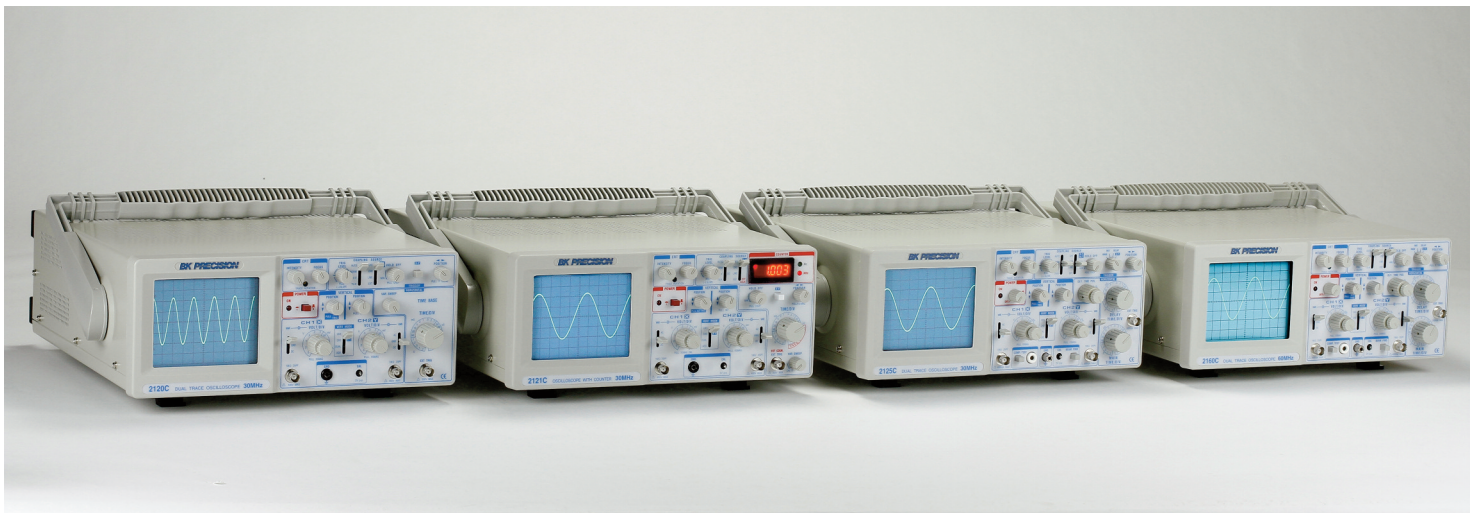


## Data Sheet

# 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 & 2160C)
- 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 $\mu$ s/div to 2 s/div			20 ns/div to 5 s/div
Component Tester	-	-	√	√
Counter	-	√	-	-



Analog Oscilloscopes  
2100C Series

Specifications	2120C & 2121C
<b>VERTICAL AMPLIFIERS (CH 1 and CH 2)</b>	
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	algebraic sum of CH 1 + CH 2
Polarity Reversal	CH 2 only
Maximum Input Voltage	400 V (DC + AC peak)
<b>SWEEP SYSTEM</b>	
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
<b>TRIGGERING</b>	
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
<b>TRIGGER SENSITIVITY</b>	
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
<b>HORIZONTAL AMPLIFIER (Input through channel 2 input)</b>	
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
<b>CRT</b>	
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%)
<b>COUNTER (2121C)</b>	
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)
<b>GENERAL</b>	
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)
AC Input	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)
<b>One Year Warranty</b>	
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
<b>VERTICAL AMPLIFIERS (CH 1 and CH 2)</b>	
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	algebraic sum of CH 1 + CH 2
Polarity Reversal	CH 2 only
Max. Input Voltage	400 V (DC to AC peak)
<b>SWEEP SYSTEM</b>	
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 0.1 s/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
<b>TRIGGERING</b>	
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
<b>TRIGGER SENSITIVITY</b>	
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
<b>HORIZONTAL AMPLIFIER (Input through channel 1 input)</b>	
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	Same 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
<b>CRT</b>	
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
<b>COMPONENT TESTER</b>	
Components Tested	Resistors, Capacitors, Inductors, and Semiconductors
Test Voltage	6 V rms maximum (open)
Test Current	11 mA maximum (shorted)
Test Frequency	Line frequency (60 Hz in USA)
Calibrating Voltage	1 kHz (±10%) positive square wave, 0.2 V p-p (±2%)
<b>GENERAL</b>	
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)
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