

NEW: Fulle 125 ScopeMeter[®] 190 Series

and ScopeMeter[®] 120 Series

Technical Data





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 ✓ A dual input TrendPlot[™] recorder 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

NEW: Fluke 125

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. Quickly and easily find 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, 125)
- 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, continuity and capacitance measurements
- \checkmark 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	N			
	Fluke 199C	Fluke 196C,	Fluke 192B	
	Fluke 199B	Fluke 196B		
Bandwidth	200 MHz	100 MHz	60 MHz	
Rise time	1.7 ns	3.5 ns	5.8 ns	
Bandwidth limiter	User selectabl	le: 10 kHz, 20 MHz	z or off	
Number of inputs		al trigger. All inpu		
1	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	\pm (1.5% of reading + 0.04 x range/div)			
Input impedance	1 MO \pm 1% // 15 pF \pm 2 pF			
HORIZONTAL				

Connect-and-View™	Advanced automatic triggering that recognizes signal patterns, automatically sets up and conti- nuously adjusts triggering, time base and ampli- tude. 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 trigge- ring $\langle t, \rangle t$, $=$ 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	The instrument ALWAYS memorizes the last

20N 12

	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	length 3000 points per input in Scope-mode; 27,500 points per input in ScopeRecord [™] roll mode (5 ms/div 2 min/div)		
Accuracy	\pm (0.01% of reading + 1 pixel)		

50 nsec (5 µsec/div to 1 min/div)

Accuracy Glitch capture

DISPLAY AND ACOUISITION

	Fluke 190C	Fluke 190B
Display	144 mm	144 mm
	Full Color LCD	Monochrome LCD
Display modes	Input A, Input B, du	ial, average, Replay
Persistence modes	Digital Persistence:	Persistence
	short / medium /	on / off
	long / infinite	
Visible screen width	12 divisions in scope	e mode
Naveform Mathematics	1	ith user selectable scaling
		s B (X-Y-mode); Frequency
		analysis (190C only).
Acquisition modes	Normal, auto, single shot, ScopeRecord [™] , roll,	
-	glitch capture, wave	form compare, waveform
	compare with autom	natic "Pass / Fail testing" (in
	199C and 196C only	7)
onnect :		
and		

TRIGGER AND DELAY Source

Modes

Input A, input B, external trigger input. All input references isolated from each other and from ground. $\bar{A}utomatic \ Connect-and-View^{\mbox{\tiny TM}}, free \ run, \ single$

shot, edge, delay, video, video line, selectable pulsewidth, dual slope (190C only), N-cycle (190C only)

AUTO. **100 SCREENS** 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 dateand time-stamp. Up to 2 sets of 100 screens each can be saved Replay storage for later recall and analysis.

FFT - FREQUENCY SPECTRUM ANALYSIS (190C only)

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

VAVEFORM 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.
ıt	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, tempera- ture °F, dBV, dBm into 50Ω and 600Ω VPWM ac, VPWM 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 fre- quency 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 ACCURACY	500mV, 5V, 50V, 500V, 1,000V
ACCURACY	
Vdc	± (0.5 % + 5 counts)
Vac true rms	
15 Hz60 Hz:	\pm (1 % + 10 counts)
60 Hz1 kHz:	\pm (2.5 % + 15 counts)
Vac+dc true rms	
dc60 Hz:	\pm (1 % + 10 counts)
60 Hz1 kHz:	\pm (2.5 % + 15 counts)

OHMS

Ranges Accuracy

OTHER METER FUNCTIONS

	142
Continuity	Beeper on $< 50\Omega$ (± 30 Ω)
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 MQ \pm 1% // 10 pF \pm 2 pF
Advanced meter functions	Auto/manual ranging, relative measurements
	(Zero reference), TrendPlot recording

 \pm (0.6 % + 5 counts)

500Ω, 5kΩ, 50kΩ, 500kΩ, 5MΩ, 30MΩ

RECORDER MODE				
SCOPE-RECORD- ROLL MODE	Dual input waveform	storage mode.		
Source and display	Input A, Input B, Dual	Input A Input B Dual		
Memory depth	27,500 points per inp	ut.		
	Each point consist of l	Vin–Max pair.		
Min-Max values	Min-Max values are n	Min-Max values are measured at high sample		
	rate ensuring capture	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		ous roll, Start-on-Trigger pp-on-Trigger (through		
Stop-on-Trigger	ScopeRecord mode ca	n be stopped by an		
(through External)		nt, or by an interruption of		
	a repetitive trigger sig			
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 measureme	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	5 min/div to 48 hr/div	T		
(overview of total recor	1			
Recorded timespan	Up to 22 days with a resolution of 1 minute			
Recording mode	Continuous roll for the duration of the			
Measurement speed	full recordable timespan			
Horizontal scale	5 measurements per second or more Time from start, time of day			
Zoom	Up to 64x zoom			
Memory		ordings can be saved for		
initial y	Up to 2 TrendPlot recordings can be saved for later recall and analysis.			
CURSOR MEASUREME	NTS - ALL RECORDER M	ODES		
Source	Input A, B or DMM inp	out		
Dual vertical lines	Min-Max or Average v	roltage. Time between		
CHIRGONS				

Single vertical line

cursors Min-Max or Average voltage. Absolute date and time or time from start

GENERAL SPECIFI	CATIONS		SAFETY	
INPUT VOLTAGE RATINGS		Compliance	EN61010-1-2001, Pollution Degree 2;	
Maximum probe voltage	and reference lead)	reen 10:1 probe tip (VPS200)		UL3111-1, with approval; CAN/CSA C22.2, No. 61010-1-04, with approval; ANSI/ISA-82.02.01
Floating voltage	terminal (signal input o	veen earth ground and any r shielding))	ENVIRONMENTAL Operating temperature	0 °C to +50 °C -20 °C to +60 °C
Independently isolated in		reen any terminal of one input any other terminal of another	Storage temperature 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 voltage on BNG input directly (input A o Maximum voltage on		1	Maximum operating altitude Maximum storage altitude Electro-Magnetic-	3,000 m (10,000 feet) 12 km (40,000 feet)
meter input	1,000V CAT II, 600V	CAT III	Compatibility (EMC)	EN 61326-1 for emission and immunity
MEMORY SAVE AND R	PC 81 1		OPTICALLY ISOLATED PC/	PRINTER INTERFACE
Scope memories		that each can contain two	To printer	Supports HP Laserjet [®] , DeskJet, Epson FX/LQ, Seiko DPU–414 and Postscript printers via
Recorder memories	2 memory locations to 100 captured dual in a dual input ScopeRe pairs per input), or a (18,000 min/max pai	that each can contain put scope screens, or ecord (27,500 Min/Max dual input Trendplot rs).	То РС	optional PAC 91 Transfer instrument settings, screen images and waveform data, compatible with FlukeView [®] software for Windows [®] via optional OC4USB or PM9080.
REAL-TIME CLOCK	Time and date stamp 100 captured screens		WARRANTY	3 years (parts and labor) on main instrument, 1 year on accessories.
CASE				\sim
Design	Rugged, shock proof holster	with integrated protective		
Drip and dust proof Shock and Vibration	IP51 according to IE0			
SHOCK and VIDIATION	to MIL-PRF-28800F	(sinusoidal) 3g according Class 2.		
Display Size	115.2 x 86.4 mm (4.5	54 x 3.4 inches)		
Resolution 320 x 240 pixels				
Contrast and brightness	User adjustable, temp	perature compensated		
	Fluke 190C	Fluke 190B		
DISPLAY	Bright full-color LCD with backlight	Bright LCD with backlight		
001011001000	00.01/	100 01/		

MECHANICAL	DATA

BRIGHTNESS

Size

Weight

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

80 Cd/m² typ. using power adapter

POWER

Line power

Battery power Battery operating time Battery charging time Battery power saving functions

Country specific line voltage adapter/battery charger included.

