

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.



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



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	Overshoot Category II, Pollution Degree 2
	Voltage terminals	Overshoot 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 session 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	$\pm (0.2 \% + 0.01 \%)$	
Current				
Direct input	Rogowski Mode	15 mV	0.01 mV	$\pm (0.3 \% + 0.02 \%)$
		150 mV	0.1 mV	$\pm (0.3 \% + 0.02 \%)$
	Clamp Mode	50 mV	0.01 mV	$\pm (0.2 \% + 0.02 \%)$
		500 mV	0.1 mV	$\pm (0.2 \% + 0.02 \%)$
1500 A iFlex	150 A		0.01 A	$\pm (1 \% + 0.02 \%)$
	1500 A		0.1 A	$\pm (1 \% + 0.02 \%)$
3000 A iFlex	300 A		1 A	$\pm (1.5 \% + 0.03 \%)$
	3000 A		10 A	$\pm (1 \% + 0.02 \%)$
6000 A iFlex	600 A		1 A	$\pm (1.5 \% + 0.03 \%)$
	6000 A		10 A	$\pm (1.5 \% + 0.03 \%)$
i40s-EL 40 A	4 A		1 mA	$\pm (0.7 \% + 0.02 \%)$
	40 A		10 mA	$\pm (0.7 \% + 0.02 \%)$
Frequency	42.5 Hz to 69 Hz		0.01 Hz	$\pm (0.1 \%)$
Voltage Min/Max	1000 V		0.1 V	$\pm (1 \% + 0.1 \%)$
Current Min/Max	defined by accessory		defined by accessory	$\pm (5 \% + 0.2 \%)$
THD on voltage	1000 %		0.1 %	$\pm (2.5 \% \pm 0.05 \%)$
THD on current	1000 %		0.1 %	$\pm (2.5 \% \pm 0.05 \%)$

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	$\pm 0.2^\circ$	$\pm 0.28^\circ$			$\pm 1^\circ$

¹ Only for calibration laboratories

iFlex probe specifications		Transducer length
Measuring range		iFlex 1500-12 305 mm (12 in)
iFlex 1500-12	1 A ac to 150 A ac / 10 A ac to 1500 A ac	iFlex 3000-24 610 mm (24 in)
iFlex 3000-24	3 A ac to 300 A ac / 30 A ac to 3000 A ac	iFlex 6000-36 915 mm (36 in)
iFlex 6000-36	6 A ac to 600 A ac / 60 A ac to 6000 A ac	Transducer cable diameter 7.5 mm (0.3 in)
Nondestructive current	100 kA (50/60 Hz)	Minimum bending radius 38 mm (1.5 in)
Intrinsic error at reference condition ¹	± 0.7 % of reading	
Accuracy 3540 FC + iFlex		Output cable length
iFlex 1500-12 and iFlex 3000-24	± (1 % of reading + 0.02 % of range)	iFlex 1500-12 2 m (6.6 ft)
iFlex 6000-36	± (1.5 % of reading + 0.03 % of range)	iFlex 3000-24 and iFlex 6000-36 3 m (9.8 ft)
Temperature Coefficient over operating temperature range		Weight
iFlex 1500-12 and iFlex 3000-24	0.05 % of reading / °C (0.09 % of reading / °F)	iFlex 1500-12 115 g (4 oz)
iFlex 6000-36	0.1 % of reading / °C (0.18 % of reading / °F)	iFlex 3000-24 170 g (6 oz)
		iFlex 6000-36 190 g (7 oz)

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)

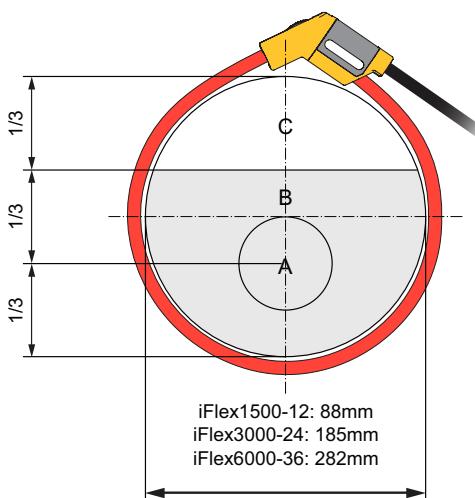


Figure. iFlex Probe Window

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	$I \times f \leq 385 \text{ kA Hz}$
Working voltage	1000 V CAT III, 600 V CAT IV

¹Reference condition:

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

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°



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



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.®

Fluke Corporation
PO Box 9090, Everett, WA 98206 U.S.A.

Fluke Europe B.V.
PO Box 1186, 5602 BD
Eindhoven, The Netherlands

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 2675 200 or
Fax +31 (0) 40 2675 222
In Canada (800)-36-FLUKE or
Fax (905) 890-6866
From other countries +1 (425) 446-5500 or
Fax +1 (425) 446-5116
Web access: <http://www.fluke.com>

©2016-2017 Fluke Corporation.
Specifications subject to change without notice.
1/2017 6008088c-en

Modification of this document is not permitted
without written permission from Fluke Corporation.



OCEAN CHIPS

Океан Электроники

Поставка электронных компонентов

Компания «Океан Электроники» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Поставка оригинальных импортных электронных компонентов напрямую с производств Америки, Европы и Азии, а так же с крупнейших складов мира;
- Широкая линейка поставок активных и пассивных импортных электронных компонентов (более 30 млн. наименований);
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Компания «Океан Электроники» является официальным дистрибутором и эксклюзивным представителем в России одного из крупнейших производителей разъемов военного и аэрокосмического назначения «JONHON», а так же официальным дистрибутором и эксклюзивным представителем в России производителя высокотехнологичных и надежных решений для передачи СВЧ сигналов «FORSTAR».



JONHON

«JONHON» (основан в 1970 г.)

Разъемы специального, военного и аэрокосмического назначения:

(Применяются в военной, авиационной, аэрокосмической, морской, железнодорожной, горно- и нефтедобывающей отраслях промышленности)

«FORSTAR» (основан в 1998 г.)

ВЧ соединители, коаксиальные кабели, кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).



Телефон: 8 (812) 309-75-97 (многоканальный)

Факс: 8 (812) 320-03-32

Электронная почта: ocean@oceanchips.ru

Web: <http://oceanchips.ru/>

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, д. 2, корп. 4, лит. А