

# Real Time/Digital Storage Oscilloscope

**NEW**  
**CE**



## FEATURES :

- \* GRS-6052: DC~50MHz, 20MSa/s, 2kW/CH x 2
- \* GRS-6032: DC~30MHz, 20MSa/s, 2kW/CH x 2
- \* Equivalent Time Sampling of 500MSa/s max.
- \* Waveform SAVE/RECALL 10 sets (REF0~REF9)
- \* Pre-Trigger Function 0 ~ 10 DIV
- \* ROLL Mode to 100s/DIV
- \* ALT-MAG Function (x5, x10, x20)
- \* Smoothing Function ON/OFF
- \* Max. Sweep Rate 10ns/DIV
- \* Cursor Readout Function:  $\Delta V$ ,  $\Delta T$ ,  $1/\Delta T$
- \* Panel Setting SAVE/RECALL 10 sets (M0~M9)
- \* Averaging Function (2 ~ 256)
- \* VERT Mode Triggering
- \* TV Synchronization
- \* CH1 Signal Output & Z-axis Input
- \* RS-232C Interface

GRS-6052/6032(50,30MHz)

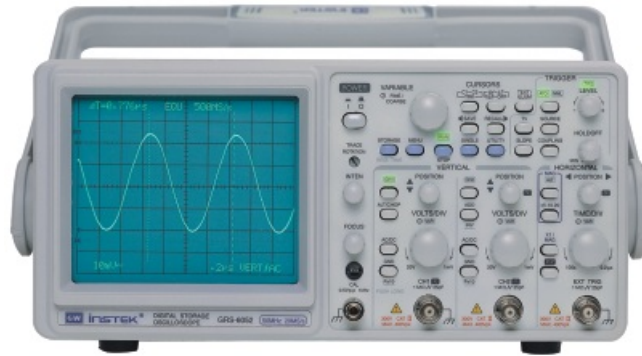
## SPECIFICATIONS

MODEL		GRS-6052 50MHz, 20MSa/s, 500MSa/s (ETS)	GRS-6032 30MHz, 20MSa/s, 500MSa/s (ETS)
<b>CRT</b>	Type and Acceleration INTEN and FOCUS ILLUM Z-axis Input	6-inch CRT 150CTB31, 10kV Front panel control Front panel control Sensitivity : at least 5V(TTL) Polarity : positive going input decrease intensity Max. input voltage:30V(DC+ACpk) Input Impedance :approx. 47k $\Omega$	6-inch CRT D14-363GY, 2kV Front panel control Front panel control Sensitivity : at least 5V(TTL) Polarity:positive going input decrease intensity Max. input voltage:30V(DC+ACpk) Input Impedance :approx.33k $\Omega$
<b>VERTICAL SYSTEM</b>	Deflection Coefficient and Accuracy  Variable Continuously Frequency Bandwidth (-3dB)  Vertical Mode Chopper Frequency Sum or Difference Invert Input Impedance Input Coupling Input Voltage	1mV ~ 2mV/DIV $\pm$ 5%, 5mV ~ 20V/DIV $\pm$ 3%, 14 steps in 1-2-5 sequence 2.5 : 1 ~ min. 50V/DIV 1mV ~ 2mV/DIV: DC~7MHz 5mV ~ 20V/DIV: DC~50MHz CH1, CH2, DUAL (ALT or CHOP) Approx. 250kHz CH1+CH2, CH1-CH2 CH2 1M $\Omega$ $\pm$ 2%/approx. 25pF AC, DC, GND Max. 400V(DC+ACpk)	1mV ~ 2mV/DIV $\pm$ 5%, 5mV ~ 20V/DIV $\pm$ 3%, 14 steps in 1-2-5 sequence 2.5 : 1 ~ min. 50V/DIV 1mV ~ 20mV/DIV: DC~7MHz 5mV ~ 20V/DIV: DC~30MHz CH1, CH2, DUAL (ALT or CHOP) Approx. 250kHz CH1+CH2, CH1-CH2 CH2 1M $\Omega$ $\pm$ 2%/approx. 25pF AC, DC, GND Max. 400V(DC+ACpk)
