

## ScopeMeter® 190 Series ScopeMeter 123

### Technical Data

#### ScopeMeter 190 Series: Speed, performance and analysis power

For demanding applications, the ScopeMeter 190 Series high-performance oscilloscopes offer specifications usually found on top-end bench instruments. With up to 200 MHz bandwidth, 2.5 GS/s real-time sampling and a deep memory of 27,500 points per input, they're ideal for engineers who need the full capabilities of a high-performance scope in a handheld, battery powered instrument.

- ✓ Dual input - 60, 100 or 200 MHz bandwidth
- ✓ Up to 2.5 GS/s real-time sampling per input
- ✓ Connect-and-View™ automatic triggering, a full range of manual trigger modes plus external triggering
- ✓ 27,500 points per input record length using ScopeRecord™ mode
- ✓ Automatic capture and replay of 100 screens
- ✓ 24 automatic waveform measurements
- ✓ Cursors, zoom and real-time clock
- ✓ Four hours rechargeable NiMH battery pack
- ✓ 1,000V CAT II and 600V CAT III safety certified
- ✓ Up to 1,000V independently floating isolated inputs
- ✓ Includes a 5,000 counts True-rms multimeter and a TrendPlot™ paperless recorder



#### ScopeMeter 123: Three-in-one simplicity

The compact ScopeMeter 123 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 20 MHz digital oscilloscope
- ✓ Two 5,000 counts True-rms digital multimeters
- ✓ A dual input TrendPlot™ recorder
- ✓ Connect-and-View™ trigger simplicity for hands-off operation
- ✓ Shielded test leads for oscilloscope, resistance and continuity measurements
- ✓ Up to five hours battery operation
- ✓ 600V CAT III safety certified
- ✓ Optically isolated RS-232 interface
- ✓ Rugged compact case

Connect  
and  
View



# Technical Specifications ScopeMeter 190 Series

## Oscilloscope Mode

### Vertical deflection

	Fluke 199	Fluke 196	Fluke 192
<b>Bandwidth</b>	200 MHz	100 MHz	60 MHz
<b>Rise time</b>	1.7 ns	3.5 ns	5.8 ns

**Bandwidth limiter:** User selectable 10 kHz or 20 MHz

**Number of inputs:** 2 plus external trigger. All isolated from each other and ground.

**Input coupling:** AC, DC with ground level indicator

**Input sensitivity:** 5 mV/div to 100 V/div

**Input voltage:** See general specifications for maximum rating

**Vertical resolution:** 8 bit

**Accuracy:**  $\pm(1.5\%$  of reading + 0.04 x range/div)

**Input impedance:** 1 M $\Omega$   $\pm$  1% // 15 pF  $\pm$  2 pF

### Horizontal

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

**Maximum record length:** 1,000 points per input  
27,500 points per input in ScopeRecord™-roll mode  
(10 ms/div ... 2 min/div)

**Accuracy:**  $\pm$  (0.01% of reading + 1 pixel)

**Glitch capture:** 50 nsec (5  $\mu$ sec/div to 1 min/div)

Faster time bases have higher sample rates than 20 MS/s

### Display and acquisition

**Display modes:** Input A, input B, dual, average, persistence, invert, replay

**Acquisition modes:** Normal, auto, single shot, ScopeRecord™ roll, glitch capture

### Trigger and delay

**Source:** Input A, input B, external trigger input. All input references isolated from each other and ground.

**Modes:** Automatic Connect-and-View™, free run, single shot, edge, delay, video, video line, selectable pulse width

**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.

**Video triggering:** NTSC, PAL, PAL+, SECAM. Includes field 1 and 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:** 9 divisions pre-trigger view to 1,000 divisions trigger delay

### Automatic capture of 100 screens

The instrument ALWAYS memorizes last 100 screens (no user interaction or setup required). When an anomaly occurs on screen, there's 10 seconds to press HOLD and review it. If one sets up the instrument for triggering on glitches or intermittent anomalies the unit operates in "baby-sit" mode and will capture 100 events.

**Replay:** Manual or continuous replay. Displays the captured 100 screens as a "live" animation. The contents can also be viewed by manually scrolling backwards and forwards "screen by screen".

