

LINEARITY

(8)

WHITE SQUARES

Linearity refers to a monitor's ability to display shapes such as squares or circles in various paces without any stretching or distortion. Poor linearity causes onscreen objects to look flattened or squished.

COLOR BALANCE

(9)

COLOR BARS

A monitor uses three electron guns (one each for red, green and blue) to excite the phosphors that make up the pixels in an image. Color balance refers to the relative strength of the signal from each of the three guns. If the blue gun is turned up higher than the other two then you will see a bluish tint on the screen. Most monitors provide color adjustment controls which allow you to adjust the relative strength of the three electron guns to correct the problem.

SYNC RATE

(9, 10, 11, 12 & 13)

VGA, SVGA, XGA & VESA

Computer monitors have sync range limits. To verify the sync range of the monitor, turn the selector dial to the first color bar position (#9). All VGA monitors will operate in this mode. Slowly turn the selector dial clockwise. If the pattern extends beyond the edges of the screen, begins to roll, or becomes scrambled, the sync limit of the monitor may have been exceeded, or a problem exists in its sync circuits.

BURN-IN TESTING

(14, 15 & 16)

FIXED & MULTI SCAN EXERCISER

Burn-in is the process of cycling through various patterns and frequencies to exercise the monitors circuits over a period of time. An hour or so should be sufficient time to determine a monitors readiness for field use. Manufacturers typically burn-in new monitors for a period of at least 4 hours using position 16.

COMPUTER MONITOR TESTER



Operation Manual

VGA-Plus MONITOR TESTER FUNCTIONS

POS #	VIDEO MODE	VIDEO RES.	H / V KHz/Hz	DISPLAY PATTERN	DIAGNOSTIC FUNCTION
1	VGA	640 x 480	31.5 / 60	Red Screen	Purity Test
2	VGA	640 x 480	31.5 / 60	Green Screen	Purity Test
3	VGA	640 x 480	31.5 / 60	Blue Screen	Purity Test
4	VGA	640 x 480	31.5 / 60	Black Screen	Blank Raster Test
5	VGA	640 x 480	31.5 / 60	White Screen	High Voltage Test, Purity Test
6	VGA	640 x 480	31.5 / 60	White Outline Border	High Voltage Test, Pincushion Test
7	VGA	640 x 400	31.5 / 70	Magenta Squares	Convergence Test
8	VGA	640 x 400	31.5 / 70	White Squares	Convergence Test, Linearity Test
9	VGA	640 x 480	31.5 / 60	Color Bars	Sync Rate Test, Color Balance Test
10	SVGA1	800 x 600	35.2 / 56	Color Bars	Sync Rate Test
11	SVGA2	800 x 600	37.8 / 60	Color Bars	Sync Rate Test
12	XGA	1024 x 768	48.5 / 60	Color Bars	Sync Rate Test
13	VESA	1280 x 1024	64.1 / 60	Color Bars	Sync Rate Test
14	Fixed Scan Exerciser	Sequences from position 1 through 9 at 4 second intervals, then repeats			
15	Multi Scan Exerciser	Sequences from position 1 through 13 at 4 second intervals, then repeats			
16	Multi/Power Exerciser	Sequences from 1 through 13 at 16 second intervals, Video/Sync turned off for 30 seconds, White screen turned on for 30 seconds, then repeats (Meets the requirements for Energy Star / Nutek compliance testing)			