<b>HORIZONTAL SYSTEM</b>	Sweep Time Variable Continuously Accuracy Sweep Magnification Max. Sweep Time ALT-MAG Function HOLD-OFF Time	0.2 $\mu$ s/DIV ~ 0.5s/DIV, 20 steps 2.5 : 1 up to 1.25s/DIV (uncal.) $\pm$ 3%, $\pm$ 5% at x5, x10MAG. $\pm$ 8% at x 20MAG x5, x10, x20 20ns/DIV (10ns/DIV uncal) Yes Variable	0.2 $\mu$ s/DIV ~ 0.5s/DIV, 20 steps 2.5 : 1 up to 1.25s/DIV (uncal.) $\pm$ 3%, $\pm$ 5% at x5, x10MAG. $\pm$ 8% at x 20MAG x5, x10, x20 50ns/DIV (10ns~40ns/DIV uncal) Yes Variable
<b>TRIGGER</b>	Trigger Mode Trigger Source Trigger Coupling Trigger Slope ALT Trigger Indicator Trigger LED TV Sync. Separator Trigger Sensitivity	AUTO, NORM, TV VERT, CH1, CH2, LINE, EXT AC, HFR, LFR " + " or " - " polarity Yes Yes TV-V " - " , TV-H " - " GRS-6052 20Hz ~ 5MHz GRS-6032 20Hz ~ 2MHz CH1, CH2 0.5 DIV VERT-MODE 2.0 DIV EXT 200mV	AUTO, NORM, TV VERT, CH1, CH2, LINE, EXT AC, HFR, LFR " + " or " - " polarity Yes Yes TV-V " - " , TV-H " - " 5MHz ~ 40MHz 20MHz ~ 20MHz 1.5 DIV 3.0 DIV 800mV
	External Trigger Input	TV sync. pulse more than 1 DIV or 200mV (EXT) Input impedance :Approx. 1M $\Omega$ //25pF (AC coupling) Max. input voltage :400V (DC + AC pk)	
<b>X-Y OPERATION</b>	Input Sensitivity Bandwidth X-Y Phase Shift	X-axis : CH1 ; Y-axis : CH2 1mV/DIV ~ 20V/DIV X-axis : DC ~ 500kHz (-3dB) <3 $^\circ$ from DC ~ 50kHz	X-axis : CH1 ; Y-axis : CH2 1mV/DIV ~ 20V/DIV X-axis : DC ~ 500kHz (-3dB) <3 $^\circ$ from DC ~ 50kHz
<b>DIGITAL STORAGE</b>	Acquisition Digitizer Max. Sampling Rate  Storage Bandwidth  Dynamic Range	8 bit ADC x 2 500MSa/s for equivalent time sampling 20MSa/s for normal sampling Single shot: DC ~ 5MHz Repetitive: DC ~50MHz $\pm$ 5DIV	8 bit ADC x 2 500MSa/s for equivalent time sampling 20MSa/s for normal sampling Single shot: DC ~ 5MHz Repetitive: DC ~30MHz $\pm$ 5DIV

B2

ISO-9001 & ISO-14001

# Real Time/Digital Storage Oscilloscope



GRS-6052/6032(50,30MHz)

