

# Model 2121

## 30 MHz Analog Oscilloscope With Frequency Counter

### Data Sheet

- Dual or single trace operation  
5 mV/div sensitivity
- AUTO/NORM triggered sweep operation with AC, TVH, TVV and line coupling
- Calibrated 23 step time base with x 10 magnifier
- Compact low-profile design
- Built-in 50 MHz frequency counter



### Specifications

model

2121

#### 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 ±10pF
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, 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)

#### SWEEP SYSTEM

Sweep Speed	0.1 μs/div to 2s/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
Maximum 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

Coupling	Bandwidth	Int	Ext
Auto	100 Hz-30 MHz	1.5 div	100 mV
Norm	DC to 30 MHz	1.5 div	100 mV
TV V	20 Hz-1 kHz	.5 div	100 mV
TV H	1 kHz-100 kHz	.5 div	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

#### Frequency Counter

Display Resolution	Auto select from 0.001Hz to 1kHz depending on the frequency
Max. Counter Range	0.1Hz to 50MHz
Max. External Voltage	300V dc + ac peak
Accuracy	+0.01% + 1 digit or 1/99999 + 1 digit
Time Base	18,432MHz + 10ppm (23°C ±5°C)

#### Sensitivity Note:

1- The Counter must be set at "DC COUPLING" operation then the input signal is less than 10HZ.

2- The counter is operated by the "Trigger Source" CH1, CH2, or EXT.

Mode	Range	Sensitivity
INT	2Hz~40MHz	≥ 1Div
INT	1Hz~45MHz	≥ 2Div
INT	0.2Hz~50MHz	≥ 3Div
EXT	10Hz~50MHz	≥ 200mVrms
EXT	1Hz~50MHz	≥ 400mVrms

#### 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

### Other Specifications

Calibrating Voltage	1 kHz (±10%) Positive Square Wave, 2 V p-p (±3%)
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#### ENVIRONMENT

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)	12.8" x 5.2" x 15.7" (180 x 370 x 440 mm)
Weight	Approximately 16.8 lbs (7.6 kg)

### Accessories

Two Year Warranty

SUPPLIED:	Instruction Manual, Two PR-33A x1/x10 Probes or equivalent, AC Power Cord, Spare Fuse
OPTIONAL:	PR-32A Demodulator Probe, PR-37A x1/x10/REF. Probe, PR-100A x100 Probe, PR-55 High Voltage x1000 Probe, LC-210A Carrying Case

### B&K Precision Corporation

22820 Savi Ranch Parkway, Yorba Linda, CA 92887  
Tel: 714-921-9095, Fax: 714-921-6422  
www.bkprecision.com

Specifications subject to change without notice