RANE

Audio Products for Professionals

2016 Contractor Product Catalog

HAL System

Introduction

HAL is more than just another DSP drag-and-drop system. It has revolutionized system design and installation.

HAL is an expert in room combining, paging and distributed audio systems. This groundbreaking architecture is dimensions beyond any solution in any industry. HAL easily guides even novice users through what used to be complex tasks in just minutes. No intricate matrix mixing or presets are required for room combining and paging. No virtual wiring is required to distribute pages and background music to multiple, even hundreds of zones.

Seamlessly interface HAL to your application with web controls and/or a broad variety of peripheral devices including smart Digital Remotes, a 7-inch programmable touchscreen, Remote Audio Devices (RADs), portable or rack automixers, audio I/O, Dante, and logic expansion devices, wall sensors, ambient sensing mics, and an advanced Paging Station. Control HAL functions from a web browser in any smartphone, computer or tablet – including iPads, iPhones, Androids, Samsung, etc. The Event Manager can automate HAL's DSP using dates and times.

In addition, the HAL Multiprocessor and Halogen™ software check the status, location, CAT 5 wiring integrity, and that audio is flowing in all peripheral devices, so you know your system is properly connected and ready to go. Does your DSP troubleshoot the cable install for you and offer a "Get on the Plane" indicator that shows you that the installers have truly finished their job? It should.

Halogen software includes Ethernet control support for third-party control systems such as AMX®, Crestron® and Stardraw Control™, including well-documented examples. Standard TCP/IP set and get ASCII text messages control levels, selectors, presets and toggle software actions. Since the same Halogen software code runs on both Windows® and within HAL hardware, third-party control developers can test all their code using only the Halogen Windows software. Use only software for complete system design and validation. Buy the hardware only when the install date arrives and completely skip needing it early solely for control system programming verification.

Analog audio has always offered "plug it in, it works!" functionality. With HAL's modern DSP system, finally digital audio offers "plug it in, it works". Without IP anything, without DHCP servers, without unblocking ports, without firmware mismatches, without hours (or days?) of bad cable termination or swapped cable-pull troubleshooting, and other troubles caused by Ethernet and other supposedly modern digital audio and control transports.

Four HAL multiprocessors provide various audio I/O and control options for both large and small installations.

- HAL1x supports 16 in x 16 out audio, which may be increased up to 528 in x 528 out by adding up to 32 daisy-chained Expanders to a single HAL1x. Add a few to hundreds of more mic inputs with AM Automixers.
- HAL2 supports 18 in x 18 out audio, of which 2 x 2 are via AES3 on XLR connections.
- HAL3s supports 6 in x 10 out audio. The 2 "Mic/Line-Plus" Inputs accept balanced, or unbalanced left/right monoed.
- HAL4 supports 2 in x 2 out audio. The 2 "Mic/Line-Plus" Inputs accept balanced, or unbalanced left/right monoed.

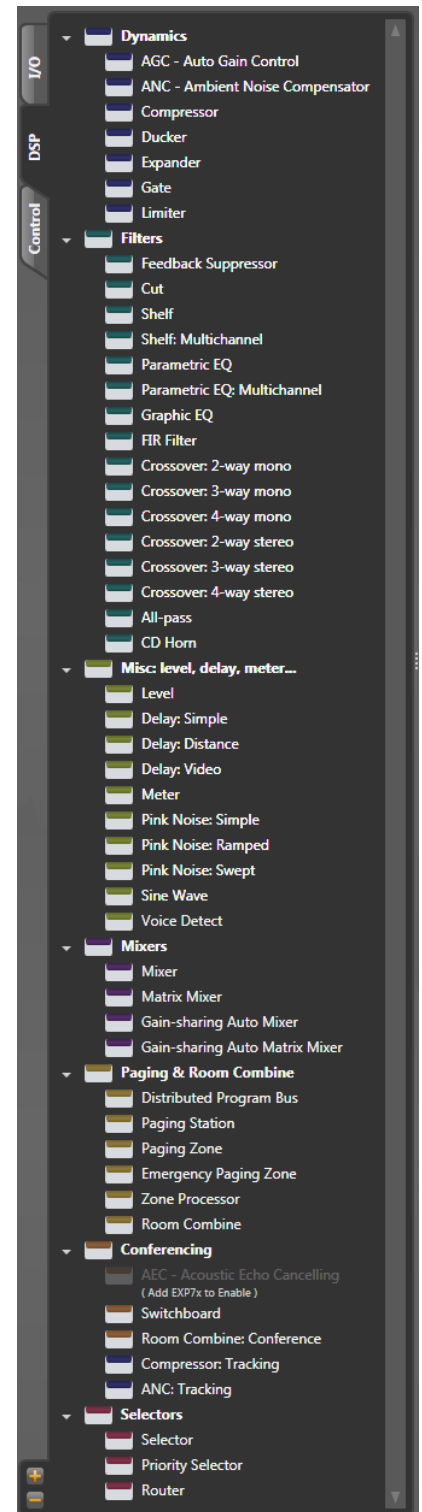**Download Halogen and design a system now!**

rane.com/hal

Applications, installations and solutions are at

blog.rane.com
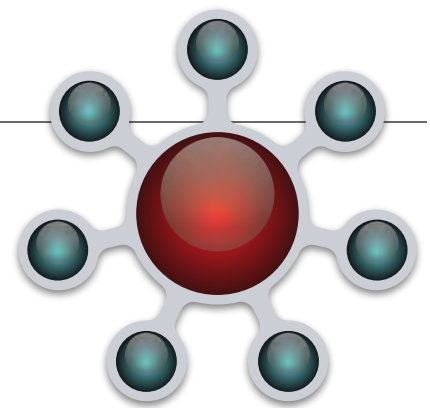
HAL Comparison

HAL1x Expansion Bus Supports 32 Daisy-chained EXPs in Any Combination

• Connects with shielded CAT 5e (or better) cable and RJ-45s; Maximum distance between units = 100 meters (300 feet).
• Supports Gigabit Ethernet Media Converters: Multimode max = 2 km (1.2 miles); Singlemode max = 12 km (7.5 miles).

HAL1x Multiprocessor

• 16 in x 16 out - 8x8 analog & 8x8 digital (RAD ports).
• Up to 4 RADs (without EXP1x), up to 260 RADs (with 32 EXP1s).
• Up to 12 Digital Remotes (without EXPs), up to 268 (with EXPs).
• Four logic inputs, Two relay outputs (more with DR4 or DR5).

|	
Analog Mic / Line Inputs **8**	**8** Analog Line Outputs
Digital RAD Port Inputs **8**	**8** Digital RAD Port Outputs
Digital Expansion into HAL1x **512**	**512** Digital Expansion from HAL1x
Total in the **HAL1x** DSP Brain **528**	**528**

Inputs   **Outputs**
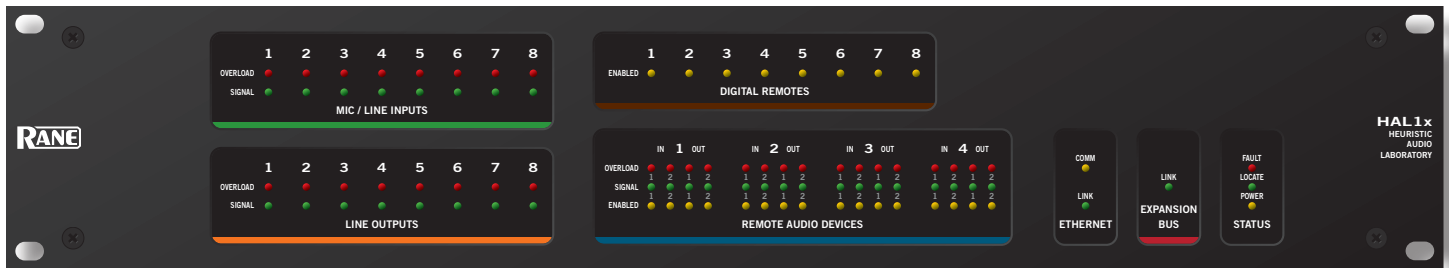
Daisy-chain up to 32 Expanders with the Expansion Bus (in red).
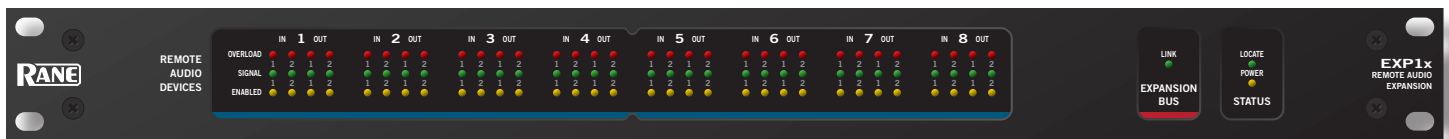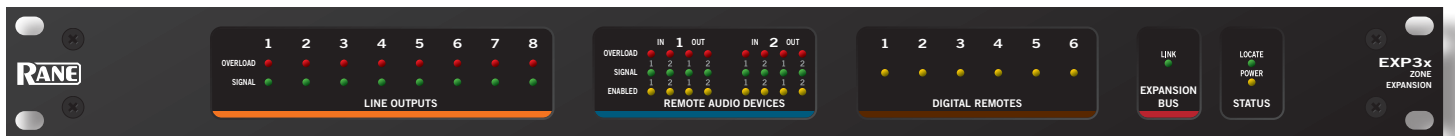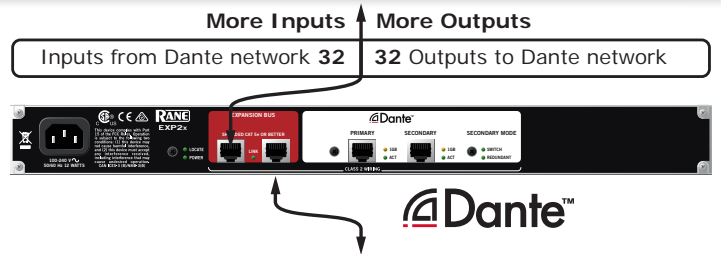
EXP1x RAD Expander for HAL1x

• Adds 16 in x 16 out digital (8 more RAD ports) to HAL1x.
• Up to 8 Digital Remotes or RADs in any combination.
• Chain up to 32 EXP1x units to a HAL1x for 512 in x 512 out.

More Inputs ↑ **More Outputs**

|	
Digital RAD Port Inputs **16**	**16** Digital RAD Port Outputs
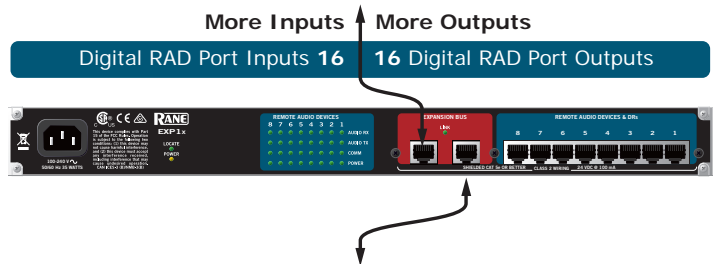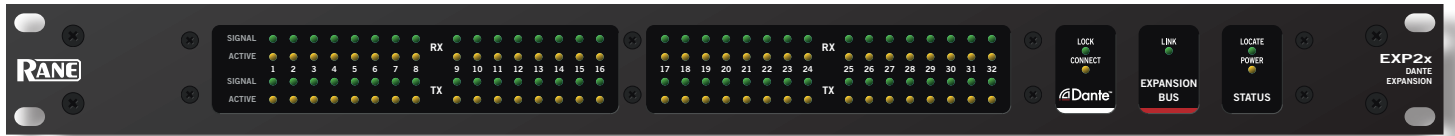
EXP2x Dante Expander for HAL1x

- Lets a HAL1x send and receive 32 channels to a Dante network.
- Supports 44.1, 48, 88.2 or 96 kHz Dante network sample rates.
- Chain up to 16 EXP2x units to a HAL1x for 512 in x 512 out.