125 Cd/m² typ. using power adapter

Rechargeable NiMH (installed) 4 hours 4 hours

Auto power down with adjustable power down time. On screen battery power indicator

Technical Specifications ScopeMeter 120 Series

OSCILLOSCOPE MODE VERTICAL DEFLECTION

CURSOR MEASUREMENTS (Fluke-124 and -125 only) Sources Input A, Input B

Bandwidth and rásofime Fuke 125, 124 Fuke 123 Fuke 123 • with VPS40 probes 40 MHz 20 MHz	VERTICAL DEFLECTION			Sources	Input A, Input B		
vitti VF340 Vitti VF340 Vitti VF340 Measuments: Single vertical line Measuments: Single vertical line vitti VF340 VF340 Vitti VF340 VF340 Vitti VF3400 Vitti VF3400	Developed data and size times	Thuha 100	The las 100	Modes	Single or dual vertical cursor, dual		
v-with SPA0 probes 40 Mitz 20 Mitz	Banawiath and risetime		Fluke 123		horizontal cursor, rise- or falltime		
 input A and B dreedty instrument issettine [input directly] ingut A and B dreedty instrument issettine [input directly] instrument issettine [input directly] input S ingut S	a with VDS40 probog		20 MUr				
 vinit STL120 Shielded Test Leads 12.5 MHz 12.4 And STL20 14.6 M2 HS/HZ 15.6 M2 15 ML 16.6 M2 HS/HZ 16.6 M2 HS/HZ 16.7 M2 16.7 M2 16.7 M2 16.7 M2 17.6 M2 17.6 M2 18.6 M2 18.6 M2 18.6 M2 19.6 M2 HS/HZ 19.6 M2 HS/HZ 19.6 M2 HS/HZ 10.7 M2 HS/HZ 10.8 M2 HS/HZ				Single vertical line			
Instrument insetting Instrumen				Deed seating lines			
Number of inputs input coupling input coupling for M 500 V/dir (wrth included VPS40 (Pluke 123, 124) and ST1120 shielded test leads measure up to 600/Wms CAT III) B bit Accuracy Dual horizontal lines High, Low or AV-readedut, ise-2 100 %-level, with markers at 1 and 90 % Vertical resolution Accuracy AC, DC with ground level indicator (Plw of reading + 0.05 x range/dir) Accuracy Accuracy I MQ ± 1% // 225 pF with ST120 shielded test leads indicate steads I MQ ± 1% // 225 pF with ST120 shielded test leads Bus Healt notanotically arguingtss the electrical stop by/ bus Healt notanotically arguingts and the standards used: Maximum sample rate Fluke 125 and 124: 2.5 GS/s for repetitive signals; 2.5 MS/s for single shot Fluke 123. 1.25 GS/s for repetitive signals; 28 MS/s for single shot 2.0 no/div to 1 min/div (Fluke 125, 1.24); S12 Mm-Max points per input 4.0 ns Poundation group and titer, with comparison of the measurement result to the standards used: Notals; 1163 Stype, 1.5 LW ControlNet (FillS Stype, 1.5 LS, 10 M/S); Poundation Pichtus S11 (GIISS 0.1 ns/div to 1 min/div (Fluke 125, 124); S12 Mm-Max points per input 2.0 ns/div to 1 min/div (Fluke 125, 124); S12 Mm-Max points per input 2.0 ns/div to 1 min/div (Fluke 125, 124); S12 Mm-Max points per input 2.0 ns/div to 1 min/div (Fluke 125, 124); S12 Mm-Max points per input 2.0 ns/div to 1 min/div (Fluke 125, 124); S12 Mm-Max points per input 2.0 ns/div to 1 min/div (Fluke 125, 124); S12 Mm-Max points per input 2.0 ns/div to 1 min/div (Fluke 125, 124); S12 Mm-Max points per input 2.0 ns/div to 1 min/div (Fluke 125, 124); S12 Mm-Max points per input 2.0 ns/div to 1 min/div (Fluke 125, not, NL, Pouve, S120, Volta morobin to a bareation and pointer input 4. Anong S1120		rectly) 875 ns		Dual vertical lines			
Imput coupling AC, DC with ground level indicator failure: transition time, 0%-eel, with markers at 1 and 90% Imput sensitivity 5 mV	• •		11.0 115	Dual horizontal lines			
input sensitivity 5 mV 500 V/div (with included VPF40 (Pluke 128, 124) and ST.124) and ST.124 and ST.124 and ST.124 and ST.124 and ST.124 and ST.125 (SP) GOV/ms CAT III) 100 %-4 ms/125 cm/12 Vertical resolution 8 bit Accuracy As oscilloscope Accuracy 1 MQ ± 1% // 225 pF with ST.120 shielded test leads BIS HEALITH TESTER (Fluke 125 only) mput impedance 1 MQ ± 1% // 225 pF with ST.120 shielded test leads Sim Modula (SP) (SP) (SP) (SP) (SP) (SP) (SP) (SP)		=	evel indicator	Duai nonzontai imes			
VPS40 [Fluke 125, 124] and STL120 stilled test leads measure up to 600Wms CAT III Accuracy Accuracy As ecilloscope Vertical resolution Accuracy bit Accuracy As ecilloscope Vertical resolution Accuracy bit Display modes Display modes Input impedance 1 MQ ± 196 // 125 pF with VPS40, 10:1 Voltage probe Display modes Display modes HORIZONTSL Fluke 125 and 124: 25 MS/s for single shot regrash; 25 MS/s for single shot caprade test Single shot regrash; 26 MS/s for regrash; 26 MS/s for single shot regrash; 26 MS/s for regrash; 22 MS/s for single shot regrash; 26 MS/s for regrash; 22 MS/s for single shot regrash; 27 MIJ Acquire (MVS); 10 MS/s; Single phase or Balanced 3-phi (elitar-onfiguration) Maximum record length Display modes Input A, input A and B, envelope; smooth Mades Input A, input A, input B, external via optional TP 120 Modes Connect-and-View TM Advanced automatic triggering that matically sets up and continuous adjusts triggering; that be exel, t							
AccuracyAccuracyAccuracyAccuracyAccuracyAccuracyAccuracyAccuracyAccuracyAccuracyAccuracyAccuracyAccuracyAccuracyAccuracyAs escilloscopeWertoal resolution8 bitNo1 \MO1 \%// 225 pF withYE as pF with	input sonsitivity						
GOOVmes CAT III) AccuracyGOOVmes CAT III) bitBUSAccuracy Accuracy \pm (1% of reading + 0.05 x range/div) \pm (1% of reading + 0.05 x tange/div)Input impedance 1 MQ \pm 1% // 22 pF with VF340, 10:1 Voltage probe BUS HEALTH TESTER (Fluke 125 only)Input impedance 1 MQ \pm 1% // 22 pF si pF with VF340, 10:1 Voltage probe BUS HEALTH TESTER (Fluke 125 only)HORIZONTALFluke 125 and 124: 2.5 GS/s for repetitive signals; 2.5 MS/s for single shot Fluke 125, 124]; 2.0 radiu to 1 min/div (Fluke 125, 124); 2.0 min/div Fluke 125, 124); 3.0 radiu to 1 min/div (Fluke 125, 124); 3.0 radiu to 1 min/div (Fluke 125, 124); 3.0 radiu to 1 min/div (Fluke 125,				Accuracy			
Accuracy ± (1% of reading + 0.05 x range/div) Input impedance 1 MG ± 1% // 225 F with STL120 shielded test leads 1 MG ± 1% // 225 F with STL20 stielded test leads 1 MG ± 1% // 225 F with STL20 stielded test leads 1 MG ± 1% // 20 pF ± 3 pF with BE120 5 MG ± 1 % // 15.5 pF with VPS40, 10.1 Voltage probe AS-i [ENO295, 166 (b/s)]; HORIZONTAL AS-i [ENO295, 166 (b/s)]; CAN-bus (ISO-11898, up to 1 M ControlNet (61186 type 2, 3 MA Maximum sample rate HORIZONTAL Fluke 125 and 124: 2.5 GS/s for repetitive signals; 2.5 MS/s for single shot Fluke 123, 1.25 GS/s for repetitive signals; 25 MS/s for single shot Fluke 125, 124}; Single shot Fluke 125, 124; 0 ns/div to 1 min/div (Fluke 125, 124); 0 ns/div to 1 min/div (Fluke 125, 124); Nob/s; 0 ns/div to 1 min/div (Fluke 125, 124); 0 ns/div to 1 min/div (Fluke 125, 124); Nob/s; 0 ns/div to 1 min/div (Fluke 125, 124); Nob/s; Nob/s; 0 ns/div to 1 min/div (Fluke 125, 124); Nob/s; Nob/s; 0 ns/div to 1 min/div (Fluke 126, 124); Nob/s; Nob/s; 0 ns/div to 1 min/div (Fluke 126, 124); Nob/s; Nob/s; 0 ns/div to 1 min/div (Fluke 126, 124); Nob/s; Nob/s; 0 ns/div to 1 min/div (Fluke 126, 124); Nob/s; Nob/s; 0 Noral, single s			· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·		
