Now enhanced with 3K memory and FFT Spectrum Analysis

FLUKE®

ScopeMeter® 190 Series and ScopeMeter® 120 Series

Technical Data

Connect and View

ISO 9001



ScopeMeter 190 Series: Speed, performance and analysis power

For demanding applications, the ScopeMeter 190C and 190B Series high-performance oscilloscopes offer specifications usually found on top-end bench instruments. They're ideal for engineers who need the full capabilities of a high-performance scope in a handheld, battery powered instrument.

- ☑ Dual input – 200, 100 or 60 MHz bandwidth
- ☑ Up to 2.5 GS/s real-time sampling per input
- ☑ Choice between a high resolution Color (190C) or Black and White (190B) display
- ☑ High waveform resolution of 3000 datapoints per channel
- ☑ Digital Persistence for analyzing complex dynamic waveforms like on an analog scope (190C Series)
- ☑ Fast display update rate for seeing dynamic behavior instantaneously
- ☑ Connect-and-View™ automatic triggering, a full
- ☑ Range of manual trigger modes plus external triggering
- ☑ Frequency Spectrum using FFT analysis (190C)
- ☑ 27,500 points per input record length using ScopeRecord™ mode
- ☑ Automatic capture and replay of 100 screens
- ☑ Four hours rechargeable NiMH battery pack
- ☑ 1,000V CAT II and 600V CAT III safety certified
- ☑ Up to 1,000V independently floating isolated inputs

ScopeMeter 120 Series: 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 fast answers to problems in machinery, instrumentation, control and power systems.

- ☑ A dual input 40 MHz or 20 MHz digital oscilloscope
- ☑ Two 5,000 counts true-rms digital multimeters
- ☑ Cursor measurements (Fluke 124)
- ☑ A dual input TrendPlot™ recorder
- ☑ Connect-and-View™ trigger simplicity for hands-off operation
- ☑ Shielded test leads for oscilloscope, resistance, continuity and capacitance measurements
- ☑ Up to seven hours battery operation
- ☑ 600V CAT III safety certified
- ☑ Optically isolated RS-232 interface
- ☑ Rugged, compact case

Technical Specifications 190C and 190B Series

OSCILLOSCOPE MODE

VERTICAL DEFLECTION

	Fluke 199C Fluke 199B	Fluke 196C, Fluke 196B	Fluke 192B
Bandwidth	200 MHz	100 MHz	60 MHz
Rise time	1.7 ns	3.5 ns	5.8 ns

Bandwidth limiter	User selectable: 10 kHz, 20 MHz or off
Number of inputs	2 plus external trigger. All inputs isolated from each other and ground.
Input coupling	AC or DC, with ground level indicator
Input sensitivity	2 mV/div to 100 V/div (Fluke 190C Series); 5 mV/div to 100 V/div (Fluke 190B Series)
Normal/Invert	On both input channels; switched separately
Variable Attenuator	Variable Gain on input channel A
Input voltage	1000V CAT II, 600 V CAT III rated – See 'general specifications' for further details.
Vertical resolution	8 bit
Accuracy	± (1.5% of reading + 0.04 x range/div)
Input impedance	1 MΩ ± 1% // 15 pF ± 2 pF

HORIZONTAL

	Fluke 199C Fluke 199B	Fluke 196C Fluke 196B	Fluke 192B
Maximum real-time sample rate	2.5 GS/s	1 GS/s	500 MS/s
Number of digitizers	2	2	2
Time base range	5 ns/div to 5 s/div		10 ns/div to 5 s/div

Maximum record length	3000 points per input in Scope-mode; 27,500 points per input in ScopeRecord™ roll mode (5 ms/div … 2 min/div)
Accuracy	± (0.01% of reading + 1 pixel)
Glitch capture	50 nsec (5 µsec/div to 1 min/div)

DISPLAY AND ACQUISITION

	Fluke 190C	Fluke 190B
Display	144 mm Full Color LCD	144 mm Monochrome LCD
Display modes	Input A, Input B, dual, average, Replay	
Persistence modes	Digital Persistence: short / medium / long / infinite	Persistence on / off

