Analog Dual-Standard Waveform Monitor

1741C Datasheet

Features & Benefits

Inputs and Formats

- Analog Composite (PAL and NTSC) and Component Video Support with Auto Format Detection

- Four Passive Loopthrough Analog Composite Signal Inputs

Monitoring Capabilities

- Waveform Display Supports Composite or Component Video for White and Black Balance and Level Checking

- Vector Display for Analog Composite Signal Allows System Setup to Specific Chroma Values

- SCH Display for Color Subcarrier-to-Horizontal Sync Timing and Color Framing Matching among Edit Sources
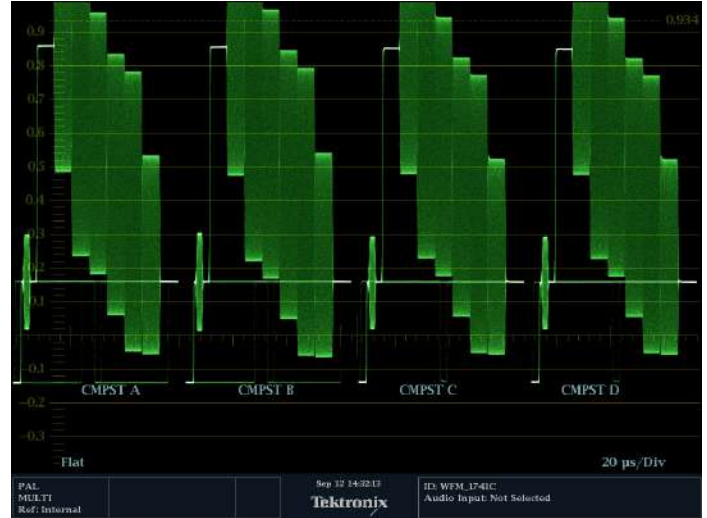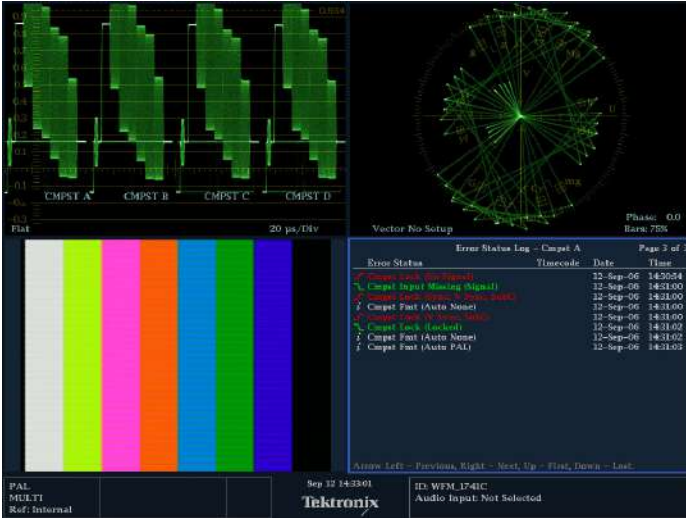
Additional Analysis Features

- Timing Display for Measuring Signal Timing between Each Input and the Reference

- VITC or LTC Time Code Decode and Display

- LTC Waveform Display for Longitudinal Time Code Amplitude and Synchronization Monitoring

- Screen Capture for Pictures and Traces Facilitate Reference Setting, Troubleshooting, and Documentation Tasks

- Video Session, Alarm Status, and Error Logging for Quick Identification and Easier Correction of Problems

User Interface Tools

- Four-tile FlexVu Display Capability

- XGA Display with Full-screen Picture Display and Picture Thumbnail for Easy Signal Source Verification

- Ethernet Interface for Convenient Freeze Capture and Error Log Download

- USB Port Enables Screen-capture Download

- 32 User Presets for Quick Recall of Commonly Used Configurations

- Additional XGA Output for Instrument Display on External Monitor

- Picture Monitor Output for Analog Composite Signal

- Ground-closure for Remote Selection of Input or Preset Recall

Applications

- Camera Alignment and Analog Video Equipment Setup

- Compliance Checking in Distribution and Broadcast

- Content QA of Composite and Component Video in Production and Postproduction

The 1741C is the latest analog waveform monitor from Tektronix that features user interface tools to simplify operations. Its precise displays provide high-quality monitoring for traditional analog composite (PAL and NTSC) or component systems.

This instrument supports four analog composite signal inputs with waveform, vector, SCH, and picture functions. The input ports can also be used for RGB signals.

The 4-tile FlexVu display and convenient picture thumbnail maximize the versatility of the 1741C.