More Inputs   **More Outputs**

| Inputs from Dante network **32**	**32** Outputs to Dante network

EXP3x Zone Output Expander for HAL1x

- Adds 8 analog line outputs and 8 logic outputs to a HAL1x.
- Adds 6 Digital Remote ports & 2 RAD ports to a HAL1x.
- Chain up to 32 EXP3x units to a HAL1x for 256 outputs.

More Inputs   **More Outputs**

	8 Analog Line Outputs
Digital RAD Port Inputs **4**	**4** Digital RAD Port Outputs
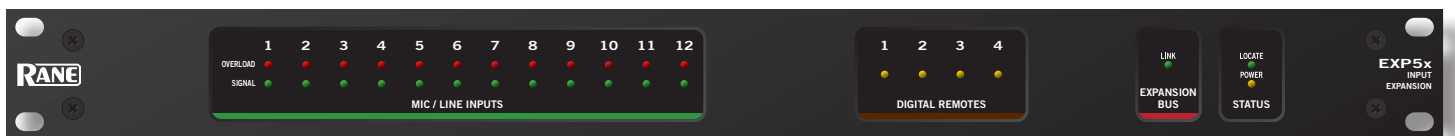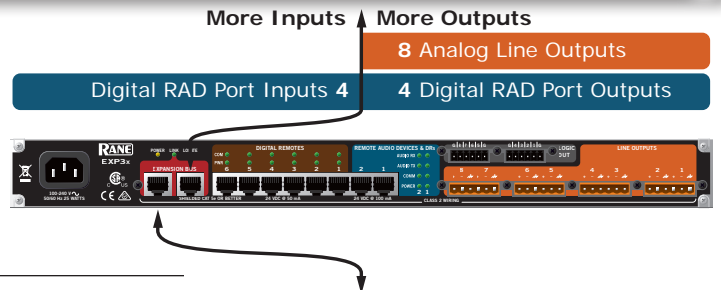
EXP5x Input Expander for HAL1x

- Adds 12 analog mic / line / line-plus* inputs to a HAL1x.
- Adds 4 Digital Remote ports to a HAL1x.
- Chain up to 32 EXP5x units to a HAL1x for 384 analog outputs.

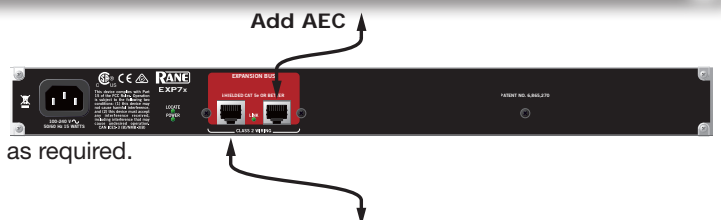**More Inputs**

Mic / Line / Line-Plus Inputs **12**
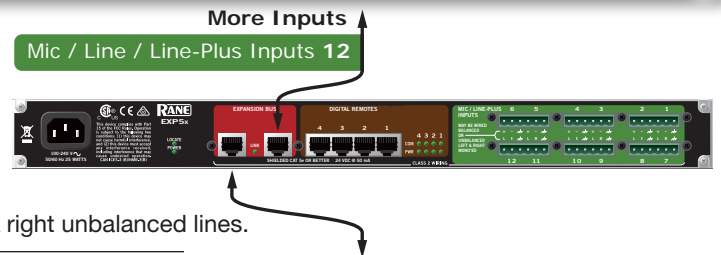
*"Mic / Line-Plus" Inputs accept a mic, balanced line, or mono left & right unbalanced lines.

EXP7x AEC Expander for HAL1x

- Adds 8 channels of Acoustic Echo Cancelling DSP to a HAL1x.
- Chain up to 32 EXP7x units to a HAL1x for 256 AEC channels.
- Preset recall can re-assign an AEC resource across inputs / rooms as required.

Add AEC

RANE

HAL2 Multiprocessor

• 18 in x 18 out - 8x8 analog & 8x8 digital (RAD ports) & AES3 I/O.
• Up to 8 Digital Remotes (plus Halogen web controls).
• Four logic inputs (closure).
• Two relay outputs.

	Inputs	Outputs	
Analog Mic / Line Inputs	8	8	Analog Line Outputs
Digital RAD Port Inputs	8	8	Digital RAD Port Outputs
(AES3) Input Channels	2	2	(AES3) Output Channels
Total in the **HAL2** DSP Brain	18	18	
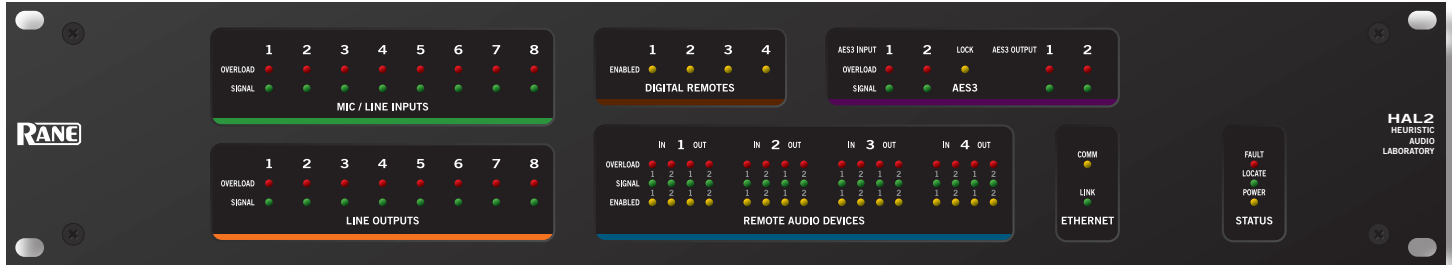
HAL3s Multiprocessor

• 6 line in x 10 line out - 2x6 analog & 4x4 digital (2 RAD ports).
• Up to four Digital Remotes (plus Halogen web controls).
• Four logic inputs (closure).
• Mic / Line-Plus inputs can be configured: Mic with or without +48V, "+4 dBu balanced" or "-10 dBV unbalanced Left/Right Monoed."

	Inputs	Outputs	
Analog Line-Plus Inputs	2	6	Analog Line Outputs
Digital RAD Port Inputs	4	4	Digital RAD Port Outputs
Total in the **HAL3s** DSP Brain	6	10	
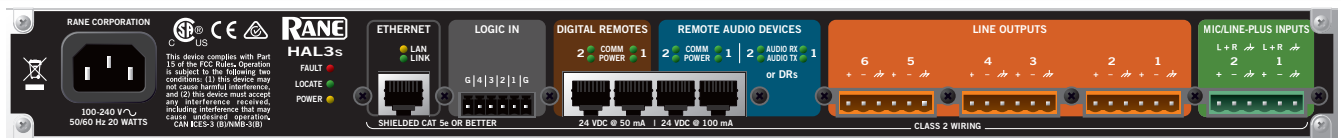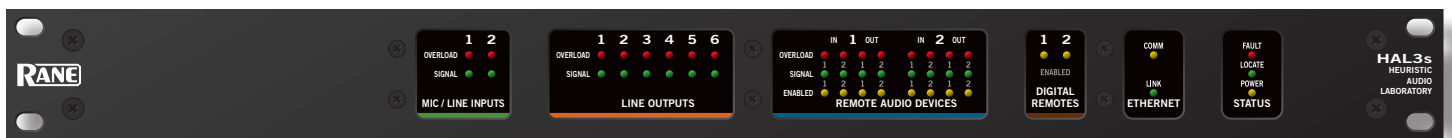
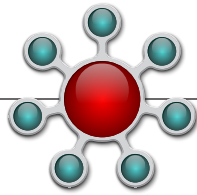## HAL4 Multiprocessor

• 2 Mic / Line-Plus inputs x 2 line outputs (see description in HAL3s).
• One Digital Remote port (plus Halogen web controls).
• The HAL4 delivers more bang for the buck than any other drag-and-drop DSP on the market.

	Inputs	Outputs	
Analog Mic/Line-Plus Inputs	2	2	Analog Line Outputs
Total in the **HAL4** DSP Brain	2	2	

5

HAL Control
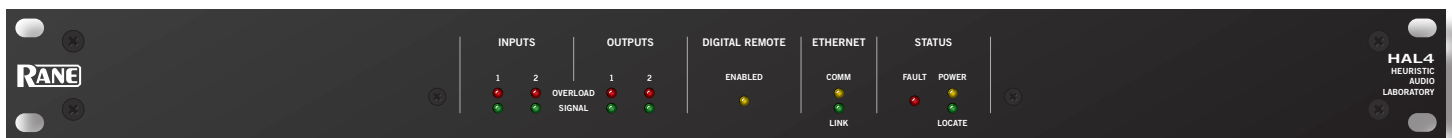
Halogen Software

The Halogen software application is your home for designing, configuring, and controlling your HAL audio system. Halogen's easy-to-use graphic user interface simplifies the design and configuration process so much that your only concern will be deciding 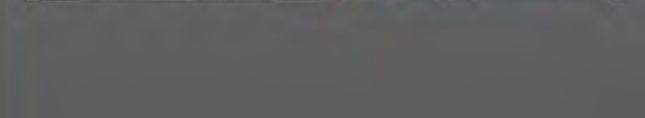how to use the extra time you have! The Halogen software manages global tasks such as discovering, connecting to, and applying configurations to HAL devices. The interface is divided into two main sections: the Hardware Workspace and the Processing Workspace. Halogen helps you choose the best HAL Model to start a new configuration.

Choose HAL Model for new configuration

HAL Model	Inputs	Outputs	Ports
HAL1x	8 Mic/Line	8 Line	4 RAD, 8 DR, 4 Logic In, 2 Relay Out, 1 EXP (RJ-45)
HAL2	8 Mic/Line, 2 AES3	8 Line, 2 AES3	4 RAD, 4 DR, 4 IR, 4 Logic In, 2 Relay Out
HAL3	2 Line-Plus	6 Line	1 RAD, 3 DR, 4 Logic In
HAL3s	2 Mic/Line-Plus	6 Line	2 RAD, 2 DR, 4 Logic In
HAL4	2 Mic/Line-Plus	2 Line	1 DR

HAL3s

|	
Input(s):	Two - Mic/Line-Plus, selectable from software between: Dynamic mic (Euro) Condenser mic with 48 V phantom power (Euro) Two consumer unbalanced L & R monoed (Euro) One balanced line-level (Euro)
Output(s):	Six - balanced line-level (Euro)
Ports:	Two - Remote Audio Device (RJ-45) Two - Digital Remote (RJ-45) Four - Logic In (Euro)
Form Factor:	1U rack mount

Hardware Workspace

Specify and configure the physical hardware components of your audio system. Troubleshooting messages specify any problems.
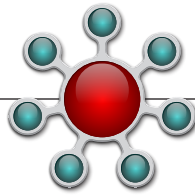
Processing Workspace

Wire together the audio processing components of your system, adding and configuring standard processing blocks such as equalizers, matrix mixers, compressors, limiters, and so on. Manage and configure control links and presets here. Halogen also provides innovative processing blocks that simplify complex multizone background music, paging and room combine scenarios.

