TECHNICAL DATA

Fluke 3540 FC Three-Phase Power Monitor

The 3540 FC Three-Phase Power Monitor is a compact device to monitor three-phase systems and stream data to the Fluke Connect® Cloud. The measurement data is available on any connected device using Fluke Connect mobile app or Fluke Connect® Condition Monitoring software. Graphs are available to show the trends and fluctuations of the measurements during the monitoring period. Alarm settings notify users immediately when measurement values are outside specified thresholds.

The Monitor includes a mode to log measurements when no connection to the Fluke Connect® Cloud is available. You can transfer Logged data with the Fluke Connect mobile app.

Measurements:

- Current (A)
- Voltage (V)
- Frequency (Hz)
- Power (W)
- Apparent power (VA)
- Non-active power (var)
- Power factor (PF)
- Total harmonic distortion voltage (%)
- Total harmonic distortion current (%)
- Harmonic content current (A)

The total number of measurements depends on the selected topology (wiring configurations), like wye, delta, or split phase.

FLUKE CONNECT®

THREE-PHASE MONITORING AND STREAMING

Monitor three-phase systems and stream data to the Fluke Connect Cloud

CONNECTED

The measurement data from the Fluke Connect Cloud is available on any connected device using the Fluke Connect mobile app or Fluke Connect Condition Monitoring software

EASY-TO-INSTALL AND MOVE

Powered from the measurement circuit, configuration checker can automatically correct connection errors

ALWAYS ON

The Monitor includes a mode to log measurements when no connection to the Fluke Connect Cloud is available

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Specifications

General specifications		
Color LCD display	4.3-inch active matrix color TFT, 480 pixels x 272 pixels, resistive touch panel	
Warranty	3540 FC and built-in power supply	2 years (battery not included)
	Accessories	1 year
Calibration cycle	2 years	
Dimensions (wxhxd)	3540 FC	19.8 cm x 16.7 cm x 5.5 cm (7.8 in x 6.6 in x 2.2 in)
	Detachable power supply	13.0 cm x 13.0 cm x 4.5 cm (5.1 in x 5.1 in x 1.8 in)
	3540 FC with power supply attached	19.8 cm x 16.7 cm x 9 cm (7.8 in x 6.6 in x 4.0 in)
Weight	3540 FC	1.1kg (2.5 lb)
	Power Supply	400 g (0.9 lb)
Tamper protection	Kensington lock	

Environmental specifications		
Operating temperature		0 °C to 45 °C (32 °F to 113 °F)
Storage temperature		<20 °C to +60 °C (-4 °C to +140 °F), with battery: -20 °C to +50 °C (-4 °F to +122 °F)
Operating humidity		<10 °C (<50 °F) non condensing
		10 °C to 30 °C (50 °F to 86 °F) ≤95 %
		30 °C to 40 °C (86 °F to 104 °F) ≤75 %
		40 °C to 45 °C (104 °F to 113 °F) ≤45 %
Operating altitude		2000 m (6,500 ft) (up to 4,000 m derate to 1000 V CAT II/600 V CAT III/300 V CAT IV)
Storage altitude		12,000 m (39,000 ft)
IP rating		IEC 60529:IP50, in connected condition with protection caps in place
Vibration		MIL-T-28800E, Type 3, Class III, Style B
Safety		
IEC 61010-1	IEC mains input	Overvoltage Category II, Pollution Degree 2
	Voltage terminals	Overvoltage Category IV, Pollution Degree 2
IEC 61010-2-033		CAT IV 600 V / CAT III 1000 V
Electromagnetic compatibility (EMC)		
International		IEC 61326-1: Industrial
Korea (KCC)		Class A Equipment (Industrial Broadcasting & Communication Equipment)
USA (FCC)		47 CFR 15 subpart B. This product is considered an exempt device per clause 15.103.
Wireless radio with adapter		
Frequency range		2412 MHz to 2462 MHz
Output power		<100 mW

