



CONVERGE™ PRO 880/840T/TH20/8i Professional Conferencing Systems

INSTALLATION & OPERATION MANUAL



TECHNICAL SUPPORT

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CONVERGE PRO 880/840T/TH20/8I INSTALLATION & OPERATION MANUAL

CLEARONE PART NO. 800-151-880 (REVISION 0.91) May 2007

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CHAPTER 1: INTRODUCTION

CONVERGE PRO PRODUCT FAMILY OVERVIEW

Congratulations on purchasing a ClearOne® Converge™ Pro audio conferencing solution. The Converge™ Pro product family represents a revolutionary advance in state-of-the-art audio technology for large-scale conferencing applications.

ClearOne® Communications introduced its first audio conferencing products to the market in 1990 under the brand name Gentner®. Since that time, four generations of products have been produced, each offering improved performance and reliability. Our commitment remains to provide the highest quality audio for all conferencing environments.

With over 80,000 installations in customer sites ranging from Fortune 1000 companies to the federal government, ClearOne products are used in the most demanding applications, where they consistently deliver industry-leading audio quality and unsurpassed reliability. ClearOne's fourth-generation Acoustic Echo Cancellation (AEC) algorithm, which is the foundation of the Converge Pro product family, is optimized for today's distributed conferencing environments and delivers crystal-clear audio that is equivalent to conferencing participants being in the same room.



Applications

The Converge Pro product family delivers best-in-class, scalable conferencing solutions for any size venue. Some common applications include:

- Boardrooms
- Training rooms
- Courtrooms
- Multimedia rooms
- Distance learning
- Auditoriums
- Houses of worship
- Sound reinforcement
- Large meeting venues

Models

The Converge™ Pro product family includes the following models:

- Converge™ Pro 880
- Converge™ Pro 840T
- Converge™ Pro TH20
- Converge™ Pro 8i

Common Benefits

All products in the Converge™ Pro product family offer the following benefits:

- Superior audio quality
- ClearOne®'s next generation signal processing algorithms
- Field-proven conferencing technology
- Flexible configuration and expandability
- Improved software interface
- Simplified programming
- Reduced installation times
- Best-in-class processing speed
- ClearOne®'s world-class customer service, technical support, and field engineering

Common Features

The leading-edge features common to all products in the Converge™ Pro family include:

- USB type B connector on front panel
- Dual RJ-45 Ethernet ports
- Dual RJ-45 E-bus (expansion bus) ports
- TDM (Time Division Multiplexed) mix/minus audio and control buses
- RS-232 serial port (up to 155 Kbps)
- Dual DB-25 control/status GPIO Ports
- Mini-phoenix audio input/output connectors (color-coded by channel type)
- Differential inputs and outputs

Feature Enhancements

Converge™ Pro feature enhancements include:

- Next generation ClearOne® Distributed Echo Cancellation®—four, eight, or twelve input digital signal processors (DSPs) improve full-duplex performance and remove echo in the most difficult acoustic environments.
- New PTT (Push-to-Talk) microphone compatibility provides greater design and configuration flexibility.
- New EC (Echo Cancellation) Reference Summing uses multiple signals for echo cancellation without requiring a dedicated output.
- Advanced noise cancellation reduces background noise caused by fans, HVAC systems, and other relatively constant background noise sources.
- Four independent signal processing blocks with 15 user-configurable filters (including all pass, low pass, high pass, low shelving, high shelving, and parametric), delay, and compression. ClearOne®'s unparalleled processing power enables you to use all of these features simultaneously in any combination, allowing you to deliver optimized audio configurations for every environment and application.
- Enhanced expansion bus capabilities—connect up to eight Converge Pro units together and use up to 64

microphones and 16 phone lines for a single site.

- Increased distance between units—up to 200 feet/60.96 meters.
- Graphical, user-configurable routing matrix allows you to route any input channel to any output, processing, or fader channel (or combination thereof) on any Converge™ Pro unit, or across the expansion bus.
- Front panel control of mute and gain for all input and output and output channels.
- Safety mute button on the Console™ software button bar instantly mutes all outputs.
- ClearOne®'s DSP (Digital Signal Processing) technology ensures crystal-clear audio between teleconferencing sites.

AEC (Acoustical Echo Cancellation) Enhancements

- Smoothing filters to reduce artifacts
- AEC (Acoustic Echo Cancellation) freezing
- Pre-AEC bypass channels
- Improved AEC adaption and noise suppression algorithms
- Automated Push-to-Talk microphone mode
- Gain and gating control tracking
- Cross-point gain adjustments
- Four fader channels
- Microphone preamp gain control
- 7 dB coarse gain and .5 dB fine gain increments for improved microphone gain matching
- AGC (Automatic Gain Control) algorithm
- ALC (Automatic Level Control) algorithm

Telephone Hybrid Enhancements (840T and TH20)

- Custom telephone line settings for international teleconferencing and in-country localization
- Type I & Type II auto-sensing telephone interface (U.S./E.U.)
- International impedance matching
- Improved TEC (Telco Echo Cancellation) with 31 millisecond tail time
- Continual TEC adaptation to telephone line conditions
- ClearEffect™ wideband audio emulation algorithm
- Digital anti-alias filter minimizes CO switching noise and hum
- ALC (Automatic Level Control) on telco receive channel
- Improved call management and processing
- Adjustable dial tone, DTMF attenuation
- Off-hook DTMF generation
- Robust dial tone detection
- Ringer selection
- Caller ID
- Touch-tone dialing capability (40 character dial string)
- Analog telephone line compatibility
- 10 W speaker amplifier (840T only)

CONVERGE PRO PRODUCT DESCRIPTIONS

Converge Pro 880



The successor to the industry-leading XAP® 800. As the flagship product in ClearOne's next-generation Converge Pro professional audio conferencing product line, the 880 delivers rich functionality with improved audio performance, enhanced management, and simplified configuration for audio conferencing and sound reinforcement applications.

Converge Pro 880 advantages include:

Advanced Conferencing Feature Set

- Next-generation Acoustic Echo Cancellation
 - » Improved duplex performance
 - » Push-to-talk microphone compatibility
- Next-generation Noise Cancellation
 - » Adaptive modeling to room ambient noise conditions
- Increased resolution on Microphone Preamp stage
 - » 0-56 dB in 7 dB increments
- Pre-AEC routing for sound reinforcement applications
 - » Maximum of 4 millisecond processing delay
- Management Improvements
 - » Integrated Ethernet and USB connections
 - » SNMP and HTML remote management agents
 - » Web-based, customizable user and control consoles
 - » Event scheduler
 - » Diagnostic console
- Simplified Configuration Software
 - » Drag & drop A/V and channel objects
 - » Selectable Console views—Unit, Matrix, and Channel
- Expanded serial command set

Superior Audio Performance

- Next-generation Distributed Echo Cancellation® on every mic input
- First-mic priority delivers clear audio to the far end
- 20 Hz-20 kHz bandwidth for full-range audio response
- ALC & AGC keep participants' audio balanced and consistent

Configuration Flexibility

- Scalable – link multiple Converge Pro units (880, 840T, 8I, TH20) for extensive microphone coverage and up to 16 phone lines
- Enhanced expansion bus, featuring 12 mix-minus audio buses for routing between units
- Eight mic gating groups (four internal & four global) allow separation of mics into individual mixer gating groups for greater configuration flexibility
- 32 presets can be executed on-the-fly without disturbing other ongoing preset operations
- 255 Macros for customized audio control/configuration with single command execution

Conferencing Capability

- Link with multiple Converge Pro units for a total of up to 16 telephone lines and 64 mic inputs

Converge Pro 840T



The successor to the industry-leading XAP® 400. Leveraging the rich functionality of the flagship Converge™ Pro 880, the new 840T includes a built-in telephone interface and power amplifier for standalone conferencing applications. It also provides expansion capability with other Converge™ Pro mixers for complex installations.

Converge Pro 840T advantages include:

Advanced Conferencing Feature Set

- Next-generation Acoustic Echo Cancellation
 - » Improved duplex performance
 - » Push-to-talk microphone compatibility
- Next-generation Noise Cancellation
 - » Adaptive modeling to room ambient noise conditions
- Increased resolution on Microphone Preamp stage
 - » 0-56 dB in 7 dB increments
- Pre-AEC routing for sound reinforcement applications
 - » Maximum of 4 millisecond processing delay
- Management Improvements
 - » Integrated Ethernet and USB connections
 - » SNMP and HTML remote management agents
 - » Web-based, customizable user and control consoles
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 - » Diagnostic console
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- Enhanced expansion bus, featuring 12 mix-minus audio buses for routing between units
- Eight mic gating groups (four internal & four global) allow separation of mics into individual mixer gating groups for greater configuration flexibility
- 32 presets can be executed on-the-fly without disturbing other ongoing preset operations
- 255 Macros for customized audio control/configuration with single command execution

Conferencing Capability

- Link with multiple Converge Pro units for a total of up to 16 telephone lines and 64 mic inputs

Converge Pro 8i



An input-only expansion box for the Converge Pro platform. The 8i delivers new economical configuration flexibility. It can be added to 880 or 840T systems for additional mic and line inputs, allowing customers to match the number of inputs and outputs required for audio conferencing and sound reinforcement installations.

Converge Pro 8i advantages:

Advanced Conferencing Feature Set

- Economical Mic/Line only mixer for large configurations where additional output channels are not required
- Next-generation Acoustic Echo Cancellation
 - » Improved duplex performance
 - » Push-to-talk microphone compatibility
- Next-generation Noise Cancellation
 - » Adaptive modeling to room ambient noise conditions
- Increased resolution on Microphone Preamp stage
 - » 0-56 dB in 7 dB increments
- Pre-AEC routing for sound reinforcement applications
 - » Maximum of 4 millisecond processing delay
- Management Improvements
 - » Integrated Ethernet and USB connections
 - » SNMP and HTML remote management agents
 - » Web-based, customizable user and control consoles
 - » Event scheduler
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 - » Drag & drop A/V and channel objects
 - » Selectable Console views—Unit, Matrix, and Channel
- Expanded serial command set

Superior Audio Performance

- Next-generation Distributed Echo Cancellation® on every mic input
- First-mic priority delivers clear audio to the far end
- 20 Hz-20 kHz bandwidth for full-range audio response
- ALC & AGC keep participants' audio balanced and consistent

Configuration Flexibility

- Scalable – link multiple Converge Pro units (880, 840T, 8i, TH20) for extensive microphone coverage and up to 16 phone lines
- Enhanced expansion bus, featuring 12 mix-minus audio buses for routing between units
- Eight mic gating groups (four internal & four global) allow separation of mics into individual mixer gating groups for greater configuration flexibility
- 32 presets can be executed on-the-fly without disturbing other ongoing preset operations
- 255 Macros for customized audio control/configuration with single command execution

Conferencing Capability

- Link with multiple Converge Pro units for a total of up to 16 telephone lines and 64 mic inputs

Converge Pro TH20



The successor to the industry-leading XAP® TH2. The TH20 enables conference call functionality for Converge™ Pro installations with its single telephone line connection. Up to 16 units can be linked for greatly expanded conferencing capability. It also adds two line-level inputs and outputs for increased system capacity.

Converge Pro TH20 advantages:

Advanced Telephone Feature Set

- Signal Processing Improvements
 - » Telephone noise cancellation on RX channel
 - » ClearEffect speech enhancement
 - » Automatic level control on RX channel
 - » Caller ID
 - » Selectable ringers
- Increased I/O capabilities
 - » Two line level inputs and two line-level outputs
 - » Audio Expansion bus (E-bus)
- Management Improvements
 - » Integrated Ethernet and USB connections
 - » SNMP and HTML remote management agents
 - » Web-based, customizable user and control consoles
 - » Event scheduler
 - » Diagnostic console
- Simplified Configuration Software
 - » Drag & drop A/V and channel objects
 - » Selectable Console views—Unit, Matrix, and Channel
- Expanded serial command set

Configuration Flexibility

- Scalable – link multiple Converge Pro units (880, 840T, 8I, TH20) for extensive microphone coverage and up to 16 phone lines
- Enhanced expansion bus, featuring 12 mix-minus audio buses for routing between units
- Eight mic gating groups (four internal & four global) allow separation of mics into individual mixer gating groups for greater configuration flexibility
- 32 presets can be executed on-the-fly without disturbing other ongoing preset operations
- 255 Macros for customized audio control/configuration with single command execution

Conferencing Capability

- Link with multiple Converge Pro units for a total of up to 16 telephone lines and 64 mic inputs

CUSTOMER SERVICE AND SUPPORT

ClearOne is committed to providing best-in-class customer service and support. If you need assistance installing, configuring, or operating your Converge Pro system, or if you have questions about ClearOne products or services, please contact us at one of the locations listed below. ClearOne also welcomes your comments and suggestions so we can continue to improve our products and serve our customers' needs.

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PRODUCT REGISTRATION

Register your Converge Pro product(s) online at <http://www.clearone.com/support/registration.php?content=main>.

Registering your Converge Pro product(s) enables ClearOne to provide you with better technical assistance, and to notify you of important information regarding your Converge Pro product including available upgrades, technical bulletins, and new product information.

WARRANTY INFORMATION

ClearOne Communications, Inc. warrants that this Converge Pro product is free of defects in both material and workmanship. For complete warranty information including length, coverage, and limitations, visit <http://www.clearone.com/support/warranty.php?content=main>

OPERATING REQUIREMENTS

Power

Converge Pro devices automatically accommodate voltages of 100–240 VAC, 50/60 Hz, 15 W.

Telephone

Converge Pro devices operate on a standard analog telephone line and connect to the telephone system with a standard RJ-11 modular jack. If you do not have an RJ-11 jack where you want to install your Converge Pro, call your local telephone company for installation. Converge Pro 840T and TH20 can be configured to meet compliance requirements of different countries via the Console software.



WARNING: The country code must be set correctly in Console to ensure that the unit operates properly when connected to the telco network, and that it complies with the country's telco requirements. Changing this code to a country other than the intended country of operation might cause Converge Pro devices to be non-compliant.

Equipment Placement

Converge Pro devices are designed for installation in a standard 19-inch equipment rack.

Environmental

Converge Pro devices are designed to operate at ambient unit temperatures between 14° F (-10° C) and 122° F (50° C).

SYSTEM REQUIREMENTS

The Converge Pro Console software minimum system requirements are:

Supported Operating Systems

- Windows XP
- Windows 2000

Minimum System Requirements

- Processor: 300 Mhz Pentium III (or AMD equivalent)
- RAM: 256 Megabytes RAM
- Video: 1024x768 SVGA (16 bit)
- Hard Drive: 40 Megabytes
- Network: 10/100 Mbps Ethernet
- USB Port: Version 1.0
- CD Drive: CD/DVD ROM

Minimum Software Requirements

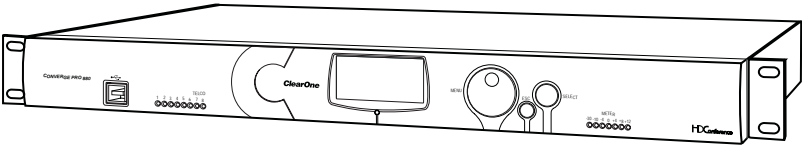
- Browser: Microsoft Internet Explorer 4.0 or higher
- Adobe Flash: Version 9.0 or higher

UNPACKING

Use the pack-out diagrams below to verify that you received all components for your Converge Pro product.

NOTE: ClearOne is not responsible for product damage incurred during shipment. You must make claims directly with the carrier. Inspect your shipment carefully for obvious signs of damage. If the shipment appears damaged, retain the original boxes and packing material for inspection by the carrier. Contact your carrier immediately.

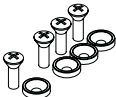
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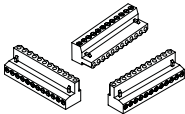
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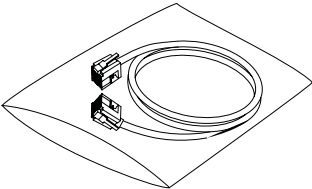
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673-017-212 (QTY 1)



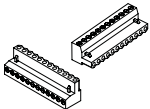
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680-000-001 (QTY 1)



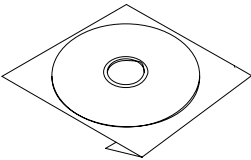
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673-017-012 (QTY 3)



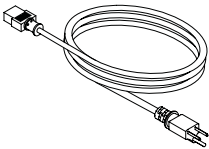
CABLE ASSEMBL Y,RJ45/RJ45 18"
830-150-004 (QTY 1)



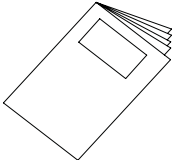
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673-017-1 12 (QTY 2)



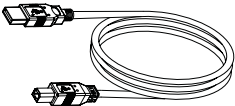
CD, MANUAL CONVERGE 880/840/TH20
800-151-881 (QTY 1)



PWR CORD, MOLDED 8FT BLK 3 COND
699-150-006 (QTY 1)

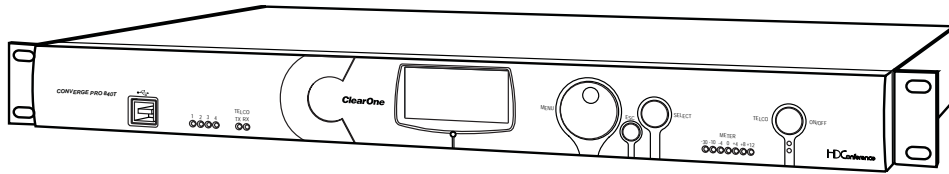


MANUAL, CONVERGE 880
800-151-880 (QTY 1)



CABLE ASSY ,USB A-B TYPE 6FT
830-153-001 (QTY 1)

Converge Pro 840T Package Contents



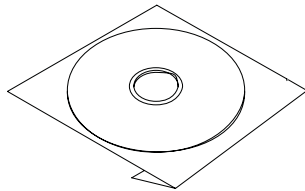
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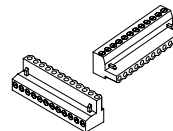
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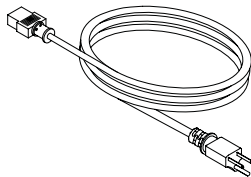
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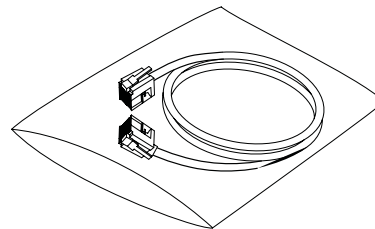
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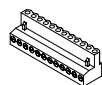
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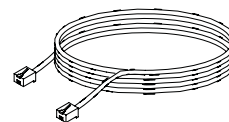
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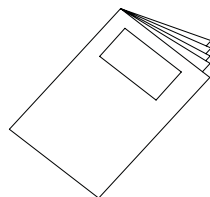
CABLE ASSEMBLY, RJ45/RJ45 18"
830-150-004 (QTY 1)



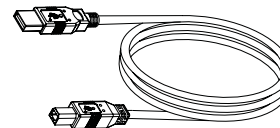
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CABLE ASSY, TELEPHONE 12FT.
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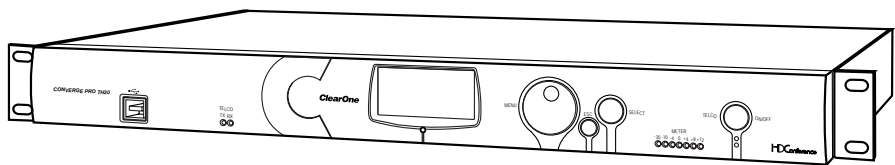


MANUAL, CONVERGE 840T
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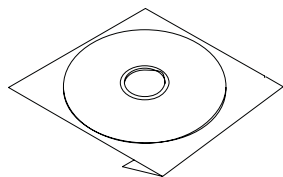


CABLE ASSY, USB A-B TYPE 6FT
830-153-001 (QTY 1)

Converge Pro TH20 Package Contents



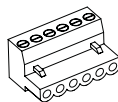
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910-151-820 (QTY 1)



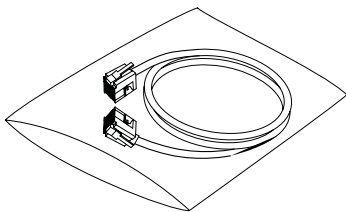
CD, MANUAL CONVERGE 880/840/TH20
800-151-881 (QTY 1)



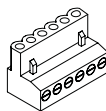
SCREW/W ASHER ACC KIT ,RACK DECOR 4EA BLK
680-000-001 (QTY 1)



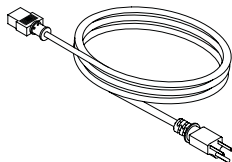
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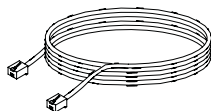
CABLE ASSEMBLY, RJ45/RJ45 18"
830-150-004 (QTY 1)



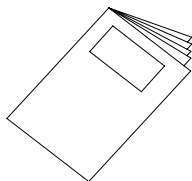
CONN, TERM BLOCK/F 6 POS 3.81 MM SPC GREEN PHOENIX
673-017-016 (QTY 1)



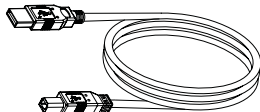
PWR CORD, MOLDED 8' BLK 3 COND
699-150-006 (QTY 1)



CABLE ASSY, TELEPHONE 12FT
830-000-012 (QTY 1)

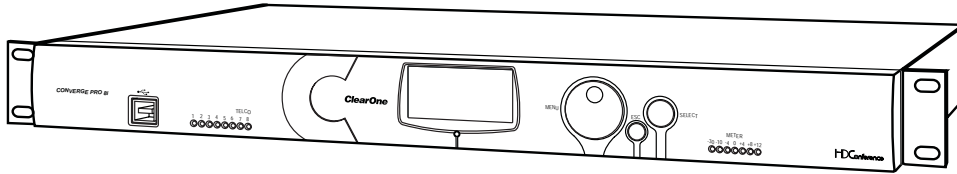


MANUAL, CONVERGE TH20
800-151-820 (QTY 1)

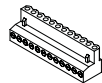


CABLE ASSY, USB A-B TYPE 6FT
830-153-001 (QTY 1)

Converge Pro 8i Package Contents



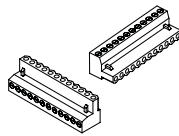
CONVERGE PRO 8i
910-151-810 (QTY 1)



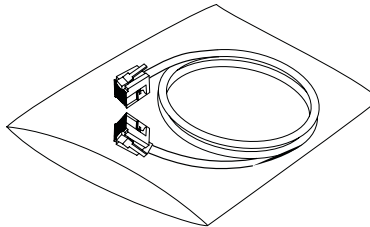
CONN, TERM BLOCK/F 12 POS GREEN
673-017-212 (QTY 1)



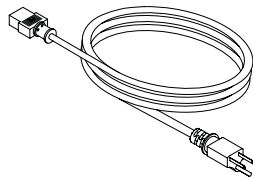
SCREW/W ASHER ACC KIT ,RACK DECOR 4EA BLK
680-000-001 (QTY 1)



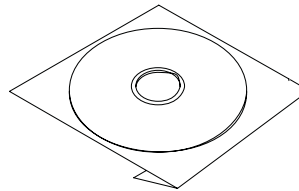
CONN, TERM BLOCK/F 12 POS ORANGE
673-017-1 12 (QTY 2)



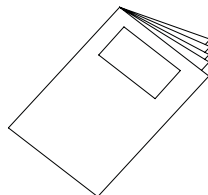
CABLE ASSEMBL Y,RJ45/RJ45 18"
830-150-004 (QTY 1)



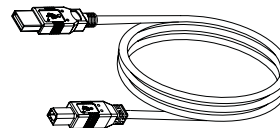
PWR CORD,MOLDED 8' BLK 3 COND
699-150-006 (QTY 1)



CD,MANUAL CONVERGE 880/840/TH20/8i
800-151-881 (QTY 1)



MANUAL,CONVERGE 8i
800-151-810 (QTY 1)



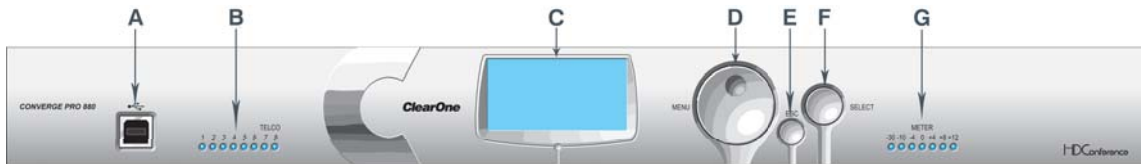
CABLE ASSY ,USB A-B TYPE 6FT
830-153-001 (QTY 1)

CONTROLS AND CONNECTIONS

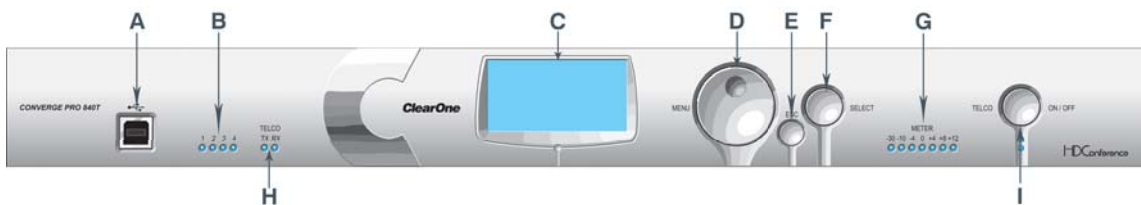
Refer to the following diagrams for a description of Converge Pro front panel controls and their functionality, and the back panel connections available on your Converge Pro system.

