



EV4151 component/composite waveform/vector monitor



The EV4151 is a six-input waveform monitor intended for use in TV and video systems where analogue component signals are present. The inputs are arranged in two groups of three for use with two sets of component signals though either may be used for composite signals if required.

Component signals may be RGB, Y (B-Y) (R-Y), etc, and the unit is compatible with both 625/50 and 525/60 systems.

Relative amplitude, timing and signal linearity may be easily established using readily available test signals, e.g. colour bars, bowtie, staircase.

DISPLAY

10x8cm rectangular flat-faced CRT with a P31 (GH) phosphor Accelerating potential 12kV.

DISPLAY CONTROLS

INTENSITY (brilliance), FOCUS and SCALE ILLUM on front panel. TRACE ALIGN on rear panel. ASTIG internally preset.

SIGNAL CONNECTIONS

Inputs 1 & 2: Two sets of three pairs of 75 ohm BNC sockets on rear panel allow loop-through (bridging) connections to the A, B and C input amplifiers. Return loss better than 40db in each case. Crosstalk >54db to 60MHz. A further pair of sockets allows loop-through connection of an external reference signal. Maximum input $\pm 5V$ dc + peak ac.

DISPLAY MODES

Both Inputs A, B or C Selected: Each channel individually displayed at the sweep speed selected. **ABC Selected:** Sweep speed 1 (line or field) -ABC superimposed. Sweep speed 2 - AB parade. Sweep speed 3 - ABC parade. **Bowtie Selected:** Channels A minus B, and A minus C displayed for timing and amplitude checks. **B/C Selected on Filter Switch:** Sweep disabled and a vector display formed out of the B signal horizontally and the C signal vertically.

SYNCHRONISATION

SYNC front panel switch allows selection of an internal or external sync source. Internal sync is obtained from the displayed A channel. External reference may be a composite, black-and-burst or mixed-sync signal with sync amplitudes between 150mV and 4V. Sync circuits are substantially unaffected by S.I.S. signals and operate cleanly in the presence of superimposed hum signals up to 0.7V pk-pk.

SWEEP RATES

Vertical: 3,2,1 fields (internal switch selects 50/60Hz operation).

Horizontal: 3,2,1 lines.

Two-position magnifier: x5 increases 1 line sweep rate to 1 μ s/div. x50 increases 1 line sweep rate to 100ns/div. Accuracy $\pm 3\%$ over centre 8 divisions.

DC RESTORER

Each input individually restored. Offset of B and C signals is front panel selectable to set the baseline levels of the colour difference signals as required. Black level changes <1% for 10% to 90% APL variation, <2% for presence or absence of colour burst. 50Hz attenuation <10%

VERTICAL AMPLIFIER

Sensitivity: 1V composite video gives 100% (140 IRE unit) display. Increased to 200mV f.s. using x5 gain switch.

Frequency Response (1v Range):

FLAT: 25Hz to 8MHz + 1% - 3%.

Transient response less than 2%

overshoot on 1T (100ns h.a.d.) sine²

pulse. LF tilt < 1% on 50Hz square

wave. LP: Low pass filter similar to

IEEE standard 205. LIN: Bandpass

amplifier centred on 500kHz gives 1.5 μ s

h.a.d. spikes from staircase test

waveforms for line time non-linearity

checks. CHR: Bandpass filter centred on

4.43MHz or 3.58MHz (option).

Inherent differential gain and non-

linearity error <1%

CALIBRATOR

Calibrated shift voltages may be

applied on alternate timebase sweeps

to enable precise amplitude checks.

Normally set to 700mV and 525mV $\pm 1\%$

INTERNAL ILLUMINATED GRATICULE

Dual scaling - 0 to 100% in 10%

increments and -43 to +110 IRE units

in 10 unit increments. 2%/2 IRE sub-

divisions around the 100 line assist in

amplitude assessment.

The graticule has scaling for both

700mV and 525mV signals, together

with their half-amplitude references.

This simplifies operation with 75% and

100% saturation colour bar test

signals. Similarly the vector scaling

includes dual reference points.

POWER REQUIREMENT

97V to 130V or 195V to 260V, 50 to

60Hz, internally selected. Consumption

40VA nominal.

OPERATING TEMPERATURE

0°C to +45°C.

WEIGHTS & DIMENSIONS

Height: 132mm, width: 216mm, depth:

433mm, weight: 8kg approx.



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