



Your PDF Guides

You can read the recommendations in the user guide, the technical guide or the installation guide for RANE MM 12. You'll find the answers to all your questions on the RANE MM 12 in the user manual (information, specifications, safety advice, size, accessories, etc.). Detailed instructions for use are in the User's Guide.

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1. WARRANTY EXPLANATION

Rane offers a limited warranty which covers both parts and labor necessary to repair any defects in the manufacturing of the MM 12.
The warranty period for the MM 12 is two (2) years, and is determined from either of these two methods, whichever is longer:

1. Starting from the date of retail purchase as noted on either the sales slip from an authorized Rane dealer, or on the warranty registration card sent in to the factory, or:

2. Starting from the date of manufacture which is coded on both the inside and outside of the MM 12 chassis, in case the sales slip or warranty card is not available.

If you send in the registration card or retain your sales slip as proof of purchase, you will receive a full two (2) year warranty period from the date of purchase regardless of the date of manufacture. If you do not send in the registration card ("I forgot."), or you do not have a sales slip from an authorized Rane dealer ("My cat ate it."), the MM 12 will be under warranty only within two (2) years from the date of manufacture.

All registered warranties are tracked by SERIAL NUMBER, not by owner. Once your MM 12 is registered it will be covered the full two (2) years regardless of any change in ownership.

Should you encounter any problems with the MM 12 be sure to contact either your local Rane dealer or the Rane factory before taking the MM 12 anywhere for repairs. We will help you to identify and locate any specific malfunctions, possibly avoid needless shipment, or instruct you as to the speediest method for authorized repair.

If you must send the MM 12 to the factory or warranty station, BE SURE TO INCLUDE THE FOLLOWING INFORMATION:

1. YOUR COMPLETE NAME AND SHIPPING ADDRESS.
2. THE SERIAL NUMBER OF YOUR MM 12.
3. A COMPLETE DESCRIPTION OF ANY AND ALL PROBLEMS YOU ARE EXPERIENCING WITH THE MM 12.

Never ship the MM 12 in any shipping carton other than the original or a replacement supplied by Rane. Ship only by a reputable carrier—we do not recommend parcel post due to a high incidence of damage or loss. Be sure to insure the package for the full replacement value.

Note: Be sure to remove the MM 12 from any rack or carrying case prior to shipment to the factory or a warranty station, otherwise you will be charged for the additional time to remove and reinstall the unit.

If you need further assistance concerning the repair, installation or operation of your MM 12 please feel free to contact Rane galactic headquarters at

Rane Corporation
10802 47th Ave. W.
Mukilteo, WA 98275
Phone: (425)355-6000



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Manual abstract:

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Mukilteo, WA 98275 Phone: (425)355-6000 II. FRONT PANEL DESCRIPTION 1. POWER SWITCH: The adjacent yellow LED will light when power to the MM 12 is turned on by means of this switch. 2. INPUTS: These automatic balanced/unbalanced three-pin jacks are to be used for both microphone or line level inputs. Rane adheres to the international standard pin configuration, which is: Pin 1: Case ground. Pin 2: Hot (signal). Pin 3: Circuit ground. 3.

PATCH OUTPUTS: The MM 12 provides a hard-wire type splitter which allows the input to each channel to be patched back out to the main mixing console or other equipment. The MM 12 simply "taps" off each splitter with high impedance amplifiers, without causing any noise contribution, distortion or signal degradation to the main mix. 4. ACCESSORY LOOP: These stereo 1/4" jacks allow the insertion of effects, additional EQ or the like in series with the input stage. These jacks are located POST EQ with the following Tip/Ring/Sleeve (TRS) configuration: Tip is SEND (output) Ring is RETURN (input) Sleeve is GROUND. These LOOP jacks may also be used to patch channels 1 a, 8a, 8b or 8c to the AUX inputs of the other channels, using a mono patch cord. Refer to Section IV-1B. 5. AUX INPUT: This is a SUMMING input which allows another line level signal to be added to the regular input program. This input is POST EQ, and can also be used to reassign channels 1a, 8a, 8b, or 8c; refer to Section IV-1B. 6.