Visible screen width	12 divisions in scope mode
Waveform Mathematics	A+B, A–B, A*B, all with user selectable scaling of resultant; A versus B (X-Y-mode); Frequency Spectrum using FFT analysis (190C only).
Acquisition modes	Normal, auto, single shot, ScopeRecord™, roll, glitch capture, waveform compare, waveform compare with automatic "Pass / Fail testing" (in 199C and 196C only)

TRIGGER AND DELAY

Source	Input A, input B, external trigger input. All input references isolated from each other and from ground.
Modes	Automatic Connect-and-View™, free run, single shot, edge, delay, video, video line, selectable pulsewidth, dual slope (190C only), N-cycle (190C only)
Connect-and-View™	Advanced automatic triggering that recognizes signal patterns, automatically sets up and continuously adjusts triggering, time base and amplitude. Automatically displays stable waveforms of complex and dynamic signals like motor drive and control signals. Can be switched off if so desired.
Video triggering	NTSC, PAL, PAL+, SECAM. Includes field 1, field 2 and line select.
Pulse width triggering	Pulse width qualified by time. Allows for triggering $<t$, $>t$, $=t$, $\neq t$, where t is selectable in minimal steps of 0.01 div or 50 nsec
Time delay	1 full screen of pre-trigger view or up to 100 screens (=1200 divisions) of post-trigger delay.
Dual slope triggering	Both rising and falling transitions, when crossing the trigger level, initiate an acquisition (190C only)
N-cycle triggering	Triggers on N-th occurrence of a trigger event; N to be set in the range 2 to 99 (190C only).

AUTOMATIC CAPTURE OF 100 SCREENS

	The instrument ALWAYS memorizes the last 100 screens (no user setup required). When an anomaly occurs on screen, the REPLAY button can be pressed to review the full screen sequence over and over. Instrument can be set up for triggering on glitches or intermittent anomalies and will operate in "baby-sit" mode and will capture 100 events.
Replay	Manual or continuous replay. Displays the captured 100 screens as a "live" animation, or under manual control. Each screen has date- and time-stamp.
Replay storage	Up to 2 sets of 100 screens each can be saved for later recall and analysis.

FFT - FREQUENCY SPECTRUM ANALYSIS (190C only)

	Shows frequency content of oscilloscope waveform using Fast Fourier Transform
Window	Automatic, Hamming, Henning or None
Automatic Window	Digitally re-samples acquired waveform to get optimum frequency resolution in FFT resultant
Vertical Scale	Linear / Logarithmic, in volts
Frequency Axis	Logarithmic; frequency range automatically set as function of timebase range of oscilloscope

WAVEFORM COMPARE AND PASS/FAIL TESTING

Waveform compare	Provides storage and display of a reference waveform for visual comparison with newly acquired waveforms. Reference is derived from an acquired waveform and can be modified in the ScopeMeter or externally using FlukeView Software.
Pass/Fail Testing (199C, 196C)	In waveform compare mode, the Color ScopeMeter can be set up to store only matching ("Pass") or only non-matching ("Fail") acquired waveforms in the replay memory bank for further analysis.

AUTOMATIC SCOPE MEASUREMENTS

Vdc, Vac rms, Vac+dc, Vpeak max, Vpeak min, Vpeak to peak, Aac, Adc, Aac+dc, frequency (Hz), risetime, falltime, power factor, Watts, VA, VA reactive, phase, pulsewidth (pos./neg.), dutycycle (pos./neg.), temperature °C, temperature °F, dBV, dBm into 50Ω and 600Ω
V_{PWM} ac, V_{PWM} ac+dc for measurement on pulsewidth modulated motordrives and frequency inverters

CURSOR MEASUREMENTS

Source	Input A, input B or the Mathematical Result trace (excl. A vs B curve)
Dual horizontal lines	Voltage at cursor 1 and 2, voltage between cursors
Dual vertical lines	Time between cursors, 1/T between cursors (in Hz), voltage between markers, risetime with markers, falltime with markers; Vrms between cursors (190C only), Watts between cursors (190C only)
Single vertical line	Min-Max and Average voltage at cursor position; Frequency and RMS-value of individual frequency component in FFT Result (190C only)

ZOOM

Up to 16x horizontal zoom

METER MODE

Via 4 mm banana inputs. Fully isolated from scope inputs and scope ground. The specified accuracy is valid over the temperature range 18 °C to 28 °C (65 °F to 82 °F). Add 10 % of specified accuracy for each degree C below 18 °C or above 28 °C.