Converge Pro Front Panels

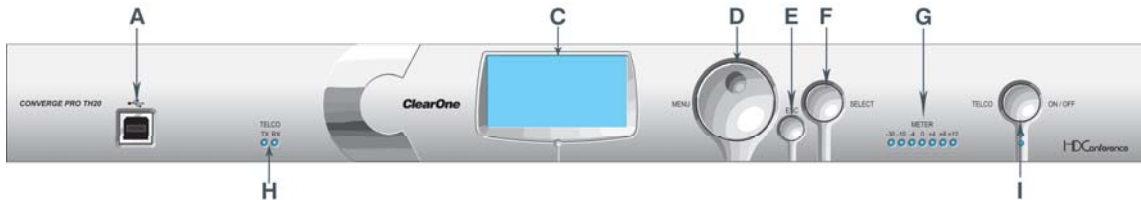
Converge Pro 880 Front Panel



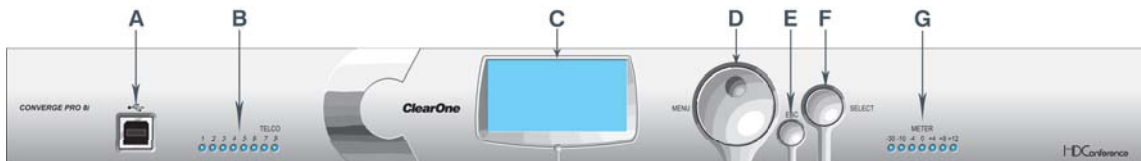
Converge Pro 840T Front Panel



Converge Pro TH20 Front Panel



Converge Pro 8i Front Panel

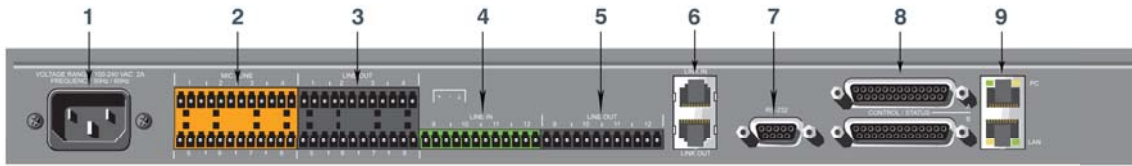


Converge Pro Front Panel Control Descriptions

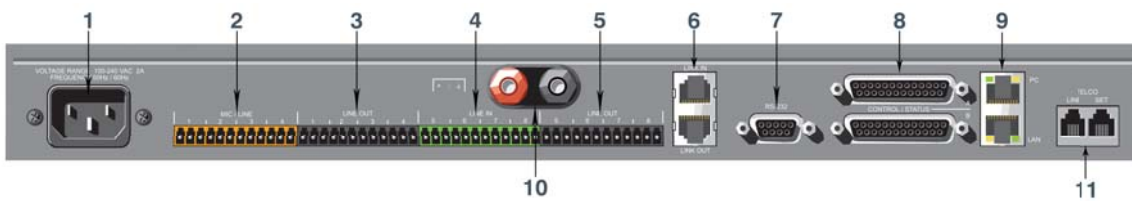
- A. USB Type B Port:** Provides convenient front panel connectivity for laptops, computers, and other USB devices.
- B. Microphone-On LEDs:** These LEDs indicate microphone gate status.
- C. LCD Display:** The LCD display shows model number, unit name, IP address, programming menu pages, menu options, configuration settings, and parameter values.
- D. Menu Dial:** The Menu Dial navigates the Converge Pro LCD programming menu and enables you to select and modify configuration settings.
- E. ESC Button:** The ESC button returns you to the previous screen on the LCD display.
- F. Select Button:** The Select button displays the Converge Pro LCD programming menu and selects the highlighted menu option.
- G. LED Bar Meter:** The LED bar meter displays the audio level of a selected input, output, or processing channel. Default meters: 880-Output 12, 840T-Output 8, TH20-Telco Tx, 8i-Mic 1.
- H. Telco TX RX LEDs:** The Telco TX RX LEDs display transmit and receive status of the connected telephone line (840T and TH20 only).
- I. Telco On/Off Button & LEDs:** The Telco On/Off button connects and disconnects the connected telephone line. The LEDs indicate the connection status (840T and TH20 only).

Converge Pro Rear Panels

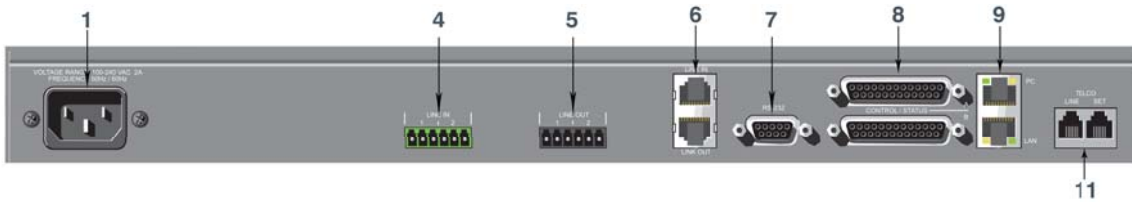
Converge Pro 880 Rear Panel



Converge Pro 840T Rear Panel



Converge Pro TH20 Rear Panel



Converge Pro 8i Rear Panel



Converge Pro Rear Panels

1. **AC Power:** IEC connector, 100–240VAC auto-adjusting, 50/60Hz.
2. **Mic/Line Inputs:** Mini-terminal push-on block connector for any combination of microphone and/or line level inputs. (Converge Pro 880: 8 inputs. Converge Pro 840T: 4 inputs. Converge Pro 8I: 8 inputs. Converge Pro TH20: 0 inputs)
3. **Line Outputs:** Mini-terminal push-on block connector for line-level outputs for use with any combination of gated/non-gated inputs. (Converge Pro 880 and 840T only.)
4. **Line Inputs:** Mini-terminal push-on block connector for line level inputs only. (Converge Pro 880: 4 inputs. Converge Pro 840T: 4 inputs. Converge Pro 8I: 2 inputs. Converge Pro TH20: 2 inputs)
5. **Line Outputs:** Mini-terminal push-on block connector for line-level outputs for use with any combination of gated/non-gated inputs.
6. **Link In and Link Out Ports:** Two RJ-45 expansion bus connectors used to connect multiple Converge Pro units together to create a network. You can network up to eight Converge Pro 840T/880/8I units, up to 16 Converge Pro TH20 units, or any combination thereof where the total number of microphone inputs does not exceed 64. The maximum cable length is 200 feet using Category 5 unshielded twisted pair (UTP) cable.



WARNING: Use the **Link In** and **Link Out** ports with Converge Pro Devices ONLY. Connecting ANY other devices to the Link In and Link Out ports, including ClearOne XAP products or Power Over Ethernet (POE) devices, will result in severe equipment damage.

7. **RS-232 Serial Port:** Female DB9 connector for connecting to a laptop, computer, modem, or remote control serial devices.
8. **Control/Status A and B Ports:** Two female DB25 connectors used for General Purpose Input/Output (GPIO) interactions between Converge Pro devices and external control devices (such as wall switches and push-to-talk microphones) and controllers (such as AMX and Crestron) This enables external devices and controller software to access the Converge Pro command set, including common functions such as volume control, muting, room combining, and preset changes.
9. **PC and LAN Ethernet Ports:** Two RJ-45 10/100 auto-sensing Ethernet ports. The LAN Ethernet port is used to connect Converge Pro devices to a network. The PC Ethernet port provides a pass-through network connection for use with a standard (not crossover) patch cable. The LEDs adjacent to each port indicate connection status and packet traffic activity.
10. **Speaker Posts:** Two post/banana plug connectors used to connect an external speaker (4Ω - 16Ω). An internal 10 W power amplifier eliminates the need for an external power amplifier. (Converge Pro 840T only.)
11. **Telco Line and Set Ports:** Two RJ-11 connectors telephone ports. The Telco Line port is used to connect an analog telephone line to Converge Pro devices. The Telco Set port provides a pass-through connection for telephone handsets. (Converge Pro 840T and TH20 only.)

CHAPTER 2: EXPANSION BUS & LCD PROGRAMMING

EXPANSION BUS

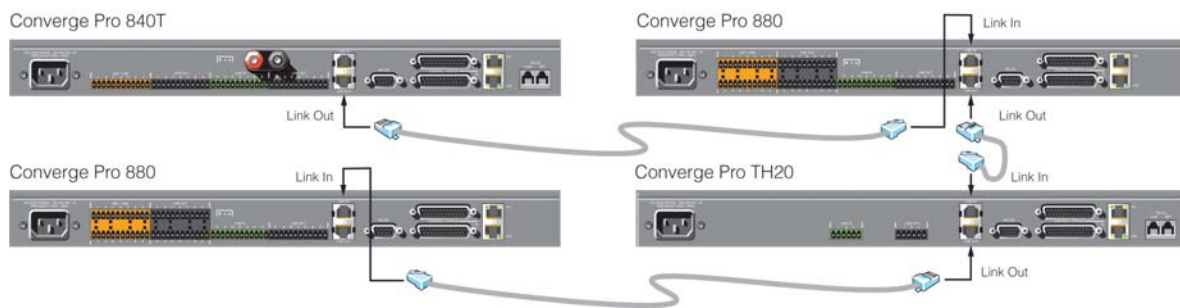
The Converge Pro Expansion Bus (E-bus) allows you to connect multiple Converge-Pro units together to create powerful audio and conferencing solutions for any size venue. The E-bus is a proprietary digital audio bus that provides control and audio data links between Converge Pro devices.

Expansion Bus Connections

Using the Expansion Bus **Link In** and **Link Out** ports, you can connect up to eight Converge Pro 840T/880s and 16 Converge Pro TH20 units, where the total number of microphone inputs does not exceed 64.

Connect Converge Pro units in daisy-chain fashion (as shown below) using the 18" patch cable included with each unit (Part # 830-150-004). For larger distances between units, use CAT 5 twisted pair cable with RJ-45 connectors.

The maximum cable length between connected Converge Pro units is 200 feet (61 meters).



Audio and Control Buses

The E-bus allows audio routing between source devices and destination devices on the E-bus network. The E-bus contains 12 independent digital audio buses labeled O–Z, which can route mic or line inputs in any combination across the E-bus network. The E-bus also contains four PA adapt/acoustic echo cancellation reference buses, four global gating buses, and one control bus.

O–R Buses: These four audio buses are generally used for routing microphone audio between Converge Pro devices. Information about the number of gated microphones (**NOM** count) and other relevant information for the microphone mixers are tracked for microphones routed to these buses. By default, all microphones routed to the O bus.

S–Z Buses: These eight buses are line input mixer buses. They are used to route auxiliary audio, such as from a CD player or VCR, to and from other units on the network. These buses are also used as mic mixer buses when NOM count is not required.

PA Adapt/Acoustic Echo Cancellation Reference Buses: These buses allow an input from a Converge Pro device to reference an output on another linked Converge Pro device for AEC purposes. See the **AEC Reference** and **AEC** topics for more information.

Global Gating Groups A–D: These buses are microphone gating groups that support First-Mic Priority, maximum number of mics, etc. and work across all linked Converge devices. Unlike the audio buses, they contain only mic status and gate parameters. See the **Gating** and **Gating Group** topics for more information.

Control Bus: The control bus is an independent channel from the E-bus's audio channel. This allows control information to pass even if the units are not using the audio link. Converge Pro devices support the use of the serial command set through the control bus.

DEVICE IDS

Device IDs provide unique identifiers for all Converge Pro units that are linked together. After making E-bus connections between Converge Pro units, you must set a unique Device ID number for all units of the same Device Type in the network.

Device Types and IDs

Converge Pro Device Types and Device IDs by model are as follows:

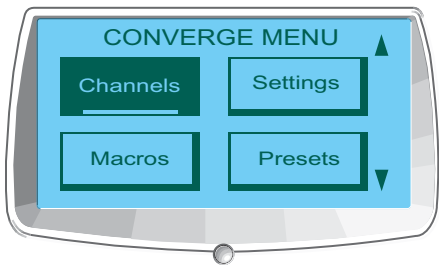
Model	Device Type	Device ID Range
880	1	0-7
TH20	2	0-F
840T	3	0-7
8i	A	0-7

NOTE: All Converge Pro units ship from the factory with a default DID of 0.

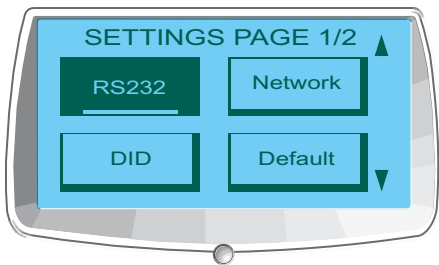
Assigning Device IDs

Use the following procedure to assign device IDs using the front panel controls:

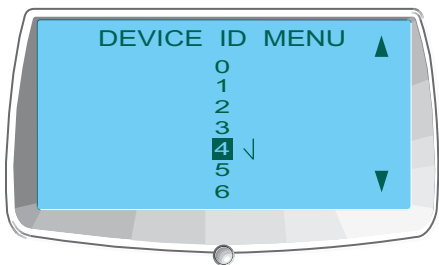
- 1. Press the **Select** button on the front panel. The Converge Menu appears:



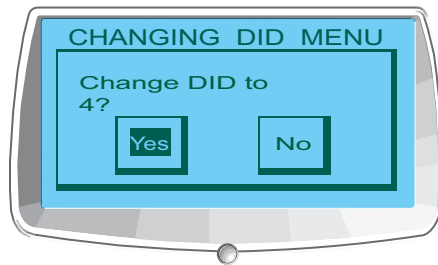
- 2. Use the **Menu Dial** to highlight the **Settings** menu. Press the **Select** button. The **Settings** menu appears:



- 3. Use the **Menu Dial** to highlight **DID**. Press the **Select** button. The **Device ID** menu appears:



4. Use the **Menu Dial** to highlight the desired value. Press the **Select** button to select it.
5. The **Change DID Menu** prompt appears. Choose **Yes** to set the selected DID value, or **No** to return to the **Device ID** menu.

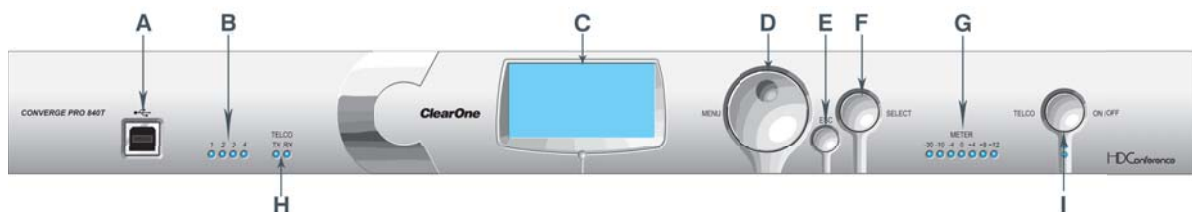


6. Press **Esc** until to return to the **Settings** menu.
7. Repeat this process for each Converge Pro device on the E-bus network.

NOTE: You can also set Device IDs in the Unit Properties screen in Console.

LCD PROGRAMMING OVERVIEW

LCD Programming allows you to make simple configuration adjustments to your Converge Pro unit using easy and intuitive front panel controls (shown below).



- A. USB Type B Port:** Provides convenient front panel connectivity for laptops, computers, and other USB devices.
- B. Microphone-On LEDs:** These LEDs indicate microphone gate status.
- C. LCD Display:** The LCD display shows model number, unit name, IP address, programming menu pages, menu options, configuration settings, and parameter values.
- D. Menu Dial:** The Menu Dial navigates the Converge Pro LCD programming menu and enables you to select and modify configuration settings.
- E. ESC Button:** The ESC button returns you to the previous screen on the LCD display.
- F. Select Button:** The Select button displays the Converge Pro LCD programming menu and selects the highlighted menu option.
- G. LED Bar Meter:** The LED bar meter displays the audio level of a selected input, output, or processing channel. Default meters: 880-Output 12, 840T-Output 8, TH20-Telco Tx, 8i-Mic 1.
- H. Telco TX RX LEDs:** The Telco TX RX LEDs display transmit and receive status of the connected telephone line (840T and TH20 only).
- I. Telco On/Off Button & LEDs:** The Telco On/Off button connects and disconnects the connected telephone line. The LEDs indicate the connection status (840T and TH20 only).

In addition to making configuration adjustments from the front panel, you can also use execute macros and run presets. For more information on using Converge Pro front panel controls, see *Controls and Connections*.

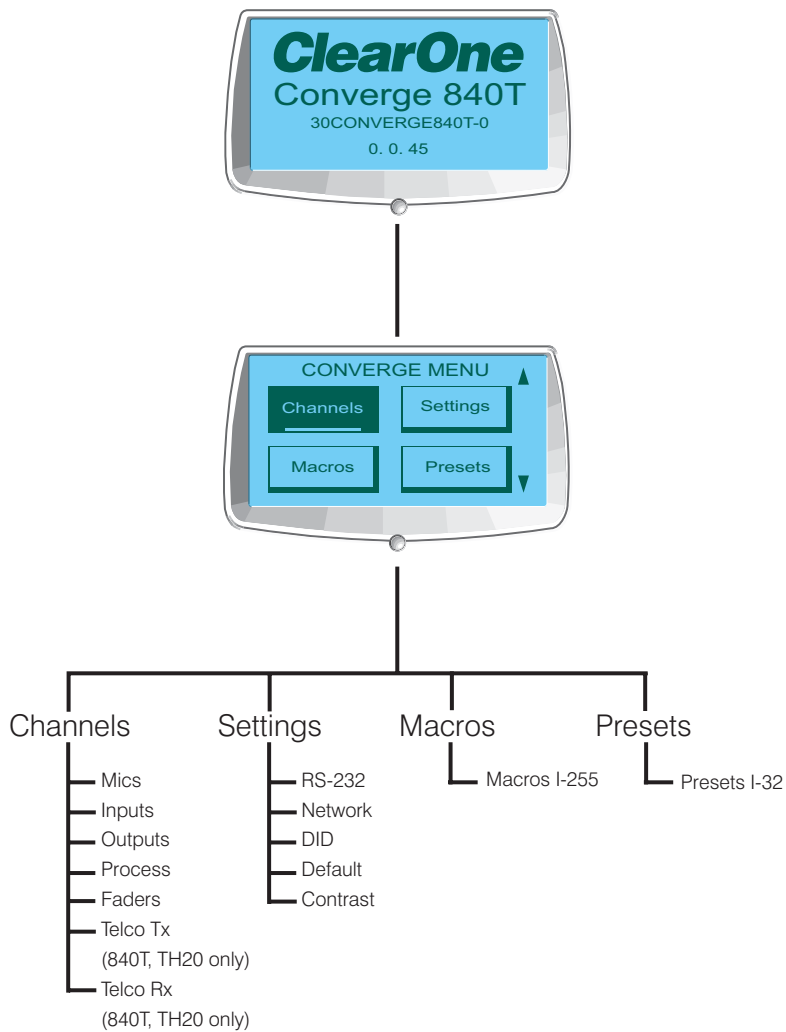
Adjusting LCD Menu Parameters

Use the following procedure to adjust LCD Menu parameters for your Converge Pro units(s):

1. Scroll to the parameter you want to adjust using the **Menu Dial**.
2. Press the **Select** button to select the parameter. The parameter will flash when selected.
3. Select the value for the parameter using the **Menu Dial**.
4. Press the **Select** button to save the parameter value. To discard the change and return to the previous menu, press the **Esc** button.

NOTE: Use the Converge Pro Console software in Configuration Mode for advanced system configuration.

LCD Menu Tree



As shown above, the main menus on the LCD display are:

- Channels
- Settings
- Macros
- Presets

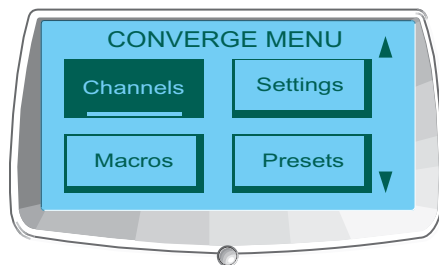
LCD Default Display

When you power up a Converge Pro unit, the **LCD** display reads **Initializing**. If an error code appears, contact ClearOne Technical Support.

When initialization is complete, **ClearOne Converge[Model Number]** appears on the **LCD Panel**, along with the device name (if named) and firmware revision level as shown below.



To access the LCD menu, press the **Select** button. The **Converge Menu** appears as shown below:



For more information, see the *Table of Contents* for these related topics:

- **Macros**
- **Presets**
- **Controls and Connections**
- **Console Configuration Mode**
- **Mic Input Settings**
- **Line Input Settings**
- **Telco RX Settings (840T and TH20)**
- **Telco TX Settings (840T and TH20)**
- **Processing Settings**
- **Output Settings**
- **LCD Channels Menu**
- **LCD Settings Menu**
- **LCD Macros Menu**
- **LCD Presets Menu**
- **Device IDs**

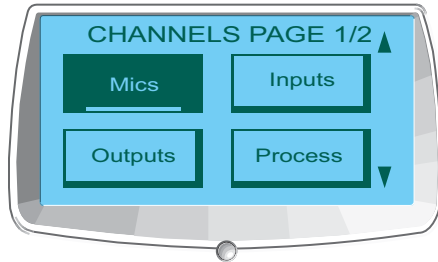
LCD CHANNELS MENU

The **LCD Channels Menu** allows you to adjust the **Gain** level and turn **Mute On** or **Off** for all channels on a Converge Pro unit.

Accessing the Channels Menu

To access the **Channels** menu, press the **Select** button on the front panel, use the **Menu Dial** to select **Channels**, and press the **Select** button.

The **Channels** menu appears as shown below:



Channels menu options (i.e. channel types) include:

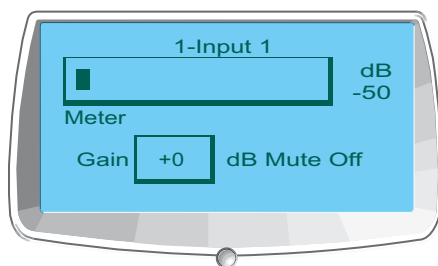
- **Mics**
- **Inputs**
- **Outputs**
- **Process**
- **Faders**
- **Telco Tx (840T, TH20 only)**
- **Telco Rx (840T, TH20 only)**

After you select an option, a list of all available channels of that type is displayed. Use the **Menu Dial** to select the channel you want to configure and press the **Select** button. The **Channels** display appears.

Channels Display

The Channels display is identical for every channel type, with the exception of the **Channel ID** and **Channel Label**, which both vary depending on the channel selected. For example, if you select **Mic 1** from the **Mics** channel menu, the Channels display would read **1-Mic 1**.

As shown below, the Channels display includes a peak-level meter, a real-time dB reading, a **Gain** level adjustment box, and a **Mute** selector.



Setting Channel Gain and Mute

The procedure for setting **Gain** and **Mute** is the same for all channel types:

1. Use the **Menu Dial** to highlight **Gain** or **Mute**
2. Press the **Select** button
3. Select the desired value using the **Menu Dial**
4. Press the **Select** button to set the selected value
5. Press the **Esc** button to return to the **Channels** menu

NOTE: When Mute is set to On for a Mic Input Channel, the Microphone-On LED for that channel illuminates red on the front panel.