Notice that Halogen separates the hardware view from the processing view of your audio system. A key benefit of this separation is the flexibility it provides when configuring the system's various inputs and outputs. For example, suppose you have a RAD2 in your audio system. You drag the RAD2 device into the Hardware Workspace but then go to the Processing Workspace to configure the RAD2's line input and mic input. This separation of hardware from processing allows you to work with each input and output individually instead of having to work with the hardware device as a single entity. It also allows you to focus on hardware in one place and audio flow and processing in another place—simplifying your job as a result. Brilliant!

Workspace Layout

As you may have noticed, the Hardware Workspace and the Processing Workspace have similar layouts. On the right is the actual workspace itself in which you create your system. Associated with each workspace is a palette of objects on the left, and at the top a toolbar specific to the workspace. To add an entity to your audio system, you drag one or more objects from the palette to the workspace.

A simple way to think of the Halogen workspaces is that you use the Hardware Workspace to create, connect and troubleshoot all of your physical hardware, while you use the Processing Workspace to select, configure, and connect the processing blocks and controls.

Wire Management
- Distributed Program Bus
- Paging Manager
- Orthogonal Wires
- Wire Tags
- Highlight Wires

HAL Control

Digital Remotes

Three Digital Remotes simplify end user control and eliminate installer brain fatigue. Use Digital Remotes for volume control, preset recall, source selection, or resetting or toggling system states. All offer customizable backlit LCD screens for intuitive end user labeling. Home run shielded CAT 5e (or better) connections to a HAL or EXP eliminate addressing, external power, and the need to test the cables, which can run up to 300 meters (1,000 feet).

The DR1 supports Level Control.

The DR2 offers Single Selector or List of Toggles/Commands behavior.

The DR3 has three behaviors: Single Level & List of Toggles/Commands, List of Levels for either multizone volume control or input source mixing, and Single Level plus Selector.

DR1 Digital Volume Remote

Level Control

Halogen Control Linking

Drag the control chain icons atop one another to create links. This screen shows linking a DR1 volume onto the Meeting Room Output Level control. Four Control Link types and behaviors are supported: Level, Select, Toggle or Command. Activation and Priorities work together for incredible flexibility. Link simple analog remote level pots by adding a DR4 Logic I/O Remote.

DR2 Digital Selection Remote
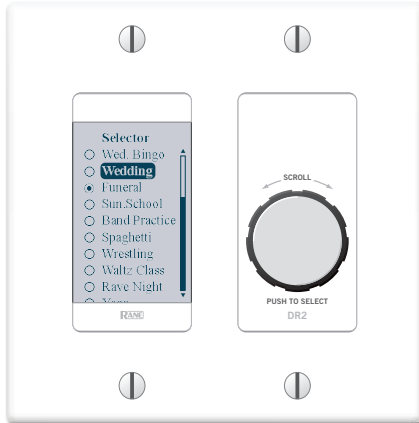
Single Selector

List of Toggles / Commands

DR3 Digital Volume and Selection Remote
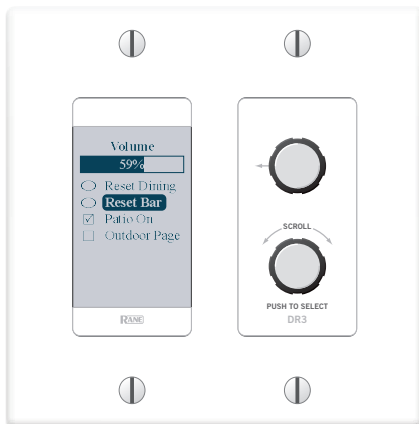
Single Level & List of Toggles / Commands
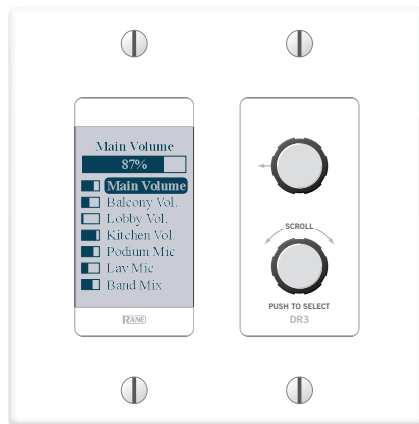
List of Levels
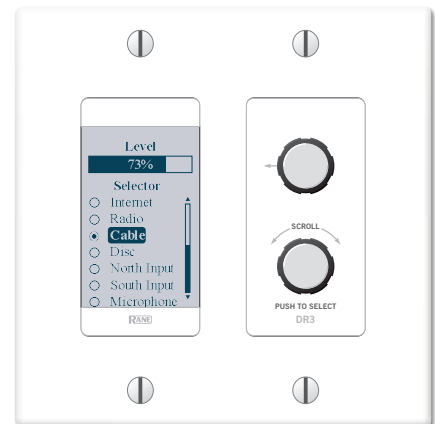
Single Level & Selector

DR4 Logic I/O Expander

The DR4 Digital Remote adds additional logic input and output ports to any HAL, enabling simple analog level and logic I/O controls plus IR2 remotes for wall sensing. The DR4 offers eight logic ins and outs, six IR ports and eight analog input ports for pot-on-a-wall level control. Multiple DR4's can connect to Digital Remote Ports on any HAL, up to 300 meters (1000 feet) away.

DR5 Switch Controller

The DR5 Digital Remote offers additional logic input and output ports, enabling the use of simple analog switch controls in any HAL system. Lighted switch panels for room combine applications are easily integrated into a HAL system using the eight switch inputs and eight LEDs outputs on the DR5. Unlike the HAL and DR4 Logic I/O, the DR5 Logic Out is intended to drive the LED indicator o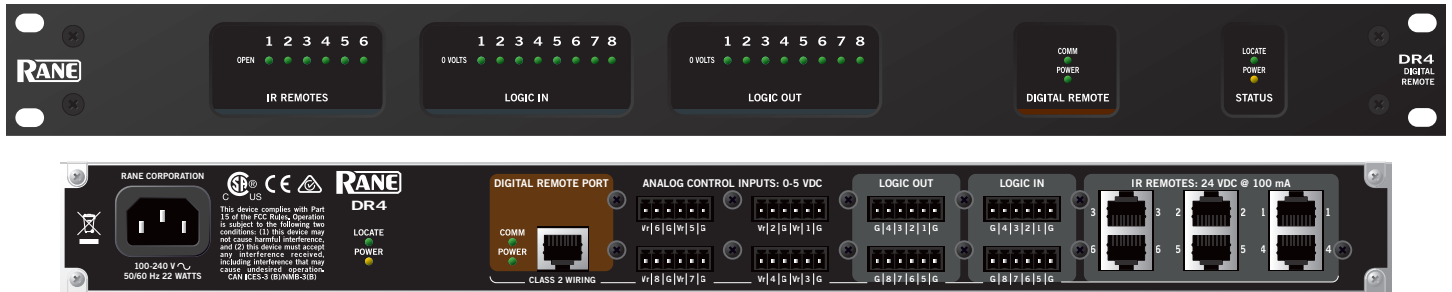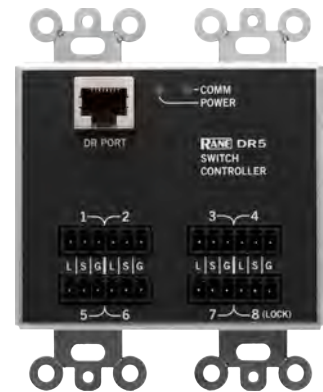n a room combine panel, and is a writable parameter. The DR5 is designed to fit in a standard US dual-gang electrical box or mount directly near a room combine panel.

DR6 Touchscreen Remote Control

The new DR6 is a fully customizable touchscreen remote for the HAL family. It supports multiple pages or tabs and any set of levels, toggles, selectors and/or commands. Drag, drop and resize controls any way that's desired. Use custom background images and logos in full-color on the 7-inch LCD display.

Screw the included wall-mount bracket over U.S. or international electrical boxes, or flush mount the ¾" thick DR6 with a 2-inch hole in the wall to accommodate the cable. The optional DS1 desk stand accessory (shown) allows the DR6 to mount on a horizontal surface. The optional RB2 allows the DR6 to mount in a 19" rack.

The included midspan power injector connects CAT5e (or better) cables between any HAL and the DR6 to deliver communications and the extra power needed for the display. Optional, on-screen User Access logins secure management pages from public or staff use, and a programmable ambient light sensor automatically dims the backlight.

The Control Page Designer in Halogen allows you to create one set of pages and use them in a web control design, DR6 display or both.
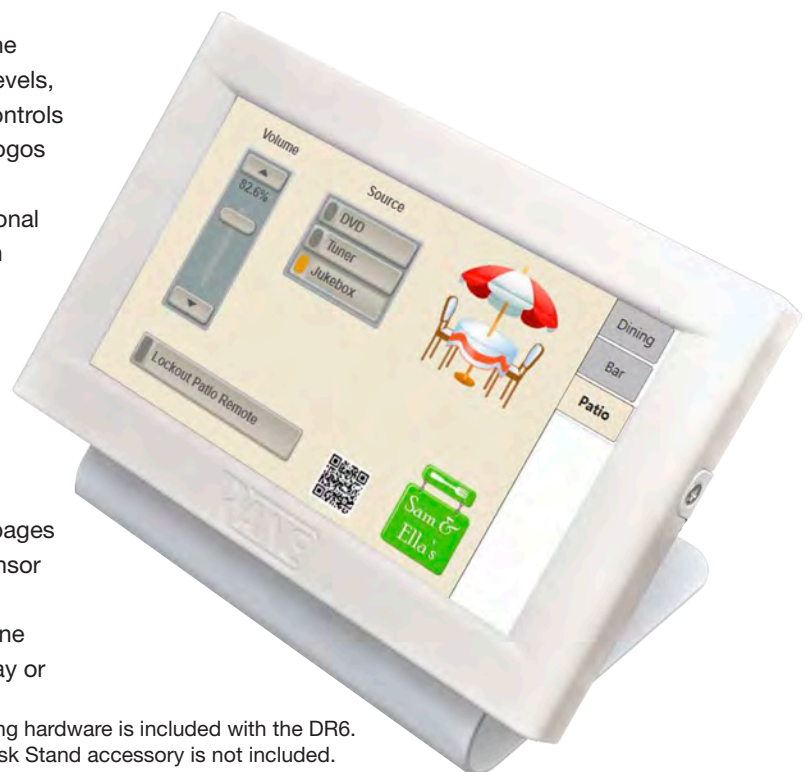
Wall mounting hardware is included with the DR6. The DS1 Desk Stand accessory is not included.

