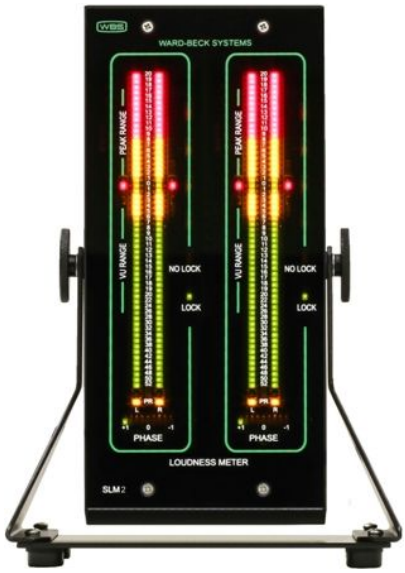
SLM SERIES

STEREO LOUDNESS METER



by Ward-Beck Systems

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SLM SERIES
STEREO LOUDNESS METERS

The SLM series loudness meters are portable desktop units that display the average (VU) and peak content of an audio signal simultaneously. The meter includes a pair of "sticky" peak LEDs (for each stereo pair) that may be set to display peaks that exceed a preset limit, a phase correlation meter and status LEDs to display lock to signal or error.

The SLM meters are available in models that may be used to monitor either analog or AES digital audio signals. The meter packages that are offered includes the SLM1 a stereo meter pair, the SLM2 a dual stereo meter pair and the SLM4A quad stereo meter pair. Each stereo pair in the SLM1 and SLM2 has its' own seven segment LED phase indicator. The SLM4 has an expanded (28 segment) LED phase indicator that may selectively be assigned to any one of the four meter pairs. SLM meters may be ordered as "A" versions for analog audio or "D" versions for AES audio, specify requirement for balanced (110 Ohm) or unbalanced (75 Ohm) AES digital audio inputs.

Analog Audio Versions

1) SLM-1A Stereo Loudness Meter - 1 Stereo analog audio input
2) SLM-2A Stereo Loudness Meter - 2 Stereo analog audio inputs
4) SLM-4A Stereo Loudness Meter - 2 Stereo analog audio inputs

AES/EBU Digital Audio Versions

1) SLM-1D Stereo Loudness Meter - 1 AES/EBU Digital audio input
2) SLM-2D Stereo Loudness Meter - 2 AES/EBU Digital audio inputs

Each SLM-1 and SLM-2 stereo bargraph indicator comprises a dual set of 57 LEDs with VU and PPM activity areas clearly defined. The SLM-4A bargraph comprises a quad set of 41 LEDs. The units are mounted in a table top swivel stand for vertical viewing. The SLM meters are powered by a 6 Volt AC adapter .

A rear panel dip switch array allows for configuration of various parameters such as meter ballistics and calibration levels of the SLM meters, please refer to the DIP SWITCH SETTINGS table in this manual. Connections to the SLM meters are made via pluggable 3-pin screw terminals when connecting analog or balanced AES signals or via BNC connectors when connecting unbalanced AES signals. If a viable AES signal is connected to the SLM the "LOCK" status LED will illuminate. If the signal is lost or corrupted the "ERROR" status LED will illuminate

For more information and special applications please consult the factory.

SLM1/2 DIP SWITCH SETTINGS

		On	OFF
BS1	Ballistics 1	Peak Hold Off	Peak Hold On
BS0	Ballistics 0	PPM Type 2	PPM Type 1
CAL1	Calibration 1	See Below	
CAL0	Calibration 0	See Below	

Ballistics

PPM Type 1= 1.5 Second/24dB decay.
PPM Type 2= 3.0 Second/24dB decay.
Peak Hold - This feature holds 'PPM' peaks above 'nominal' for 3 seconds.
Peak LED - This LED holds instantaneous peaks above -3dB for 3 seconds.

