analyze the harmonic spectrum, 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 frequency drives, electronic lighting and UPS systems. Additionally, the Hall Effect measurement system makes measurement of dc current possible without the need to break the circuit, and the internal memory enables long-term logging for analysis of trends or intermittent problems.

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

CE C SP US N10140

Applications

Set up and troubleshoot variable frequency drives and UPS systems – Verify correct operation by measuring key parameters

Harmonics measurements – Uncover harmonic issues that can damage or disrupt critical equipment

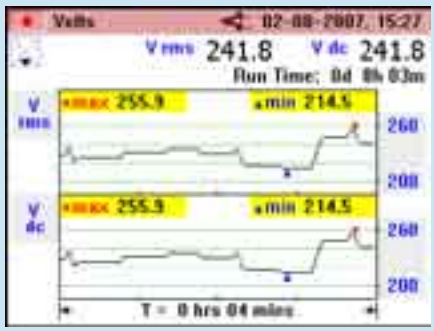
Inrush capture – Check start-up current where spurious resets or nuisance circuit breaker tripping occurs

Load studies – Verify electrical system capacity before adding loads

Log measured parameters

All voltage, current, power, and harmonic measurements can be logged for minutes, hours, or months. Measurement averaging periods from 1 second to 15 minutes can be selected depending on the application.

Measured parameters can be logged into three separate recording memory areas. If longer recordings are required, the three areas may be combined into one. Stored measurements can be recalled and displayed on-screen in normal screen format or downloaded using the Power Log software package.



Log parameters over time to track down intermittent faults.

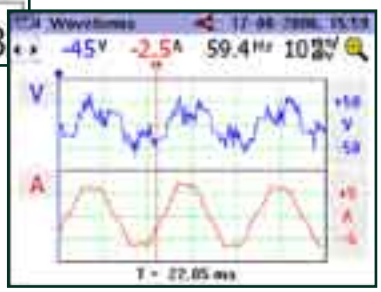
Harmonics measurements—view key harmonic factors such as distortion factor and total harmonic distortion, as well as individual harmonics up to the 30th harmonic.

Flexible and easy to use

The 345 measures a wide range of electrical parameters and can be used for many applications in today's modern electrical environment. Measuring mode is selected by a simple turn of the rotary switch and the large color display presents data in a clear, easy-to-understand way.

By default the display will show the most common measurements, in very large format. If more detailed views are required they are available with the press of a single key (up to six measurements at once).

Equipment performance measurement – power consumed by single- and three-phase balanced loads.



View waveforms for equipment checking and setup.

Inrush current

Diagnose equipment start-ups with the inrush current mode. A current trigger level is set prior to recording. Once the level has been exceeded, the meter will begin capture. Recordings from 3 seconds to 300 seconds may be captured, and up to 1000 inrush events may be stored in the instruments memory.

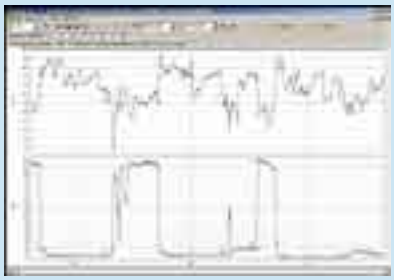
Screen captures and data logging

Any measurement can be stored in memory for later viewing, or downloaded to a PC. Simply press 'SAVE' to capture the active screen to memory – up to 50 screen shots can be saved for quick and simple documentation. Additionally, over 150,000 individual measurements can be logged for later review on the display or on a PC using Power Log software.

Analysis and reporting software

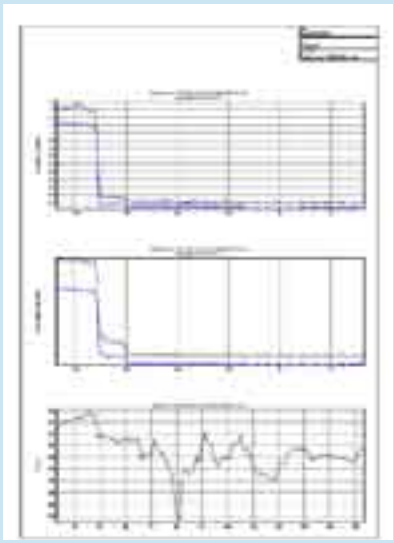
Designed to quickly view recorded data, the included Power Log software displays all recorded parameters on interactive trends. Generate professional reports with the 'Report Writer' function, or copy and paste images into report document manually.

- Easy-to-use tabbed window format allows quick data evaluation.
- One-step download and display capability
- Waveform, harmonics, and trend download
- Simple data export to other applications



View recorded data in simple graphs and tables.

Easily customize the report.



Create professional reports.

