CVM-306
Compact Multiformat Signal Analyzer

The Videotek® CVM-306 multiformat signal analyzer boasts integrated video and audio signal monitoring in an affordable, compact package. With a robust feature set and space-saving design, the CVM-306 allows even the most modest installation to benefit from high-end monitoring and a professional look.

Three versions of the CVM-306 are available: SD, HD/SD and 3G/HD/SD. Both the SD and HD/SD versions are upgradeable to 3 Gb/s. All three units possess two SDI inputs, and selectable waveform, vector, gamut, timing and full-screen picture display. You can meter all 16 channels of embedded audio or the one AES input, with integrated speakers that can monitor any two selected channels. You can also customize the integrated LCD display with independent sizing and positioning of waveform, vector and picture, or select from the following quad displays:

- Waveform or timing
- Vector or gamut
- Audio, alarm pane or alarm status
- Picture

The 3RU CVM-306 chassis is less than seven inches deep and integrates easily with today’s consoles. An 11-17 VDC power input comes standard, and low power consumption allows the use of convection cooling for silent operation.

FEATURES
- Available in SD, HD/SD or 3G/HD/SD versions
- SD can be upgraded to HD/SD or 3G/HD/SD
- HD/SD can be upgraded to 3G/HD/SD
- Metering of all 16 channels of embedded audio
- Speaker output of two selected channels with dedicated volume control
- Two active looping SDI inputs
- One AES audio input
- Thumbnail picture with adjustable size and position
- DVI-D external display output
- Waveform display of external reference or LTC input
- LCD display with independent sizing and positioning of waveform, vector and picture
- Selectable quad display with waveform or timing, vector or gamut, audio or alarms, and picture
- Standard four-pin XLR DC power input (AC adapter supplied)
- Convection-cooled, silent operation (no fan)
- Front-panel headphone jack
- Front-panel USB port for save/recall of presets, screen captures and SDI captures
- 99 presets

SPECIFICATIONS
Specifications are subject to change without notice.

Inputs
Input Type ...................... 2 active looping inputs
Input Connector Type ........ BNC, female
Input Impedance .............. 75 ohms, nominal
Signal Source Amplitude .... 800 mV, nominal
Signal Source DC Offset ...... ±0.5 VDC

SD-SDI Input Characteristics
Input Return Loss ........... ≤-25 dB (5 to 270 MHz)
Cable EQ .................. ≥984 ft (300 m), Belden 8281

HD-SDI Input Characteristics
Input Return Loss .......... ≤-15 dB (5 to 1.485 GHz)
Cable EQ .................. ≥328 ft (100 m), Belden 8281

3G-SDI Input Characteristics
Input Return Loss ......... ≤-10 dB (1.485 to 2.97 GHz)
Cable EQ .................. ≥262 ft (80 m), Belden 1694A

SDI Output Characteristics
Output Connector Type ........ BNC, female
Output Impedance .......... 75 ohms
Output Return Loss ........ ≤-15 dB (5 MHz to 1.485 GHz)
Output Return Loss ........ ≤-10 dB (1.485 to 2.97 GHz)
Output Signal Level ......... 800 mV ±10%
Output DC Offset ........... 0 V ±0.5 V

Analog Monitoring Output (Headphone)
Number/Connector .......... 1 stereo headphone jack, 1/8 in. (3.5 mm)
Load Impedance .............. 16 ohms, nominal
Maximum Output Level ...... 44 mW RMS
Total Harmonic Distortion and Noise (THD+N)
Level Adjustment .......... From maximum output level to 0 mV with front panel control
Source ................... Any audio input pair may be selected to appear on the headphone output
## CVM-306

**Compact Multiformat Signal Analyzer**

### Analog Monitoring Output (Speakers)
- **Load Impedance**: 8 ohms nominal
- **Maximum Acoustic Output Level**: 96 dB SPL at 2 ft, 997 Hz sine wave into left and right speaker
- **Level Adjustment**: From maximum output level to ambient with front-panel control
- **Source**: Any audio input pair may be selected to appear on the headphone output
  - EMB 3 Gb/s-SDI, EMB HD-SDI, EMB SD-SDI or AES

### Analog Monitoring Output (Line Out)
- **Number/Connector**: 1 x 6-pin connector
- **Load Impedance**: 1 K ohms minimum
- **Maximum Output Level**: 2 V pk-pk, ±10% 0 dBFS, 997 Hz sine with digital audio input of 0 dBFS
- **Analog Output Frequency**: ±1 dB 20 Hz to 18 kHz
- **Response with Digital Inputs**: 997 Hz; noise measurement 22 Hz to 22 kHz; A-weighted
- **Analog Output SNR Response**: >80 dB relative to 2 V pk-pk; measured at 997 Hz; noise measurement 22 Hz to 22 kHz; A-weighted
- **Analog Output THD and Noise**: 0.1%; measured at +20 dB output, 997 Hz sine into a hi-Z load; Filter: 22 Hz to 22 kHz; AES 1/2
- **Crossstalk (stereo separation)**: ≤-80 dB @ 0 dBFS, 997 Hz, sine; adjacent channels only

