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You can read the recommendations in the user guide, the technical guide or the installation guide for RANE RPM 88. You'll find the answers to all your questions on the RANE RPM 88 in the user manual (information, specifications, safety advice, size, accessories, etc.). Detailed instructions for use are in the User's Guide.

> **User manual RANE RPM 88**
> **User guide RANE RPM 88**
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RANE HARDWARE MANUAL RPM 88
PROGRAMMABLE MULTIPROCESSOR

QUICK START

This section is intended to help you make the physical connections and software manipulations necessary to get up and running with your sleek new RPM 88. If you don't read the entire Hardware Manual, at least read this section. It is also recommended that you read the Quick Start section of the Drag Net Software Manual. If the Drag Net software is not yet installed on your computer, please install it now.

To be safe, leave the audio connections until last. Begin by connecting the IEC power cord. Observe that the **POWER** LED on the front panel illuminates. After a few seconds, the **STATUS** LED should turn from red to yellow to green, and the **PRESET** display should have a number in it (00, if it's the first time you've powered the device). If the **POWER** comes on, but the **STATUS** LED does not turn green, contact the factory.

Connect one end of the Ethernet crossover cable (supplied with the unit) to the **10Base-T** jack on the rear panel. Connect the other end of the cable to an Ethernet port on your computer. The **LINK** LED on the rear panel should be lit. If it is not, verify that you are indeed using a crossover cable, not a standard Ethernet cable. A standard Ethernet cable should only be used if you are connecting the RPM 88 and a computer indirectly using an Ethernet repeater hub or switch. Launch the **Drag Net** application and follow the steps to create a new project and new RPM 88 device configuration. The **Project** window then appears. Click the **Configure Hardware IP** shortcut to set the unit's IP address to be compatible with your computer's Network settings. *Tip: If you aren't sure what IP to use, try the address 192.168.69.69 and subnet 255.255.255.0. This finds the default factory address without manually setting it.*

Now click on the **Poll** button in the toolbar. A device name and IP address should appear under the **Live** folder in the **Project** window. If a device does not appear, consult Drag Net's online **Help** for instructions on configuring and verifying your computer's Network settings.

The audio path within the RPM 88 is displayed in Drag Net's **Device Configuration** window as a collection of blocks wired together to form a **Processing Map**. These maps are created offline as **Storage** configurations, which are then transferred to a **Live** unit. Drag blocks from the **Palette** onto the **Processing Map** and wire them together to create the audio path. Save this file frequently using the **File > Save command**. Transfer the selected **Storage** configuration to a **Live** unit using the **Transfer Config** button in the **Project** window. A new, minty green **Device Configuration** window opens once the transfer is complete, indicating you are now online with a **Live** device. Double-click a processing block to display and adjust its **Properties** (parameters) in real time on a **Live** device – there is no need to go offline to make parameter changes.

Once you have a useful configuration in the unit, connect balanced audio **INPUTS** and **OUTPUTS** to the Euroblocks on the rear panel, then turn on the amplifier. As a precautionary measure, all outputs are muted during *and* after a configuration transfer. Unmute each output individually, or use the handy **Mute Outputs** button in the toolbar. Once all outputs are unmuted, audio passes through the unit along the connections you defined.

WEAR PARTS: This product contains no wear parts (or wash and wear parts, for that matter).

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Manual abstract:

If you don't read the entire Hardware Manual, at least read this section. It is also recommended that you read the Quick Start section of the Drag Net Software Manual. If the Drag Net software is not yet installed on your computer, please install it now. To be safe, leave the audio connections until last. Begin by connecting the IEC power cord. Observe that the POWER LED on the front panel illuminates. After a few seconds, the STATUS LED should turn from red to yellow to green, and the PRESET display should have a number in it (00, if it's the first time you've powered the device). If the POWER comes on, but the STATUS LED does not turn green, contact the factory. Connect one end of the Ethernet crossover cable (supplied with the unit) to the 10Base-T jack on the rear panel. Connect the other end of the cable to an Ethernet port on your computer.

