

## CA9020D/CA9040D/CA9060D DUAL CHANNEL OSCILLOSCOPE

### Features:

- 20MHz/40MHz/60MHz dual channel series
- High luminance, internal graticule CRT
- X10 sweep magnification
- ALT triggering function
- Electronic rotary encoder switch
- LED display for VOLT/DIV and TIME/DIV
- TV synchronizing, X-Y mode operation
- 1mV/DIV high sensitivity
- Triggering level lock function, automatic synchronizing function
- Z-Axis input
- CH1 output
- Low cost and economical

CA9020D



### Specifications

		CA9020D	CA9040D	CA9060D
CRT	Type	6" rectangle, internal graticule, 0%, 10% 90% and 100% marks		
	Display Area	8 x 10DIV (1DIV=10mm)		
	Accelerating Voltage	2kV		12kV
	Intensity and Focusing	Continuously adjustable at front panel		
	Trace Rotation	Adjustable at front panel		
	Sensitivity and Accuracy	1mV/DIV ~ 5V/DIV +/-3% (X5MAG: +/-5%), 12 calibrated steps in 1-2-5 sequence		
VERTICAL SYSTEM	Vernier Vertical Sensitivity	Continuously variable to 1/2.5 or less than panel indicate value		
	Band Width(-3dB)	DC ~ 20MHz	DC ~ 40MHz	DC ~ 60MHz
	AC Coupling	Low limit frequency 10Hz (with reference to 100kHz, 8DIV, frequency response with -3dB)		
	Rise Time	Approx. 17.5ns	Approx. 8.75ns	Approx. 5.83ns
	Input Impedance	Approx. 1M $\Omega$ / 25pF		
	DC Balance Shift	5mV ~ 5V/DIV: +/-0.5DIV; 1mV ~ 2mV/DIV: +/-2.0DIV		
	Linearity	< 0.1 DIV of amplitude change when waveform of 2DIV at graticule center is moved vertically		
	Vertical Operation Mode	CH1/ CH2 / DUAL (ALT/CHOP)/ ADD/ CH2 Inverse		
	Chopping Frequency	Approx. 400kHz		
	Input Coupling	AC/GND/DC		
	Max. Input Voltage	300Vpeak at 1kHz or less (Max effective readout: 40Vpp(14Vrms)/probe set at X1; 400Vpp(140Vrms)/probe set at X10)		
	Isolation Between Channels	At 5mV/DIV Range: > 1000:1 at 50kHz; > 30:1 at 20MHz / 40MHz / 60MHz		
HORIZONTAL SYSTEM	Sweep Time	0.2 $\mu$ s - 0.2s/DIV 19 steps in 1-2-5 sequence		
	Sweep Accuracy	+/-3%, +/-5% at X10 MAG(10ns/50ns not calibrated)		
	Trimming Ratio	$\leq$ 1/2.5 of panel indicated value		
	Sweep Magnification	X 10 MAG		
	Linearity	+/-3%; X10MAG: +/-5% (10ns ~ 50ns not calibrated)		
	Position Shift Caused by X10MAG	Within 2DIV, at CRT screen center		
TRIGGER SYSTEM	Mode	AUTO/NORM/TV-V/TV-H		
	Trigger Level Lock	Yes		
	Source	CH1/CH2/EXT/LINE		
	Coupling	AC: 10Hz to full bandwidth		
	Trigger Slope	"+" or "-"		
	Trigger Sensitivity	10Hz ~ 2MHz: 0.5DIV, TRIG-ALT: 2DIV; EXT: 200mV	2MHz ~ 20MHz: 1.5DIV	20MHz ~ 60MHz: 2DIV
		CH1/CH2	2MHz ~ 20MHz: 1.5DIV	20MHz ~ 60MHz: 2DIV
		TRIG-ALT	3DIV	
		EXT	800mV	
		TV SYNC pulse	> 1DIV (EXT: 1V)	
	External Trigger Input	Input impedance: Approx. 1M $\Omega$ / 25pF Max. input voltage: 300V (DC + ACpeak); AC frequency < 1kHz		
X-Y MODE OPERATION	Input	X-axis: CH1, Y-axis: CH2		
	Sensitivity	Same as vertical axis		
	Band Width(-3dB)	Axis X: DC ~ 500kHz		
	Phase Difference	$\leq$ 3° from DC to 50kHz		
Z-AXIS INPUT	Sensitivity	5Vpp (Positive-going signal decreases intensity)		
	Frequency Bandwidth	DC ~ 2MHz		
	Input Resistance	Approx. 47k $\Omega$ m		
	Max. Input Voltage	30V (DC+ACpeak, AC frequency $\leq$ 1kHz)		
OUTPUT SIGNAL	CH1 Output	At least 20mV/DIV into a 50 $\Omega$ termination, 50Hz ~ 5MHz		
CALIBRATION	Signal	Positive going square wave at 1kHz (2Vpp +/-2.0%)		
	Duty Cycle	48:52		
	Output Impedance	Approx. 1k $\Omega$ m		
POWER SOURCE		AC110V/220 +/-10%, 50/60Hz		