range/div/ input impedancerange/div/ imput impedancerange/div/ imput impedanceretwork to give waveform data and measure individual measurement resultinput impedance1 MO \pm 19% // 20 pF \pm 3 pF with B120 5 MO \pm 19% // 20 pF \pm 3 pF with B120 5 MO \pm 19% // 20 pF \pm 3 pF with WF340, 10.1 Voltage proberesults in 'good' or 'false' indicators to be displayed per parameter.HORIZONTAL Maximum sample rateFluke 125 and 124: 2.5 GS/s for repetitive signals; 2.5 GS/s for single shot Fluke 123: 1.25 GS/s for repetitive signals; 2.0 ns/div to 1 min/div (Fluke 125, 124); 2.0 ns/div to 1	Vertical resolution	, 8 bit		BUS HEALTH TEST	ER (Fluke 125 only)		
input impedance1 M $\Omega \pm 1^{10}$ // 225 pF with STL120 shielded test leadsparameters. Automatic comparison of the measurement result to indicators to be displayed per parameters. Automatic comparison of the measurement result to indicators to be displayed per parameters. Bus types and reference standards used:AS-i (ENSO295, 166 (bd/s); CAN-bus (ISO-11898, up to 1 M Morentsus S (ILA-435, up to 10 Mb/s); EIA-435, up to 10 Mb/s); Jat25 th/s for single shot Pluke 123, 125 GS/s for repetitive signals; 25 GS/s for repetitive signals; 25 GS/s for single shot Pluke 123, 123 GS/s for single shot t (D1% of reading + 1 pixel)Maximum record length Accuracy t (D1% of reading + 1 pixel)Normal, single shot, roll, glitch capture (always on)Input A, input A and B, envelope, smoth automatic Compared automatic triggering 	Accuracy		.05 x				
shielded test leads I MD ± 1%/ 20 pf ± 3 pf with BB 120 S MD ± 1 %/ / 15 5 pf with BB 120 S MD ± 1 %/ / 15 5 pf with BB 120 S MD ± 1 %/ / 15 5 pf with VPS40, 10:1 Voltage probe HORIZONTAL Maximum sample rate Fluke 123 at 25 GS/s for repetitive signals; 25 GS/s for repetitive signals; 26 MS/s for single shot Fluke 123, 124 i 20 ns/div to 1 min/div (Fluke 123, 124 i; 20 ns/div to 1 min/div (Fluke 123, 124 i; 20 ns/div to 1 min/div (Fluke 123, 124 i; 20 ns/div to 1 rain/div (Fluke 123 nb); 10 mJV/s; 10 mV/s; 10 mV/mA and 400 mV/s							
$ \begin{array}{c} 1 \ \mathrm{MO2} \pm 196 \ \mathrm{//} \ 20 \ \mathrm{pF} \pm 3 \ \mathrm{pF} \ \mathrm{with} \\ \mathrm{B120} \\ 5 \ \mathrm{MO2} \pm 196 \ \mathrm{//} \ \mathrm{I55} \ \mathrm{pF} \ \mathrm{with} \\ \mathrm{VPS40}, \ 10:1 \ \mathrm{Voltage probe} \\ \end{array} \\ \begin{array}{c} \mathrm{HORIZONTAL} \\ \mathrm{Maximum sample rate} \\ \mathrm{Fluke 125 \ and 124:} \\ 2.5 \ \mathrm{GS/s \ for repetitive signals;} \\ 25 \ \mathrm{MS/s \ for single shot} \\ \mathrm{Fluke 123:} \ \mathrm{L25 \ GS/s \ for repetitive signals;} \\ 25 \ \mathrm{MS/s \ for single shot} \\ \mathrm{Fluke 123:} \ \mathrm{L25 \ GS/s \ for repetitive signals;} \\ 25 \ \mathrm{MS/s \ for single shot} \\ \mathrm{Fluke 123:} \ \mathrm{L25 \ GS/s \ for repetitive signals;} \\ 25 \ \mathrm{MS/s \ for single shot} \\ \mathrm{Fluke 123:} \ \mathrm{L25 \ GS/s \ for repetitive signals;} \\ 20 \ \mathrm{ns/div \ to \ 1 min/div} \\ \mathrm{(Fluke 125, 124);} \\ 20 \ \mathrm{ns/div \ to \ 1 min/div} \\ \mathrm{(Fluke 125, 124);} \\ 20 \ \mathrm{ns/div \ to \ 1 min/div} \\ \mathrm{(Fluke 125, 124);} \\ 20 \ \mathrm{ns/div \ to \ 1 min/div} \\ \mathrm{(Fluke 125, 124);} \\ 20 \ \mathrm{ns/div \ to \ 1 min/div} \\ \mathrm{(Fluke 125, 124);} \\ 20 \ \mathrm{ns/div \ to \ 1 min/div} \\ \mathrm{(Fluke 125, 124);} \\ 20 \ \mathrm{ns/div \ to \ 1 min/div} \\ \mathrm{(Fluke 125, 124);} \\ 20 \ \mathrm{ns/div \ to \ 1 min/div} \\ \mathrm{(Fluke 125, 124);} \\ 20 \ \mathrm{ns/div \ to \ 1 min/div} \\ \mathrm{(Fluke 125, 124);} \\ 20 \ \mathrm{ns/div \ to \ 1 min/div} \\ \mathrm{(Fluke 125, 124);} \\ 20 \ \mathrm{ns/div \ to \ 1 min/div} \\ \mathrm{(Fluke 125, 124);} \\ 20 \ \mathrm{ns/div \ to \ 1 min/div} \\ \mathrm{(Fluke 125, 124);} \\ 20 \ \mathrm{ns/div \ to \ 1 min/div} \\ \mathrm{(Fluke 125, 124);} \\ 20 \ \mathrm{ns/div \ to \ 1 min/div} \\ \mathrm{(Fluke 125, 124);} \\ 20 \ \mathrm{ns/div \ to \ 1 min/div} \\ \mathrm{(Fluke 125, 124);} \\ \mathrm{nstore} \\ \mathrm{normal, \ single shot, roll, glitch} \\ \mathrm{capture (always \ on)} \\ \end{array} \\ \begin{array}{c} \mathrm{nstore} \\ \mathrm{normal, \ single shot, roll, glitch} \\ \mathrm{capture (always \ on)} \\ Normal, \ 1 mutoally else \ up \ ad \ ontinnotic \\ unrent \ \ Maximum \ Maxi$	Input impedance		F with STL120				
BB120SM \perp 1 % // 15.5 pF with SM \perp 2.5 GS/s for repetitive signals; 2.5 GS/s for repetitive signals; 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 Fluke 123: 1.25 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 Fluke 123: 1.25 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 Fluke 123: 1.25 GS/s for repetitive signals; 25 MS/s for single shot Fluke 123: 1.24 % 10 ns/div to 1 min/div [Fluke 125, 1.24]; 10 ns/div for arading + 1 pixel] Maximum record length Accuracy Lo radius + 1 pixel] Maximum record length Accuracy wordsBut A, input A and B, envelope, smoothMeasured parameters (where applicable):Measured parameters (where applicable):POWER MLASUREMENTS (Fluke 125 only) Measure Types Watt, VA WAR, Power Actor PF Normal, single shot, roll, glitch capture (always on)THIGGER AND DELAY Source Ine Connect-and-View"*Input A, input B, external via optional TP120 Advanced automatic Connect-and-View"*POWER MLASUREMENTS (Fluke 125 only) Measure Types Watt, VA WAR, Power Calor IPF Display modesTHIGGER AND DELAY SourceInput A, input B, external via optione difficult singering, time base and and continuously adjusts triggering, time base end optiane and plater, stragan platterns and autor ma					good' or 'false' indicators to be		
5 MO ± 1 % // 155 pF with VFS40, 10:1 Voltage probe standards used: CAN-bus (ISO-11898, up to 1 M Interbus S [ISA-485, up to 10 Mo/s]; HORIZONTAL Fluke 125 and 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 Fluke 123: 1.25 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 Fluke 123: 1.25 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 Fluke 123: 1.25 GS/s for repetitive signals; 25 MS/s for single shot fluth detect 1, 31.25 KM/s and TL (61158 type 1, 31.25 KM/s and TL (71), 10 MM/s; 20 ns/div to 1 min/div (Fluke 123) 512 Min-Max points per input 4 (Chite tot) Normal, single shot, roll, glitch capture (always on) Modes Input A, input B, external via optional TTP120 Automatically sets up and continuously adjusts triggering. time base and amplitude. Automatically displays stable pictures of complex and dynamic signala		· · ·	\pm 3 pF with				
