Timing Ranges

Output Descriptions

Standard Formats

Standard Images

User Interface Items

Physical Dimensions

Power and Environment

Appendix A: Specifications

Model 801GC, 801GF and 801GX Specifications

Signal Formats

Over 100 built-in formats

All models share a common library of built-in formats. Not all formats may work on all models of generators. See chapter 4 for more information.

TV encoded color video (801GX only):

NTSC:	5
PAL:	5

HDTV analog video:

European:	3
Japanese:	3

Computer analog video:

PAL:	3
RS-170:	3
Barco:	6
HP:	7
IBM:	16
Intergraph:	4
Mac:	13
NEC-PC:	2
Sony:	3
Sun:	10
VESA:	33

Computer digital video (801GC & 801GX only):

AT&T:	3
IBM:	7

Custom Formats

Storage capacity: 300 + built-in formats
Edit method: screen editor on UUT or via commands over computer ports

Custom Sequences

Storage capacity: total steps ≈ 2133 - # of sequences
Edit method: Screen editor on UUT or via commands over computer ports
Parameters:
Select Format
Select Image & version
Auto step delay: 0.1 Sec. to 24 Hr.
Sequence name: 8 characters

Test Images

Over 100 built-in imagess

All models share a common library of built-in images. Not all images may work on all models of generators. See chapter 5 for more information.

Partial Listing:

Format	Format spreadsheet
ColorBar	Color bars, up to 16 bars
GrayBar	Gray bars, up to 16 bars
Raster	Active pixels set to black
BrightBox	Five light meter boxes
Dot_10	Hatch/dots, small
Dot_12	Hatch/dots, medium
Dot_24	Hatch/dots, large
Hatch_10	Crosshatch, 10 boxes
Hatch_12	Crosshatch, 12 boxes
Hatch_24	Crosshatch, 24 boxes
Grill_44	Vertical stripes, 4 pixels
Grill_44(I)	Horiz stripes, 4 pixels
Grill_33	Vertical stripes, 3 pixels
Grill_33(I)	Horiz stripes, 3 pixels
Grill_22	Vertical stripes, 2 pixels
Grill_22(I)	Horiz stripes, 2 pixels
Grill_11	Vertical stripes, 1 pixel
Grill_11(I)	Horiz stripes, 1 pixel
Linearity	Xhatch with tics, circles
SMPTE133	Medical test image
Focus_Cx	Full screen "C" w/ "x"
Focus_H	Full screen of "H"
Focus_Oo	Full screen of "O" and "o"
Text_9	Random small text
Text_16	Random larger text
Cubes	Animated rotating cubes
Persist	17 moving boxes
Flat	All active pixels white
Outline	White border around active area
SMPTEBar	TV vectorscope
Stairs20	TV 20% gray levels
PulseBar	TV waveshape
Burst_100	TV 100% multiburst
MEME	Full screen of ÒMEÓ for focus

Custom Images

Storage capacity: Total # of primitives ≈ 2048 - # of images
Edit method: Screen editor on UUT or via commands over computer ports
Edit functions: exit, draw, insert, delete, move, cur sor, save, change
Primitives: dot, line, rectangle, oval, triangle, characters, text string, format data, grid, croshattches, H-grill, V-grill, centermark, limits
Colors: Up to 15 colors (+black) from a palette of 63 colors and grays

Model 801GC, 801GF and 801GX Specifications

User Interface

Displays: 16 X 2 character LCD
LED power indicator
Knobs: Format selector
Image selector
Buttons: Image / STEP
Video gate(R, G/I, B/V)
Sync gate (ACS, DCS and DSS)
Outputs on/ off

Output Connectors

GENERAL PURPOSE
Connector: 5 BNC receptacles
Signals: analog R,G,B; digital HS/CS, & VS/CS

VGA
Connector: HD female 15-pin D-Sub
Signals: analog R,G,B; digital HS/CS, & VS/CS

SUN WORKSTATION
Connector: Female 13W3 D-Sub
Signals: analog R,G,B; digital HS,VS, & CS

MAC
Connector: Female 15-pin D-Sub
Signals: analog R,G,B; digital HS, VS, & CS

MDA, CGA & EGA (801GC & 801GX only)
Connector: Female 9-pin D-Sub
Signals: digital VI (MDA); digital RGB
digital RGBI (CGA)
digital RrGgBb (EGA)
digital HS & VS sync

NTSC-TV / PAL-TV (801GX Only)
Connector: BNC receptacle
Signals: analog E (composite)

S-VIDEO (801GX Only)
Connector: 4-pin Mini-DIN receptacle
Signals: Y(luminance); C (chrominance)

