Videotek® CMN-LA

Loudness Analyzer

Part of the Videotek® Compact Monitor Series, the Videotek® CMN-LA loudness analyzer is a comprehensive audio monitoring tool that makes it easy to confirm compliance with the latest loudness requirements. Loudness and true peak measurements are made to the ITU-R BS.1770-3 standard with five times oversampling. Built-in modes offer quick setup to ARIB TR-B32, ATSC A/85 or EBU R 128 recommendations. Up to five days of loudness data are stored internally and easily retrieved through the USB port or internal web server. Metering of up to 16 channels simultaneously makes for rapid alignment checks.

Integated into the CMN-LA is the TC Electronic® loudness radar meter, which shows loudness on short-terms meters, graphs covering periods from one minute to 24 hours, and numeric display of the long-term center of gravity (average loudness) and consistency (loudness range). The flexible display of the CMN-LA presents data in a format most useful for the job at hand. Use the integrated TC Electronic® loudness radar meter during production, the audio status display during program ingest, and the combination of loudness and true peak meters, numeric display and trend chart for master control monitoring. The chart data can be exported for compliance reporting. Adjustable audio output delay compensates for video monitor processing in critical evaluation suites.

Short mounting depth makes the CMN-LA loudness analyzer ideal in a QC monitoring rack or on the meter bridge of an audio console.

Features

- Loudness measurement to ITU-R BS.1770-3
- True peak measurement to ITU-R BS.1770-3 with five times oversampling
- Integrated TC Electronic® loudness radar display
- Trend chart of levels (15 seconds to 24 hours)
- Export values to a PC
- Audio status display of clips, mutes, average, high and low levels
- Meter up to 16 channels
- Alarms for levels, status and Dolby® metadata
- Two triple rate SDI inputs
- Optional eight AES inputs
- Optional Four AES and eight analog outputs
- Adjustable output delay
- Optional Dolby® AC3 and E decoding (requires AES I/O option)

Details

The basic CMN-LA unit operates with 3G/HD/SD-SDI embedded audio sources, with a hardware option for eight AES inputs, four AES outputs and eight analog outputs. The analog outputs are meant to drive high impedance loads.

Dolby® decoding is a hardware option available at the time of order, or for field installation. The Dolby® decoder requires the AES I/O option. The AES option also includes an LTC input for time stamping of log entries.

The CMN-LA also includes internal speakers and a front-panel headphone jack for source confirmation. A mixdown mode can be applied to the headphone output when using discreet sources. The mixdown parameters are taken from VANC medatada if present, otherwise internal menu settings are used.

Specifications

Specifications and designs are subject to change without notice

DIGITAL AUDIO INPUT	
Audio Formats	AES/EBU (optional), embedded audio
AES Input Connector Type	8 BNC female
AES Input Impedance	75 ohms nominal
AES Input Return Loss	≥25 dB, 0.1 to 6 MHz (unbalanced)
AES Input Level	0.2 to 2 V
AES Input Sample Rate	32 kHz, 44.1 kHz, 48 kHz, 88.2 kHz, 96 kHz (audio inputs are sample rate converted to 48 kHz)
Meter accuracy over frequency	$\pm$0.1 dB from 20 Hz to 19 kHz with 0 to -40 dBFS sine wave input, except for within 7 Hz of some submultiples of the 240 kHz oversampling frequency

DIGITAL AUDIO OUTPUT	
AES Outputs (optional)	AES outputs are derived from embedded, AES, or Dolby® audio inputs
AES Output Connector Type	4 BNC female
AES Output Impedance	75 ohms nominal
AES Output Return Loss	≥25 dB, 0.1 to 6 MHz (unbalanced)

ANALOG AUDIO	
Analog Output Frequency Response with Digital Inputs	$\pm$0.1 dB
Analog Output SNR with Digital Inputs	≥100 dB
Analog Output THD and Noise With Digital Inputs	.02%
Crosstalk	≤-80 dB

3G-SDI INPUT	
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	$\pm$0.5 V
Input Return Loss	≤-10 dB, 1.485 to 2.97 GHz
Cable EQ	≥80 m, Belden 1694A

HD-SDI INPUT	
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	$\pm$0.5 V
Input Return Loss	≤-15 dB, 270 MHz to 1.485 GHz
Cable EQ	≥100 m, Belden 8281

SD-SDI INPUT

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 V
Input Return Loss	≤-25 dB, 5 to 270 MHz
Cable EQ	≥300 m, Belden 8281

3G/HD/SD-SDI OUTPUT

Output Impedance	75 ohms
Output Return Loss	≤-15 dB, 5 MHz to 1.485 GHz
Output Return Loss	≤-10 dB, 1.485 to 3 GHz
Output Signal Level	800 mV ±10%
Output DC Offset	0 V ±0.5 V

DVI OUTPUT

Output Connector	DVI-I connector supporting DVI-D
Output Resolution	1024×768 (XGA)
Digital Levels	Per DDWG DVI rev 1
Pixel Rate	65 Mp/s

ANALOG MONITORING OUTPUT (HEADPHONE)

Number/Connector	1 stereo output, 1x 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

CONTROL (OPTIONAL)

GPI	4 total with 2 input and 2 preset recall selections or individually user configured as alarm input
GPO	1 alarm, user configured
Connector	15-pin HD (high-density) D-sub, female
Input Impedance	10 k ohms returned to +3.3 VDC
Alarm Output	Relay closure
Maximum Relay Current	100 mA @ 50 VDC
Peripheral Interface	USB 2.0 supporting storage devices
Connector	USB 2.0, Type A, female