For camera alignment, the user can display one, two, three, or four waveforms simultaneously and overlay just as many vector displays, thus facilitating monitoring of multiple cameras during content acquisition.

Powerful tools such as timing display, VITC, or LTC decode, freeze capture, video session, alarm status, and error log allow for deeper signal inspection to enable superior video production and delivery quality.

Ease of Use

The Intuitive User Interface provides backlit buttons.

32 user-configurable presets allow users to recall commonly used configurations tailored to your personal work practices.

For remote operation, the Ground-closure Interface allows for remote selection of input or preset recall.

The user can download screenshots using the USB or Ethernet port.

The error log can be downloaded using a web browser.

The unit provides an XGA output for instrument display on an external monitor and picture monitor output for analog composite signals.

Time and voltage cursors in waveform display can be used as reference points or to measure values. User-defined labels allow for easy identification of input sources on the screen.

See and Solve with Tektronix Displays

The "See and Solve" displays in Tektronix video monitors simplify video monitoring tasks such as equipment setup, error detection, and content correction allowing to detect errors at a glance and troubleshoot them efficiently.

The FlexVu 4-tile display provides maximum flexibility to increase your productivity. With FlexVu, you can create a multiview display tailored to your specific needs and work practices.

The Video Session, Alarm Status, and Error Log displays are effective tools to verify the format and quality of the signal and allow for efficient detection and correction of errors by providing key content information at a glance. The error log captures up to 10,000 events and can be easily downloaded using a web browser.

The freeze function on the 1741C allows comparing of the frozen display to the live signal, facilitating tasks such as reference setting. A bitmap of the display can be downloaded using a web browser for easy documentation.

With 32 user-configurable presets, operators can recall commonly used configurations for faster setup of the 1741C.
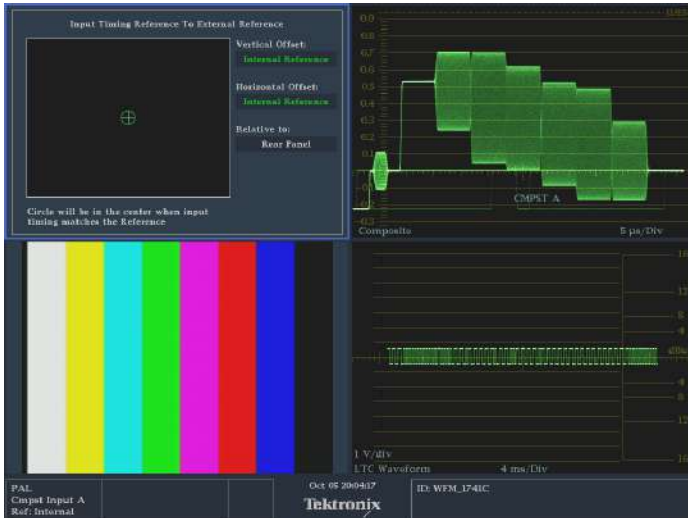
Sharp Waveform Display – Clear Measurements

Tektronix displays offer the sharpest CRT-like trace quality for clear waveform monitoring without pixelation distortions. With several sweep rates and easy control of vertical gain and horizontal magnification, you can efficiently monitor and measure video waveform parameters.

Full horizontal timing flexibility is provided with 1Line, 2Line, 1Field, and 2Field sweep modes, with or without magnification.

Both fixed and variable vertical gain is offered, each with the outstanding accuracy and repeatability that comes from a fully digital design.

The Line Select provides a line marker in full-screen and thumbnail picture modes.

With the time and voltage cursors in the waveform display, users can easily reference points or measure values. Users can also define labels to quickly identify the input sources active on the waveform display.

Vector Display

The vector display is offered with selectable 75% and 100% targets.

Each display automatically selects the appropriate graticule based on the input format.

The vector display offers user-selectable graticules.

Analog Video Multiformat Support

For a qualitative view of the content, a full-color picture display is offered, which can be displayed as a full-screen presentation. This display is compatible with PAL and NTSC inputs with format auto-sensing.

Timing and Synchronization Made Easy

The patented Tektronix Timing display makes facility timing easy through a simple graphical representation which shows the relative timing of the input signal and the reference signal on an X-Y axis. The display also has numeric readouts of the timing difference relative to the reference, showing vertical timing as number of lines and horizontal differences in µs.

The SCH Phase display helps quickly verify this critical timing parameter of composite analog video signals.

The 1741C provides VITC or LTC Time Code decode and display plus LTC waveform display for longitudinal time code amplitude and synchronization monitoring.

