

FLUKE

196C

The Fluke 196C is a high-performance 100 MHz handheld ScopeMeter that combines a dual-channel digital storage oscilloscope, a 5000-count digital multimeter, and a paperless chart recorder into a rugged, battery-powered form factor. Designed for demanding industrial troubleshooting, it features a high-brightness color TFT display, a maximum real-time sampling rate of 1 GS/s per input, and isolated inputs rated up to 1000 V CAT II.

SPECIFICATIONS

General

Interfaces	Optically isolated RS-232 / USB interface (requires optional PM9080 or OC4USB cable)
Display	5.7-inch color active matrix TFT, 320 x 240 pixels
Recommended Calibration Interval	1 year
Real-time Clock	Built-in, provides time and date stamp

Physical

Power Supply	Rechargeable NiMH battery pack (BP190) or external mains adapter/charger (BC190, 115 V / 230 V)
Operating Temperature	0 °C to 50 °C °C
Dimensions (W×H×D)	256 mm × 169 mm × 64 mm mm
Weight	2.0 kg kg

Vertical System (Oscilloscope)

Bandwidth	100 MHz
Number of Channels	2 isolated channels plus 1 multimeter input
Real-time Sample Rate	1 GS/s per channel
Input Coupling	AC, DC
Input Impedance	1 MΩ ± 1% // 15 pF ± 2 pF
Vertical Sensitivity Range	2 mV/div to 100 V/div
Vertical Resolution	8-bit
DC Gain Accuracy	±(1.5% of reading + 0.04 range/div)
Maximum Input Voltage (CAT Rating)	1000 V CAT II / 600 V CAT III
Channel Isolation	Up to 1000 V between inputs, instruments, and ground
Probe Attenuation Settings	1x, 10x, 100x, 1000x

Horizontal System (Oscilloscope)

Time Base Range	5 ns/div to 5 s/div
Record Length / Memory Depth	3,000 points per channel (Scope mode), 27,500 points per channel (ScopeRecord mode)
Time Base Accuracy	$\pm(0.01\% + 1 \text{ pixel})$
Acquisition Modes	Normal, Single Shot, Roll, Envelope, Smooth, Glitch Capture
Glitch Capture / Peak Detect	50 ns
Horizontal Zoom	Up to 100x

Trigger System

Trigger Sources	Input A, Input B, External (via DMM input)
Trigger Modes	Connect-and-View, Free Run, Single Shot, Edge, Delay, Video, Pulse Width
Trigger Coupling	AC, DC, HF-reject, Noise-reject
Video Trigger Formats	NTSC, PAL, SECAM, Non-interlaced (up to 2800 lines)
Pulse Width Triggering	Pulse width range 15 ns to 40 s

Digital Multimeter (DMM) Functions

Multimeter Resolution (Counts)	5000 counts
DC Voltage Ranges	500 mV, 5 V, 50 V, 500 V, 1000 V
DC Voltage Accuracy	$\pm(0.5\% + 5 \text{ counts})$
AC Voltage Ranges (True RMS)	500 mV, 5 V, 50 V, 500 V, 1000 V
AC Voltage Accuracy	$\pm(1.0\% + 10 \text{ counts})$
Resistance Ranges	500 Ω , 5 k Ω , 50 k Ω , 500 k Ω , 5 M Ω , 30 M Ω
Resistance Accuracy	$\pm(0.6\% + 5 \text{ counts})$
Continuity Threshold	Audible beep < 50 Ω ($\pm 30 \Omega$)
Diode Test Open Circuit Voltage	Up to 2.8 V
Capacitance Ranges	50 nF, 500 nF, 5 μ F, 50 μ F, 500 μ F
Capacitance Accuracy	$\pm(2\% + 10 \text{ counts})$

Recorder Functions (TrendPlot & ScopeRecord)

TrendPlot Recording Duration	Up to 22 days
TrendPlot Measurement Parameters	Any DMM or Scope measurement (with MIN, MAX, AVG)
ScopeRecord Sampling Rate	20 MS/s max (timebase 5 ms/div to 2 min/div)
ScopeRecord Memory Capacity	27,500 points per channel
Glitch Capture in Record Mode	8 ns glitch capture capability

Display & User Interface

Display Type	Color Active Matrix TFT
Display Size	115 mm x 86 mm (144 mm / 5.7 inch diagonal)
Display Resolution	320 x 240 pixels
Waveform Math Functions	A+B, A-B, A*B, FFT (Frequency Spectrum Analysis)
Cursor Measurements	Single, Dual (time, voltage, rise/fall time, frequency, phase)
Waveform Storage Capacity (Internal)	10 memories for dual-waveforms
Setup Storage Capacity (Internal)	10 user setups
Replay Function	Automatic capture and replay of the last 100 screens

Connectivity & Interfaces

Isolation Barrier Rating	1000 V between inputs, instrument ground, and PC interface
PC Software Compatibility	FlukeView ScopeMeter Software (SW90W)

Power Supply & Battery Life

Battery Type	Nickel-Metal Hydride (NiMH) rechargeable (BP190)
Battery Operating Time	Up to 4 hours
Battery Charge Time	4 hours
AC Power Adapter/Charger Input	BC190 (115 VAC $\pm$ 10% or 230 VAC $\pm$ 10%, 50/60 Hz)

Environmental Specs & Durability

Storage Temperature Range	-20 °C to +60 °C
Maximum Operating Altitude	3,000 meters (10,000 feet)
IP Rating (Ingress Protection)	IP51 (drip proof, dust protected)

Safety & Regulatory Compliance

Electrical Safety Standards	IEC/EN 61010-1
Overvoltage Category Rating	1000 V CAT II / 600 V CAT III
EMC/EMI Compliance	EN 61326-1

Standard & Optional Accessories

Included Voltage Probes	VPS200-R (red) and VPS200-G (grey) 10:1 voltage probes
Warranty Term	3 years (instrument), 1 year (accessories)

Vertical System

Rise Time	< 3.5 ns
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Measurements

Phase Measurement Range	-180° to +180°
Phase Measurement Resolution	1°
Crest Factor Measurement Range	1.0 to 10

Frequency Counter

Frequency Counter Resolution	5 digits
Frequency Counter Maximum Frequency	100 MHz

Environmental

Shock and Vibration Resistance	MIL-PRF-28800F Class 2
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Multimeter

DMM Input Impedance	1 M Ω $\square$ 1%
DMM Diode Test Current	0.5 mA

Triggering

Continuous Auto-set	Hands-off auto-setting (Connect-and-View™)
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Power

Battery Voltage	7.2 V
Mains Adapter Model	Fluke BC190

Trigger

External Trigger Input	Via meter test jacks
External Trigger Input Impedance	1 M Ω $\square$ 1%
External Trigger Sensitivity	0.5 V (DC to 10 MHz)
External Trigger Maximum Input Voltage	1000 V CAT II, 600 V CAT III
Edge Trigger Sensitivity (Channels A & B)	0.5 div or 5 mV (DC to 5 MHz), 1.5 div (at 100 MHz)

Vertical

AC Coupling Lower Frequency Limit	< 10 Hz without probe (-3 dB), < 1 Hz with 10:1 probe (-3 dB)
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TrendPlot

TrendPlot Maximum Memory Capacity	18,000 points per input
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Display

Display Backlight	Cold Cathode Fluorescent (CCFL)
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TECHNOLOGY

Digital Storage Oscilloscope (DSO)

APPLICATIONS

Industrial electronic troubleshooting, field service, three-phase power systems analysis, and electro-mechanical systems diagnostic

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