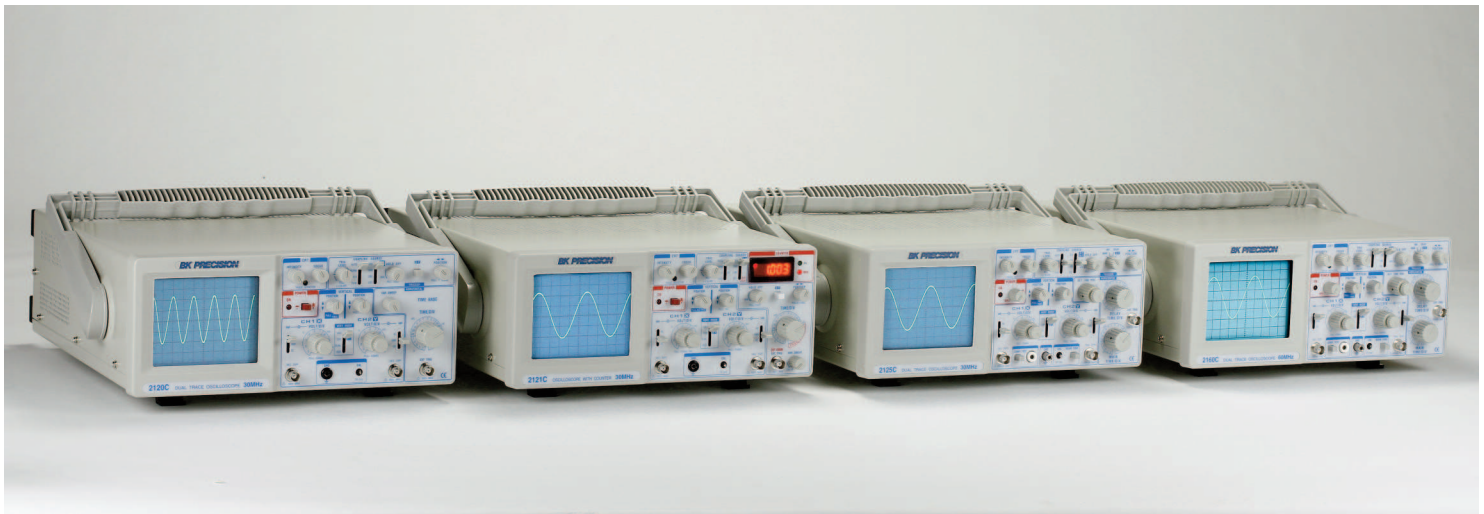
Data Sheet

Analog Oscilloscopes With Probes

2100C Series



B&K Precision's 212x Series are dual trace oscilloscopes that offers high performance at a low price. Most competitor's entry level oscilloscopes have a 20 MHz bandwidth, while B&K Precision's 212x Series have a bandwidth of 30-60 MHz.

These oscilloscopes are built by and backed by B&K Precision, a company that has been selling reliable, durable, value priced test instruments for over 60 years.

Common Features & Benefits

- Dual or single trace operation
- 5 mV/div sensitivity
- Calibrated 23-step time base with X10 magnifier
- Video sync trigger
- Alternate/chop sweep
- Sum and difference capability

Additional Features

- Built-in component tester (2125C only)
- Built-in 50 MHz frequency counter (2121C only)
- Delayed time base
- Main, Mix, Delay, X-Y sweep modes

Specifications	2120C	2121C	2125C	2160C
Bandwidth	30 MHz	30 MHz	30 MHz	60 MHz
Sweep Time	0.1 μs/div to 2 s/div			20 ns/div to 5 s/div
Component Tester	-	-	√	√
Counter	-	√	-	-

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Technical data subject to change
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B&K PRECISION ELECTRONIC TEST INSTRUMENTS