For more information, see the *Table of Contents* for these related topics:

- **LCD Programming Overview**
- **LCD Channels Menu**
- **LCD Settings Menu**
- **LCD Macros Menu**
- **LCD Presets Menu**
- **Controls and Connections**
- **Mic Input Settings**
- **Line Input Settings**
- **Output Settings**
- **Process Settings**
- **Fader Settings**
- **Telco Tx Settings (840T, TH20 only)**
- **Telco Rx Settings (840T, TH20 only)**

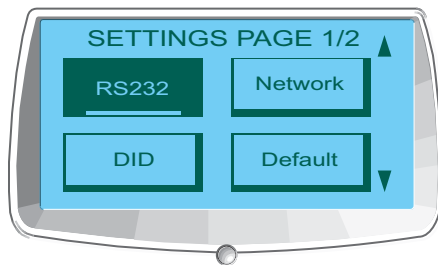
LCD SETTINGS MENU

The **LCD Settings Menu** allows you to configure serial port settings and Device IDs, view network IP settings, change the LCD contrast level, and restore factory default settings for a Converge Pro unit.

Accessing the Settings Menu

To access the **Settings** menu, press the **Select** button on the front panel, use the **Menu Dial** to select **Settings**, and press the **Select** button.

The **Settings** menu appears as shown below:



Settings menu options include:

- **RS-232**
- **Network**
- **DID**
- **Default**
- **Contrast**

These options are described in the following sections.

RS-232

There are two parameters in the RS-232 menu: **Baud Rate** and **Flow Control**. To change these settings, use the following procedure

1. Use the **Menu Dial** to highlight **Baud Rate** or **Flow Control**
2. Press the **Select** button
3. Select the desired value using the **Menu Dial**
4. Press the **Select** button to set the selected value
5. Press the **Esc** button to return to the **Settings** menu

You can also use the **Comm** tab of the Unit Properties screen in Console to change these settings.

Baud Rate

This parameter allows you to set the baud rate to 9.6kbps, 19.2kbps, 38.4kbps, or 57.6kbps. Default is 57.6 kbps. Select the baud rate you want to use, then press the **Select** button. A message appears on the LCD display indicating the change is in progress, and another indicating the change is complete. When finished, the display returns to the RS-232 sub-menu.

Flow Control (Hardware)

Converge Pro devices use the RTS and CTS pins on the RS-232 port to regulate the transmission and reception of data. You can enable or disable flow control on the front panel of unit and select the flow control type in the **Site Properties** window of Console.

If you select **On** (default) from the front panel LCD menu, select **Hardware** as the flow control type in the **Site Properties** window. If you disable flow control on the front panel, select **None** in the **Site Properties** window. When **None** is selected, Converge Pro units ignore flow control, and the connected external control device ensures that data is not lost. All Converge Pro devices support software flow control (Xon/Xoff), but you should only use it with a pass-through external device such as a modem.

NOTE: ClearOne recommends that you leave Flow Control enabled. To avoid communication errors, ClearOne strongly recommends that you connect all DB9 pins and enable flow control when connecting to a PC.

Network

The **Network** submenu displays the unit name, DID (Device ID), IP address, Gateway, and Subnet Mask settings for the Converge Pro unit. You cannot change any of these settings from the **Network** submenu. Use the **Unit Properties** screen in the **Console** software to change these settings.

DID

The **DID** submenu allows you to select a Device ID for the Converge Pro unit. Select the DID you want to use, press the **Select** button. Answer **Yes** to the prompt to change the DID, or **No** to keep the existing setting.

You can also use the **Comm** tab of the **Unit Properties** screen in **Console** to change this setting.

Default

Default restores **ALL** settings to their factory default values. Answer **Yes** to the prompt to restore default settings, or **No** to retain the existing custom settings.

Contrast

Contrast allows you to change the LCD contrast level. Use the **Menu Dial** to adjust the contrast level, then press the **Select** button to save it.

For more information, see the *Table of Contents* for these related topics:

- **LCD Programming Overview**
- **LCD Channels Menu**
- **LCD Macros Menu**
- **LCD Presets Menu**
- **Site Properties**
- **String Tab**
- **Unit Properties**

LCD MACROS MENU

The **LCD Macros Menu** allows you to execute Macros from the Converge Pro front panel. To record Macros, use the **Macro Tab** in **Console**.

Accessing the Macros Menu

To access the Macros menu, press the **Select** Button on the front panel, use the **Menu Dial** to select **Macros**, and press the **Select** Button.

The **Macro Menu** appears as shown below:



Executing Macros

Use the following procedure to execute Macros from the front panel LCD display:

1. Use the **Menu Dial** to highlight the Macro you want to execute.
2. Press the **Select** button.
3. Answer **Yes** at the prompt that appears to execute the selected Macro, or **No** to cancel.
4. Press the **Esc** button to return to the main LCD menu.

You can also execute Macros using the **Macro Tab** in **Console**.

For more information, see the *Table of Contents* for these related topics:

- **LCD Programming Overview**
- **LCD Settings Menu**
- **LCD Channels Menu**
- **LCD Presets Menu**
- **Macro Tab**

LCD PRESETS MENU

The **LCD Presets Menu** allows you to execute Presets from the Converge Pro front panel. To create Presets, use the **Console** software in **Preset Mode**.

Accessing the Presets Menu

To access the menu, press the **Select** Button on the front panel, use the **Menu Dial** to select **Presets**, and press the **Select** Button.

The **Preset Menu** appears as shown below:



Executing Macros

Use the following procedure to execute Presets from the front panel LCD display:

1. Use the **Menu Dial** to highlight the Macro you want to execute
2. Press the **Select** button
3. Answer **Yes** at the prompt that appears to run the selected Preset, or **No** to cancel.
4. Press the **Esc** button to return to the main LCD menu.

You can also run presets from the **Services** menu while Console is in **Configuration Mode**.

For additional information, refer to the *Table of Contents* for these related topics:

- **LCD Programming Overview**
- **LCD Settings Menu**
- **LCD Channels Menu**
- **Preset Mode**

CHAPTER 3: CONVERGE CONSOLE PROGRAMMING

INSTALLING CONVERGE CONSOLE

1. Boot the PC to the Windows operating system.
2. Ensure that all other programs or applications are closed.
3. Insert the ClearOne **Audio Products** CD into the CD-ROM drive.
4. If the **Autorun** feature is enabled on the PC, the ClearOne Welcome window opens. Click the **Software** tab and select **Console**.
5. If the **Autorun** window does **not** open, open the Windows **Start** menu and choose **Run**. Type **<drive>:\converge_console.exe** where **<drive>** is the letter of the CD-ROM drive (e.g., D:\converge_console.exe).
6. At the Console window, click **Install Console** near the bottom of the window.
7. The **InstallShield Wizard** opens and guides you through the Welcome and **License Agreement** windows. At the **Choose Destination Location** window, choose the directory where Console will be installed. We recommend that you use the default directory.

NOTE: To select an alternate destination directory, click **Browse** and use the **Choose Directory** window to find the desired location. Click **OK** to return to the previous window.

8. Click **Next** or **Yes** to proceed with installation, or **No** or **Cancel** to end the installation process.
9. Follow the instructions that appear on-screen.



The **Converge Console** program group is added to the **Start** menu, and the  icon appears on your desktop. You can now start Console through the **Start** menu or by double-clicking the desktop icon.

Default User ID and Password

Connecting to a Converge Pro site with Console requires a username and password. The defaults are:

- Username: **clearone**
- Password: **converge**

NOTE: Usernames and passwords are not case sensitive.

CONVERGE CONSOLE OVERVIEW

The **Converge Console** software provides a powerful, intuitive interface for configuring and controlling your Converge Pro system. While you can use LCD Programming for some simple configuration tasks, you must use Console for the advanced configuration tasks required to customize Converge Pro units for your application.

Accessing Converge Console



Start Converge Console by double-clicking the desktop icon, or by clicking the **Start** button in Windows and selecting **ClearOne Communications > Converge Console > Converge Console** from the program list.

The **Console** window appears with the **Unit Tab** displayed by default as shown below.

Default User ID and Password

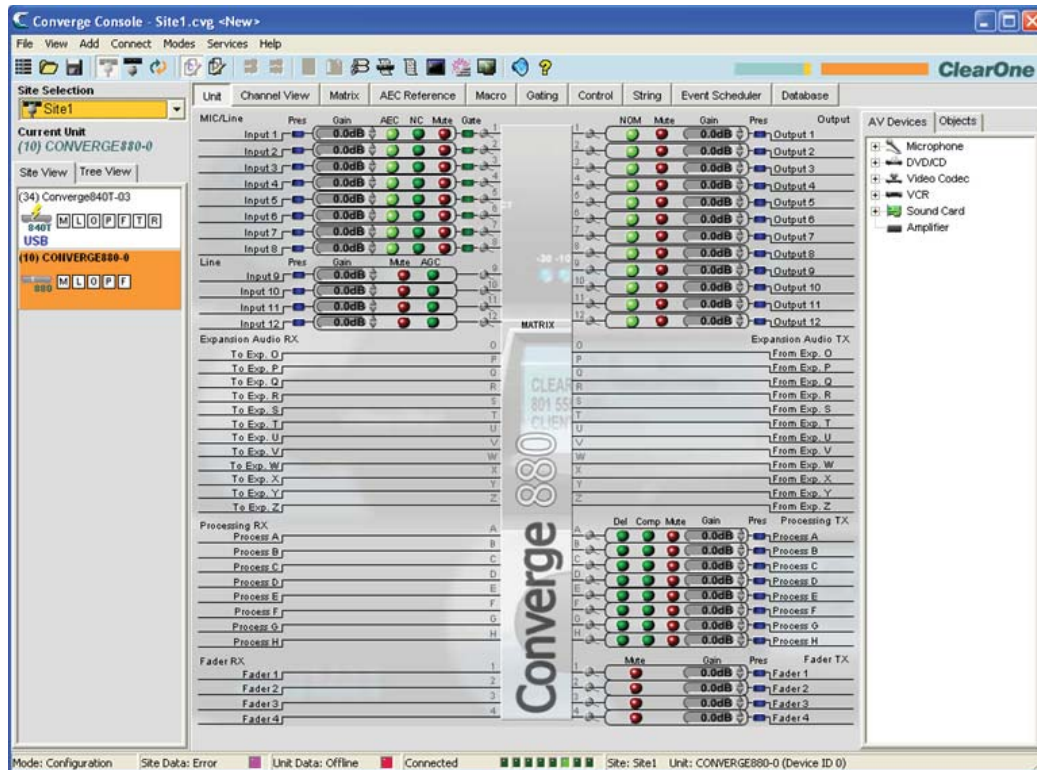
Connecting to a Converge Pro site with Console requires a username and password. The defaults are:

- Username: **clearone**
- Password: **converge**

NOTE: Usernames and passwords are NOT case sensitive.

After connecting, you can add/modify user IDs, change passwords, and set access privileges using **Site Properties**.

Navigating Converge Console



The Console window consists of the components described in the following sections.

Menu Bar

File View Add Connect Modes Services Help

Menus available on the Menu Bar include:

- **File**
- **View**
- **Add**
- **Connect**
- **Modes**
- **Services**
- **Help**: Opens this help system and provides software and firmware version information.

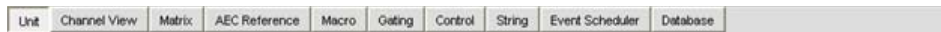
Button Bar



Buttons available on the Button Bar include:

- Create Site**
- Open Site**
- Save Site**
- Connect**
- Disconnect**
- Refresh Site**: Refreshes the site data displayed based on current status.
- Configuration Mode**
- Preset Mode**
- Execute Preset**
- Run Macro**
- Dialer**
- Phonebook**
- Label Editor**
- Device Log**
- Event Log**
- Debug Console**
- Web Builder**
- Firmware Loader**
- Safety Mute**: Toggles Safety Mute on and off. Safety Mute holds all outputs in a muted state.
- Help**: Opens this help system; provides software and firmware version information.

Tab Bar

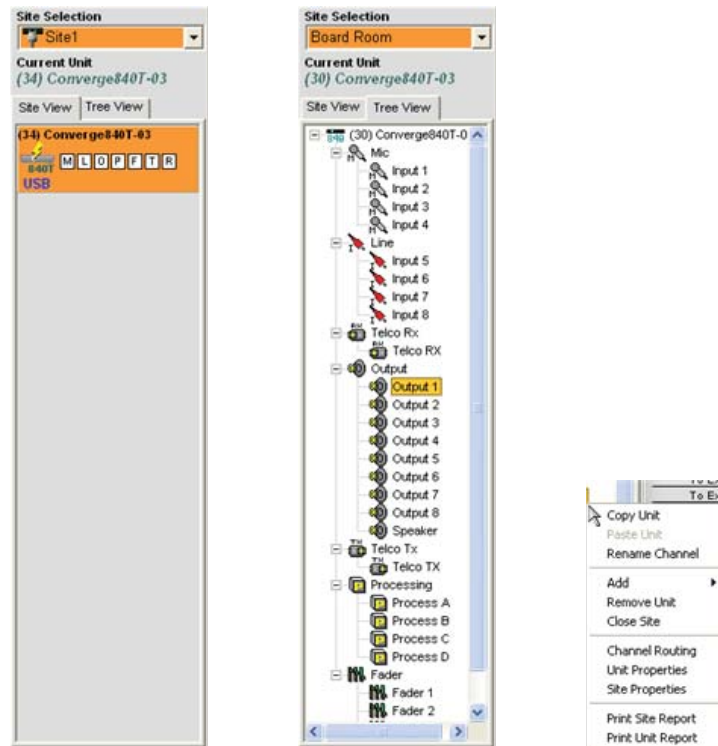


Tabs available on the Tab Bar include:

- Unit
- Channel View
- Matrix
- AEC Reference
- Macro
- Gating
- Control
- String
- Event Scheduler
- Database

Clicking a tab displays the screen for that tab in the Console Center Pane.

Site Pane

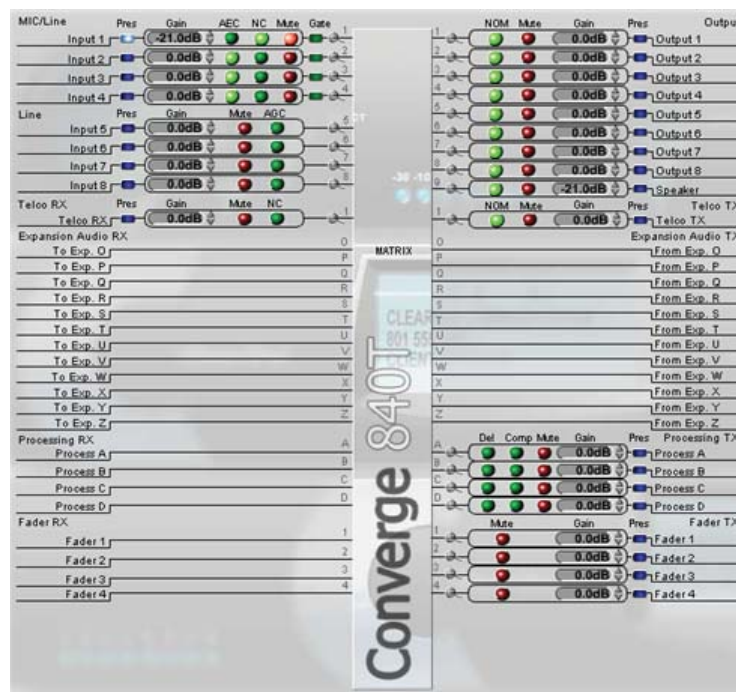


In Configuration Mode, the Site Pane contains the Site Selection drop-down list, Site View tab, and Tree View tab. Right-clicking in either the Site View tab or the Tree View tab brings up a context-sensitive menu with site, unit, channel, and reporting options.



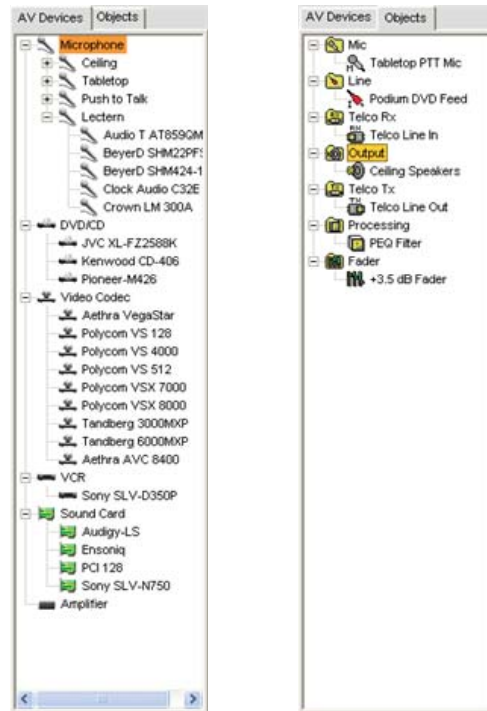
In Preset Mode, the Site Pane displays the Current Site, Current Unit, Preset Selection list, and the Preset Name, Description, and Preset Mask entry fields.

Center Pane



The Center Pane displays the screen for the selected Console Tab. As shown above, the default screen is Unit Tab.

Objects Pane



The Object Pane contains the AV Devices tab, which allows you to select from a list of pre-configured device settings and apply them instantly to a channel; and the Objects tab, which allows you to select from a list of custom channel objects and instantly apply them to a specific channel type. AV Devices and channel Objects are stored in the Database.

Status Bar



The Status Bar displays the current Console Mode, as well as connection status, site information, and unit information.

The LEDs in the Status Bar indicate current status as follows:

- **Clear** (no LEDs illuminated): Not connected
- **Yellow**: Connecting/pending
- **Green**: Connected
- **Red**: Off-line
- **Purple**: Current with error

Console Modes

Console has two modes: Configuration Mode and Preset Mode. Configuration Mode allows you to configure a wide range of advanced settings for your Converge Pro unit. Preset Mode allows you to create presets for specific venues and apply them to instantly to your Converge Pro unit.

For additional information, refer to the *Table of Contents* for these related topics:

- **LCD Programming**
- **Site Properties**
- **Configuration Mode Overview**
- **Preset Mode Overview**

SITE FILE OVERVIEW

Site Files allow you to store configuration settings for one or more Converge Pro units, including **Inputs**, **Outputs**, **Fader** channels, **Processing** channels, **Matrix** routing, and **Presets**, for a specific application or venue. Site files also provide Console with the necessary information to communicate with the site hardware using your PC.

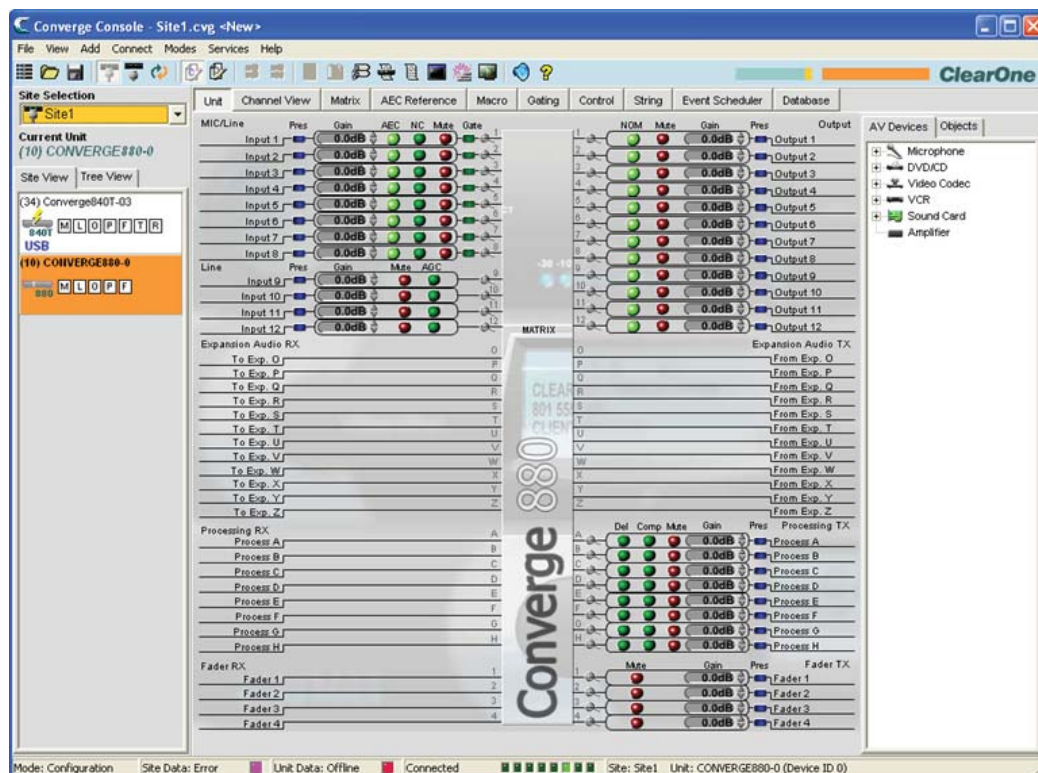
Site files are a powerful tool for creating a library of configuration files for specific applications and room types. For example, you can create a “baseline” Site file for divided rooms that specifies mic gating, output crosspoints, **AEC**, **AGC/ALC**, etc., store it on your hard drive, and use the file for new, similar installations. This approach allows you to standardize your Converge Pro settings across venues based on your customized room configurations.

NOTE: All Converge Pro units ship with a default site configuration file named **Site1.cvg**.

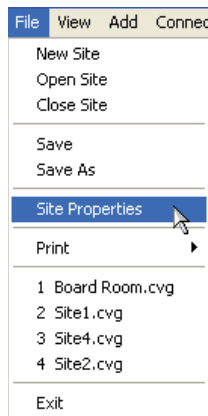
Site files also enable you to create users, set passwords, set unit master/slave control status, set up email notification, and configure time/local parameters as described in **Site Properties**.

Accessing Site Files

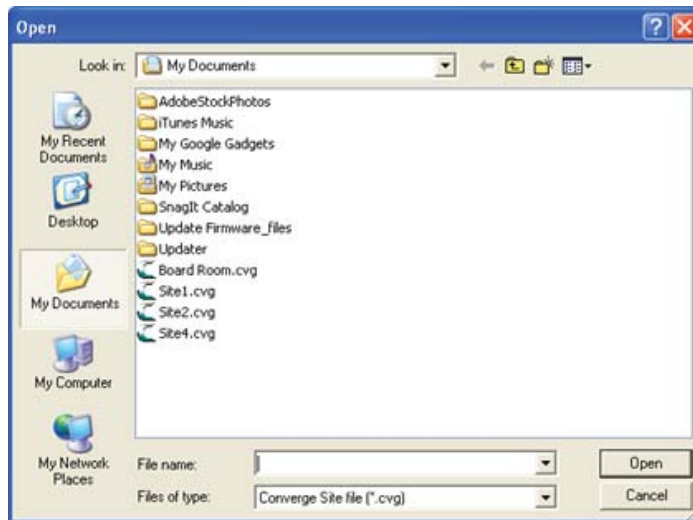
To open a Site file, select the **File** menu in **Console**.



The **File** menu appears. Select **Open Site** as shown below.



The **Open** dialog appears.




Locate the Site file you want to open and click **Open**. Console opens the Site file, and it appears in the **Site Selection** drop-down list in the **Site Pane** as shown below.



The selected site file is now available for use in the venue.

Saving Site Files

To save the current Site configuration parameters, including any changes made since the active Site file was opened, click the **Save** button  on the Button Bar, or select **Save or Save As** from the **File** menu.

Working with Site Files

Site Files are created, maintained, and activated (connected) using the Console software as described in these help topics.

- **Create A Site**
- **Connect to a Site**
- **Site Properties**

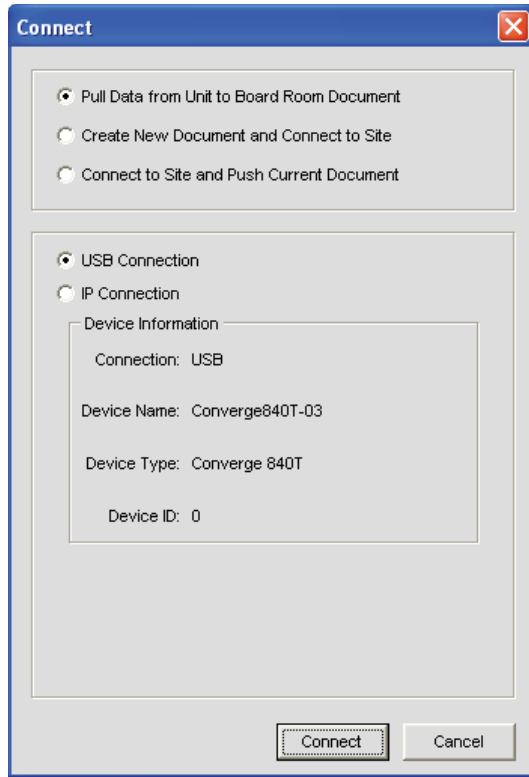
For additional information, refer to the *Table of Contents* for these related topics:

- **Console Overview**
- **Configuration Mode Overview**
- **Channel View Tab Overview**
- **Matrix Tab**

CONNECT TO A SITE

Connect To a Site

Click the **Connect** button  on the Console **Button Bar**, or select **Connect** from the **Connect Menu**. The **Connect** dialog appears as shown below.