FLUKE®

General Specifications

Display

Color transmissive LCD 320 x 240 pixels (70 mm diagonal) with 2 level backlight

Power supply

Battery type 1.5 V Alkaline AA MN 1500 or IEC LR6 x 6	
Battery life typically	> 10 hours (backlight on full)
	> 12 hours (backlight reduced)
Battery Eliminator BE345	
Input	110 V/230 V, 50/60 Hz
Output	15 V dc, 300 mA

Ambient conditions (For indoor use only)

Reference conditions	All accuracies stated at 23 °C ± 1 °C (73.4 °F ± 1.8 °F)
Operating temperature	0 °C to 50 °C (32 °F to 122 °F)
Temperature coefficient of current	≤ ± 0.15 % of rdg per °C
Temperature coefficient of voltage	≤ ± 0.15 % of rdg per °C
Maximum relative humidity	80 % for temperatures up to 31 °C (87 °F) decreasing linearly to 50 % relative humidity at 40 °C (104 °F)
Maximum operating altitude	2000 m

Electrical safety

Safety IEC 61010-1 600 V CAT IV, double or reinforced insulation, pollution degree 2	
Protection IP40; EN60529	
Maximum safe working voltages	
Current measurement	600 V ac rms or dc between uninsulated conductor and ground
Voltage measurement	600 V ac rms or dc between either input terminal and ground, or 825 V between energized phase voltages (delta power config.)

EMC

Emission	IEC/EN 61326-1:1997 class B
Immunity	IEC/EN 61326-1:1997

Mechanical

Dimensions (length x width x depth)	300 mm x 98 mm x 52 mm (12 in x 3.75 in x 2 in)
Weight including batteries	820 g/1.8 lb
Jaw opening	60 mm
Jaw capacity	58 mm diameter
Cleaning	The unit can be cleaned with an Isopropanol impregnated cloth. Do not use abrasives or other solvents.

FLUKE®

Specifications

Electrical data

All accuracies stated at 23 °C ± 1 °C (73.4 °F ± 1.8 °F). See Ambient conditions specifications for temperature coefficients.

Current measurement (dc, dc rms, ac rms)

Measuring range	0 to 2000 A dc or 1400 ac rms
Autorange facility	40 A/400 A/2000 A
Resolution	10 mA in 40 A range
	100 mA in 400 A range
	1 A in 2000 A range
Accuracy	
DC and dc rms	
I > 10 A	± 1.5 % rdg ± 5 digits
I < 10 A	± 0.2 A
AVG	
I > 10 A	± 3 % rdg ± 5 digits
I < 10 A	± 0.5 A
Pk	
I > 10 A	± 5 % rdg ± 5 digits
I < 10 A	± 0.5 A
AHr	
I > 10 A	± 2 % rdg ± 5 digits
I < 10 A	± 0.5 AHr
CF (Crest Factor)	
1.1 ≤ CF < 3	± 3 % rdg ± 5 digits
3 ≤ CF < 5	± 5 % rdg ± 5 digits
Resolution	0.01
RPL (Ripple)	
2 % ≤ RPL < 100 %	± 3 % rdg ± 5 digits
100 % ≤ RPL < 600 %	± 5 % rdg ± 5 digits
Resolution	0.1 %
I_{dc} > 5 A, I_{ac} > 2 A	

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)

Voltage measurement (dc, dc rms, ac rms)

Measuring range	0 to 825 V dc or ac rms
Autorange facility	4 V/40 V/400 V/750 V
Resolution	1 mV in 4 V range
	10 mV in 40 V range
	100 mV in 400 V range
	1 V in 750 V range
Accuracy	
DC and dc rms	
V > 1 V	± 1 % rdg ± 5 digits
V < 1 V	± 0.02 V
AVG	
V > 1 V	± 3 % rdg ± 5 digits
V < 1 V	0.03 V
Pk	
V > 1 V	± 5 % rdg ± 5 digits
V < 1 V	± 0.03 V
CF (Crest Factor)	
1.1 ≤ CF < 3	± 3 % rdg ± 5 digits
3 ≤ CF < 5	± 5 % rdg ± 5 digits
Resolution	0.01
RPL (Ripple)	
2 % ≤ RPL < 100 %	± 3 % rdg ± 5 digits
100 % ≤ RPL < 600 %	± 5 % rdg ± 5 digits
Resolution	0.1 %
V_{dc} > 0.5 V, V_{ac} > 0.2 V	
All measurements dc and 15 Hz to 1 kHz Maximum overload 1,000 V rms Volts rms is a true-rms measurement (ac + dc)	