VPS40, 10:1 Voltage probe Interbus S [EIA-485, up to 10 M Controllet (61185 typ a, 8 M, Modbus (EIA-232 up to 115 kb/ and EIA-485 up to 10 M/s); HORIZONTAL Maximum sample rate Fluke 125 and 124: 2.5 GS/s for repetitive signals; 2.5 GS/s for repetitive signals; 2.5 GS/s for repetitive signals; 25 MS/s for single shot Foundation Fieldbus H1 (61185 typ a. 8 M, Modbus (EIA-232 up to 115 kb/ and EIA-485 up to 10 M/s); Number of digitizers 10 ns/div to 1 min/div (Fluke 125, 124); Foundation Fieldbus H1 (61185 typ a. 8 M, Modbus (EIA-232 up to 115 kb/ and EIA-485 up to 10 M/s); Maximum record length 2 and PA (61185 typ a. 8 M, Modbus 22 (coaxial) and (Fluke 125, 124); ID Ms/s; Concuracy 2 and PA (61185 typ a. 8 M, Modbus 22 (coaxial) and (Fluke 125, 124); ID Ms/s; Concuracy 40 ns Fluke 123, 124 (Fluke 123) RS-545 (EIA-485, up to 10 M, Modbus 22 (coaxial) and (Paser) (17P). 10 Mb/s; Display modes Input A, input A and B, envelope, smooth Rs-445 (EIA-485 up to 10 M) or user defined system. THEGER AND DELAY Normal, single shot, roll, gitch capture (always on) Measure Types Watt, VA, VAR, Power Factor [PJ Single phase or Balanced 3-ph (define-configuration) mains sup optional ITP 120 Modes Input A, input B, external via optional ITP 120 Voltage Measure Types Watt, VA, VAR, Power Factor [PJ Single phase or Balanced 3-ph (define-configuration) mains sup option al TTP 120 Cu			T with				
Controller (fel158 typé 2, 5 Mb, Madimum sample rate Fluke 125 and 124: 2.5 GS/s for repetitive signals; 2.5 Mb, Madbau E1A-485 up to 10 Mb/s]; Number of digitizers 10 ns/div to 1 min/div (Fluke 125, 124); 20 ns/div to 1 min/div (Fluke 123) Fluke 125, 124); 20 ns/div to 1 min/div (Fluke 123) Fluke 125, 124); 20 ns/div to 1 min/div (Fluke 123) Maximum record length Accuracy 512 Min-Max points per input 4 (0.1% of reading + 1 pixel) Measured parameters (where applicable): Rs-435 (EIA-435, up to 10 Mb/s); muser defined system. Display modes Input A, input A and B, envelope, smooth Mormal, single shot, roll, glitch capture (always on) Measured parameters (where applicable): Weasure Types Power Configuration (defta-configuration mans sup fourent Measurement: POWER MEASUREMENTS (Fluke 125 only) Modes Automatic Connect-and-View ^{IM} Advanced automatic triggering tim adjusts triggering, time base and amplitude, Automatically displays stable pictures of complex and dynamic signals like motor drive and control signals. Current Clamp sensitivity: 0.1 / 1 / 10 / 100 / 1000 mV/A. Video triggering Vpc, Vac, Vac, Pacc, Vpeak max, Vpc, Vac, Vac, Pacc, Vpeak max, Vpc, Vac, Vac, Pacc, Vpeak max, Vpc, Vac, Vac, Pacc, Vpeak max, Vpeak to peak, frequency (Fig.) positive pulse width, negative pulse width, negative pulse width, negative pulse width, negative pulse				standards used:			
HORIZONTAL Moduus [216-232 up to 115 kb] Maximum sample rate Fluke 125 and 124: and ElA-485 up to 10 Mb/s]; 2.5 GS/s for repetitive signals; 2.5 GS/s for repetitive signals; 2 Yumber of digitizers 2 and ElA-485 up to 10 Mb/s]; Time base range 10 ns/div to 1 min/div profibus DP [ElA-485 up to 10 Mb/s]; Time base range 10 ns/div to 1 min/div Fluke 123, 124; Conscitut 0 min/div Fluke 125, 124]; 10Basef [UTP], 10 Mb/s; Conscitut 0 min/div Fluke 125, 124]; 10Basef [UTP], 10 Mb/s; Concuracy 40 ns Fluke 125, 124]; IDBasef [UTP], 10 Mb/s; DISPLAY AND ACQUISITION Siz Min-Max points per input RS-435 [ElA-435, up to 10 Mb/s]; Accuracy 40 ns Measured parameters Baud rate, risetime, falltime, hig IDISPLAY AND ACQUISITION Input A, input A and B, envelope, smooth Measure Types Watt, VA, VAR, Power Factor [PF Vower Configuration mains sup Source Input A, input B, external via optional TTP120 Wate and continuously adjusts triggering time base and amplitude. Automatically displays Single Shot, Video, Video, Video Connect-and-View TM Advanced automatic tiggering time base and amplitude. Automatically displays <t< td=""><td></td><td>vr540, 10.1 voltage</td><td>prone</td><td></td><td></td></t<>		vr540, 10.1 voltage	prone				
Maximum sample rate Fluke 125 and 124: 2.5 GS/s for repetitive signals; 25 GS/s for single shot Fluke 123: 1.25 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 and EIA-485 up to 10 MA/s; Foundation Pieldbus H1 (61158 Up to 10 MA/s); Number of digitizers 2 and Pa (61158 type 1, 31.25 Kb/s) and tate, resternet. Display modes Input A, input A and B, envelope, smooth Normal, single shot, roll, giltch captrase signal attern sand attor mating traseperistive	HORIZONTAL						
2.5 GS/s for repetitive signals; 25 MS/s for single shot Foundation Fieldbus H1 (6)[158 ty Number of digitizers 2 SMS/s for single shot 1,3.25 kb/s] and H2 (6)[158 ty Number of digitizers 10 ns/div to 1 min/div Profibus DP [E]IA-485 up to 10 Mb/s]; Profibus DP [E]IA-485 up to 10 Mb/s]; Maximum record length Accuracy 20 ns/div to 1 min/div (Fluke 123) R5-435 [EIA-485, up to 10 Mb/s]; Maximum record length Accuracy 40 ns Measured parameters NS-435 [EIA-485, up to 10 Mb/s]; DISPLAY AND ACQUISITION S12 Mm-Max points per input A, input A and B, envelope, smooth Measured parameters Measured parameters Display modes Input A, input A and B, envelope, smooth Measure Types Watt, VA, VAR, Power Factor (PF Power Configuration) Source Input A, input B, external via optional ITP120 Voltage Measurement: Channel A, using STL120, volta probe or direct input Connect-and-View TM Advanced automatic triggering that recognizes signal patterns and automatically sets up and continuously adjusts triggering, time base and amplitude. Automatically displays Current Measurement: Channel A, using STL120, volta probe (Ch.J) Video triggering NTSC, PAL, PAL, SECAM. Includes line select NTSC, PAL, PAL, SECAM. Includes line select Display: Display:		Fluke 125 and 124.					
25 MS/s for single shot Fluke 123: 1.25 GS/s for repetitive signals; 25 MS/s for single shot 1, 31.25 kb/s] and H2 (61158 ty up to 10 Mb/s]; Time base range 10 ns/div to 1 min/div (Fluke 125, 124); 20 ns/div to 1 min/div (Fluke 125, 124); 21	Jumpio Iuto		e signals:		Foundation Fieldbus H1 (61158 type		
Fluke 123: 1.25 GS/s for repetitive signals; 25 MS/s for single shotup to 10 Mb/s);up to 10 Mb/s);Number of digitizers10 ns/div to 1 min/div (Fluke 123, 124); 20 ns/div to 1 min/div (Fluke 123) 512 Min-Max points per input 4; (0.1% of reading + 1 pixel)90 ns/div to 1 min/div (Fluke 123, 124); 20 ns/div to 1 min/div (Fluke 123) 512 Min-Max points per input 4; (0.1% of reading + 1 pixel)88-232 (EIA-232, up to 116 kb, 88-232 (EIA-232, up to 10 Mb/s); 88-232 (EIA-232, up to 10 Mb/s); 97 user defined system.Display modesInput A, input A and B, envelope, smoothMeasured parameters (where applicable):Measured parameters (where applicable):Baud rate, risetime, failtime, hi evel, distriction, amp and jitter, with comparison to system's standard values.Display modesInput A, input B, external via optional ITP 120POWER MEASUREMENTS (Fluke 125 only) Measure Types Power ConfigurationTRIGGER AND DELAY SourceInput A, input B, external via optional ITP 120Voltage Measurement: current Measurement:Current Measurement: channel A, using STL120, volta probe or direct input Current Measurement:Current Clamp sensitivity: voltage Measurement:Voltage Measurement: current Clamp sensitivity:Voltage waveform (Ch.A), Curre vareform (Ch.B) or Power (Ch.J) Ch.B) or Power (Ch.J) Ch.B) or Power (Ch.J)Video triggeringNTSC, PAL, PAL+, SECAM. Includes line selectWolt with, positive weak intry, positive toNotage waveform: vareform (Ch.A), Curre vareform (Ch.B) or Power (Ch.J) Ch.B) or Power (Ch.J) Ch.B) or Power (Ch.J) Ch.B) or Power (Ch.J) Ch.B) at mannoic (fundamental ≤ 400 13) positive pulse width, negat					1, 31.25 kb/s) and H2 (61158 type 1,		