Computer Ports

IEEE-488 INTERFACE
Protocol: IEEE-488.2
Connector: 24 pos. microribbon

SERIAL INTERFACE
Type: RS-232C
Protocol:
Baud Rates: 300 thru 38,400
full duplex
Data Bits: 7, 8
Stop Bits: 1, 2
Parity Bits: none, odd, even
Handshake: none, RTS/CTS
Power-On Default Settings:
2400 Baud, 8 Data bits, 1 Stop bit,
No parity, No handshake

Connector: 9 pin D-Sub receptacle
Pin 2 Ñ Data in (Rx)
Pin 3 Ñ Data out (Tx)
Pin 4 Ñ DTR in
Pin 5 Ñ Signals ground
Pin 7 Ñ RTS out
Pin 8 Ñ CTS in
Pins 1, 6, 9 Ñ No connections

Supplied Software

MS-DOS¨ compatible software and files on 3-1/2 inch HD floppy. Disk contains example programs for communicating with the generator via its serial port. Sample command files also included.

Misc.

AC MAINS
Voltage: 86-132VAC (standard as shipped)
180-250 VAC (via switch on cabinet)
Frequency: 48 to 66 Hz
Power: 26 watts (801GC & 801GX)
28 watts (801 GF)
Fuse: 1/2 Amp @ 250 VAC slow-blow, 5 mm dia x 20 mm long, type 239.500

SIZE
Unpacked:
Inches: ≈12.2 W x ≈7.7 D x ≈3.8 H
mm: ≈31 W x ≈20 D x ≈10 H
Shipping Box: 17x11.5x7 in. (43x29x18 mm.)

Weight
Unpacked: ≈ 7 lbs. (3.2 kg.)
Shipping: ≈ 12 lbs. (5.5 kg.) w/ all standard accessories

Additional Model 801GC and 801GX Specifications

Pixel Timing

Frequency Range (MHz):
9.375 to 150 (RGB analog)
9.375 to 18 (801GX only TV, S-VIDEO)
9.375 to 55 (TTL digital video)
Step: 1.465 Hz
Jitter: ≤800ps line-to-line (1 sigma)
Accuracy: 50 ppm

Horizontal Timing

Frequency Range: 2.29 Ð 130KHz

Total pixels per line:
Range: 144 to 4096 pixels
(must be even below 125 MHZ pixel clock rates and must be evenly divisible by 4 above 125 MHz)
Step: 2 pixels below 125 MHz pixel clock
4 pixels above 125 MHz pixel clock

Active pixels per line:
Range: 16 to 2048 (limit Htotal - 32 pixels)
(RGB analog and TTL)
16 to 1024 pxls (TV and S-Video)
Step: 1 pixel below 125 MHz pixel clock
2 pixels above 125 MHz pixel clock

Sync pulse width:
Range: 1 to Htot - Hact -HSdel pixels
Step: 1 pixel below 125 MHz pixel clock
2 pixels above 125 MHz pixel clock

Sync delay (front porch):
Range: 1 to Htot - Hact -HSwid pixels
Step: 1 pixel below 125 MHz pixel clock
2 pixels above 125 MHz pielx clock

Vertical Timing

Frequency Range: 1 to 650Hz
Vertical total scan lines per frame:
Range: 2 to 4096 lines (progressive)
5 to 4097 lines (interlace)
Step: 1 line (progressive)
2 lines (interlace)
Vertical active scan lines / frame:
Range: 1-1024 lines (Vtotal - 1)
Step: 1 line (progressive)
2 lines (interlace)
Vertical Sync pulse width:
Range: 1 to Vtot - Vact -VSdel lines
Step: 1 line
Modes:American or European
Vertcal Sync delay (front porch):
Range: 0 to Vtot - Vact -VSwid lines
Step: 1 line

Digital Sync

Modes: Separate Horiz. & Vert.
Composite
Composite Configurations:
American HS OR'ed with VS
American Serrated
American Serr. &Eq.(interlaced only)
European HS OR'ed with VS
European Serrated
European Serr. & Eq.(interlaced only)
Eq. Pulse Width: HSwidth / 2 pixels
Serr. Pulse Width: Htot - HSwid pixels (progressive)
[Htot/2] - HSwid pxls (interlace)
Equalization Interval:
Before: 0 to Vtot - Vact -VSwid - EqAfter Lines
After: 0 to Vtot - Vact -VSwid - EqBefore Lines
Step: 1 line
Interval Modes:
American (interval is equal to programmed value)
European (interval =1/2 line < programmed value)