OVERLOAD INDICATOR: This red LED will light whenever the input stage reaches 4 dB below clipping. More than occasional blinking of this LED means that the input gain control should be turned down to avoid clipping. 7. INPUT GAIN CONTROL: This varies the gain of the input stage to suit the requirements of various microphones, instruments and line level equipment ranging from a minimum of 10 dB in the LINE mode to a maximum of 70 dB in the MIC mode. 8.

MIC/LINE SWITCH: In the MIC position (out) the input stage has a gain range of 20 dB to 70 dB; in the LINE position (in) the gain has a range of 10 dB to 30 dB. 9. INPUT EQUALIZATION SECTION: The BASS control provides +14 dB of boost/cut at 20 Hz, shelving type. The MIDRANGE control is a bandpass filter centered at 1k Hz which provides +10 dB of boost/cut. The TREBLE control provides +12 dB of boost/cut at 20k HZ, shelving type. 10. MAINS INPUT: Plug the stereo headphone output from the main mixing console into this input then you will hear the main mix program through headphones plugged into the MM 12. Whenever any of the CUE buttons on the MM 12 is pressed, the mains input will be bypassed and you will hear the desired mix in the MM 12. You may also use a stereo 1/4" patch cord to connect the Mains Input to any of the input LOOP jacks to achieve input cueing—see the following note for wiring requirements. NOTE: To use the Mains Input for cueing input signals with the headphones, use a stereo 1/4" patch cord WITH THE TIP AND RING CONNECTED TOGETHER at either end. This will allow you to cue any input through the LOOP jack without removing the signal from any of the MM 12 outputs. IF A MONO PATCH CORD IS USED FOR INPUT CUEING, THE INPUT SIGNAL WILL BE REMOVED FROM THE MIX OUTPUTS SINCE THE LOOP RETURN IS BEING GROUNDED. 11. HEADPHONE OUTPUT: Plug any type of monitoring headphones into this stereo output to monitor any of the MM 12 outputs using the CUE buttons as well as the mains mix when no CUE button is depressed.

12. HEADPHONE LEVEL: This knob controls volume in the headphones. The MM 12 will handle headphones with impedances between 8 ohms and 2000 ohms. 13. OVERLOAD INDICATOR: This red LED will light whenever the output level reaches 4 dB below clipping which is +15 dBm output level. 14. CUE BUTTON: Press this button IN to monitor the mix of that channel through headphones. 15. MASTER LEVEL: This controls the final output level present at the output jack: it increases or decreases the volume in the monitor speaker with out changing the mix levels. 16.

MIX LEVEL CONTROLS: Each of these knobs controls the amount of input channel material to be heard in each output mix. Each of the six outputs of the MM 12 has 8 level controls which determine the particular mix for that monitor speaker. 17. BASS SWEEP CONTROL: This knob controls the center frequency of the bass filter in the output parametric EQ section: frequency range is from -10 Hz to 1k Hz as shown on the panel. 18.

BASS BANDWIDTH SELECT BUTTON: In the WIDE position (out) the bandwidth of the bass filter is one octave: in the NARROW position (in) the bandwidth is 1/3 octave. 19. BASS BOOST/CUT CONTROL: This knob adjusts the amount of boost or cut of the bass filter. Maximum boost is +12 dB and maximum cut is -15 dB. 20.

TREBLE SWEEP CONTROL: This knob controls the center frequency of the treble bandpass filter in the output parametric EQ section. Frequency range is from 1k Hz to 10k Hz as indicated on the panel. 21. TREBLE BANDWIDTH SELECT BUTTON: In the WIDE (out) position the bandwidth is one octave: in the NARROW (in) position the bandwidth is 1/3 octave. 22. TREBLE BOOST/CUT CONTROL: This knob adjusts the amount of boost or cut of the treble filter. Maximum boost is +12 dB and maximum cut is -15 dB. 23. EXPAND INPUT: This is a summing input located before the output level control (pre fader).

Plugging the outputs of a second MM 12 into these inputs will yield a 24-in/6-out system with the same layout logic.



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This input is unbalanced. 24. OUTPUT JACK: This stereo 1/4" jack delivers an automatic balanced/unbalanced, low impedance, high current output signal. Use a stereo 1/4" plug for balanced operation and a mono 1/4" plug for unbalanced operation. NOTE: REVERSIBLE LINE CORD By removing two phillips screws the exit of the line cord can be changed from the backpanel to the top panel. If the MM 12 is to be rack mounted, remove the two phillips screws next to the line cord, push the line cord into the chassis about an inch, then twist it so that the metal tab rotates 180 degrees. Pull the line cord outward until the metal tab is flush with the chassis, then replace the two phillips screws. @@@@. @@@@3. Plug the male connectors from the main snake into the MM 12.

