

front panel



rear panel

General Description

The Mongoose and its Tracker software work with Rane's Remotes Audio Devices (RADs) and your CobraNet network to deliver digital audio to the "last mile" of installations – between the equipment room/rack and remote spaces. OK, it's not a mile, we lied: it's actually 150 meters (492 feet to those in Liberia, Myanmar and the USA).

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 8P8C (RJ-45) Remote Audio Device ports. The second 16 matrix input channels come from two eight-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.

A family of RAD models is shown to the right. Each converts analog audio to or from 24-bit, 48 kHz digital audio. Each RAD mounts in a standard US electrical gang box (except the RAD16), typically scattered throughout a facility. Standard CAT 5 cable and termination transport four digital audio channels – two channels in each direction – as well as power, ground and a communications channel via Rane's proprietary RAD Network.

RAD NETWORK CAT 5 CABLE CONTENTS



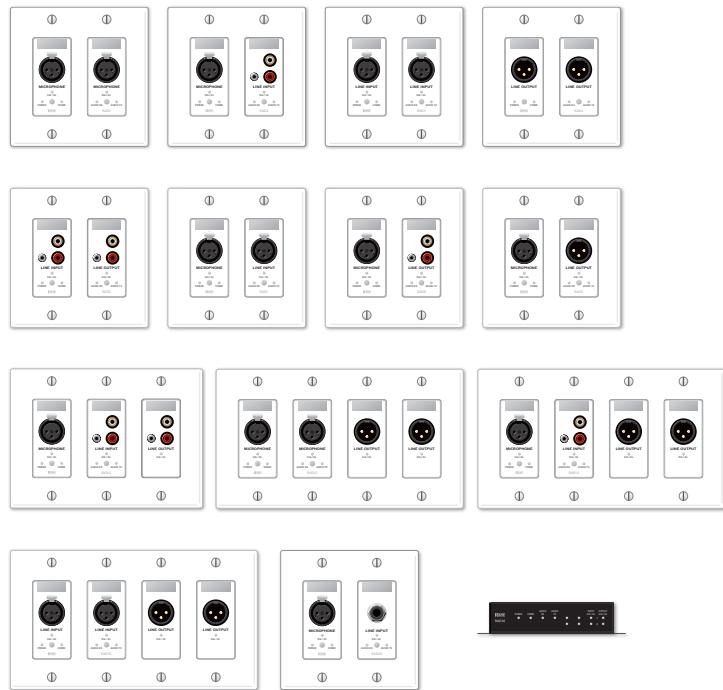
Data communications (COMM)
2 digital audio channels (Rx)
2 digital audio channels (Tx)
Power: 24 VDC & ground

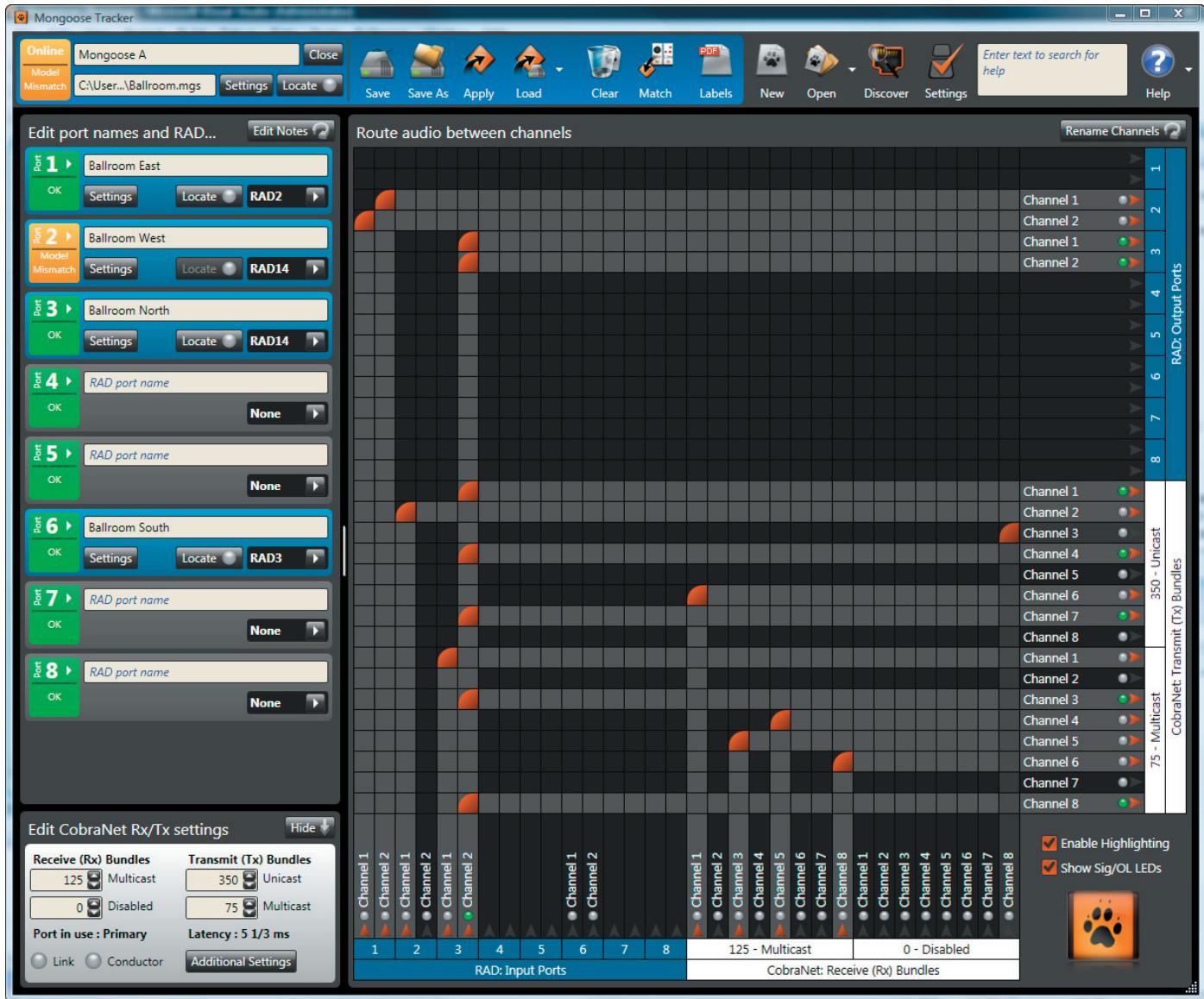
Mongoose's rear panel Ethernet port provides for direct or network connection to a computer running Rane's Mongoose Tracker software. Inexpert users are assured easy network communications with Zeroconf (Link-local/mDNS) and DHCP support. Gone are the days of installers requiring intricate IP knowledge. Yet, facility network managers can configure Mongoose like any other IP network device. The Ethernet port also supports Auto MDI/MDIX which automatically detects and permits either an Ethernet crossover cable (included) or a standard Ethernet cable to be used when directly connecting to a computer.