**Replay storage:** Up to 2 sets of 100 screens can be saved for later recall and analysis.

### Automatic scope measurements

VDC, VAC rms, 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, power factor, watts, VA, VA reactive, phase, temperature  $^{\circ}$ C, temperature  $^{\circ}$ F, dBV, dBm into 50 $\Omega$  and 600 $\Omega$

### Cursor measurements

**Source:** Input A or B

**Dual horizontal lines:** Voltage at cursor 1 and 2, voltage between cursors

**Dual vertical lines:** Time between cursors, voltage between markers

**Single vertical line:** Min-Max and Average voltage at cursor position

### Zoom

Up to 8x 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 (15 °F to 33 °F). Add 10 % of specified accuracy for each degree °C below 18 °C or above 28 °C (15 °F to 33 °F).

### Maximum resolution

5,000 counts

### Voltmeter ranges

500mV, 5V, 50V, 500V, 1,000V

### Accuracy

**VDC:** ± (0.5 % + 5 counts)

#### VAC true rms

15 Hz to 60 Hz: ± (1 % + 10 counts)

60 Hz to 1 kHz: ± (2.5 % + 15 counts)

#### VAC+DC true rms

DC to 60 Hz: ± (1 % + 10 counts)

60 Hz to 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 < 30Ω (± 10Ω)

**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 to 100 V/Amp

**Temperature (°C, °F):** With optional accessories.

Scale factors 1 mV/°C or 1 mV/°F

**Input impedance:** 1 MΩ ± 1% // 10 pF ± 2 pF

**Advanced meter functions:** Auto/manual ranging, relative measurements (Zero reference), TrendPlot recording

## Recorder Mode

### ScopeRecord-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	10 ms/div to 1 min/div	2 min/div
Recorded timespan	11 sec to 15 hrs	30 hrs
Glitch capture	50 nsec	250 nsec
Sample rate	20 MS/s	4 MS/s
Resolution	400 µsec to 2 sec	4 sec

**Recording modes:** Single sweep, continuous roll, start on external trigger

**Horizontal scale:** Time from start, time of day

**Zoom:** Up to 100 x zoom

**Memory:** Up to 2 dual input ScopeRecordings can be saved for later recall and analysis

### TrendPlot™ recording

Dual input electronic paperless chart recorder. Plots, displays and stores meter and scope measurements.

**Source and display:** Input A, Input B and DMM input

**Memory depth:** 13,500 points record per input. Per record point a minimum, maximum and average value, and a time and date stamp are stored.

**Ranges:** 10 s/div to 20 min/div in normal view mode. 10 min/div to 24 hour/div in view-all mode (overview of total record)

**Recorded timespan:** Up to 8 days with a resolution of 1 minute

**Recording mode:** Continuous roll

**Measurement speed:** 2.5 measurements per second maximum

**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.

# Technical Specifications

## ScopeMeter 190 Series cont.

### 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 28800F type III, class 3, style B

#### Display

Bright LCD with CCFL backlight, 35/60 cd/m<sup>2</sup> with-out/with power adapter.

**Size:** 105 x 79 mm (4.1 x 3.1 inches)

**Resolution:** 240 x 240 pixels

**Contrast and brightness:** User adjustable, temperature compensated

#### 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 (13,500 Min-Max pairs per input).

#### Real-time clock

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

#### 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

#### Mechanical data

**Size:** 256 x 169 x 64 mm (10.1 x 6.6 x 2.5 inches)

**Weight:** 1.95 kg (4.3 lbs)

#### Safety

**Compliance:** EN61010-1 (1993) Pollution degree 2, UL 3111-1 (1994), CAN/CSA C22.2 No.1010.1 (1992), ANSI/ISA S82.01 (1994)

#### Input voltage ratings

**Maximum probe voltage:** 1,000V CAT II, 600V CAT III (Maximum voltage between 10:1 probe tip (VP190) 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:** 1,000V CAT II, 600V CAT III inputs (Maximum voltage between any terminal of one input or probe (VP190) and any other terminal of another input or probe (VP190))

**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

#### 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:** EN 61326-1 for emission and immunity

#### Optically isolated PC/Printer interface

**To printer:** Supports HP Laserjet<sup>®</sup>, Deskjet<sup>®</sup>, Epson FX/LQ and postscript printers via optional PAC 91

**To PC:** Transfer instrument settings, screen images and waveform data, compatible with FlukeView<sup>®</sup> software for Windows<sup>®</sup> via optional PM9080.