Number of digitizers 2 and PA (61186 type 1, 31.25 kJ) Time base range 10 ns/div to 1 min/div Ethermet [10Base2] (coaxia] and Maximum record length 512 Min-Max points per input RS-438 (EIA-435, up to 10 Mb/s; Accuracy ± (0.1% of reading + 1 pixel) RS-438 (EIA-435, up to 10 Mb/s; Glitch detect 40 ns Measured parameters Baud rate, risetime, faltime, hig DISPLAY AND ACQUISITION smooth Measured parameters Baud rate, risetime, faltime, hig Display modes Input A, input B, envelope, smooth Measured parameters Baud rate, risetime, faltime, hig Acquisition modes Normal, single shot, roll, glitch capture (always on) POWER MEASUREMENTS (Flucke 125 only) Modes Input A, input B, external via optional ITP120 Voltage Measurement: Channel A, using STL120, volta probe or direct input Connect-and-View™ Advanced automatic triggering that recognizes signal patterns and autormatically sets up and continuously adjusts triggering, time base and amplitude. Automatically displays Current Clamp sensitivity: 0.1 / 1 / 0 / 100 / 0000 mV/A. Video triggering MTSC, PAL, PAL+, SECAM. Includes line select Margeina kike motor drive and control signals. NTSC, Vac, V _{ACADC} , V _{peak max} , V _{peak min} , V _{peak to peak, frequency (fiz), positive pulse width, negative pulse}		Fluke 123: 1.25 GS/s	for repetitive		up to 10 Mb/s) ;		
Time base range 10 ns/div to 1 min/div (Fluke 125, 124); Ethernet [10Base2 (coaxial) and (Fluke 125, 124); 20 ns/div to 1 min/div (Fluke 125, 124); Cons/div to 1 min/div (Fluke 125, 124); Ethernet [10Base2 (coaxial) and (DBase7 (UTP)], 10 Mb/s; 20 ns/div to 1 min/div (Fluke 125, 124); Cons/div to 1 min/div (Fluke 123) FR-323 (EIA-323 (EIA-323 (EIA-324); up to 115 Mb/s; 20 ns/div to 1 min/div (Fluke 125, 124); Maximum record length Source Measured parameters (where applicable): Baud rate, risetime, falltime, hig level, low level, distortion, amp and jitter, with comparison to system's standard values. THIGGER AND DELAY Source Input A, input B, external via optional TP120 Measure Types Power Configuration Watt, VA, VAR, Power Factor (FF Power Configuration) mains sup Power Configuration Modes Automatic Connect-and-View™ Free Run, Edge, Single Shot, Video, Video Line Current Measurement: Channel A, using STL120, volta probe or direct input Video triggering MTSC, PAL, PAL+, SECAM. Includes line select Current Clamp sensitivity: 0.1 / 1 / 10 / 100 / 1000 mV/A, 10 mV/mA and 400 mV/A. Video triggering MEASUREMENTS Voc, VAC, VAC, VAC, Vecho, Vpeak max, Vpeak to peak, frequency (Hz), positive pulse width, negative pulse width, positive duty cycle, Display: Display:		signals; 25 MS/s for s	single shot		Profibus DP (EIA-485 up to 10 Mb/s)		
Fluke 125, 124); 20 ns/div to 1 min/div (Fluke 123) 10BaseT (TTP)], 10 Mb/s; 20 ns/div to 1 min/div (Fluke 123) Maximum record length Accuracy 512 Min-Max points per input ± (0.1% of reading + 1 pixel) RS-432 (EIA-4232, up to 10 Mb/s; Maximum record length Accuracy ± (0.1% of reading + 1 pixel) Ks-232 (EIA-232, up to 10 Mb/s; DISPLAY AND ACQUISITION Input A, input A and B, envelope, smooth Measured parameters (where applicable): Baud rate, risetime, falltime, hig level, low level, distortion, amp) and jitter, with comparison to system's standard values. Source Input A, input B, external via optional ITP 120 Measure Types Power Configuration Wature 125 only) Modes Automatic Connect-and-View TM . Advanced automatic triggering time Voltage Measurement: compatible clamp Channel B, using 140Sc current clamp (Included) or other compatible clamp Video triggering NTSC, PAL, PAL+, SECAM. Includes line select Current Clamp sensitivity: 0 to 10 divisions pre-trigger view Video triggering NTSC, VAL, VAL-, SECAM. Includes line select Anatomatic Rygering (Fiz), positive pulse width, pogative pulse width, pogative duty cycle,					and PA (61158 type 1, 31.25 kb/s);		
20 ns/div to 1 min/div [Fluke 123) RS-232 [EIA-232, up to 115 kb, RS-436 [EIA-485, up to 10 Mb/ RS-485 [EIA-485, up to 10 Mb/ or user defined system. Accuracy ± (0.1% of reading + 1 pixel) KS-436 [EIA-485, up to 10 Mb/ or user defined system. Bitch detect 40 ns Baud rate, risetime, falltime, hig level, low level, distortion, amp iand jitter, with comparison to system's standard values. DISPLAY AND ACQUISITION Input A, input A and B, envelope, smooth Measured parameters (where applicable): Baud rate, risetime, falltime, hig level, low level, distortion, amp iand jitter, with comparison to system's standard values. DISPLAY AND ACQUISITION Input A, input B, external via optional TTP120 Measure Types Watt, VA, VAR, Power Factor (PE Nower Configuration) mains sup robional TTP120 Modes Input A, input B, external via optional TTP120 Voltage Measurement: Channel A, using i400s current (amp fincluded) or other compatible clamp robe or direct input Connect-and-View™ Advanced automatic triggering that recognizes signal patterns and automatically sets up and continuously adjusts triggering, time base and dynamic signals like motor drive and control signals. Current Clamp sensitivity: 0.1 / 1 / 10 / 100 / 1000 mV/A. Video triggering NTSC, PAL, PAL+, SECAM. Includes line select Harmonics Frequency range: Voltage waveform (Ch.A), Curre waveform (Ch.A), Curre waveform (Ch.B), automatically generated. Wideo triggering NT	Time base range		div				
Maximum record length Accuracy 512 Min-Max points per input ± (0.1% of reading + 1 pixel) S12 Min-Max points per input ± (0.1% of reading + 1 pixel) RS-485 (EIA-485, up to 10 Mb/ or user defined system. Maximum record length Accuracy 40 ns Measured parameters (where applicable): RS-485 (EIA-485, up to 10 Mb/ or user defined system. DISPLAY AND ACQUISITION Input A, input A and B, envelope, smooth Measured parameters (where applicable): Measured parameters (where applicable): Bud rate, risetime, falltime, hig level, low level, distortion, amp and jitter, with comparison to system's standard values. TRIGGER AND DELAY Normal, single shot, roll, glitch capture (always on) Measure Types Power Configuration Watt, VA, VAR, Power Factor (PF Power Configuration) Source Input A, input B, external via optional ITP120 Voltage Measurement: Channel A, using STL120, volta probe or direct input Connect-and-View TM Advanced automatic triggering that recognizes signal patterns and auto- matically 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. HARMONICS MODE (Fluke 125 only) Converts waveform information into a harmonics display (usi tup to the 337d harmonic. Wideo triggering Wpc, VAC, VAC+DC, Vpeak max, Vpeak to peak, frequency (H2), positive puse width, negative puse width, positive duty cycle, Harmonics Frequency range: Display: Voltage waveform (Ch.A), Curr							