Features

- 32 by 32 digital audio matrix router.
- Receive 2 and transmit 2 CobraNet Bundles.
- Supports up to 32 digital audio channels from up to 8 RADs.
- Ethernet port supports DHCP, Zeroconf (Link-local & mDNS) & Auto MDI/MDIX.
- Mongoose Tracker setup software for PC is included.
 - Zeroconf-based Discovery automatically finds devices without IP setup or special IP knowledge.
 - Name each Mongoose, RAD and audio channel.

RAD Remote Audio Devices





Mongoose Tracker Software

Using the Mongoose Tracker, you configure each Mongoose RAD port with the RAD model that connects to it. You also configure various settings for each RAD, for the Mongoose itself, and for the CobraNet network. One of the key configuration tasks is to set up the audio routing for your Mongoose system. You do this using the audio routing matrix that appears in the Mongoose Tracker's main window. 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. Dynamic Help is in the right-hand window to assist.

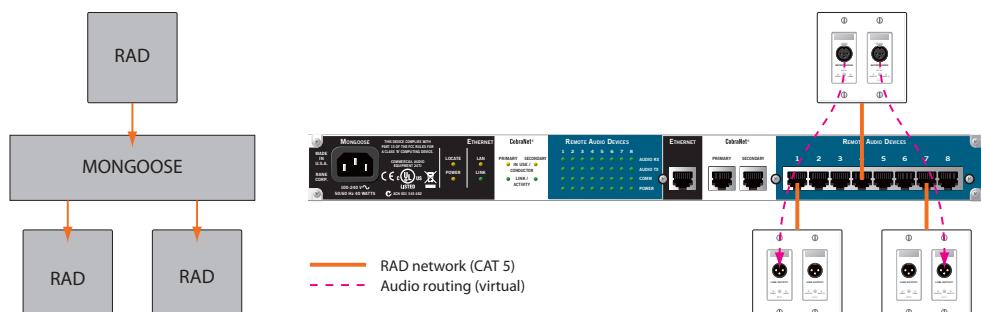
Mongoose Tracker requires a computer running Microsoft Windows® XP (Service Pack 2 or 3) or any version of Vista (including 64-bit) with an Ethernet port.



Configurations

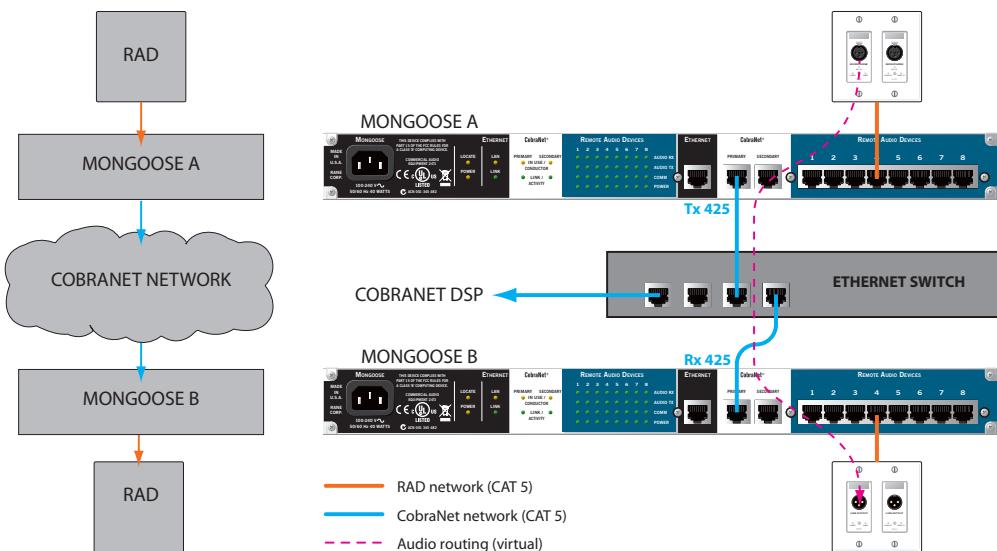
Basic RAD to RAD

Analog runs are replaced with digital runs. This is suitable for point-to-point (tie lines), splitter, or mic preamp to line output in an easily configurable “set-&-forget” matrix.



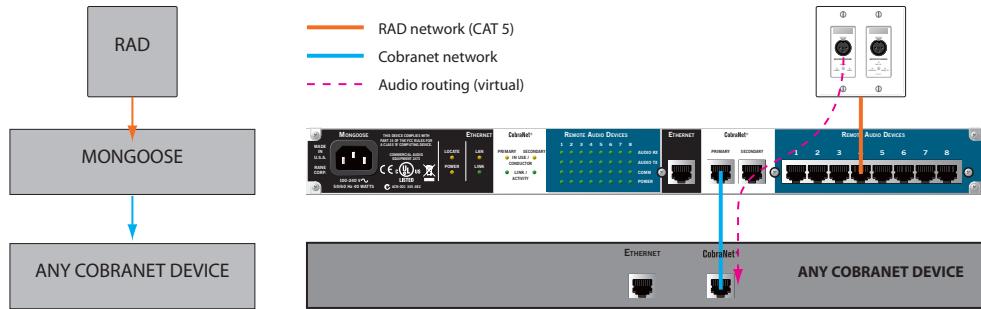
RAD to RAD (made bigger)

RAD network cable distance maximum is 150 meters, so use this configuration when more than eight RADs are needed, or if the RADs are more than 150 meters apart (add a second Mongoose on the network to increase the total distance between RADs).



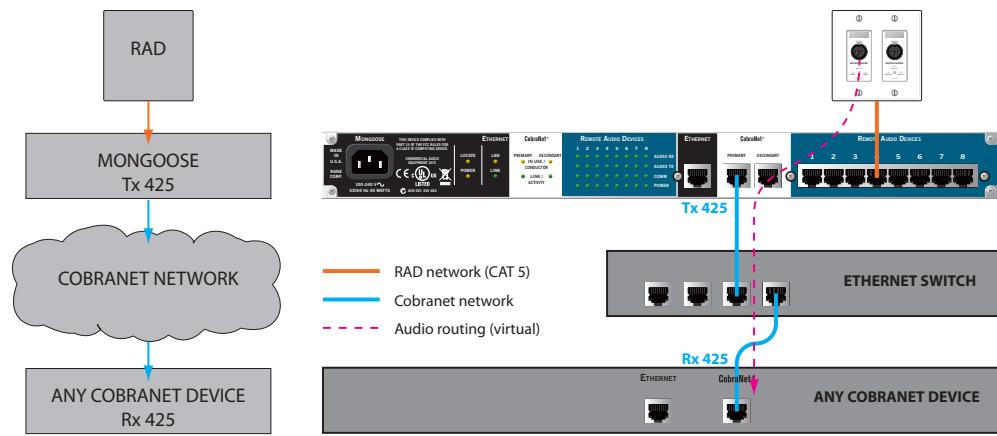
RAD to and from CobraNet DSP

The Mongoose is directly connected to any CobraNet device port.