#### Warranty

3 years

# Technical Specifications

## ScopeMeter 123

### Oscilloscope Mode

#### Vertical deflection

**Bandwidth:** 20 MHz at inputs; 20 MHz with BB120 and optional PM 8918/VP190 10:1 probes; 12.5 MHz with STL120 1:1 test leads

**Rise time:** 17.5 ns

**Number of inputs:** 2

**Input coupling:** AC, DC with ground level indicator

**Input sensitivity:** 5 mV to 500 V/div (with included STL120 shielded test leads measure up to 600 Vrms)

**Vertical resolution:** 8 bit

**Accuracy:**  $\pm$  (2% of reading + 0.05 x range/div)

**Input impedance:** 1 M $\Omega$   $\pm$  1% // 225 pF with STL120 shielded test leads; 1 M $\Omega$   $\pm$  1% // 20 pF  $\pm$  3 pF with BB120

#### Horizontal

**Maximum sample rate:** 1.25 GS/s for repetitive signals; 25 MS/s for single shot

**Number of digitizers:** 2

**Time base range:** 20 ns/div to 1 min/div

**Maximum record length:** 512 Min-Max points per input

**Accuracy:**  $\pm$  (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 50 $\Omega$  and 600 $\Omega$ . (Amps, °C or °F with optional probes)

### Dual Input Meter

The specified accuracy is valid over the temperature range 18°C to 28°C (15°F to 33°F). Add 10 % of specified accuracy for each degree °C below 18°C or above 28°C (15°F to 33°F).

**Max. meter bandwidth:** 20 MHz

#### VDC

**Ranges:** 500mV, 5V, 50V, 500V, 1,250V

**Max. resolution:** 5,000 counts

**Accuracy:**  $\pm$  (0.5% + 5 counts)

#### VAC rms

**Ranges:** 500mV, 5V, 50V, 500V, 1,250V

**Max. resolution:** 5,000 counts

**Accuracy:**

1 Hz to 60 Hz:  $\pm$ (1% + 10 counts)

60 Hz to 1 kHz:  $\pm$ (2.5% + 15 counts)

20 kHz to 1 MHz (5% + 20 counts)

#### VAC+DC true rms

**Ranges:** 500mV, 5V, 50V, 500V, 1,250V

**Max. resolution:** 5,000 counts

**Accuracy:**

DC to 60 Hz:  $\pm$ (1% + 10 counts)

60 Hz to 1 kHz:  $\pm$ (2.5% + 15 counts)

20 kHz to 1 MHz (5% + 20 counts)

#### Ohms

**Ranges:** 500 $\Omega$ , 5 k $\Omega$ , 50 k $\Omega$ , 500 k $\Omega$ , 5 M $\Omega$ , 30 M $\Omega$

**Max. resolution:** 5,000 counts

**Accuracy:**  $\pm$  (0.6% of reading + 5 counts)

#### Capacitance

**Ranges:** 50 nF to 500  $\mu$ F

**Max. resolution:** 5,000 counts

**Accuracy:**  $\pm$  (2% of reading + 10 counts)

#### Other meter functions

**Frequency:** Up to 40 MHz

**Continuity:** Beeper on < 30 $\Omega$

**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 to 100 V/Amp

**Temperature (°C, °F):** With optional accessories. Scale factors 1 mV/°C or 1 mV/°F.

**Number of inputs:** 2

**Input impedance:** 1 M $\Omega$   $\pm$  1% // 10 pF  $\pm$  2 pF

**Advanced meter functions:** Auto/manual ranging, TouchHold®, Relative measurements (zero reference), TrendPlot recording

# Technical Specifications

## ScopeMeter 123 cont.

### 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-T28800E, Type III, Class 3, Style B

#### Display

Bright LCD with CCFL backlight, 35/60 cd/m<sup>2</sup> 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

2 screens, 10 user setups

#### Real-time clock

Time and date stamp TrendPlot recording

#### Power

**Line power:** Country specific line voltage adapter/battery charger included

**Battery power:** Rechargeable NiCd (installed)

**Battery operating time:** Up to 5 hours

**Battery charging time:** 4 hours

**Battery refresh cycle:** 8 to 14 hours depending on remaining capacity at start of refresh cycle

**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 (1993) Pollution degree 2, UL3111-1 (1994), CAN/CSA-C22.2 No. 1010.1 (1992), ANSI/ISA S82.01 (1994)

