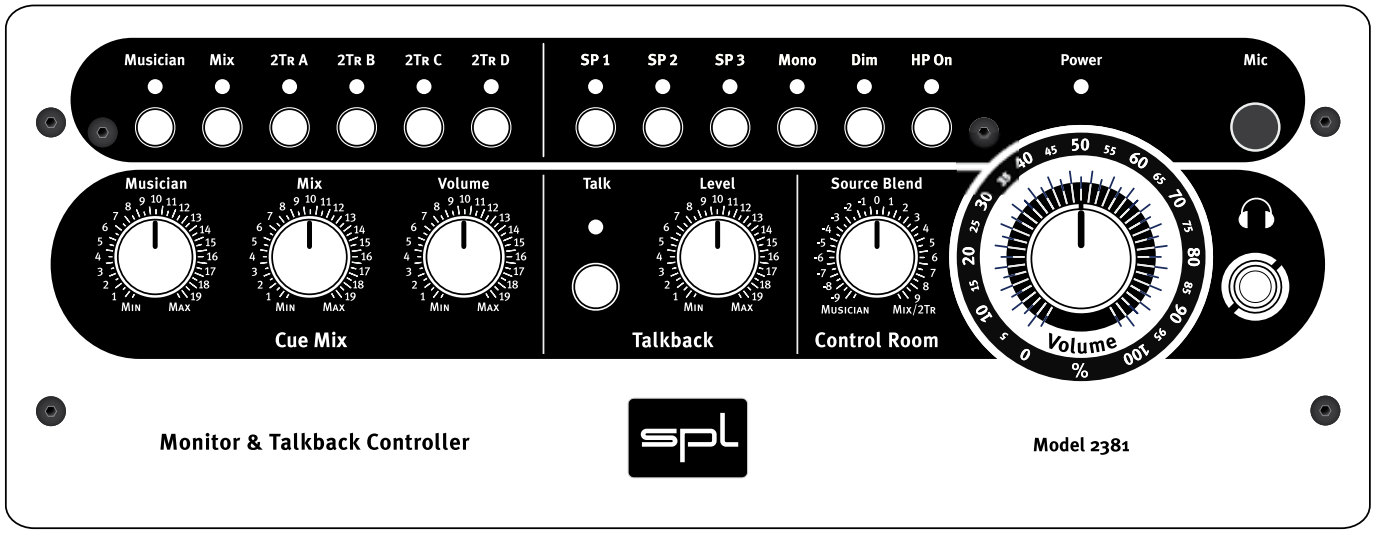
Manual



Monitor & Talkback Controller

Model 2381

Stereo volume, source and monitor control with cue mix and talkback functions

Version 1.0 – 7/2004

Design: Wolfgang Neumann

This manual contains a description of the product. It in no way represents a guarantee of particular characteristics or results of use. The information in this document has been carefully compiled and verified and, unless otherwise stated or agreed upon, correctly describes the product at the time of packaging with this document.

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SPL electronics GmbH

Sohlweg 55

41372 Niederkruechten

Germany

Tel. +49 (0)2163 983 40

Fax +49 (0)2163 983 420

Email: info@soundperformancelab.com

www.soundperformancelab.com

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Introduction

The Monitor & Talkback Controller MTC 2381 combines volume level control, source switching and loudspeaker management for stereo monitoring with comfortable talkback and cue mixing functions. The organizational focus that such essential services bring, coupled with an extraordinary tonal quality, makes possible an unrivaled convenience in DAW-based monitor management – in all areas of signal processing and playback

- stereo productions/recording studios
- movie and video post production
- video and computer game production
- audio-visual media and multimedia production

The latency-free Cue Mix signal for the musician can be composed of the musician's track and the track mix. The Talkback communications option via built-in microphone provides a footswitch input for remote control and a separate output with the dry talkback signal. These features mean that monitoring in any DAW-based studio now can be expanded to include the kind of essential functionality that to now has only been available in large analog consoles.

The advantages of the MTC become especially apparent in combination with modern audio and video production tools such as ProTools™, Nuendo™, Cubase™, Logic™, Deck™, etc. Monitor levels and source management can be handled independently of the software and with virtually no loss in quality. You no longer need to set up additional aux sends for monitoring. In addition, you won't have to worry about over- or underdriving the converters due to monitor levels.