Data Sync Engineering

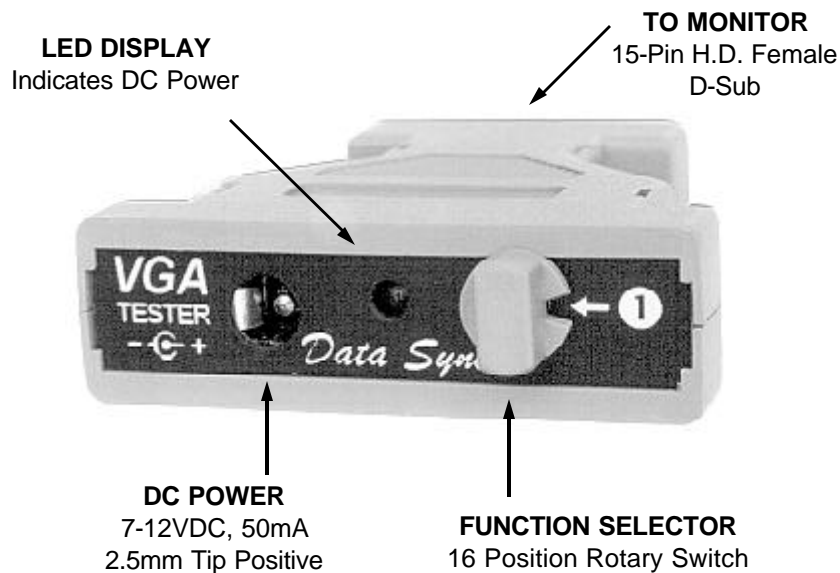
P.O Box 539, Footbridge Lane, Building 3
Blairstown, New Jersey 07825

TEL: (908) 362-6299

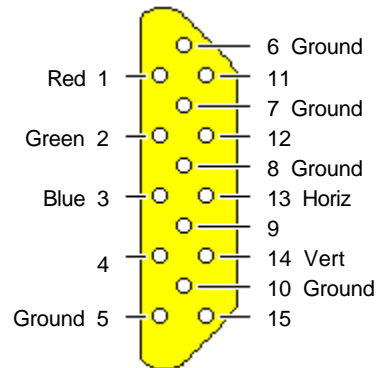
FAX: (908) 362-5889

<http://www.datasynceng.com>

VGA-Plus MONITOR TESTER



VGA-Plus CONNECTOR PINOUT



USING THE TESTER

- 1) Connect the tester to the monitor cable
- 2) Turn the selector dial to the desired pattern and scan frequency.
- 3) Turn on the monitor and observe the displayed pattern.

Symptoms can usually be identified by the displayed pattern. If the pattern appears normal, then the problem may be in the computer or program, such as a defective video board or an incorrect video driver. A pattern that rolls up or down on the display screen signifies a vertical problem. A scrambled pattern that tears sideways may be a horizontal problem, or the monitor may not be compatible with the scan frequency. Missing or incorrect colors identify a video problem.

DIAGNOSTIC FUNCTIONS

PURITY (1, 2, 3 & 5) RED/GREEN/BLUE/WHITE SCREEN

Because monitors use electromagnetism to control their electron guns, magnetic fields build up within the monitor and cause distortions that appear as colored patches on the screen. A monitor has good color purity if no such discolorations are visible. The magnetic fields that cause problems with color purity can sometimes be eliminated by degaussing.

BLANK RASTER (4) BLACK SCREEN

A black screen should produce no visible image, however, a background raster may be seen. If it is very noticeable, then adjust the brightness control until it just disappears.

HI VOLTAGE REG (5 & 6) WHITE SCREEN & WHITE BORDER

If the brightness level of an image changes, so does the beam current of the three electron guns which in turn causes the DC high voltage to vary. If the high voltage should vary substantially then the picture height and width will change. A properly regulated high voltage supply should produce no noticeable change between a white screen and a white border image.

PINCUSHION (6) WHITE BORDER

On computer screens, lines that should be straight don't always appear that way. Lines that look bowed or curved are evidence of a pincushion error. Such problems are common at the right and left edges of a displayed image, resulting in a screen that appears to be bowed inward at the centers. Better monitors include controls to help compensate for this error.

CONVERGENCE (7 & 8) MAGENTA & WHITE SQUARES

The three separate electron guns in a color monitor must be perfectly aligned in order to generate crisp white lines without colored halos at the edges. Convergence describes the monitor's ability to produce images that lack halos across all parts of the screen. Poor convergence (or misconvergence) creates the effect of a poor 3D picture near the corners and edges of the screen, where the electron beams must bend the most to hit their intended paths.