## SPECIFICATIONS

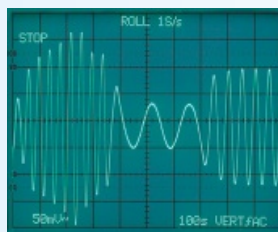
	<b>Memory Length</b>	2k words/CH x 2, 1k words/CH(equivalent)	2k words/CH x 2, 1k words/CH(equivalent)
	<b>Acquisition Memory</b>	1k words/CH x 10 with back-up memory (REF0~REF9)	1k words/CH x 10 with back-up memory (REF0~REF9)
	<b>Save REF Memory</b>		
	<b>Display Memory</b>	1k words/CH x 4 waveform(max.)	1k words/CH x 4 waveform(max.)
	<b>Sweep Time</b>	Equivalent: 0.2 $\mu$ s/DIV ~ 2 $\mu$ s/DIV Normal Sample: 5 $\mu$ s/DIV ~ 0.1s/DIV Roll: 0.2s/DIV ~ 100s/DIV	Equivalent: 0.2 $\mu$ s/DIV ~ 2 $\mu$ s/DIV Normal Sample: 5 $\mu$ s/DIV ~ 0.1s/DIV Roll: 0.2s/DIV ~ 100s/DIV
	<b>Sweep Magnification</b>	x 5, x 10, x 20	x 5, x 10, x 20
	<b>Max.Sweep Time</b>	10ns/DIV	10ns/DIV
	<b>MAG Interpolation</b>	DOTS, LINEAR	DOTS, LINEAR
	<b>ALT-MAG Function</b>	Yes	Yes
	<b>Operation Mode</b>	Auto, Norm, Single, Single-roll, Roll, X-Y	Auto, Norm, Single, Single-roll, Roll, X-Y
	<b>Smoothing Function</b>	Average(2~256), Run/Stop	Average(2~256), Run/Stop
	<b>Pre-Trigger</b>	Dot joint ON/OFF selectable	Dot joint ON/OFF selectable
	<b>X-Y Operation</b>	Pre-trigger 0 ~10DIV in 0.02DIV steps	Pre-trigger 0 ~10DIV in 0.02DIV steps
	<b>Storage Bandwidth</b>	X-axis: CH1 Y-axis: CH2	X-axis: CH1 Y-axis: CH2
	<b>Display Resolution</b>	DC~50MHz(-3dB)	DC~30MHz(-3dB)
	<b>Waveform SAVE/RECALL</b>	H: 100points/DIV; V: 25points/DIV; X-Y: 25 x 25 points/DIV	H: 100points/DIV; V: 25points/DIV; X-Y: 25 x 25 points/DIV
	<b>Waveform SAVE/RECALL</b>	10 sets(REF0~REF9)	10 sets(REF0~REF9)
<b>OPERATION/CONTROL/INTERFACE</b>	<b>Panel Setting SAVE/RECALL</b>	10 sets(M0 ~M9)	10 sets(M0 ~M9)
	<b>RS-232C Interface</b>	Yes	Yes
<b>READOUT &amp; CURSOR</b>	<b>Cursor Measurement</b>	$\Delta V$ , $\Delta T$ , 1/ $\Delta T$	$\Delta V$ , $\Delta T$ , 1/ $\Delta T$
	<b>Readout Intensity</b>	Adjustable	Adjustable
<b>OUTPUT SIGNAL</b>	<b>CH1 Signal Output</b>	Voltage : approx. 20mV/DIV (with 50 $\Omega$ terminated) ; Bandwidth : 50Hz ~ 5MHz	Voltage : approx. 20mV/DIV (with 50 $\Omega$ terminated) ; Bandwidth : 50Hz ~ 5MHz
	<b>Calibrator Output</b>	Voltage : 0.5V $\pm$ 3% ; Frequency : approx. 1kHz, square wave	Voltage : 0.5V $\pm$ 3% ; Frequency : approx. 1kHz, square wave
<b>POWER SOURCE</b>		AC 100V/120V/230V $\pm$ 10%, 50/60Hz	AC 100V/120V/230V $\pm$ 10%, 50/60Hz
<b>ACCESSORIES</b>		Power cord x 1, Instruction manual x 1, GLF-190C Probes (10:1/1:1) x 2	Power cord x 1, Instruction manual x 1, GLF-190C Probes (10:1/1:1) x 2
<b>DIMENSIONS &amp; WEIGHT</b>		275(W) x 130(H) x 370(D) mm; Approx. 8.5kg	275(W) x 130(H) x 370(D) mm; Approx. 8.5kg

## DIGITAL MODE FUNCTIONS



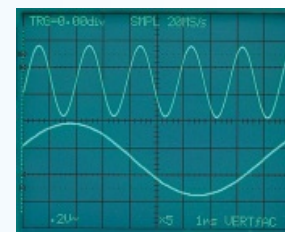
**Pre-Trigger**

GRS-6000 Series provide Pre-Trigger function, which allows user to observe Pre-Trigger waveform up to 10 divisions ahead of the trigger point.



**ROLL Mode**

The low-speed transient event of the input signal could be viewed easily under ROLL Mode. The waveform will roll on from right to the left to show the updated input signal all the time.



**ALT-MAG**

with ALT-MAG function, the user could expand the waveforms by 5, 10, or 20 times for a more detailed waveform observation. Both original waveforms and expanded waveforms could be shown on the screen at the same time.