RANE

New! RAD26 One Room RAD Remote

Using one shielded category cable drop, the RAD26 provides any room with a dual 4-watt amp, end user control via a color custom LCD display & encoders, a dual universal audio I/O interface, plus headphone output and line-level input jacks for local needs. Three logic closure inputs and three active-low outputs add to the control capabilities. The amplifier permits a single channel option at 8 watts into 8Ω. Applications include:
• Presentation source & volume, projector & screen control.
• Meeting room with A/V teleconferencing and speakers.
• Spa with BGM, local music input and stereo speakers.
• Hotel or cruise ship room TV and local input sound system.
A RAD26 provides enough I/O and control to support one room in a HAL audio system which may require these features:
• Local audio line input (smartphone, laptop, MP3, DVD).
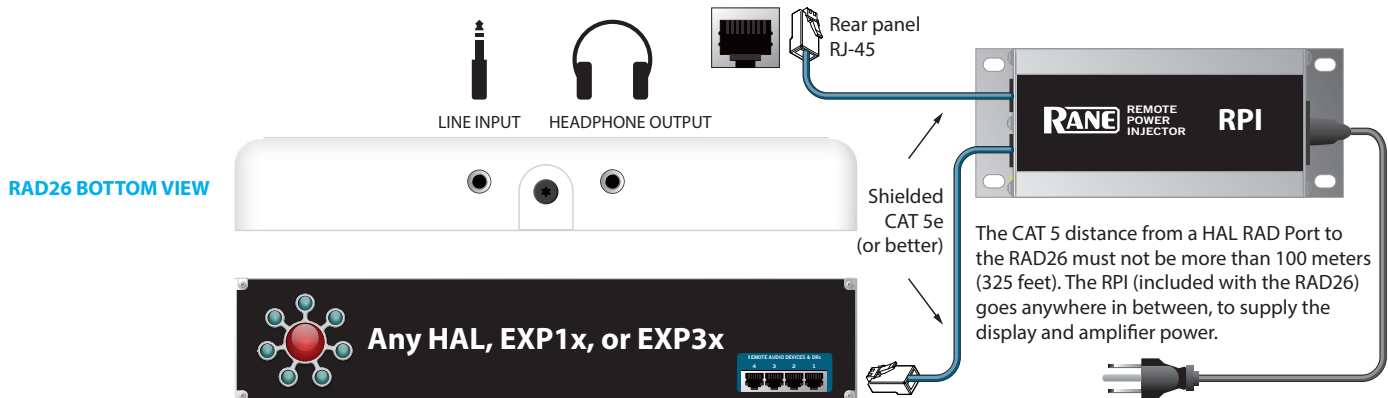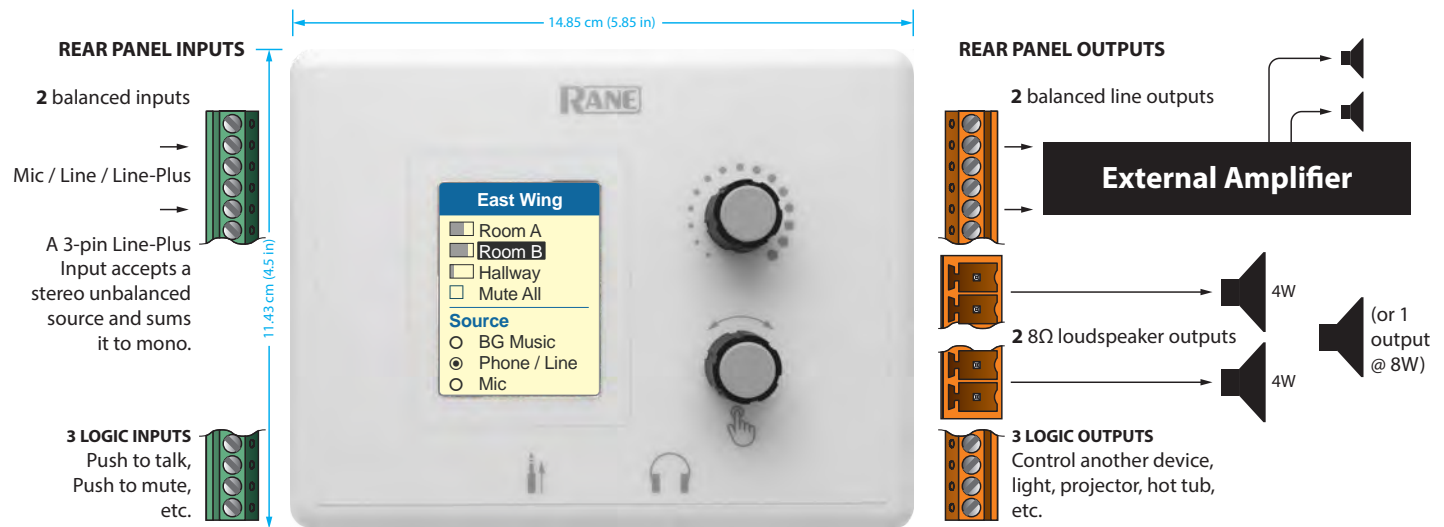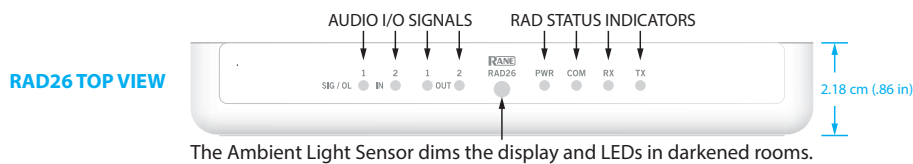• One or two microphone or line-level inputs.
• Amplifier outputs for ceiling speakers.
• Level control and source selection.

Each RAD26 may be installed onto a standard US 2-gang electrical box, 1-gang electrical box, or flush-mounted to a wall surface. The exterior finish is matte white.

Source and level behave like a DR3 remote, but with any combination of Levels, Toggles, Selections or Commands. On the back there are 2 balanced Euroblock Mic / Line / Line-Plus audio inputs with the mode set in Halogen software. The Line-Plus inputs accept unbalanced left and right signals and sums them to mono. 24V phantom power is available for condenser mics. For end users, there is a 3.5 mm Aux input on the underside of the front, accepting the output of a smartphone, laptop or other consumer device.

A built-in 4-watt stereo amplifier powers a small stereo pair of speakers, or this amp can be switched in software to power a single 8-watt speaker. Balanced line outputs can drive an external amplifier or powered subwoofer for more output.

Software logic senses an inserted connector at the Aux In or Headphone jacks to optionally override the rear connections.

AUDIO I/O SIGNALS   RAD STATUS INDICATORS

RAD26 TOP VIEW

2.18 cm (.86 in)

The Ambient Light Sensor dims the display and LEDs in darkened rooms.

REAR PANEL INPUTS

2 balanced inputs

Mic / Line / Line-Plus

A 3-pin Line-Plus Input accepts a stereo unbalanced source and sums it to mono.

14.85 cm (5.85 in)

11.43 cm (4.5 in)

East Wing
☐ Room A
☐ Room B
☐ Hallway
☐ Mute All
Source
○ BG Music
◉ Phone / Line
○ Mic

3 LOGIC INPUTS
Push to talk,
Push to mute,
etc.

REAR PANEL OUTPUTS

2 balanced line outputs

External Amplifier

2 8Ω loudspeaker outputs

4W

4W

(or 1 output @ 8W)

3 LOGIC OUTPUTS
Control another device, light, projector, hot tub, etc.

LINE INPUT   HEADPHONE OUTPUT

Rear panel RJ-45

RANE REMOTE POWER INJECTOR **RPI**

RAD26 BOTTOM VIEW

Shielded CAT 5e (or better)

Any HAL, EXP1x, or EXP3x

REMOTE AUDIO DEVICES & DRs

The CAT 5 distance from a HAL RAD Port to the RAD26 must not be more than 100 meters (325 feet). The RPI (included with the RAD26) goes anywhere in between, to supply the display and amplifier power.

HAL Control

Halogen Web Controls

Control the Levels, Selectors, Toggles and Commands in any HAL System from **any device with a web browser**. Halogen's Web Controls feature allows creation of custom HTML GUI control screens. Define the quantity of control pages, and the layout, labeling and size of each control, and completely test them using your default web browser from within Halogen.

Access any control page from any browser-enabled device on the network with a HAL device. Just open a browser and type in the customizable IP/webpage address for the HTML page – and bookmark it for easy access. Type in an optional User Access code, and voilà, the trick, she is done! Control your HAL system wirelessly from one or more tablets, smart phones, laptops or desktop computers. The HAL web server is multi-client, allowing control across many devices and many rooms. You can link Rane's wired DR remote controls (DR1, DR2, DR3 & DR6) and wireless devices and they'll automatically track each other. Customers from almost every audio application are asking for "iPad control" and Halogen's Web Controls is the solution. It is not Apple®-centric — no app store installs required. Think of all the devices that support web browsers and wireless Ethernet.
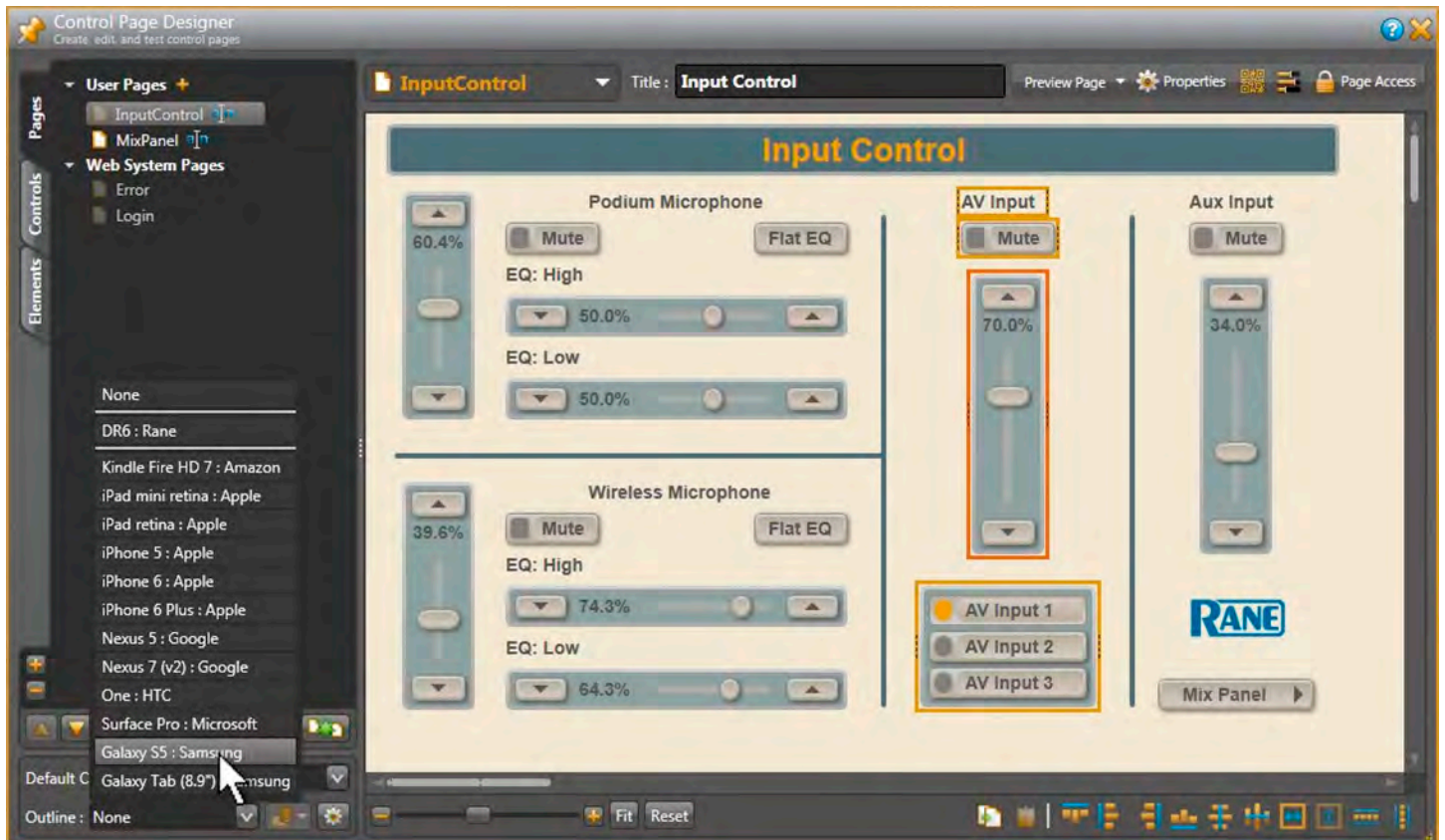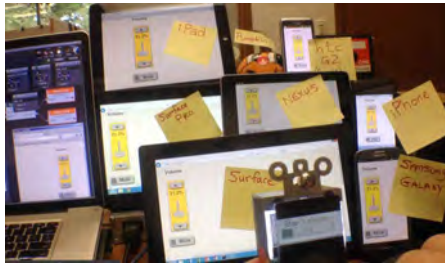
PAGER1 Paging Station

The PAGER1 is a RAD with a mic preamp, paging zone(s) [Scenario] selector and an integrated push-to-talk switch. It sits on or can fasten to a tabletop, and accepts any gooseneck microphone (not included).