### Input voltage ratings

**Maximum input voltage:** 600V CAT III

(Maximum voltage between 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 self recovering 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:** Emission EN50081-1 (EN55022 and EN60555-2)

**Compatibility:** Immunity EN50082-2 (IEC1000-4-2, -3, -4, -5)

### Optically isolated PC/Printer interface

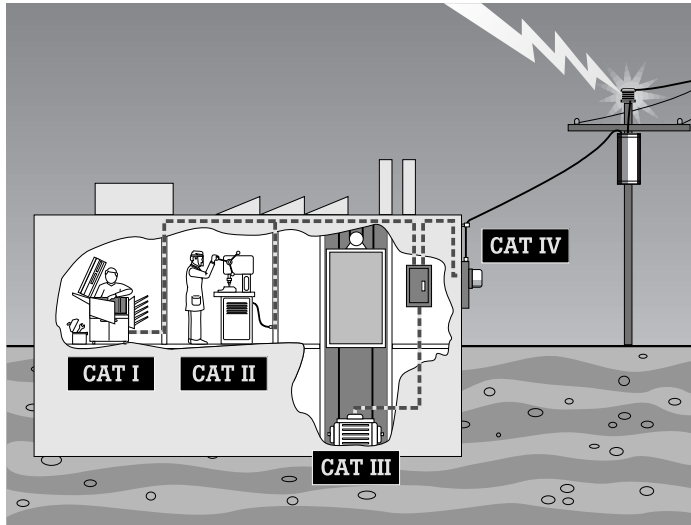
**To printer:** Supports HP Laserjet®, Deskjet®, Epson FX/LQ and postscript printers via optional PAC91

**To PC:** Transfer instrument settings, screen images and data, compatible with FlukeView® software for Windows® via optional PM9080

### Warranty

3 years

# International Safety Standards



To protect your instrument and – more importantly – yourself, choose a test tool that can withstand the electrical hazards present in the environment in which you plan to use it. EN61010 establishes international safety requirements for electrical measurement equipment. It separates the various electrical environments into installation categories based on the danger from high voltage-energy transients. To choose the right tool, the voltage rating alone does not determine the safety. It is the combination of voltage rating and installation category that determines maximum transient withstand capability of the tool. CAT III rated instruments are recommended for measurement on industrial power distribution systems.

Overvoltage Category	Summary description
CAT IV	Three phase at utility connection, any outdoors conductors (under 1,000V) <ul style="list-style-type: none"> <li>• Outside and service entrance</li> <li>• Service drop from pole to building</li> <li>• Run between meter and panel</li> <li>• Overhead line to detached building</li> <li>• Underground line to well pump</li> </ul>
CAT III	Three-phase distribution (under 1,000V), including single phase commercial lighting and distribution panels <ul style="list-style-type: none"> <li>• Feeders and short branch circuits</li> <li>• Distribution panel devices</li> <li>• Heavy appliance outlets with "short" connections to service entrance</li> </ul>
CAT II	Single-phase receptacle connected loads <ul style="list-style-type: none"> <li>• Outlets and long branch circuits</li> <li>• All outlets at more than 10m (30 ft.) from Category III source</li> <li>• All outlets at more than 20m (60 ft.) from Category IV source</li> </ul>
CAT I	Electronic <ul style="list-style-type: none"> <li>• Electronic equipment</li> <li>• Low energy equipment with transient limiting protection</li> </ul>

## Ordering Information

FLK-192	Fluke 192 ScopeMeter (60 MHz)
FLK-192S	Fluke 192 ScopeMeter (60 MHz) with SCC190 kit
FLK-196	Fluke 196 ScopeMeter (100 MHz)
FLK-196S	Fluke 196 ScopeMeter (100 MHz) with SCC190 kit
FLK-199	Fluke 199 ScopeMeter (200 MHz)
FLK-199S	Fluke 199 ScopeMeter (200 MHz) with SCC190 kit
SCC190	Software - Cable - Case kit for Fluke 190 Series
FLK-123	Fluke 123 Industrial ScopeMeter
FLK-123S	Fluke 123 Industrial ScopeMeter with SCC120 kit
SCC120	Software - Cable - Case kit for Fluke 123

- Fluke ScopeMeter test tools come standard with a complete accessory package including line voltage adapter, and battery pack (installed). ScopeMeter 123 includes the shielded test leads, ScopeMeter 190 Series comes 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.