TIMECODE

Input	(Optional) LTC via back-panel connector Ancillary timecode (HD only) DVITC extracted from SD inputs

COMMUNICATION INTERFACES

Ethernet	1 Ethernet port, RJ45 connector, 10/100Base-T
USB	1 USB 2.0 host port
LTC/GPIO	1 LTC/GPIO connector 15-pin female D-sub (optional)

ETHERNET

Standard	10/100Base-T conforms to IEEE802.3
Connector	RJ45
Performance Metric	Transfer a captured frame to a PC in 30 sec, dedicated LAN

POWER REQUIREMENTS

Power Connector	15 VDC nominal 11 VDC minimum, 17 VDC maximum
Power Consumption	25 W nominal
Over-Voltage Protection	$\pm$50 VDC nominal

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 lbs (2.27 kg)

ENVIRONMENTAL

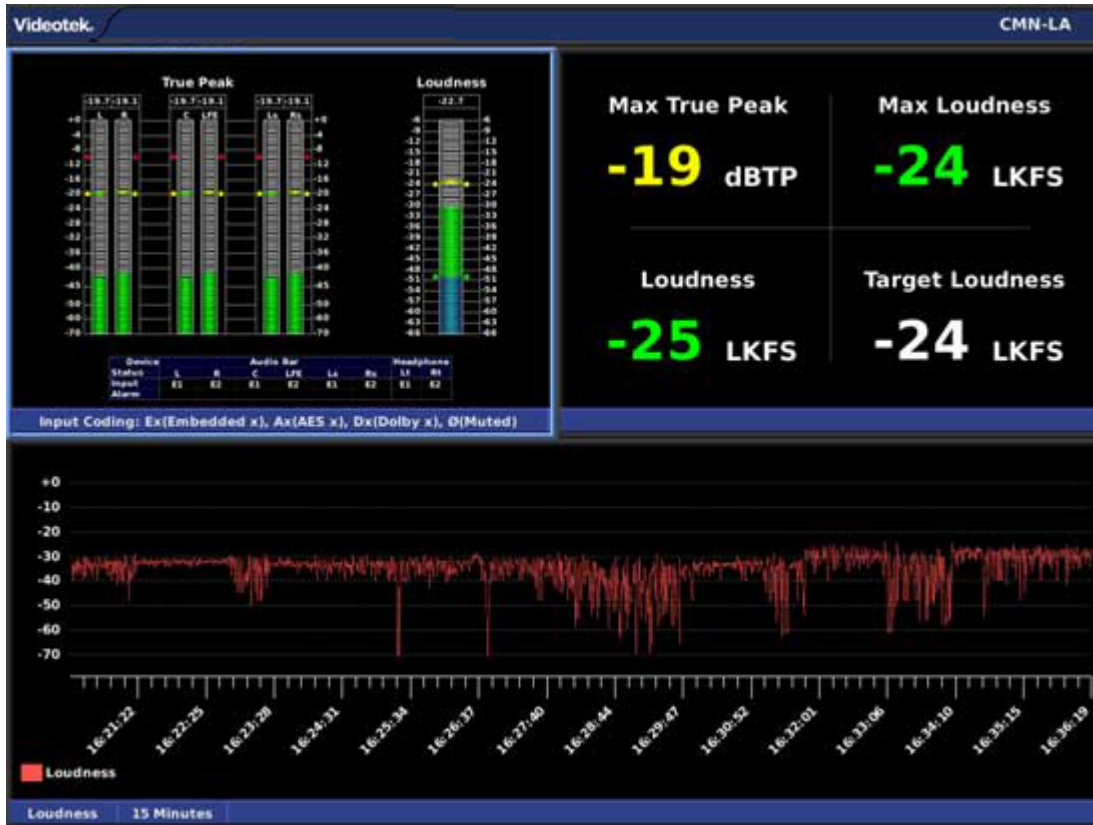|	
Operating Temperature	32° to 122° F (0° to 50° C)
Storage Temperature	-22° to 149° F (-30° to 65° C)
Humidity (non-condensing)	Operating: 20% to 80% Non-operating: 5% to 90%
Transportation	24 in. (9.5 cm) impact-drop survivable in original factory packaging
Altitude	6562 ft (2000 m)
Pollution Degree	2
Standard Accessories	Installation and operation handbook on CD Breakout connector for LTC/GPI 1 power cord 1 power supply assembly

Ordering Information

CMN-LA	Compact Monitor Series loudness analyzer with 2 SD/HD/3G SDI inputs; metering of up to 16 channels of embedded audio, ITU BS.1770-3 loudness measurement, TC Electronic radar display, trending chart and logging
CMN-LA-OPT-AES-F	AES I/O option for the CMN-LA; adds 8 AES inputs and 4 AES/8 analog outputs along with LTC input and GPIO to the CMN-LA, field install
CMN-LA-OPT-DLB-F	Dolby® decode option for the CMN-LA; adds decoding and metadata readout of Dolby® Digital (AC3) and Dolby® E streams; requires CMN-LA-OPT-AES option, field install
PTC-3A	Portable case with handle and tilt bail
DRC-3	Dual rackmount adapter; mount 1 or 2 CMN-LA or CMN-91 in a 19 in. (48.2 cm) equipment rack. 3RU high
BLK-1	Blank panel for unused side of a DRC-3

Images/Diagrams

Audio Status

Quad Loudness

Back Panel