Specifications	2120C & 2121C
VERTICAL AMPLIFIERS (CH 1 and CH 2)	
Sensitivity	5 mV/div to 5 V/div, 1 mV/div to 1 V/div at X5
Attenuator	10 steps in 1-2-5 sequence. Vernier control provides full adjustment between steps
Accuracy	±3%, ±5% at X5
Input Resistance	1 MΩ ±2%
Input Capacitance	25 pF ±10 pF
Frequency Response	5 mV to 5 V/div: DC to 30 MHz (-3dB). X5: DC to 10 MHz (-3dB)
Rise Time	12 ns (Overshoot ≤ 5%)
Operating Modes	CH 1: CH 1, single trace
CH 2	CH 2, single trace
ALT	dual trace, alternating
CHOP	dual trace, chopped
ADD	agebraic sum of CH 1 + CH 2
Polarity Reversal	CH 2 only
Maximum Input Voltage	400 V (DC + AC peak)
SWEEP SYSTEM	
Sweep Speed	0.1 μs/div to 2 s/div in 1-2-5 sequence, 23 steps, Vernier control provides fully adjustable sweep time between steps.
Accuracy	±3%
Sweep Magnification	10x
TRIGGERING	
Triggering Modes	AUTO (free run) or NORM, TV-V, TV-H
Trigger Source	CH 1, CH 2, ALT, EXT, LINE
Max External Trigger Voltage	300 V (DC + AC peak)
Trigger Coupling	AC 30 Hz to 30 MHz
TV H	Used for triggering from horizontal sync pulses
TV V	Used for triggering from vertical sync pulses
TRIGGER SENSITIVITY	
Auto	Bandwidth:100 Hz-30 MHz, Internal: 1.5 div, External: 100 mV
Norm	Bandwidth: DC to 30 MHz, Internal: 1.5 div, External: 100 mV
TV V	Bandwidth: 20 Hz-1 kHz, Internal: .5 div, External: 100 mV
TV H	Bandwidth:1 kHz-100 kHz, Internal: .5 div, External: 100 mV
HORIZONTAL AMPLIFIER (Input through channel 2 input)	
X-Y Mode	Switch selectable using X-Y switch. CH 1: X axis, CH 2: Y axis
Sensitivity	Same as vertical channel 1
Input Impedance	Same as vertical channel 1
Frequency Response	DC to 1 MHz typical (-3 dB)
X-Y Phase Difference	Approximately 3° at 50 kHz
Maximum Input Voltage	Same as vertical channel 1
CRT	
Type	Rectangular with internal graticule
Display Area	8 x 10 div (1 div = 1 cm)
Accelerating Voltage	2 kV
Phosphor	P31
Trace Rotation	Electrical, front panel adjustable
Calibrating Voltage	1 kHz (±10%) positive square wave, 2 V p-p (±3%)
COUNTER (2121C)	
Display	5 digits, 0.36" red LED, display at "Hz" or "kHz" auto range
Display Resolution	Auto select from 0.001 Hz to 1 kHz depending on the frequency
Max. Counter Range	0.1 Hz to 50 MHz
Accuracy	+0.01% + 1 digit or 1/99999 + 1 digit
Time Base	18,432 MHz + 10ppm (23 °C ±5 °C)
GENERAL	
Temperature	Within specified accuracy: 50° to 95°F (10° to 35°C), ≤ 85% RH Full operation: 32° to 104°F (0° to 40°C), ≤ 85% RH storage: -4° to 158°F (-20° to +70°C
Power Requirements	100/120/220/240 VAC ±10%, 50/60 Hz, approximately 40 W.
Dimensions (WxHxD)	7 x 14.5 x 17.25" (180 x 370 x 440 mm)
Weight	17.2 lbs (7.8 kg)
	One Year Warranty
Supplied Accessories	Instruction manual, two PR-33A x1/x10 probes or equivalent, AC power cord and spare fuse
Optional Accessories	PR-32A demodulator probe, PR-37A x1/x10/REF. probe, PR-100A x100 probe, PR-55 high voltage x1000 probe, LC-210A carrying case