MAXIMUM RESOLUTION	5,000 counts
VOLTMETER RANGES	500mV, 5V, 50V, 500V, 1,000V
ACCURACY	
Vdc	± (0.5 % + 5 counts)
Vac true rms	
15 Hz...60 Hz:	± (1 % + 10 counts)
60 Hz...1 kHz:	± (2.5 % + 15 counts)
Vac+dc true rms	
dc...60 Hz:	± (1 % + 10 counts)
60 Hz...1 kHz:	± (2.5 % + 15 counts)

OHMS	
Ranges	500Ω, 5kΩ, 50kΩ, 500kΩ, 5MΩ, 30MΩ
Accuracy	± (0.6 % + 5 counts)

OTHER METER FUNCTIONS	
Continuity	Beeper on < 50Ω (± 30Ω)
Diode test	Up to 2.8V
Amps	Adc, Aac, Aac+dc using an optional current clamp or shunt. Scaling factors: 0.1 mV/A ... 100 V/A
Temperature (°C, °F)	With optional accessories. Scale factors 1 °C/mV or 1 °F/mV
Input impedance	1 MΩ ± 1% // 10 pF ± 2 pF
Advanced meter functions	Auto/manual ranging, relative measurements (Zero reference), TrendPlot recording

RECORDER MODE

SCOPE-RECORD-ROLL MODE	Dual input waveform storage mode.
Source and display	Input A, Input B, Dual
Memory depth	27,500 points per input. Each point consist of Min-Max pair.
Min-Max values	Min-Max values are measured at high sample rate ensuring capture and display of glitches.

Time base range	**5 ms/div to 1 min/div**	**2 min/div**
Recorded timespan	6 sec to 24 hr	48 hr
Glitch capture	50 ns	250 ns
Sample rate	20 MS/s	4 MS/s
Resolution	200 µsec to 2 sec	4.8 sec

Recording modes	Single sweep, continuous roll, Start-on-Trigger (through external), Stop-on-Trigger (through external)
Stop-on-Trigger (through External)	ScopeRecord mode can be stopped by an individual trigger event, or by an interruption of a repetitive trigger signal.
Horizontal scale	Time from start, time of day
Zoom	Up to 100x
Memory	Up to 2 dual input ScopeRecord waveforms can be saved for later recall and analysis.

TRENDPLOT™ RECORDING	Single or dual input electronic paperless chart recorder. Plots, displays and stores meter and scope measurements.
Source and display	Input A, Input B or DMM input
Memory depth	18,000 points record per input. Per record point a minimum, a maximum and an average value, plus a date- and timestamp are stored.
Ranges	
- normal view	5 s/div to 30 min/div
- in view-all mode (overview of total record)	5 min/div to 48 hr/div
Recorded timespan	Up to 22 days with a resolution of 1 minute
Recording mode	Continuous roll for the duration of the full recordable timespan
Measurement speed	5 measurements per second or more
Horizontal scale	Time from start, time of day
Zoom	Up to 64x zoom
Memory	Up to 2 TrendPlot recordings can be saved for later recall and analysis.

CURSOR MEASUREMENTS - ALL RECORDER MODES	
Source	Input A, B or DMM input
Dual vertical lines	Min-Max or Average voltage. Time between cursors
Single vertical line	Min-Max or Average voltage. Absolute date and time or time from start

GENERAL SPECIFICATIONS

INPUT VOLTAGE RATINGS

Maximum probe voltage	1,000V CAT II, 600V CAT III *(Maximum voltage between 10:1 probe tip (VPS200) and reference lead)*
Floating voltage	1,000V CAT II, 600V CAT III *(Maximum voltage between earth ground and any terminal (signal input or shielding))*
Independently isolated inputs	1,000V CAT II, 600V CAT III *(Maximum voltage between any terminal of one input or probe (VPS200) and any other terminal of another input or probe (VPS200))*
Maximum voltage on BNC input directly (input A or B)	300V CAT III
Maximum voltage on meter input	1,000V CAT II, 600V CAT III

MEMORY SAVE AND RECALL

Scope memories	10 memory locations that each can contain two waveforms plus corresponding setup.
Recorder memories	2 memory locations that each can contain 100 captured dual input scope screens, or a dual input ScopeRecord (27,500 Min–Max pairs per input), or a dual input Trendplot (18,000 min–max pairs).