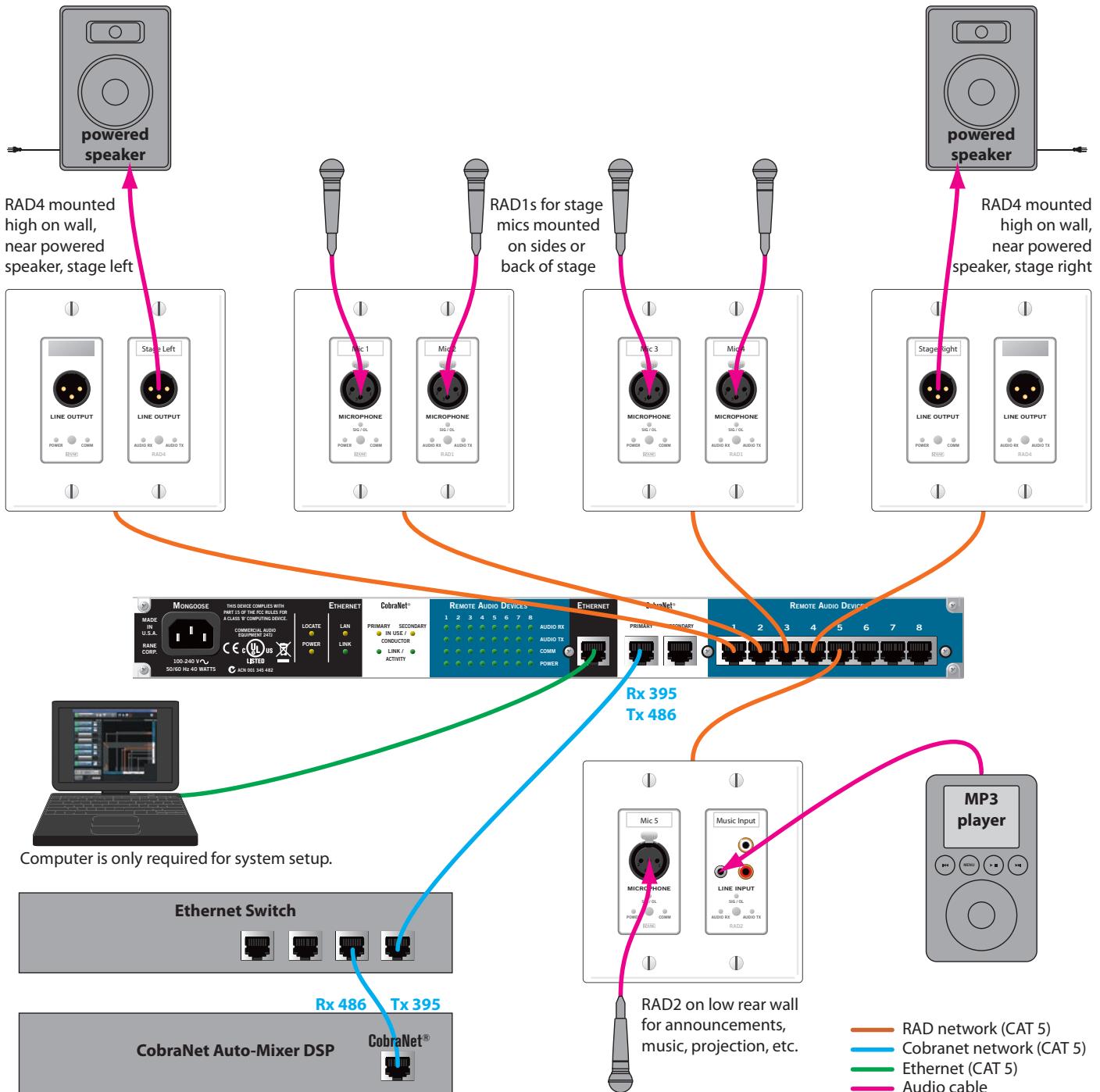


RAD to and from CobraNet DSP (made bigger)

The Mongoose is connected to the CobraNet device through the network. Audio may travel in either or both directions depending on RAD choices.



Cafetorium System Example



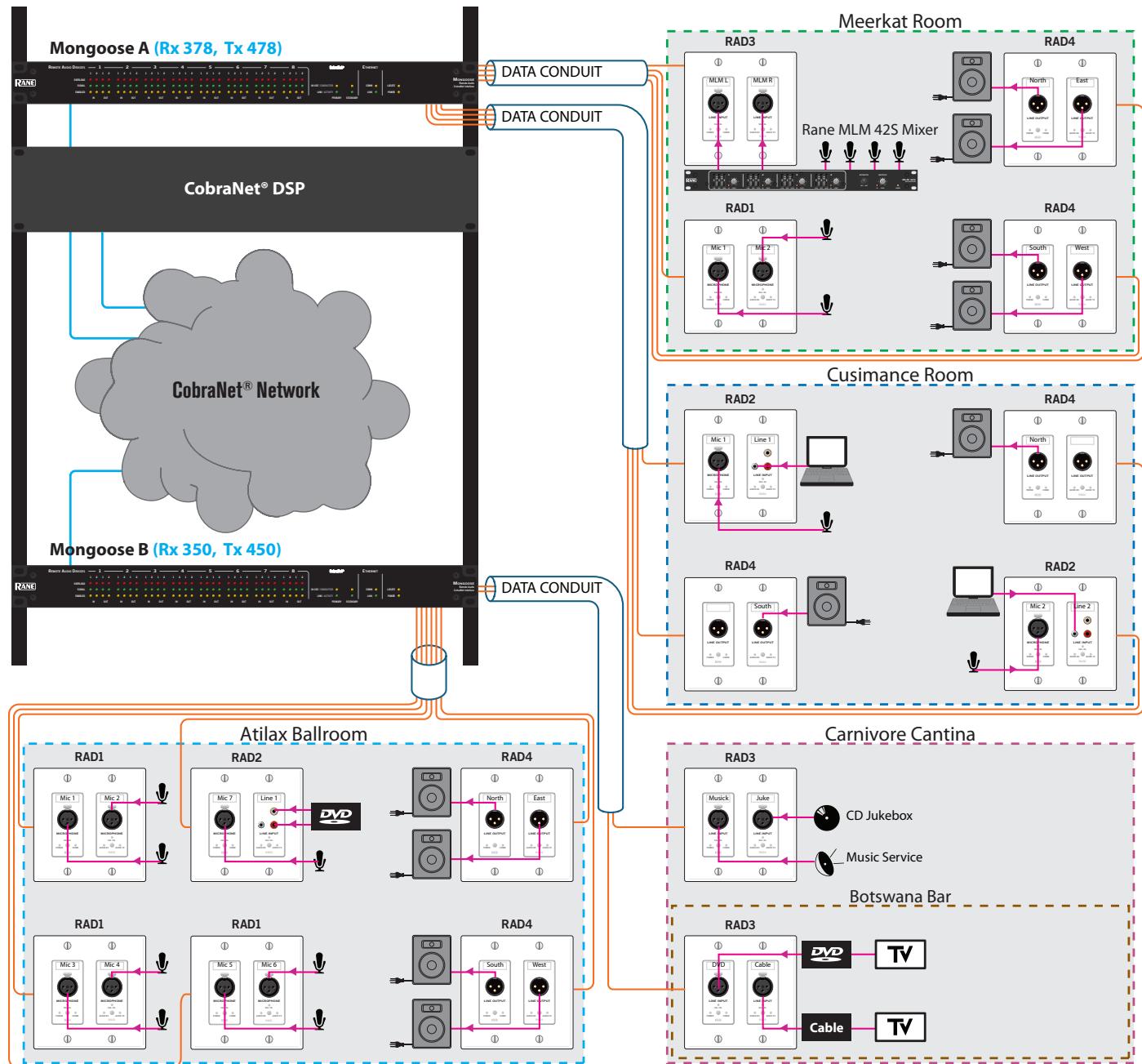
In this example, the Mongoose is a wise choice because it provides the school with tremendous flexibility and extensibility. While delivering superb sound quality in the cafeteria, it also ties in with the existing school paging system, and provides the possibility of additional functionality in the future (as new RADs are introduced).

