QUICK START

If you're setting up the AM2 automixer, then this Quick Start is for you. It's intended to get your audio working quickly in just 422 words.

Plug microphones into the Mic Inputs using standard XLR mic cables. Condenser mics need the MIC +48V switch position. Use the MIC +0V middle position for dynamic mics. Use the WIRELESS MIC position when connecting a wireless receiver output.

Connect the Main Output XLR to your amplifier or powered loudspeaker and select the LINE switch position. If the Main Output feeds a microphone input, select the MIC position.

Start with the gray OUTPUT LEVEL knob turned all the way down – fully counterclockwise. One at a time for each mic, talk very loudly and very closely to the mic and adjust the corresponding black LEVEL control so only the loudest speech just barely flickers the red overload (OL) indicators. Once the input gains are set, the AM2 automatically controls the mic mix to avoid feedback. (You won't need to ride these controls.)

Turn on the amplifier/loudspeaker and turn it up about half way. Also turn the OUTPUT LEVEL knob up until the volume is appropriate for your application.

If the system feeds back (that horrible squeal), your mics are hearing too much from your loudspeakers. First try moving the mics farther from the loudspeaker and/or pointing the mics and loudspeakers away from each other. Next, try turning down the gain on the amplifier or loudspeaker. If this does not reduce feedback, don't reach for the black Mic Input knobs, instead turn down the OUTPUT LEVEL.

Daisy-chain up to eight AM2s together by connecting CASCADE IN to CASCADE OUT. The Main Output on each AM2 delivers a gain-sharing automix of it's Mic Inputs and all upstream Inputs. This means the mix of all Mic Inputs is on the Main Output of the last AM2 in the daisy-chain. Though each AM2's OUTPUT LEVEL control always adjusts the volume of it's respective XLR OUTPUT, the last OUTPUT LEVEL affects *all* Mic Inputs to it's Main Output including the RAD PORT.

If your AM2(s) connect to a Rane Mongoose, the last AM2 in the cascade needs its RAD PORT connected with a shielded CAT 5 cable to one of the Rane Mongoose's rear panel Remote Audio Device ports. Some systems may provide a wall plate location to connect the RAD Port cable.

If you have line sources such as iPods® or CD/DVD players you would like to mix with these mics, or would like USB audio playback or recording, look at the Rane AM1.

FRONT PANEL DESCRIPTION
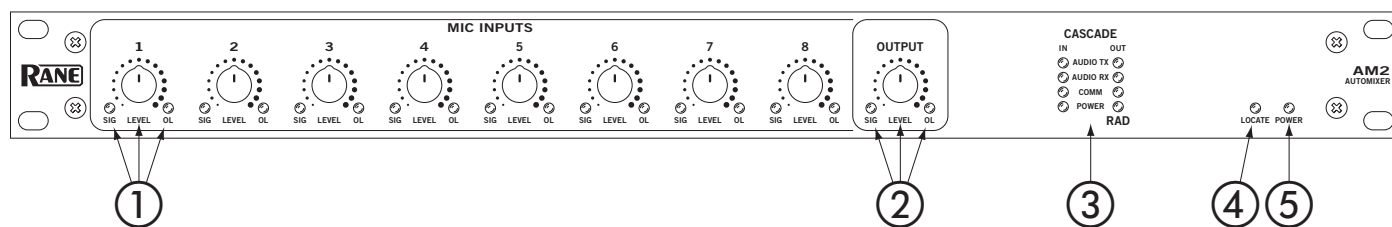
① **MIC INPUT LEVEL controls** adjust the mic input gain. The green Signal indicators inform of audio presence. Overload indicators warn of excessive signal levels.

② **Main OUTPUT LEVEL control** adjusts the level of the mix exiting the XLR output and the RAD Port output. When connected to an AM1 or AM2 CASCADE IN port, the AM2 OUTPUT LEVEL only affects the XLR Output.

③ **CASCADE IN, CASCADE OUT and RAD status indicators** prove that proper cable termination and device configuring has occurred when all four indicators illuminate, when the AM2 is connected to an AM1 or other AM2s. If any of these are off or flashing, a configuration or wiring error is the culprit.