REAL-TIME CLOCK

Time and date stamp for ScopeRecord, 100 captured screens and TrendPlots.

CASE

Design	Rugged, shock proof with integrated protective holster
Drip and dust proof	IP51 according to IEC529
Shock and Vibration	Shock 30g, Vibration (sinusoidal) 3g according to MIL-PRF-28800F Class 2.
Display Size	115.2 x 86.4 mm (4.54 x 3.4 inches)
Resolution	320 x 240 pixels
Contrast and brightness	User adjustable, temperature compensated

	Fluke 190C	Fluke 190B
DISPLAY	Bright full-color LCD with backlight	Bright LCD with backlight
BRIGHTNESS	80 Cd/m^2 typ. using power adapter	125 Cd/m^2 typ. using power adapter

MECHANICAL DATA

Size	256 x 169 x 64 mm (10.1 x 6.6 x 2.5 inches)
Weight	2 kg (4.4 lbs)

POWER

Line power	Country specific line voltage adapter/battery charger included.
Battery power	Rechargeable NiMH (installed)
Battery operating time	4 hours
Battery charging time	4 hours
Battery power saving functions	Auto power down with adjustable power down time. On screen battery power indicator

SAFETY

Compliance	EN61010-1 (2nd edition) Pollution Degree 2; UL3111-1; CAN/CSA C22.2 No. 1010.1; ANSI/ISA S82.01.

ENVIRONMENTAL

Operating temperature	0 °C to +50 °C
Storage temperature	-20 °C to +60 °C
Humidity	10 °C to 30 °C: 95% RH non condensing 30 °C to 40 °C: 75% RH non condensing 40 °C to 50 °C: 45% RH non condensing
Maximum operating altitude	3,000 m (10,000 feet)
Maximum storage altitude	12 km (40,000 feet)
Electro-Magnetic-Compatibility (EMC)	EN 61326-1 for emission and immunity

OPTICALLY ISOLATED PC/PRINTER INTERFACE

To printer	Supports HP Laserjet®, DeskJet, Epson FX/LQ, Seiko DPU-414 and Postscript printers via optional PAC 91
To PC	Transfer instrument settings, screen images and waveform data, compatible with FlukeView® software for Windows® via optional PM9080.

WARRANTY

3 years (parts and labor) on main instrument, 1 year on accessories.

Technical Specifications ScopeMeter 120 Series

OSCILLOSCOPE MODE

VERTICAL DEFLECTION

Bandwidth and risetime	Fluke 124	Fluke 123
• with VPS40 probes	40 MHz	20 MHz
• input A and B directly	40 MHz	20 MHz
• with STL120 Shielded Test Leads	12.5 MHz	12.5 MHz
Instrument risetime (input directly)	8.75 ns	17.5 ns

Number of inputs	2
Input coupling	AC, DC with ground level indicator
Input sensitivity	5 mV ... 500 V/div (with included VPS40 (Fluke 124) and STL120 shielded test leads measure up to 600Vrms CAT III)
Vertical resolution	8 bit
Accuracy	± (2% of reading + 0.05 x range/div)
Input impedance	1 MΩ ± 1% // 225 pF with STL120 shielded test leads 1 MΩ ± 1% // 20 pF ± 3 pF with BB120 5 MΩ ±1 % // 15.5 pF with VPS40, 10:1 Voltage probe

