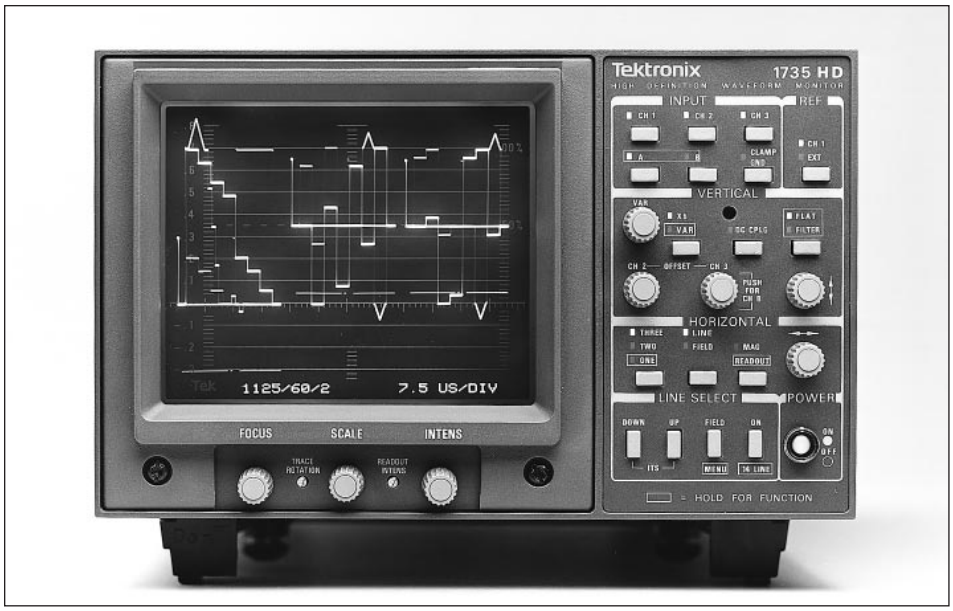
Tektronix

1735 HD
Multi-format High Definition Waveform Monitor



1735 HD Front Panel, 3-Channel display.

HDTV Sweep Speeds

Full 30 MHz Analog Video Bandwidth

Six Video Input Channels

Parade and Overlay Displays

Half Rack Width

Complete Line Select

Accepts Tri-level Sync
On-screen Readouts

The Tektronix 1735 HD is a multi-standard, wide bandwidth, television waveform monitor developed in support of high definition television production formats.

Selectable operating formats

In addition to high definition production formats, the 1735 HD provides monitoring capabilities in 525 line/60 field and 625 line/50 field signal standards. The 1735 HD accepts tri-level or traditional bilevel synchronizing signals.

Multiple, wideband inputs

Six wide-bandwidth input channels are provided for monitoring composite or component signals. New input amplifiers provide flat frequency response and excellent return loss characteristics through 30 MHz.

Input signal processing provides a choice of DC restoration or an unclamped display. Inputs may be referenced to ground. One signal may be displayed in a dual filter mode, with one line or field low pass filtered, and one unfiltered. When two or three different input signals are displayed, the second and third may be offset from the first to allow accurate comparison.

Accurate timing measurements

To facilitate timing measurements in the critical high definition environment, up to three signals may be presented side by side or overlaid. A channel subtraction mode allows timing comparison using the Bowtie signal. Calibrated timing is facilitated by a versatile horizontal magnifier.

