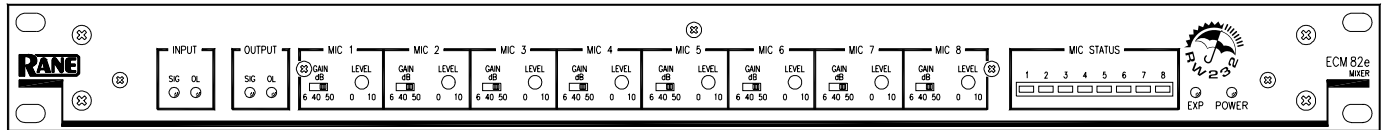


ECB 62e Base & Security Cover



ECM 82e Mixer & Security Cover



General Description

Rane Corporation's updated Engineered Conference System (ECS) provides the signal processing functions required for a state of the art:

- Teleconferencing
- Videoconferencing
- Distance Learning
- Boardroom
- Courtroom

audio system. ECS starts with the ECB 62e Base as the controller, with routing of up to six other line level devices in addition to ECM 82e Mixers. To add stereo capabilities, an ECS 62 Stereo Expansion Module can be added.

The ECM 82eA Mixer is an eight channel automatic mic mixer with Acoustic Echo Canceller (AEC). Typically, only one ECM 82eA is required per system. If you require more than eight microphones, you can add up to five ECM 82e Mixers for a total of 48 microphones. The ECA 2 Acoustic Echo Canceller module is an adaptive AEC for the ECM 82e Mixer using the Rane QuickAdapt™ algorithm. The ECM 82eA Mixer is shipped with the ECA 2 installed.

RaneWare

RaneWare® is software operating under Microsoft Windows 95 and 98SE, allowing the units to be controlled in real time. The software's graphical interface features control of all parameters and extensive on-line help. RaneWare is included with ECS, and downloadable free from Rane's web site at www.rane.com.

Powered from UL listed, CE approved remote power supplies, all ECS components are exempt from safety agency requirements, and may be used in any installation mandating agency compliance.



Features

- QuickAdapt™ Acoustic Echo Canceller (details page 5)
- Smart Last-On™ rejects unwanted noises (details page 5)
- MZEC™ MultiZone Echo Cancelling allows multiple AECs
- Automatic microphone mixing, up to 48 inputs
- Adaptive processing of all microphone inputs
- Professional audio quality with greater than 90 dB signal-to-noise
- Direct outputs for each mic to record courtroom testimony
- Post-Gate outputs for each mic for a Mix-Minus speech system
- Mixing and routing of up to six line level devices
- Stereo option with outputs that can be assigned to mono
- Usable with push-to-talk mics and Chairperson/Delegate's Stations
- Adjustable near signal and program signal offsets
- Single RS-232 control connection to all products
- Both AMX™ and Crestron™ software available from our web site
- Digital Hybrid with DTMF dialing with Rane ECM 64e and DH 1e
- Remote diagnostics using the Rane RPD 1 Programming unit
- Ethernet and Internet control with the Rane Via 10 Ethernet Bridge
- All units are one rack space high with Euroblock connectors

*U.S. Patent 5,848,146 on all Rane ECS products
Windows is a registered trademark of Microsoft Corporation
RaneWare is a registered trademark of Rane Corporation
QuickAdapt, Smart Last-On, MZEC are trademarks of Rane Corporation*

