



The Videotek® LLM-1770 loudness logger and monitor is a compact 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 standard with five times oversampling.

Settings are included that match the EBU R-128 and ATSC A/85 recommendations. Internal memory stores five days of loudness and alarm data. Logs can be exported via Ethernet or USB. Remote control and monitoring can be performed from any Web browser.

The LLM-1770 comes with four AES inputs and has an option for SDI embedded from SD, HD or 3 Gb/s sources. There is a headphone jack for local confidence monitoring.

### SPECIFICATIONS

Specifications are subject to change without notice.

#### Digital Audio Input

Audio Formats	AES, embedded audio (optional)
AES Input Connector Type	4 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
	<b>Note:</b> audio inputs are sample rate converted to 48 kHz
Meter Accuracy Over Frequency	±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

#### 3G-SDI Input

Input Type	1 active looping input
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	≤-10 dB, 1.485 to 2.97 GHz
Cable EQ	≥80 m, Belden 1694A

#### HD-SDI Input

Input Type	1 active looping input
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	≤-15 dB, 270 MHz to 1.485 GHz
Cable EQ	≥100 m, Belden 8281

### FEATURES

- Loudness measurement to ITU-R BS.1770
- True peak measurement to ITU-R BS.1770 with five times oversampling
- Configurations for EBU R-128 and ATSC A/85
- Internal data storage for five days of loudness and alarms
- Export values to a PC via Ethernet or USB
- Front-panel display of critical values
- Simultaneous monitoring of surround and stereo
- Alarms for levels, loudness and timecode
- Four AES inputs
- Optional SDI input
- Headphone output
- LTC input for time stamps
- Remote control and monitoring via Web browser

#### SD-SDI Input

Input Type	1 active looping input
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

#### Analog Monitoring Output (Headphone)

Number/Connector	1 stereo output, 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

GPI	4 total user-configured
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, and keyboard
Connector	USB 2.0, type A, female

# LLM-1770

## Loudness Logger and Monitor

### Timecode

Input . . . . . LTC via back-panel connector

### Communication Interfaces

Ethernet . . . . . 1 Ethernet port RJ-45 10/100Base-T connector

USB . . . . . 1 USB 2.0 host port

LTC/GPIO . . . . . 1 LTC/GPIO connector 15-pin female D-sub

### Ethernet

Standard . . . . . 10/100Base-T conforms to IEEE802.3

Connector . . . . . RJ-45

### 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

### Standard Accessories

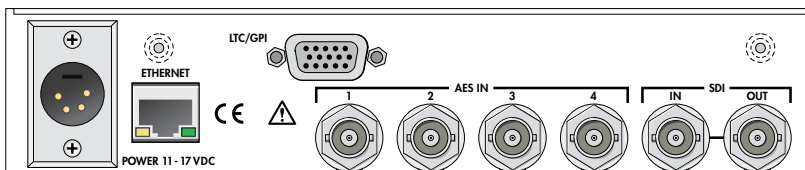
Installation and operation handbook on CD Breakout connector for LTC/GPI

1 power cord

1 power supply assembly

## IMAGES/DIAGRAMS

### Back Panel



## ORDERING INFORMATION

### OPTIONS

LLM-1770 . . . . . Loudness logger and monitor with 4 AES inputs, headphone output

LLM-OPT-SDI . . . . . SD-SDI input option for the LLM-1770; adds embedded audio from SD, HD or 3 Gb/s SDI sources

DRT-4 . . . . . Dual rackmount adapter; mount 1 or 2 LLM-1770, CMN-41, CMN-MV in a 19 in. (48.2 cm) equipment rack, 1RU high

BLK-4 . . . . . Blank panel for unused side of a DRT-4

PTC-4 . . . . . Desktop case with tilt bail