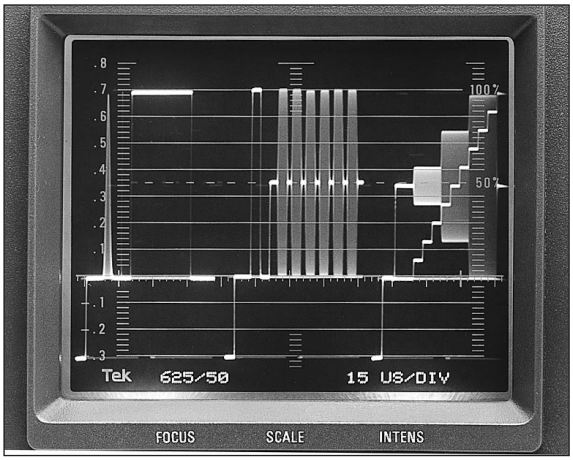
Full line select

Full frame line select, with on-screen readout of line number, is provided in each television line/field format. The line to be displayed may be selected at the front panel and a predefined line may be easily recalled. The selected line is intensified in the field rate display and on the picture monitor output. A companion 1720 Series Vectorscope may be connected to display a vector presentation of a selected line or the full field signal in composite (NTSC or PAL) applications.

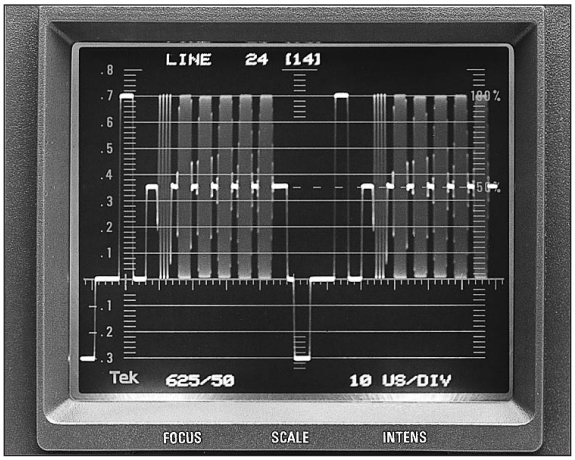
Microprocessor control

The 1735 HD High Definition Waveform Monitor is a microprocessor controlled instrument with a nonvolatile memory. On-screen menus allow selection of operating standard and screen display functions. Four user-defined front panel setups are available through a remote input connector. Also available for remote operation are selection of sweep rates, input channels, and activation of four line/field display. The companion 1720 Series Vectorscope's front panel setup follows the 1735 HD selection for quick recall of desired test and monitoring configurations.

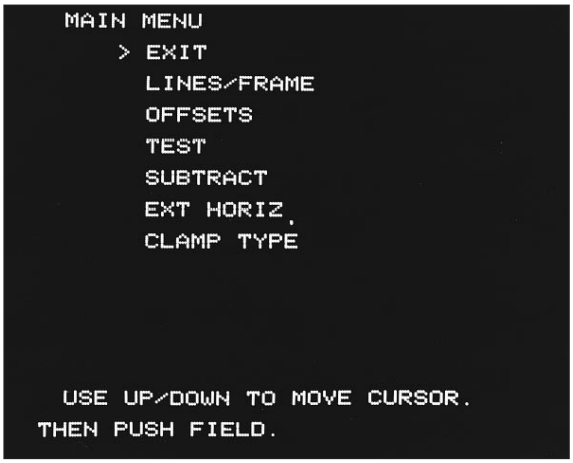
1735 HD Characteristics



Three Line Multiple Input display.



Two Line, Line Select display.



Sweep Standards and Microprocessor Test Routines are Menu Selectable.

SWEEP STANDARDS ARE MENU SELECTABLE

Progressive Rates	Interlaced Rates
312/75/1	525/60/2 (480i NTSC)
312/100/1	625/50/2 (PAL)
312/125/1	875/60/2
525/60/1 (480p SMPTE 293M)	875/60/2BV (block vertical sync)
625/50/1	1023/60/2
750/60/1 (720p SMPTE 296M)	1050/60/2
787/60/1	1112/60/2
1250/60/1	1117/60/2
1250/50/1 (1080p SMPTE 295M)	1118/60/2
	1125/60/2 (1035i or 1080i SMPTE 274M)
	1250/50/2 (1080i SMPTE 295M)

SIGNAL FORMATS

Per sweep standards table, selected by reference to on-screen menu.

SIGNAL INPUTS (VIDEO AND EXTERNAL REFERENCE)

Six video channels. One external reference channel.

Return Loss – >35 dB, 50 kHz to 30 MHz, power on or off.

