



Models 1603A, 1604A (Model 1604A shown)

- Dot Clock to 131 MHz (1604A) or 65 MHz (1603A)
- H Scan Rates to 131 kHz
- Analog, TTL and ECL (1604A only) Outputs
- Storage of 100 Programs in ROM and 100 in RAM
- Easy, Guided Raster Programming
- Enter Raster Data in Dots/Lines or $\mu\text{s}/\text{ms}$
- Automatic Calculations and Error Tracking
- Stock and User-Generated Test Patterns
- Data Save and Load Via RS-232
- Automatic Pattern Sequencing

An outstanding feature of the 1603A, 1604A is the easy, straightforward way of writing raster architecture. Timing parameters are entered in a natural sequence. The user may choose dots/lines or $\mu\text{s}/\text{ms}$ and the unit keeps track of calculations, warns of errors and calls up the parameter likely to be in error. The RAM (battery-backed) holds 100 programs; another 100 may be stored in ROM and an RS-232 interface allows programs to be fed to a PROM burner for distribution or filing of program setups. ROM data may be dumped into RAM for easy manipulation.

Front-panel selection of 16 patterns from a store of 31 (27 in 1603A) is offered plus 16 custom window patterns with coordinates user selected. The 1604A also features custom patterns of circles and windows using 2048 x 1024 graphic planes. Standard 5 x 7 and 7 x 9 character fonts are provided as well as 16 user-defined characters up to 32 x 32. Fully flexible output controls include \pm H, V and composite sync, On-Off control of RGBI plus inversion add sync to R, G, or B and dot duty selection (50%/100%).

- 1 Large, bright display shows selected program number and raster architecture parameters.
- 2 Keys select test patterns. Time-controlled automatic sequencing may also be set up and the label may be altered if different stock or custom patterns are assigned.
- 3 EPROM housing for Type 2764. Storage for 100 programs that set up raster architecture, output conditions and patterns.
- 4 Output controls enable RGBI, invert signal polarity, add sync to R, G or B and determine sync status and polarity.
- 5 Data entry keypad for all programming activity.
- 6 Program keys step through an easy sequence to program raster formats in either dots/lines or $\mu\text{s}/\text{ms}$.

Range	Character Font	ECL Outputs (1604A only)
1.024 - 65.536 MHz (1603A)	5 x 7 and 7 x 9, selectable	Video
1.024 - 131.072 MHz (1604A)	Character Set	R, \bar{R} , B, \bar{B} , G, \bar{G} , I, \bar{I}
15.26 ns - 976.56 ns (1603A)	JIS standard characters including	Sync
7.63 ns - 976.56 ns (1604A)	alphabet (upper and lower case)	HS/HVS, $\overline{HS/HVS}$, VS, \overline{VS}
Setting Resolution	numbers and punctuation marks	Clock
1 kHz	User Character Font	CLK, \overline{CLK}
	32 x 32 pixels maximum size	Output Level
	16 user-defined characters maximum	ECL (Amphenol 25P)
Total Pixels Per Line		90 - 132 V ac (180 - 250 V ac optional)
64 - 4096	16 front panel selectable patterns are	50/60 Hz, 170 VA (1603A) 250 VA
Sync Frequency/Period	available from a maximum of 24. A	(1604A)
1.024 - 131.072 kHz in 1 Hz steps	multitude of other patterns can be	Size (W x H x D)
7.63 - 99.99 ns	generated by using the 1604A user-	16 ^{3/4} x 5 ^{15/16} x 17 ^{3/4} in.
Dots/Characters	defined characters or by	426 x 150 x 450 mm
4 - 16 pixels	superimposing existing patterns	Weight
Displayed Characters		21.1 lbs., 9.6 kg (1603A)
2-255 characters in one character	Maximum Number of Program Addresses	26.4 lbs., 12 kg approx. (1604A)
steps	ROM: 0-99 (100)	
H Display Time	RAM: 0-99 (100)	1603A
1.00 - 90.00 μ s	Backup Memory Capacity	24-Pin Plug for TTL Output
Sync Position	8 k byte	14-Pin Plug for TTL Output
1 - 4096 pixels in one pixel steps		36-Pin Plug for Remote Control
0.01 - 99.99 μ s	Signal Level	25-Pin Plug for RS-232C
Sync Pulse Width	RS-232C	Universal Junction Shell
1 - 4095 pixels in one pixel steps	Baud Rates	5 BNC-BNC Cables (LC-2027)
0.01 - 99.99 μ s	9600, 4800, 2400, 1200, 600, 300, 110	Spare Fuse
Total Raster Lines	Transfer Format	Spare Pattern Label
10 - 4096 in one line steps	INTELLEC HEX	1604A
Sync Frequency/Period	Connector	25-Pin Plug for ECL Output
1.024 - 131.072 Hz in .001 Hz steps	36P Amphenol for remote controller	Square Clamp for 25-Pin Plug
0.76 - 99.990 ms		24-Pin Plug for TTL Output
Lines/Characters	Analog Video Outputs (BNC)	36-Pin Plug for Remote Control
1-64 lines in one line steps	R, G, B (3)	25-Pin Plug for RS-232C
Displayed Lines/ms	Analog Output Impedance	Universal Junction Shell
2 - 4095 in one line steps	75 Ω	5 BNC-BNC Cables (LC-2027)
0.050 - 99.980 ms	Analog Output Level	Spare Fuse
Sync Position	1 V p-p into 75 Ω , adjustable	Spare Pattern Label
1 - 4096 lines in one line steps	Maximum Analog Video Signal	
0.010 - 99.990 ms	Bandwidth	Rackmount Adapter for
Sync Pulse Width	60 MHz (1603A)	1604A (LR-2450-011)
1 - 4095 lines in one line steps	125 MHz (1604A)	
0.010 - 99.990 ms	Composite Video	
SCANNING	R, G, B, sync ON/OFF	
Non-interlace, interlace and interlace	HS/HVS	
shrink, selectable	TTL level (0.5 - 2 V p-p, adjustable)	
	VS	
Sync polarity + and -, selectable	TTL level (0.5 - 2 V p-p, adjustable)	
Composite H and V or separate	TTL Outputs (24P Amphenol Connector)	
H and V, selectable	R, G, B, I (intensifier)	
Composite Video: negative sync may	HS/HVS, VS sync	
be added to analog RGB outputs		