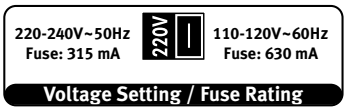
One of the MTC's biggest advantages is the possibility to manage up to six input sources: comparing and monitoring is much easier than having to import all of your audio files and set up monitor mixes – not to mention the inevitable A/D-D/A conversions.

SPL's renowned electronic balancing circuitry forms the basis for the MTC's I/O architecture. Its extended frequency range up to 100 kHz, exceptional dynamic spectrum and excellent common mode rejection ensure specs that exceed SACD standards, as only highest quality analog circuitry can provide.

Last but not least, the MTC's rugged and ergonomic desktop enclosure with its slanted front panel harmonizes perfectly with the desktop production environment.

IMPORTANT: Before you operate your MTC, first check carefully whether the local voltage setting corresponds to the switch setting on the rear panel!

If not, and the voltage is in one way or another, incorrect, you will either experience an immediate fuse burn through (if the setting is lower than the supplied power) or, if the power is 110-120 V at a 220-240 V input switch setting, the MTC will simply not function correctly.



Moreover, make sure you remove the plug from your MTC before changing this switch setting!

Always turn volume down or mute your speakers when connecting or repatching audio cables to avoid damage to your speakers and ears.

It makes good sense to think about where you place the MTC before connecting it. It should be positioned so that you can easily reach it, but there are other considerations. Try not to place it near heat sources or in direct sunlight, and avoid exposure to excessive vibrations, dust, heat, cold or moisture. It should also be kept away from transformers, motors, power amplifiers and digital processors. In addition, please:

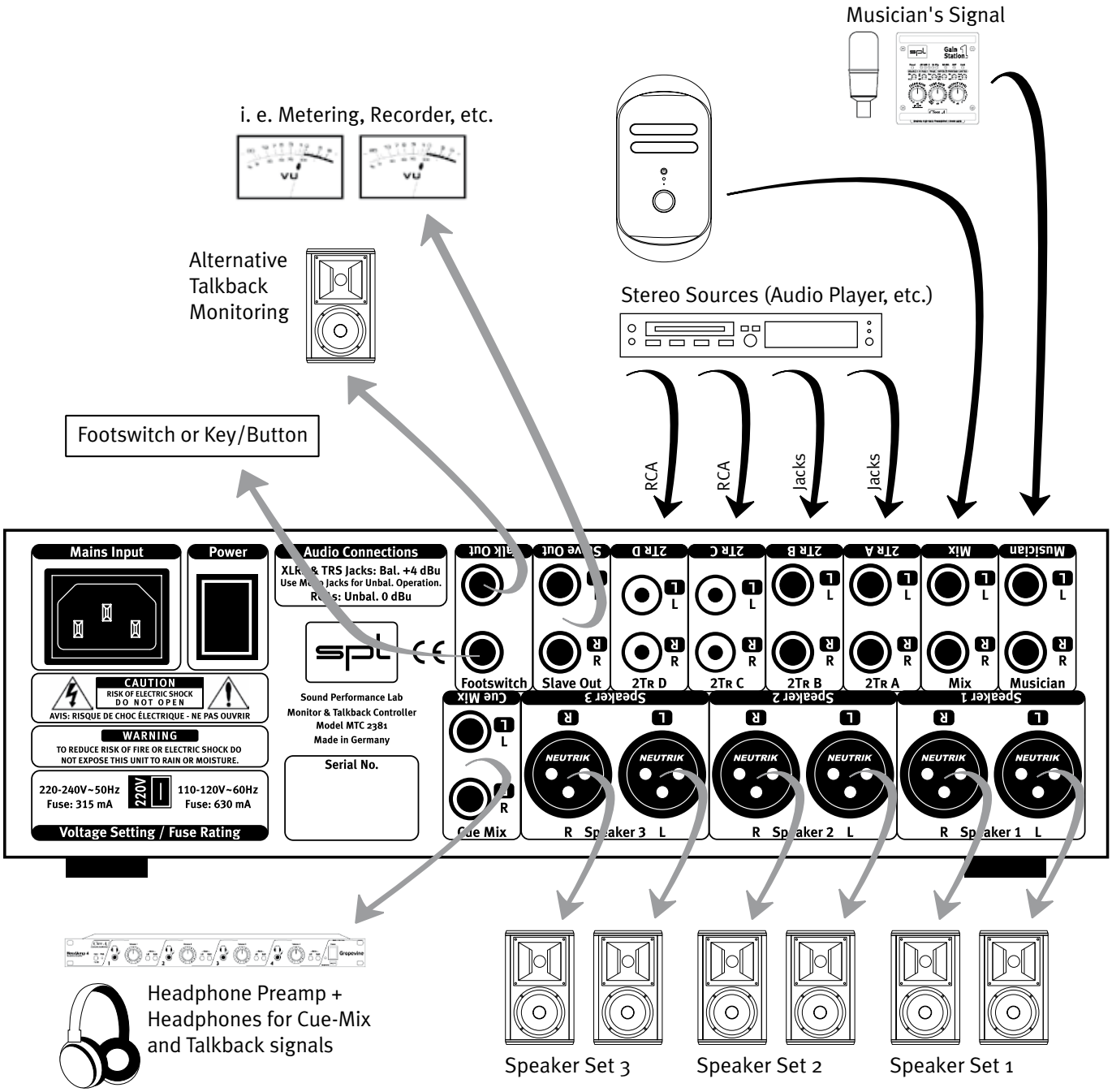
- Do not open the case. You may risk electric shock and damage to your equipment.
- Leave repairs and maintenance to a qualified service technician. Should foreign objects fall inside the case, contact your authorized dealer or support person.
- To avoid electric shock or fire hazards, do not expose your unit to rain or moisture.
- In case of lightning, unplug the unit. Always unplug the cable by pulling on the plug only; never pull on the cable.
- Never force a switch or knob.
- Use a soft, lint-free cloth to clean the case, if necessary together with an acid-free cleaning oil. Avoid cleaning agents as they may damage the unit.