Electrical specifications		
Power supply		
Voltage range		nominal 100 V to 500 V (85 V min to 550 V max) using safety plug input
Mains power		nominal 100 V to 240 V (85 V min to 265 V max) using IEC 60320 C7 input
Power consumption		Maximum 50 VA (max. 15 VA when powered using IEC 60320 input)
Standby power		<0.3 W only when powered using IEC 60320 input
Efficiency		≥ 68.2 % (in accordance with energy efficiency regulations)
Mains frequency		50/60 Hz ± 15 %
Battery power		Li-ion 3.7 V, 9.25 Wh, customer-replaceable
On-battery runtime		Up to 4 hr (up to 5.5 hr in energy saving mode)
Charging time		<6 hr
Voltage inputs		
Number of inputs		4 (3 phases and neutral)
Maximum input voltage		1000 Vrms (1700 Vpk) phase to neutral
Input impedance		10 MΩ each phase to neutral
Bandwidth		42.5 Hz to 3.5 kHz
Scaling		1:1, variable
Current inputs		
Number of inputs		3, mode selected automatically for attached sensor
Current sensor output voltage	Clamp	500 mVrms / 50 mVrms; CF 2.8
	Rogowski coil	150 mVrms/15 mVrms at 50 Hz, 180 mVrms/18 mVrms at 60 Hz; CF 4; all at nominal probe range
Bandwidth (-3 dB)		42.5 Hz to 3.5 kHz
Scaling		1:1 and variable
Data acquisition		
Resolution		16-bit synchronous sampling
Sampling frequency		10.24 kHz at 50/60Hz, synchronized to mains frequency
Input signal frequency		50/60 Hz (42.5 to 69 Hz)
Wiring configurations		1-Φ, 1-Φ IT, Split phase, 3-Φ wye, 3-Φ wye IT, 3-Φ wye balanced, 3-Φ delta, 3-Φ Aron/Blondel (2-element delta), 3-Φ delta open leg, 3-Φ high leg delta, 3-Φ delta balanced. Currents only (load studies)
Data storage		Internal flash memory (not user replaceable)
Memory size		Typical 1 offline logging section of 1 week with 1 second intervals. The number of possible logging sessions and logging period depends on user requirements.
Basic interval		
Measured parameters		Voltage, current, frequency, THD V, THD A, power, power factor, fundamental power, DPF
Averaging interval		1 s
Total harmonic distortion		THD for voltage and current is calculated on 25 harmonics
Averaging time min/max values		
Voltage		Full cycle RMS (20 ms at 50 Hz, 16.7 ms at 60 HZ)
Current		Half cycle RMS (10 ms at 50 Hz, 8.3 ms at 60 Hz)
Power		200 ms
Interfaces		
USB-A		Firmware updates, max. supply current: 120 mA
WiFi		
Supported modes		Direct connection and connection to infrastructure
Security		WPA2-AES with pre-shared key

Accuracy at reference conditions				
Parameter	**Range**	**Accuracy**		
		Max. resolution	**Intrinsic accuracy at reference conditions (% of reading + % of range)**	
Voltage	1000 V	0.1 V	± (0.2 % + 0.01 %)	
Current				
Direct input	Rogowski Mode	15 mV	0.01 mV	± (0.3 % + 0.02 %)
		150 mV	0.1 mV	± (0.3 % + 0.02 %)
	Clamp Mode	50 mV	0.01 mV	± (0.2 % + 0.02 %)
		500 mV	0.1 mV	± (0.2 % + 0.02 %)
1500 A iFlex	150 A		0.01 A	± (1 % + 0.02 %)
	1500 A		0.1 A	± (1 % + 0.02 %)
3000 A iFlex	300 A		1 A	± (1.5 % + 0.03 %)
	3000 A		10 A	± (1 % + 0.02 %)
6000 A iFlex	600 A		1 A	± (1.5 % + 0.03 %)
	6000 A		10 A	± (1.5 % + 0.03 %)
i40s-EL 40 A	4 A		1 mA	± (0.7 % + 0.02 %)
	40 A		10 mA	± (0.7 % + 0.02 %)
Frequency	42.5 Hz to 69 Hz		0.01 Hz	± (0.1 %)
Voltage Min/Max	1000 V		0.1 V	± (1 % + 0.1 %)
Current Min/Max	defined by accessory		defined by accessory	± (5 % + 0.2 %)
THD on voltage	1000 %		0.1 %	± (2.5 % ± 0.05 %)
THD on current	1000 %		0.1 %	± (2.5 % ± 0.05 %)

Power/Energy					
	Direct Input[1]	**iFlex1500-12**	**iFlex3000-24**	**iFlex6000-36**	**i40s-EL**
Parameter	Clamp: 50 mV/500 mV	150A/1500A	300A/3000A	600/6000A	4A/40A
	Rogowski: 15 mV/150 mV				
Power range W, VA, var	Clamp: 50 W/500 W	150 kW/1.5 MW	300 kW/3 MW	600 kW/6 MW	4 kW/40 kW
	Rogowski: 15 W/150 W				
Max. resolution W, VA, var	0.1 W	0.01 kW/0.10 kW	1 kW/10 kW	1 kW/10 kW	1 W/10 W
Max. resolution PF, DPFfund.	0.01				
	2.5 % of measured apparent power				
Phase (voltage to current) of range[1]	± 0.2°	± 0.28°			± 1°

[1] Only for calibration laboratories

iFlex probe specifications	
Measuring range	
iFlex 1500-12	1 A ac to 150 A ac / 10 A ac to 1500 A ac
iFlex 3000-24	3 A ac to 300 A ac / 30 A ac to 3000 A ac
iFlex 6000-36	6 A ac to 600 A ac / 60 A ac to 6000 A ac
Nondestructive current	100 kA (50/60 Hz)
Intrinsic error at reference condition[1]	± 0.7 % of reading
Accuracy 3540 FC + iFlex	
iFlex 1500-12 and iFlex 3000-24	± (1 % of reading + 0.02 % of range)
iFlex 6000-36	± (1.5 % of reading + 0.03 % of range)
Temperature Coefficient over operating temperature range	
iFlex 1500-12 and iFlex 3000-24	0.05 % of reading / °C (0.09 % of reading / °F)
iFlex 6000-36	0.1 % of reading / °C (0.18 % of reading / °F)