4. @@@@5. @@@@. @@@@2. @@@@b. @@@@c .

@@@@@. @@@@@. @@@@@3. If you are running more than 12 channels through the main board, bypass the MM 12 with the channels that need not be in the monitor system, such as guitars or bass which have their own instrument amps on stage. 4. Connect the OUTPUTS of the MM 12 to the inputs of the monitor amplifiers--balanced lines are recommended if this run is more than six feet or so.

IV-1. INPUT ASSIGNMENTS A. SUBMIXING MULTIPLE INSTRUMENTS. The MM 12 has 12 inputs but only 8 monitor mix level controls above each output master level. The reason for this is to simplify monitor mixing by doing some clever sub-mixing on the inputs. Most groups possess at least one individual who plays more than one instrument (albeit never at the same time...), such but not loudly out of control (this takes a cool head and a supple wrist). You will notice a point on the sweep control where the feedback will be reduced or stop altogether: this is the center frequency of the feedback 7.

Now that you have found the center frequency, leave the SWEEP knob set at this point. Then slowly turn the BOOST/CUT knob clockwise until feedback begins to reoccur: set the BOOST/CUT control at a point where feedback just goes away. Too much cut will detract from the sound quality of the monitor and render the monitor program harder to understand. If feedback occurs later at a higher volume level, m-adjust the BOOST/CUT control just enough to eliminate the feedback and no more. Don't readjust the center frequency control as it is difficult to find the feedback center frequency during a show without embarrassing feedback 8. Now repeat steps 5, 6 and 7 with the BASS section of the channel 1 parametric equalizer. You will notice that after one feedback tone is eliminated, increasing the volume will produce another tone of a different pitch. You could chase these tones "ad infinitum", but a good working compromise is to reduce the two primary feedback trouble tones, so that you have a system that feeds back at a much higher level with two or more different tones. Repeat steps 5 through 8 with output channels 2 through 6 as necessary. In some cases, the acoustics of the stage or the performance of the monitor speakers is such that feedback is not a real problem, but that the overall monitor sound is lacking in quality and is therefore more difficult to understand. If the bass response of the monitor is poor, use the BASS section of the parametric to boost the low end; try both the NARROW and WIDE bandwidth positions--too much low end boost can result in boomy response that muddies up monitor sound. If presence is lacking in the monitors, use the parametric TREBLE section to add response in the high end. In either case, starting with full boost and sweeping the frequency will help you to find the right area to correct: once found, cut back on the boost as necessary to give the smoothest overall response. IV-4. USING THE MM 12 HEADPHONE CUE SYSTEM.

It is much more effective to use the CUE system to make adjustments in the monitors, especially during a performance. By depressing the appropriate CUE button you can listen to the exact mix that each performer is hearing and make adjustments by ear rather than by guesswork A. PATCHING INTO THE MAIN MIX CUE SYSTEM. In many cases the MM 12 will be operated along side the house mixer by the same operator. As shown in the installation diagrams, be sure to plug the headphone output of the main mixer into the MAINS INPUT of the MM 12 headphone section, using a STEREO 1/4" shielded patch cord. Then plug a single set of headphones into the MM 12 to monitor BOTH the house mix and the monitor mixes as necessary. Whenever any of the MM 12 CUE buttons is depressed, you will hear the mix in that monitor. When none of the MM 12 CUE buttons are depressed, you will automatically hear the house mix from the main mixer, allowing you to use the main mixer cue system without switching the headphones back and forth between mixers (slick, no?). B. USING THE HEADPHONES MAINS INPUT FOR INPUT CUEING. You may use the MAINS INPUT in the headphone section of the MM 12 to verify any input to the MM 12 or make tone adjustments during the performance. 1. Obtain a stereo 1/4" PATCH CORD at least 18" long. 2. Remove the case from one of the stereo plugs on this cord: using a small piece of wire, connect the TIP lug to the RING lug so that the TIP and RING are shorted together but remain isolated from the GROUND.