- Two RAD1s are installed at the stage front for four mics.
- Two RAD4s are installed high on the wall near the speakers.

Two to four powered speakers could be accommodated.

- A RAD2 satisfies the need for a microphone and line input (for playing background music) at the back of the room.
- The Mongoose is housed in a sound equipment room along with a network switch and a CobraNet DSP box that contains a microphone auto-mixer.

Hotel System Example

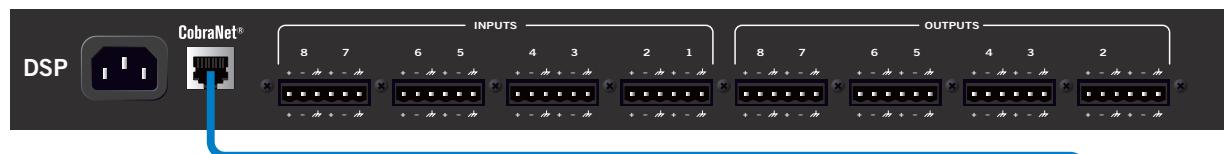
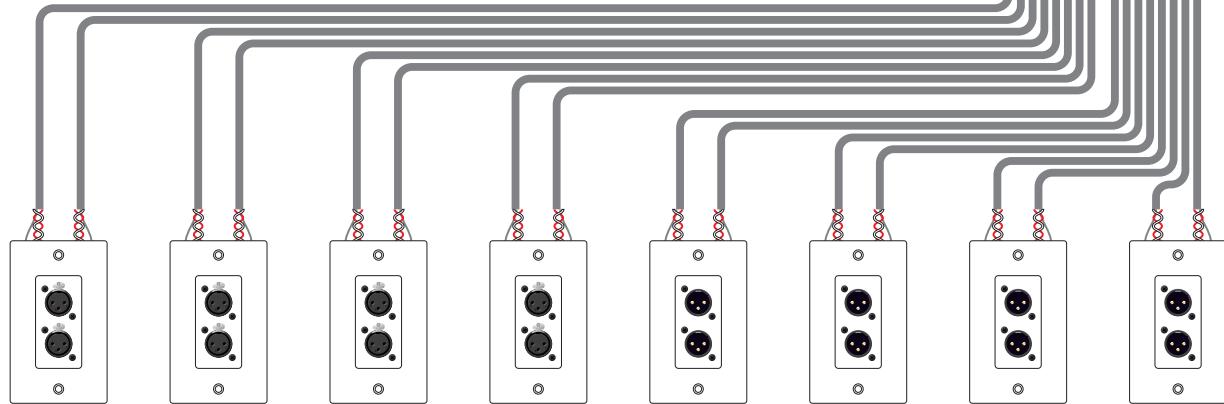
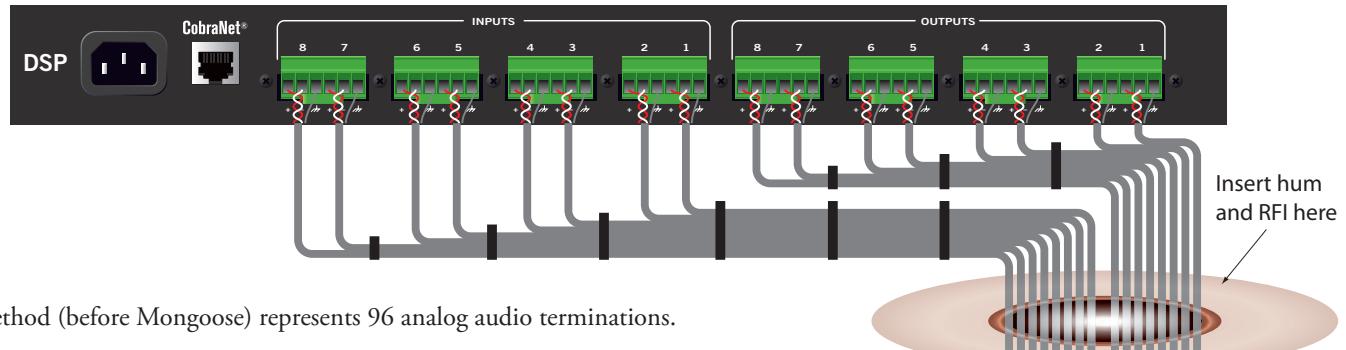


This hotel contains several meeting rooms, a ballroom, and a restaurant/bar. It is a prime target for the Mongoose because of the low channel count in each room and the scattered locations of each audio input and output. This system requires more than eight RADs and, therefore, requires more than one Mongoose.