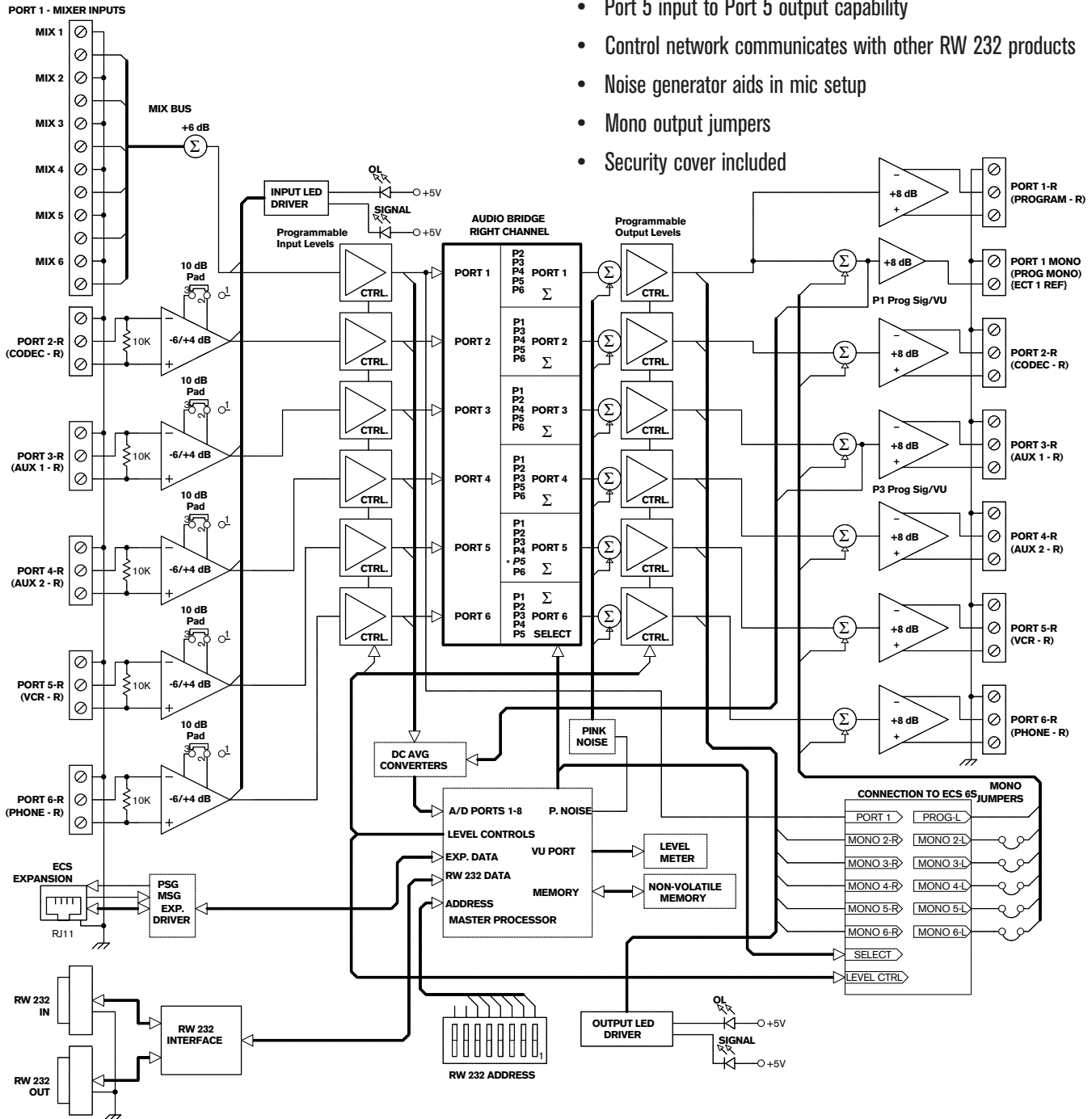
ECB 62e Base

Features

The ECB 62e is the master controller for the ECM 82e Mixers. There are six Ports on the internal audio bridge, each consisting of a digitally selected 5-input audio mixer. This configuration disallows the connection of an Input to its Output, avoiding possible feedback (except Port 5). Each Port Input also provides a selective automatic Level control.

The ECB 62e can accommodate one to six ECM 82e Mixers (see page 4) on Port 1. The five other Port Inputs allow any other line level audio signals. The programmable parameters for ECS are stored in non-volatile Memory (no batteries).

- Six port selective audio bridge with stereo expansion capability
- Master processor for control, audio monitoring, & communications
- System parameters stored in non-volatile memory
- Computer-controlled Levels on all audio inputs & outputs
- Hardware Input Level pads on Ports 2 thru 6
- Automatic Level control on all inputs
- Port 1 expansion inputs accommodate six ECM 82e Mixers
- Port 5 input to Port 5 output capability
- Control network communicates with other RW 232 products
- Noise generator aids in mic setup
- Mono output jumpers
- Security cover included



ECS 62 Optional Stereo Expansion Module

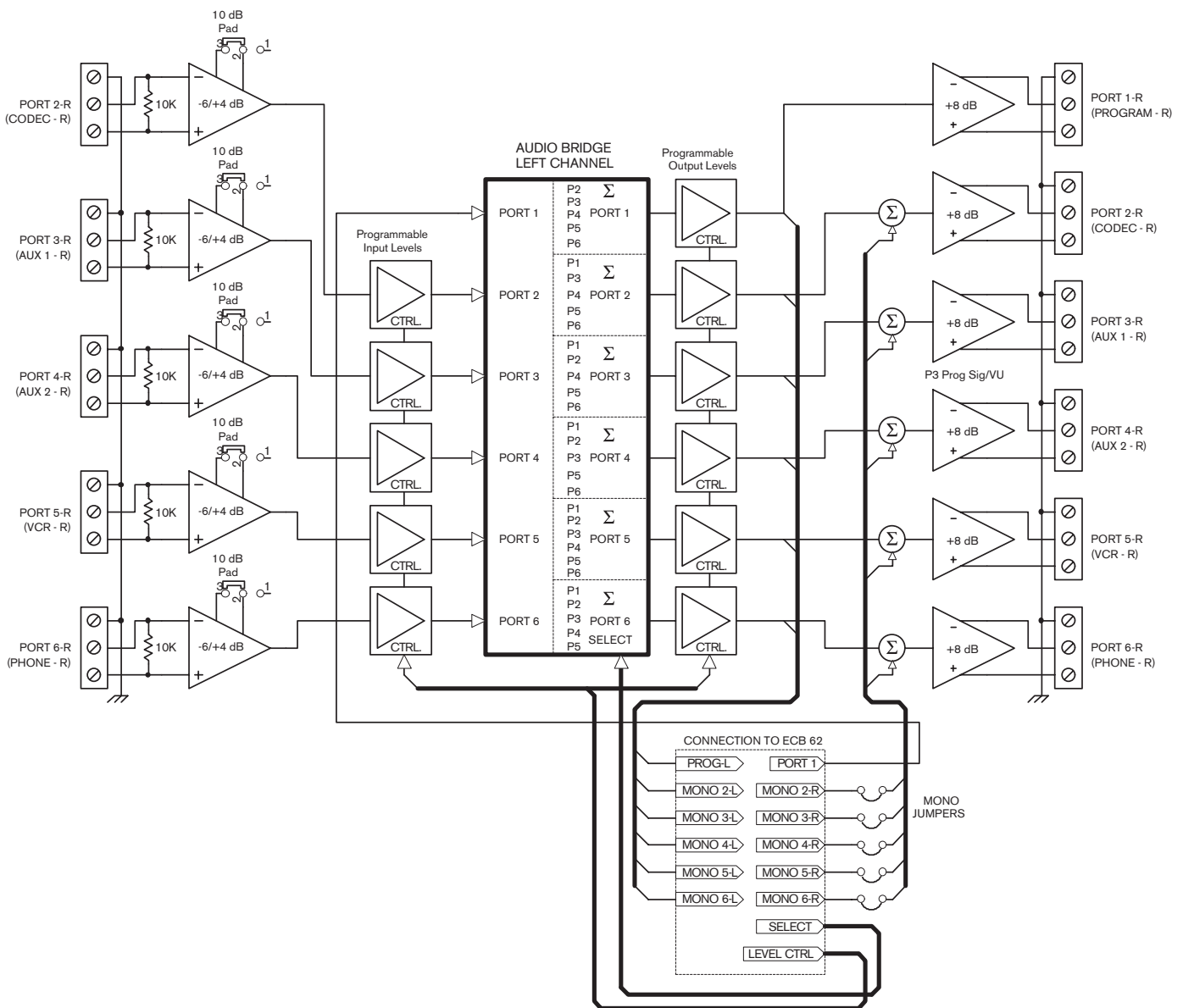
The ECS 62 is a plug-in card allowing the ECB 62e to accommodate stereo audio Inputs.