### External Reference Input
- **Input Connector Type**: BNC, female
- **Input Type**: Passive looping
- **Input Impedance**: 75 ohms nominal
- **Blackburst Input Amplitude**: NTSC: sync and burst 286 mV nominal
  - PAL: sync and burst 300 mV nominal
- **Blackburst Input Amplitude Tolerance**: ±6 dB
- **Tri-level Sync Amplitude**: 600 mV pk-pk
- **Tri-level Sync Amplitude Tolerance**: ±3 dB
- **Return Loss**: ≤-40 dB (100 kHz to 5 MHz)

### Digital Audio Input
- **Audio Formats**: AES/EBU, embedded
- **AES Input Connector Type**: 1 BNC, female
- **AES Input Impedance**: 75 ohms nominal
- **AES Input Return Loss**: >25 dB, 0.1 to 6 MHz
- **AES Input Level**: 0.2 to 2 V
- **Input Sample Rate**: AES, 32 kHz, 44.1 kHz, 48 kHz, 88.2 kHz, 96 kHz
  - (Internal sample rate converted to 48 kHz)

### DVI Output
- **Output Connector**: DVI-I connector supporting DVI-D
- **Output Resolution**: 1024x768 (XGA)
- **H-Sync Rate**: 48.363 Hz ±1%
- **V-Sync Rate**: 60.004 Hz ±1%

### Communication Interfaces
- **Ethernet Port**: 1 Ethernet port, RJ-45 connector, 10/100Base-T
- **USB**: 1 USB 2.0 host port, USB type A receptacle
- **LTC/GPIO**: 1 LTC/GPIO connector 15-pin, female, D-sub
- **LTC**: Nominal input amplitude: 2 V pk-pk
- **General Purpose Inputs**: Input impedance: 10 k ohms returned to +3.3 VDC
- **General Purpose Output**: Relay closure

### Waveform/Vector Display — SDI Inputs
- **Line-Select**
- **Waveform Formats**: YCbCr, RGB, YRGB, YCbCr + Alpha, RGB + Alpha; SDI as composite
- **Sweep Rates**: 1 H, 2 H; 1 V, 2 V
- **Sweep Magnification**: x1, x5, x10
- **Waveform/Vector Gain**: Fixed: steps of 1 x, 2.5 x, 5 x
  - Variable: 0.5 x to 15 x in 0.01 steps

### Waveform Display — External Reference and LTC
- **Waveform Amplitude Accuracy**: ±5%
- **Waveform Frequency Response**: 25 Hz to 4.5 MHz within ±5% of amplitude at 50 kHz

### Power Requirements
- **Power connector**: 15 VDC nominal
- **Power consumption**: 40 W nominal
- **Over-voltage protection**: ±50 VDC nominal

### Mechanical
- **Dimensions (H X W X D)**: 5.22 x 18.94 x 6.47 in.
  - (13.26 x 48.11 x 16.43 cm)
- **Weight**: 6.15 lbs (2.79 kg)

### Environmental
- **Operating temperature**: 32° to 122° F (0° to 50° C)
- **Storage temperature**: 22° to 149° F (-30° to 65° C)
- **Humidity (non-condensing)**: Operating: 20% to 80%
  - Non-operating: 5% to 90%
- **Transportation**: 24 in. (9.5 cm) impact-drop survivable in original factory packaging
- **Operating Altitude**: 6562 ft (2000 m)
- **Pollution Degree**: 2

### Ordering Information
- **CVM-306-S**: CVM series compact video monitor/multiformat signal analyzer with integral LCD and speakers, SD-SDI, 3RU, upgradeable to HD-SDI or HD and 3G-SDI
- **CVM-306**: CVM series compact video monitor/multiformat signal analyzer with integral LCD and speakers, SD and HD-SDI, 3RU, upgradeable to 3G-SDI
- **CVM-306-3GB**: CVM series compact video monitor/multiformat signal analyzer with integral LCD and speakers, SD and HD and 3G-SDI, 3RU
- **CMN-S23GB-F**: Upgrade CMN-41-S, CMN-91-S or CVM-306-S to support HD and 3G-SDI, field upgrade
- **CMN-S2H-F**: Upgrade CMN-41-S, CMN-91-S or CVM-306-S to support HD-SDI, field upgrade
- **CMN-H23GB-F**: Upgrade CMN-41, CMN-91 or CVM-306 to support 3G-SDI, field upgrade

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**Harris Corporation**

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NA +1 800 231 9673 • CALA +1 786 437 1960 • EA +44 118 964 8200 • MESA +971 4 433 8250 • APAC +852 2776 0628

www.broadcast.harris.com