

Analog Oscilloscope

100MHz standard model TOS-2100E

Features

- ✓ Dual channel 100MHz
- ✓ High sensitivity 1mV/DIV
- ✓ 10 times sweep magnification
- ✓ Z-axis modulation input, CH1 signal output
- ✓ TV synchronization, X-Y mode
- ✓ High illumination internal graticule CRT
- ✓ Japanese encoded switch, reliable and durable
- ✓ Fully sealed durable attenuation switch
- ✓ ALT triggering function, enabling simultaneous observation of two independent signals
- ✓ Trigger level lock function, Auto synchronize function



Specifications

Vertical system	
Sensitivity	5mV~5V/DIV, 10 steps in 1-2-5 sequence
Sensitivity accuracy	≤3%; X5MAG: ≤5%
Vernier sensitivity	1/2.5 or less than panel indicated value
Bandwidth	DC~100MHz (X5MAG: DC~30MHz)
AC coupling	<10Hz (at 100kHz, 8DIV, frequency response -3dB)
Rise time	Approx.3.5ns (X5MAG: Approx.17.5ns)
Input impedance	Approx.1MΩ//Approx.25pF
DC balance shift	2mV~5V/DIV: ±0.5DIV
Vertical mode	CH1, CH2, DUAL (ALT/CHOP), ADD, CH2 INV
Chopping repetition frequency	Approx. 250kHz
Input coupling	AC, GND, DC
Max. Input voltage	300V peak-peak (AC: frequency≤1kHz)
Common mode rejection ratio	>50:1 at 50kHz sine wave (set CH1 and CH2 at same sensitivity)
CH2 INV BAL	Balanced point variation≤1DIV (referred to graticule center)
CH1 signal output	Min.20mV/DIV (50Ω output bandwidth 50Hz~5MHz)
Horizontal system	
Sweep time base	0.1us~0.2s/DIV, 20 steps in 1-2-5 sequence
Sweep time base accuracy	±3%, X10 MAG: ±5% (20ns~50ns/DIV uncalibrated)
Vernier sweep time base	≤1/2.5 of panel indicated value
Sweep magnification	X10 (Max. sweep time base 20ns/DIV)
Position shift caused by X10MAG	Within 2DIV at CRT screen center
Linearity	±5%, X10MAG: ±10% (0.2s~1us)

Analog Oscilloscope

Trigger system					
Trigger mode		AUTO, NORM, TV-V, TV-H			
Trigger level lock		Provided			
Trigger source		CH1, CH2, LINE, EXT			
Trigger coupling		AC: 20Hz to full bandwidth			
Polarity		“+” or “-” polarity			
Sensitivity		20Hz~2MHz	2MHz~20MHz	20MHz~40MHz	40MHz~100MHz
	CH1, CH2	1DIV	1.5DIV	2.5DIV	3DIV
	ALT	2DIV	3DIV		
	EXT	200mV	800mV		
	TV: Sync pulse>1DIV (EXT: 1V)				
External trigger output signal		Input impedance: Approx.1MΩ//Approx.25pF Max. input voltage: 300V (DC+AC peak), AC≤1kHz			
Z-axis					
Sensitivity		5Vp-p			
Bandwidth		DC~2MHz			
Input impedance		Approx.47kΩ			
Max. input voltage		30V (DC+AC peak, AC frequency≤1kHz)			
Calibration signal					
Waveform		Positive-going square wave			
Frequency		Approx.1kHz			
Duty ratio		<48:52			
Output voltage		2Vp-p ±2%			
Output impedance		Approx.1kΩ			
X-Y mode					
Sensitivity		5mV~5V/DIV, ±3%			
Bandwidth		DC~500kHz (-3dB)			
X-Y phase error		≤3°at DC~50kHz			
CRT					
Mode		6" rectangle, internal graticule			
Display area		8×10DIV (1DIV=1cm)			
Phosphor		P31			
Accelerating voltage		Approx.12kV			
Trace rotation		Adjustable at front panel			
General					
Power source		AC110V/220V±10%, 50/60Hz, Max.35VA			
Dimension		310×150×455mm			
Accessories		Power cord ×1, Operation manual ×1, Probe ×2			
Weight		Approx.8kg			

Analog Oscilloscope

100MHz Standard model with CRT readout function TOS-2100

Features

- ✓ Dual channel 100MHz
- ✓ Time base auto-range
- ✓ Cursor readout with 7 measurements
- ✓ Panel lock function
- ✓ Buzzer alarm
- ✓ LED indicators
- ✓ TV synchronization, trigger signal output
- ✓ Z-axis modulation input
- ✓ Delayed sweep