HORIZONTAL

Maximum sample rate	Fluke 124: 2.5 GS/s for repetitive signals; 25 MS/s for single shot Fluke 123: 1.25 GS/s for repetitive signals; 25 MS/s for single shot
Number of digitizers	2
Time base range	10 ns/div to 1 min/div (Fluke 124); 20 ns/div to 1 min/div (Fluke 123)
Maximum record length	512 Min-Max points per input
Accuracy	± (0.1% of reading + 1 pixel)
Glitch detect	40 ns

DISPLAY AND ACQUISITION

Display modes	Input A, input A and B, envelope, smooth
Acquisition modes	Normal, single shot, roll, glitch capture (always on)

TRIGGER AND DELAY

Source	Input A, input B, external via optional ITP120
Modes	Automatic Connect-and-View™, Free Run, Edge, Single Shot, Video, Video Line
Connect-and-View™	Advanced automatic triggering that recognizes signal patterns and automatically sets up and continuously adjusts triggering, time base and amplitude. Automatically displays stable pictures of complex and dynamic signals like motor drive and control signals.
Video triggering	NTSC, PAL, PAL+, SECAM. Includes line select
Time delay	Up to 10 divisions pre-trigger view

MEASUREMENTS

VDC, VAC, VAC+DC, Vpeak max, Vpeak min, Vpeak to peak, frequency (Hz), positive pulse width, negative pulse width, positive duty cycle, negative duty cycle, Amp AC, Amp DC, Amp AC+DC, Phase, Temperature °C, Temperature °F, dBV, dBm into 50Ω and 600Ω. (Amps, °C or °F with optional probes)

CURSOR MEASUREMENTS (124 only)

Sources	Input A, Input B
Modes	Single or dual vertical cursor, dual horizontal cursor, rise- or falltime
Measurements:	
Single vertical line	Average, min value, max value, time from start of recording in roll mode
Dual vertical lines	ΔV at markers, time between cursors, 1/T between cursors (in Hz)
Dual horizontal lines	High, low or ΔV - readout, rise- and falltime: transition time, 0 %-level, 100 %-level, with markers at 10 % and 90 %
Accuracy	As oscilloscope

DUAL INPUT METER

The specified accuracy is valid over the temperature range 18 °C to 28 °C (65 °F to 82 °F). Add 10 % of specified accuracy for each degree C below 18 °C or above 28 °C.

Max. meter bandwidth	40 MHz (for Fluke 124) and 20 MHz (for Fluke 123)

VDC

Ranges	500mV, 5V, 50V, 500V, 1,250V
Max. Resolution	5,000 counts
Accuracy	± (0.5% + 5 counts)

VAC RMS

Ranges	500mV, 5V, 50V, 500V, 1,250V
Max. Resolution	5,000 counts
Accuracy	1 Hz...60 Hz: ±(1% + 10 counts) 60 Hz...1 kHz: ±(2.5% + 15 counts) 20 kHz...1 MHz (5% + 20 counts)

VAC+DC TRUE RMS

Ranges	500mV, 5V, 50V, 500V, 1,250V
Max. Resolution	5,000 counts
Accuracy	DC ... 60 Hz: ±(1% + 10 counts) 60 Hz...1 kHz: ±(2.5% + 15 counts) 20 kHz...1 MHz ±(5% + 20 counts)

OHMS

Ranges	500Ω, 5kΩ, 50kΩ, 500kΩ, 5MΩ, 30MΩ
Max. Resolution	5,000 counts
Accuracy	± (0.6% of reading + 5 counts)

CAPACITANCE

Ranges	50 nF ... 500µF
Max. Resolution	5,000 counts
Accuracy	± (2% of reading + 10 counts)

OTHER METER FUNCTIONS

Frequency	Up to 70 MHz (Fluke 124) and up to 40 MHz (Fluke 123)
Continuity	Beeper on < 30Ω
Diode test	Up to 2.8V
Amps	Amp DC, Amp AC, Amp AC+DC using an optional current clamp or shunt. Scaling factors: 0.1 mV/Amp ... 100 V/Amp
Temperature (°C, °F)	With optional accessories. Scale factors 1 mV/°C or 1 mV/°F
Number of inputs	2
Input impedance	1MΩ ± 1% // 10 pF ± 2 pF
Advanced meter functions	Auto/manual ranging TouchHold® Relative measurements (zero reference) TrendPlot recording