Outputs

RGB ANALOG VIDEO OUTPUTS

Source Z: 75-ohms
Output levels:
Video Swing: 0 to +1.0 V
Sync Swing: 0 to Ð 400 mV
Setup: 0 to 100 IRE
Autocal: autoadjust (internal precision ref.)
Output protection: Output buffer/75 Ω series term
Rise / Fall: 2 nSec. (typical)
Overshoot: ≤ 10% (all outputs terminated)

DIGITAL OUTPUTS

Source Z: 75-ohms ±2%
Levels: Ô0Õ = 0 V Ô1Õ = 5 V open circuit
Ô0Õ = 0 VÔ1Õ = 2.5 V (term)
Rise / Fall : < 4.0 nSec

TV OUTPUT (801GX Only)

Source Z: 75-ohms ±2%
Video Signal: Composite (lum.,chrom. & burst)
Rise / Fall: per RS-170A & CCIR stds

S-VIDEO OUTPUT (801GX Only)

Source Z: 75-ohms 2%
Signals: Y(luminance); C (chrominance)
Rise / Fall: per RS-170A & CCIR stds

Additional Model 801GF Specifications

Pixel Timing

Frequency Range: 3.9975 MHz to 250 MHz
Step: 0.035 Hz
Jitter: ≤800 pS line-to-line (1 sigma)
Accuracy: 25 ppm

Horizontal Timing

Frequency Range: 1.00 Ð 130KHz

Total pixels per line:
Range: 144 to 65,535 pixels
Step: 1 pixel

Active pixels per line:
Range: 16 to 2048 pixels typical (up to 32,768 pixels under special conditions)
Step: 1 pixel

Sync pulse width:
Range: 1 to Htot - Hact -HSdel pixels
Step: 1 pixel

Sync delay (front porch):
Range: 1 to Htot - Hact -HSwid pixels
Step: 1 pixel

Vertical Timing

Frequency Range: 1 to 650Hz
Vertical total scan lines per frame:
Range: 2 to 4096 lines (progressive)
5 to 8191 lines (interlace)
Step: 1 line (progressive)
2 lines (interlace)
Vertical active scan lines / frame:
Range: 1 to 2048 lines (progressive)
2 to 2048 lines (interlace)
(up to 4096 lines under special conditions)
Step: 1 line (progressive)
2 lines (interlace)
Vertical Sync pulse width:
Range: 1 to Vtot - Vact -VSdel lines
Step: 1 line
Modes:American or European
Vertcal Sync delay (front porch):
Range: 0 to Vtot - Vact -VSwid lines
Step: 1 line

Horizontal actives beyond 2048 pixels require a reduced vertical active limit. Vertical actives beyond 2048 lines require a reduced horizontal active limit. Required limit reductions shown in table. Horizontal actives beyond 4096 pixels repeat the information contained in the first 4096 pixels of each scan line.

H Active pixels	V Active lines
513-1024	4096
1025-2048	2048
2049-4096	1024
4097-8192	512
8193-16384	256
16385-32768	128

Digital Sync

Modes: Separate Horiz. & Vert.
Composite
Composite Configurations:
American HS OR'ed with VS
American Serrated
American Serr. &Eq.(interlaced only)
European HS OR'ed with VS
European Serrated
European Serr. & Eq.(interlaced only)
Eq. Pulse Width: HSwidth / 2 pixels
Serr. Pulse Width: Htot - HSwid pixels (progressive)
[Htot/2] - HSwid pxls (interlace)
Equalization Interval:
Before: 0 to Vtot - Vact -VSwid - EqAfter Lines
After: 0 to Vtot - Vact -VSwid - EqBefore Lines
Step: 1 line
Interval Modes:
American (interval is equal to programmed value)
European (interval =1/2 line < programmed value)

Outputs

RGB ANALOG VIDEO OUTPUTS

Source Z: 75-ohms
Config: R, G, B or Y, Pr, Pb
Output levels:
Video Swing: 0 to +1.0 V
Sync Swing: 0 to Ð 400 mV
Setup: 0 to 100 IRE
Autocal: autoadjust (internal precision ref.)
Output protection: Output buffer / 75 Ω series term
Rise / Fall: 1.5 nSec. (typical)
Overshoot: ≤ 10% (all outputs terminated)

DIGITAL OUTPUTS

Source Z: 75-ohms ±2%
Levels: Ô0Õ = 0 VÔ1Õ = 5 V open circuit
Ô0Õ = 0 VÔ1Õ = 2.5 V (term)
Rise / Fall : < 4.0 nSec