The ECS 62 installs by temporarily removing the top cover, and seating the card on top of the motherboard. Front panel trims are now accessible through a security panel, and additional connections become available at the rear panel.

Mono jumpers are provided on the Port Outputs for either mono or stereo sources. This module is designated as the left channel, while the ECB 62e euroblocks constitute the right channel.

Features

- Six port selective audio bridge duplicates the ECB 62e's audio bridge for full stereo operation
- Hardware input level pads
- Computer-controlled levels on all inputs & outputs duplicate the ECB 62e's Level controls
- Automatic Level controls on all inputs
- Port 1's input provided from the right channel of the ECB 62e
- Mono output jumpers



ECM 82e Automatic Mic Mixer

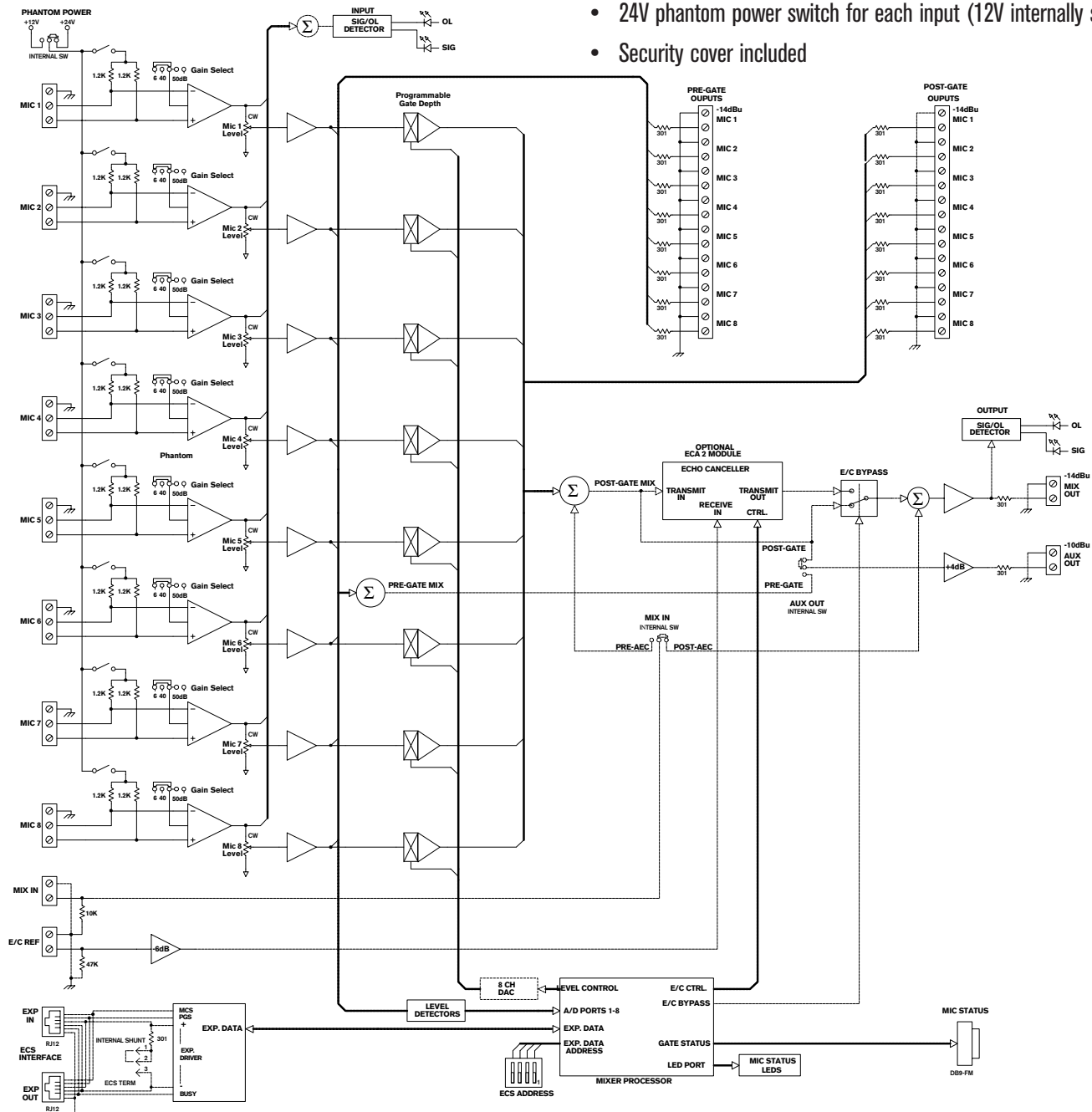
The ECM 82e is a digitally controlled analog 8-Input automatic mixer with an optional ECA 2 Echo Canceller. The ECB 62e Base supports up to six ECM 82e Mixers allowing up to 48 mic or line level Inputs. The ECM 82e communicates with the ECB 62e via the Expansion Data connection. Unlike other automatic mic mixers, each Input is programmable as either a Last-On *or* Gated Output. Only Inputs placed in Last-On mode may become the Master Channel.