Power Supply

The MTC's power supply was carefully engineered to provide clean and consistent current – an important prerequisite for excellent audio. Built around a toroidal transformer, the power supply generates a minimal electromagnetic field with no hum or mechanical noise. The output side is filtered by an RC circuit to extract noise and hums inherent in commercial AC power.

All audio-related components are fed by two separate voltage regulators to minimize disturbance from other components.

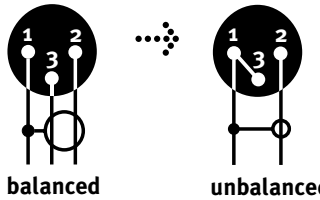
An AC power cord is included for connection to the standard 3-prong IEC connector. The transformer, power cord and IEC connector are VDE, UL and CSA approved. The AC fuse is rated at 315 mA for 220/240 V and 630 mA for 110/120 V.



Pin Wiring XLR Connectors:
1=GND, 2=hot (+), 3=cold (-)

Pin Wiring 1/4 inch Jacks:
Tip=hot (+), Ring=cold (-), Sleeve=GND

The diagram shows the correct wiring for connecting unbalanced signals to the balanced XLR connectors:

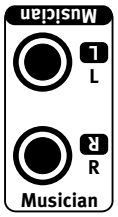


Drawings "DAW" and "Speakers" by courtesy of Christian Preissig, media dell' arte - text&ton, E-Mail: media_dell_arte@mac.com

The MTC enclosure is EMC-safe and effectively shielded against HF interference. Nonetheless, you should carefully consider where you place the unit to avoid electrical disturbances. The MTC and all devices to be connected should be turned off before connections are made or changed to avoid damage to your equipment and ears.

Rear Panel/Inputs

Musician



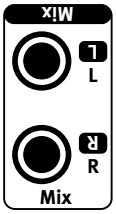
These balanced 1/4 inch jacks serve as inputs for the musician's signal (mic preamps or DAW track direct outs from performer tracks).

Usually performer tracks are recorded mono. In this case use the Musician Left input. The signal is automatically routed also to the right channel. Now it appears in the center of all stereo outputs.

Tip: Latency Free Cue Mix

If one is available, consider using a second parallel mic/instrument preamp output (not the DAW tracks). The signal will reach the performer without computer/converter latency.

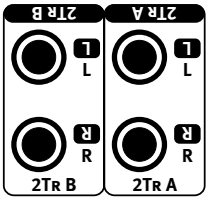
Mix

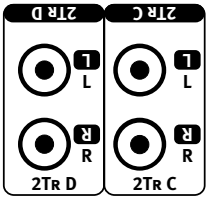


The mix signal is connected to these balanced 1/4 inch jacks. As a second Cue Mix component this is therefore a complete mix signal, but without the musician's track.