Input Impedance – >15 kΩ.

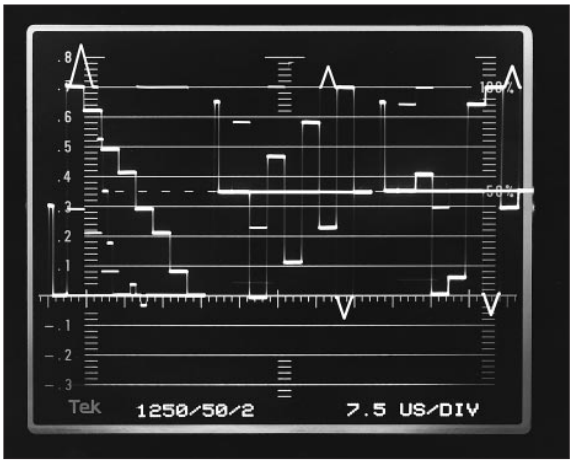
VERTICAL DEFLECTION

Deflection Factor – Within 1% of 1 V.

Variable Gain Range – +5, –20 dB.

Position Range – 1 V signal can be positioned so that peak white and sync tip can be placed at blanking level regardless of gain range. Channels 2 and 3 may be offset from channel 1. Channel group B may be offset from channel group A.

1735 HD Characteristics Continued



Channels 2 and 3 Vertically Offset from Channel 1.

FREQUENCY RESPONSE

Flat – 50 kHz to 30 MHz within 2%.

Filter – >20 dB attenuation at 20 MHz. Response within 1% of flat response at 15 kHz.

TRANSIENT RESPONSE

Overshoot – 1% or less.

Tilt – 1% or less.

DC RESTORATION

Clamp Point – Back porch.

Mains Hum Attenuation – Slow clamp passes >90% of 50 Hz mains hum (0.9 dB atten.). Fast clamp removes >95% of 60 Hz mains hum (26 dB atten.).

Blanking Level Shift with 10% to 90% APL Change – 1% or less.

PICTURE MONITOR OUTPUT

Corresponds to waveform display.

Frequency Response – 50 kHz to 30 MHz within 5%.

Differential Gain – <1% at 4.43 MHz.

Differential Phase – <1% at 4.43 MHz.

DC Level on Output – <0.1 V into 75 Ω load.

Intensification (Brightup) – ≈ 200 mV offset on select lines.

Output Impedance – 75 Ω nominal.

Return Loss – >26 dB 50 kHz to 30 MHz.

Input to Output Gain Ratio – Luminance 1:1 +5% at 15 kHz.

CALIBRATOR

Amplitude – 700 mV, +1%.

HORIZONTAL DEFLECTION SYSTEM

Sweep – Sweep will occur with or without input signal.

Line and Field Sweep Modes, with the Following Characteristics –
One: Displays one complete line or field.
Two: Displays two lines or fields.
Three: Displays sync trailing edge and video of three selected inputs.
Four: Displays sync trailing edge and video of four selected inputs (mode accessed through remote connector).
Line magnification equals ≈ x25 in one and three line modes x10 in two line mode.
Field magnification equals ≈ x20.
Time/div appears on-screen if readout is turned on (in line mode, not field mode).

Timing Accuracy – 1 µs/div within 2%, 0.2 µs/div within 3%.

Linearity – Within 1%.

Differential Linearity – Within 2%.

Sweep Magnification Registration – Magnification occurs about the center of the screen in two line.

Position Range – Any portion of the synchronized video sweep can be positioned on screen in all sweep modes except 1-Line and 1-Field.

SYNCHRONIZATION

Internal or External – 1 V composite video or 300 mV (black to sync tip) sync +6 dB of nominal.

Sync Type – Bi-level or Tri-level.

Remote Sync – TTL level, positive or negative edge, jumper selectable.

CERTIFICATIONS

EMC – Certified to the EMC Directive 89/336/EEC.