All operating parameters are stored in the Base's non-volatile Memory and uploaded to the Mixers on power-up.

The ECM 82e comes with an ECS interface cable, security cover, and daisy-chain power supply cable.

Features

- Eight channel microphone/Line auto-mixer
- Eight programmable input gates
- One programmable output gate
- Expansion port for cascaded mixers
- Selectable post- or pre-gate mixed output: all mics, pre-echo canceller
- Optional ECA 2 Echo Canceller module
- Selectable NOMM function (Number Of Mics & Mixers)
- Post- and pre-gate outputs for each input
- 24V phantom power switch for each input (12V internally switchable)
- Security cover included



ECA 2 Acoustic Echo Canceller

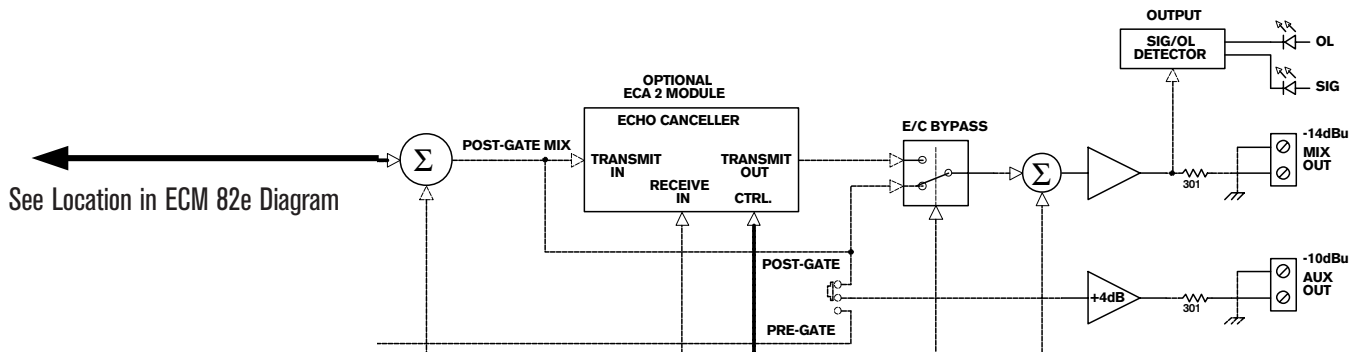
The ECA 2 is an adaptive DSP Acoustic Echo Canceller module using the QuickAdapt(algorithm for the ECM 82e Mixer. QuickAdapt(is an adaptive algorithm allowing for a single Acoustic Echo Canceller to operate the entire system. This algorithm uses the Rane exclusive Smart Last-On(feature to precondition the Acoustic Echo Canceller for a microphone gate change. When using the single AEC method, daisy-chain the mixers by connecting MIX OUT to MIX IN. The last mixer in the chain and the one that connects to the MIX 1 input on the ECB 62e must be the ECM 82eA. Only the ECM 82eA requires its Acoustic Echo Canceller Reference input to be connected.

Features

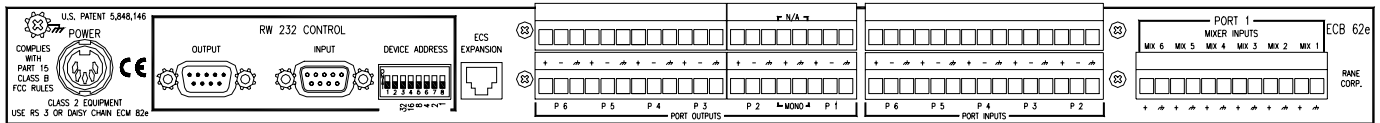
- Adaptive DSP Acoustic Echo Canceller
- QuickAdapt™ algorithm allows for a single Acoustic Echo Canceller to operate the entire system
- MZEC™ MultiZone Echo Cancelling allows multiple AECs
- 150 millisecond tail length
- Full bandwidth operation
- Adjustable echo suppression

Multiple ECA 2 Solution

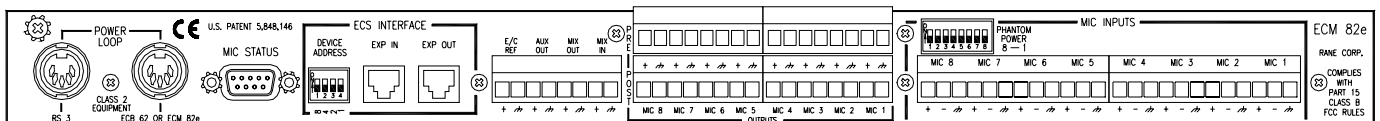
Multiple ECM 82eA mixers can also be used in situations where areas in the room are different. For example, table microphones may only require soft suppression, while ceiling microphones may require moderate or strong suppression. This method of echo cancelling is called MZEC(tm) (MultiZone Echo Cancelling). When using multiple ECM 82eA mixers, connect the MIX OUT of each mixer to its respective MIX # input on the ECB 62e.



Rear Panel Details



ECB 62e Base with ECS 62 Stereo Option



ECM 82e Mixer

ECS Architectural Specifications

The programmable conference audio system shall provide:

- A programmable audio bridge that allows for the selecting and bridging of up to six full duplex audio devices.
- The ability to receive and send mono or stereo audio signals, as required.
- Programmable automatic mixing of up to 48 microphones or line level inputs, as required.
- Up to six zones of acoustical echo cancelling with tail lengths of up to 150 milliseconds, as required.
- Remote diagnostics with password protection, as required.

