

150 MHz Analog/Digital Storage Oscilloscope

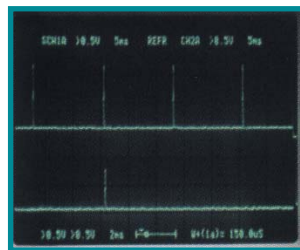
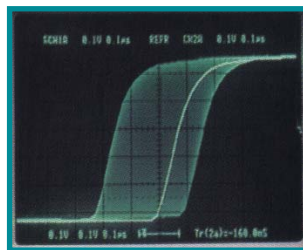
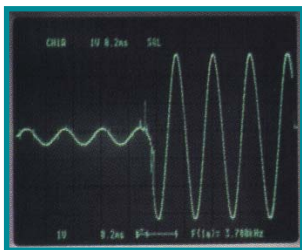


5105A

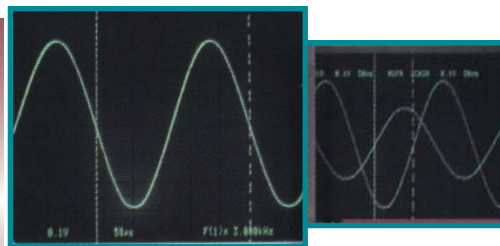
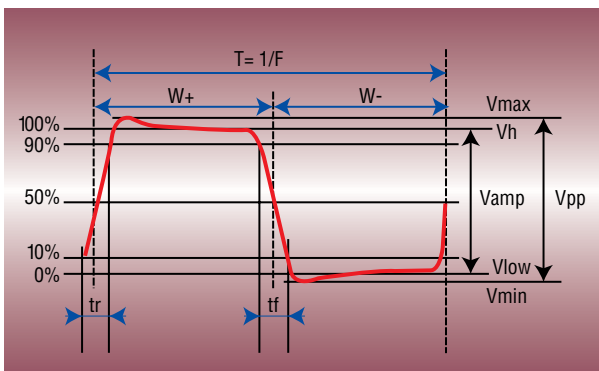
200 MS/s Digital Storage Oscilloscope

These digital scopes store waveforms in memory. For one-shot events, you can see what happened before the trigger. You can store up to two waveforms, each 2kx8 bit long. After acquisition, the data can be manipulated and displayed in many different ways. You can change time base or vertical position. You can select which portion of a waveform you'd like to look at in more depth. You can compare the measured waveform to a "known-good" waveform in memory. Additionally, Model 5105A incorporate glitch capture to see signals that otherwise would not be seen. You can interpolate or smooth the wave form to "fill in the gaps."

- **Selectable acquisition modes**
- **REFRESH:** Trace is updated left to right.
Display may show only part of record
- **ROLL:** adds new sample to right side of display. Display always shows what's changing. Useful for slow moving signals.
- **SINGLE** to store one shot event for analysis
- **PRETRIG** to see what happened before the trigger
- **ENVELOPE** to see how signal fluctuates
- **On-CRT readout for ease of use. Works in both analog and digital mode.**
- **Set cursors or have scope automatically take measurements**
- **Linear, sinusoidal interpolation:** Fills in digital dots between two samples. Good for digital expansion.
- **Analog smoothing:** Fills gap in an analog manner between two adjacent display dots.



SINGLE-SHOT MODE (pictured left) for single events. **ENVELOPE MODE** (pictured center): Each sweep of a repetitive signal accumulates on the screen, building up an envelope view of the signal variations.



Simply selected by pressing the auto measurement button, these 17 different amplitude and time related functions are available to make automatic calculations on digitized stored waveforms.

Oscilloscopes

Specifications

5105A model

VERTICAL DEFLECTION

OPERATING MODES	Channel I or II separate both Channels (alternated or chopped)
CHOPPER FREQUENCY	approx. 0.5MHz
SUM OR DIFFERENCE	from CH I and CH II
INVERT	CH I and CH II
XY-MODE	via channel I (Y) and channel II (X)
FREQUENCY RANGE	DC to 150MHz (-3dB)
RISETIME	<2.3ns
OVERSHOOT	≤ 1 %
DEFLECTION COEFFICIENT	14 calibrated positions from 1mV/div to 20V/div in 1-2-5 sequence, variable 2.5:1 to min. 50V/div.