Specifications

Vertical system

Sensitivity	2mV~5V/DIV, 11 steps in 1-2-5 sequence
Sensitivity accuracy	≤3% (6×8DIV at the screen center)
Vernier sensitivity	Continuously variable to 1/2.5 or less than panel indicated value
Bandwidth	DC (AC 10Hz)~100MHz (2mV/DIV: DC~20MHz)
AC coupling	<10Hz (at 100kHz, 8DIV, frequency response -3dB)
Rise time	Approx.3.5ns (2mV/DIV: Approx.17.5ns)
Input impedance	Approx.1MΩ±2%/Approx.25pF
DC balance shift	5mV~5V/DIV: ±0.5DIV
Vertical mode	CH1, CH2, DUAL (ALT/CHOP), ADD, CH2 INV
Chopping repetition frequency	Approx. 250kHz
Bandwidth limit	20MHz
Input coupling	AC, GND, DC
Max. Input voltage	300V peak-peak (AC: frequency≤1kHz)
Common mode rejection ratio	>50:1 or better at 50kHz
Dynamic range	5DIV at 100MHz
Polarity (INV)	CH2
CH2 INV BAL	Balanced point variation≤1DIV (referred to graticule center)
CH1 signal output	Not provided
Signal display	Not provided

Horizontal system

Horizontal mode	MAIN (A), ALT, DELAY (B)
A (main) sweep time base	50ns~0.5s/DIV, continuously variable (UNCAL)
B (delay) sweep time base	50ns~50ms/DIV
Sweep time base accuracy	±3%, X10 MAG: ±5%
Sweep magnification	X10 (Max. sweep time base: 5ns/DIV)
Hold off time	Variable
Delay time	1μs~5s
Delay jitter	Better than 1:20000
Alternate separation	Variable

Analog Oscilloscope

Trigger system						
Trigger mode		AUTO, NORM, TV-V, TV-H				
Trigger level lock		Not provided				
Trigger source		CH1, CH2, LINE, EXT				
Trigger coupling		AC, DC, HFR, LFR				
Polarity		“+” or “-” polarity				
Sensitivity	Mode	Auto		Norm		TV
	Frequency	10Hz~20MHz	20MHz~100MHz	DC~20MHz	20MHz~100MHz	Sync signal
	INT	0.35 DIV	1.5 DIV	0.35 DIV	1.5 DIV	1 DIV
	EXT	50mVpp	150mVpp	50mVpp	150mVpp	200mVpp
TV sync		TV-V, TV-H				
Trigger level range		INT: 4DIV or more, EXT: ±0.4V or more				
External trigger output signal		Input impedance: Approx.1MΩ±5%/Approx.25pF Max. input voltage: 400V (DC+AC peak), AC≤1kHz				
Trigger signal output		Voltage: approx.25mV/DIV into 50Ω termination Frequency response: DC~10MHz Output impedance: approx. 50Ω				
Z-axis						
Coupling		DC				
Bandwidth		DC~5MHz				
Voltage		5V or more				
Max. input voltage		30V (DC+AC peak, AC frequency≤1kHz)				
Cursor readout function						
Cursor measurement function		ΔV, ΔV %, ΔVdB, ΔT, 1/ΔT. ΔT, ΔT%, Δθ				
Cursor resolution		1/25DIV				
Effective cursor range		vertical: ±3DIV; Horizontal: ±4DIV				
Panel setting		Vertical: V/DIV (CH1, CH2), UNCAL, ALT/CHOP/ADD, INV, Probe factor, AC/DC/GND Horizontal: S/DIV (MTB, DTB), UNCAL, X10 MAG, delay time, HO Trigger: source, coupling, slope, level, TV-V, TV-H Others: X-Y, LOCK				
Calibration signal						
Waveform		Positive-going square wave				
Frequency		Approx.1kHz				
Duty ratio		<48:52				
Output voltage		2Vp-p ±2%				
Output impedance		Approx.1kΩ				
X-Y mode						
Sensitivity		X-axis, Y-axis selectable X-axis: CH1, CH2, sensitivity: 2mV~5V/DIV, ±3% Y-axis: CH1, CH2, sensitivity: 2mV~5V/DIV, ±3% EXT: 0.1V/DIV, ±5%				
X-axis bandwidth		DC~500kHz (-3dB)				
Phase error		≤3°at DC~50kHz				
CRT						
Mode		6" rectangle, internal graticule 0%, 10%, 90% and 100% markers				
Display area		8×10DIV (1DIV=1cm)				
Phosphor		P31				
Accelerating voltage		Approx.16kV				
Trace rotation		Adjustable at front panel				
CRT illumination		Not provided				
General						
Power source		AC110V/220V±10%, 50/60Hz, Max.35VA				
Dimension		310×150×455mm				
Accessories		Power cord ×1, Operation manual ×1, Probe ×2				
Weight		Approx.8kg				