Base - The audio bridge shall be computer controlled. Each section of the bridge is called a 'port' and shall have a bandwidth of 20 Hz to 20 kHz. One port shall be designated as the Room port and its input shall allow for the connection of up to six automatic microphone or line level mixers. The output of the Room port shall be designated as the Program audio source. All audio inputs, except for the Room port, shall allow for the connection of both stereo or mono audio sources and shall be an active balanced design with an input impedance of 10k ohms. All audio outputs shall supply either a mono or a stereo audio source and shall have an active cross-coupled balanced design. All audio connections shall be made using Euroblocks and have internal RFI filters.

All audio inputs and outputs of the bridge shall have programmable attenuators with 100 dB of attenuation. All audio inputs shall have selectable automatic level controls. A selectable noise source on the Program output shall be provided for alignment of the microphone gains.

Front panel LEDs shall indicate communication status, signal presence, overload, operational status and port audio level VU Meter. A port step button shall be provided to select the monitored port for the VU Meter.

The unit shall be controlled via RW 232. A device address switch and RS-232 input and output jacks shall be provided. To communicate to the automatic mixers an Expansion Data Port shall be provided.

The programmable audio bridge shall be a Rane Corporation ECB 62e and ECS 62 Stereo Expansion Module, as required.

Mixer - The programmable audio mixer shall operate as an 8 channel manual or automatic mixer. Each channel of the mixer shall operate in either a Last On or Gated mode. When operated in a Last On mode, the mixer shall provide a means to hold the most recent active channel on. The held channel shall be called the Master Mic. When operated in a Gated mode, the mixer shall provide automatic attenuation to inactive channels and maximum gain to active channels. Detection of an active channel shall be processed by a dynamic threshold, where the threshold level must change due to the room's noise level, if another channel is active and if audio is detected at the room's loudspeakers. The Mixer's channels must not become active due to audio from the room's loudspeakers. A selectable NOM function shall be applied to the active channel level. The active Master Mic channel shall maintain a maximum level for teleconferencing.

Each mixer shall provide for the inclusion of an acoustical echo canceller and a programmable means to bypass it. The echo canceller shall be continually adaptive and not require training. Each mixer shall provide an input for the Echo Canceller Reference. Each mixer shall allow for a method or removing echo caused by the readapting of the echo canceller after a new channel becomes active and audio is detected at the room's loudspeakers. Each mixer shall allow for a programmable method to limit the maximum number of channels that can gate on at the same time.

Each mixer shall provide unbalanced outputs for Pre-Gate and Post-Gate on each channel, an unbalanced Aux output that is a selectable Post-Gate or Pre-Gate mix of all of the channels and a Mix output that is a program selectable Post-Echo Canceller or Pre-Echo Canceller unbalanced output.

To communicate to the other automatic mixers and the ECB 62e a proprietary interface shall be provided, called the Expansion Data Port.

The programmable audio mixer shall be a Rane Corporation ECM 82e and ECA 2 Echo Canceller Module, as required.

Each device shall have certified compliance with FCC Part 15 for a Class B digital device, and EMCD 89/336/EEC. Each device shall be powered from a remote power supply and shall be UL listed, CSA certified and meet LVD 73/23/EEC & EMCD 89/336/EEC standards.

Each device shall be constructed entirely from cold-rolled steel and be contained in a standard E.I.A. 19" 1U rack unit.

ECS 62 Specifications

Parameter	Specification	Limit	Units	Conditions/Comments
Frequency Response	20 Hz to 20 kHz	±1 dB		
Ports 2-6 Input Impedance	10k		ohms	Active balanced
Input Pad	Switchable 0/-10		dB	
Input Attenuation	0-100		dB	Programmable
Maximum Input Level	+20		dBu	
Minimum Input Level	-14		dBu	
All Ports - Output Type	Active Balanced			Cross-coupled
THD	0.01	max	%	
CMRR	>40		dB	@ 1 kHz
Signal-To-Noise	>80		dB	@ 0 dBu ref, all on
Signal-To-Noise	>95		dB	@ 0 dBu ref, all off
Crosstalk	>70		dB	@ 1 kHz
Output Attenuation	0-100		dB	Programmable
Shipping: Size	4.5" x 12" x 14"			(11.5 cm x 30.5 cm x 35.5 cm)
.....Weight	4 lb			(1.8 kg)
<i>All Ports - Output Level @ 0 dB on Meter = 0 dBu (Max output level)</i>				



