

# Real Time/Digital Storage Oscilloscope



## FEATURES

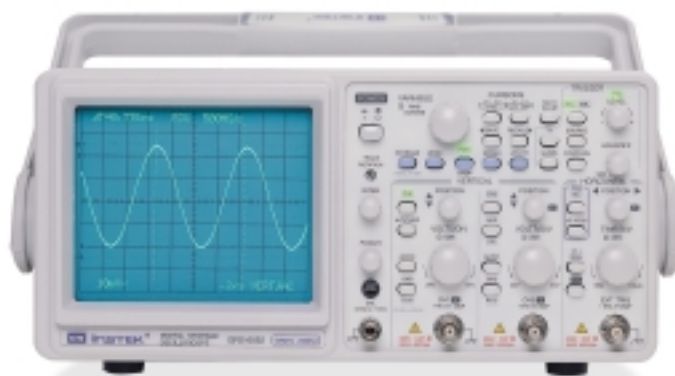
- \* GRS-6052A : DC~50MHz Bandwidth, 100MSa/s, 2kW/CH x 2
- \* GRS-6032A : DC~30MHz Bandwidth, 100MSa/s, 2kW/CH x 2
- \* Equivalent Time Sampling of 500MSa/s max.
- \* Acquire Mode : Peak Detect, Envelop, Persistence
- \* Pre-Trigger Function 0 ~ 10 div
- \* ROLL Mode to 100s/div
- \* Waveform SAVE/RECALL 10 sets (REF0~REF9)
- \* Averaging Function (2 ~ 256)
- \* Smoothing Function ON/OFF
- \* Max. Sweep Rate 10ns/div
- \* ALT-MAG Function (x5, x10, x20)
- \* Cursor Readout Function:  $\Delta V, \Delta T, 1/\Delta T$
- \* Panel Setting SAVE/RECALL 10 sets (M0~M9)
- \* VERT Mode Triggering
- \* RS-232C Interface

## GRS-6052A(50MHz)/GRS-6032A(30MHz)

### SPECIFICATIONS

		GRS-6052A 50MHz, 100MSa/s, 500MSa/s (ETS)	GRS-6032A 30MHz, 100MSa/s, 500MSa/s (ETS)																				
<b>CRT</b>	<b>Type and Acceleration ILLUM Z-axis Input</b>	6-inch CRT , 10kV Front panel control Sensitivity : at least 5V Polarity : positive going input decrease intensity Max. input voltage:30V(DC+ACpk) Input Impedance :approx. 33k $\Omega$	6-inch CRT , 2kV Front panel control Sensitivity : at least 5V Polarity:positive going input decrease intensity Max. input voltage:30V(DC+ACpk) Input Impedance :approx. 47k $\Omega$																				
<b>VERTICAL SYSTEM</b>	<b>Deflection Coefficient and Accuracy</b>  <b>Variable Continuously Bandwidth (-3dB)</b>  <b>Vertical Mode</b> <b>Chopper Frequency</b> <b>Sum or Difference</b> <b>Invert</b> <b>Input Impedance</b> <b>Input Coupling</b> <b>Input Voltage</b>	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>	<b>Sweep Time</b> <b>Variable Continuously Accuracy</b> <b>Sweep Magnification</b> <b>Max. Sweep Time</b> <b>ALT-MAG Function</b> <b>HOLD-OFF Time</b>	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>	<b>Trigger Mode</b> <b>Trigger Source</b> <b>Trigger Coupling</b> <b>Trigger Slope</b> <b>ALT Trigger</b> <b>Indicator Trigger LED</b> <b>TV Sync. Separator</b>  <b>Trigger Sensitivity</b>	AUTO, NORM, TV VERT, CH1, CH2, LINE, EXT AC, HFR, LFR "+" or "-" polarity Yes Yes TV-V "-", TV-H "-"	AUTO, NORM, TV VERT, CH1, CH2, LINE, EXT AC, HFR, LFR "+" or "-" polarity Yes Yes TV-V "-", TV-H "-"																				
	<b>External Trigger Input</b>	<table border="1"> <tr> <td>GRS-6052A</td> <td>20Hz ~ 5MHz</td> <td>5MHz ~ 40MHz</td> <td>40MHz ~ 50MHz</td> </tr> <tr> <td>GRS-6032A</td> <td>20Hz ~ 2MHz</td> <td>2MHz ~ 20MHz</td> <td>20MHz ~ 30MHz</td> </tr> <tr> <td>CH1, CH2</td> <td>0.5 div</td> <td>1.5 div</td> <td>2.0 div</td> </tr> <tr> <td>VERT-MODE</td> <td>2.0 div</td> <td>3.0 div</td> <td>3.5 div</td> </tr> <tr> <td>EXT</td> <td>200mV</td> <td>800mV</td> <td>1V</td> </tr> </table>	GRS-6052A	20Hz ~ 5MHz	5MHz ~ 40MHz	40MHz ~ 50MHz	GRS-6032A	20Hz ~ 2MHz	2MHz ~ 20MHz	20MHz ~ 30MHz	CH1, CH2	0.5 div	1.5 div	2.0 div	VERT-MODE	2.0 div	3.0 div	3.5 div	EXT	200mV	800mV	1V	
GRS-6052A	20Hz ~ 5MHz	5MHz ~ 40MHz	40MHz ~ 50MHz																				
GRS-6032A	20Hz ~ 2MHz	2MHz ~ 20MHz	20MHz ~ 30MHz																				
CH1, CH2	0.5 div	1.5 div	2.0 div																				
VERT-MODE	2.0 div	3.0 div	3.5 div																				
EXT	200mV	800mV	1V																				
<b>X-Y OPERATION</b>	<b>Input Sensitivity</b> <b>Bandwidth</b> <b>X-Y Phase Shift</b>	X-axis : CH1 ; Y-axis : CH2 1mV/div ~ 20V/div X-axis : DC ~ 500kHz (-3dB) <3° from DC ~ 50kHz	X-axis : CH1 ; Y-axis : CH2 1mV/div ~ 20V/div X-axis : DC ~ 500kHz (-3dB) <3° from DC ~ 50kHz																				
<b>DIGITAL STORAGE</b>	<b>Acquisition Digitizer</b> <b>Max. Sampling Rate</b>  <b>Storage Bandwidth</b>  <b>Dynamic Range</b>	8 bit ADC x 2 500MSa/s for equivalent time sampling 100MSa/s for normal sampling Single shot: DC ~ 25MHz Repetitive: DC ~50MHz $\pm$ 5div	8 bit ADC x 2 500MSa/s for equivalent time sampling 100MSa/s for normal sampling Single shot: DC ~ 25MHz Repetitive: DC ~30MHz $\pm$ 5div																				