Connection options include:

- To automatically create a new Site File, select the Create New Document and Connect to Site radio button.
- To pull data from the unit to the current Site File, select the Pull Data from Unit to Current Document radio button
- To push data from the current Site File to the unit, select the Connect to Site and Push Document radio button.
- To connect via USB, select the USB Connection radio button.
- To connect via IP, select the IP Connection radio button, and select a unit from the Available Addresses drop-down list (or enter an IP address in the Enter Address entry box).

Press the **Connect** button to connect to the site or **Cancel** to close the dialog.

Disconnect from a Site

To disconnect from a site, press the **Disconnect** button  on the Console **Button Bar**, or select Disconnect from the **Connect** menu. Answer **Yes** to the **Confirm** dialog that appears, or **No** to cancel.

For additional information, refer to the *Table of Contents* for these related topics:

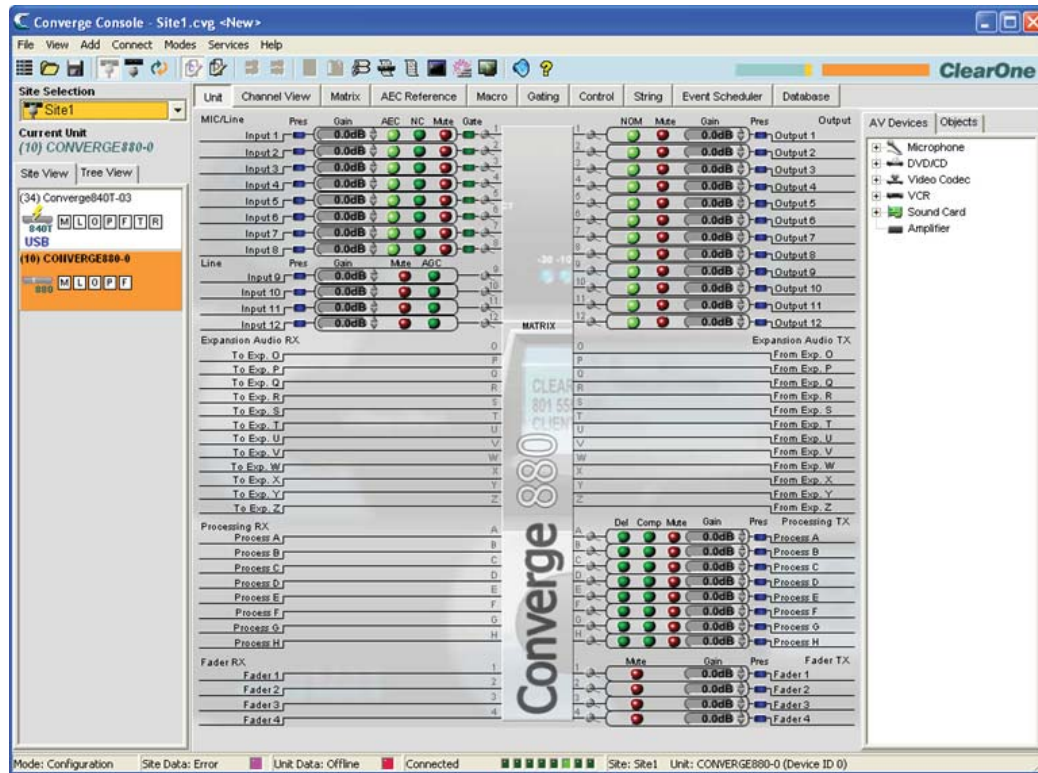
- **Site File Overview**
- **Site Properties**
- **Unit Communication (IP) Settings**

SITE PROPERTIES

Site Files are created and modified using the **Site Properties** window in **Console**. Site files contain all information about a particular installation including properties for all units in a Site. For more information see **Site File Overview**.

Accessing Site Properties

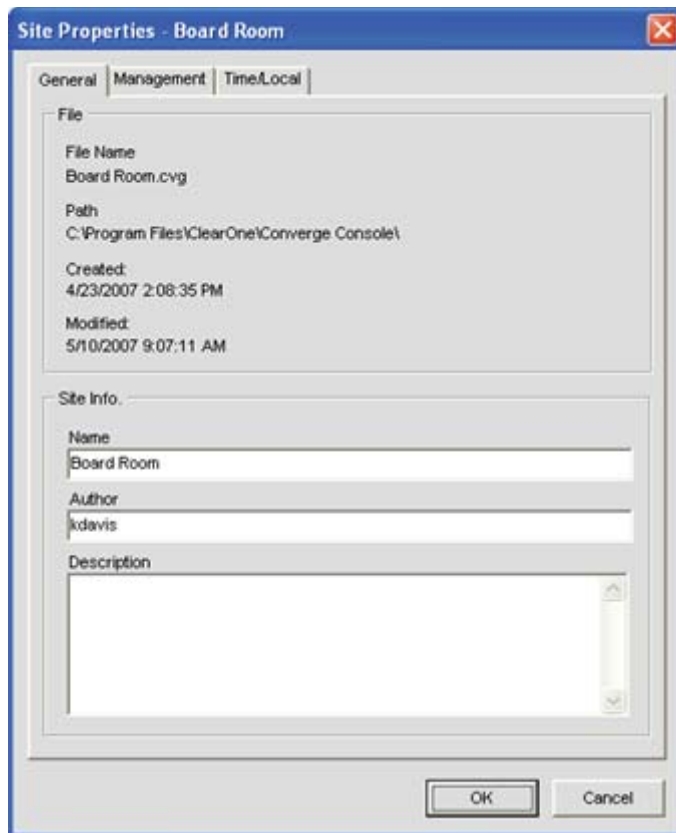
To access the Site Properties window, select the **File** menu in **Console**.



The **File** menu appears. Select **Site Properties** as shown below.



The **Site Properties** window appears with the **General** tab selected.



Create A New Site

To create a new site, **New Site** from the **File** menu or by clicking the **New Site** button on the **Console Button Bar**. The **Site Properties** window appears. Site Properties are described in the following sections.

NOTE: You must have Administrator privileges to modify usernames and/or passwords. Also, usernames and passwords are not case sensitive.

Site Properties are described in the following sections.

Site Properties: General Tab

The **General** tab of the Site Properties window displays Site file information as shown above. Enter a site name, file author, and site description in the **Site Info** section of the tab. Press **OK** to save the changes, **Cancel** to close the Site Properties window, or click on the **Management** or **Time/Local** tabs to continue site configuration.

Site Properties: Management Tab

The **Management** tab (shown below) enables you to configure control master/slave settings, SNMP parameters, email notification settings, as well as usernames and passwords.

NOTE: You must be disconnected from the Site in order to configure IP properties. To disconnect, click the Disconnect button  on the Console Button Bar. (Connection status is shown on the Console Status Bar.)

NOTE: You must have Administrator privileges to connect to Console, and to edit usernames and passwords.

Site Properties - Board Room

General Management Time/Local

Control Master Unit
(30) Converge840T-03

SNMP

Manager IP Address: 0.0.0.0
Manager Port: 162
Write Community: private
Read Community: public

Email Notifications

SMTP Server IP Address: 0.0.0.0
Email Address: site.admin@clearone.com

Username/Passwords

Edit Administrator Username/Password
Edit Manager Username/Password
Edit User Username/Password

OK Cancel

Control Master Unit (SNMP)

All units in the Site appear in the **Control Master Unit** list. Selecting a Control Master Unit designates that unit to control the SNMP interactions for the entire Site across IP-based networks. All other units in the Site are Control Slave Units. Control Slave Units report events to the Control Master Unit for SNMP reporting and SMTP email notifications.

Serial Control interactions and **Audio Control** interactions are not affected by a unit's Control Master Unit designation.

NOTE: All Converge Pro units are Control Slave Units by default.

SNMP

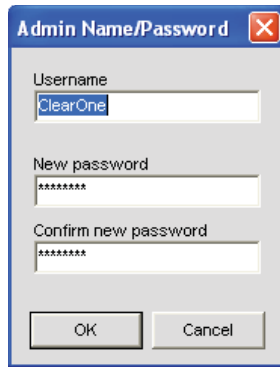
In the **SNMP** section, enter the SNMP settings for the site. The Control Master Unit uses this information to communicate SNMP events, including events reported by Control Slave Units.

Email Notifications

In the **Email Notifications** section, enter the IP address of the server that will receive email notifications in the **SMTP Server IP Address** field, and the desired recipient's email address in the **Email Address** field.

Username/Passwords

In the **Username/Passwords** section, click the button for the user type that you want to create. The **Name/Password** dialog appears as shown below.



Admin Name/Password

Username
ClearOne

New password

Confirm new password

OK Cancel

User access privilege levels are as follows:

- **Administrator:** Full access
- **Manager:** Access to the Dialer and management pages.
- **User:** Access to the Dialer screen

NOTE: You must have Administrator privileges to modify usernames and passwords. Also, Usernames and passwords are NOT case sensitive.

Enter the appropriate user information and press **OK** to save the user information or **Cancel** to return to the Site Properties dialog.

Site Properties: Time/Local Tab

The **Time/Local** tab enables you to configure time settings and specify location information as shown below.



Site Properties - Board Room

General Management Time/Local

Time

Current Site Time: Offline

Date: 05/10/2007 Time: 09:46:07 Use PC clock: ☒ Apply

☐ Local Time

☒ Network Time

Time Server 1: 10.101.24.135 Time Server 2: 0.0.0.0

Time Zone: (GMT-07:00) Mountain Time (US & Canada) ☒ Use Daylight Savings

Location

Building: Headquarters

City: Salt Lake City

State: Utah

Country: USA

Company: ClearOne Communications, Inc.

Region: North America

OK Cancel

Select **Local Time** or **Network Time** for the clock synchronization source. For network time, enter the IP address(es) for time synchronization servers and configure time settings in the Time section of the tab. Enter

location information in the **Location** section of the tab (optional). Press **OK** to save the Site file, or **Cancel** to close the Site Properties window.

For additional information, refer to the *Table of Contents* for these related topics:

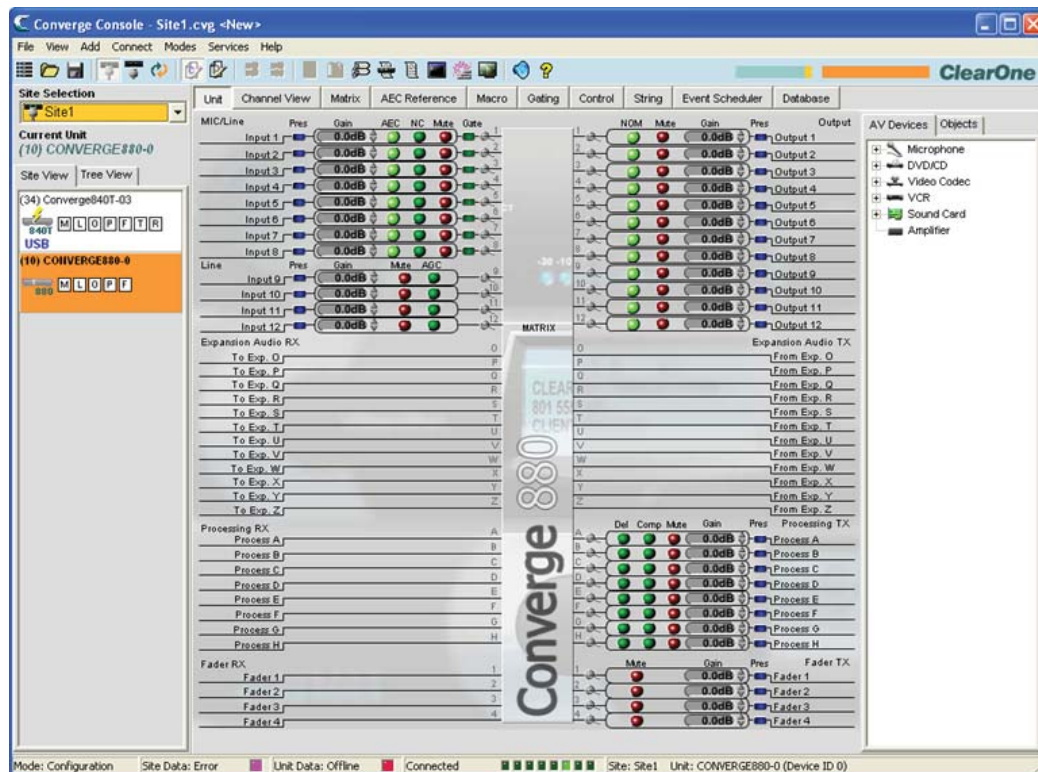
- **Site File Overview**
- **Connect To A Site**
- **Unit Properties**
- **Configuration Mode Overview**

UNIT PROPERTIES

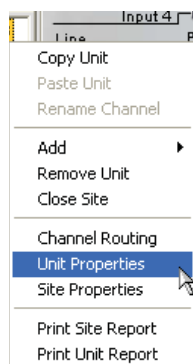
Unit Properties define properties for a specific Converge Pro unit. Unit Properties enable you to configure general unit settings such as name, and telephone country code, as well as IP and serial communication settings. Site properties that apply to all units in a Converge Pro network are configured using **Site Properties**.

Accessing Unit Properties

To access the **Unit Properties** window, right click the unit you want to configure in either the **Site View** tab or the **Tree View** tab of the **Site Pane** in **Console**.



The **Site/Unit** menu appears. Select **Unit Properties** as shown below.



The **Unit Properties** window appears as shown below.

Converge 840T Unit Properties - Device ID 0

General | Comm

Info.
Unit ID
00A3BC8C
MAC Address
00-06-24-00-17-03
Device Name
Converge840T-03
Device ID
0
Audio Master
Slave
Room

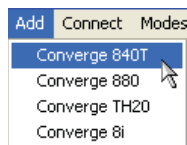
Default Meter
Meter Type
(O) Output Post Gain
Channel
1
Telephone Country Code
US

Versions
Firmware Version
0.0.45
Dictionary Version
8
FPGA Version
03/05/07 16:00
Host DSP Date
03/01/2007 10:23:00
SAT DSP Date
02/21/2007 09:17:40
Telco DSP Date
03/05/2007 09:43:52

OK Cancel

Add A New Unit

To add a unit to a Site, right-click in either the **Site View** tab or the **Tree View** tab of the **Site View** pane, or select the unit type you want to add from the **Add** menu on the Menu Bar as shown below.



The **Unit Properties** window appears. Unit Properties settings are described in the following sections.

Unit Properties: General Tab

The **Unit ID** and **MAC Address** for the selected unit are automatically displayed at the top of the **Info** section of the tab. The firmware version, dictionary version, and DSP date versions are displayed in the **Versions** section at the bottom of the tab. You cannot modify this information.

Device Name

Enter a descriptive name in the **Device Name** field.

Device ID

Select a Device ID (0-7) from the **Device ID** drop-down list.

Device IDs ensure that the Console software synchronizes with the proper unit when there are multiple Converge Pro units of the same type on a network. Therefore, each Converge Pro unit of the same type in a Site must have a unique Device ID. All Converge Pro units ship from the factory with a default DID of 0.

Converge Pro Device Types and Device IDs by model are as follows:

Model	Device Type	Device ID
880	1	0-7
TH20	2	0-F
840T	3	0-7
8i	A	0-7

For example, if there are two Converge Pro 880s and one 840T in a site, the 880s must have unique DIDs. They could be assigned DIDs of 0 and 1 respectively, and the 840T could be assigned a DID of 0.

NOTE: You must disconnect from the site in order to set the Device ID. Press the **Disconnect**  button on the **Button Bar**.

NOTE: The Device ID for each unit **MUST** match the DID set for that unit in the **LCD Settings Menu**. Otherwise, when you reconnect to the Site, Console will see a single unit as two separate units, and it will add a new unit to the Site with a status of disconnected.

Audio Master

Select **Slave** (default) or **Master** from the **Audio Master** drop down list. Audio Master units ignore audio from upstream units in a site as shown below.



This prevents audio from being received from units above the master unit in a Site. For example, you can configure a Site with multiple Converge Pro units for a room-combining application where all units act together when three smaller rooms are combined together into a single larger room. When the rooms are divided again, the audio from one room will not be available in the other two rooms due to the Audio Master configuration.

In graphic above, the third unit in the network is an Audio Master with an RS-232 control device attached. Audio from the first and second units in the network does not pass beyond the second unit. Likewise the second Audio Master unit in the network does not pass on the audio from the unit before it.

However **Serial Control** is not affected by Audio Master or Slave designations. Global serial control of the site is

maintained by the Converge Pro unit connected to a control device through its **RS-232 Serial Port**, in this case the third unit in the network which is also designated as the first Audio Master in the network.

NOTE: A master unit is not required in Converge Pro networks, and in most installations, all units will be slaves.

NOTE: SNMP Control is not affected by Audio Master designations.

For information about the **Link In Link Out** connections used to build Converge Pro networks, see **Controls & Connections**.

Room

Enter a descriptive name for the room in the **Room** field.

Default Meter & Channel

Select an input, output, or processing channel to be the **Default Meter** on the front panel LED Meter when a channel is not specifically selected.

Telephone Country Code

Select the appropriate Telephone **Country Code** for your installation (840T and TH20 models only).

Unit Properties: Comm (Communications) Tab

The Comm tab contains IP protocol selection and address settings, as well as serial port configuration settings as shown below.

The screenshot shows a Windows-style dialog box titled "Converge 840T Unit Properties - Device ID 1". It has two tabs: "General" and "Comm", with "Comm" currently selected. The "Comm" tab is divided into three main sections: "IP Settings", "IP Filters", and "Serial Port Settings".

- IP Settings:** Contains a checkbox for "Use DHCP" (unchecked). Below it are text boxes for "IP Address" (0.0.0.0), "Subnet" (0.0.0.0), and "Gateway" (0.0.0.0). There is also a checked checkbox for "Use DNS" and a text box for "DNS Address" (0.0.0.0).
- IP Filters:** Contains four text boxes labeled "Filter 1", "Filter 2", "Filter 3", and "Filter 4", all containing the value "0.0.0.0".
- Serial Port Settings:** Contains a "Baud Rate" dropdown menu set to "9600", a "Serial Echo" dropdown menu set to "On", and a "Flow Control" dropdown menu set to "Hardware".

At the bottom of the dialog box are "OK" and "Cancel" buttons.

IP Settings

If you want to use DHCP (Dynamic Host Configuration Protocol), select the **DHCP** checkbox. (Selecting DHCP disables the remaining IP settings.) Otherwise, enter the **IP Address**, **Subnet**, and **Gateway** information, and **DNS** (Domain Name Server) addresses for your installation.

Serial Port Settings

Select the **Serial Port** settings (**Baud Rate** and **Flow Control**) that are appropriate for your installation.

When you are finished configuring Unit Properties, click **OK** to save the changes, or **Cancel** to close the **Unit Properties** window.

For additional information, refer to the *Table of Contents* for these related topics:

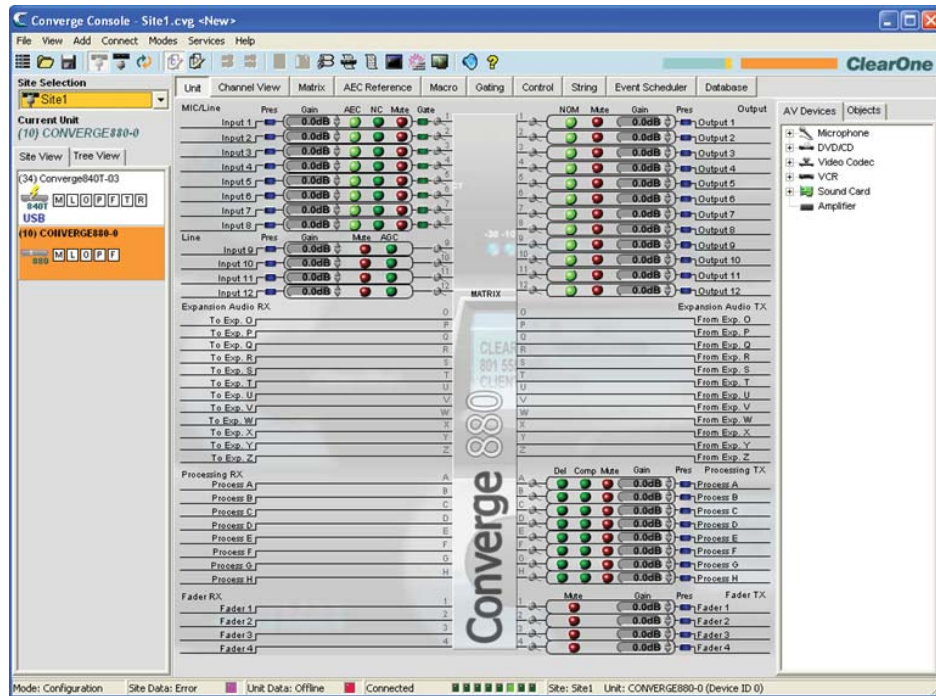
- **LCD Programming Overview**
- **LCD Settings Menu**
- **Site File Overview**
- **Site Properties**
- **Connect To A Site**
- **Preset Mode Overview**
- **Controls & Connections**
- **Serial Control**
- **SNMP Control**

CONFIGURATION MODE OVERVIEW

Converge Console has two modes: **Configuration Mode** (default) and **Preset Mode**. Configuration Mode enables you to perform advanced configuration of Converge Pro **Sites** and **Units** and customize them to your specific application.

Accessing Configuration Mode

Console automatically starts in Configuration Mode with the Unit tab displayed as shown below.



You can switch between modes by clicking on the **Mode**   buttons on the **Button Bar**. For a description of the components of the Console screen in Configuration Mode, see **Navigating Converge Console**.

Configuration Mode Tabs

Console has eleven tabs on the Tab Bar that provide specific configuration options while in Configuration Mode:

- **Unit**
- **Channel View**
- **Matrix**
- **AEC Reference**
- **Macro**
- **Gating**
- **Control**
- **String**
- **Event Scheduler**
- **Web Builder**
- **Database**

CHANNEL VIEW TAB OVERVIEW

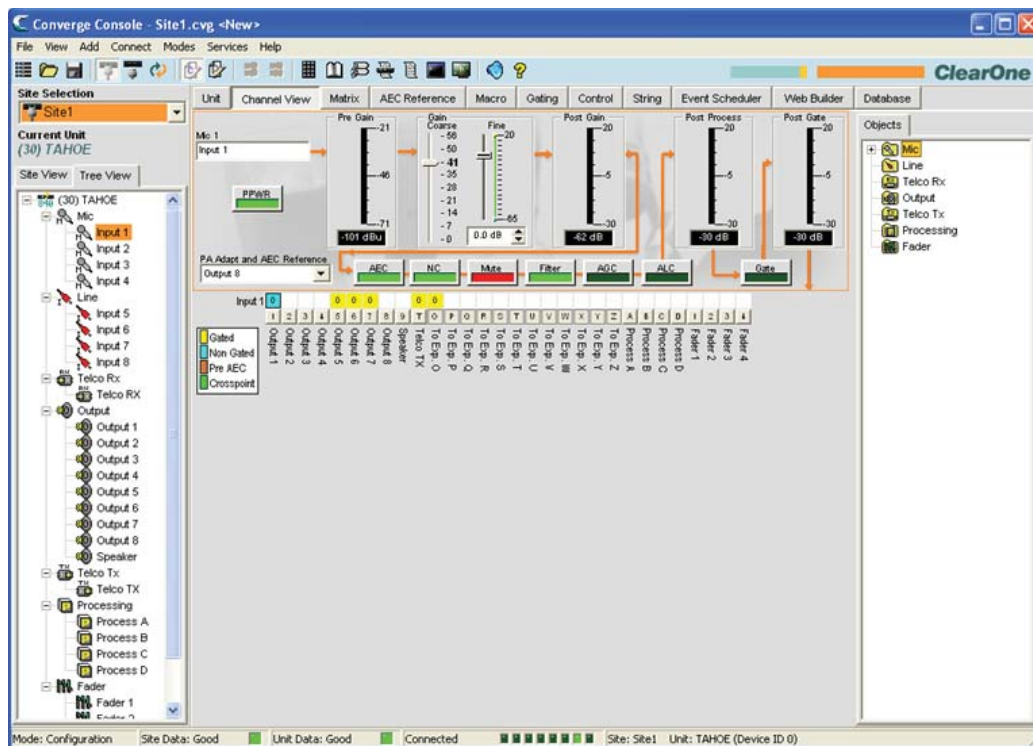
The **Channel View** section of the interface provides complete configuration of all functionality related to a given channel, from input to processing to output. The type of channel selected in the **Tree View** tab of the **Current Unit** pane determines the contents of the **Channel View** pane in the center of the Console.

