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quantumdata

VIDEO TEST INSTRUMENTS

Generate video signals associated with the design, manufacture and service of computer, consumer, medical, military and other video products. 802BT/R provides single link HDMI 1.1 (shown) and single link DVI out the HDMI connector. Alternatively the 802BT can be equipped with single link DVI and the 802R can be equipped with dual link DVI.



KEY FEATURES + BENEFITS

Management
Update and configure all networked instruments through a graphical management program (VGM) from your computer.

HDMI with DVI support
Single link (up to 165 MHz) HDMI with single link DVI out same connector.

DVI
Dual link DVI up to 330MHz (802R only)
Single link DVI up to 165MHz (802BT/R)

LVDS
Open LDI/FPD-link to 32.5-112/170MHz.

HDCP
Production test keys included with HDMI and DVI signals. Now supports full Dual link DVI HDCP.

Comprehensive timing + patterns
Include extensive library of standard timings and patterns. Add your own custom timings and patterns.

802R/802BT

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APPLICATION TESTS

HDCP	
HDMI and DVI	Authentication and encryption of uncompressed HDMI and DVI signals
HDMI InfoFrames	
HDMI	Verify InfoFrames sent to display
HDMI Pixel Repetition	
HDMI	Test gaming formats with variable horizontal resolution
HDMI Active Format Descriptor (AFD)	
HDMI	Verify HDMI content mapping
HDMI Audio Tests	
Rate	Vary audio sampling rate to test sink handling
Frequency	Vary audio frequency to test sink handling
Amplitude	Vary audio amplitude to test sink handling
EDID Read	
HDMI, DVI, VGA	Auto-configuration of generator format list
Data channels	
Physical	I2C per VESA E-DDC
Protocols	DDC2B, E-DDC & DDC/CI (reads E-EDID Ver 1.3)
EDID Testing	
HDMI, DVI, VGA	Reads EDID from display and presents as displayed image
EDID Compliance Testing	
HDMI	HDMI EDID processing
DV Swing Test	
HDMI, DVI	Vary TMDS digital video signal swing in 4mV increments from 150 to 1560 mVp-p (programmable)
Scrolling Image Test	
All interfaces	Scroll any static image
Special Sync Tool	
Analog video	Trigger scope or inspection camera anywhere in video
Formats and Images	
Standard formats	Over 200 formats for testing IT, CE, military and other display test applications
Custom formats	VGM with graphical format editor
Patterns	
Pattern file types	BMP downloads through USB
Standard patterns	Over 200 standard static and dynamic images included for testing CRTs and FPDs
Custom patterns	VGM with graphical image editor
Internal data storage	15 MB
Test Sequences	Create test sequences with unlimited number of steps; each step defines a video format, image, sync, gating and duration (0.1 sec to 24 hours, or frames)
General Specifications	
Size (mm)	311mm W, 95mm H, 203mm D, 2.27kg
Humidity	30 to 80% RH (non-condensing)
Operating temp.	0 to 40° C
AC Mains	
Frequency	47 to 63 Hz
Voltage	90-264 VAC

Specifications and features are subject to change without notice. Rev. Q.