Positioning error with position of conductor in the probe window		
	iFlex1500-12, iFlex3000-24	**iFlex6000-36**
Probe Window A	± (1 % of reading + 0.02 % of range)	± (1.5 % of reading + 0.03 % of range)
Probe Window B	± (1.5 % of reading + 0.02 % of range)	± (2.0 % of reading + 0.03 % of range)
Probe Window C	± (2.5 % of reading + 0.02 % of range)	± (4 % of reading + 0.03 % of range

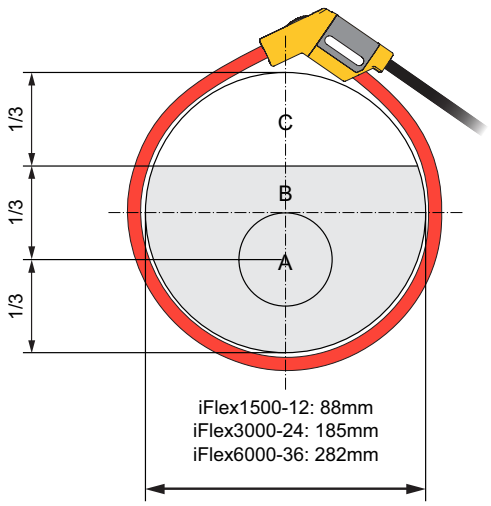

Figure. iFlex Probe Window

iFlex probe specifications	
External magnetic field rejection in reference to external current (with cable >100 mm from the head-coupling and r-coil)	40 dB
Phase shift	< ± 0.5°

Transducer length	
iFlex 1500-12	305 mm (12 in)
iFlex 3000-24	610 mm (24 in)
iFlex 6000-36	915 mm (36 in)
Transducer cable diameter	7.5 mm (0.3 in)
Minimum bending radius	38 mm (1.5 in)
Output cable length	
iFlex 1500-12	2 m (6.6 ft)
iFlex 3000-24 and iFlex 6000-36	3 m (9.8 ft)
Weight	
iFlex 1500-12	115 g (4 oz)
iFlex 3000-24	170 g (6 oz)
iFlex 6000-36	190 g (7 oz)
Material	
Transducer cable	TPR
Coupling	POM + ABS/PC
Output cable	TPR/PVC
Operating temperature	-20 °C to +70 °C (-4 °F to 158 °F) temperature of conductor under test shall not exceed 80 °C (176 °F)
Storage temperature	-40 °C to +80 °C (-40 °F to 176 °F)
Operating relative humidity	15 % to 85 % noncondensing
IP Rating	IEC 60529:IP50
Operating altitude	2000 m (6,500 ft) up to 4000 m (13,000 ft) derate to 1000 V CAT II / 600 V CAT III / 300 V CAT IV
Storage altitude	12 km (40,000 ft)
Warranty	1 year

Bandwidth	10 Hz to 23.5 kHz (probe only)
Frequency derating	I x f ≤385 kA Hz
Working voltage	1000 V CAT III, 600 V CAT IV

[1]Reference condition:

- Environmental: 23 °C ±5 °C, no external electrical/magnetic field, RH 65 %
- Primary conductor in center position

FLUKE CONNECT®

Preventive maintenance simplified. Rework eliminated.

Save time and improve the reliability of your maintenance data by wirelessly syncing measurements using the Fluke Connect® system.

- Eliminate data-entry errors by saving measurements directly from the tool and associating them with the work order, report or asset record.
- Maximize uptime and make confident maintenance decisions with data you can trust and trace.
- Access baseline, historical and current measurements by asset.
- Move away from clipboards, notebooks and multiple spreadsheets with a wireless one-step measurement transfer.
- Share your measurement data using ShareLive™ video calls and emails.
- The 3540 FC is part of a growing system of connected test tools and equipment maintenance software. Visit the website to learn more about the Fluke Connect® system.

Find out more at **flukeconnect.com**

Download on the App Store

ANDROID APP ON Google play

All trademarks are the property of their respective owners. WiFi or cellular service required to share data. Smartphone, wireless service and data plan not included with purchase. First 5 GB of storage is free. Phone support details can be viewed at **fluke.com/phones**.

Smart phone wireless service and data plan not included with purchase. Fluke Connect is not available in all countries.

Ordering information

FLUKE-3540 FC Three-Phase Power Monitor

Included

Instrument, power supply, voltage test leads, dolphin clips (4x), 1500A flexible current probe (3x), magnetic hanging kit, WiFi to USB adapter, and color coding set

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

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