ECB 62e Specifications

Parameter	Specification	Limit	Units	Conditions/Comments
Frequency Response	20 Hz to 20 kHz	±1 dB		
Port 1 Input Impedance	10k		ohms	Unbalanced
Port 1 Nominal Input Level	-14		dBu	
Ports 2-6 Input Impedance	10k		ohms	Active balanced
Input Pad	Switchable 0/-10		dB	
Input Attenuation	0-100		dB	Programmable
Maximum Input Level	+20		dBu	
Minimum Input Level	-14		dBu	
Port 1 Mono Output Type	Unbalanced			300 ohms
Port 1 Mono Output Level	0		dBu	
All Ports - Output Type	Active Balanced			Cross-coupled
Total Harmonic Distortion	0.01	max	%	+4 dBu, 20-20 kHz
CMRR	>40		dB	@ 1 kHz
Signal-To-Noise	>80		dB	@ 0 dBu ref, all on
Signal-To-Noise	>95		dB	@ 0 dBu ref, all off
Crosstalk	>70	3	dB	@ 1 kHz
Output Attenuation	0-100		dB	Programmable
Automatic Level Control	Attack Time=1		sec	
	Release Time=1		sec	
Limiter	Attack Time=10		ms	
	Release Time=50		ms	
Overload Indicator Thresholds	20	2	dBu	Input and Output Levels
Signal Present Thresholds	-28	5	dBu	Input Level
Unit: Agency Listing				
.....120 VAC Model	Class 2 Equipment UL / CSA			National Electrical Code Exempt Class 2 equipment
.....230 VAC Model	Certified FCC part 15J CE-EMC CE-Safety			Class B Device EMC Directive 89/336/EEC Exempt Art. 1 of LVD 73/23/EEC
Power Supply: Agency Listing				
.....120 VAC Model	UL CSA			File no. E137895 File no. LR53696-75
.....230 VAC Model	CE-EMC CE-Safety			EMC Directive 89/336/EEC LV Directive 73/23/EEC
Power Supply: Input	95-250 VAC			IEC line cord jack
.....Output	+5 VDC, 5.0 A -12 VDC, 1.5 A +12 VDC, 0.8 A Return			Pin 3 Pin 4 Pin 5 Pins 1 & 2
Unit: Construction	All Steel			
.....Size	1.75" H x 19" W x 8.5" D (1U)			(4.4 cm x 48.3 cm x 21.6 cm)
.....Weight	6 lb (w/o power supply)			(2.7 kg)
Shipping: Size	4.5" x 20.3" x 13.75"			(11.5 cm x 52 cm x 35 cm)
.....Weight	11 lb			(5.0 kg)
All Ports: output level @ 0 dB on meter = 0 dBu (max output level)				
Note: 0 dBu=0.775 Vrms				*Level Controls Set at "0"

ECM 82e Specifications

Parameter	Specification	Limit	Units	Conditions/Comments
Frequency Response	120 Hz to 20 kHz	±1	dB	Mic Input to Mix Output, gain 40
Input Impedance	2k	±100	ohms	Active balanced
THD	0.1	typ.	%	re: 0 dBu, 80 kHzBW, Gain 40
Signal-To-Noise	83	±3	dB	re: 0 dBu, 20 kHzBW, Gain 40
Maximum Gain	53		dB	Gain 50
CMRR	60	typ.	dB	@ 1 kHz
Min and Max Input Levels	6 dB (-20 to +10) 40 dB (-54 to -23) 50 dB (-70 to -36)		dBu dBu dBu	
Gate Attenuation	0 to -100		dB	
Attack time	<10		ms	
Master and Release Timer	.05 to 3		sec	
Phantom Power	+24	4%	Volts	10 mA max/channel (80 ma total)
Mix Input	Unbalanced 10k		ohms	-14 dBu
E/C REF Input	Unbalanced 47.5k		ohms	-10 to 0 dBu
Pre- & Post-Gate, Mix Outputs	Unbalanced 300		ohms	-14 dBu Nominal @ 1 kHz
Aux Output	Unbalanced 300		ohms	-10 dBu Nominal @ 1 kHz
Automatic Adaptation Rate	<5		sec	During quiet operation
Unit: Agency Listing	Same as ECB 62			
Power Supply	Same as ECB 62			
Unit: Construction	All Steel			
.....Size	1.75" H x 19" W x 8.5" D (1U)			(4.4 cm x 48.3 cm x 21.6 cm)
.....Weight	6 lb (w/o power supply)			(2.7 kg)
Shipping: Size	4.5" x 20.3" x 13.75"			(11.5 cm x 52 cm x 35 cm)
.....Weight	11 lb			(5.0 kg)
<i>All Ports: output level @ 0 dB on meter = 0 dBu (max output level)</i>				
<i>Note: 0 dBu=0.775 Vrms</i>				

ECA 2 Specifications

Parameter	Specification	Limit	Units	Conditions/Comments
DSP Adaptive Acoustic Echo Canceller				
Frequency Response	40 up to 20,000		Hz	
Audio Processing Delay	<3		ms	Local to Remote Output
Tail Length	> 150		ms	
Total Echo Cancellation	Up to 60		dB	Receive State only
Adaptive Echo Cancellation	45		dB	
Shipping: Size	6.5" x 5.0" x 2.5"			16.5 cm x 12.5 cm x 6.5 cm
.....Weight	2 lb			0.9 kg

Typical Video Conference Room Example System

The following is an ECS example application to assist designers in understanding some of the capabilities and utility of ECS. This example provides a starting point for those who are working on similar applications. This page includes a short description, followed by descriptions regarding potential Memory setups. The following pages show the system block diagram, the system wiring diagram, and RaneWare screens.

The audio system block diagram using ECS for a typical teleconferencing room is shown on the next page. This example includes:

- 8 microphones (hooked to one ECM 82eA, which includes the ECA 2 Acoustic Echo Canceller.)
- Room controller (AMX or Crestron)
- Remote Diagnostics (RPD 1 and an external off-the-shelf modem.)
- Distributed room speakers for program audio (with your favorite speakers and amp)
- 4 audio sources:
 - 1) Audio from a Video Codec
 - 2) VCR 1 audio
 - 3) VCR 2 audio
 - 4) Phone add-on audio (ECM 64e with DH 1e if needed)

In this example, the room has two basic uses. One use is for conferencing (with video if needed) and a second use for audio-only conferencing using the phone add-on (POTS). Six different ECS Memories are discussed below, each allowing variations for the room's multiple uses. Of course, up to 16 different Memories are supported by ECS, all of which may be accessed via RS-232 communications. Indeed, even the 6 Memories discussed below may not cover all possible needs, they are considered here solely to initiate and inspire the multitude of possibilities.