IR2 Infrared Wall Sensors

The Rane IR2 provides an automatic way to sense the position of a movable wall or door. Mounting brackets and screws are included. A single CAT 5e cable for each door connects the IR2 pair to a dedicated IR Remote port on the rear of a HAL2 or a DR4.

Halogen's Room Combine Processor supports custom wall layouts and auto-activation of independent room processors for each possible physical room as walls open and close. Control links to Digital Remotes also combine and separate automatically as wall states change. No presets required.
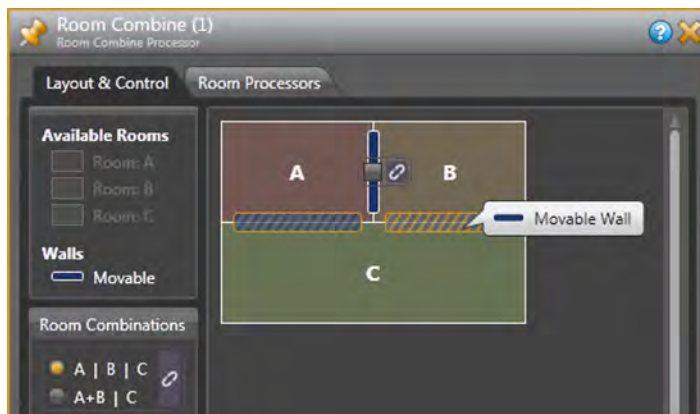
Logic Inputs

These inputs are found on the **HAL1x**, **HAL2** and **HAL3s**. More can be added by connecting a **DR4** or **DR5** to any HAL. Configure each of the Logic Input ports in one of three ways: toggle, command, or selector.

- The **Toggle** configuration allows a Toggle command with an on/off switch. You can configure each port type to be either **Momentary** or **Latching**.
- The **Command** configuration allows triggering a Command control from an on/off switch, which can link to one or more Command controls such as a Command preset or a linkable button in a processing block property dialog.
- The **Selector** configuration uses either a multi-position switch or a binary switch. You can connect a physical device to any or all of the Logic In ports and configure the ports in Halogen so they make the desired selection according to the state of the physical device. Wiring details are in the Halogen Software Help. The Selector configuration is not supported by the DR5.

Analog Control Inputs

These inputs are on the **DR4** that can connect to any HAL. Each port allows an analog voltage source to control the value of a Level control in the Halogen Control palette. The input range for the port is from 0 V to 5 V, where 0 V corresponds to 0% on the associated Level control and 5 V corresponds to 100%. Connect a physical linear-taper potentiometer; the Vc wiper provides the control voltage to the DR4. As you turn the pot, the voltage changes, which changes any linked Level control in Halogen.

Logic Outputs

These outputs are found on the **EXP3x** Output Expander for the **HAL1x**, or on a **DR4** that can connect to any HAL. You can configure each of the 8 output ports in one of 2 ways:

- **Toggle**: When a toggle control in the Halogen Control palette is unchecked, HAL sets the corresponding DR4 Logic Out port to logic high (5 V), and when the toggle is checked, it sets the port to logic low (0 V).
- **Selector**: When a selector control in the Halogen Control palette is set to the first selection, HAL sets the corresponding DR4 Logic Out port to logic high (5 V). Conversely, when the selector control is in the second position, HAL sets the port to logic low (0 V).

Relay Outputs

These reed relay ports are on the **HAL1x** and **HAL2** to signal other devices. A common implementation is to link a relay port to a Toggle control so an end user can change its value. Halogen software contains a checkbox for each relay port. Its value can be included in a preset or link to another control, making it possible to use a preset or control to turn the relay port on or off.

RANE

The entire family of RAD models interface with HAL, for digital conversion at the wall. Each converts analog audio to and/or from 24-bit, 48 kHz digital audio. Shielded CAT 5e (or better) cable

RAD NETWORK SHIELDED CAT 5e CABLE CONTENTS

Data communications (COMM)
2 digital audio channels (Rx)
2 digital audio channels (Tx)
Power: 24 VDC & ground
Shield

and termination transport four digital audio channels – two channels each direction – as well as power, ground and a communications channel, with status indicators at each RAD, HAL or EXP unit, and in Halogen software. HAL auto-checks the CAT 5 crimp and verifies audio. All RADs (and DRs) are both "location-aware" and hot-swappable with 500-foot homerun connections, 66% farther than Ethernet (the RAD26 has a 325-foot limit). Light sensors dim the RAD indicators in dark rooms. Except for the RAD16, AM1, AM2, and PAGER1, all RADs mount in standard US electrical boxes. These RADs are available in white, ivory, or black, with a matched Decora® plate cover included.

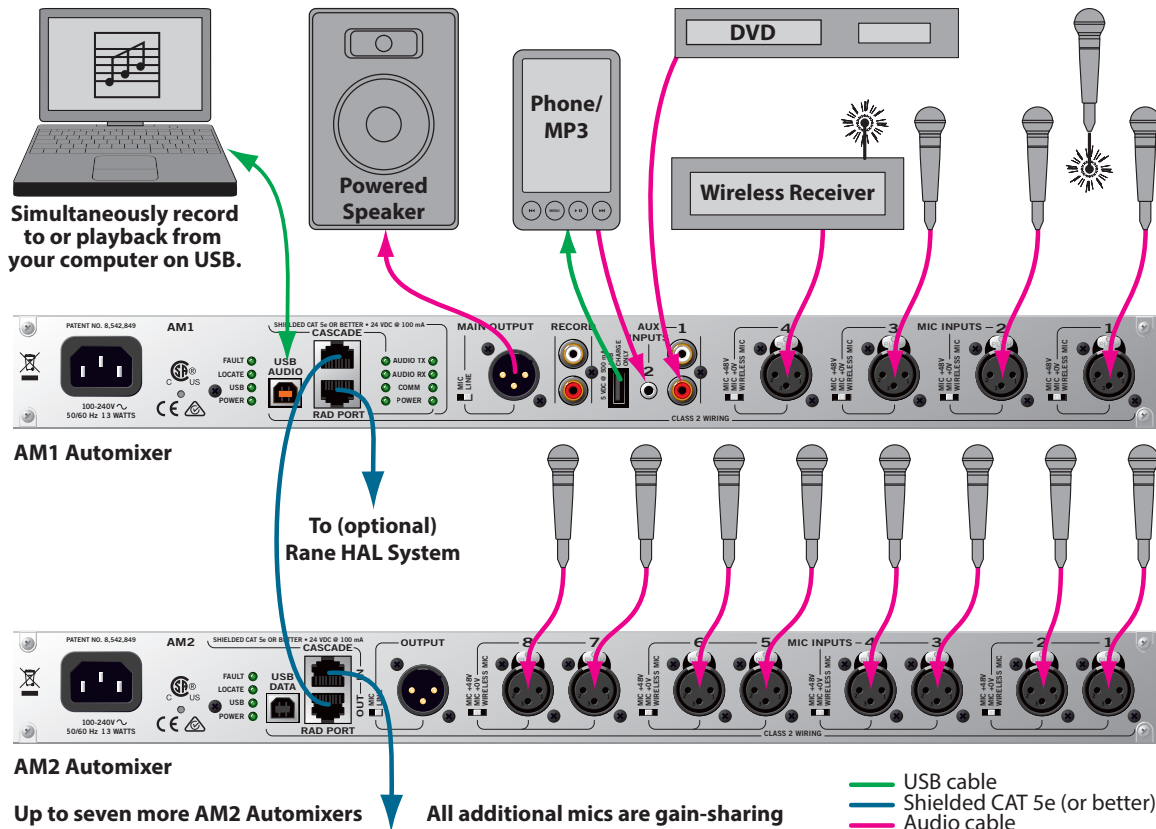|	
RAD1	**Dual XLR Mic Inputs**
RAD2	**XLR Mic Input / Mini & RCA Mono'ed Line Input**
RAD3	**Dual XLR Line Inputs**
RAD4	**Dual XLR Line Outputs**
RAD5	**AES3 Input / AES3 Output**
RAD6	**Mini & RCA Stereo Line Input / Stereo Line Output**
RAD7	**XLR Mic Input / XLR Line Input**
RAD8	**XLR Mic Input / Mini & RCA Stereo Line Output**
RAD9	**XLR Mic Input / XLR Line Output**
RAD11	**XLR Mic In / Mini & RCA Mono'ed Line In / Mini & RCA Stereo Line Out**
RAD12	**Dual XLR Mic Inputs / Dual XLR Line Outputs**
RAD14	**XLR Mic In / Mini & RCA Mono'ed Line In / Dual XLR Line Out**
RAD15	**Dual XLR Line Inputs / Dual XLR Line Outputs**
RAD16z	**Dual Mic-Line-Plus Inputs / Dual Line Outputs / Dual Logic / Euroblocks**
RAD17	**Omnidirectional Boundary Layer Mic**
RAD18	**XLR Mic Input / 1/4" Balanced Line Input**
RAD23	**XLR Line Input / XLR Line Output**
RAD26	**Dual Input / Output / Logic with Level and Source Selection**
RAD27	**USB Audio Sound Card**
RADX	**RAD Port Extension (CAT 5 wall jack for portable RADs)**
PAGER1	**Mic Preamp with Push-to-Talk and Page Zone Selection**
AM1	**Four-Channel Gain-Sharing Automixer with extra Line & USB Inputs**
AM2	**Eight-Channel Gain-Sharing Cascadable Automixer**
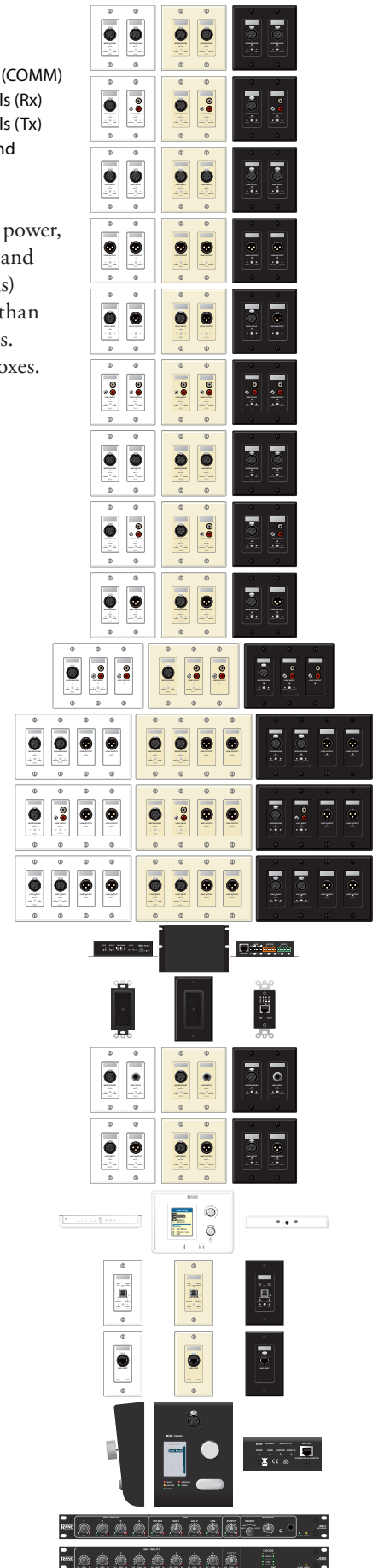
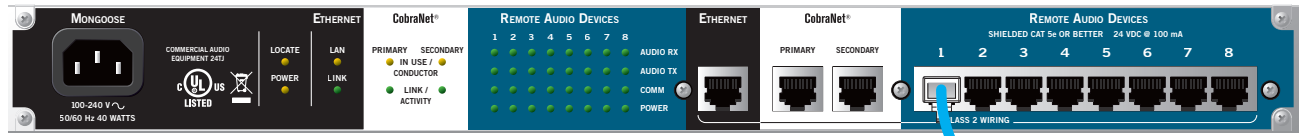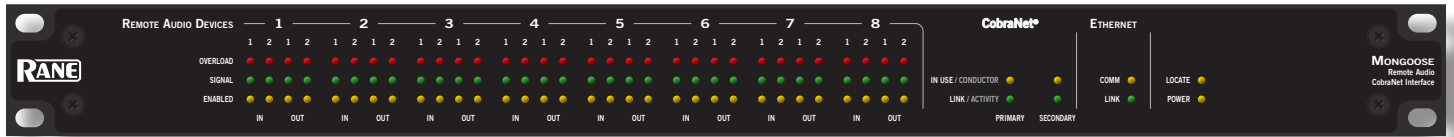# Automixers

