

# LLM-1770

## Loudness Loggers



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 and . . . . .	≤-65 dB
Noise (THD+N)	

#### 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