The channels available in the **Tree View** tab are:

- **Mic Input Channels**
- **Line Input Channels**
- **Telco Rx Channel (840T and TH20 only)**
- **Output Channels**
- **Telco Tx Channel (840T and TH20 only)**
- **Processing Channels**
- **Fader Channels**

Accessing Channel View

Selecting a channel displays the **Channel View Tab** for that channel. For example, the Channel View for a **Mic Input** channel is shown below:

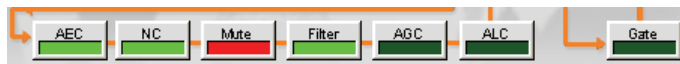


Channel Configuration Controls

As shown above, the configuration settings for a channel are displayed as controls (buttons, sliders, check-boxes, selection lists, text entry boxes) in the **Channel View** pane. Use the text entry boxes to assign custom names. Use the drop-down lists to select from a list of configuration values. Use the sliders to set a discreet value for channel configuration parameters.

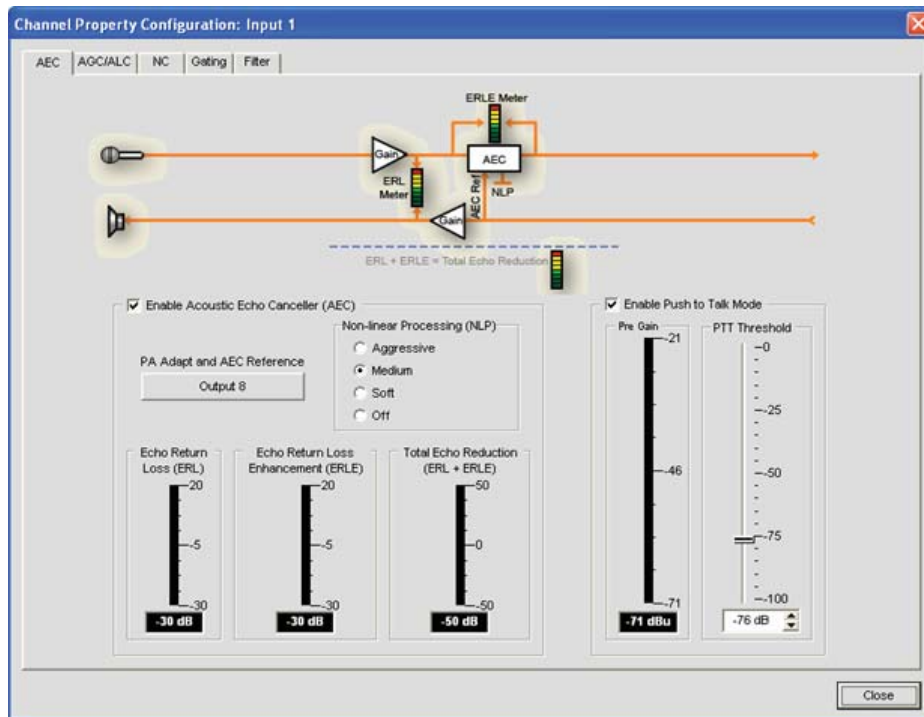


Some buttons, such as the **Mute** and **PPWR (Phantom Power)** shown above, toggle features On and Off.



Other buttons as shown above, including **AEC (Automatic Echo Cancellation)**, **NC (Noise Cancellation)**, **Filter**, **AGC (Automatic Gain Control)**, **ALC (Automatic Level Control)**, bring up the **Channel Property Configuration** screen shown below.

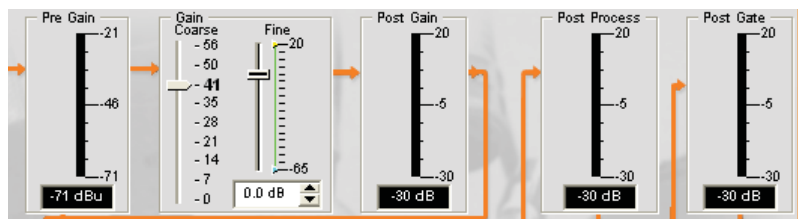
Channel Property Configuration Screen



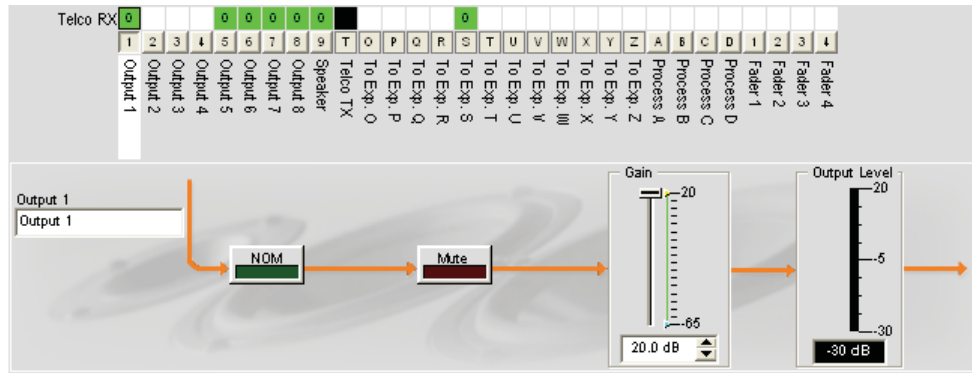
The **Channel Property Configuration** screen is used to configure **Mic Input**, **Line Input**, and **Processing channels**. The tabs available in this screen change depending on the type of channel selected in the **Tree View** pane of Console.

Meters

In addition to the configuration controls available in the **Channel View** pane, there are meters showing signal levels in real-time at each stage of signal processing. The meters shown change with the type of channel selected. For example, the meters for Mic Input channels are shown below:



NOTE: All meters in Console are peak-level meters.



This display is identical to that shown in **Channel View** when the output channel is selected in the **Tree View** pane. See Output Settings for more information.

For additional information, refer to the *Table of Contents* for these related topics:

- **Mic Input Channels**
- **Line Input Channels**
- **Telco Rx Channel (840T and TH20 only)**
- **Output Channels**
- **Telco Tx Channel (840T and TH20 only)**
- **Processing Channels**
- **Fader Channels**
- **AEC (Automatic Echo Cancellation)**
- **NC (Noise Cancellation), Filter**
- **AGC (Automatic Gain Control)**
- **ALC (Automatic Level Control)**
- **Gating**
- **Filters**
- **Site Pane**
- **Objects Pane**

AGC/ALC TAB

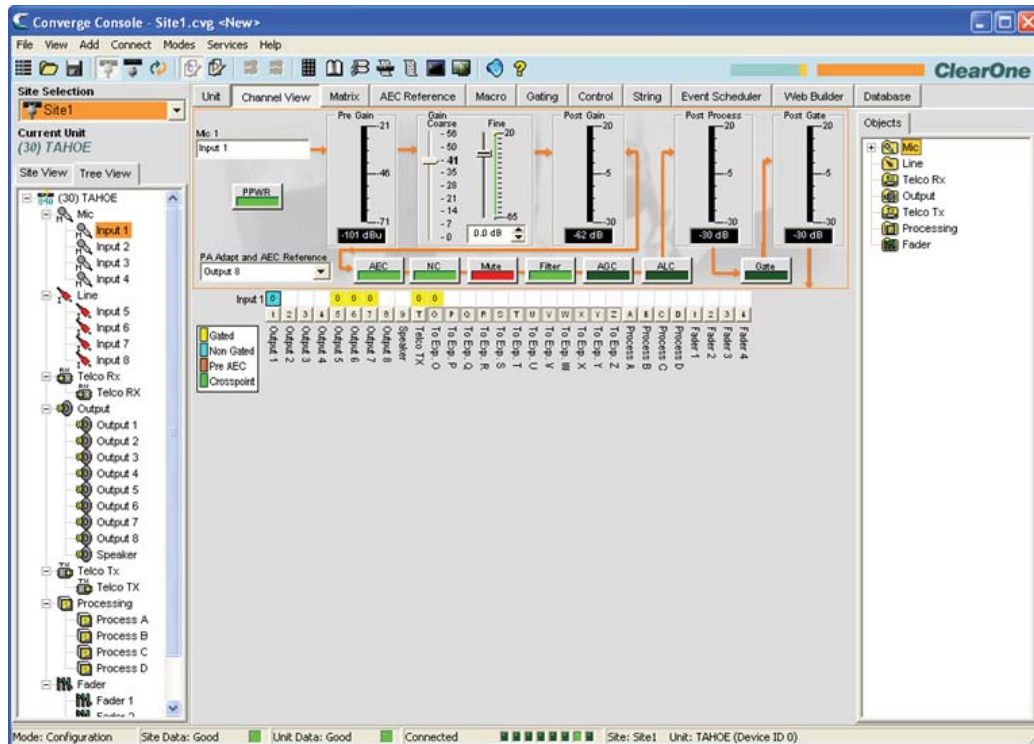
AGC/ALC enables **AGC (Automatic Gain Control)** or **ALC (Automatic Level Control)** and allows you to configure AGC settings for the selected input channel.

AGC keeps an input signal a target gain level that you select, and is generally used for **Line Input** channels.

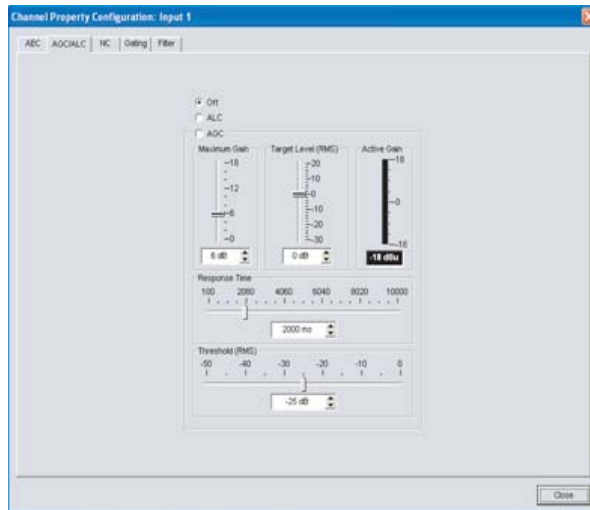
ALC automatically keeps an input signal at a constant level, and is generally used to keep speech levels constant on **Mic Input** channels.

Accessing AGC/ALC

With the **Channel View** tab selected on the **Tab Bar**, select the desired **Mic input** channel on the **Tree View** tab in the **Site Pane**, and press either the **AGC** or **ALC** button (located just below the **Post Gain** meter).



The **Channel Property Configuration** screen appears with the **AGC/ALC** tab selected.



Use the **AGC/ALC** radio buttons to select **Off**, **ALC**, or **AGC**. The default is Off. ALC is performed automatically: there are no user configurable settings for ALC.

NOTE: AGC occurs after the gain and Filter settings are applied to the for the channel in the audio signal path.

The configuration controls for AGC are described in the following sections.

Maximum Gain Slider

Set the **Target Level** first, then set the **Maximum Gain** that you want the AGC to apply to the signal. Maximum Gain is set using an RMS (Root Mean Square) level, which is the average magnitude of the audio signal over time. Maximum Gain range is 0 to 18dB in 1dB steps. The default value is 6dB.

Maximum Gain and **Target Level** (RMS):

Target Level Slider

Target Level (RMS) sets dB level for AGC to maintain. Target Level range is from -30 to 20dB in 1dB steps. The default target level is 0dB.

Active Gain Meter

The **Active Gain Meter** displays the gain for the channel in real time after AGC signal shaping.

Response Time Slider

Response Time sets the total AGC engage/disengage response time in milliseconds.

Threshold Slider

Threshold sets the dB level at which AGC engages. The Threshold is set using an RMS (Root Mean Square) level, which is the average magnitude of the audio signal over time.

NOTE: Setting the Threshold toward the higher end of the scale (near 0 dB) reduces background noise to a greater degree.

For additional information, refer to the *Table of Contents* for these related topics:

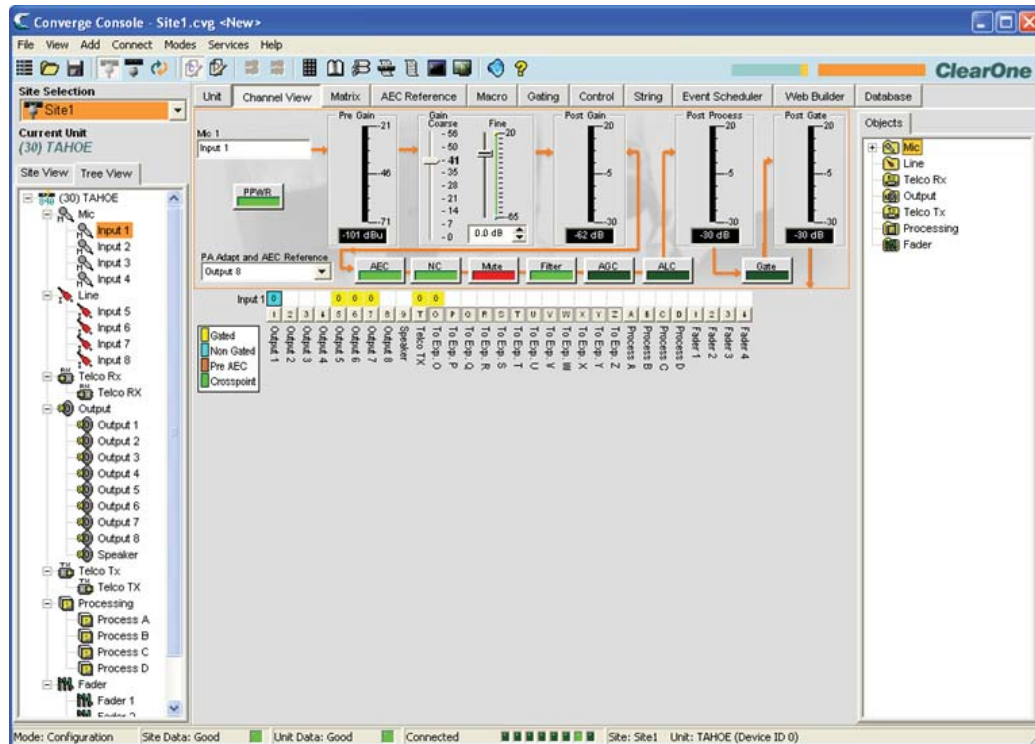
- **Channel View Tab Overview**
- **AEC (Acoustic Echo Cancellation)**
- **NC (Noise Cancellation)**
- **Gating**
- **Filters**
- **Line Input Settings**
- **Mic Input Settings**

NC (NOISE CANCELLATION) TAB

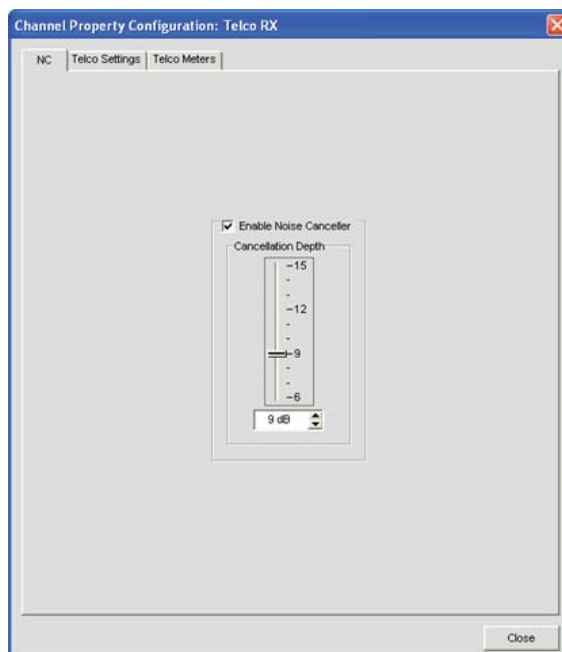
NC (Noise Cancellation) is a process in which ambient (background) noise is removed from an input signal, with no noticeable degradation in signal quality. NC is available on **Mic Input** channels only.

Accessing NC

With the **Channel View** tab selected in the **Center Pane**, select the desired Mic Input channel on the **Tree View** tab in the **Site Pane**, and press the **NC** button (located just below the **Coarse Gain** slider).



The **Channel Property Configuration** screen appears with the **NC** tab selected.



Configuring Noise Cancellation

Select the **Enable Noise Canceller** checkbox to enable NC for the channel. Adjust the **Cancellation Depth** slider to the dB setting which provides the best combination of low noise and maximum speech clarity. The attenuation depth can be set in 1dB increments from 6dB to 15dB. Default is 6dB. The default NC is Off.

For additional information, refer to the *Table of Contents* for these related topics:

- **Channel View Tab Overview**
- **AEC (Acoustic Echo Cancellation)**
- **AGC/ALC (Automatic Gain Control/Automatic Level Control)**
- **Gating**
- **Filters**
- **Mic Input Settings**
- **Telco RX Settings (840T and TH20)**

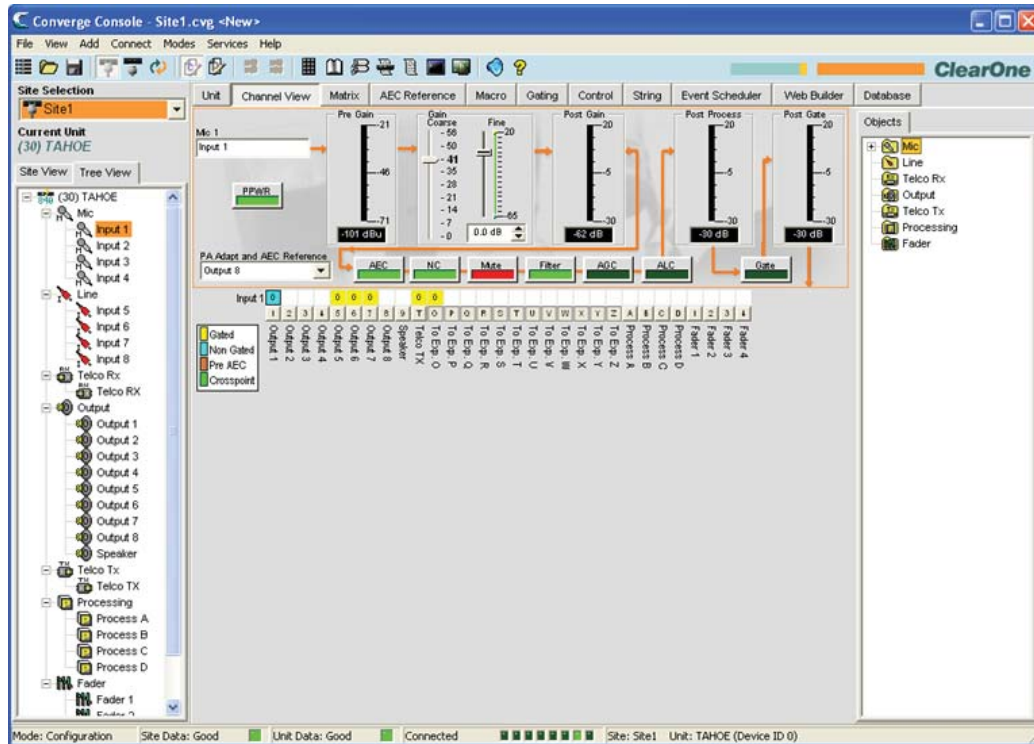
GATING

The **Gating** button on the **Channel View** tab enables you to configure gating control for individual **Mic Input** channels, and assign them to **Gating Groups**. There are two types of gating for Mic Input channels: **Auto Gating** and **Manual Gating**.

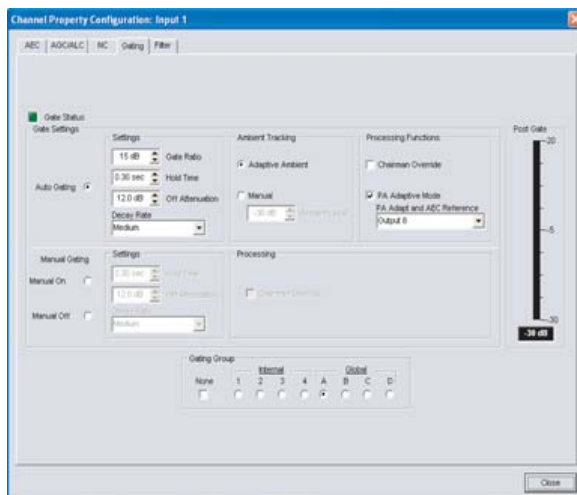
For more information about Gating Groups, see the **Gating Tab** section.

Accessing Channel Gating Configurations

With the **Channel View** tab selected on the **Tab Bar**, select the desired **Mic Input** channel on the **Tree View** tab in the **Site Pane**, and press the **Gate** button (located just below the **Post Process** meter).



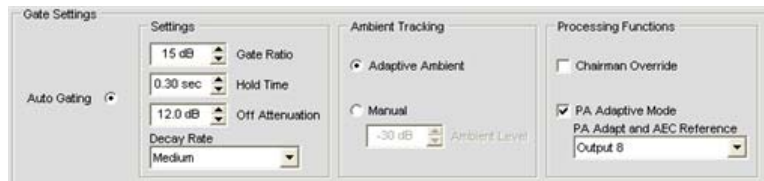
The Channel Property Configuration screen appears with the Gating tab selected.



Use the radio buttons to select Auto Gating, Manual On or Manual Off, which are described in the sections below.

Gating Settings: Auto Gating

The upper section of the Gate Settings section of the screen contains the gating controls for Auto Gating as shown below.



Auto Gating: Settings

- **Gate Ratio:** Specifies how much louder than ambient the audio level must be before the channel automatically gates on. The gate ratio range is from 0 to 50dB. The default is 15dB.
- **Hold Time:** Determines how long the channel stays gated on after the audio falls below the Gate Ratio threshold. The hold time range is from .1 to 8.0 seconds. The default is .3 seconds.
- **Off Attenuation:** Sets the amount of level reduction applied to a channel when it is gated off. The range is from 0 to 60dB. The default is 12dB.
- **Decay Rate:** Determines how fast a channel gates off after the Hold Time expires. The default is Medium.

NOTE: Changing **Hold Time**, **Off Attenuation**, and **Decay Rate** also changes the same settings under Manual Gating.

Auto Gating: Ambient Tracking

- **Adaptive Ambient:** Adjusts the ambient reference level as noise and room conditions change. When Adaptive Ambient is on, the mic channel monitors the ambient noise level on the input and adjusts the ambient level reference automatically. This means that the gate threshold level automatically increases or decreases based on background noise. The default is on.
- **Manual:** When Adaptive Ambient is set to **Manual**, the input will use the fixed ambient level you specify in the **Ambient Level** field as its gating reference.

Auto Gating: Processing Functions

- **Chairman Override:** Provides gating priority for this mic input over any other mic input within the same gating control (mixer) groups. When a mic with Chairman Override enabled gates on, all mics which do not have Chairman Override enabled will gate off. The default is off.
- **PA Adaptive Mode:** Uses the audio level on a specified output as the new ambient level when audio is present at the power amplifier. This prevents loudspeaker audio from gating on the mic while still allowing people in the room to gate on microphones when they speak (provided that their voices are louder than the loudspeaker audio). For example, you might decide to play background music from a CD player during a presentation. PA Adaptive Mode allows you to use the output routed from the CD player as the ambient reference to prevent the CD player's audio from gating on microphones. The default is on.
- **PA Adapt and AEC Reference:** When **PA Adaptive Mode** is selected, you must define the output the reference source. Select a source in the **PA Adapt and AEC Reference** drop-down list. You can use any one of the outputs, expansion bus references, virtual references, or Speaker output channels as the reference.

Gate Settings: Manual Gating

The lower section of the **Gate Settings** section of the screen contains gating configuration controls for **Manual Gating** as shown below.



Manual Gating: Manual On/Manual Off

Select the **Manual On** radio button to gate the channel on, or **Manual Off** to gate the channel off. Off gating behavior is controlled by the settings described in the next section.

Manual Gating: Settings

- **Hold Time:** Determines how long the channel stays gated on after the channel is manually gated off. The hold time range is from .1 to 8.0 seconds. The default is .3 seconds.
- **Off Attenuation:** Sets the amount of level reduction applied to a channel when it is manually gated off. The range is from 0 to 50dB. The default is 12dB.
- **Decay Rate:** Determines how fast a channel gates off after the Hold Time expires. The default is Medium.

NOTE: Changing **Hold Time**, **Off Attenuation**, and **Decay Rate** also changes the same settings under **Auto Gating**.

Both Auto Gating and Manual Gating are affected by Gating Group membership as described in the next section.