@@preventing signal loss at the MIX LEVEL controls. @@@3. @@@@A sudden blast in the headphones when plugging in just might render you cross-eyed for several minutes. IV-S. USING THE EXPAND INPUTS. Expand inputs are provided on the MM 12 to enable two MM 12's to be used "piggy-back" for 24 inputs into 6 outputs. Simply plug the OUTPUTS of one MM 12 into the EXPAND inputs of the second MM 12 and you will have 24-in/6-out with the same layout logic. Use the following procedure: 1. Plug the OUTPUTS of one MM 12 into the EXPAND inputs of the second MM 12. 2.

Plug the OUTPUTS of the second MM 12 into the monitor amplifiers. 3. Set the MASTER level controls of the first MM 12 to full output level; then use only the MASTER levels of the second MM 12 to control the volume in each of the monitor speakers. 4. Now each of the six monitor speakers will have 16 MIX LEVEL controls.

Use the submixing capability of each MM 12 to best suit your needs as described in Section IV-1A. 5. Whenever possible, locate the first MM 12 ABOVE the second MM 12 to maintain the vertical columns of MIX LEVEL knobs for each monitor speaker. 6. In using two MM 12s.

you now will have TWO two-stage parametric equalizers for each monitor speaker, giving you greater feedback control. Use the parametrics as outlined in Section IV-3. V. SPECIFICATIONS 12 INPUTS with the following: -Transformerless electronically balanced/unbalanced female three-pin connector input. -Passive MIC splitter with male three-pin connector output. -Built-in RFI filters. -Input impedance: 8k ohms in MIC or LINE. -Active gain control: 20 dB to 70 dB in MIC. 10 dB to 30 dB in LINE. -Maximum input level: +2 dBm (1V) in MIC.

+12 dBm (3V) in LINE. -Overload LED indicator: lights at 4 dB below clipping (+16 dBm).



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*-Three-way input equalizer: Bass: ± 14 dB @ 20 Hz, shelving type Midrange: ± 10 dB @ 1k Hz, bandpass type Treble: ± 12 dB @ 20k Hz, shelving type
-Equivalent input noise: -120 dBm unweighted, with source impedance of 200 ohms, 20k Hz bandwidth. -Effects loop: TRS (Tip/ring/sleeve) 1/4" jack
tip=send, ring=return, sleeve=ground, located POST EQ. -AUX input: 1/4" jack, summing input located POST EQ. 6 OUTPUTS with the following:
-Transformerless, high-current floating stereo 1/4" output jack, compatible with balanced or unbalanced inputs. -Maximum output level: +19 dBm (7.0 V into
600 ohms, 20-20k Hz). -Minimum output load impedance: 600 ohms.
-Output impedance: 50 ohms. -Two-band parametric equalizer Amplitude: 12 dB boost 15 dB cut Frequency: 40 - 1k Hz in Bass, 1k - 10k Hz in Treble.
Bandwidth: 1 octave in WIDE, 1/3 octave in NARROW. -Overload LED indicator: lights at 4 dB below clipping (+16 dBm). -Expand input 1/4" summing input
pre-fader and preEQ, unbalanced.
HEADPHONE CUE AMPLIFIER: -700 mW maximum average (RMS) power output per 8 ohm headset 350 mW per channel, 20 - 20k Hz -Maximum Gain: 28
dB. -THD + Noise: less than 0.1% typical; less than 0.4% 20 - 20k Hz -Signal/Noise Ratio: 98 dB below rated 350 mW into 8 ohms, A-weighted. -Frequency
response: 20 - 20k Hz, +0/-3 dB.
-Mains Input: auxiliary input to cue system, patched to headphone output when all CUE buttons are disengaged; input impedance of 2.2 k ohms. OVERALL
PERFORMANCE: Any MIC input to any output with EQ flat THD + Noise: less than .03% @ +4 dBm. IM Distortion (SMPTE) @ +4 dBm: less than .03%
Frequency Response: 20 - 20k Hz, +0/-3 dB. Slew Rate: 10 V/ μ S. GENERAL SPECIFICATIONS: Dimensions: 21" H X 19" W X 2 1/2" Rack depth, EIA Rack
mountable. Construction: All steel chassis. Weight: 24 lb net.*



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