

Oscilloscope With Built-in Frequency Counter

MOS-620/640/620FG/640FG

Feature

- 20MHz/40MHz Dual Channels
- High Sensitivity 1mV/DIV
- Z Axis Input
- CH1 Output
- 10 times sweep magnification
- TV Synchronization, X-Y mode
- High luminance, internal graticule CRT
- Japanese electronic encoder, light, handy and reliable
- Fully sealed durable vertical mode switch
- ALT Triggering Function, simultaneous observation of two independent signals
- Triggering level lock function, Automatic synchronize function
- MOS-600FG series have built-in 6 Digit Frequency Counter



MOS-620/640 Specification

VERTICAL AXIS

Sensitivity: 5mV~5V/DIV, 10 steps in 1-2-5 sequence ($\times 5$ MAG: 1mV/DIV)
 Sensitivity accuracy: $\leq 3\%$ ($\times 5$ MAG: $\leq 5\%$)
 Vernier vertical sensitivity: Continuously variable to 1/2.5 or less of panel-indicated value
 Frequency bandwidth:
 DC-20MHz $\times 5$ MAG: DC-7MHz
 DC-40MHz ($\times 5$ MAG: DC-15MHz)
 AC coupling: Low limit frequency 10Hz.
 (With reference to 100KHz, 8DIV. Frequency response with -3dB)
 Rise time: Approx. 17.5nS ($\times 5$ MAG: Approx. 50nS)
 Approx. 9.5nS ($\times 5$ MAG: Approx. 25nS)
 Input impedance: Approx. 1M Ω // Approx. 25pF
 Square wave characteristics:
 Overshoot: $\leq 5\%$ (At 10mV/DIV range) other distortions and other ranges: 5% added to the above value
 DC balance shift: 5mV~5V/DIV: ± 0.5 DIV, 1mV~2mV/DIV: ± 2.0 DIV
 Linearity: $< \pm 0.1$ DIV of amplitude change when waveform of 2 DIV at graticule center is moved vertically.
 Vertical modes:
 CH1 single channel.
 CH2 single channel
 DUAL: CH1 and CH2 are displayed ALT or CHOP selectable at any sweep rate.
 ADD: CH1+CH2 algebraic addition.
 Chopping repetition frequency: Approx. 250KHz
 Input coupling: AC, GND, DC.
 Maximum input voltage:
 300V peak (AC: frequency 1KHz or lower); When set probe switch at 1:1, the maximum effective readout is 40Vpp (14Vrms at sine wave), or set probe switch at 10:1, the maximum effective readout is 400Vpp (140Vrms at sine wave).
 Common mode rejection ratio: 50:1 or better at 50KHz sinusoidal wave. (When sensitivities of CH1 and CH2 are set equally)
 Isolation between channels (at 5mV/DIV range):
 $> 1000:1$ at 50KHz
 $> 30:1$ at 20MHz / $> 30:1$ at 40MHz
 CH1 signal output:
 At least 20mV/DIV into a 50 Ω termination.
 Bandwidth is 50Hz to at least 5MHz.
 CH2 INV BAL: Balanced point variation:
 ≤ 1 DIV (Corresponding to center graticule)

TRIGGERING

Triggering source: CH1, CH2, LINE, EXT.
 Coupling: AC: 20Hz to full bandwidth
 Slope: +/-

Sensitivity:

20Hz-2MHz: 1.0 DIV,
 TRIG-ALT: 2 DIV, EXT: 200mV
 2MHz-20MHz: 1.5 DIV
 20MHz or higher: 2.0 DIV
 TRIG-ALT: 3 DIV, EXT: 800mV
 TV: Sync pulse more than 1 DIV (EXT: 1V)
 Triggering modes:
 AUTO; NORM; TV-V; TV-H.
 (Both TV-V and TV-H synchronize only when the synchronizing signal is negative)
 EXT triggering signal input:
 Input impedance: Approx. 1M Ω // approx. 25pF
 Max input voltage: 300V (DC+AC peak), AC: frequency not higher than 1KHz.

HORIZONTAL AXIS

Sweep time: 0.2 μ Sec-0.5 Sec/DIV, 20 steps in 1-2-5 sequence.
 Sweep time accuracy: $\pm 3\%$
 Vernier sweep time control: $\leq 1/2.5$ of panel-indicated value.
 Sweep magnification: 10 times
 $\times 10$ MAG sweep time accuracy: $\pm 5\%$ (20nSec-50nSec are uncalibrated)
 Linearity: $\pm 3\%$, $\times 10$ MAG: $\pm 5\%$ (20nS and 50nS are uncalibrated)
 Position shift caused by $\times 10$ MAG: Within 2 DIV, at CRT screen center.

X-Y MODE

Sensitivity: Same as vertical axis. (X-axis: CH1 input signal, Y-axis: CH2 input signal)
 Frequency bandwidth: DC to at least 500KHz
 X-Y phase difference: $\leq 3^\circ$ at DC-50KHz

Z AXIS

Sensitivity: 5Vp-p (positive-going signal decreases intensity)
 Frequency bandwidth: DC-2MHz
 Input resistance: Approx. 47K Ω
 Maximum input voltage: 30V (DC+AC peak, AC frequency ≤ 1 KHz)

CALIBRATION VOLTAGE

Waveform: positive-going square wave
 Frequency: Approx. 1KHz
 Output voltage: 2Vp-p $\pm 2\%$

CRT

Type: 6-inch rectangular type, internal graticule
 Phosphor: P31
 Acceleration voltage: approx 2KV (20MHz) / 12KV (40MHz)
 Effective screen size: 8 \times 10DIV (1 DIV=10mm (0.39in))
 Graticule: internal
 Trace rotation: provided