IMPORTANT: A musician's track must be toggled to "mute" in the DAW to avoid a doubled routing to the Mix and Musician input in the MTC.

2Tr A to 2Tr D





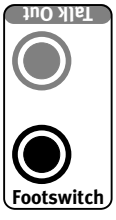
These four stereo inputs (2Tr = 2 Tracks) provide monitoring connections for four sources of the engineer's choosing.

The inputs 2Tr A and 2Tr B are balanced 1/4 inch plugs ideal for the connection of professional CD/DAT players or alternative DA converters.

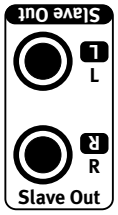
The inputs 2Tr C and 2Tr D are executed as non-balanced RCA connectors and suitable for audio inputs from CDs, MP3, MD, players, etc.—or for the connection to a TV-Receiver (just to be sure you can keep up on your favorite channel during a break).

IMPORTANT: The level of these non-balanced RCA inputs is boosted by +10 dB so that in comparing sources with differing professional and consumer signal levels, you are not stuck with constantly juggling the monitor levels.

Footswitch



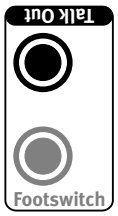
This 1/4 inch footswitch input can accept an on/off switch or key/button input that allows remote control over the Talkback function. Any sort of switch (including footswitches familiar to keyboard players) can be used here.



Slave Out

The balanced 1/4 inch Slave Out jacks provide for summed output of all active 2Tr inputs (Mix, 2Tr A to 2Tr D). As an example, the monitor signal may also be routed to a recording medium, or, while one listens to a CD player, the output may simultaneously be routed to a DAW. You may likewise connect stereo metering equipment.

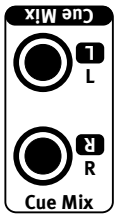
The musician's signal (coming from the Musician input) is not routed to the Slave Out, as it is only used for latency-free monitoring, but not for recording.



Talk Out

The Talk Out connection routes just the isolated Talkback mic signal through its balanced 1/4 inch jack to create an alternative listening option (for example, to another room).

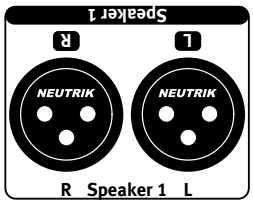
This function is particularly useful when, for instance, the engineer wishes to avoid forcing all performers in the recording room to wear headphones. For example advertising narrators are not often happy wearing headphones. Routing through the Talk Out circuit, the engineer can communicate directly to narrators or musicians over an active monitor placed in the recording room. The Talk Out signal volume is regulated with the Talk Level control (please see Operation/Control Functions/Talkback Level on page 12).



Cue Mix

This Cue Mix output provides a monitor mix for musicians.

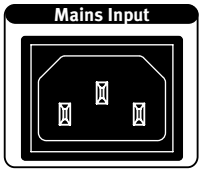
You can connect a headphone amplifier to these balanced 1/4 inch plugs.



Speaker 1-3

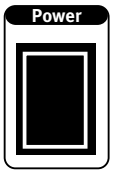
Speaker outputs 1 to 3 provide for the stereo out signal. A loudspeaker pair may be connected to each pair of balanced XLR connectors.

Mains Input



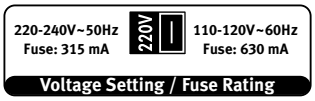
The included AC power cord is connected to this 3-prong IEC connector to supply operating current to the unit.

Power Switch



You will find the main power switch right beside the Mains Input. The blue power LED on the MTC front panel indicates that the power supply is tuned in.

Power Supply Voltage Switch



This slide switch toggles the power source between 220-240 V and 110-120 V.

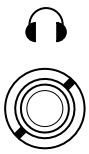
IMPORTANT: Before you operate your MTC, first check carefully whether the local voltage corresponds to this switch setting!

Moreover, make sure you remove the plug from your MTC before changing this switch setting!

If not, and the voltage is in one way or another, incorrect, you will either experience an immediate fuse burn through (if the setting is lower than the supplied power) or, if the power is 110/120 V at a 220/240 V input switch setting, the MTC will simply not function correctly.