Gating Groups

In addition to specifying gating characteristics for each **Mic Input** channel, you can assign the channel to a **Gating Group** for greater flexibility and control. When inputs are assigned to a gating group, the gating information from the inputs is used to control how the entire mixer behaves. Gating Groups are created and defined using the **Gating Tab** on the **Tab Bar** in Console.

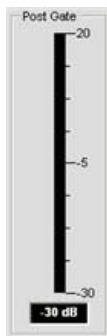
The 880, 840T, and 8I feature four internal gating groups (**Internal 1–4**) and four global gating groups across the expansion bus (**Global A–D**). Mic Inputs can only be used in one gating group at a time. If an input is not assigned to a gating group, that mic's gating properties are independent, and they have no effect on any gating group. When gating groups span two or more units (global gating groups), the settings must be the same for each unit attached to the global gating group.

NOTE: Input channels can be assigned to one and only one **Gating Group** at a time.

Mic Inputs are routed to **Global Group A** by default. To assign a gating group, select an **Internal** or **Global** radio button in the **Gating Group** section of the screen, or select **None** to have the Mic Input gate independently of any gating group.



Post Gate Meter



The **Post Gate Meter** displays the audio level of the selected channel after Auto or Manual Gating settings are applied. Meter range is from -30 to +20dB.

For additional information, refer to the *Table of Contents* for these related topics:

- **Gating Tab**
- **AEC (Acoustic Echo Cancellation)**
- **AGC/ALC (Automatic Gain Control/Automatic Level Control)**
- **NC (Noise Cancellation)**
- **Filters**
- **Line Input Settings**
- **Mic Input Settings**

FILTER TAB

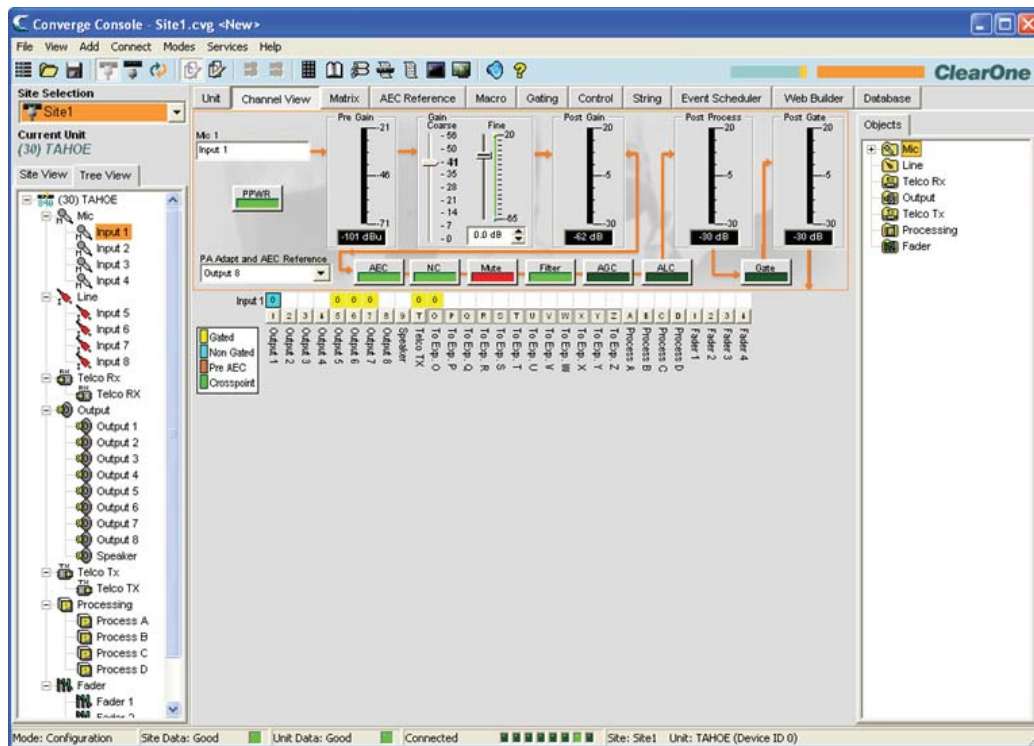
Filters enable you to shape the audio signals from **Mic Inputs** for improved audio quality.

There are four configurable filter types available for mic input channels:

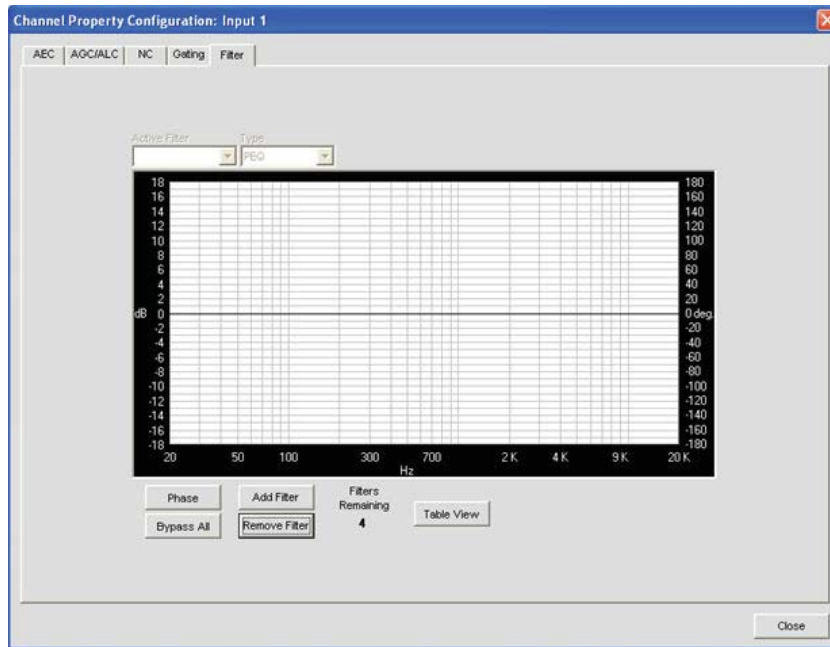
- All Pass
- High Pass
- Low Pass
- Notch
- PEQ (Parametric Equalizer)

Accessing Filters

With the **Channel View** tab selected on the **Tab Bar**, select the desired input channel on the **Tree View** tab in the **Site Pane**, and press the **Filter** button (located just below the **Post Gain** meter).



The **Channel Property Configuration** screen appears with the **Filter** tab selected as shown below.

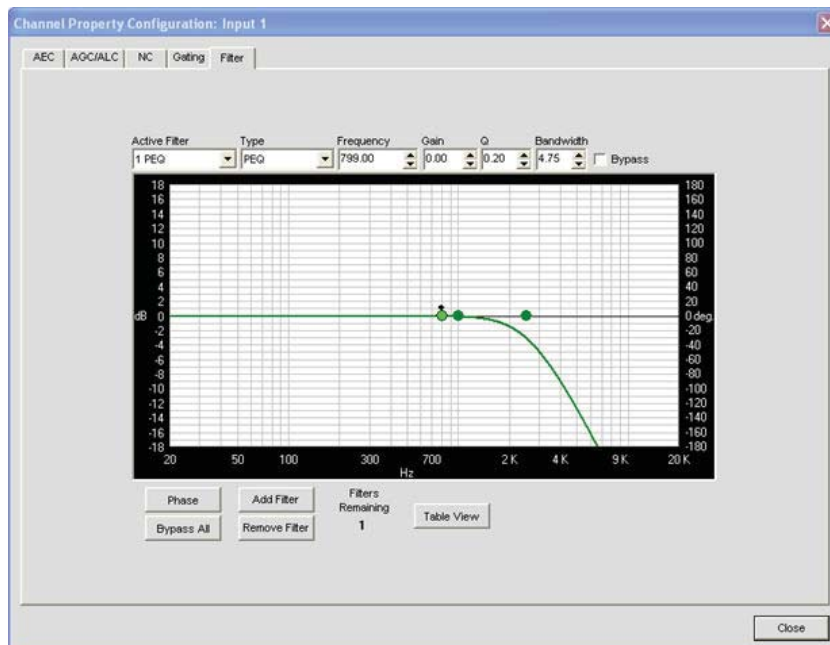


The following sections describe how to configure and activate input channel filters.

Active Filter

Use the **Active Filter** drop-down list to select among active filters. You can configure up to four active filters per input channel.

NOTE: There are no filters configured by default. Press the Add Filter button to create a filter for the input channel. When you add a filter, it appears in the Active Filter drop-down list, and on the active filter graph.



In graph view, you can click on a filter node and drag it to the desired location on the graph. The values in the setting fields immediately reflect the change.

To add additional filters, click the **Add Filter** button. The number of remaining available filters for the channel is shown under **Filters Remaining**.

Filter Types

Use the Type drop-down list to select from the following input filters:

- **All Pass.** Frequency range is 20Hz to 20kHz with resolution to 1Hz or four places (whichever is larger). All pass changes the phase of the audio signal at the set frequency.
- **High Pass.** Selectable frequency cutoff is 20Hz to 20kHz, in 1Hz increments. Rolloff is 12dB/octave. Level is fixed at 0dB.
- **Low Pass.** Selectable frequency cutoff is 20Hz to 20kHz in 1Hz increments. Rolloff is 12dB/octave. Level is fixed at 0dB.
- **Notch.** Center frequency range is 20Hz to 20kHz with resolution to 1Hz or four places (whichever is larger). Bandwidth is from .05 to 5 octaves in .01 octave increments. Level is fixed at -80dB.
- **PEQ** (Parametric Equalizer). Center frequency range is 20Hz to 20kHz with resolution to 1Hz or 4 places (whichever is larger). Bandwidth is .05 to 5 octaves in .01 octave increments. Level range is -15 to +15dB in 0.5dB increments.

Frequency (Available for all filter types.)

Use the **Frequency** selector box to set the center frequency (in Hertz) for the filter you are configuring. Range is from 20Hz to 20kHz in 1Hz increments. Default is 1kHz.

Gain (Available for PEQ filters only.)

Use the **Gain** selector box to set the gain value for the filter you are configuring. Range is from -18 to 18dB, in .5dB increments. Default is 0dB.

Q (Available for Notch and PEQ filters only.)

Use the **Q** (Quality Factor) selector box to select the ratio of the center frequency divided by the bandwidth. Q reflects an inverse relationship to the bandwidth. Range is from .20:1 to 40:1 in .20 increments.

Bandwidth (Available for Notch and PEQ filters only.)

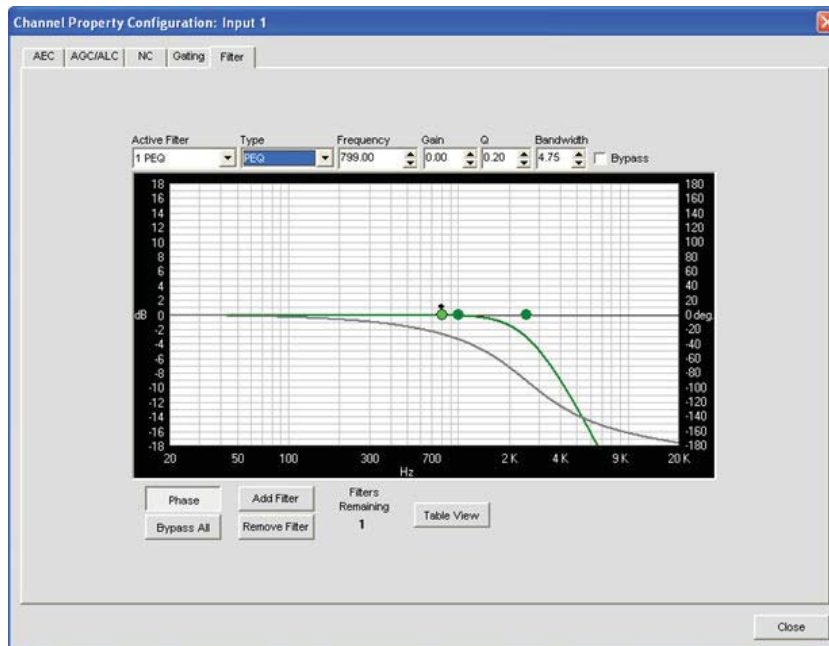
Use the **Bandwidth** selector box to set the difference between the upper and lower points of a filter's audio passband.

Bypass (Available for all filter types)

Use the **Bypass** checkbox to bypass the currently selected active filter. This feature allows you to configure different filters and save them for future use without having to recreate them.

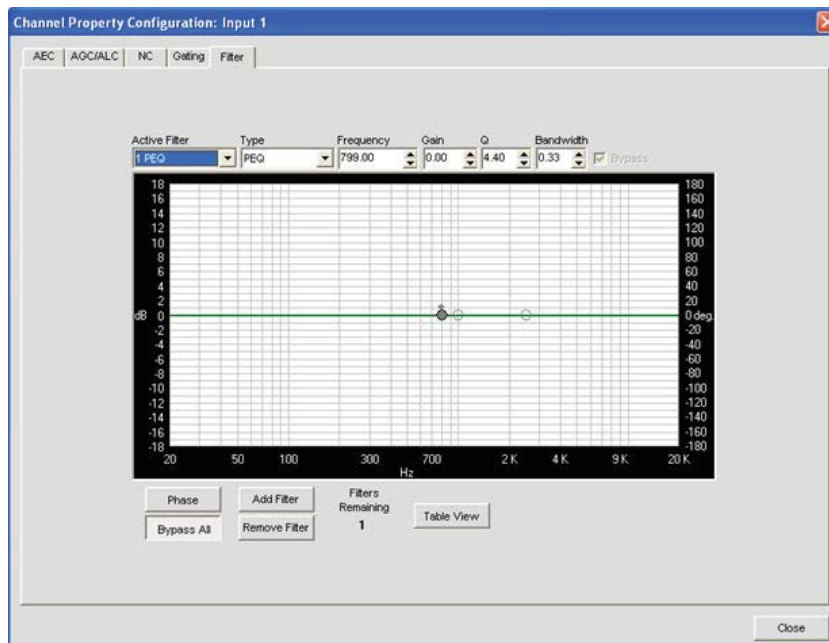
Phase

Press the **Phase** button to display the phase relationship of the graphed frequency response (appears as a grey line on the active filter graph).



Bypass All

Press the **Bypass All** button to bypass all filters for the selected input channel. The filters grayed out in graph view, and the bypass status is shown as off in table view.



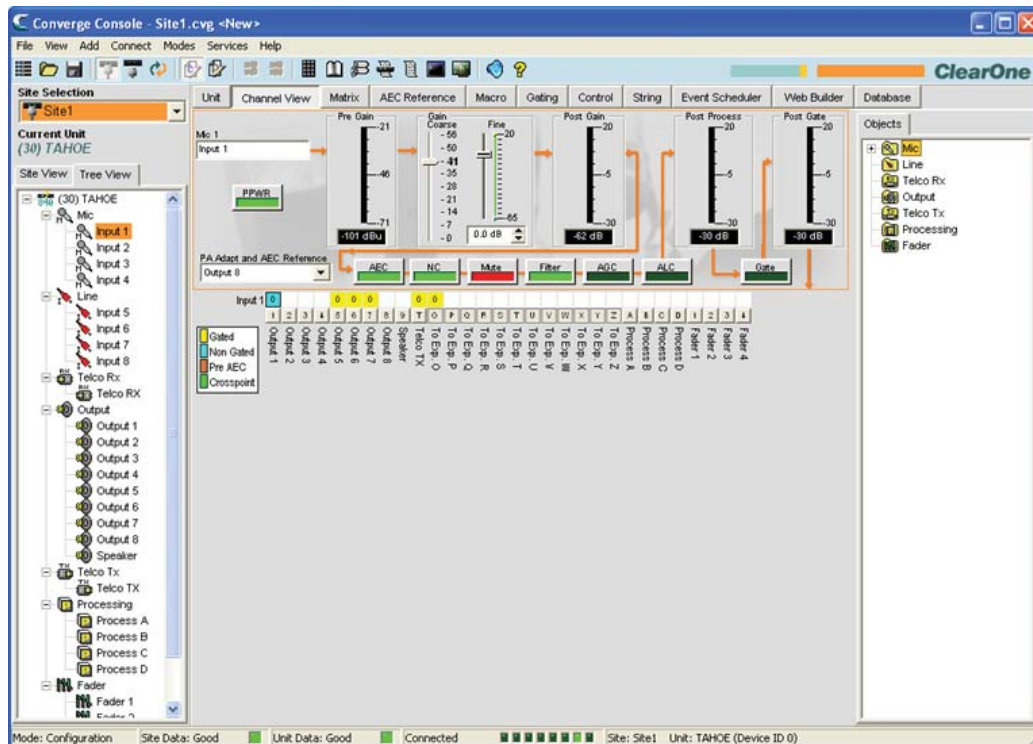
AEC (AUTOMATIC ECHO CANCELLATION)

AEC (Acoustic Echo Cancellation) is a process in which acoustical echo is removed from an input signal, thereby improving audio clarity.

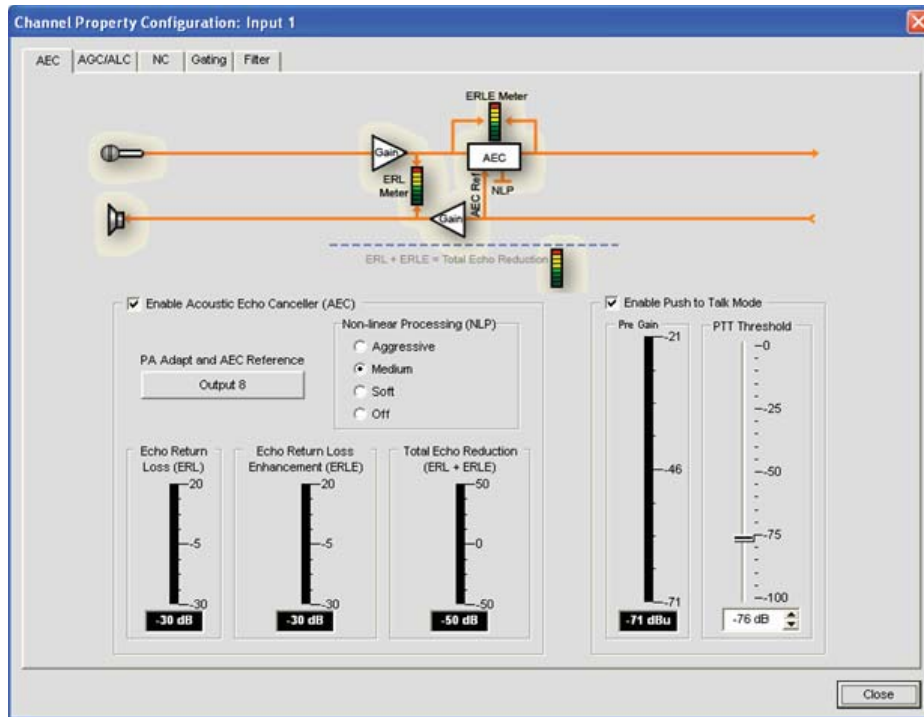
AEC uses a reference source to perform AEC based on the acoustic characteristics and dynamics of a specific application (room). Use the **AEC Reference Tab** to set up these references.

Accessing AEC

With the **Channel View** tab selected on the **Tab Bar**, select the desired **Mic input** channel on the **Tree View** tab in the **Site Pane**, and press the **AEC** button (located just below the **Pre Gain** meter).



The **Channel Property Configuration** screen appears with the **AEC** tab selected (see below).



The AEC tab shows a signal flow diagram for AEC, and has the following features: **Enable AEC**, **PA Adapt and AEC Reference**, **NLP (Non-linear Processing)**, and **PTT (Push-to-Talk) Mode**. These features are described in the following sections.

Enable AEC Checkbox

Select the checkbox to enable AEC.

PA Adapt and AEC Reference Button

This button displays the expansion bus **Output** channel currently used as the **AEC Reference** for the selected Input channel. Clicking the button closes the **Channel Property Configuration** window and opens the **AEC Reference Tab** in the **Center Pane** of Console. Make any required changes

NLP (Non-Linear Processing) Radio Buttons

NLP increases the power of echo cancellation for difficult acoustical environments. NLP features four settings: **Soft (6dB)**, **Medium (12dB)**, **Aggressive (18dB)**, Off. The default is soft.

NOTE: Use NLP with care. There are corresponding trade-offs associated with NLP, including suppression and half-duplex operation.

The **AEC** tab also includes meters for **Echo Return Loss (ERL)**, **Echo Return Loss Enhancement (ERLE)**, and **Total Echo Reduction (ERL + ERLE)**.

ERL (Echo Return Loss) Meter

Shows the coupling between the reference signal and the input to the echo canceller—the difference of the two levels. This is an average meter that updates when a receive-only signal is present.

ERLE (Echo Return Loss Enhancement) Meter

Shows the loss through the echo cancellation and non-linear processing chain—the difference of the two levels. This is an average meter that updates when a receive-only signal is present.

ERL + ERLE Meter

Shows the total **ERL and ERLE** reduction. This is an average meter that updates only when a receive -only signal is present.

PTT (Push to Talk) Mode

Select the **Enable Push to Talk Mode** checkbox to enable PTT. PTT notifies AEC when a microphone is off, and AEC stops adapting, which enables you to use AEC with push-to-talk microphones.

When the microphone is off, set the **PTT Threshold** slider to a level just above that of the **Pre-Gain Meter** for the channel.

For additional information, refer to the *Table of Contents* for these related topics:

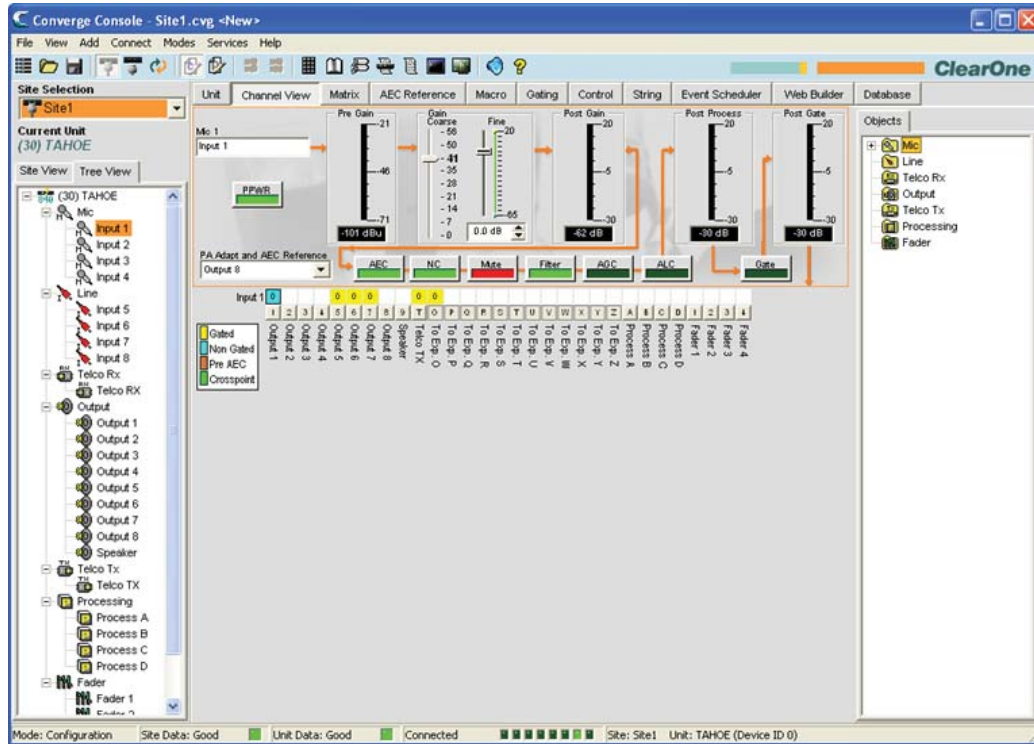
- **AEC Reference Tab**
- **AGC/ALC (Automatic Gain Control/Automatic Level Control)**
- **NC (Noise Cancellation)**
- **Gating**
- **Filters**
- **Line Input Settings**
- **Mic Input Settings**

MIC INPUT SETTINGS

Mic Input Settings enable you to customize mic input channel settings using the **Channel View** screen.

Accessing Mic Input Settings

With the **Channel View** tab selected on the **Tab Bar**, select the desired mic input channel on the **Tree View** tab in the **Site Pane**.



The **Center Pane** displays a signal processing diagram, meters, and configuration controls for selected mic input channel as shown above. Note that the meters and configuration controls are shown at the appropriate point in the signal path.

The meters and configuration controls for mic input channels are explained in the following sections

Channel Label



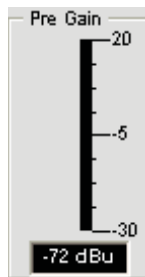
Rename the channel by entering a name in the **Label** entry field (optional).