RECORDER MODE

TRENDPLOT™ RECORDING	Dual input electronic paperless chart recorder. Plots and displays the actual, minimum, maximum and average of any measurement.
Source and display	Input A, Input A and B
Range	15 s/div till 2 days per division (automatic)
Recorded timespan	Up to 16 days with a resolution of 1.5 hours
Recording mode	Continuous with automatic vertical scaling and horizontal time compression
Measurement speed	2.5 measurements per second maximum
Horizontal scale	Time from start

GENERAL SPECIFICATIONS

CASE

Design	Rugged, shock proof with integrated protective holster
Drip and dust proof	IP51 according to IEC529
Shock and Vibration	Shock 30g, Vibration 3g according to MIL-T-28800E, Type III, Class 3, Style B

DISPLAY	Bright LCD with CCFL backlight, 35/60 cd/m^2 without/with adapter
Size	72 x 72mm (2.8 x 2.8 inch)
Resolution	240 x 240 pixels
Contrast and brightness	User adjustable, temperature compensated
MEMORY SAVE AND RECALL	20 (Fluke 124) and 10 (Fluke 123) instrument screens with user set-ups and user text
REAL-TIME CLOCK	Time and date stamp TrendPlot recording

POWER

Line power	Country specific line voltage adapter/battery charger included
Battery power	Rechargeable Ni-MH BP130 (installed in Fluke 124) or rechargeable NiCd BP120 (installed in Fluke 123)
Battery operating time	Up to 7 hours using BP130, up to 5 hours using BP120
Battery charging time	5 hours (Fluke 123), 7 hours (Fluke 124)
Battery power saving functions	Auto power down with adjustable power down time. On screen battery power indicator

MECHANICAL DATA

Size	50 x 115 x 232 mm (2 x 4.5 x 9.1 inches)
Weight	1.2 kg (2.5 lb.)

SAFETY

Compliance	EN61010-1 (2nd edition) Pollution Degree 2; UL3111-1; CAN/CSA C22.2 No. 1010.1; ANSI/ISA S82.01.

INPUT VOLTAGE RATINGS

Maximum input voltage	600V CAT III
(Maximum voltage between input and reference lead)	
Maximum input voltage using VPS40 Probe	600 V CAT III, 1000 V CAT II
(Maximum voltage between probe tip input and reference lead)	
Floating voltage	600V CAT III
Maximum voltage between earth ground and any terminal (signal input or reference lead)	
Maximum voltage between reference leads	Instrument has common grounds connected via selfrecovering fault protection. For different ground potential measurements between inputs use DP120 differential voltage probe.

ENVIRONMENTAL

Operating Temperature	0°C to +50°C
Storage temperature	-20°C to +60°C
Humidity	10°C to 30°C, 95% RH non condensing 30°C to 40°C, 75% RH non condensing 40°C to 50°C, 45% RH non condensing
Maximum operating altitude	2,000m (6,500 feet) 3,000m (10,000 feet) voltages ≤ 400V
Maximum storage altitude	12 km (40,000 feet)
Electro-Magnetic-Compatibility (EMC)	Emission EN50081-1 (EN55022 and EN60555-2) Immunity EN50082-2 (IEC1000-4-2, -3, -4, -5)

OPTICALLY ISOLATED PC/PRINTER INTERFACE

To printer	Supports HP Laserjet*, Deskjet*, Epson FX/LQ and postscript printers via optional PAC91
To PC	Transfer instrument settings, screen images and data, compatible with FlukeView* software for Windows* via optional PM9080.
WARRANTY	3 years (parts and labor) on main instrument, 1 year on accessories

FlukeView® ScopeMeter® Software

FlukeView ScopeMeter software helps you get more out of your ScopeMeter:
- Store instrument's screen copies on the PC, in color (with Fluke 190C-Series only) or in black&white
- Copy screen images into your reports and documentation
- Capture and store waveform data from your ScopeMeter on your PC
- Create and archive waveform references for automatic (Fluke 190C Series) or visual (Fluke 190B and 190C Series) comparison
- Includes waveform analysis, e.g. FFT spectrum analysis
- Copy waveform data into your spreadsheet for detailed analysis
- Use cursors for parameter measurement
- Extended recording of up to four user-selected measurements help you monitor and analyze slow moving signals and related events
- Logging of other readings directly into other application programs, eg., spreadsheet
- Add user text to instrument setups and send these to the instrument for operator reference and instructions
- Capture complete Replay sequence into the PC for further analysis and documentation
- English, French and German versions included on a single CD-ROM