Front Panel/Output

Headphone Output



This is where your headphone can be connected for monitoring the control room mix—in parallel to the chosen loudspeaker monitor pair. The Headphone output can be toggled in or out with the HP On switch (refer to Operation/Switch Functions/HP On on page 11).

If needed, the monitor pair can be deactivated over the corresponding front panel SP switch (refer to Operation/Switch Functions/SP 1-3 on page 11).

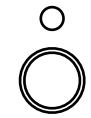
The volume for the headphone, along with speakers, is regulated by the Master Volume control, too. (refer to Operation/Control Functions/Master Volume on page 13).

Status LEDs

An LED over each front panel switch indicates activity by illuminating when its corresponding switch is turned on.

If the Talkback function is activated by an external switch, the Talk LED will nonetheless illuminate (a footswitch or key/button connected via the rear panel Footswitch Input is described in Rear Panel Inputs/Footswitch on page 7).

Musician

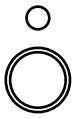


Musician

The Musician switch routes a musician's signal to the MTC monitor buss. In such cases, the Source Blend control adjusts this signal's volume in relation to the Mix/2Tr (please refer to Operation/Control functions/Source Blend on page 13).

In this process the musician's signal is switched parallel into the Cue Mix buss—also when the Musician switch is deactivated. Here the volume of the musician's signal is controlled through the Musician potentiometer (please refer to Operation/Control Functions/Musician on Page 12).

Mix

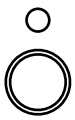


Mix

The Mix switch routes the Mix input signal to the monitor buss, whose volume (in relation to the Musician's signal) is regulated by the Source Blend potentiometer (refer to Operation/Control Functions/Source Blend on Page 13).

In this process the Mix signal is switched parallel into the Cue Mix buss—also when the Musician switch is deactivated. Here the Mix potentiometer determines the Mix signal volume in the Cue Mix buss.

2Tr A



2Tr A bis 2Tr D

These switches activate the corresponding stereo A-D inputs and route them to the monitor buss. The Source Blend potentiometer regulates the this signal's volume relative to the Musician's signal (please refer to Operation/Control Functions/Source Blend on Page 13).

Musician, Mix and 2Tr A to 2Tr D Switching Sequences

These switches can be activated in two or altogether to determine routing for monitor buss summing. This selection process also determines which signals appear at the Slave Out output. Possible level differences must be compensated for at the source units.

SP 1 to SP 3

These switches can toggle up to three loudspeaker pairs on and off (and may serve as individual mute switches).

Mono

The Mono function creates a mono sum from the stereo signal left and right channels and provides for a mono-compatibility check of the stereo mix. This switch functions globally on all three monitor outs, and both speakers of a pair receive the mono signal.

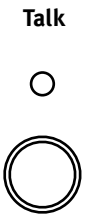
Dim

The Dim switch reduces (by about -20 dB) the monitor volume of all outputs for loudspeakers and headphones and is a very practical addition to control the overall mix—or to enable a suddenly needed and intelligible telephone conversation. When the Talk function is activated, the Dim is automatically enabled (refer to "Talk" below).

HP On

This HP On switch toggles the headphone output in and out. Its presence means that a connected headphone does not have to be unplugged should the engineer only need them quiet for a moment.

Talk



The Talk button activates the Talkback function. As long as this button is pressed, one can speak with the musician over the integrated MTC front microphone. To avoid feedback, pressing this button automatically reduces monitor volume by -20 dB.

The installed electret microphone has an omnidirectional pattern that allows for good pickup even when a speaker finds himself several meters from the MTC.

The Talk function may also be activated over an external key/button or switch which is connected to the rear panel footswitch input (refer to Rear Panel/ Inputs/Footswitch on page 7).

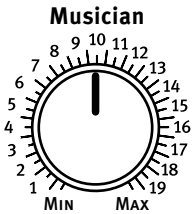
Tip: When employed, an external *key/button* behaves just as if it were the installed talk button, e. g., you may speak until releasing the key/button. On the other hand, using an external *switch* means that your Talk function will remain active until you again trip the switch.

Control functions are divided in three areas: Cue Mix, Talkback and Control Room.

The Cue Mix section contains all the necessary controls to set up a monitor mix for the musician.