AM1 Four-Channel Gain-Sharing Automixer

• Automixer with four gain-sharing XLR line/mic/phantom switchable Inputs, RCA and 3.5 mm Aux Line Inputs, USB audio Input.
• XLR mic/line switchable Mix Output, RCA Record Output, USB audio Output.
• Cue mics or any input with Headphones from 1/4" or 3.5 mm jacks.
• Add more gain-sharing mic/line inputs with up to seven Rane AM2 Automixers for a total of 60 gain-sharing mics.
• RAD Port connects to a Rane Mongoose or HAL system.

AM2 Eight-Channel Gain-Sharing Cascadable Automixer

• Automixer with eight gain-sharing XLR line/mic/phantom switchable Inputs; XLR mic/line switchable Mix Output.
• Add more gain-sharing mic/line inputs with up to seven more AM2 Automixers for a total of 64 gain-sharing mics.
• RAD Port connects to a Rane Mongoose or HAL system (that's 64 gain-shared mics on one RAD port).

Simultaneously record to or playback from your computer on USB.

Powered Speaker

Phone/MP3

DVD

Wireless Receiver

AM1 Automixer

To (optional) Rane HAL System

AM2 Automixer

Up to seven more AM2 Automixers

All additional mics are gain-sharing

— USB cable
— Shielded CAT 5e (or better)
— Audio cable

14

Mongoose

Mongoose Network Audio Router

- 32 by 32 digital audio matrix router, supporting 32 digital audio channels from 8 RADs.
- Deliver digital audio between the equipment rack and remote spaces via shielded CAT 5e (or better) cable.
- A Remote Audio Device (RAD) provides analog to digital conversion at the wall (or floor box).
- Connect up to 8 RADs to a single Mongoose with shielded CAT 5 up to 150 meters (500 feet) away.
- Multiple Mongoose units can be networked to provide more channels.
- Use with, or without, CobraNet. Receive 2 and transmit 2 CobraNet Bundles.
- Supports DHCP, Zeroconf (Link-local & mDNS) & Auto MDI/MDIX.

This product has not been tested to the current CE requirements and is not available in markets requiring CE compliance.
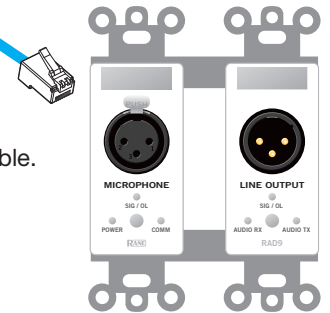
See all the RAD models on page 13.

The Mongoose's 32-by-32 digital audio matrix router receives its first 16 audio channels from up to eight RADs via the eight rear panel RJ-45 Remote Audio Device ports. The second 16 matrix input channels can come from two 8-channel CobraNet receive (Rx) Bundles via standard CobraNet Primary and Secondary/backup ports. The 32 matrix router outputs transmit 16 channels to eight RADs and 16 more channels to two CobraNet transmit (Tx) Bundles.

Mongoose Tracker setup software for PC is included. It allows you to name each Mongoose, RAD and audio channel, then print matching custom labels to insert above each jack. With RADs connected, Zeroconf-based Discovery automatically finds devices without IP setup or special IP knowledge.

One of the key configuration tasks is to set up the audio routing for your Mongoose system. Simply click a crosspoint to attach input to output, between RADs and CobraNet Channels. You can send the signal to one or more of the following:
- Another RAD connected to the same Mongoose
- Another RAD connected to a different Mongoose
- Another CobraNet-enabled device (e.g., a DSP device).

In addition to configuring the Mongoose components and the audio routing, the software is a valuable tool for troubleshooting any issues that may arise. Although you can determine a lot from the hardware status indicators, the software provides more detail, allowing you to drill down and pinpoint the problem with greater accuracy.
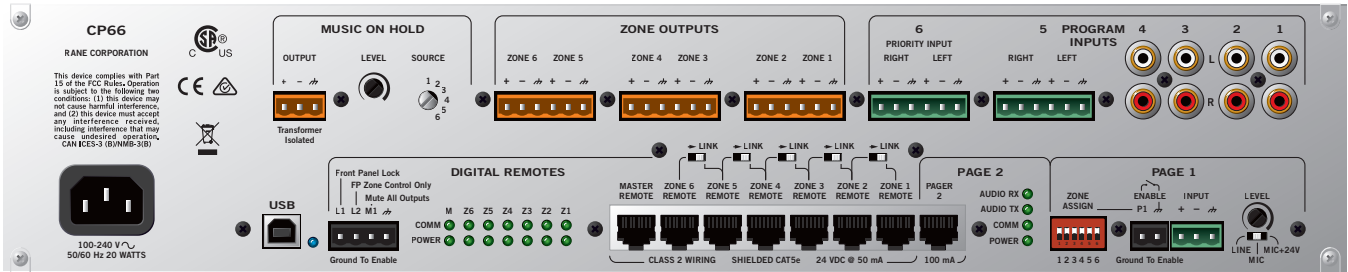
Mongoose Tracker requires a computer running Microsoft Windows® XP (Service Pack 2 or 3) or any version of Vista or 7 (including 64-bit) with an Ethernet port.
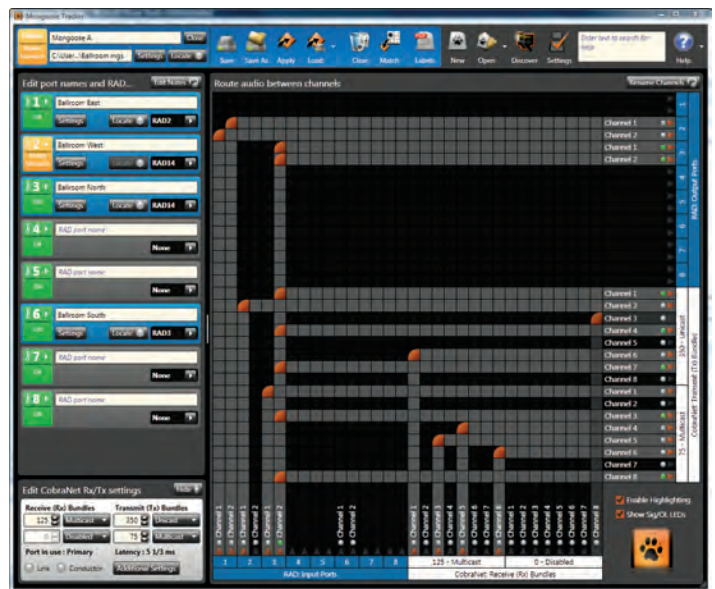
rane.com/mongoose
- **Download Mongoose Tracker (free)**
- **Download Design and Installation Manuals**
- **See System Examples**

15

Paging Processors

CP66 Commercial Processor

- Six Program Inputs assignable to Six independent and linkable Zones; One gated Priority Input.
- Paging Inputs with Priority assign; Recommend the optional PAGER2 Smart Paging Station with Mic input.
- Independent 3-Band EQ, Limiter, Ducker depth, Filter Cutoff, Priority Enable and Page Level per Zone.
- Music-on-Hold Output (Transformer isolated); Front Panel lockout switch; Includes PC software for easy naming and setup.
- Optional Remote Controls connect via shielded CAT 5e cable (see below).

PAGER2 Paging Station

Specific to the CP66, this unit lets you decide which combination of the six Zones to Page into. The unit accepts any gooseneck mic (not included) and has selectable 24 V Phantom Power. It normally sits on a desk or table with lockdown capability. It connects to and is powered by the CP66 via shielded CAT 5e cable up to 150 meters (500 feet) in length. Labels for custom Zone and Group names may be inserted into the protective faceplate.

DR1 Remote Level Control

The LCD display shows the name of the Zone or Group that it is connected to, customizable in the CP66 Software to anything you like. The Level value is also shown, and updated dynamically when it is changed elsewhere, such as in a linked group with multiple Remotes connected. The display has a backlight for readability that turns on when used, then dims after a short time period. The DR1 may be installed in a standard electrical box with a minimum depth of 5.7 cm (2.25"). Connection to the CP66 is via shielded CAT 5e cable up to 300 meters (1,000 feet) in length. Available in white, ivory and black, the DR1 includes a matching Decora® plate cover.
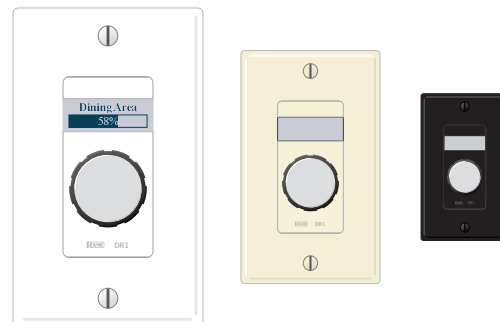
DR3 Selection & Level Control

The DR3 provides Level control with added Input Source selection. This lets you select the audio source for a room from within the room itself, or anywhere else you need remote control. The DR3 can also be used as the Master Remote for the CP66, displaying the Volume Level for all Zones and Groups and allowing you to change each of them dynamically from a single location. The DR3 may be installed in a standard 2-gang electrical box with a minimum depth of 5.7 cm (2.25"). Connection to the CP66 is via shielded CAT 5e cable up to 300 meters (1,000 feet) in length. Available in white, ivory and black, the DR3 includes a matching Decora® plate cover.

RANE
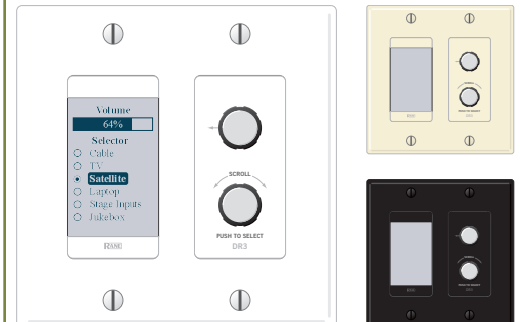
CP64S Commercial Processor

- 4 Stereo line inputs with priority and adjustable page ducking depth.
- 4-level priority; 2 expand outputs can select page-only, program-only or zone.
- 2 Mic/line page inputs independently assignable to 1 mono & 1 mono/stereo zone.
- Each Zone has independent 7-band EQ. Optional ZR1 Remote for source selection & volume.