MEMORY 1: Room Controller Operation

When Memory 1 is selected, the Room Controller can be used to enable and disable all audio sources and destinations. Use Memory 1 to allow the user to control the entire system. One may want to setup Memory 1's default settings to disable all audio devices. Thus, from the Room Controller, the user must enable Ports on the ECB 62e Base before audio is heard in the room. Also, until microphone audio on Port 1 is enabled by the user, no audio is heard at the far end. *Since the Room Controller cannot easily query for the current ECS system settings, the Room Controller and ECS units must default to the same settings. Therefore, when designing an ECS system with a room controller, both ECS and the room controller must start with the same settings.*

MEMORY 2: Conference via POTS

Memory 2 enables conferencing using the ECM 64e with the DH 1e Digital Hybrid. This Memory connects the room audio (the Base's Port 1) to the Digital Hybrid (Port 6), thus sending room audio picked up by the Mics to the far end. At the same time, this Memory connects audio being sent from the far end (Port 6's Input) to the local room speakers (Port 1's Output).

MEMORY 3: Conference via Video Codec

Memory 3 connects the room audio (Port 1) to the Video Codec (Port 2). This allows a conference via the Video Codec, instead of via the Digital Hybrid as in Memory 2. Video signals are not handled by ECS, therefore it is immaterial to ECS whether video signals are being exchanged, thus creating a videoconference.

MEMORY 4: Conference with VCR 1 audio

Memory 4 connects VCR 1 audio (Port 4) to the room speakers for local reinforcement or playback. Additionally, VCR 1 audio connects to the Video Codec thus sending VCR 1 audio to the far end (via Port 2). ECS does not accept video signals, therefore, the VCR 1 video feeds and switching for Memory 4 must be accomplished elsewhere.

MEMORY 5: Multi-way Conference or Phone add-on

Memory 5 allows a multi-way conference where the room audio (Port 1) connects to the Video Codec (Port 2) *and* to the Digital Hybrid (Port 6). This allows a 3-way conference via the Video Codec, the Digital Hybrid (POTS) and the local room.

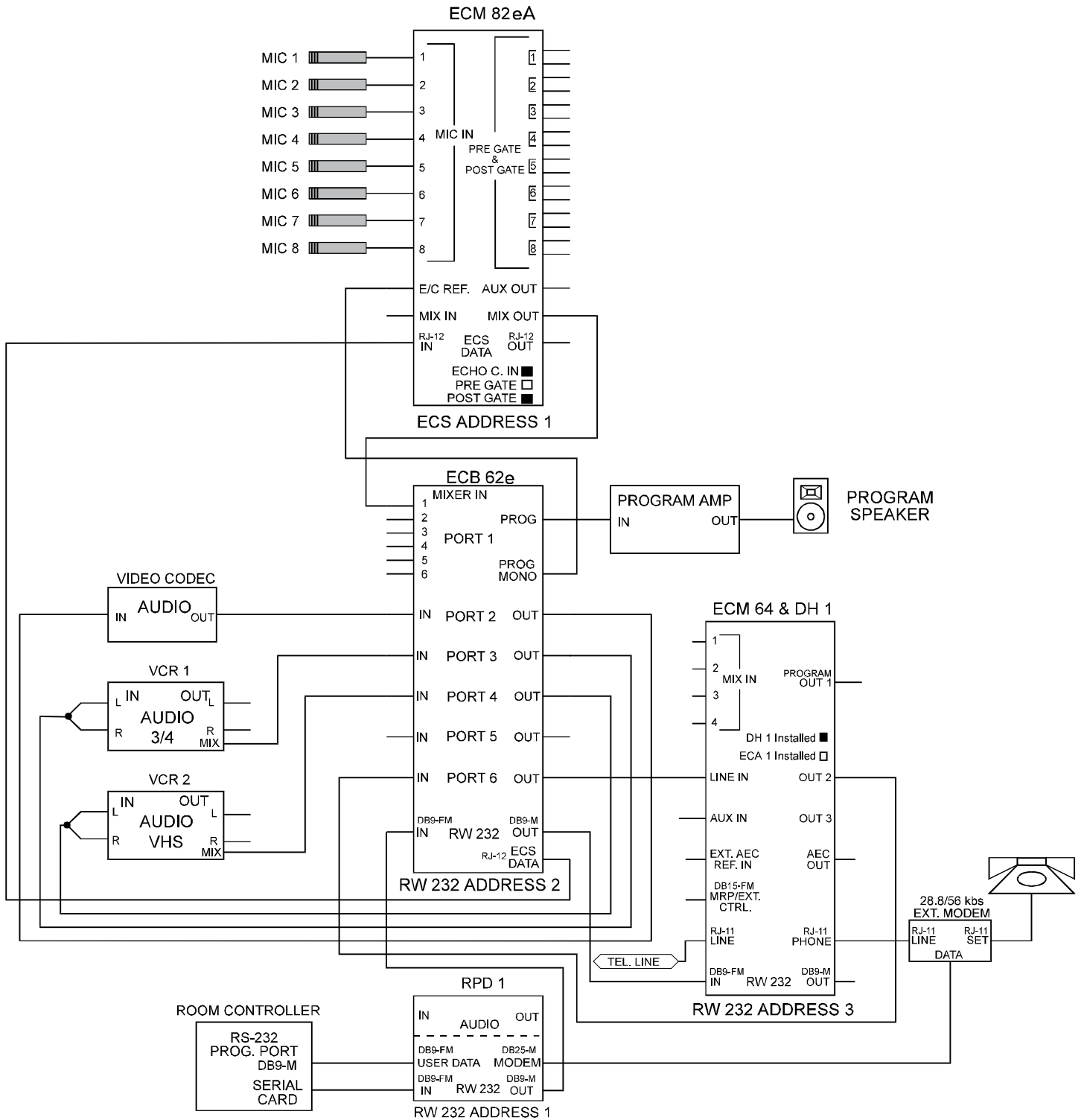
MEMORY 16: System Setup

Memory 16 can be used to set Mic and Port gains during sound system optimization. For optimization, one might want to disable Limiters and automatic Level controls which are available on many ECS Inputs or Outputs. The other Memories could enable such processing as required.