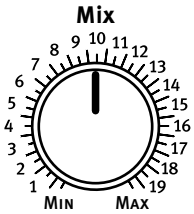
IMPORTANT: Be careful to ensure that all MTC input signals are properly adjusted and provide proper levels. Due to the purist design philosophy of the MTC, the controls Cue Mix/Musician, Cue Mix/Mix, Cue Mix/Volume and Control Room/Source Blend are passive circuits that do not provide for gain increases.

This means, for example, that were you to input a strong DAW mix with a weak musician's signal, the Musician Cue-Mix would then have to run at full volume while your mix signal would have to be lowered—likely way too much. Under such circumstances the total Cue Mix Volume would not be greater than its weakest link (the musician's signal). You would then have to raise the headphone amplifier level, which in turn would result in an unfavorable increase in signal noise. Of course, this same consideration holds for the Source Blend Control. Therefore, do make every effort to provide your MTC with proper signal levels.



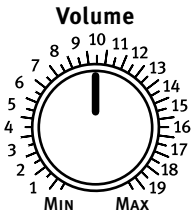
Cue Mix/Musician

With this Potentiometer you can control the volume of the musician's signal in the Cue-Mix.



Cue Mix/Mix

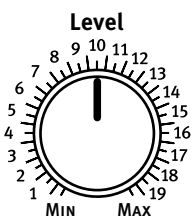
The Mix potentiometer determines the level of the Mix signal as a second Cue-Mix component.



Cue Mix/Volume

This potentiometer adjusts the total Cue-Mix volume.

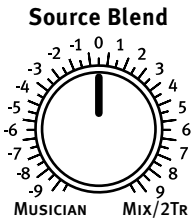
Tip: Cue-Mix volume can also be adjusted by the musician himself through a subsequent headphone amplifier.



Talkback/Level

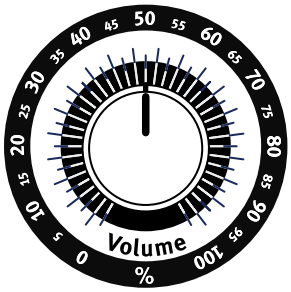
This potentiometer controls the Talkback signal level.

Control Room/Source Blend



With this control you can adjust the relative levels between the Musician and Mix and/or 2Tr signals for the control room monitor speakers.

Master Volume



The master volume potentiometer globally controls volume for the three monitor speaker pairs. This analog control regulates the audio signal directly to avoid any coloration/distortion typical of VCAs, DCAs, etc., which require higher inter-channel tolerances and tend toward higher distortion figures. Moreover, this potentiometer possesses an optimal rotational torque and "feel" for precise hand control.

Tip: Speaker Calibration

The MTC dispenses with speaker output trims, as they would unnecessarily stress the signal pathes—all active speakers and also power amps have input trims.

The adjustment process should begin with the quietest monitor pair (smallest sound pressure level) with the input sensitivity at maximum level.

Leaving the MTC Master Volume control as set, you then perform the same adjustment for the other monitor/speaker pairs until each produces the same sound level as the first pair. Lacking a sound pressure level meter, you may still accomplish this adjustment well enough by ear.

Specifications

Frequency range	10 Hz - 120 kHz (+/- 3 dB)
Input impedance via RCA/unbalanced	100 kOhm
Output impedance via XLR/balanced	500 Ohm
THD + N	
0 dBu input level	0.005 %
+10 dBu input level	0.002 %
+20 dBu input level	0.003 %
Noise (A-weighted)	-89.4 dBu
Max. input level	
Balanced, RCA	+21 dBu
Unbalanced, RCA	+19 dBu
Dynamic Range (balanced/unbalanced)	108,4/110,4 dB
CMRR	› 70 dBu
Power Consumption	10 W
Dimensions	H x B x T (mm): 91 x 272 x 220
Weight	2.5 kg/5.5 lbs

All SPL products come with a two-year manufacturer's guarantee against defects in material or assembly from the date of purchase.

End users are supported in the two-year guarantee through their distributor or dealer. In such cases, please contact your dealer for full guarantee conditions and service.

Direct SPL product support requires product registration. Please fill out the guarantee card enclosed in the package legibly in printed letters and send it directly to SPL.

Or use the **online registration** form that may be reached at **www.soundperformancelab.com** (international clients) or **www.spl-usa.com** (US clients).