System requirements
- Pentium 90 or better
- CD-ROM drive
- Windows® 95 / 98 / Me / NT 4.0 / 2000 / XP
- One free RS 232 port
- PM9080 Optically isolated RS232 adapter/cable, available separately or included in SCC120 / SCC190 kit and in ScopeMeter 'S'versions

Supported Instruments
Full support for Fluke 199C, 199B, 199, 196C, 196B, 196, 192B, 192, 124 and 123.

Accessories

Standard Accessories	Fluke 199C, 196C, 199B, 196B, 192B	Fluke 123, 124
Rechargeable battery pack (installed)	BP190	BP120 (Fluke 123), BP130 (Fluke 124)
Line voltage adapter / Battery charger	BC190	PM8907
Voltage probes (1 set red, 1 set grey) and accessories	10:1 voltage probe (VPS200) including hook clip, ground lead with hook clip, ground lead with mini alligator clip, 4 mm add-on probe tip, ground lead to 4 mm banana plug	STL120 Shielded Test lead set VPS40 high impedance 10:1 probe, 40 MHz (1 black, included with Fluke 124 only); HC120 hook clips,ground leads with mini alligator clips, AC120 alligator clips, BB120 BNC-to-Shielded-banana adapter
Multimeter testleads	TL75 Hard Point testlead set (1red, 1 black)	TL75 Hard Point test lead (1 black)
User manual	10 language versions on CD-ROM, "Getting Started" booklet included with instrument	15 language versions on CD-ROM. "Getting Started" booklet included with instrument

Next to the above standard accessories, Fluke offers a wide range of optional accessories like temperature probes, current clamps, high voltage probes, cables, adapters and carrying cases to further assist you in your job.
See the Fluke web-site or contact your distributor for details.



SCC190 and SCC120 – Software, Case, Cable kits

The Fluke ScopeMeters are connected to a PC using an optically isolated RS-232 interface cable PM9080, for your safety.
Software and cable can be ordered seperately, or as part of a special value kit: the SCC190 kit or the SCC120 kit. Each of these include a protective hard shell carrying case (model depending on the ScopeMeter model) for safe and convenient storage of instrument and accessories, the FlukeView ScopeMeter Software for Windows and the PM9080 interface cable.