Characteristics

Composite Video Interface

Characteristic	Description
Inputs	Four
Input Type	Passive loopthrough BNC, 75 Ω compensated
Input Dynamic Range	±6 dB
Maximum Operating Amplitude	-1.8 V to +2.2 V, DC + peak AC
Absolute Maximum Input Voltage	-6.0 V to +6.0 V, DC + peak AC
DC Input Impedance	20 kΩ, nominal
Return Loss	>40 dB to 6 MHz, power on >40 dB to 10 MHz (typical) >46 dB to 6 MHz (typical) 35 dB, power off (standard amplitude video)
Crosstalk Between Channels	>60 dB to 6 MHz
Loopthrough Isolation	>70 dB to 6 MHz
DC Offset with Restore Off	<7 mV (typical)
Attenuation	DC Restore 50 Hz and 60 Hz Fast Mode >95% attenuation Slow Mode <10% attenuation, <10% peaking Slow Mode typical peaking 8% at 50 Hz and 60 Hz
Lock Range	±50 ppm remains locked

External Reference

Characteristics	Description
Input Type	Passive loopthrough BNC, 75 Ω compensated
DC Input Impedance	20 kΩ, nominal
Return Loss	>40 dB to 6 MHz, >35 dB to 30 MHz

User Interface

1024 (H) × 768 (V) pixels LCD with FlexVu and backlit buttons.

Analog Composite Waveform Vertical Characteristics

Characteristics	Description
Vertical Measurement Accuracy	±1% all gain settings
Gain	X1, X2, X5, and X10
Frequency Response	Flat to 5.75 MHz, ±1%

Waveform Horizontal Sweep Characteristics

Characteristic	Description
Sweep Timing Accuracy	±0.5%, all rates, fully digital system
Sweep Linearity	0.2% of time displayed on-screen, fully digital system

Power

100 to 240 VAC ±10%, 50/60 Hz.

Physical Characteristics

Dimension	mm	in.
Height	133.4	5.25
Width	215.9	8.5
Depth (front to back including handles and BNCs)	460.4	18.125

Weight	kg	lb.
Net	3.1	6.8

Ordering Information

1741C

4-input Multifunction Waveform Monitor for Analog Component and Composite PAL/NTSC Dual Standard with Vector, SCH, Picture, and other advanced video monitoring functions. The unit provides an integrated XGA Monitor with FlexVu user interface.

Note: Please specify power option when ordering.

Power Options

Option	Description
AC-DC Power Adapter	
A0	North America
A1	Universal EURO
A2	United Kingdom
A3	Australia
A5	Switzerland
A6	Japan
A10	China
A11	India
A12	Brazil
Other	
A99	No power cord or AC adapter

Cabinet and Rackmount Accessories

Accessory	Description
WFM7F02	Portable cabinet with handle, feet, tilt bail, and front-panel cover
WFMRACK-NN	19 inch, 3RU, full-depth, Dual Rack Cabinet that accommodates a combination of one or two 1741C, WFM4xxx, WFM5xxx, WFM6xxx, WFM7xxx, or WFM8xxx Series products
WFMRACK-ON	19 inch, 3RU, full-depth, Dual Rack Cabinet (Old-New) that accommodates a combination of one 1741C, WFM4xxx, WFM5xxx, WFM6xxx, WFM7xxx, or WFM8xxx Series product with an older-style 1700 Series, WFM601, 764 or 760 product
WFM50F06	Filler Panel for Dual Rack Cabinet

Service Options

Option	Description
C3	Calibration Service 3 Years
C5	Calibration Service 5 Years
D1	Calibration Data Report
D3	Calibration Report 3 Years (w/ C3)
D5	Calibration Report 5 Years (w/ C5)
G3	Complete Care 3 Years (includes loaner, scheduled calibration and more)
G5	Complete Care 5 Years (includes loaner, scheduled calibration and more)
R3	Repair Service 3 Years (including warranty)
R5	Repair Service 5 Years (including warranty)
R3DW	Repair Service Coverage 3 Years (includes product warranty period) starts at the time of customer instrument purchase
R5DW	Repair Service Coverage 5 Years (includes product warranty period) starts at the time of customer instrument purchase

CE

Tektronix is registered to ISO 9001 and ISO 14001 by SRI Quality System Registrar.

GPIB
IEEE-488

Product(s) complies with IEEE Standard 488.1-1987, RS-232-C, and with Tektronix Standard Codes and Formats.

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For Further Information. Tektronix maintains a comprehensive, constantly expanding collection of application notes, technical briefs and other resources to help engineers working on the cutting edge of technology. Please visit **www.tektronix.com**

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