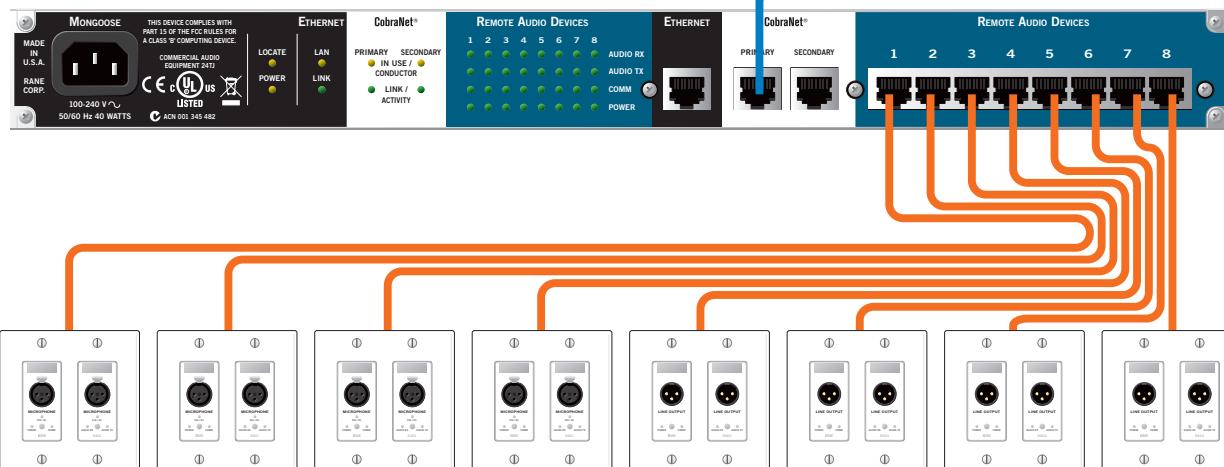
These examples and more are described in greater detail in the Mongoose Design Manual, downloadable at www.rane.com/mongoose. There you can download the Mongoose Installation Manual, example Tracker Configuration files, DWG and JPG files of the Mongoose and RADs, and the latest software.

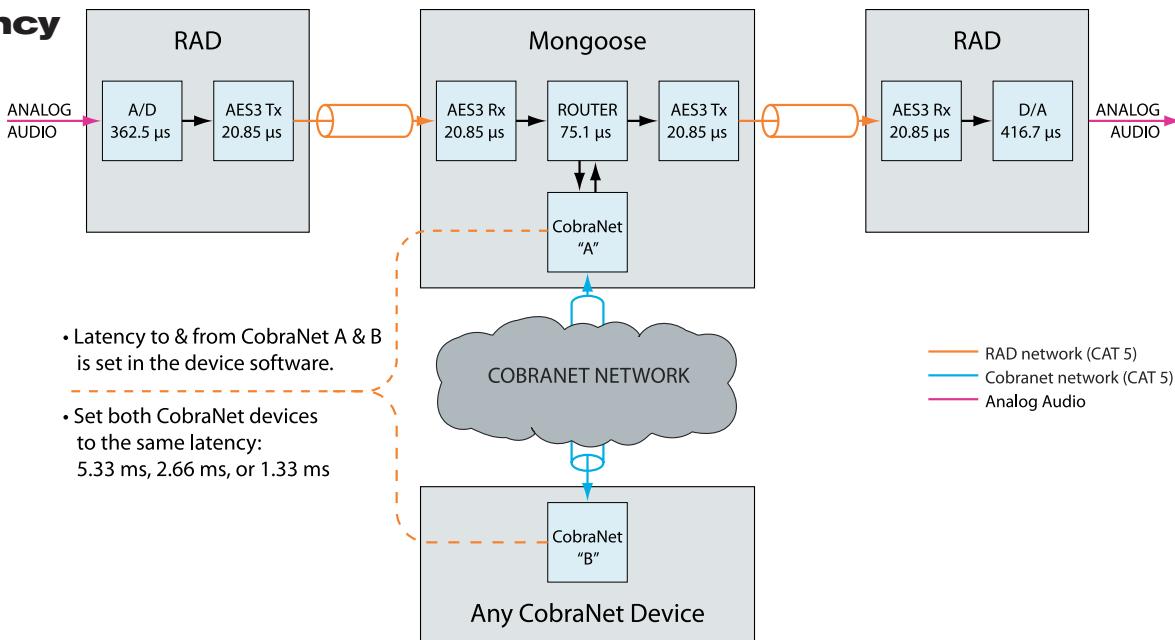
www.rane.com/mongoose

Labor Factors & Termination Advantages



New method (after Mongoose): A single CAT 5 cable (blue) containing up to 32 channels connects the Mongoose and a DSP device. Other CAT 5 cables (orange) connect 2- or 4-channel RADs to the Mongoose. The DSP device may be ordered without I/O cards. RJ-45 crimp connections are much easier and faster. Total terminations = 18.



Latency

Mongoose Features & Specifications

Parameter	Specification	Limit	Units	Conditions/Comments
Audio Converters	24-bit			Delta Sigma
Audio Processing	24-bit			48 kHz sample rate
Communications Interface				
Ethernet	100BaseTx			100 mega bit/sec; RJ-45 connector
Max cable length: RADs	492 feet / 150 meters			Mongoose to each RAD
Max cable length: CobraNet	328 feet / 100 meters			Standard Ethernet CAT 5 cable length limits
Max cable length: EtherNet	328 feet / 100 meters			Standard Ethernet CAT 5 cable length limits
Unit: Power Requirement	100 to 240	±10%	VAC	50/60 Hz, 1.25 to 0.9 Amp
Agency Listing	UL/cUL/CE			
.....UL	UL6500			File E193164
.....cUL (Canada)	CAN/CSAE60065-00			
.....CE	LVD 73/23/EEC			EN60065
EMI: CE				EMC directive 89/336/EEC
.....FCC	Part 15B			Class B Device
Construction	All Steel			
.....Size	1.75" H x 19" W x 8.25" D			(4.4 cm x 48.3 cm x 20.9 cm)
.....Weight:	5 lb			(2.3 kg)
Shipping: Size	4.5" x 20.3" x 13.75"			(11.5 cm x 52 cm x 35 cm)
.....Weight:	8 lb			(3.6 kg)

RAD Features & Specifications (all models)