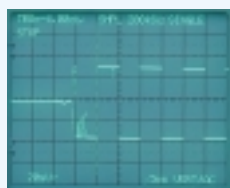
# Real Time/Digital Storage Oscilloscope



GRS-6052A (50MHz)GRS-6032A(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 μs/div ~ 0.5 μs/div Normal Sample: 1 μs/div ~ 0.1s/div Roll: 0.2s/div ~ 100s/div	Equivalent: 0.2 μs/div ~ 0.5 μs/div Normal Sample: 1 μs/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>Acquire Mode</b>	Sample, peak detect(>25ns), Envelop. Persist, Average(2~256)	Sample, peak detect(>25ns), Envelop. Persist, Average(2~256)
<b>Operation Mode</b>	Auto, Norm, Single, Single-roll, Roll, X-Y, Run/Stop	Auto, Norm, Single, Single-roll, Roll, X-Y, Run/Stop
<b>Smoothing Function</b>	Dot joint ON/OFF selectable	Dot joint ON/OFF selectable
<b>Pre-Trigger</b>	Pre-trigger 0 ~10div in 0.02div steps	Pre-trigger 0 ~10DIV in 0.02div steps
<b>X-Y Operation</b>	X-axis: CH1 Y-axis: CH2	X-axis: CH1 Y-axis: CH2
<b>Storage Bandwidth</b>	DC~50MHz(-3dB)	DC~30MHz(-3dB)
<b>Display Resolution</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> RS-232C Yes	10 sets(M0 ~M9) Yes
<b>READOUT &amp; CURSOR</b>	<b>Cursor Measurement</b> <b>Readout Intensity</b> $\Delta V, \Delta T, 1/ \Delta T$ Adjustable	$\Delta V, \Delta T, 1/ \Delta T$ Adjustable
<b>OUTPUT SIGNAL</b>	<b>CH1 Signal Output</b> <b>Calibrator Output</b> Voltage : approx. 20mV/div (with 50Ω terminated) ; Bandwidth : 50Hz ~ 5MHz Voltage : 0.5V± 3% ; Frequency : approx. 1kHz, square wave	
<b>INTERFACE</b>	RS-232C	
<b>POWER SOURCE</b>	AC 100V/120V/230V± 10%, 50/60Hz	
<b>ACCESSORIES</b>	Instruction manual x 1, Power cord 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	

## 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.

## ORDERING INFORMATION

**GRS-6052A** 50MHz Real Time/Digital Storage Oscilloscope  
**GRS-6032A** 30MHz Real Time/Digital Storage Oscilloscope

### Option

**Opt. 01 :** GTC-001 Instrument Cart, 450(W) x 430(D) mm  
**Opt. 02 :** GTC-002 Instrument Cart, 330(W) x 430(D) mm