These are just a few sample Memory setups. Up to 16 are possible. The flexibility of the Base's Ports acting as an audio bridge should now be apparent. Since the Base also communicates to the Mixer, one can also disable and enable various combinations of Mics when their use is not necessary in certain Memories or setups. Even the audio level of each source can be modified using various Memories. The Room Controller can also control individual audio source levels, thus giving the user more control — or is that an oxymoron like saying military efficiency?

The optional ECS 62 card renders the Base a stereo device allowing stereo reinforcement when needed. And since the Base supports up to six 8-channel ECM 82e Mixers - each with its own Echo Canceller - up to 48 Mic Inputs are supported.

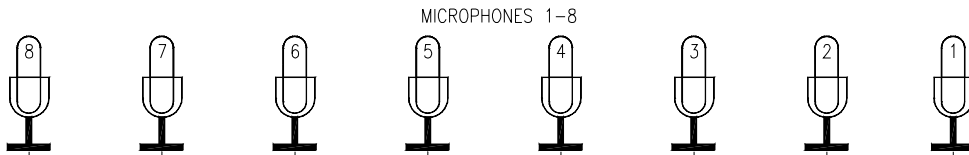
Example Conference System Block Diagram



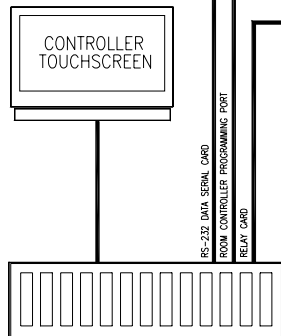
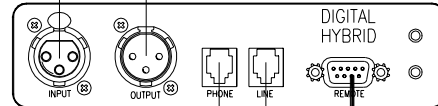
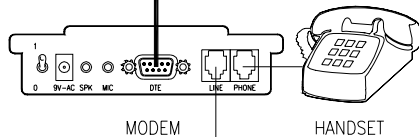
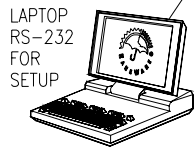
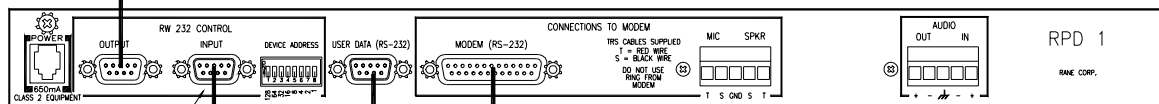
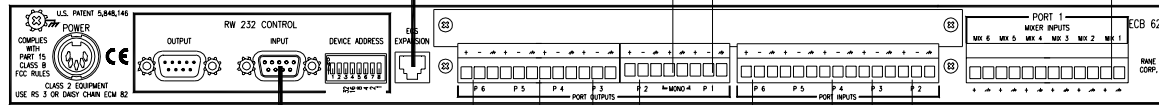
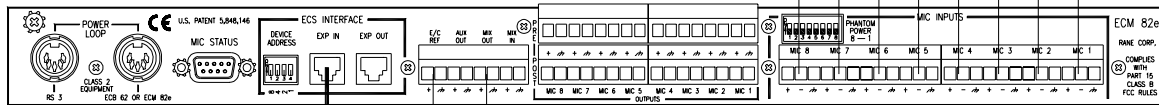


ROOM SPEAKERS

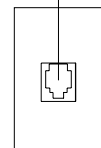
Example Conference System Wiring Diagram



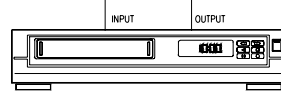
MICROPHONES 1-8



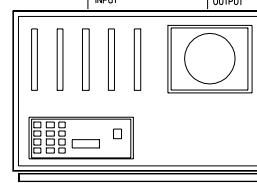
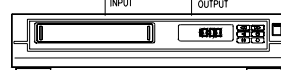
ROOM CONTROLLER



PHONE LINE



VCR 2



VIDEO CODEC



ROOM AMPLIFIER

SPEAKERS

RaneWare
Screens for
Example System

Port | **Mixer** | **System**

Port 1
Name

Port Inputs: Port 1 On, Port 2 On, Port 3 On, Port 4 On, Port 5 On, Port 6 On

Signal Mode:
 Automatic
 On
 Off

Limiter
 Auto-Level
 Off

Threshold Level: -20 dB
 Input Level: 0.0dB

Port 1	Port 2	Port 3	Port 4	Port 5	Port 6	Port Outputs	On
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> Program 6.0dB	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> Port 2 10.0dB	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> Port 3 0.0dB	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> Port 4 10.0dB	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Port 5 0.0dB	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> Port 6 10.0dB	<input type="checkbox"/>

Port | **Mixer** | **System**

Mixer: 1

Output

NOMM Mode

Max Mics On: 3

Echo Canceller:
 Bypass
 Suppression:
 Soft
 Moderate
 Strong

Mic 1 to Mic 8: Active

Mic 1 Name Copy

Mic Signal Detection:
 Threshold Detection
 Force Detection
 Detection Off

Gate Mode:
 Last On
 Gated

Threshold Level: -25 dB
 Gate Depth: 20.0dB
 Gate Release: 0.30s

Port | **Mixer** | **System**

Prog Sig Thresh: -20 dB
 P3 Prog Contribute
 Link Prog Signal

Port 1:
 Suppression 0.0dB
 Noise Gate 0.0dB

Master Port Delay: 0.35s
 Master Mic Delay: 0.35s
 Port Sig Release: 0.35s
 Mic Sig Release: 0.35s
 Prog Sig Release: 0.35s