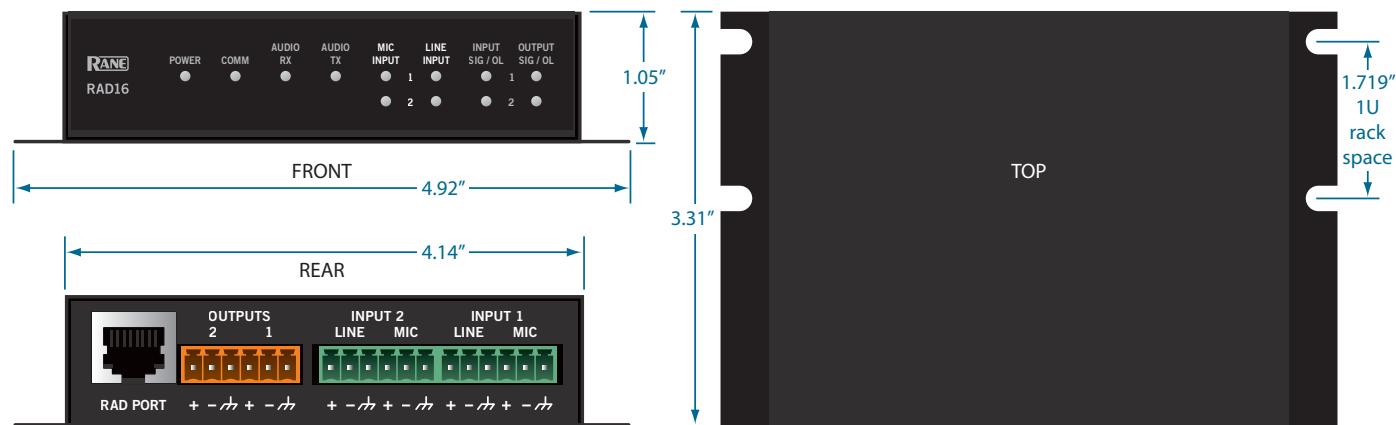
Parameter	Specification	Limit	Units	Conditions/Comments
Signal Indicator	-50	typ.	dBFS	Unbalanced / Balanced Output, Green LED, Peak-Reading
Overload Indicators	-3	typ.	dBFS	Unbalanced / Balanced Output, Red LED, Peak-Reading

RAD1, 2, 3, 4, 6, 7, 8, 9, 11, 12, 14, 15, 18 Features & Specifications

Parameter	Specification	Limit	Units	Conditions/Comments
MIC INPUT SPECS (Both XLR & Euro RADs)				
Input Impedance	2.16 k	1%	Ω	Balanced 1.08 k + 1.08 k
Max. Input Level	-17	min.	dBu	Balanced, Gain = 26 dB, <1% THD
Equivalent Input Noise	-121	typ.	dBu	20 kHz BW, $R_s = 150 \Omega$, Gain = 26 dB
Dynamic Range	98	typ.	dB	re: 0 dBFS, 20 kHz BW, A-weighted, Gain = 26 dB
CMRR	-70	typ.	dB	$R_s = 150 \Omega$, 1 kHz, Gain = 26 dB
Frequency Response	30 to 20k	typ.	Hz	+0, -3dB, At All Gain Settings
THD+Noise	0.010	typ.	%	@ 1 kHz, 20 kHz BW, $R_s = 150 \Omega$, Output = -6 dBFS, Gain = 26 dB
Gain Range	26 to 60	typ.	dB	In 1 dB Steps
Phantom Power	+24	4%	V	15 mA Max.
Impedance	1.21 k	1%	Ω	Each Leg
BALANCED LINE-LEVEL OUTPUT SPECS (Active Balanced)				
Outut Impedance	600	1%	Ω	Each Leg
Max. Output Level	18	min.	dBu	Balanced, <1% THD, Load = 10 kΩ
Dynamic Range	103	typ.	dB	re: 0 dBFS, 20 kHz BW, A-weighted
Frequency Response	10 to 22k	typ.	Hz	+0, -3dB
THD+Noise	0.017	typ.	%	@ 1 kHz, 20 kHz BW, Output = -6 dBFS
BALANCED LINE-LEVEL INPUT SPECS				
Input Impedance	22.18 k	1%	Ω	Balanced 11.09 kΩ + 11.09 kΩ
Max. Input Level	23	min.	dBu	Balanced, <1% THD
Dynamic Range	102	typ.	dB	re: 0 dBFS, 20 kHz BW, A-weighted
CMRR	-56	typ.	dB	$R_s = 150 \Omega$, 1 kHz
Frequency Response	10 to 22k	typ.	Hz	+0, -3dB
THD+Noise	0.004	typ.	%	@ 1 kHz, 20 kHz BW, $R_s = 150 \Omega$, Output = -6 dBFS
UNBALANCED LINE-LEVEL INPUT SPECS				
Input Impedance, Mono (RAD2, RAD11 & RAD14)	20 k	1%	Ω	Unbalanced
Max. Input Level, Mono (RAD2, RAD11 & RAD14)	6	min.	Vrms	Unbalanced, <1% THD
Input Impedance, Stereo (RAD6)	20 k	1%	Ω	Unbalanced
Max. Input Level, Stereo (RAD6)	3	min.	Vrms	Unbalanced, <1% THD
Dynamic Range	96	typ.	dB	re: 0 dBFS, 20 kHz BW, A-weighted
Frequency Response	10 to 22k	typ.	Hz	+0, -3dB
THD+Noise	0.005	typ.	%	@ 1 kHz, 20 kHz BW, $R_s = 150 \Omega$, Output = -6 dBFS
UNBALANCED LINE-LEVEL OUTPUT SPECS				
Output Impedance, Stereo (RAD6, RAD8, RAD11)	600	1%	Ω	Unbalanced
Max. Output Level, Stereo (RAD6, RAD8, RAD11)	3.3	min.	Vrms	Unbalanced, <1% THD, Load = 10 kΩ
Dynamic Range	98	typ.	dB	Re: 0 dBFS, 20 kHz BW, A-weighted
Frequency Response	10 to 22k	typ.	Hz	+0, -3dB
THD+Noise	0.028	typ.	%	@ 1 kHz, 20 kHz BW, Output = -6 dBFS

RAD 16 Features & Specifications

Parameter	Specification	Limit	Units	Conditions/Comments
Input Impedance	2.16 k	1%	Ω	Balanced 1.08 k + 1.08 k
Max. Input Level	-16	min.	dBu	Balanced, Gain = 26 dB, <1% THD
Equivalent Input Noise	-121	typ.	dBu	20 kHz BW, $R_s = 150 \Omega$, Gain = 26 dB
Dynamic Range	96	typ.	dB	re: 0 dBFS, 20 kHz BW, A-weighted, Gain = 26 dB
CMRR	-62	typ.	dB	$R_s = 150 \Omega$, 1 kHz, Gain = 26 dB
Frequency Response	41 to 20k	typ.	Hz	+0, -3dB, At All Gain Settings
THD+Noise	0.008	typ.	%	@ 1 kHz, 20 kHz BW, $R_s = 150 \Omega$, Output = -6 dBFS, Gain = 26 dB
Gain Range	26 to 60	typ.	dB	In 1 dB Steps
Phantom Power	+24	4%	V	15 mA Max.
Impedance	1.21 k	1%	Ω	Each Leg
Gain Range	26 to 60	typ.	dB	In 1 dB Steps
Phantom Power	+24	4%	V	15 mA Max.
Impedance	1.21 k	1%	Ω	Each Leg
BALANCED LINE-LEVEL INPUT SPECS				
Input Impedance	22.60 k	1%	Ω	Balanced 11.3 kΩ + 11.3 kΩ
Max. Input Level	23	min.	dBu	Balanced, <1% THD
Dynamic Range	99	typ.	dB	re: 0 dBFS, 20 kHz BW, A-weighted
CMRR	-52	typ.	dB	$R_s = 150 \Omega$, 1 kHz
Frequency Response	22 to 22k	typ.	Hz	+0, -3 dB
THD+Noise	0.008	typ.	%	@ 1 kHz, 20 kHz BW, $R_s = 150 \Omega$, Output = -6 dBFS
BALANCED LINE-LEVEL OUTPUT SPECS (Active Balanced)				
Output Impedance	600	1%	Ω	Each Leg
Max. Output Level	18	min.	dBu	Balanced, <1% THD, Load = 10 kΩ
Dynamic Range	103	typ.	dB	20 kHz BW, A-weighted
Frequency Response	10 to 22k	typ.	Hz	+0, -3 dB
THD+Noise	0.07	typ.	%	@ 1 kHz, 20 kHz BW, Output = -6 dBFS