SLM1/2 ANALOG

	Calibration 1	Calibration 0	Nominal Level
0	On	On	0dBu
1	Off	On	+4dBu
2	On	Off	+8dBu
3	Off	Off	+12dBu

SLM1/2 DIGITAL

	Calibration 1	Calibration 0	Nominal Level
0	On	On	-20dBFS
1	Off	On	-18dBFS
2	On	Off	-16dBFS
3	Off	Off	-14dBFS

SLM-4A DIP SWITCH SETTINGS

		ON	OFF
CAL0	Calibration 0	0dBu	+4dBu
CAL1	Calibration 1	Reserved	
BS0	Ballistics 0	PPM Type 1	PPM Type 2
BS1	Ballistics 1	Peak Hold Off	Peak Hold On
PH0	Phase 0	See Below	
PH1	Phase 1	See Below	
PH2	Phase 2	Dot	Bar
PH3	Phase 3	Reserved	GPI enabled cycle

Ballistics

PPM Type 1= 1.5 Second/24dB decay.
PPM Type 2= 3.0 Second/24dB decay.
Peak Hold - This feature holds 'PPM' peaks above 'nominal' for 3 seconds.
Peak LED - This LED holds instantaneous peaks above -3dB for 3 seconds.

	Phase 1	Phase 0	Metered Channels
0	Off	Off	L/R
1	Off	On	C/LFE
2	On	Off	LS/RS
3	On	On	LT/RT

SPECIFICATIONS

ANALOG AUDIO

Meter Calibration	0VU = +4 dBu (or specify when ordering)
Input Impedance	>20kΩ balanced
Input Level	+24dBu max
Frequency Response	+/- 0.25 dB, 20 Hz to 20 kHz
Peak Hold Indicator Threshold	+21 dBu

DIGITAL AUDIO

Meter Calibration	0VU = -20 dBFS (default, configurable with DIP SWITCHES)
Input Standard	AES/EBU 110Ω transformer balanced screw terminal or 75Ω unbalanced BNC
Input Level	0.2-5V p-p
Sampling Frequency Range	30kHz to 96kHz
Frequency Response	+/- 0.25 dB, 20 Hz to 20 kHz
Peak Hold Indicator Threshold	-3 dB below Full Scale

GENERAL

AC Adaptor	6 Volts, 2 Amperes

Ward-Beck Systems Ltd. reserves the right to change performance specifications without prior notice.

WARRANTY

All Ward-Beck Systems Ltd. products are warranted against defective materials and workmanship for a period of one year from the date of shipment.

Ward-Beck Systems Ltd. will repair or replace, at its option and without charge, all said products or parts thereof which upon factory inspection prove to be defective during the warranty period, provided that:

1. The original serial numbers are intact and have not been tampered with.

2. The purchaser shall return any equipment or parts thereof to Ward-Beck Systems Ltd. only after obtaining prior authorization and shipping instructions from the factory. (Ward-Beck Systems Ltd. reserves the right to inspect or repair equipment on the purchaser's premises).

3. The purchaser assumes the obligation for all expenses in connection with the shipping and return of such goods, once authorization has been obtained.

This warranty does not cover items normally considered expendable, such as fuses and lamps.

This warranty does not cover damages caused by misuse, accident, neglect, unauthorized alteration, repair by unauthorized personnel, or damage caused by an act of God, war, or civil insurrection.

In no event shall Ward-Beck Systems Ltd. be liable for consequential damages. Ward-Beck Systems Ltd. shall have the rights to final determination as to the application of this warranty.

Ward-Beck Systems Ltd. reserves the right, at any time and without notice, to make changes in its equipment, components, specifications or designs, as may be warranted by progress in state-of-the-art technology.

Ward-Beck Systems Ltd. reserves the right to make design changes, additions to, and improvements in its products, without obligation to install such revisions in products previously manufactured.

The warranty set forth herein is in lieu of all other warranties expressed or implied, including the warranties of merchantability and fitness.

WARD-BECK SYSTEMS LTD.
945 Middlefield Road, Unit 9, Toronto, Ontario M1V 5E1
V 416 335 5999 F 416 335 5202 Toll-Free 800 771 2556
Website: www.ward-beck.com
E-Mail: sales@ward-beck.com