Accuracy ± (0.1% of reading + 1 pixel) or user defined system. Glitch detect 40 ns Measured parameters Baud rate, risetime, falltime, hig DISPLAY AND ACQUISITION Input A, input A and B, envelope, smooth Measured parameters Baud rate, risetime, falltime, hig Display modes Input A, input B, external via optional ITP 120 Measure Types Watt, VA, VAR, Power Factor (P Acquisition modes Normal, single shot, roll, glitch capture (always on) Power Configuration Single phase or Balanced 3-phi (delta-configuration) mains sup) Source Input A, input B, external via optional ITP 120 Voltage Measurement: Channel A, using STL120, volta probe or direct input arrecognizes signal patterns and automatic triggering, time base and amplitude. Automatically displays stable pictures of complex and dynamic signals. Current Clamp sensitivity: OI / 1 / 1 / 10 / 100 / 1000 mV/A. Video triggering NTSC, PAL, PAL+, SECAM. Includes line select Framonics Frequency range: Voltage waveform (Ch.A), Curre waveform: Yudeo triggering Vpc, VAC, VAC+DC, Vpeak max, Vpeak min, Vpeak to peak, frequency (Hz), positive pulse width, positive duty cycle, Display: Display: MEASUREMENTS Vpc, VAC, CAC-DC, Vpeak max, Vpeak min, Vpeak to peak, frequency (Hz), positive duty cycle, Display: Display: MEASUREMENTS							
Glitch detect 40 ns Measured parameters (where applicable): Baud rate, risetime, falltime, hig level, low level, distortion, ampliand jitter, with comparison to system's standard values. DISPLAY AND ACQUISITION Input A, input A and B, envelope, smooth Mormal, single shot, roll, glitch capture (always on) Baud rate, risetime, falltime, hig level, low level, distortion, ampliand jitter, with comparison to system's standard values. DISPLAY AND ACQUISITION Normal, single shot, roll, glitch capture (always on) POWER MEASUREMENTS (Fluke 125 only) Acquisition modes Normal, single shot, roll, glitch capture (always on) Measure Types Source Input A, input B, external via optional ITP120 Voltage Measurement: Channel A, using STL120, volta probe or direct input Source Input A, dayanced 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. HARMONICS MODE [Fluke 125 only] Video triggering NTSC, PAL, PAL+, SECAM. Includes line select Voltage waveform: Voltage waveform: Video triggering Wits, osak, frequency [H2), positive pulse width, negative pulse width, negative pulse width, negative pulse width, positive duty cycle, Display: Display: MEASUREMENTS Vpc, VAc, VAC+DC, Vpeak max, Vpeak min, Vpeak min, Vpeak min,	0						
DISPLAY AND ACQUISITION Input A, input A and B, envelope, smooth (where applicable): level, low level, distortion, ampliand jitter, with comparison to system's standard values. Display modes Normal, single shot, roll, glitch capture (always on) POWER MEASUREMENTS (Fluke 125 only) Measure Types Watt, VA, VAR, Power Factor (PF Power Configuration) Watt, VA, VAR, Power Factor (PF Power Configuration) Source Input A, input B, external via optional ITP120 Voltage Measure Types Watt, VA, VAR, Power Factor (PF Power Configuration) Modes Automatic Connect-and-View™, Free Run, Edge, Single Shot, Video, Video Urrent Measurement: Channel A, using STL120, volta probe or direct input Connect-and-View™ Advanced automatic triggering that recorgnizes signal patterns and automatically sets up and continuously adjusts triggering, time base and dynamic signals. Current Clamp sensitivity: 0.1 / 1 / 10 / 100 / 1000 mV/A. 10 mV/mA and 400 mV/A			I pixel)	Magnurod noromotors	5		
DISPLAY AND ACQUISITION and jitter, with comparison to system's standard values. Display modes Input A, input A and B, envelope, smooth Source Source (always on) POWER MEASUREMENTS (Fluke 125 only) Modes Automatic Connect-and-View™ Free Run, Edge, Single Shot, Video, Video, Video, Line Voltage Measurement: Channel A, using STL120, volta probe or direct input 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. Current Clamp sensitivity: 0.1 / 1 / 10 / 100 / 1000 mV/A. Video triggering NTSC, PAL, PAL+, SECAM. Includes line select Notsiss pre-trigger view Voltage waveform: Voltage waveform: Voltage waveform: MEASUREMENTS V _{DC} , V _{AC} , V _{AC+DC} , V _{peak max} , V _{peak max} , V _{peak to peak, frequency (Hz), positive duty cycle, Display: Bargraph showing 1* up to 33* MEASUREMENTS V_{DC}, V_{AC}, V_{AC+DC}, V_{peak max}, V_{peak min}, V_{peak to peak, frequency (Hz), positive duty cycle, Display: Bargraph showing 1* up to 33*}}	GIIICH delect	40 IIS					
Display modes Input A, input A and B, envelope, smooth system's standard values. Acquisition modes Normal, single shot, roll, glitch capture (always on) POWER MEASUREMENTS (Fluke 125 only) TRIGGER AND DELAY Input A, input B, external via optional ITP 120 Watt, VA, VAR, Power Pactor (PF Single phase or Balanced 3-phate (delta-configuration) mains sup (delta-configuration) Source Input A, input B, external via optional ITP 120 Voltage Measurement: Channel A, using STL120, volta probe or direct input Modes Automatic Connect-and-View™ Free Run, Edge, Single Shot, Video, Video Current Measurement: Channel B, using i400s current clamp (included) or other compatible clamp 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. HARMONICS MODE (Fluke 125 only) Video triggering NTSC, PAL, PAL+, SECAM. Includes line select NTSC, VaC, VaC, VaC, Vpeak man, Vpeak min, Vpeak with, positive pulse width, negative pulse width, nostive duty cycle, Displaye	DISPLAY AND ACOUISITIC	าก		(where applicable).	· · · · ·		
smooth Normal, single shot, roll, glitch capture (always on) POWER MEASUREMENTS (Fluke 125 only) Acquisition modes Normal, single shot, roll, glitch capture (always on) Watt, VA, VAR, Power Factor (PF Power Configuration) TRIGGER AND DELAY Input A, input B, external via optional ITP 120 Watt, VA, VAR, Power Factor (PF Power Configuration) Modes Automatic Connect-and-View™, Free Run, Edge, Single Shot, Video, Video Line Voltage Measurement: Channel A, using 3TL120, volta probe or direct input 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. Current Clamp sensitivity: 0.1 / 1 / 10 / 100 / 1000 mV/A. Video triggering NTSC, PAL, PAL+, SECAM. Includes line select Watt, PAL+, SECAM. Includes line select Voltage waveform: Voltage waveform: Weasurements Voltage trigger view Voltage waveform: Voltage waveform: Voltage waveform: Wideo triggering NTSC, PAL, PAL+, SECAM. Includes line select In anyzed waveform: Voltage waveform: Voltage waveform: MEASUREMENTS Vpc, V _{AC} , V _{AC} , V _{AC+DC} , V _{peak max} , V _{peak min} , v _{peak to peak, frequency (Hz), positive duty cycle, Display: Bargraph showing 1* up to 33*<!--</sub-->}	•		B envelope				
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Vpeak to peak, positive pulse width, negativeDisplay:Bargraph showing 1st up to 33st harmonic and DC, amplitude displayed in % relative to	MEASUREMENTS	V _{DC} , V _{AC} , V _{AC+DC} , V _{pea}	ak max, V _{peak min} ,		DC24 th (fundamental \leq 400 Hz).		
pulse width, positive duty cycle, displayed in % relative to		V _{peak to peak} , frequenc	y (Hz),	Display:	Bargraph showing 1st up to 33rd		
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negative duty cycle, Amp AC, fundamental		• •					
			• ·				
				8	5 ms/div.		
				weasurements:	Relative amplitude of individual		
dBV, dBm into 50Ω and 600Ω. harmonic; THD in $%$ r or $%$ f (Amps, $%$ C or $%$ F with optional probes)							