④ **LOCATE indicator** helps system installers identify a specific AM2 Automixer when using Rane's Mongoose Tracker software.

⑤ **POWER indicator** lights whenever adequate power is applied to the unit.

④
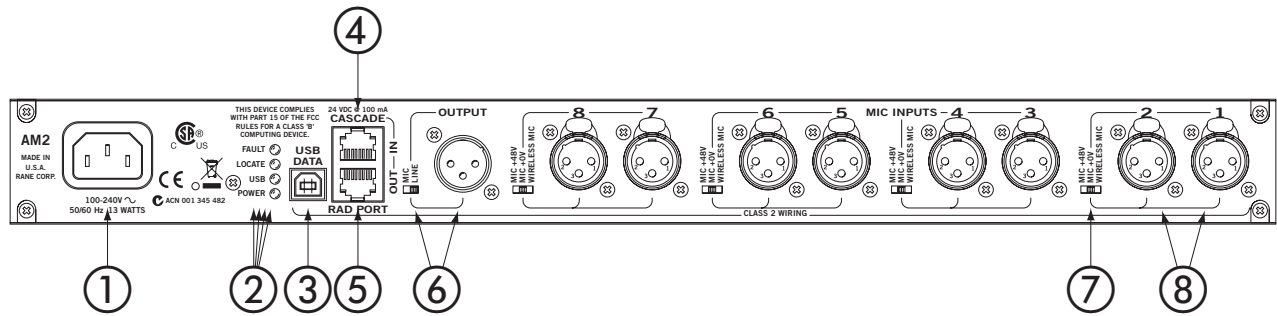
① **AC Power IEC input** accepts electrons to power up the AM2. Though it is first in this list, it's best to connect it last.

② **FAULT indicator** lights when something goes awry.
   LOCATE indicator flashes when toggled from the Mongoose Tracker software. When using multiple AM2 devices in a Rane Mongoose-based CobraNet™ system, this uniquely identifies a specific AM2.
   USB indicator lights when a Windows or Apple operating system recognizes the AM2 for firmware updating.
   POWER indicator glows when flowing electrons pass in and out of the AC Power IEC input.

③ **USB DATA connector** allows updating the AM2 firmware should a future need arise. Firmware updates are made available on the AM2 page at *www.rane.com/am2.html*.

④ **CASCADE IN port** permits adding up to 56 more microphones to the AM2's eight mic inputs using up to seven Rane AM2 automixers, sold separately. Use shielded Ethernet CAT 5 cable connected from the AM2's CASCADE OUT. See the Connection section for details.

⑤ **One jack, two functions:** The **CASCADE OUT** connects to an AM1 or another AM2's CASCADE IN when combining units for more gain-sharing mics. The **RAD PORT** connects to a Rane Mongoose's Remote Audio Device port to transport the single-channel, Main Mix of the AM2 to a CobraNet network or another Remote Audio Device.

⑥ **MAIN OUTPUT XLR connector** contains the main mix of all mics from this AM2, and all mics from preceding AM2s, if they are connected using the CASCADE ports. The front panel OUTPUT LEVEL control adjusts the level exiting this jack.
   MIC/LINE Output switch changes this Main XLR Output to mic-level, for feeding the output mix to a mic input device; or line-level for feeding line-level input devices.

⑦ **3-position switches** support:
   MIC +48V phantom power Mic position for condenser mics.
   MIC +0V Mic position for dynamic mics.
   WIRELESS MIC position intended for wireless mic receiver outputs.
   Each switch controls a pair of mic inputs, as indicated by the rear panel grouping of two jacks for one switch.

⑧ **MIC INPUTS 1 thru 8** accept dynamic or condenser microphones, or the output of a wireless microphone receiver. These inputs are optimized for speech and have a fixed 100 Hz low-cut and 7 kHz high-cut filter. Both filters are 2nd-order Butterworth filters.

CONNECTION

Connect the AC power cord *last* to avoid loudspeakers hurting your sensitive ears.