PPWR (Phantom Power)



The **PPWR (Phantom Power)** button toggles phantom power on and off. Phantom power is an auxiliary power source used to power certain types of microphones. Phantom power voltage is 24VDC. The default is on.

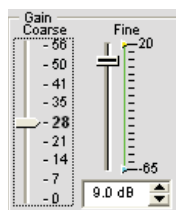
Pre Gain Meter



The **Pre Gain** meter displays the mic input level before gain adjustments. Meter range is determined by the **Coarse Gain Slider** in the **Gain section** of the screen as described below.

NOTE: All meters in Console are peak-level meters.

Gain Section

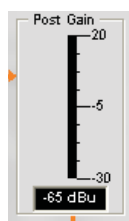


The **Coarse** and **Fine** gain sliders are used to match the level settings between mic inputs, and to adjust the volume level for a given mic input channel.

In general, you should set the **Coarse** gain slider to 56dB for a mic input, 28dB for active equipment that requires an input between mic and line level, or 0dB for a line level input device.

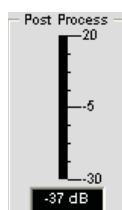
Use the **Fine** gain slider to adjust input volume level. You can also set fine gain in .5dB increments using the **Up/Down Buttons**.

Post Gain Meter



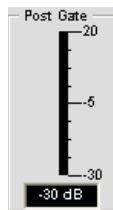
The **Post Gain Meter** displays the audio level after gain adjustments. Meter range is -30 to +20dB

Post Process Meter



The **Post Process Meter** displays the audio level after it passes through a **Processing** channel. Meter range is from -30 to +20dB.

Post Gate Meter



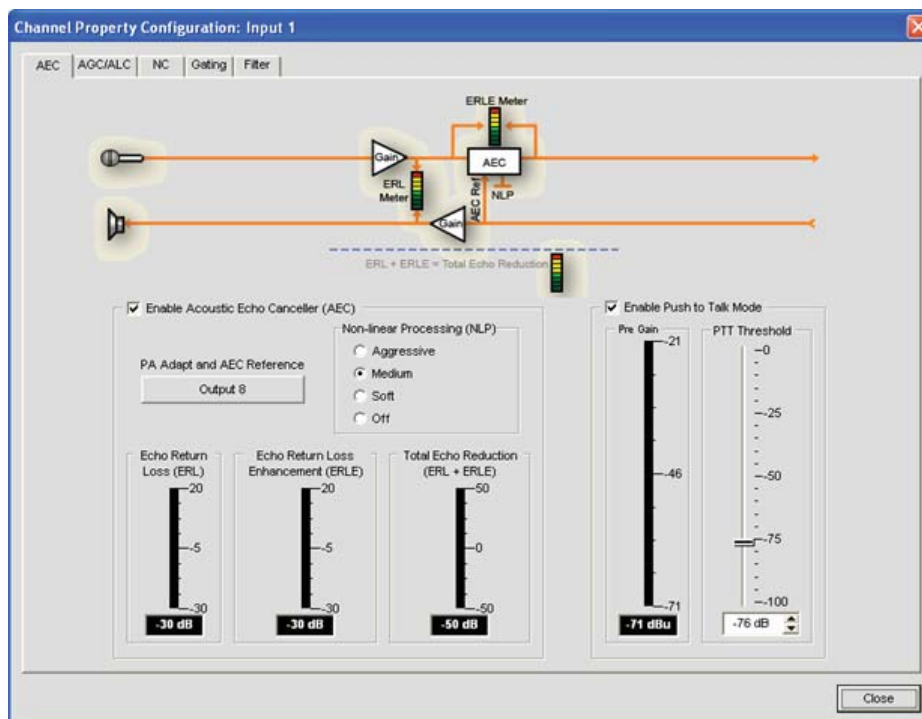
The **Post Gate Meter** displays the audio level after gating. Meter range is from -30 to +20dB. Channel gating for mic inputs is configured on the **Gating** tab of the **Channel Property Configuration** window for mic input channels, which is described in the next section.

Channel Configuration Buttons



The **Channel Configuration Buttons** enable you to configure the available features for mic input channels. With the exception of the **Mute** button, which toggles muting, clicking a channel configuration button displays the **Channel Property Configuration** window. Each feature is shown on a tab in the window that corresponds with the configuration button shown in the **Center Pane**.

For example, clicking the **AEC** button displays the Channel Property configuration window with the **AEC** tab selected as shown below:

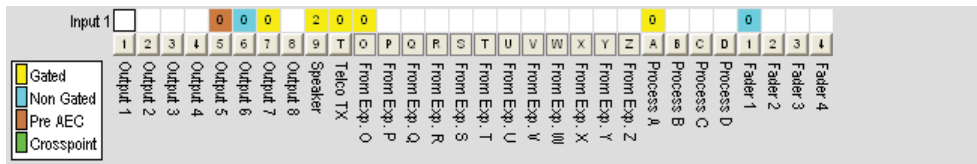


For more information on each configuration feature, see the following topics:

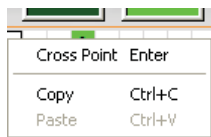
- **AEC (Acoustic Echo Cancellation)**
- **AGC/ALC (Automatic Gain Control/Automatic Level Control)**
- **NC (Noise Cancellation)**
- **Gating**
- **Filters**

Channel Routing Matrix: Inputs

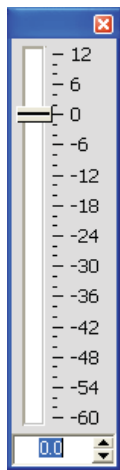
The channel routing matrix section of the **Channel View** screen shows the associated matrix row and audio routing configuration for the selected input channel (mic input 1 in this case). Clicking a cross point box selects it, clicking it a second time sets the cross point, as indicated by a green box. The dB level for set cross points is shown numerically in the box.



To adjust cross-point gain/attenuation, right-click on a cross point box and select **Cross Point** from the pop-up menu.



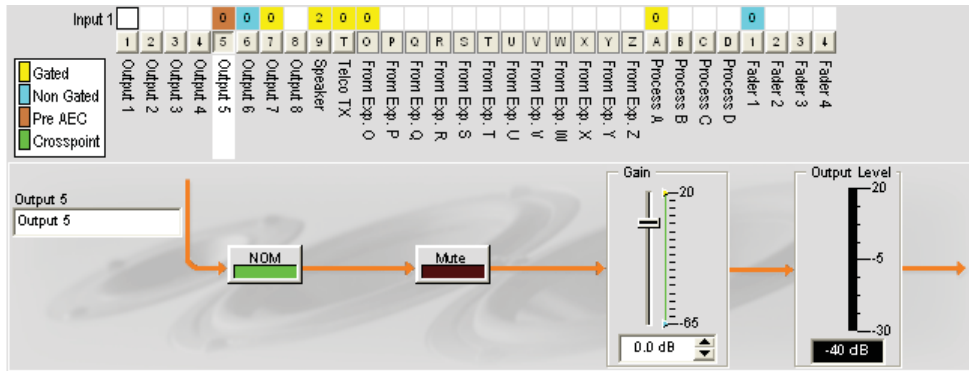
The **Cross Point Attenuation** slider appears. Move the slider or use the selector box to set the gain/attenuation level in dB. The range is from -60 to 12dB in .5dB increments. The default is 0dB.



NOTE: Your changes are automatically saved when you close the slider.

Channel Routing Matrix: Outputs, Processing, Faders

In the channel routing matrix, pressing the button underneath an **Output**, **Process**, or **Fader** cross-point box displays the signal flow diagram and configuration controls for that channel as shown below. For example, clicking on **Output 5** displays the routing configuration for output channel 5 as shown next page.



This display is identical to that shown in **Channel View** when the output channel is selected in the **Tree View** pane. See **Output Settings** for more information.

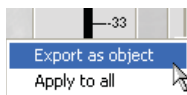
You can change the channel **Label** (name) of the output channel in the label entry field; toggle **NOM** constant gain on or off; toggle **Mute** on or off; and use the **Gain slider** to set the gain level for the channel. The **Output Level** meter shows the level for the channel in real time as you make configuration changes.

NOTE: Changes to channel configuration settings made in the channel routing matrix apply globally to that channel. For example, changing the label (name) from “Output 1” to “Ceiling Speakers” changes the name of the output channel in the Tree View pane, and everywhere else the label appears in Console.

Creating Channel Objects

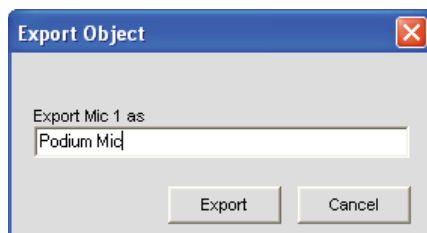
One of the most powerful features of the Console software is the ability to create Audio Devices and Channel Objects. After configuring an input using the Channel View tab as described in this topic, you can save it into the Database, and use Drag and Drop Configuration to streamline configuration tasks for your Converge Pro installations.

To save an input channel configuration, right click in the Channel View screen (anywhere above the channel routing matrix section of the screen). From the menu that appears, select Export Object as shown below.



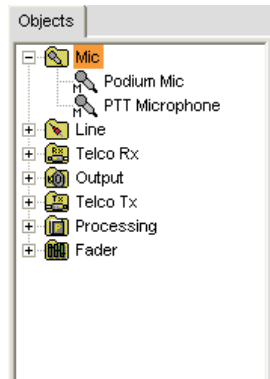
NOTE: You can apply the channel configurations for the current channel to all channels of the same type by selecting the Apply to all option.

Enter an appropriate Label (name) in the entry field of Export Object dialog as shown below.



Click Export to save the configuration to the database, or Cancel to return to the Channel View screen.

Console saves the object to the database and displays it in the Object Tree as shown below.



For more information on using audio devices and channel objects, see the following topics:

- **AV Devices**
- **Creating AV Devices**
- **Channel Objects**
- **Database Tab**
- **Drag & Drop Configuration**

Optimizing Input Gain Structure

Optimizing gain structure for input channels maximizes the signal-to-noise ratio for the channel and ensures optimal audio performance. Before configuring an input channel, ClearOne recommends that you review the **Optimizing Gain Structure** topic.

For additional information, refer to the Table of Contents for these related topics:

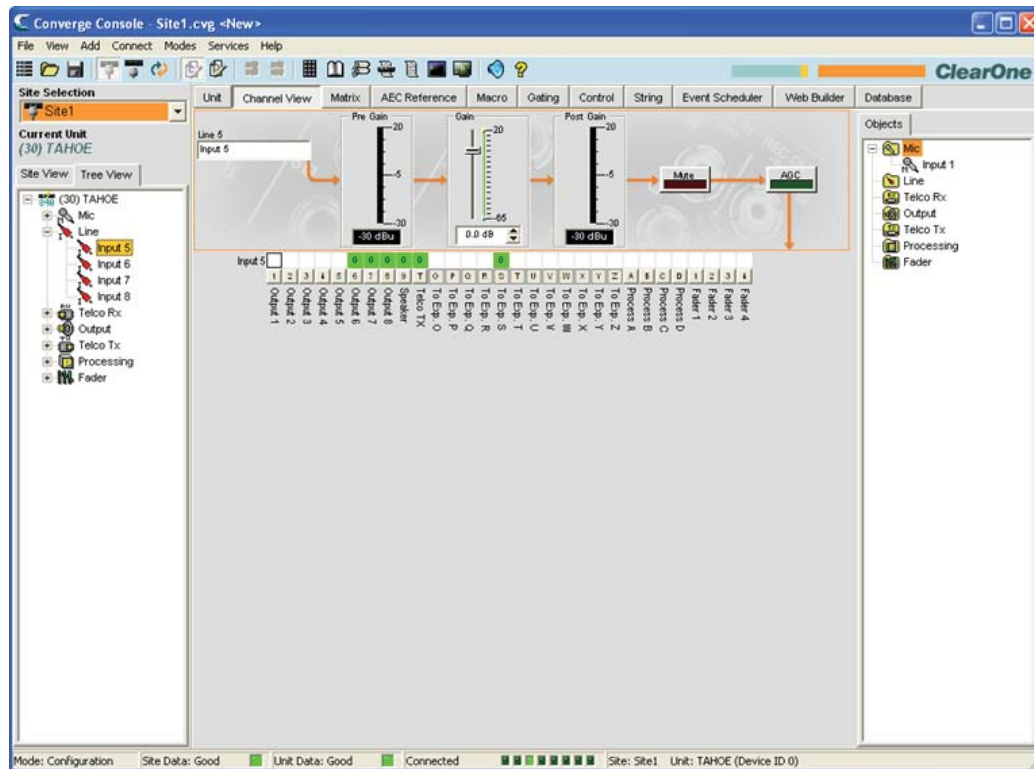
- **Channel View Tab Overview**
- **AGC/ALC (Automatic Gain Control/Automatic Level Control)**
- **Gating (Channel View Tab)**
- **Gating Tab (Gating Groups)**
- **Matrix Tab**
- **Drag & Drop Configuration**
- **Database Tab**
- **Line Input Settings**
- **Output Settings**

LINE INPUT SETTINGS

Line Input Settings enable you to customize line input channel settings. All settings for a given line input are available on the **Channel View** screen.

Accessing Line Input Settings

With the **Channel View** tab selected on the **Tab Bar**, select the desired line input channel on the **Tree View** tab in the **Site Pane**.



The **Center Pane** displays a signal processing diagram, meters, and configuration controls for selected line input channel as shown above. Note that the meters and configuration controls are shown at the appropriate point in the signal path.

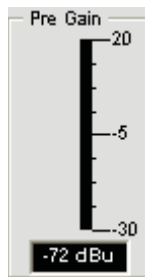
The meters and configuration controls for line inputs are explained in the following sections.

Channel Label

Line 5
Input 5

Rename the channel by entering a name in the Label entry field (optional).

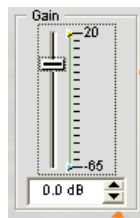
Pre Gain Meter



The **Pre Gain Meter** shows the line input level before gain adjustments. Meter range is -30 to 20dB.

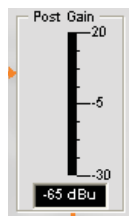
NOTE: All meters in Console are peak-level meters.

Gain Slider



The **Gain Slider** adjusts the line input volume level. Range is from -65dB to +20dB.

Post Gain Meter



The **Post Gain Meter** shows the input level after gain adjustments. Meter range is -30 to +20dB.

Mute Button



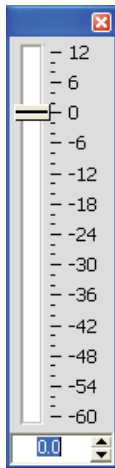
Clicking the **Mute** button toggles muting. The default is off.

AGC (Automatic Gain Control) Button



Clicking the **AGC (Automatic Gain Control)** button displays the **Channel Property Configuration** dialog for the selected input channel as shown below.

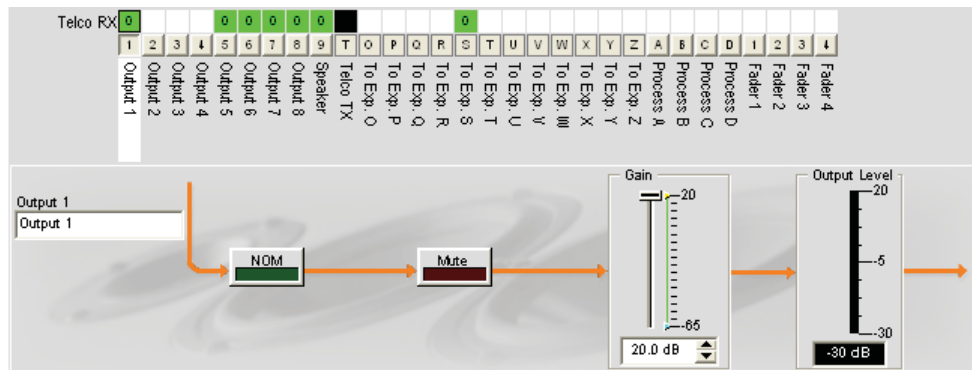
The **Cross Point Attenuation** slider appears. Move the slider or use the selector box to set the gain/attenuation level in dB. The range is from -60 to 12dB in .5dB increments. The default is 0dB.



NOTE: Your changes are automatically saved when you close the slider.

Channel Routing Matrix: Outputs, Processing, Faders

In the channel routing matrix, pressing the button underneath an **Output**, **Process**, or **Fader** cross-point box displays the signal flow diagram and configuration controls for that channel as shown below. For example, clicking on **Output 5** displays the routing configuration for output channel 5 as shown below.



This display is identical to that shown in **Channel View** when the output channel is selected in the **Tree View** pane. See **Output Settings** for more information.

You can change the channel **Label** (name) of the output channel in the label entry field; toggle **NOM** constant gain on or off; toggle **Mute** on or off; and use the **Gain slider** to set the gain level for the channel. The **Output Level** meter shows the level for the channel in real time as you make configuration changes.

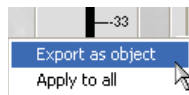
NOTE: Changes to channel configuration settings made in the channel routing matrix apply globally to that channel. For example, changing the label (name) from “Output 1” to “Ceiling Speakers” changes the name of the output channel in the Tree View pane, and everywhere else the label appears in Console.

Creating Channel Objects

One of the most powerful features of the Console software is the ability to create **Channel Objects**. After configuring an input using the **Channel View** tab as described in this topic, you can save it into the **Database**, and use **Drag and Drop Configuration** to streamline configuration tasks for your Converge Pro installations.

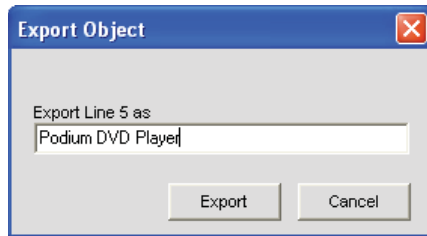
To save an input channel configuration, right click in the **Channel View** screen (anywhere above the channel routing

matrix section of the screen). From the menu that appears, select **Export Object** as shown below.



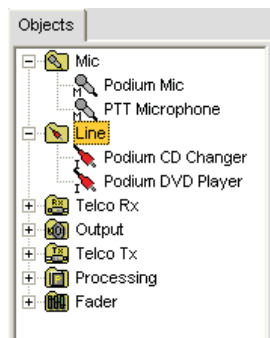
NOTE: You can apply the channel configurations for the current channel to all channels of the same type by selecting the **Apply to all** option.

Enter an appropriate **Label** (name) in the entry field of **Export Object dialog** as shown below.



Click **Export** to save the configuration to the database, or **Cancel** to return to the Channel View screen.

Console saves the object to the database and displays it in the **Object Tree** as shown below.



Optimizing Input Gain Structure

Optimizing gain structure for input channels maximizes the signal-to-noise ratio for the channel and ensures optimal audio performance. Before configuring an input channel, ClearOne recommends that you review the **Optimizing Gain Structure** topic.

For more information, refer to the *Table of Contents* for these related topics:

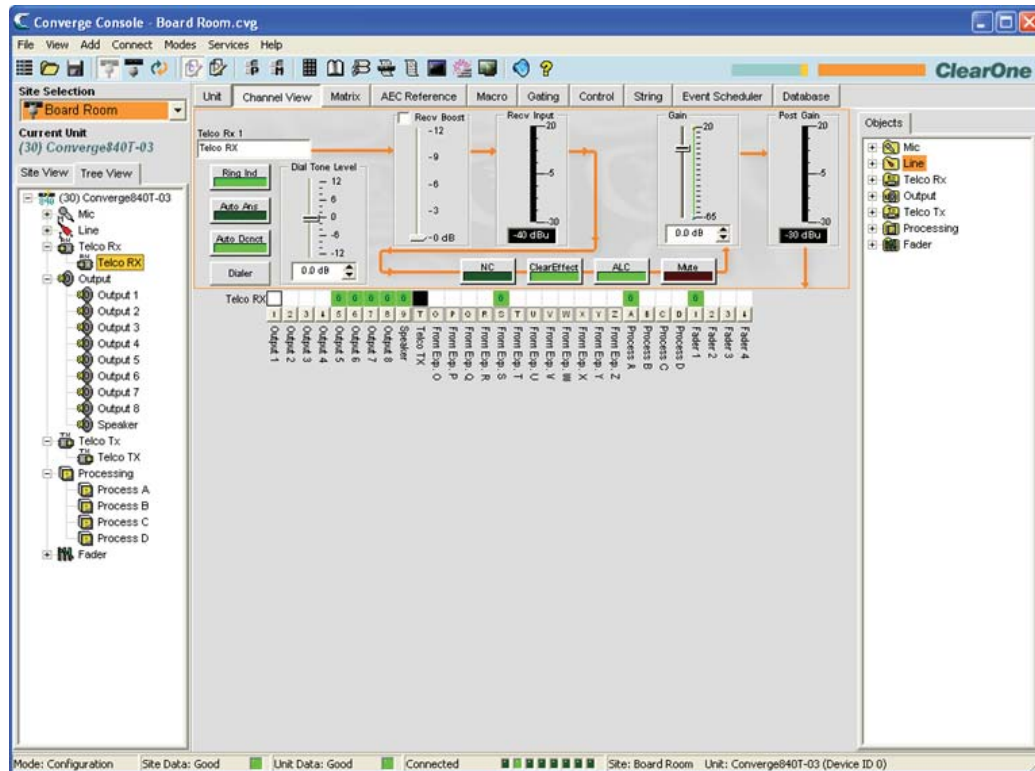
- **Channel View Tab Overview**
- **AGC/ALC (Automatic Gain Control/Automatic Level Control)**
- **Gating (Channel View Tab)**
- **Gating Tab (Gating Groups)**
- **Matrix Tab**
- **Drag & Drop Configuration**
- **Database Tab**
- **Mic Input Settings**
- **Output Settings**

TELCO RX SETTINGS (840T AND TH20)

Telco Rx Settings enable you to customize telephone receive channel settings using the **Channel View** screen.

Accessing Telco Rx Settings

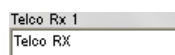
With the **Channel View** tab selected on the **Tab Bar**, select the **Telco Rx** channel on the **Tree View** tab in the **Site Pane**.



As shown above, the **Center Pane** displays a signal flow diagram for the telco rx channel, real-time peak-level meters, as well as the channel routing matrix that shows the audio routing configuration for the channel. Configuration settings for the telco rx channel are displayed as controls (buttons, sliders, check-boxes, selection lists) which are located at the appropriate stage in the signal flow.

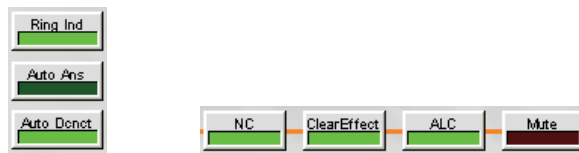
The following sections describe how to use these controls (in order from left-to-right and top-to-bottom as they appear in the signal flow) to configure the telco receive channel settings for your installation.

Channel Label

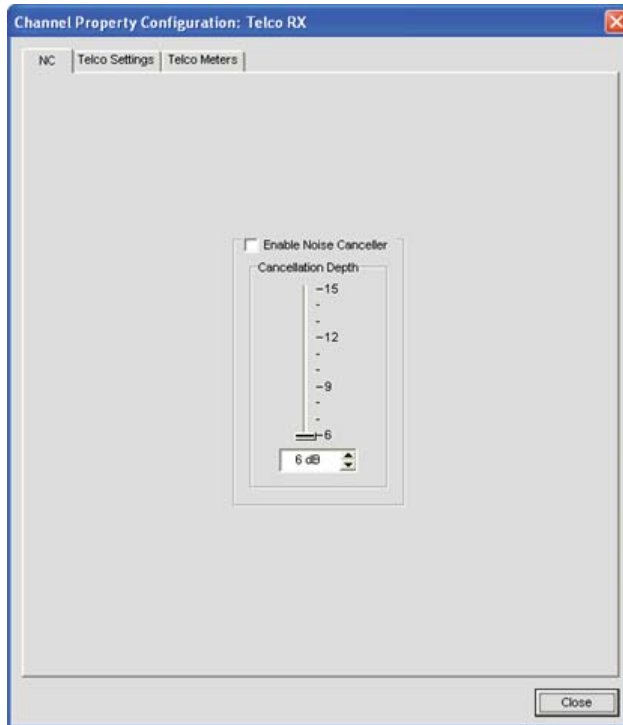


Rename the channel by entering a name in the **Label** entry field (optional).

Channel Configuration Buttons



The **Channel Configuration Buttons** enable you to configure settings for the telco rx channel. With the exception of the **Mute** button, which toggles muting, clicking a channel configuration button displays the **Channel Property Configuration** window as shown below.