(Amps, °C or °F with optional probes)

DUAL INPUT METER

The specified accuracy is valid over the temperature range 18 $^{\circ}$ C to 28 $^{\circ}$ C (65 $^{\circ}$ F to 82 $^{\circ}$ F). Add 10 $^{\circ}$ of specified accuracy for each degree C below 18 $^{\circ}$ C or above 28 $^{\circ}$ C.

Max. meter bandwidth

V_{DC} Ranges Max. Resolution Accuracy and 20 MHz (for Fluke 123) 500mV, 5V, 50V, 500V, 1,250V 5,000 counts

500mV, 5V, 50V, 500V, 1,250V

 $\pm(1\% + 10 \text{ counts})$

(5% + 20 counts)

 $\pm(2.5\% + 15 \text{ counts})$

40 MHz (for Fluke 125. 124)

 \pm (0.5% + 5 counts)

5.000 counts

1 Hz 60 Hz

60 Hz...1 kHz:

20 kHz...1 MHz:

V_{AC RMS} Ranges

Max. Resolution Accuracy

V_{AC PWM}

Measures the effective output voltage of pulse-width modulated motor drives and frequency inverters (Fluke 125 only)

VAC+DC TRUE RMS

Ranges Max. Resolution Accuracy

500Ω, 5kΩ, 50kΩ, 500kΩ, 5MΩ, 30MΩ

(all models); 50Ω (Fluke 125 only).

AAC+DC TRUE RMS , AAC, ADC

Current Clamp sensitivity: 0.1 mV/A, 1 mV/A, 10 mV/A, 100 mV/A, 400 mV/A, 1000 mV/A or 10 mV/mA.

5.000 counts

OHMS Ranges

Max. Resolution Accuracy

CAPACITANCE

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

 \pm (0.6% of reading + 5 counts)

OTHER METER FUNCTIONS

Frequency

Rotational speed (rpm)

Max. RPM reading Continuity Diode test Amps

Duty Cycle Temperature (°C, °F)

Number of inputs Input impedance Advanced meter functions

RECORDER MODE TRENDPLOT[™] RECORDING

Source and display Range Recorded timespan Recording mode

Measurement speed Horizontal scale Up to 70 MHz (Fluke 125, 124) and up to 40 MHz (Fluke 123) Revolutions per minute, based on 1, 2 or 4 or 8 pulses per 2 revolutions (Fluke 125 only) 50 kRPM Beeper on $< 30\Omega$ Up to 2.8V Amp DC, Amp AC, Amp AC+DC using an optional current clamp or shunt. Scaling factors: 0.1 mV/Amp ... 100 V/Amp 2% to 98%, up to 30 MHz With optional accessories. Scale factors 1 mV/°C or 1 mV/°F 2 1M\Omega \pm 1% // 10 pF \pm 2 pF

Auto/manual ranging TouchHold[®] Relative measurements (zero reference) TrendPlot recording

Dual input electronic paperless chart recorder. Plots and displays the actual, minimum, maximum and average of any measurement. Input A, Input A and B 15 s/div till 2 days per division (automatic) Up to 16 days with a resolution of 1.5 hours Continuous with automatic vertical scaling and horizontal time compression 2.5 measurements per second maximum Time from start

GENERAL SPECIFICATIONS

holster

IP51 according to IEC529

without/with adapter

240 x 240 pixels

saved

7 hours

1.2 kg (2.5 lb.)

72 x 72mm (2.8 x 2.8 inch)

Country specific line voltage

adapter/battery charger included

Up to 7 hours using BP120MH

Class 2, par. 3.8.5.1 and 4.5.5.4.1

Rugged, shock proof with integrated protective

Shock 30g according to MIL-PRF-28800F, Class 2, par. 3.8.4.2 and 4.5.5.3.1

Vibration 3g according to MIL-PRF-28800F,

Bright LCD with CCFL backlight, $35/60 \text{ cd/m}^2$

User adjustable, temperature compensated

20 (Fluke 125, 124) and 10 (Fluke 123) instrument

screens with user set-ups and user text can be

Time and date stamp TrendPlot recording

Rechargeable Ni-MH BP120MH (installed)

Auto power down with adjustable power down time. On screen battery power indicator

50 x 115 x 232 mm (2 x 4.5 x 9.1 inches)

CAN/CSA C22.2 No. 61010-1-04 including

EN61010-1-2001. Pollution Degree 2:

CCSA{US}-approval; ANSI/ISA S82.01.