## Accessories

Standard accessories:	190 Series	123
Rechargeable battery pack (installed)	BP190	BP120
Line voltage adapter / battery charger	BC190	PM 8907
Two probes, red & gray	VP190-R & VP190-G	—
Two shielded test-leads, red & gray	—	STL120
Test lead, black	— (*1)	TL75
Two hook clips, black	— (*1)	HC120
Three alligator clips	— (*2)	AC120
Shielded banana to BNC adapter		BB120
Probe accessory Set, red & gray	AS190 - R/G (*2)	—
User's manual	9 language versions	13 language versions
<b>Optional accessories and replacements: (*3)</b>		
<i>Safety designed oscilloscope probes</i>		
Differential voltage probe	DP120	DP120
Optically isolated trigger probe	—	ITP120
10:1 Voltage probe red or grey	VP190-R or VP190-G (*4)	
Probe accessory set red or grey	AS190-R or AS190-G (*4)	
Probe replacement set	RS190	
<i>Safety designed test leads</i>		
Hard point right angle test lead set	TL75	
Test lead set	TL20	
Hook clips for use with TL75 & STL120	HC120	
Alligator clips for use with TL75 & STL120	AC120	
Pin-grabber test clips for banana plug	AC83	
Large jaw alligator clips for banana plug	AC85A	
Hook style clips for banana plug	AC80	
Alligator clips for banana plug	AC20	
Industrial test probes for banana plug	TP20	
Electronic test probes for banana plug	TP80	
Test probe flat blade for banana plug	TP1	
Test probe 2mm for banana plug	TP2	
Test probe 4mm for banana plug	TP4	
<i>Current probes</i>		
AC/DC current probe 50mA to 100A	80i-110s (*4)	
AC current probe 0.1A to 1,000A	80i-1000s (*4)	
Flexible AC current probe 1A to 2,000A	i2000flex (*4)	
AC current probe 1A to 3,000A	i3000s (*4)	
AC current probe 1A to 200A	i200s (*4)	
Current shunt 4-20mA	CS20MA	
<i>Temperature probes</i>		
Universal temperature probe	80T-150U	
Thermocouple module	80TK	
Infrared temperature probe	80T-IR	
<i>Cables and adapters</i>		
Printer adapter cable	PAC91	
Optically isolated RS-232 adapter/cable	PM 9080/001 (*6)	
Dual banana plug to female BNC adapter	PM 9081/001	
Dual banana jack to male BNC adapter	PM 9082/001	
1.5m 50Ω coaxial BNC cable	PM 9091/001	
Male BNC to female BNC adapter	PM 9093/001	
<i>Protective cases</i>		
Software cable case package	SCC190 (*5)	SCC120 (*5)
Hard carrying case	C190 (*6)	C120 (*6)
Soft carrying case	C195	C125
<i>PC software</i>		
FlukeView software for Windows®	SW90W/033EFG (*5)	

- (\*1) Probe accessory VP190 set includes test leads, hook clips.
- (\*2) The Fluke 196 and 199 include red and grey probe, accessory set AS190, with 4 heavy duty alligator clips.
- (\*3) This is a selection of a broader range of optional accessories that support ScopeMeter products, for information on additional available accessories, contact your Fluke distributor.
- (\*4) Connects to BNC, for connection to Fluke 123 input use BB120.
- (\*5) Software Cable Case Package includes RS-232 cable, FlukeView software & hard carrying case.
- (\*6) Included in SCC package.

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

**Fluke Corporation**

PO Box 9090, Everett, WA USA 98206

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

For more information call:  
U.S.A. (800) 443-5853 or  
Fax (425) 356-5116  
Europe/M-East/Africa  
(31 40) 2 678 200 or  
Fax (31 40) 2 678 222  
Canada 1-800-36-FLUKE or  
Fax (905) 890-6866  
Other countries (425) 356-5500 or  
Fax (425) 356-5116  
Web access: <http://www.fluke.com>

© 1999 Fluke Corporation. All rights reserved.  
Specifications subject to change without notice.  
Printed in U.S.A. 7/99 1280619 D-ENG-P Rev A  
Printed on recycled paper.