The LINK LED on the rear panel should be lit. If it is not, verify that you are indeed using a crossover cable, not a standard Ethernet cable. A standard Ethernet cable should only be used if you are connecting the RPM 88 and a computer indirectly using an Ethernet repeater hub or switch. @@The Project window then appears. @@@@This finds the default factory address without manually setting it.

Now click on the Poll button in the toolbar. @@If a device does not appear, consult Drag Net's online Help for instructions on configuring and verifying your computer's Network settings. The audio path within the RPM 88 is displayed in Drag Net's Device Configuration window as a collection of blocks wired together to form a Processing Map. These maps are created offline as Storage configurations, which are then transferred to a Live unit. Drag blocks from the Palette onto the Processing Map and wire them together to create the audio path.

Save this file frequently using the File > Save command. Transfer the selected Storage configuration to a Live unit using the Transfer Config button in the Project window. A new, minty green Device Configuration window opens once the transfer is complete, indicating you are now online with a Live device. Double-click a processing block to display and adjust its Properties (parameters) in real time on a Live device there is no need to go offline to make parameter changes. Once you have a useful configuration in the unit, connect balanced audio INPUTS and OUTPUTS to the Euroblocks on the rear panel, then turn on the amplifier. As a precautionary measure, all outputs are muted during and after a configuration transfer. Unmute each output individually, or use the handy Mute Outputs button in the toolbar. Once all outputs are unmuted, audio passes through the unit along the connections you defined. WEAR PARTS: This product contains no wear parts (or wash and wear parts, for that matter). Manual- Front Panel Description INPUT -4 -12 -48 1 2 3 4 5 6 7 8 AES3 A LOCK B -4 -12 -48 PRESET OUTPUT -4 -12 -48 1 2 3 4 5 6 7 8 A AES3 B -4 -12 -48 PROGRAMMABLE MULTIPROCESSOR RPM 88 Peak dBFS VIP/VOP RW 485 ETHERNET STATUS POWER 1 2 3 4 5 6 7 8 1 Signal/Overload LED meters indicate the presence of significant audio signal or overload.

These 3-segment meters indicate the available headroom once the analog signal has been converted to digital: -4 dBFS (red, near clipping), -12 dBFS (yellow, high normal level), and -48 dBFS (green, low level). The analog signal level depends on the input and output settings and is displayed in Drag Net's Meter window. 2 AES3 LOCK LED lights solidly when a valid AES3 digital signal is detected on the AES3 input jack. There does not need to be an audio signal present at the input, only the "carrier" signal. 3 PRESET LED displays the number of the most recently recalled Preset, numbered 0 through 24. 4 VIP/VOP LED flashes when a change is detected on the Versatile Input Port (VIP) or Versatile Output Port (VOP). These ports are used for direct electrical connections to potentiometers, switches or other logic ports. The Versatile Input Port accepts up to eight contact closures or voltages; the Versatile Output Port drives eight loads (logic on/off). 5 RW 485 LED flashes when a change in setting is detected on the RW 485 Remote Interface Port. RW 485 is a serial communications protocol primarily used for Rane's Smart Remotes.

6 ETHERNET LED flashes when an Ethernet data packet for this device is received. 7 STATUS LED reflects the overall status of the unit: Red - initializing (briefly) or possible internal error. Yellow - working, but not currently processing audio. Green - processing audio. 8 POWER LED lights solidly when the unit is powered on.