SPECIFICATION

802R/802BT

HDMI (if selected, DVI and LVDS interface cannot be added)	
Connector	One HDMI Type A
TMDS	Single (165 MHz)
Video	
TMDS protocols	DVI 1.0 and HDMI 1.1
Encoding	RGB or YCbCr (only RGB in DVI mode)
Sampling modes	4:4:4 or 4:2:2 (only 4:4:4 in DVI mode)
Clocks per pixel	1 or 2
Pixel repetition	1 to 10 using interactive test image
TMDS differential swing	150-1560 mVp-p (programmable)
Quantization modes	Full w/optional gamma correction ITU-R BT.709-5 Part 1, Sec 6.10 SMPTE 296M Sec 7.12 under/overshoot
Colorimetry	Legacy HDTV SMPTE 260M-1999 Table 1, ITU-R BT.601-5 Sec 3.5.1 and ITU-R BT.709-5 Sec 4.2-1125
Content fitting methods	All AFD cases (Shoot & Protect, Overscan,Under-scan, Letterbox/Pillarbox, Anamorphic Squeeze)
Aspect ratio	
Content	4:3, 14:9, 16:9
Embedded	4:3, 16:9
Format (coded)	4:3, 16:9
Format timings	All EIA/CEA-861-B formats All E-EDID sink-requested < 81 MHz
Data (island) packet generator types	General control packet, audio samples, ACR data, InfoFrames, null frame
InfoFrame types generated	AVI, SPD, AUD, MPG, GIF (generic)
Audio	
Streams	4
Channels	8
Bits per sample	16, 20, 24
Sampling rates	32.0, 44.1, 48, 88.2, 96.0, 176.4, 192 kHz
Stream type	IEC 60958-3 Consumer LPCM (IEC61937 possible with external source)
Audio content	FL and FR
Mixer mux	Sinewave or external audio
Embedded sonic data generator	
Channels	8
Waveform	Sinewave
Amplitude	-96.3 to 0.0 dBFS
Frequency Change	20 Hz to 20 kHz
Controls	Mute, amplitude, frequency
External audio interface	
Type	SPDIF input (coaxial)
Amplitude	As received
Connector	VGA w/special SPDIF I/O
Cable	75 ohm special VGA-to-RCA
DVI (if selected, HDMI and LVDS interface cannot be added)	
Connector	DVI dual link (R only)
Links	Single link or dual link up to 25-330MHz
TMDS protocols	DM 1.0
Encoding	RGB (4:4:4 with 8-bits/component)
TMDS differential swing	150-1560 mVp-p (programmable)
LVDS (if selected, HDMI and DVI interface cannot be added)	
Connector	MDR-36
Pixel Clock Rates	Dual pixel mode: 32.5MHz to 112MHz Single pixel mode: 32.5MHz to 170MHz
Analog Composite	
Connectors	CVBS (BNC) and S-Video
Encoding	NTSC and PAL
Sample rate	24.55-29.50 MHz
Pixel rate	12.27-14.75 MHz
Pixel aspect ratio	Standard or square
Video Swing	700 mV default, adjustable 0 - 1000 mV
Sync Swing	300 mV default, adjustable 0 - 400 mV
Calibration	1000 mVp-p fixed w/programmable self-calibration w/ internal reference

Analog Component (included with analog video option)	
Connector	VGA
Color encoding	RGB, YPbPr (unfiltered)
Video levels	
Video swing	0-1000 mV
Sync swing	0-400 mV (bi-level), 0-800 (tri-level)
Video setup	0-100 IRE
Calibration	Self-calibration with internal reference
Protection	Buffered with 75 ohm isolation
Internal data storage	15 MB
Digital Sync	
Outputs	HS, VS and Special Sync
Swing	> 2V fixed into 75 ohm
Pixel Clock	
Frequency range	
Analog component	3.9975-400 MHz (R) - 200Mhz(BT)
HDMI	25-165 MHz (single-link)
DVI	25-165 MHz (single-link) 25-330 MHz (dual-link)
Step	Less than 0.1 Hz
Accuracy	50 ppm (electronically adjustable to < 5 ppm with external frequency counter)
Horizontal Timing	
Frequency range (kHz)	
Analog component	8-1000
Analog composite	15.734 or 15.625
HDMI / DVI	8-1000
Total pixels (max)	65,535
Active pixels (max)	4096
Blank pixels (min)	
Analog component	0
HDMI	138 (worst case)
DVI	128
Step pixels	
Analog component	1 (2 above 165 MHz)
HDMI	1
DVI	1
Vertical Timing	
Frequency range	1-650 Hz
Total lines (max)	4095 progressive, 8193 interlaced and segmented
Active lines (max)	4096
Blank lines (min)	1 to Total-1
Step lines	1
Scan types	Progressive, interfaced, segmented
Composite sync types	ORed, Serrated, Serrated and Equalized, Tri-level
Video Memory	
Configuration	4096 x 4096 x 8-bit indexed color 2048 x 2048 x 24-bit TrueColor
Color depth	32 (24-bit TrueColor) up to 100 MHz for 802R-400; up to 82.5MHz for 802BT/R-300 8 bits up to 200, 300 or 400 MHz
Administration	
Physical user interface (selection knobs and keys with LCD display)	
Control interfaces	RS-232 serial, USB, GPIB
Create custom Microsoft Windows-based applications using Quantum Data SDK (includes API documentation, sample application & source)	
USB port	Download bitmap image files
PCMCIA slot	Backup settings, transfer settings from one generator to another, and store bitmap images for rapid recall using standard SRMA card.

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