The ZR1 Remote fits in a standard US electrical box, and may be finished with a Decora™ plate cover (not included).

ZR 1 Zone Remote

CP52S Commercial Processor

- Mic/line page input assignable to 1 stereo (with mono switch) zone with 7-band EQ.
- 4 Stereo line inputs with priority and adjustable page ducking depth.
- 3-level priority; Expand output selectable as page-only, program-only or zone.
- Optional ZR1 Remote for source selection & volume; Optional SCP1S EQ-only security cover.
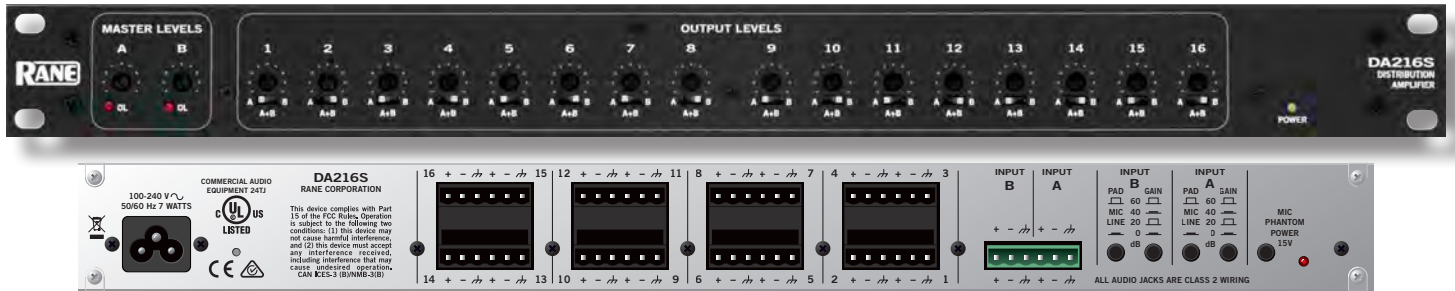
SCP1S EQ Security Cover

ZR 1 Zone Remote

Example Application

MP3 / Phone

Wireless Mic Receiver

CP52S Commercial Processor

ZR1
- PROGRAM SELECT
- LEVEL

Powered Speaker

Powered Speaker

Feed to Background Music System

Streaming Music Service

CD Player

DVD or TV Audio

17
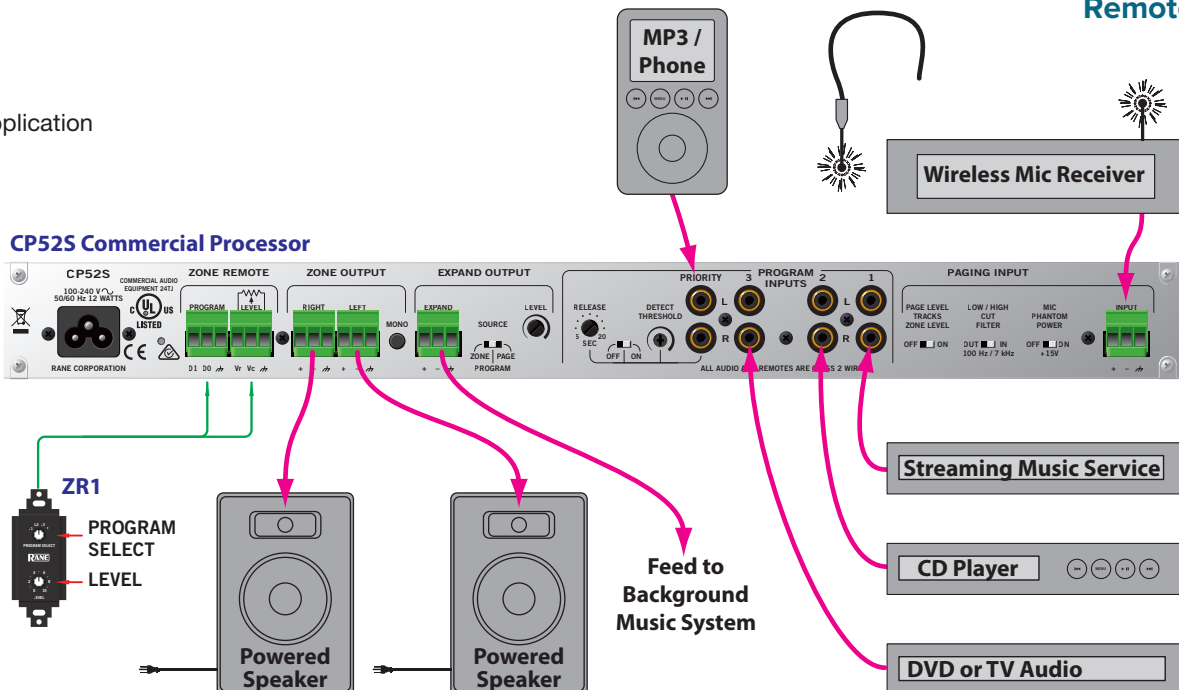
Distribution Amplifier

DA216S Distribution Amplifier

- 2 balanced mic/line inputs, 16 balanced outputs individually assignable to A, B, or both.
- Broad gain range with mic or line inputs.
- Switchable 15V phantom power works with most common condenser mics.
- Balanced Euroblock connectors; Internal universal power supply (100-240 VAC).

Line Splitter / Mixer

SM26S Line Splitter / Mixer

- Combination 6 x 2 line mixer, 2 x 6 line splitter, or 6 x 6 line driver.
- Capable of 4-pair stereo line splitting or mixing.
- Mix, pan and level controls with 12 dB gain for level matching.
- Balanced 1/4" TRS connectors; Internal universal power supply (100-240 VAC).

Mic / Line Mixers

MLM82S Mic / Line Mixer

- 8 inputs, 2 outputs – 4 balanced mic/line inputs, 4 balanced/unbalanced stereo or mono line inputs.
- Mic inputs have switchable phantom power, mic/line level, and output assignable.
- Outputs individually switchable to mic-level, line-level, stereo or mono.
- Balanced XLR mic/line inputs, 1/4" TRS line stereo/mono inputs, XLR outputs. Internal universal power supply (100-240 VAC).

MLM42S Mic / Line Mixer

- 4 inputs with automatic recognition of mic or line level signals
- 3-band Accelerated Slope™ (off to +6 dB) tone controls, gain trims and selectable phantom power on each input.
- Post-mix 1/4" Effects loop with Wet/Dry pan control.
- RCA unbalanced outputs; XLR and TRS balanced outputs are mic or line level selectable; Internal universal power supply.

Dynamic Control
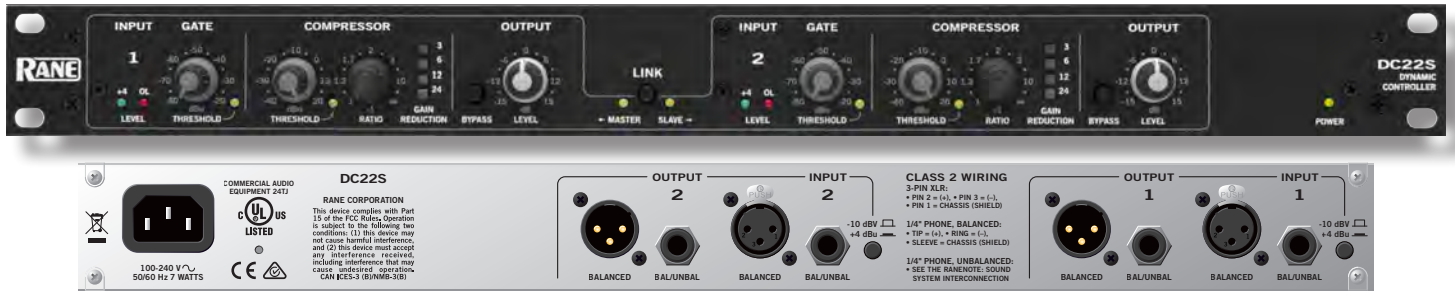
DC22S Stereo Gate / Compressor

- Two independent gates and compressors with output level controls; Gate acts as a downward expander, so quiet parts get quieter.
- True master/slave operation in Link mode for stereo program compression without image shifts.
- Balanced 1/4″ TRS & XLR connectors; Internal universal power supply (100-240 VAC).


G4 Quad Gate / Ducker / Expander

- Independent Quad Gate / Expander / Ducker with look-ahead peak detector; Expand mode uses rms detection.
- Side chain switch selects external input or internal High & Low Cut Filters; Side-chain metering.
- DSP with familiar analog controls; Balanced 1/4″ TRS & XLR connectors.

This product has not been tested to the current CE requirements and is not available in markets requiring CE compliance.
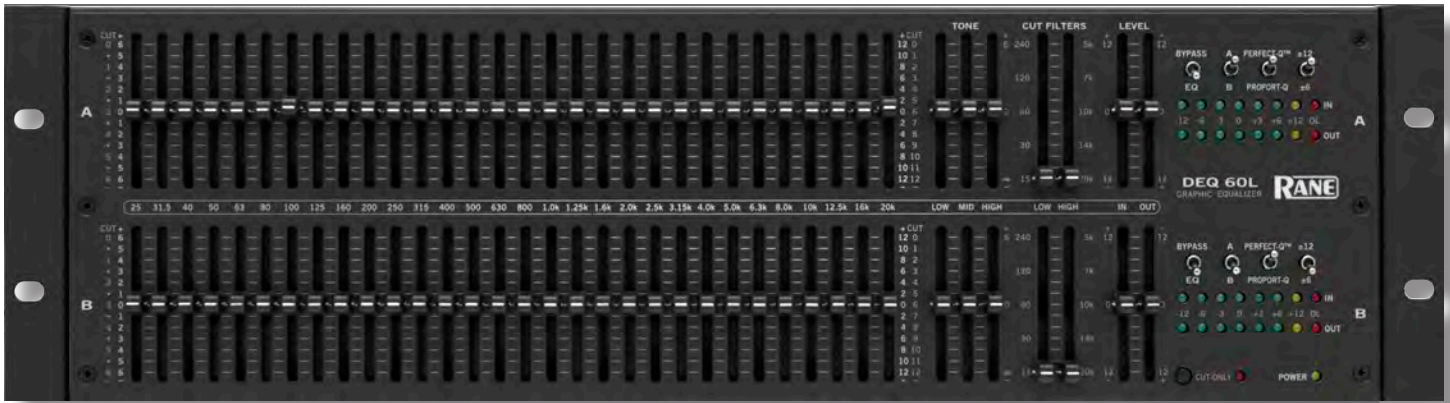
G4 Look Ahead Gating
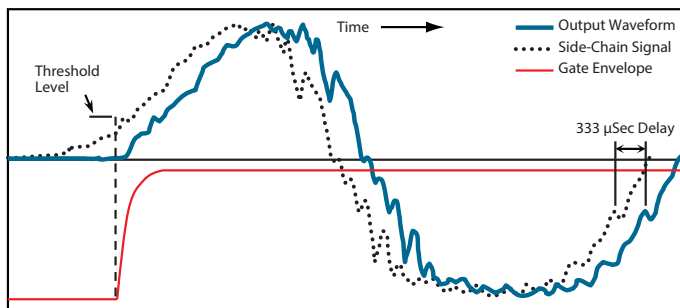
The G4 uses a very short look ahead (16 samples, or 333 µSec) with exponential ramping to ensure accurate clickless gating.
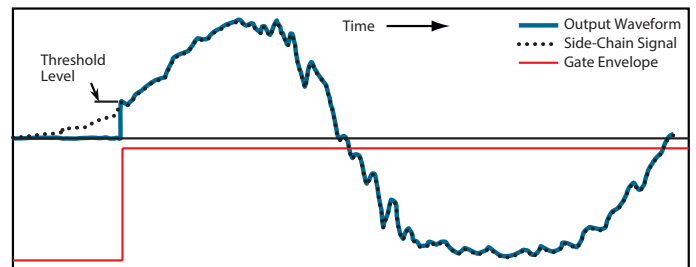
Conventional gates without look ahead or ramping result in audible clicks at fast attack settings.