MIC INPUTS

The eight mic jacks are balanced XLR inputs. Unbalanced mics or wiring can also be used with their inherent lower quality and higher potential for hum and noise. Standard microphone cable with a two-conductor twisted pair plus a shield is best. Rane follows the AES recommended practice of pin 2 positive (hot), pin 3 negative, and pin 1 to shield. If your microphone is unbalanced (only two conductors), see the Sound System Interconnection RaneNote elsewhere in this manual or on Rane's website for the proper cable to use. Or better yet, get a balanced mic.

For condenser microphones which require phantom power, use the MIC +48V switch position. Dynamic mics use the center, MIC +0V position. When using a wireless microphone receiver, use the WIRELESS MIC position.

MAIN OUTPUT

The Main Output is a mono balanced XLR jack. Connect the Main Output XLR using mic cable to your amplifier or powered loudspeaker and select the LINE position on the adjacent switch. If the Main Output feeds a microphone snake or mic input, select the MIC switch position.

USB DATA PORT

Check the AM2 page on Rane's website for potential firmware updates at *www.rane.com/am2.html*
If there is an update, follow the instructions on our website.

When using the AM2 with Mongoose Tracker software, AM2 firmware is always kept up to date via the AM2's RAD PORT.

RAD PORT

If your audio system delivers the AM2's Main Output audio mix using Rane's digital audio transport technology exiting the RAD Port, connect a shielded Ethernet patch cable to the RAD Port. When the Rane Mongoose at the other end of this connection recognizes the AM2's RAD Port, audio nirvana is achieved and all four adjacent RAD Port Status indicators illuminate.

CASCADE IN / OUT PORTS

Connect a shielded Ethernet patch cable from the CASCADE IN port to another AM2's CASCADE OUT port to add more mics to the mix of this AM2. All four CASCADE IN Status Indicators illuminate when the two devices recognize each other. Connect up to seven more Rane AM2 Automixers for a total of 64 gain-sharing mics. Be certain to connect CASCADE OUT to CASCADE IN throughout – otherwise, nirvana won't be achieved.

Mongoose
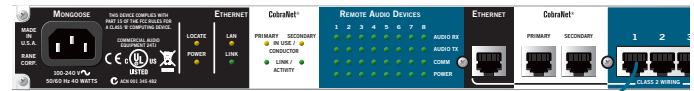
AM2 Automixer (up to eight)
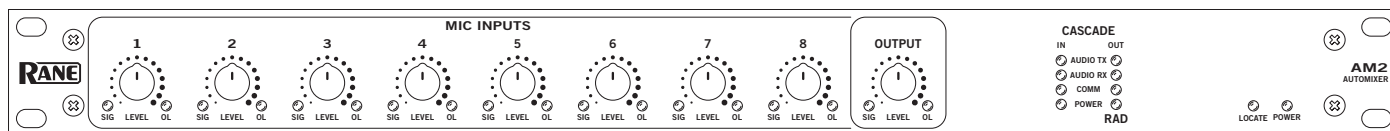

AM2 Automixer

AM2 Automixer

AM2 Automixer

AM2 Automixer

OPERATION

MIC INPUTS

The rear panel, three-position switches set the mic input gain such that the maximum signal permitted almost clips the A/D converter. This is true for each switch position. The Mic Inputs are automatically mixed using a gain-sharing algorithm. Set the inputs using the black knobs so they do not (or rarely) clip. Then, sit back and relax. If you've already set up the inputs and someone starts talking louder/closer than you expected, feel free to turn them down a little.

The green Signal indicators should easily light for soft talkers even at relatively low Level settings. The Overload indicator should light only occasionally for only the loudest talkers.

Since these Mic Inputs and their underlying gain-sharing automix algorithm are designed and optimized for speech signals, do not use these Inputs with non-speech audio signals such as those from musical instruments or CD/DVD players.

MAIN OUTPUT

The Main Output of an AM2 delivers the gain-sharing automix of it's Mic Inputs and all upstream inputs. The gray OUTPUT LEVEL control knob always adjusts the level of the Main Output. Remember, if mulitple AM2s are daisy-chained together (using CASCADE IN / OUT ports), the automatic mix of all microphones in the system is present at the Main Output of the last AM2 in the daisy-chain.

