



1485C PAL/NTSC Waveform Monitor (Cabinet)

CHARACTERISTICS

VERTICAL DEFLECTION

Inputs — Input A and B are 75 Ω high impedance loop-through. Return loss is ≥ 40 dB from dc to 5 MHz in a 75 Ω system. Aux Video Input is internally terminated in 75 Ω . Return loss is ≥ 34 dB from dc to 5 MHz.

Scale Factor — A and B input calibrated 1.0 V ± 7 mV, 0.5 V ± 15 mV, 0.2 V ± 7 mV. (0.05 V ± 2.5 mV Option 06) volts full scale. Variable: Range for each scale factor at least +40% to -50%. Aux Video Input 1.5 dB gain.

Maximum Input Voltage — 2 V p-p (ac coupled), ± 1.5 V dc + peak ac (dc coupled).

Frequency Response

FLAT: 50 kHz to 5 MHz $\pm 1\%$ (1.0 V F.S., VAR in detent). 5 MHz to 8 MHz ± 2 , -3%, 8 MHz to 10 MHz ± 2 , -6%. Typically within ± 2 , -15% to 18 MHz and typically -3 dB at 20 MHz. Low Pass: Attenuation ≥ 14 dB, 500 kHz and above. 3.58 MHz Bandpass: Amplitude within $\pm 1\%$ of amplitude in Flat response position. Bandpass ≈ 600 kHz. 4.43 MHz Bandpass: Amplitude within $\pm 1\%$ of amplitude in flat response position. Bandpass ≈ 800 kHz. IRE: Conforms to IEEE Standard 205, 1972.

Linear Waveform Distortion

Pulse/Bar Ratio: $\pm 1\%$. For NTSC or PAL 2T Pulse or NTSC T Pulse.

Short Time: Preshoot, overshoot, ringing $\leq 1\%$ of NTSC or PAL T Pulse and Bar.

Line Time: Tilt or rounding $\leq 1.0\%$. Field Time: (Ac coupled) $\leq 1\%$.

Nonlinear Distortion — Differential Gain: $\leq 0.5\%$.

Dc Restorer — Keyed type, may be turned off. Clamping point: Back Porch/Sync Tip. Time Constant: FAST reduces mains hum ≥ 26 dB, SLOW reduces mains hum < 0.9 dB.

Calibrator — Amplitude selected by dc Restorer switch. Sync Tip: 1 V $\pm 0.2\%$. Back Porch: 714 mV or 700 mV $\pm 0.5\%$.

HORIZONTAL DEFLECTION

Time Base — 5 μ s and 10 μ s timing accuracy $\pm 2\%$ (center 10 divisions); 5 μ s and 10 μ s linearity $\pm 1\%$ (center 10 division).

External Sync Input — Two loop-through high impedance, with ≥ 46 dB return loss in a 75 Ω system. Inputs are slaved to A and B input or to A external sync input only.

External Sync Input Requirements — 400 mV to 2 V composite video or 200 mV to 8 V composite sync.

Field Selector — Positive selection of Field 1 or Field 2 in the NTSC system. Positive selection of 1, 2, 3, 4, or 1 & 3, 2 & 4 in the PAL systems.

Line Selector — Dig: Selects lines 9 to 22 NTSC, line 9/322 to line 22/335 PAL, line 9/272 to line 22/285 PAL-M. Var: Approx line 20 of the selected field to line 4 of the next related field. 15 lines: Identical to Var, except 15 successive lines are displayed.

Sync — AFC horizontal frequency range is 15.75 kHz ± 200 Hz. Maximum Jitter with Respect to Input Sync: 10 ns with 4 V RMS hum (30 ns with the addition of -36 dB white noise). Direct horizontal frequency up to ≤ 20 kHz. Maximum Jitter with Respect to Input Sync: 12 ns with 4 V RMS hum (90 ns with the addition of -36 dB white noise).

OUTPUTS

Line Strobe — TTL amplitude pulse. Pulse coincident with line or lines selected by VAR, 15 LINE or DIG modes of DISPLAY switch.

Picture Monitor — Output of incoming video with Line Strobe added. Output impedance is 75 Ω . Output gain adjusted to unity with respect to A and B video input.

Aux Video — Output of incoming video. 75 Ω output impedance. Gain adjustable to unity with respect to A and B video input.