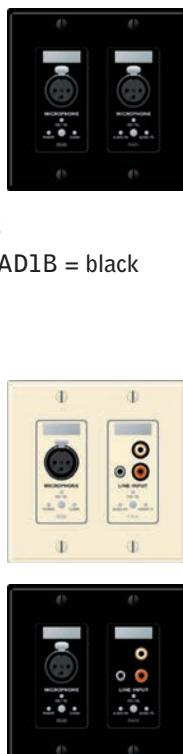
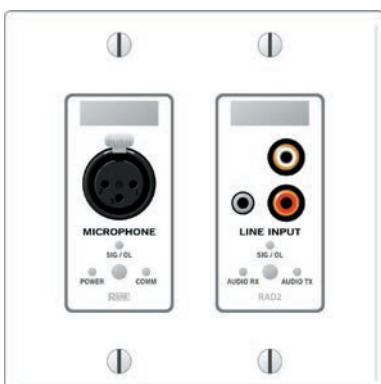
The RAD 16 may be mounted on any flat surface.

All wallplate RADs are available in white, ivory or black**RAD 1 Dual XLR Mic Inputs**

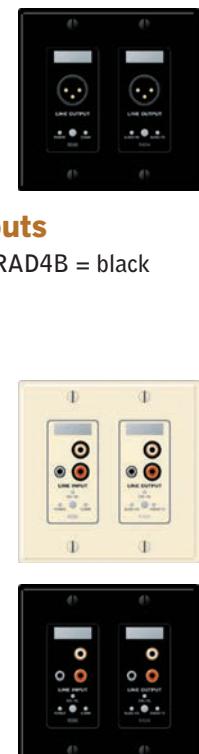
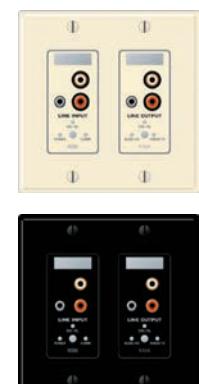
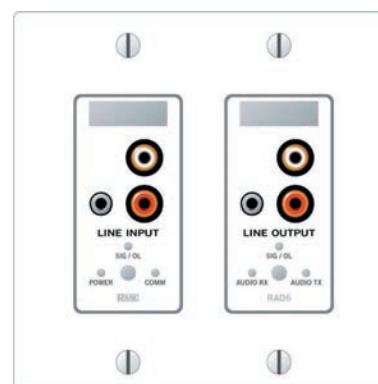
RAD1W = white RAD1I = ivory RAD1B = black

**RAD 4 Dual XLR Line Outputs**

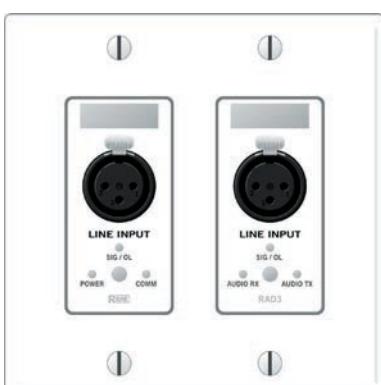
RAD4W = white RAD4I = ivory RAD4B = black

**RAD 2 XLR Mic Input / Mini & RCA Mono'ed Line Input**

RAD2W = white RAD2I = ivory RAD2B = black

**RAD 6 Mini & RCA Stereo Line Input / Mini & RCA Stereo Line Output**

RAD6W = white RAD6I = ivory RAD6B = black

**RAD 3 Dual XLR Line Inputs**

RAD3W = white RAD3I = ivory RAD3B = black

**RAD 7 XLR Mic Input / XLR Line Input**

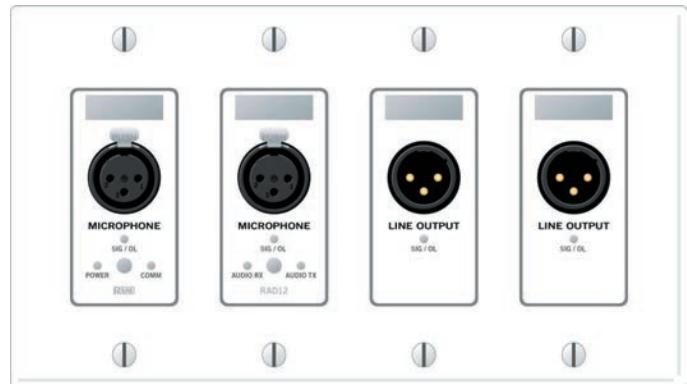
RAD7W = white RAD7I = ivory RAD7B = black

All wallplate RADs are available in white, ivory or black



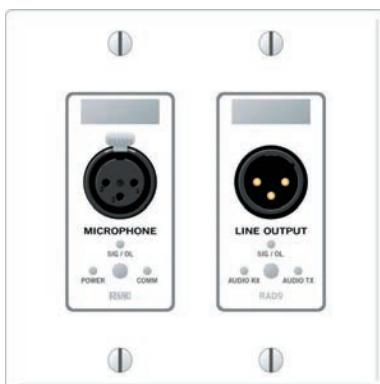
**RAD 8 XLR Mic Input /
Mini & RCA Stereo Line Output**