CASCADE IN PORT

The Cascade Input allows more mics to be added to the gain-sharing mic mix algorithm of the AM2's eight Mic Inputs. When a shielded Ethernet patch cable fed from another AM2's CASCADE OUT port is connected to the next AM2's CASCADE IN port, all cascaded AM2 microphones are automatically added to the automatic Mic Mix of the last AM2 in the chain. (US Patent Pending.)

Cascade audio is 24-bit, 48 kHz, fixed-point for the curious audio nerd.

When all four Cascade Status indicators light, this means the cable is wired properly. If any of the Status indicators are flashing, the cable is not wired properly or damaged. In this case, perhaps an Ethernet crossover cable was accidentally connected, or the cable crimp has an error.

We recommend using shielded twisted-pair for the best EMI performance.

CASCADE IN Status indicators are defined below:

AUDIO TX LED – lights when the AM2's audio is successfully transmitted to, and received by, the AM2. If this is off, check the cable.

AUDIO RX LED – lights when the connected AM2 successfully sends audio which also proves this twist in the cable is correct.

COMM LED – lights green when the AM2's CASCADE OUT is properly communicating with the other AM2 and proves that the twisted pair for Comm in the cable is good. If this indicator is off, the cable is not a happy camper.

POWER LED – is always on when the AM2 is powered. If the AM2 is powered and this is off, make sure the power twisted pair in the connected cable is not shorted.
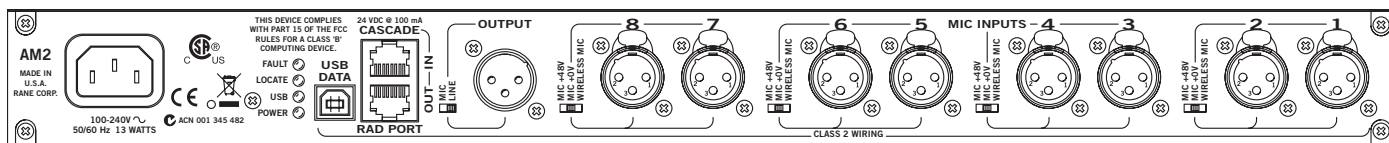
CASCADE OUT / RAD PORT

This port functions as a CASCADE OUT port when connected to the CASCADE IN port of a Rane AM1 or AM2 (sold separately). Connect the CASCADE OUT port of an AM2 to the CASCADE IN port of another automixer, to add it's Mic Inputs and all upstream inputs into the automatic gain-sharing mix of the downstream mixer. When cascaded, the signal on the CASCADE OUT port is *unaffected* by the gray OUTPUT LEVEL control.

This port functions as a RAD Port when connected to a Rane Mongoose (sold separately). The RAD port contains a Rane-specific digital audio transport protocol allowing audio delivery to a CobraNet™ digital audio network or another Remote Audio Device via a Rane Mongoose. The audio exiting the RAD port contains the Main Mix and is *attenuated* by the gray OUTPUT LEVEL control.

For inquisitive technophiles, RAD Port audio is 24-bit, 48 kHz, fixed-point.

RAD PORT Status indicators are defined below:

AUDIO TX LED – lights green when audio is received by a Mongoose or AM2. If this indicator is off, either the cable is bad, or there is a communications error between the devices (see COMM LED below).

AUDIO RX LED – lights green when the RAD Port successfully receives audio from the Mongoose or cascaded AM2. If this indicator is off, you may have a bad cable, or the device at the other end of the cable is not powered or connected.

COMM LED – lights green when communication is established between the Mongoose or a cascaded AM1 or AM2. This indicator turns off if the RAD Port cannot communcate with the other device for some reason – likely due to a faulty cable.

POWER LED – lights green when the RAD Port is receiving 24 volt power from the Mongoose or cascaded device. This also indicates that the twisted pair for power within the cable is wired and crimped properly. If the Power LED is off and the other end of the cable is plugged into a powered device, there is a problem with the cable.

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