Harmonics

THD (Total Harmonic Distortion)	
1 % ≤ THD < 100 %	± 3 % rdg ± 5 digits
100 % ≤ THD < 600 %	± 5 % rdg ± 5 digits
Resolution	0.1 %
DF (Distortion Factor)	
1 % ≤ DF < 100 %	± 3 % rdg ± 5 digits
Resolution	0.1 %
H02 ≤ V_{harm} < H13	± 5 % rdg ± 2 digits
H13 ≤ V_{harm} ≤ H30	± 10 % rdg ± 2 digits
All measurements up to 30th harmonic (40th harmonic for 15 Hz to 22 Hz) Frequency range F_0 15 Hz to 22 Hz and 45 Hz to 65 Hz V_{acrms} > 1V	

Watts measurement (single- and three-phase) (dc, dc rms, ac rms)

Measuring range	0 to 1650 kW dc or 1200 kW ac
Autoranging facility	4 kW, 40 kW, 400 kW, 1650 kW ac
Resolution	1 W in 4 kW
	10 W in 40 kW
	100 W in 400 kW
	1 kW in 1200 kW
Accuracy	2.5 % rdg ± 5 digits
	W1Ø < 2 kW ± 0.08 kW
	W3Ø < 4 kW ± 0.25 kW

VA measurement (single- and three-phase) (dc, dc rms, ac rms)

Measuring range	0 to 1650 kVA dc or 1200 kVA ac
Autorange facility	4 kVA, 40 kVA, 400 kVA, 1650 kVA
Resolution	1 VA in 4 kVA
	10 VA in 40 kVA
	100 VA in 400 kVA
	1 kVA in 1200 kVA
Accuracy	
VA > 2 kVA	2.5 % rdg ± 5 digits
VA < 2 kVA	± 0.08 kVA

VAR measurement (single- and three-phase)

Measuring range	0 to 1250 kVAR
Autorange facility	4 kVAR, 40 kVAR, 400 kVAR, 1200 kVAR
Resolution	1 VAR in 4 kVAR
	10 VAR in 40 kVAR
	100 VAR in 400 kVAR
	1 kVAR in 1200 kVAR
Accuracy	
VAR > 4 kVAR	± 2.5 % rdg ± 5 digits
VAR < 4 kVAR	± 0.25 kVAR
Power factor range	0.3 < PF < 0.99

Power factor (single- and three-phase)

Power factor

Measuring range	0.3 capacitive and 1.0 to 0.3 inductive (72.5° capacitive and 0° to 72.5° inductive)
Resolution	0.001
Accuracy	± 3°
Frequency range	15 Hz to 1 kHz

Displacement power factor

Measuring range	0.3 capacitive and 1.0 to 0.3 inductive (72.5° capacitive and 0° to 72.5° inductive)
Resolution	0.001
Accuracy	± 3°
Frequency range	15 Hz to 22 Hz and 45 Hz to 65 Hz

Kilowatt hour (kWHr)

Measuring range	40,000 kWHr
Autorange facility	1 kWHr, 40 kWHr, 400 kWHr, 4,000 kWHr, 40,000 kWHr
Resolution	1 WHr in 4 kWHr
	10 WHr in 40 kWHr
	100 WHr in 400 kWHr
	1 kWHr in 4,000 kWHr
	10 kWHr in 40,000 kWHr
Accuracy	
kWHr > 2 kWHr	± 3 % ± 5 digits
kWHr < 2 kWHr	± 0.08 kWHr
All Watts /VA /VAR /PF measurements	
Frequency range	DC and 15 Hz to 1 kHz
Current range	10 A to 1400 A rms
Voltage range	1 V to 825 V rms
Maximum input	825 V rms/1400 A rms
Maximum overload	1000 V rms/10,000 A

Frequency measurement (from current or voltage sources)

Measuring range	15 Hz to 1 kHz
Resolution	0.1 Hz
Accuracy	15 to 22 Hz ± 0.5 % rdg
	40 Hz to 70 Hz ± 0.5 % rdg
	15 Hz to 1000 Hz ± 1% rdg
Current range	10 A to 1400 A rms
Voltage range	1 V to 825 V rms

Scope function

Current measurement	
Ranges	10 A/20 A/40 A/100 A/200 A/400 A/1000 A/2000 A
Resolution	1 A in 40 A
	10 A in 400 A
	50 A in 2000 A
Accuracy	± 3 % rdg ± 1 pixel
Maximum overload	10,000 A
Voltage measurement	
Ranges	4 V/10 V/20 V/40 V/100 V/200 V/400 V/1000 V
Resolution	100 mV in 4 V
	1 V in 40 V
	10 V in 400 V
	31.25 V in 1000 V
Accuracy	± 2 % rdg ± 1 pixel
Maximum overload	1000 V rms
Frequency range	DC and 15 Hz to 600 Hz
Time base	2.5 ms, 5 ms, 10 ms, 25 ms, 50 ms/div
Refresh rate	0.5 seconds
Maximum sampling rate	15.625 kHz