OTHER CHARACTERISTICS

RGB/YRGB Staircase Input — ≈ 12 V for 12.7 divisions deflection. RGB sweep length internally selected for $\frac{1}{3}$ normal sweep. YRGB sweep length internally selected for $\frac{1}{4}$ normal sweep length.

Mains Voltage — Ranges 100 V ac, 110 V ac, 120 V ac, 200 V ac, 220 V ac, 240 V ac $\pm 10\%$. Frequency 48 Hz to 62 Hz, maximum power consumption 75 W. At factory, 1480, 1482 preset for 110 V ac. 1481, 1485 preset for 220 V ac.

CHARACTERISTICS (OPTION 01)

10X Probe Channel — Scale Factor: 1 V, 0.5 V, 0.2 V full screen with 10X attenuator probe. Gain Range: $\pm 10\%$. Tilt: $\leq 5\%$ on 50 Hz. Squarewave High Frequency Response: $\pm 3\%$, 25 Hz to 5 MHz. Referenced to 50 kHz. Input Resistance 1 M Ω , $\pm 2\%$, not including probe. Input RC Product: 20 μ s, $\pm 1\%$, not including probe. BNC connector accepts most Tektronix probes.

10X Probe Calibrator — Output voltage 1.000 V ± 0.005 V or 0.995 V to 1.005 V.

SLOW SWEEP CHARACTERISTICS (OPTION 07)

Duration — 4 to 12 s, variable with front panel control.

Linearity — $\pm 5\%$ of full-screen over the length of the sweep.

Indicator — Front panel indicator on when slow sweep is operating but sweep is not running.

Triggering Signal — APL change $\leq 10\%$ to 90% (Bump or Bounce), front panel selectable for either + or - level change.

Sensitivity — 400 mV to 2 V p-p composite video with APL change.

Rate — ≥ 0.2 Hz, free-runs at rates < 0.2 Hz or with no triggering signal.

Input — Internal or External.

50Hz/60 Hz Squarewave Triggering — Sensitivity: 400 mV p-p minimum to 3 V p-p maximum. Input Impedance: ≈ 10 k Ω ac coupled (Rear Panel loop-through connectors not return loss compensated.)

PHYSICAL CHARACTERISTICS

Dimensions	1480C		1480R	
	mm	in	mm	in
Width	216	8.5	482	19.0
Height	210	8.3	133	5.3
Depth	430	16.9	457	18.0
Weights \approx	kg	lb	kg	lb
Net	9.8	21.5	11.2	24.6
Shipping	24.1	53.1	24.1	53.1

ORDERING INFORMATION

1480C NTSC Waveform Monitor.

1480R NTSC Waveform Monitor.

1481C PAL Waveform Monitor*¹.

1481R PAL Waveform Monitor*¹.

1482R PAL-M Waveform Monitor.

1485C PAL/NTSC Dual Standard Waveform Monitor*¹.

1485R PAL/NTSC Dual Standard Waveform Monitor*¹.

Includes: Two BNC right angle adaptors (103-0031-00); one pair rackmount ext DWR slides (351-0195-01), various external graticules (see matrix below); manual.

External Graticules	1480R/C	1481R/C	1482R	1485R/C
Blank	x	x	x	x
NTSC				x
CCIR				
CCIR K (V)		x		x
CCIR K (P)		x		x
GRAT A (V)				x
GRAT B (V)	x			x
GRAT A (P)				x
GRAT B (P)	x			x

(V) Visual (P) Photo

OPTIONS

Option 01 — 1 M Ω , 20 pF Probe Input (not available with Option 06, probe not included).

Suggested Probe: P6108 10X Probe 2 m (010-6108-03); or 3 m (010-6108-05).

Option 06 — (1480R only) 124 Ω WECO Style Inputs.

Option 07 — Slow Sweep*² (Option 07 performance included with Option 06. Do not order with Option 06).

Option 08 — (1481C, 1481R, 1485C and 1485R only) SECAM Field Identification.

*¹ 1481C/R, 1485C/R meets European Broadcast Union Tech. 3221-E, Guiding Principles for design of Television Waveform Monitors.

*² Option 07 satisfies EBA Tech 3221-E § 3.2.2.

OPTIONAL ACCESSORIES

1480R Cradle Assembly — For mounting the 1480R in a WECO backless rack. Order 426-0309-00.

Field Case — (For cabinet versions only). Order 016-0084-00.

Trace Recording Cameras — Both the Tektronix C-53P and the C-59AP can be used.