Graphic Equalizer
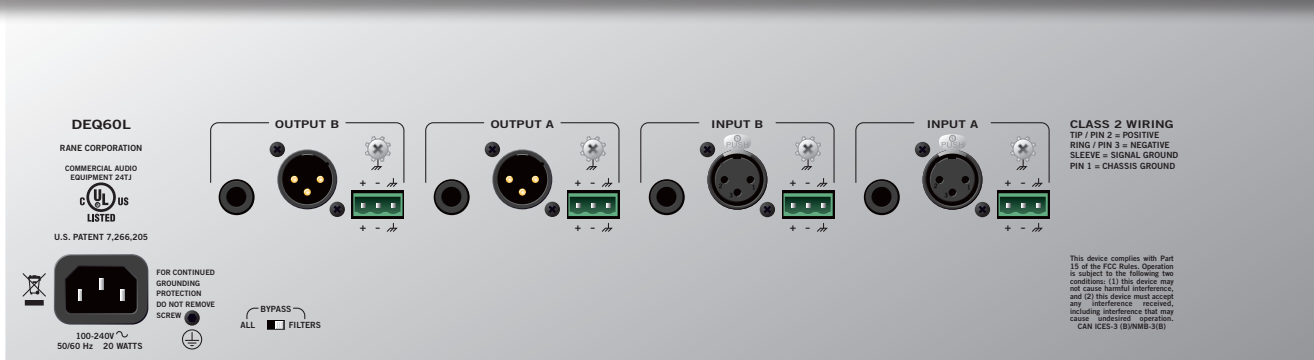
DEQ 60L Stereo ⅓-Octave Graphic Equalizer

- 2 x 30 bands of switchable Perfect-Q (no filter interaction, true WYSIWYG) or Proportional-Q (broad adjustment) digital filters.
- 45 mm sliders with switchable ±6 or ±12 dB boost/cut range each channel; Switchable high-resolution -12 dB Cut-Only mode.
- Input and Output Level controls; Input and Output meters; Channel Bypass switches.
- Sweepable high-cut and low-cut filters; Separate Accelerated-Slope™ Low / Mid / High full-cut Tone controls.
- A/B curve comparison switches provide stereo linking with two memories; Balanced XLR, TRS and Euroblock connectors.
- Read the RaneNote "Perfect-Q™, the Next Step in Graphic EQ Design" at rane.com.

This product has not been tested to the current CE requirements and is not available in markets requiring CE compliance.
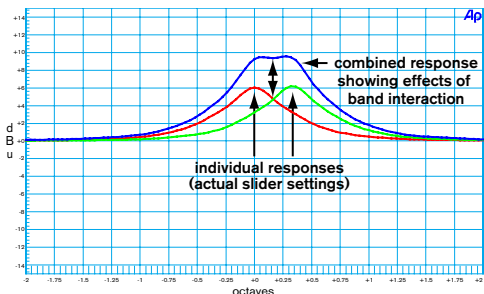

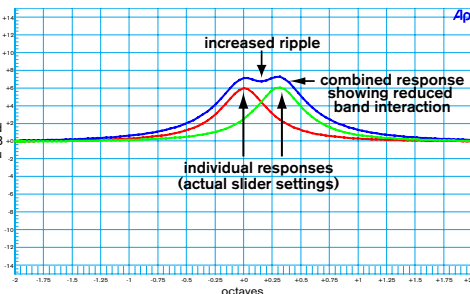Figure 1. Band interaction of 1/3-octave Proportional-Q filters.

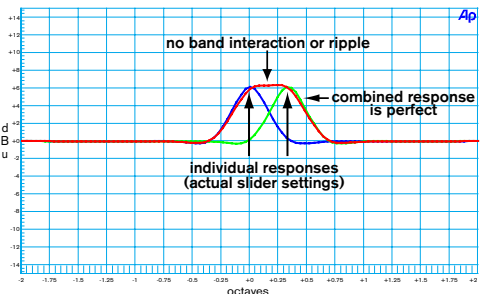Figure 2. Band interaction of 1/3-octave Constant-Q filters.

Figure 3. Graphic response of Perfect-Q filters.

Perfect-Q Advantages

The advantages of the Perfect-Q design go far beyond yielding a more accurate picture; it provides a degree of adjustment never before possible. Crucial subtle refinements of frequency response are for the first time possible, allowing for an unequaled ease of operation and clarity of sound reproduction. Changing a 1/3-octave setting changes only that setting. This is unlike any other graphic EQ available (i.e., one providing real mechanical front panel slide controls).

DSP Provides the Solution

The idea driving Perfect-Q is the same as constant-Q: constant bandwidth for each EQ band no matter what the setting. DSP allows doing things that aren't practical (or in some cases even possible) in analog circuits, producing an even better outcome as demonstrated by these Perfect-Q characteristics:

- What you see is (really) what you get.
- Constant bandwidth for all slider settings.
- Adjusting one band does not change neighboring bands.
- Improved phase response due to eliminated interactions.
- No band interaction overload problems.

Delay

AD22S Dual Channel Audio Delay for Distance or Video
- Distance Mode: 2 to 999.99 ms delay range, converts between milliseconds / feet / meters with temperature compensation.
- Video Mode: up to 1 second delay in .5 frame increments in frames or milliseconds in all NTSC and PAL / SECAM frame rates.
- 2 memories; Remote contact closure memory recall with switchable front panel lockout; Fail-safe bypass for each channel.

Headphone Amplifier

HC6S Six Channel Headphone Console
- Six stereo amplifiers with both master and individual level controls.
- Each stage can be driven from the master stereo input or individual channel inputs.
- Drives stereo 1/4" headphone outputs on both front and rear panels.
- Balanced 1/4" TRS inputs; Internal universal power supply (100-240 VAC)
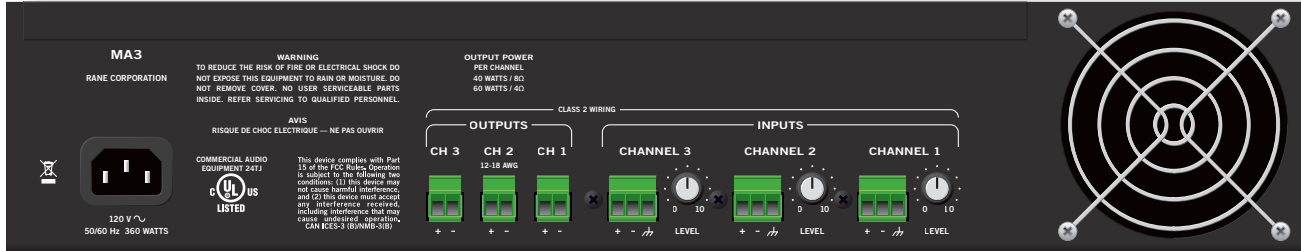
Isolation & Balancing Transformer

BB 22 Balance Buddy
- 2 channels: -10 dBV (RCA) to +4 dBu (XLR) conversion.
- Nickel core transformers; No power supply required.
- Wide bandwidth; Low distortion.

Multichannel Amplifiers

MA 3 Multichannel Amplifier

- 3 independent channels @ 40 W rms into 8Ω; 60 W rms into 4Ω, 20 Hz-20 kHz all channels, all day.
- Dynamic limiters handle 20 dB of overdrive; 80 Hz high-pass filter selection; Sealed heat tunnel forced-air cooling.
- Balanced Euroblock inputs; Euroblock speaker connectors handle up to 12 gauge wire.
- Optional distribution transformers: 40 W 100 V (model TF 410) mountable on MT 6 rack panel (2U).

This product has not been tested to the current CE requirements and is not available in markets requiring CE compliance.
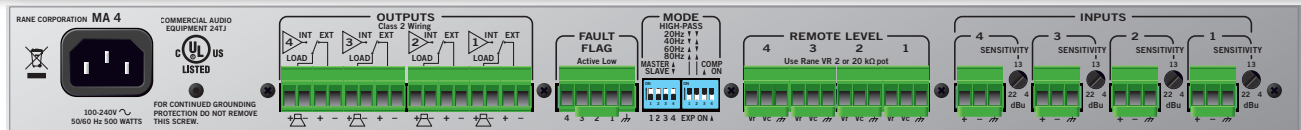
MA 4 Multichannel Amplifier

- 4 independent channels @ 100 W rms into 8 or 4 Ω, with built-in load monitoring, in just one rack space.
- Universal voltage, power-factor-corrected power supply with low inrush current.
- Advanced dynamics control adjusts for sensitivity setting, temperature & load Z.
- Remote fault reporting & redundancy switching; Adjustable high-pass filters; Remote pot level controllable.

This product has not been tested to the current CE requirements and is not available in markets requiring CE compliance.
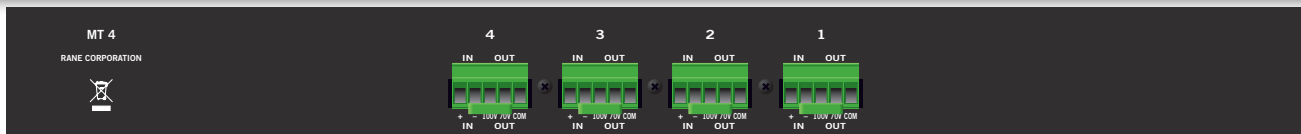
MT 4 Multichannel Transformer

- 4-channel 70.7/100 volt transformers for the MA 4 in a 1U rack chassis.
- Input 8Ω, 100 watts; Euroblock strain-relief connectors; Frequency response 40 Hz to 20 kHz +0, -1 dB

23

Contents

Rane Corporation

10802 47th Avenue West
Mukilteo WA 98275-5000 USA

Phone: 425-355-6000
Fax: 425-347-7757
Email: info@rane.com
Web: rane.com

Rane 2+ Year Limited Warranty

Rane's standard warranty covers parts and labor for 2 years from the date of purchase. Completion of the Rane Warranty Form (mail or online) entitles the owner to a 1 year extended warranty (for a total of 3 years [valid in U.S.A. only]).

All Rane equipment is engineered, manufactured and supported by Rane Corporation in Mukilteo, WA, USA, using globally sourced materials.

Trademarks

• Heuristic Audio Laboratory, HAL, Halogen, Accelerated-Slope, Perfect-Q and FlexFX are trademarks of Rane Corporation • AMX® and the AMX logo are registered trademarks of AMX • Stardraw Control is a trademark of Stardraw.com Ltd. • Crestron® is a registered trademark of Crestron Electronics, Inc. • Dante is a trademark of Audinate Pty Ltd. • Audinate is a registered trademark of Audinate Pty Ltd. • Decora® is a registered trademark of Leviton • CobraNet is a trademark of Cirrus Logic, Inc. • Lexan® is a registered trademark of General Electric. • Windows® is a registered trademark of Microsoft Corporation in the United States and other countries • Apple, Mac, Macintosh, iTunes, Safari, QuickTime, GarageBand, and OSX are registered trademarks of Apple Inc., registered in the U.S. and other countries. • Intel and Pentium are registered trademarks of Intel Corporation in the United States and other countries.

© 2016 Rane Corporation • Printed June 2016