Inrush current function

Ranges	40 A, 400 A, and 2000 A
Resolution	10 mA in 40 A range
	100 mA in 400 A range
	1 A in 2000 A range
Accuracy	
I > 10 A	± 5 % rdg ± 1 pixel
I < 10 A	± 0.5 A
All measurements dc and 15 Hz to 1 kHz	
Maximum overload	Maximum overload 10,000 A or rms x frequency < 400,000
Amps rms is a true-rms measurement (ac + dc)	
Capture time	1 s, 3 s, 10 s, 30 s, 100 s, and 300 s
Maximum sampling rate	15.625 kHz

Interface

USB Interface to a PC
Power Log software for download, analysis, and reporting
345 Upgrade Utility for installing a new firmware version

Logging Memory

Logging areas	Three areas that can be used individually or combined into one large area
Averaging periods	1 s, 2 s, 5 s, 10 s, 30 s, 1 min, 5 min, 10 min, 15 min, and custom

Logging times

Volts and current mode		
Average time	**Logging time (1 area)**	**Logging time (3 areas)**
1 s	1 h 49 m	5 h 12 m
2 s	3 h 38 m	10 h 24 m
5 s	9 h 06 m	1 d 2 h 00 m
10 s	18 h 12 m	2 d 04 h 00 m
30 s	2 d 06 h 36 m	6 d 12 h 01 m
1 min	4 d 13 h 12 m	13 d 00 h 03 m
5 min	22 d 18 h 00 m	65 d 00 h 15 m
10 min	45 d 12 h 00 m	130 d 00 h 30 m
15 min	68 d 06 h 00 m	195 d 00 h 45 m

V & A harmonics mode		
Average time	**Logging time (1 area)**	**Logging time (3 areas)**
1 s	0 h 34 m	1 h 38 m
2 s	1 h 08 m	3 h 16 m
5 s	2 h 52 m	08 h 11 m
10 s	5 h 44 m	16 h 23 m
30 s	17 h 13 m	2 d 01 h 11 m
1 min	1 d 10 h 26 m	4 d 02 h 23 m
5 min	7 d 04 h 10 m	20 d 11 h 25 m
10 min	14 d 08 h 20 m	81 d 0 h 50 m
15 min	21 d 12 h 30 m	121 d 13 h 15 m

single- and three-phase power mode		
Average Time	**Logging Time (1 area)**	**Logging Time (3 areas)**
1 s	1 h 40 m	4 h 47 m
2 s	3 h 21 m	9 h 34 m
5 s	8 h 22 m	23 h 57 m
10 s	16 h 45 m	1 d 23 h 54 m
30 s	2 d 02 h 17 m	5 d 23 h 42 m
1 min	4 d 04 h 35 m	11 d 23 h 25 m
5 min	20 d 22 h 55 m	59 d 21 h 05 m
10 min	41 d 21 h 50 m	119 d 18 h 10 m
15 min	62 d 20 h 45 m	179 d 15 h 15 m

Ordering information

Fluke-345 Power Quality Clamp Meter

Includes
Soft carrying case
Power Log software
Test leads
Alligator clips
Test probes
USB cable
International ac adapter / battery eliminator
Printed English language user manual
Multi-language manual CD

Recommended Accessories:

TP220 SureGrip™ Industrial Test Probes – One pair (red, black) of Industrial test probes. Sharp, 12 mm stainless steel tip provides reliable contact. Use with TL224 test leads.

AC220 SureGrip™ Alligator Clips – One pair (red, black) of small, insulated, nickel plated jaws. Blunt tip grabs round screw heads up to 9.5 mm. Use with TL224 test leads.

TP1 Slim Reach Test Probes – One pair (red, black) of slender probe bodies for probing closely spaced or recessed terminals. Hard stainless steel probe tips with flat blade design to hold securely in blade type electrical wall sockets.

L200 Probe Light – Small, rugged, and light the L200 easily attaches to any Fluke test probe. Bright white LED illuminates contact area and frees hands for work.

L210 Probe Light and Probe Extenders – Includes L200 Probe Light and TP280 Test Probe Extenders to keep hands away from live circuits and light work area

C550 Tool Bag – Steel reinforced frame with heavy duty hardware and large zippered storage compartment includes 25 pockets. Allows you to carry all your tools to the job site.

TLK291 – Fused Test Leads provide extra safety with retractable sheath protecting contact points.

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

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Web access: http://www.fluke.com

Printed in U.S.A. 1/2007 2643038 D-EN-N Rev C