Manual- Rear Panel Description 3 COMMERCIAL AUDIO EQUIPMENT 24TJ 2 INPUTS 4 + + RPM 88 MADE IN U.S.A. RANE CORP. + OUTPUTS 8 + R 7 + 6 + 5 3 + 2 + 1 + 8 + 7 + 6 + 5 + 4 + 3 + 2 + 1 ACN 001 345 482 + + + + + + + + + + + + + + + + 10Base-T REMOTE INTERFACE PORT FOR CONTINUED GROUNDING PROTECTION DO NOT REMOVE SCREW AES3 OUT VERSATILE OUTPUT PORT OPEN COLLECTOR +40 VDC / 100 mA MAX 1 2 3 4 5 6 7 100 mA MAX 8 +12 GND 1 2 3 AES3 IN VERSATILE INPUT PORT 0-5V 4 5 6 7 +5v / 100 mA 8 REF GND (RW 485) A B +V -V DEFAULT LAN LINK 100-240V 50/60 Hz 55 WATTS A B +V -V 1 2 3 4 5 6 7 8 +12 GND 1 2 3 4 5 6 7 8 REF GND This device complies with Part 15 of the FCC Rules.

Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. 1 10 9 8 7 6 5 4 1 POWER IEC jack connects to AC line voltage, 100-240 VAC ±10%. 2 Balanced analog audio Inputs 1 through 8. Euroblock connectors. 3 Balanced analog audio Outputs 1 through 8. Euroblock connectors. 4 AES3 digital audio Input and Output. XLR female (input) and male (output) connectors. 5 Versatile Input Port provides 8 logic or voltage inputs for remote level control and Preset recall. Euroblock connector.

6 Versatile Output Port provides 8 logic outputs capable of driving small relays, LEDs or other logic inputs. Euroblock connector. 7 RW 485 Port communicates with Rane's Smart Remotes. A maximum of 280 mA of current is available for powering remotes. Euroblock connector. 8 LAN and LINK reflect the state of the Ethernet connection. LINK lights solidly when a valid connection to another Ethernet device (e.g., a PC) is detected. LAN flashes when communicating with another Ethernet device.

9 10Base-T jack accepts a standard Ethernet cable. RJ-45 connector. 0 DEFAULT button recalls Preset 1 when pressed. Holding this button while applying power puts the unit into a special codeload mode for updating firmware. The letters "CL" appear on the PRESET LED display when the device is in codeload mode.

Manual- Audio Connections As a safety precaution, turn all devices (especially power amplifiers) OFF when making connections. Doing so gives you a chance to find and correct wiring mistakes and prevent damage to your amplifiers, speakers, ears, etc. Analog Inputs and Outputs The RPM 88 has eight balanced analog Inputs and eight balanced analog Outputs. For each Input or Output Euroblock connector: · Connect the (positive) audio line to the '+' terminal. @@ · Connect the cable shield to the ground terminal.

@@@@@@Analog Input Stage Each analog input uses a two-stage gain approach.

@@@ · Connect to an external A/D or D/A converter, effectively adding two more analog inputs or outputs. Incoming Sample Rate and Word Length The AES3 input has a built-in sample rate converter capable of accepting incoming sample rates up to 96 kHz. Sample rates exceeding the RPM 88's internal 48 kHz sample rate are automatically downsampled. Word lengths up to 24-bits are accepted. Outgoing Sample Rate and Word Length The AES3 output uses a fixed 48 kHz sample rate and 24-bit word length. Manual- Control Connections Versatile Input Port (VIP) Eight logic input pins are provided, each capable of accepting DC voltage between 0 and 5 volts. VIP pins are used with contact closure switches for Preset recall, or with potentiometers for r3 remote requires approximately 90 mA, thus up to three SR 3 remotes can be powered directly from the RPM 88. Additional remotes may be powered using an external supply (8 to 15 VDC regulated, minimum 0.8 amperes), leaving the +V terminal of the RPM 88's RW 485 port disconnected.