RAD8W = white RAD8I = ivory RAD8B = black



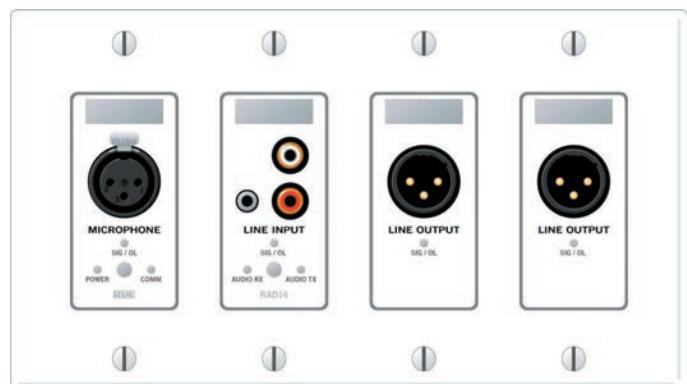
**RAD 12 Dual XLR Mic Inputs /
Dual XLR Line Outputs**

RAD12W = white RAD12I = ivory RAD12B = black



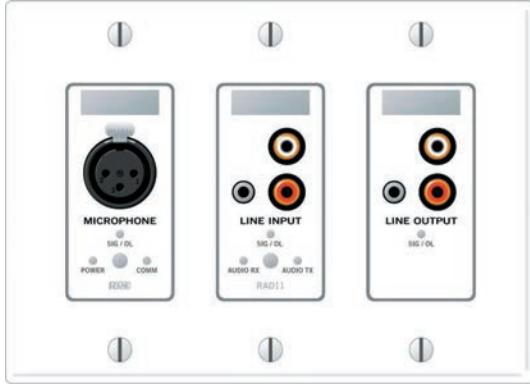
**RAD 9 XLR Mic Input /
XLR Line Output**

RAD9W = white RAD9I = ivory RAD9B = black



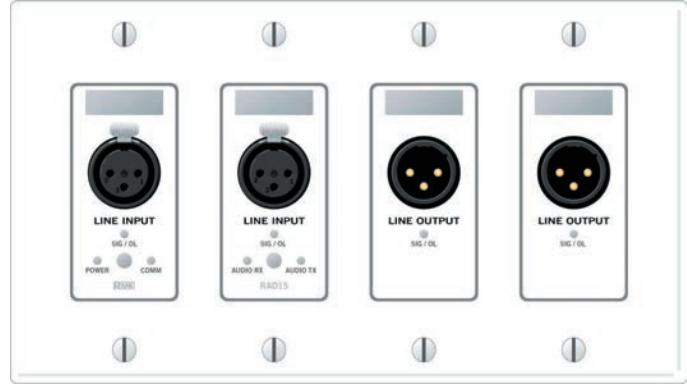
**RAD 14 XLR Mic Input /
Mini & RCA Mono'ed Line Input /
Dual XLR Line Outputs**

RAD14W = white RAD14I = ivory RAD14B = black



**RAD 11 XLR Mic Input /
Mini & RCA Mono'ed Line Input /
Mini & RCA Stereo Line Output**

RAD11W = white RAD11I = ivory RAD11B = black



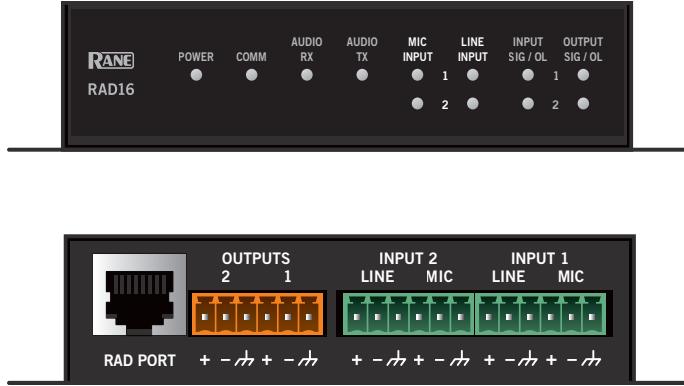
**RAD 15 Dual XLR Line Inputs /
Dual XLR Line Outputs**

RAD15W = white RAD15I = ivory RAD15B = black



RAD 18 XLR Mic Input / 1/4" Balanced Line Input

RAD18W = white RAD18I = ivory RAD18B = black



RAD 16 Dual Euroblock Mic or Line Input / Dual Euroblock Line Output

Black only

Top 11 Mongoose Solutions

Think about your last: auditorium, church, hotel, theater, stadium, convention center, campus, bar, restaurant, club.

Rane's new Mongoose and RADs solve problems you likely encountered if you ran analog audio between remote rooms and equipment racks.

Problem 1: Transmit & receive a small number of audio channels (2-6) to multiple, scattered locations.

Solution 1: Mongoose & Remote Audio Devices (RADs).

Problem 2: Conduit is expensive & multiple independent runs are needed for: mic, line, speaker, computer data, AC power...

Solution 2: Mongoose & RADs' digital CAT 5 solution eliminates or greatly reduces mic & line conduit costs, labor, troubleshooting... Some jobs may permit using the computer/data conduit, cable, labor and terminations!

Problem 3: Analog termination requires either stripping & screwing down each wire (for Euroblocks) or soldering each wire and assembling the connector (XLR, TRS or RCA).

Solution 3: RAD Network CAT 5 cables are quick and easy to terminate using standard 8P8C (RJ-45) connectors.

Problem 4: Analog twisted-pair (mic/line) cable is costly & requires 1 cable per channel.

Solution 4: RADs digitizes audio at each wall location, transporting 4 channels (2 in each direction) on a single, less expensive CAT 5 cable.

Problem 5: Analog cable & devices (MP3/CD players, satellite receivers, laptops) are prone to ground loops, electromagnetic interference (EMI), hum, buzz, noise...

Solution 5: RAD Network audio is uncompressed, 24-bit, 48 kHz digital, run over differentially balanced CAT 5.

Problem 6: Long analog cables beyond 12 feet (3.6 meters) require isolation transformers. And if you require low frequencies, large transformers are required.

Solution 6: RADs support a 492 foot (150 meter) long digital RAD Network that provides ± 45 volt common mode rejection without isolation transformers.

Problem 7: Testing analog audio wall connections is lots of work for installers.

Solution 7: RADs' indicators immediately self-test CAT 5 connectivity.

Problem 8: Analog wiring mistakes & broken cables in distant rooms are difficult to troubleshoot.

Solution 8: Both ends of RAD Network cables & the Mongoose Tracker software indicate and inform installers about any and all wiring mishaps.

Problem 9: Fork lifts that meet XLR wall plates at high velocities equals a service call.

Solution 9: Maintenance staff can order and replace RADs without a contractor or a PC.

Problem 10: There are no signal or overload indicators, or "the cable's good" indicators on analog XLR plates.

Solution 10: RADs have all these – and they dim with the light level in the room.

Problem 11: Re-routing analog audio via patch bays is troublesome & problematic.

Solution 11: Mongoose adds matrix routing where it was previously unaffordable (e.g., tie line applications), plus cost-effectively route disparately scattered audio sources/destinations to and from CobraNet.