FLUKE®

Selection Table

	Color ScopeMeter 190C Series		ScopeMeter 190B Series			ScopeMeter 120 Series	
	Fluke 199C	**Fluke 196C**	**Fluke 199B**	**Fluke 196B**	**Fluke 192B**	**Fluke 124**	**Fluke 123**
Bandwidth	200 MHz	100 MHz	200 MHz	100 MHz	60 MHz	40 MHz	20 MHz
Max. real time sample rate	2.5 GS/s	1 GS/s	2.5 GS/s	1 GS/s	500 MS/s	25 MS/s	
Max. equivalent time sample rate	–					2.5 GS/s	1.25 GS/s
Display	14.4 cm Full Color LCD		14.4 cm Monochrome LCD			10.2 cm Monochrome LCD	
Digital Persistence	Yes, gives analog oscilloscope like waveform decay (user selectable)		–			–	
Envelope mode	Yes		Yes			Yes	
Waveform Compare	Visual Reference and Automatic 'Pass / Fail' testing		Visual Reference			–	
Max. record length … in Scope mode: … in ScopeRecord mode:	3000 points per input channel, allowing for high time resolution signal analysis using zoom 27,500 points per input or more (5 ms/div…2 min/div.)					512 min/max points per input	
Number of inputs	2 plus external / DMM input, all isolated from each other and from ground					2	
Number of digitizers	2					2	
Independently floating isolated inputs	Up to 1000 V between inputs, references and ground					–	
Input sensitivity	2 mV/div. … 100 V/div.		5 mV/div. … 100 V/div.			5 mV/div. … 500 V/div.	
Glitch capture	Up to 3 ns using Pulse Width triggering; 50 ns peak detect at 5 µs/div. to 1 min/div.					40 ns	
Timebase range in Scope mode	5 ns/div. to 2 min/div.				10 ns/div. … 2 min/div.	10 ns/div. … 1 min/div.	20 ns/div. … 1 min/div.
Trigger types	Connect-and-View™, Free Run, Single Shot, Edge, Delay, Video Frame, Video Line Selectable pulse width and External					Connect-and-View™, Free Run, Single Shot, Edge, Video	
	Dual Slope trigger and Event trigger (n-cycle)						
Scope Measurements	7 cursors measurements, 30 automatic measurements					cursors + 26 automatic measurements	26 automatic measurements
	Automatic Vrms and watts measurement on cursor limited part of waveform						
Waveform Mathematics	A + B, A – B, A x B, A versus B (X-Y-mode, giving Lissajous diagrams)					–	
	Frequency Spectrum (FFT)						
Scope-Record Trigger modes	Start on Trigger, Stop on Trigger					–	
Capture last 100 screens	Automatic, with Replay capability					–	
Dual input TrendPlot	Yes, with Cursors and Zoom					Yes	
Memory for screens/set-ups	10 screens and set-ups; 5 more memories are made available upon registration of the ScopeMeter					20	10
Memory for recordings	Two, each can store 100 scope screens, a ScopeRecord or a TrendPlot						
True RMS multimeter	5000 counts, Volts, Amps, Ohms, Continuity, Diode, Temp						
Safety certified (EN61010-1)	1000 V CAT II / 600 V CAT III (instrument and included accessories)					600 V CAT III (instrument and included accessories)	
Battery (installed)	4 hr Ni-MH BP190					7 hr Ni-MH	5 hr Ni-Cd
Line power	Adapter / battery-charger included						
Size (cm)	25.6 x 16.9 x 6.4 cm					23.2 x 11.5 x 5.0 cm	
Weight	2 kg					1.2 kg	
PC and Printer interface	Using optional Optically Isolated RS-232 adapter / cable						
Warranty	3 years on main instrument, 1 year on the standard accessories						

Ordering Information

Fluke 199C	Color ScopeMeter (200 MHz / 2.5 GS/s)
Fluke 199C/S	Color ScopeMeter (200 MHz / 2.5 GS/s) + SCC190
Fluke 196C	Color ScopeMeter (100 MHz / 1 GS/s)
Fluke 196C/S	Color ScopeMeter (100 MHz / 1GS/s) + SCC190
Fluke 199B	ScopeMeter (200 MHz / 2.5 GS/s)
Fluke 199B/S	ScopeMeter (200 MHz / 2.5 GS/s) + SCC190
Fluke 196B	ScopeMeter (100 MHz / 1 GS/s)
Fluke 196B/S	ScopeMeter (100 MHz / 1 GS/s) + SCC190
Fluke 192B	ScopeMeter (60 MHz / 500 MS/s)
Fluke 192B/S	ScopeMeter (60 MHz / 500 MS/s) + SCC190
Fluke 124	Industrial ScopeMeter (40 MHz)
Fluke 124/S	Industrial ScopeMeter (40 MHz) + SCC120 kit
Fluke 123	Industrial ScopeMeter (20 MHz)
Fluke 123/S	Industrial ScopeMeter (20 MHz) + SCC120 kit
SCC190	FlukeView® Software + Cable + Case (190 Series)
SCC120	FlukeView® Software + Cable + Case (120 Series)
PM9080	Optically Isolated RS-232 adapter/cable
SW90W	FlukeView® ScopeMeter Software for Windows®

- ScopeMeter test tools come standard with a complete accessory package including line voltage adapter and battery pack (installed). ScopeMeter 190B and 190C Series come with probes, probe accessories and multimeter test leads.
- SCC kit includes: Hard-shell carrying case, optically isolated RS-232 interface cable, and FlukeView® for Windows® software.

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