Specifications	2125C & 2160C
VERTICAL AMPLIFIERS (CH 1 and CH 2)	
Sensitivity	5 mV/div to 5 V/div, 1 mV/div to 1 V/div at x5
Attenuator	10 steps in 1-2-5 sequence. Vernier control provides full adjustment between steps
Accuracy	±3%, ±5% at x5
Input Resistance	1 MΩ +2%
Input Capacitance	25 pF ±10 pF
Frequency Response	5 mV to 5 V/div: DC to 30 MHz (-3dB), X5: DC to 10 MHz (-3dB) DC to 60 MHz (-3 dB). Model 2160C X5 MAG: DC to 15 MHz (-3 dB). Model 2160C
Rise Time	12ns (Overshoot ≤ 5%)
Operating Modes	CH 1: CH 1, single trace
CH 2	CH 2, single trace
ALT	dual trace, alternating
CHOP	dual trace, chopped
ADD	agebraic sum of CH 1 + CH 2
Polarity Reversal	CH 2 only
Max. Input Voltage	400 V (DC to AC peak)
SWEEP SYSTEM	
Operating Modes	Main, mix (both main sweep and delay sweep displayed), or Delay (only delay sweep displayed), X-Y
Main Sweep SpeeD	0.1 μs/div to 2.0 s/div in 1-2-5 sequence, 23 steps Vernier control provides fully adjustable sweep time between steps
Accuracy	±3%
Sweep Magnification	10X, ±5%
Delayed Sweep Speed	0.1 ms/div to 0.1s/div in 1-2-5 sequence, 23 steps
Holdoff	Continuously variable for Main sweep up to 10 times normal
Delay Time Position	Continuously variable to control percentage of display that is devoted to main and delay sweep
TRIGGERING	
Triggering Modes	AUTO (free run) or NORM, TV-V, TV-H
Trigger Source Maximum External CH 1, CH 2, ALT, EXT, LINE	
Trigger Voltage	300 V (DC + AC peak)
Trigger Coupling	AC 30 Hz to 30 MHz, TV H used for triggering from horizontal sync pulses, TV V Used for triggering from vertical sync pulses
TRIGGER SENSITIVITY	
Auto	Bandwidth: 100Hz - 40MHz, Internal: 1.5 div, External: ≥ 0.1Vp-p
Norm	Bandwidth: 100Hz - 40MHz, Internal: 1.5 div. External: ≥ 0.1Vp-p
TV-V	Bandwidth: DC -1kHz, Internal: 0.5 div, External: ≥ 0.05Vp-p
TV-H	1 kHz - 100kHz, Internal: 0.5 div, External: ≥ 0.05Vp-p
HORIZONTAL AMPLIFIER (Input through channel 1 input)	
X-Y Mode	Switch selectable using X-Y switch. CH 1: X axis, CH 2: Y axis
Sensitivity	Same as vertical channel 2
Accuracy	Y-Axis: ±3%. X-Axis: ±6%
Input Impedance	ame as vertical channel 2
Frequency Response	DC to 1MHz typical (-3 dB), to 6 div horizontal deflection
X-Y Phase Difference	3° or less at 50 kHz
Max. Input Voltage	Same as vertical channel 2
CRT	
Type	Rectangular with internal graticule
Display Area	8 x 10 div (1 div = 1 cm)
Accelerating Voltage	2 kV, 12 kV (2160C)
Phosphor	P31
Trace Rotation	Electrical, front panel adjustable
COMPONENT TESTER	
Components Tested	Resistors, Capacitors, Inductors, and Semiconductors
Test Voltage	6 V rms maximum (open)
Test Current	11 mA maximim (shorted)
Test Frequency	Line frequency (60 Hz in USA)
Calibrating Voltage	1 kHz (±10%) positive square wave, 0.2 V p-p (±2%)
GENERAL	
Temperature	Within specified accuracy: 50° to 95°F (10° to 35°C), ≤ 85% RH Full operation: 32° to 104° F (0° to 40°C), ≤ 85% RH Storage: -4° to 158° F (-20° to +70°C)
Power Requirements	100/120/220/240 VAC ±10%, 50/60 Hz, Approximately 40 W
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