Design Drip and dust proof Shock and Vibration

DISPLAY

Size Resolution Contrast and brightness

MEMORY SAVE AND RECALL

REAL-TIME CLOCK

POWER

Line power

Battery power Battery operating time Battery charging time Battery power saving functions

MECHANICAL DATA

Size Weight

SAFETY

Compliance

INPUT VOLTAGE RATINGS

Maximum input voltage	600V CAT III (Maximum voltage between input and reference lead)
Maximum input voltage using VPS40 Probe Floating voltage	600 V CAT III, 1000 V CAT II (Maximum voltage between probe tip input and reference lead) 600V CAT III (Maximum voltage between earth ground and any terminal signal input or
Maximum voltage between reference leads	reference lead) Instrument has common grounds connected via selfrecovering fault protection. For different ground potential measurements between inputs use DP12O differential voltage probe.

ENVIRONMENTAL

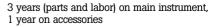
According MIL-PRF-28800F, Class 2 **Operating Temperature** 0°C to +50°C Storage temperature -20°C to +60°C 10°C to 30°C, 95% RH non condensing Humidity 30°C to 40°C, 75% RH non condensing 40°C to 50°C, 45% RH non condensing Maximum operating altitude 2,000m (6,500 feet) 4,500m (15,000 feet) voltages ≤ 400V Maximum storage altitude 12 km (40,000 feet) Electro-Magnetic-EN61326-1 for emissions and immunity Compatibility (EMC)

OPTICALLY ISOLATED PC/PRINTER INTERFACE

То	printer
То	PC

Supports HP Laserjet*, Deskjet*, Epson FX/LQ and postscript printers via optional PAC91 Transfer instrument settings, screen images and data, compatible with FlukeView* software for Windows* via optional OC4USB (USB) or PM9080 (RS-232) interface cable.

WARRANTY





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 or USB port
- PM9080 Optically isolated RS232 adapter/cable, or:
- OC4USB Optically isolated USB interface 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. Starting release V4.4, the Fluke 125 is supported.

Earlier ScopeMeter models are supported by means of an earlier release of FlukeView, included on the same CD-ROM.

Accessories

Standard Accessories	Fluke 199C, 196C, 199B, 196B, 192B	Fluke 125, 124, 123
Rechargeable	BP190	BP120MH
battery pack (installed)		
Line voltage adapter /	BC190	PM8907
Battery charger		
Voltage probes	10:1 voltage probe (VPS200) including	STL120 Shielded Test lead set,
(1 set red, 1 set grey)	hook clip, ground lead with hook clip,	VPS40 high impedance 10:1 probe,
and accessories	ground lead with mini alligator clip,	40 MHz (1 black, included with Fluke 125 & 124);
	4 mm add–on probe tip,	HC120 hook clips; ground leads with mini alligator clips,
	ground lead to 4 mm banana plug	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)
Current Clamp		i400s current clamp
		(included with Fluke 125 only)
User manual	10 language versions on CD-ROM,	15 language versions on CD-ROM.
	"Getting Started" booklet included	"Getting Started" booklet included
	with instrument	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

For user's safety, the Fluke ScopeMeters are connected to a PC or printer using an optically isolated interface cable. Software and cable can be ordered separately, or as part of a special value kit: the SCC190 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 OC4USB-interface cable. For those who prefer an RS-232 link, an optically isolated RS-232 cable PM9080 is available as separate item.



FLUKE

Selection Table

	Color ScopeMeter 190C Series		ScopeMeter 1908 Series			ScopeMeter 120 Series			
	Fluke 199C Fluke 196C Fluke 199B Fluke 196B Fluke 192B				Fluke 123				
Bandwidth	200 MHz	100 MHz	200 MHz	100 MHz	60 MHz	40 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	210 0.5/5	1 0.0/0	-	1 0.5/5	000 110/0	2.5 GS/s	2.5 GS/s	1.25 GS/s	
Display	14.4 cm Fi	ull Color LCD		.4 cm Monochrome	LCD		2 cm Monochrome		
Digital Persistence	Yes, gives analo	g oscilloscope like		-			-		
		y (user selectable)							
Envelope mode		Yes		Yes		Yes			
Waveform Compare	Visual F	Reference		Visual Reference		-			
	and Automatic '	Pass / Fail' testing							
Max. record length		<u> </u>							
in Scope mode:	3000 points p	er input channel, allo	wing for high time r	esolution signal anal	lvsis using zoom	512	min/max points per	input	
in ScopeRecord mode:			r input or more (5 m		,	orz minymax points por nipat			
Number of inputs	2 plu	s external / DMM inp			ground	2			
Number of digitizers			2		0	2			
Independently floating		Up to 1000 V be	etween inputs, refere	nces and ground			-		
isolated inputs			•	ő					
Input sensitivity	2 mV/div	100 V/div.	5	5 mV/div 100 V/d	liv.	5	6 mV/div 500 V/d	iv.	
Glitch capture		Up to 3 n	s using Pulse Width	triggering;			40 ns		
•			α detect at 5 μs/div. t						
Timebase range in Scope mode			o 2 min/div.		10 ns/div	10 ns/div 1 min/div. 20 ns/			
0					2 min/div.	1 min/		1 min/div.	
Trigger types	Connect-	and-View™, Free Rur	n, Single Shot, Edge,	Delay, Video Frame,	Video Line	Connect-and-View [™] , Free Run,			
	Selectable pulse width and External				S	Single Shot, Edge, Video			
	Dual Slope trigger and]				
	Event trigg	ger (n-cycle)							
Scope Measurements		7 cursors measu	rements, 30 automat	ic measurements		As 124 + Power,	cursors +	26 automatic	
-	Automatic Vrms and	d watts measurement				VA, VAR, PF,	26 automatic	measurements	
	on cursor limited	l part of waveform				RPM, Vpwm; THD	measurements		
Bus Health Test function		-	-			For standard		-	
				industry buses					
Waveform Mathematics	A -	+ B, A – B, A x B, A ve	ersus B (X-Y-mode, g	iving Lissajous diagr	ams)	Harmonics mode		-	
	Frequency Spectrum (FFT)								
Power Measurements			P (W), VA, VAR, PF			Power, VA, VAR,		-	
				PF, Vpwm					
Scope-Record Trigger modes		Start	on Trigger, Stop on T	Frigger			-		
Capture last 100 screens	Automatic, with Replay capability				-				
Dual input TrendPlot	Yes, with Cursors and Zoom			Yes, with Cursors Ye		Yes			
Memory for screens/set-ups	10 screens and set-ups;			2	20	10			
		re memories are mad							
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			Dual fully featured 5000 counts DMM					
Safety certified (EN61010-1)	1000 V CAT II / 600 V CAT III (instrument and included accessories)				600 V CAT III (instrument				
							nd included accessor		
Battery (installed)	4 hr Ni-MH BP190			7 hr Ni-MH (BP120MH)					
Line power	Adapter / battery-charger included (BC190)			Adapter / battery charger included (PM8907)					
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 Insulated adapter / cable OC4USB (USB) or PM9080 (RS-232)								
Warranty			3 years on	main instrument, 1	year on the standard	1 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 125	Industrial ScopeMeter (40 MHz)
Fluke 125/S	Industrial ScopeMeter (40 MHz) + SCC120 kit
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
OC4USB	Optically Isolated USB interface cable
ITP120	Optically Isolated External Trigger Input for Fluke 120 series
SW90W	FlukeView [®] ScopeMeter Software for Windows [®]
C190	Hard Shell Carrying Case for Fluke 190 series
C120	Hard Shell Carrying Case for Fluke 120 series

All 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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