# Videotek® CMN-91-3GB

**Multiformat Signal Analyzer**

The CMN-91-3GB multiformat signal analyzer with integral LCD is the smallest solution on the market for efficient video and audio signal monitoring. The CMN-91-3GB tests signal quality across all DTV formats up to 3 Gb/s. It possesses two triple-rate SDI inputs and provides selectable waveform, vector, gamut, timing and picture full-screen display.

With the CMN-91-3GB you can meter all 16 channels of embedded audio or one AES input. You can also view the waveform of the composite or tri-level external reference to verify signal integrity and customize the MLT display with independent size and position of waveform, vector and picture.

## Features

- Dual looping 3G/HD/SD inputs standard
- Existing SD and HD/SD units can be upgraded to 3G/HD/SD
- Metering of all 16 channels of embedded audio
- One AES audio input
- Quad display of audio, picture, waveform and vector
- Thumbnail picture with adjustable size and position
- 608, 708 closed-caption detect, alarm, display
- Teletext detect, alarm, display
- OP-47 HD subtitle display
- Waveform display of external reference or LTC input
- Overlay display with independent size and position of waveform, vector and picture
- DVI-D external display output
- 99 presets
- 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
- Dual rackmount option
- Portable case with handle and tripod mount option
- SNMP alarming and monitoring

## Specifications

*Specifications and designs 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 | |
|---|---|
| Input Return Loss | ≤-25 dB (5 to 270 MHz) |
| Cable EQ | ≥300 M, Belden 8281 |

| HD-SDI INPUT | |
|---|---|
| Input Return Loss | ≤-15 dB (5 to 1.485 GHz) |
| Cable EQ | ≥100 M, Belden 8281 |

| 3 GB/S SDI INPUT | |
|---|---|
| Input Return Loss | ≤-10 dB (1.485 to 2.97 GHz) |
| Cable EQ | ≥80 M, Belden 1694A |

| EXTERNAL REFERENCE INPUT | |
|---|---|
| Input Type | Passive looping |
| Input Connector Type | BNC female |
| Input Impedance | 75 ohms nominal |
| Blackburst Input Amplitude | NTSC: sync and burst 286 mV nominal<br>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 |

| 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<br>(internally sample rate converted to 48 kHz) |

| SDI OUTPUT | |
|---|---|
| Output Connector Type | BNC female |
| Output Impedance | 75 ohms |
| Output Return Loss | ≤-15 dB (5 MHz to 1.485 GHz)<br>≤-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 | One 1/8 in (3.5 mm) headphone jack |
| Load Impedance | 16 ohms nominal |
| Maximum Output Level | 44 mW RMS |
| Total Harmonic Distortion + Noise (THD+N) | ≤-65 dB |
| 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 |

| 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 | 1 Ethernet Port, RJ45 connector, 10/100Base-T |
| USB | 1 USB 2.0 Host Port (except CMN-41L) |
| LTC/GPIO | 1 LTC/GPIO connector 15-pin female D-sub |
| LTC | Nominal input amplitude: 2 V pk-pk |
| 4 General Purpose Inputs | Input impedance: 10 K ohms returned to +3.3 VDC |
| 1 General Purpose Output | Relay closure |

| WAVEFORM/VECTOR DISPLAY – SDI INPUTS | |
|---|---|
| General | A full-screen display for viewing an input as picture, waveform, vector, audio, alarm status, or timing |
| Waveform | Composite; $YC_BC_R$ or RGB, parade/overlay of like formats |
| Sweep Time Base | 1 or 2H with x1, x5, and x10 horizontal magnification<br>1 or 2 V with x1, x5, and x25 horizontal magnification |
| Waveform Accuracy | ≤±0.5% |
| Vector | $C_B$ vs. $C_R$ for HD or SD |
| Vector Accuracy | ≤1° |
| Gamut | Encoded or RGB gamut displays with upper and lower limit selection |
| Audio | 2, 4, 6, 8, or 16-channels displayed simultaneously |

| 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<br>11 VDC minimum<br>17 VDC maximum |
| Power Consumption | 20 W nominal |
| Over-Voltage Protection | ±50 VDC nominal |

| CAPTIONING | |
|---|---|
| CC608 | EIA/CEA-608-E |
| CC708/DTVCC | EIA/CEA-708-D |
| Teletext | EN 300 706 Presentation Level 1 teletext and subtitles |
| HD Teletext | OP-47 delivery of EN 300 706 teletext and subtitles |

| MECHANICAL | |
|---|---|
| Dimensions (H X W X D) | 5.22 x 8.46 x 5.8 in. (13.26 x 21.49 x 14.73 cm) |
| Weight | 5.0 lbs (2.27 kg) |
| Battery Mount (optional) | Anton-Bauer gold-mount battery bracket with inter active connection<br>IDX V-mount battery mount with Digi-View connection |

| 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%<br>Non-operating: 5% to 90% |
| Transportation | 24 in. (9.5 cm) impact-drop survivable in original factory packaging |
| Altitude | 6562 ft (2000 m) |
| Pollution Degree | 2 |

## Ordering Information

| | |
|---|---|
| CMN-91-3GB | Compact Monitor Series multiformat signal analyzer with integral LCD, 3G/HD/SD-SDI, 3RU, half rack |
| CMN-H23GB-F | Upgrade CMN-41 or CMN-91 to support 3 Gb/s, field upgrade |
| CMN-S23GB-F | Upgrade CMN-41-S or CMN-91-S to support HD and 3 Gb/s, field upgrade |
| CMN-S2H-F | Upgrade CMN-41-S or CMN-91-S to support HD, field upgrade |
| BLK-1 | Blank panel for DRC-1, DRC-2, DRC-2A or DRC-3 |
| DRC-3 | Double rackmount case for CMN-91, use BLK-1 to fill unused space if needed |
| PTC-3A | Portable case with handle and tilt bail for CMN-91 and CMN-LA |

## Images/Diagrams

### Back Panel