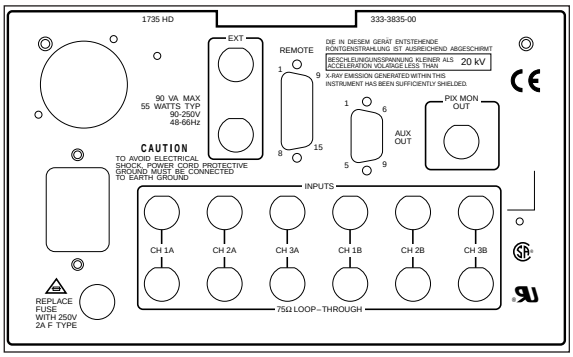
Safety – Approved to: UL1244, CAN/CSA-C22.2 No.231.
Complies with: HD401 S1, IEC 348.

POWER SOURCE

Mains Voltage Ranges – 90-250 V.

Mains Frequency Range – 48-66 Hz.

Power Consumption – 55 W typical



1735 HD rear panel.

ENVIRONMENTAL

Temperature –
Operating: 0°C to 50°C.

Altitude –
Operating: To 15,000 ft.

Transportation – Qualified under NSTA Project 1A-B-1.

PHYSICAL CHARACTERISTICS

Dimensions	mm	in.
Height	133.4	5.25
Width	215.9	8.125
Depth	460.4	18.125

Weight	kg	lb.
	4.7	10.3

Ordering Information

1735 HD

High Definition Television Waveform Monitor.

When ordering, please use the nomenclature given here. The standard instrument is shipped without a case or handle. If your application is for bench or portable use, please order the appropriate enclosure from the optional accessories list. The 1735 HD is a UL-recognized component and meets the requirements for listing when used in the appropriate enclosure.

Optional Accessories

1700F00 – Plain Cabinet (no handle or feet, painted silver grey).

1700F02 – Portable Cabinet (including handle, feet, and front cover, painted silver grey).

Snap-on Protective Front Cover – Order 200-3897-01.

Viewing Hood – Order 016-0475-00.

1700F05 – Side-by-side rack mount, adjustable front panel depth.

1700F06 – Blank half rack width panel.

1700F07 – Utility Drawer.

Measurement Service Options

Opt. C3 – Three years of Calibration Services.

Opt. C5 – Five years of Calibration Services.

Opt. R5 – Repair warranty extended to cover five years.

For further information, contact Tektronix:

Worldwide Web: for the most up-to-date product information visit our web site at: www.tektronix.com

ASEAN Countries (65) 356-3900; **Australia & New Zealand** 61 (2) 9888-0100; **Austria, Central Eastern Europe, Greece, Turkey, Malta,& Cyprus** +43 2236 8092 0; **Belgium** +32 (2) 715 89 70; **Brazil and South America** 55 (11) 3741-8360; **Canada** 1 (800) 661-5625; **Denmark** +45 (44) 850 700; **Finland** +358 (9) 4783 400; **France & North Africa** +33 1 69 86 81 81; **Germany** + 49 (221) 94 77 400; **Hong Kong** (852) 2585-6688; **India** (91) 80-2275577; **Italy** +39 (2) 25086 501; **Japan (Sony/Tektronix Corporation)** 81 (3) 3448-3111; **Mexico, Central America, & Caribbean** 52 (5) 666-6333; **The Netherlands** +31 23 56 95555; **Norway** +47 22 07 07 00; **People's Republic of China** 86 (10) 6235 1230; **Republic of Korea** 82 (2) 528-5299; **South Africa** (27 11)651-5222; **Spain & Portugal** +34 91 372 6000; **Sweden** +46 8 477 65 00; **Switzerland** +41 (41) 729 36 40; **Taiwan** 886 (2) 2722-9622; **United Kingdom & Eire** +44 (0)1628 403300; **USA** 1 (800) 426-2200.

From other areas, contact: Tektronix, Inc. Export Sales, P.O. Box 500, M/S 50-255, Beaverton, Oregon 97077-0001, USA 1 (503) 627-6877.

ISO 9001

4/99 HB/XBS 24W-7166-2

Tektronix