The RW 485 port is intended to be used with Rane's Smart Remotes only; we do not recommend directly interfacing the RW 485 port with devices that are not compliant with the TIA/ EIA-485 standard, such as the "485" ports found on AMX and Crestron devices. AMX and Crestron Control There are two ways to control a Drag Net device from an AMX or Crestron system. Use either Ethernet connectivity or use the rear panel Versatile Input Port (VIP). Each of the 8 VIP pins supports either switch closure Preset recall or zero-to-five volt control of Level. The RW 485 ports found on some Drag Net devices do not communicate with AMX or Crestron systems. They are solely for communicating with Rane's RW 485 remotes. Many AMX/Crestron applications require simple Level control and/or Preset recall. This is most easily accomplished using the VIP (Versatile Input Port) found on all five Drag Net devices: RPM 2, RPM 26z, RPM 22, RPM 44 & RPM 88. There are always more Drag Net products coming -- both hardware and software, so check our home page for the most recent. VIP Preset Recall Connect a switch closure or relay to a VIP pin and short it to the ground (GND) pin to recall the corresponding Preset. For example, shorting VIP pin 1 to the GND terminal recalls Preset 1; pin 2 recalls Preset 2, etc. There are more details about this functionality in the Drag Net Help file and on our Drag Net Applications page. Be certain to appropriately set the VIP Allocation in Drag Net's Parameter Window. If GND contention of two or more pins simultaneously occurs, the highest-numbered VIP pin takes precedence. For example, if pin 3 is shorted to GND and pin 6 is then shorted to GND, Preset 6 is recalled.

If pin 3 is closed and then pin 2, nothing happens -- Preset 2 is not recalled. This permits a hierarchy of Presets when using VIP pin closures for tiered priority paging. Since there are only eight VIP pins, you can only recall up to eight Presets using switch closures. There are four ways to recall more than eight presets. 1.

Use the Drag Net software Recall button which is only intended for the system installer/designer. 2. Use the Rane SR 4 remote to recall any eight Presets. 3. Use a Rane SR 3 remote which can recall any 16 of the available 24 Presets. 4. Use an Ethernet command from an AMX or Crestron Ethernet-equipped product. [When using Drag Net's Auto Mixer/Ducker block, you have the ability to link a VIP pin closure to a push-to-talk switch in a paging or boardroom application. When using the Ducker block in these applications, the VIP pins act independently provided you Group the appropriate VIP pin with the Auto Mixer/Ducker's Input in Drag Net's Remote Map. Again, see our Drag Net Applications for examples.

] VIP Level control Connect a zero to five volt DC voltage to a VIP pin from an AMX or Crestron card to adjust any or all Level blocks placed in the Processing Map. Use Groups in Drag Net's Remote Map to link one or more Level blocks so they track each other when using a VIP pin. Be certain to appropriately set the VIP Allocation in Drag Net's Parameter Window. When using VIP pins with Level blocks, set the minimum and maximum for each Level block by double-clicking it while it's in a Remote Map Group. This keeps the max and min burdens within the Drag Net device -- but only when using the VIP pin to control Levels, not when adjusting Levels from Ethernet commands. You can use up to eight voltage control inputs linked to Level(s) using the rear panel VIP pins. @@@@@@@Ethernet control To download the AMX or Crestron control code and documentation, visit these web pages: For AMX NetLinx code: www.rane.com/dnamx.html For Crestron code: www.

rane.com/dncrestron.html Ethernet Port The Ethernet port is used to configure, monitor, and control the RPM 88 via standard 10Base-T Ethernet communication. Use an Ethernet crossover cable (one is included with each unit) to connect the RPM 88 directly to a computer. Use a standard (non-crossover) Ethernet cable if the RPM 88 and computer are connected indirectly using an Ethernet repeater hub or switch.

All devices connected to the Ethernet port, including repeater hubs, switches, and the computer's Network Interface Card (NIC) must support 10Base-T communication. ©Rane Corporation 080 7th Ave. W., Mukilteo WA 987-098 USA TEL --000 FAX -7-777 WEB www.rane. com Manual- 108358 .