ACCURACY IN CALIBRATED POSITIONS

1mV/DIV - 2mV/DIV	±5% (DC - 10MHz (3dB))
5mV/DIV - 20V/DIV	±3%
INPUT IMPEDANCE	1MΩ II 15pF
INPUT COUPLING	DC-AC-GD (ground)
INPUT VOLTAGE	max. 400V (DC + peak AC)
DELAY LINE	aprox. 70ns

TRIGGERING

AUTOMATIC (PEAK TO PEAK)	20Hz - 250MHz (≥ 0.5div.)
NORMAL WITH LEVEL CONTROL	DC - 250MHz (≥ 0.5div.)
INDICATOR FOR TRIGGER ACTION	LED
SLOPE	positive or negative
SOURCES	Channel I or II, line and external
ALT. TRIGGERING	CH I/CH II (≥ 0.8div.)
COUPLING	
AC	(10 - 250MHz)
DC	(0 - 250MHz)
HF	(50kHz - 250MHz)
LF	(0 - 1.5kHz)
NR (Noise reject)	0 - 50MHz (≥ 0~8div.)
TRIGGERING TIME BASE B	normal with evel control and slope selection (0 - 250MHz)
EXTERNAL	≥ 0.3Vpp (0 - 250MHz)
ACTIVE TV SYNC. SEPARATOR	field & line, + / -

HORIZONTAL DEFLECTION

ANALOG TIME BASE	Accuracy in calibr. position 3%; 1-2-5 sequence
A	0.5s - 50ns/div.
B	20ms - 50ns/div.
OPERATING MODES	A or B, alternate A/B
VARIABLE	2.5:1 up to 1.25s/div.
X-MAG. x10 (±5%)	max. 5ns/div.
HOLD OFF TIME	variable to approx. 10:1
BANDWIDTH X-AMPLIFIER	0 - 3MHz (-3dB)
X-Y PHASE SHIFT	<3° below 220kHz

DIGITAL TIME BASE

ACCURACY	3%, 1-2-5 sequence
A	100s - 0.1μs/div.
B	20ms - 0.1μs/div.
OPERATING MODES	A or B, alternate A/B
X-MAG. x10 (±5%)	10ns/div.
BANDWIDTH X-AMPLIFIER	0 - 20MHz (-3dB)
X-Y PHASE SHIFT	<3° below 20MHz
INPUT X-AMPLIFIER	via Channel II
SENSITIVITY	see CH II

DIGITAL STORAGE

OPERATING MODES	Refresh, Roll, Single, XY Average (2 to 512 waveforms), Envelope
DOT JOIN FUNCTION	automatically
ACQUISITION (REAL TIME)	
8 BIT FLASH A/D	max. 200MS/s
DISPLAY REFRESH RATE	max. 180/s
MEMORY & DISPLAY	2k x 8bit per channel
REFERENCE MEMORY	2 waveforms 2k x 8bit
SAVED IN	(EEPROM)
RESOLUTION (SAMPLES/DIV.)	X 200/div. Y 25/div. XY 25 x 25/div.
PRE-/POST TRIGGER	25,50,75,100, -25,-50, -75%

OPERATION / CONTROL

MANUAL	front panel switches
Auto Set	signal related automatic parameter selection
SAVE & RECALL	9 user defined parameter settings

READOUT & CURSOR (ANALOG/DIGITAL)

Display of parameter settings and other functions on the screen. Triggerpoint indication.
Cursor measurement of ΔU, Δt or 1/Δt (frequency), separate or in tracking moode.

READOUT INTENSITY	separately adjustable
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INTERFACE

PC REMOTE CONTROL	built-in RS232 intertace
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COMPONENT TESTER

TEST VOLTAGE	max. 7Vrms (o/c)
TEST CURRENT	max. 7mA rms (s/c)
TEST FREQUENCY	approx. 50Hz
	One test lead is grounded (Safety Earth)

GENERAL INFORMATION

CRT	D14-375GY, 8 x 10cm internal graticule
ACCELERATION VOLTAGE	approx. 14kV
TRACE ROTATION	adjustable on front panel
CALIBRATOR	0.2V ± 1%, ≈ 1kHz/1MHz (tr <4ns)
LINE VOLTAGE	100 - 240V AC ± 10%, 50/60Hz
POWER CONSUMPTION	approx. 42 Watt at 50Hz
MIN./MAX. AMBIENT TEMPERATURE	32° TO 104 °F (0°C + 40°C)
PROTECTIVE SYSTEM	Safety class II EC1010-I
WEIGHT	approx. 12.4 lbs. (6.5 kg)
COLOR	techno brown
DIMENSIONS (W x H x D)	11.6 x 4.9 x 15.0" (295 x 125 x 380 mm)
	Lockable tilt handle

Accessories

Two Year Warranty

SUPPLIED: Operating Manual, 4 Disks, Line Cord, 2 Probes 10:1 OPTION-
AL: PR-150 Low Capacitance Probe, PR-2000 High Voltage Probe,
PR-60 Active Differential Probe, CC-21 BNC Cable to Alligator
Clips, LC-210A Carrying Case