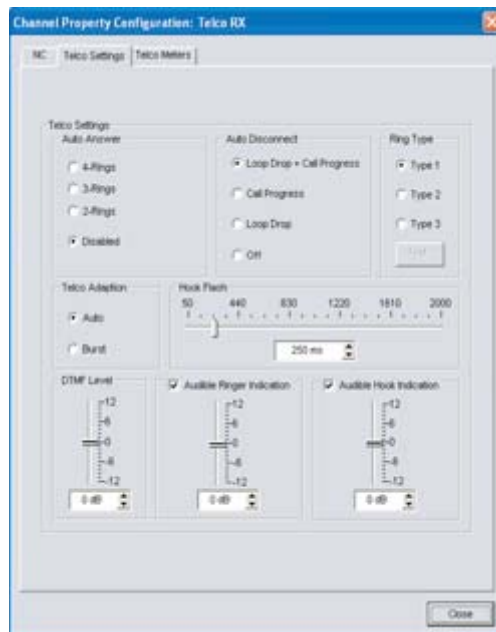
The window contains three tabs: **NC (Noise Cancellation)**, **Telco Settings**, and **Telco Meters**, which are described in the following sections.

NC (Noise Cancellation) Tab

Select the **Enable Noise Canceller** checkbox to enable NC for the channel. Adjust the **Cancellation Depth** slider to the dB setting which provides the best combination of low noise and maximum speech clarity. The attenuation depth can be set in 1dB increments from 6dB to 15dB. Default is 6dB. The default for NC is off.

You can use noise cancellation on all types of input channels. See **NC (Noise Cancellation)** for more information.

Telco Settings Tab



Settings available on the **Telco Settings Tab** include:

Auto Answer: Set the number of rings before the unit connects an incoming call (or disable the function). The default is Disabled.

Auto-Disconnect: Select the auto disconnect mode to control when the unit disconnects a connected call. Modes include **Loop Drop + Call Progress**, **Call Progress**, and **Loop Drop**, and **Off**. The default is Loop Drop + Call Progress.

Ring Type: Select from three different ring tones (**Type 1**, **Type 2**, **Type 3**). To test a particular tone, click **Test** after you have selected the tone.

Telco Adaptation: Some applications require the unit to adapt to line conditions using a white-noise burst (**Noise**) rather than automatically (**Auto**). The default is **Auto**.

Hook Flash: Sends a momentary interruption in the line seizure, allowing activation of options such as 3-way calling, call waiting, and call hold. This feature is dependent on the services offered by your telephone company. You can set the duration of the hook flash using the slider or the selector box. Range is 50ms to 2 seconds in 10ms steps. The default is 250ms.

DTMF Level: This feature allows you to adjust the DTMF tone level in relationship to the participant audio level in the room. The level can be adjusted in 1dB steps from a nominal level of 0dB to plus or minus 12dB in 1dB increments. The default is 0dB.

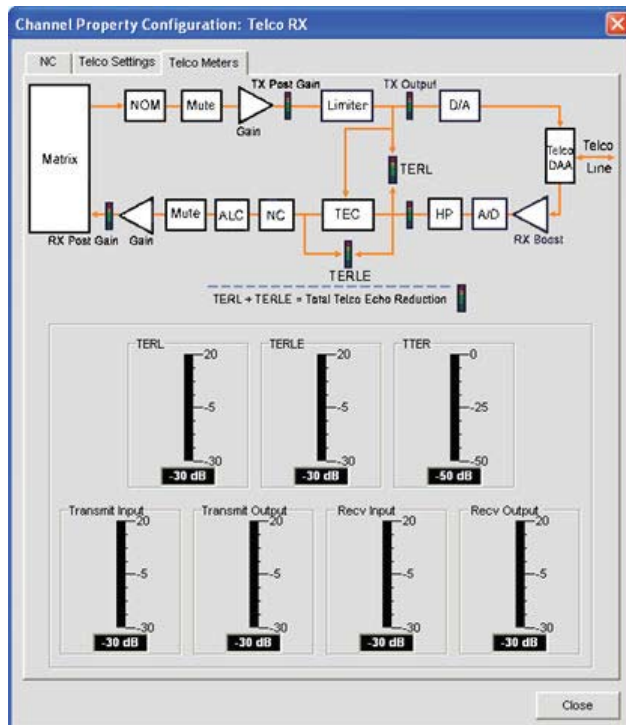
Audible Ring Indication: When this feature is enabled, an audible ring is heard from the receive channel. The level adjustment allows you to customize the level in relationship to the participant audio level in the room. The level can be adjusted in 1dB steps from a nominal level 0 (default) to plus or minus 12dB in 1dB increments. The default is 0dB.

Audible Hook Indication: When the unit goes off hook (connects) a beep is injected into the receive channel and transmit channel of the unit. When the unit goes on hook (disconnects), a series of two beeps is injected into the receive channel to indicate that the call has been dropped. This indicator can be turned on or off using the **Audible**

Hook Indication check box. The default is on. The level adjustment allows you to customize the level in relationship to the participant audio level in the room. The level can be adjusted using the slider or selector box from nominal level 0 to plus or minus 12dB in 1dB steps. The default is 0dB.

Telco Meters Tab

Displays a round-trip signal flow diagram for the selected telco rx input channel, as well as real-time level meters for the signal at each stage of processing. This tab has no configurable settings.



NOTE: When you click the Close button (bottom right corner of screen), or close the window manually, any changes you make in the tabs of the Channel Property Configuration: Telco RX screen are automatically saved.

Dialer Button

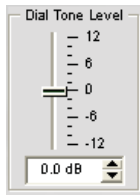


The **Dialer** button opens the telephone dialer, allowing you to place calls to establish a conference call with a remote location.



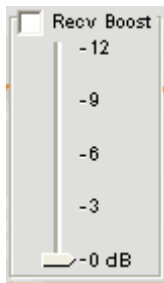
See **Dialer** for more information on using the dialer and its features.

Dial Tone Level Slider



The **Dial Tone Level** slider allows you to set dial tone gain using the slider or selector box. Default is zero. Range is -12dB to 12dB in 1dB increments.

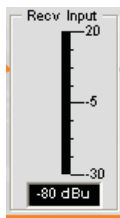
Recv Boost Slider



The **Receive Boost** slider allows you to set the gain for the incoming telco rx signal. This is typically used for low-level telephone lines, allowing the signal to be boosted to an acceptable level of performance. To use **Receive Boost**, check the **Recv Boost** check box, then move the slider to the desired gain settings.

Recv Boost adds up to 12dB of gain to the signal (adjustable in 3dB increments from 0dB to 12dB). The Default is Off.

Recv Input Meter

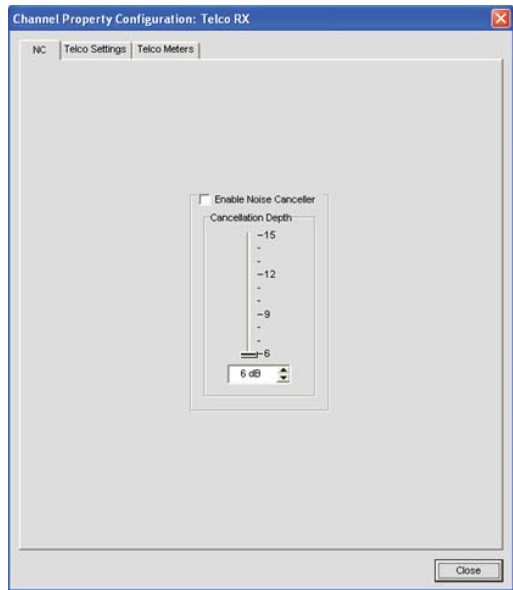


The **Receive Input** meter displays the dB level of the incoming telco signal prior to any post-telco signal processing.

NOTE: All meters in Console are peak-level meters.

NC Button

Clicking the **Noise Cancellation** button opens the **Channel Property Configuration: Telco RX** window with the **NC** tab selected, allowing you to configure noise cancellation settings.



To use noise cancellation, click **Enable Noise Canceller**, then adjust the **Cancellation Depth** to the setting which provides the best combination of low noise and maximum speech clarity for your installation. The attenuation depth can be set in 1dB increments from 6dB to 15dB. The default is 6dB. The noise canceller default is Off.

Clear Effect Button



To reduce bandwidth requirements, telephone lines limit audio bandwidth to a range of 300Hz-33kHz. ClearEffect enhances the incoming signal from a telephone line to emulate wideband audio by adding high and low frequencies to the audio signal. All output signals routed from an input channel with ClearEffect enabled are routed as wideband audio. Click the **ClearEffect** button to toggle this feature on and off. The default is On.

ALC Button



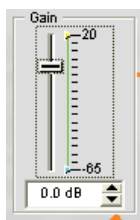
Clicking the **Automatic Level Control** button toggles ALC on and off. ALC provides auto-leveling for all conference call participants on the telco rx line, keeping soft and loud participants at a consistent level. The default is Off. See **AGC/ALC** for additional information.

Mute Button



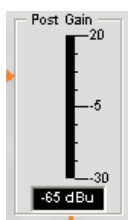
Clicking the **Mute** button toggles muting for the telco receive channel. The default is off.

Gain Slider



The **Gain** slider changes the gain for the telco receive channel from nominal 0. To change the value, use the slider or selector box. Range is from -65 to +20dB in .5dB increments. The default is 0dB.

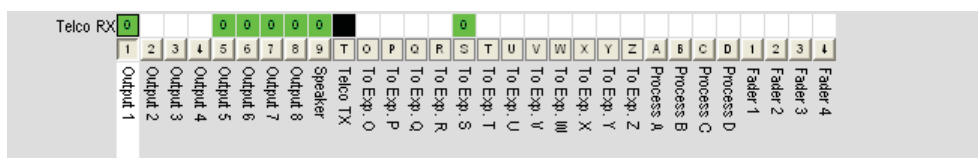
Post-Gain Meter



The **Post Gain** level meter displays the post-gain signal level in dB.

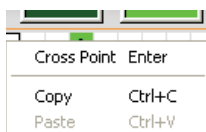
Channel Routing Matrtix

The channel routing matrix section of the **Channel View** screen shows the associated matrix row and audio routing configuration for the selected input channel (telco rx in this case). Clicking a cross point box selects it, clicking it a second time sets the cross point, as indicated by a green box. The dB level for set cross points is shown numerically in the box.

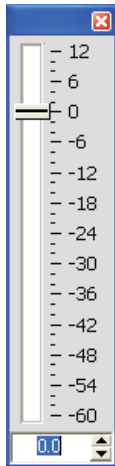


For **Telco RX** channels, **Outputs 5-8, Speaker**, and **To Exp. Bus S** are selected as cross points by default. You can click directly on any cross point box in the top row to a cross point (routing path), or leave it blank, as required for your installation.

To adjust cross-point gain/attenuation, right-click on a cross point box and select **Cross Point** from the pop-up menu.

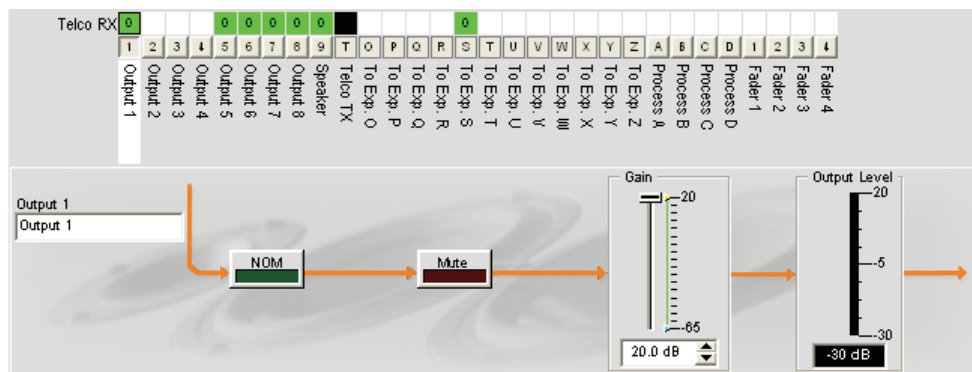


The **Cross Point Attenuation** slider appears. Move the slider or use the selector box to set the gain/attenuation level in dB. The range is from -60 to 12dB in .5dB increments. The default is 0dB.



NOTE: Your changes are automatically saved when you close the slider.

In the channel routing matrix, pressing the button underneath an **Output**, **Process**, or **Fader** cross-point box displays the signal flow diagram and configuration controls for that output channel as shown below.



This display is identical to that shown in **Channel View** when the output channel is selected in the **Tree View** pane. See **Output Settings** for more information.

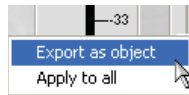
You can change the label (name) of the output channel in the **Output** entry box, toggle the **NOM** button to turn constant gain mode on or off, toggle the **Mute** button to mute or un-mute the channel, and use the **Gain** slider to set the gain level for the channel. The **Output Level** meter shows the level for the channel in real time.

NOTE: Changes to configuration settings made in the channel routing matrix apply globally to the output, processing, or fader channel. For example, changing the label (name) from "Output 1" to "Ceiling Speakers" changes the name of the output channel in the Tree View pane, and everywhere else the label appears in Console.

Creating Channel Objects

One of the most powerful features of the Console software is the ability to create **Audio Devices** and **Channel Objects**. After configuring the telco rx channel using the **Channel View** tab as described in this topic, you can save it into the **Database**, and use **Drag and Drop Configuration** to streamline configuration tasks for your Converge Pro installations.

To save a Telco Rx channel configuration, right click in the **Channel View** screen (anywhere above the channel routing matrix section of the screen). From the menu that appears, select **Export Object** as shown below.

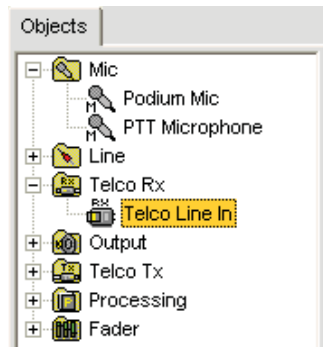


Enter an appropriate **Label** (name) in the entry field of **Export Object** dialog as shown below.



Click **Export** to save the configuration to the database, or **Cancel** to return to the Channel View screen

Console saves the object to the database and displays it in the **Object Tree** as shown below.



For more information on using audio devices and channel objects, see the following topics:

- **AV Devices**
- **Creating AV Devices**
- **Channel Objects**
- **Database Tab**
- **Drag & Drop Configuration**

Optimizing Input Gain Structure

Optimizing gain structure for input channels maximizes the signal-to-noise ratio for the channel and ensures optimal audio performance. When configuring the telco rx channel, ClearOne recommends that you follow the procedures outlined in the **Optimizing Gain Structure** topic.

For more information, refer to the *Table of Contents* for these related topics:

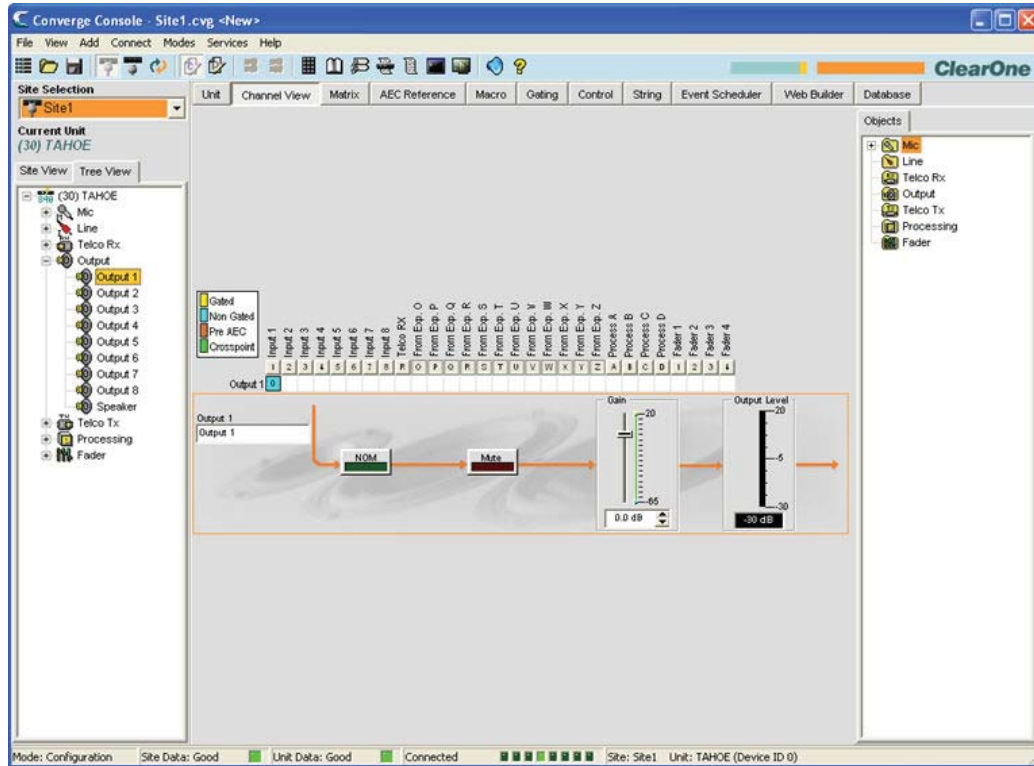
- **Channel View Tab Overview**
- **NC (Noise Cancellation)**
- **Gating (Channel View)**
- **Gating Tab (Gating Groups)**
- **AGC/ALC (Automatic Gain Control/Automatic Level Control)**
- **Label Editor**
- **Output Settings**
- **Telco Tx Settings (840T and TH20)**

OUTPUT SETTINGS

Output Settings enable you to customize output channel settings. All settings for a given output are available on the **Channel View** screen.

Accessing Output Settings

With the **Channel View** tab selected on the **Tab Bar**, select the desired output channel on the **Tree View** tab in the **Site Pane**.



The center pane of the screen displays a signal flow diagram, a real-time **Output Level Gain** meter, as well as a channel routing matrix that shows the audio routing configuration for the selected output channel.

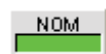
The following sections describe how to use output channel configuration controls.

Channel Label



Rename the channel by entering a name in the **Label** entry field (optional).

NOM (Number of Open Mics/Constant Level)



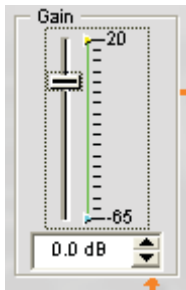
Maintains a constant output level by automatically adjusting gain levels based on the number of mics gated on and routed to the selected output channel. When using NOM over the expansion bus, only the first four audio channels (O, P, Q, and R) support passing NOM information. The default is on.

Mute Button



Clicking the **Mute** button toggles muting. The default is off.

Gain Slider

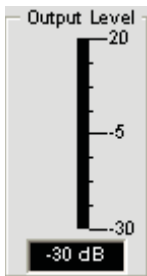


The **Gain slider** adjusts output gain level. Use the Gain slider to adjust output volume level. You can also enter the level directly in the 0.0dB box. If you select any level below -60dB, the signal will be muted. To change the value, use the slider or selector box. Range is from -65 to +20dB in .5dB increments. The default is 0dB.

Min/Max Limits

Use the yellow and green upper and lower limit arrows on the **Gain Scale** in the **Gain** section of the screen to set minimum and maximum gain level limits. These limits only apply when using relative gain commands; absolute gain commands can exceed the min and max limits. Min/Max limits apply to all serially connected control devices and prevent users from adjusting levels beyond the min/max levels.

Output Level Meter



Shows the signal level in dB when a signal is present. Range is from -30 to +20dB.

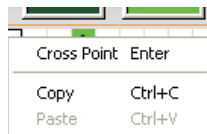
Channel Routing Matrix

The channel routing matrix on the **Channel View** screen shows the associated matrix row and audio routing configuration for the selected channel (Output 1 in this case). Clicking a cross point box selects it, clicking it a second time sets the cross point, as indicated by a green box. The dB level for set cross points is shown numerically in the box.

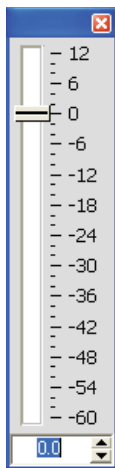
<div><div></div><div></div><div></div><div></div></div>	Input 1	Input 2	Input 3	Input 4	Input 5	Input 6	Input 7	Input 8	Telco RX	To Exp. O	To Exp. P	To Exp. Q	To Exp. R	To Exp. S	To Exp. T	To Exp. U	To Exp. V	To Exp. W	To Exp. X	To Exp. Y	To Exp. Z	Process A	Process B	Process C	Process D	Fader 1	Fader 2	Fader 3	Fader 4
	1	2	3	4	5	6	7	8	R	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	1	2	3	4
Output 1																													

You can click directly on any cross point box in the top row to set a parameter as cross point, or leave it blank, as required for your installation.

To adjust cross-point gain/attenuation, right-click on a cross point box and select **Cross Point** from the pop-up menu.

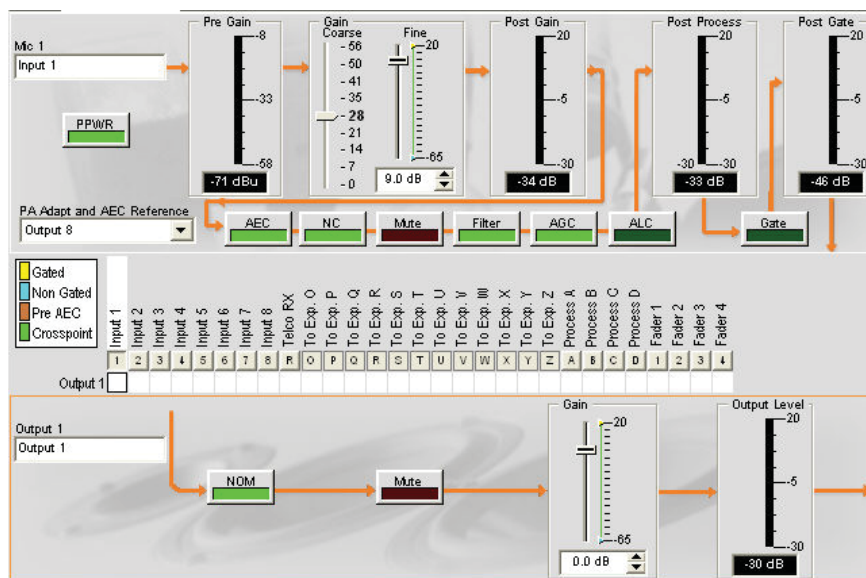


The **Cross Point Attenuation** slider appears. Move the slider or use the selector box to set the gain/attenuation level in dB. The range is from -60 to 12dB in .5dB increments. The default is 0dB.



NOTE: Your changes are automatically saved when you close the slider.

In the channel routing matrix, pressing the button above an **Input**, **Process**, or **Fader** cross-point box displays the signal flow diagram and configuration controls for that channel.



This display is identical to that shown in Channel View when the channel is selected in the Tree View pane. See [Mic Input Settings](#), [Line Input Settings](#), [Processing Settings](#), and [Fader Settings](#) for more information.

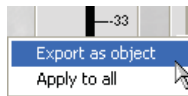
You can change the label (name) of the channel in the Output entry box, toggle the NOM button to turn constant gain mode on or off, toggle the Mute button to mute or un-mute the channel, and use the Gain slider to set the gain level for the channel. The Output Level meter shows the level for the channel in real time.

NOTE: Changes to channel configuration settings made in the channel routing matrix apply globally to that channel. For example, changing the label (name) from “Input 1” to “Ceiling Mic” changes the name of the input channel in the Tree View pane, and everywhere else the label appears in Console.

Creating Channel Objects

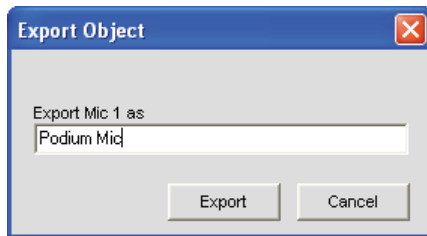
One of the most powerful features of the Console software is the ability to create **Audio Devices** and **Channel Objects**. After configuring an output using the **Channel View** tab as described in this topic, you can save it into the **Database**, and use **Drag and Drop Configuration** to streamline configuration tasks for your Converge Pro installations.

To save an input channel configuration, right click in the **Channel View** screen (anywhere above the channel routing matrix). From the menu that appears, select **Export Object** as shown below.



NOTE: You can apply the channel configurations for the current channel to all channels of the same type by selecting the Apply to all option.

Enter an appropriate **Label** (name) in the entry field of **Export Object** dialog as shown below.



Click **Export** to save the configuration to the database, or **Cancel** to return to the Channel View screen.

Console saves the object to the database and displays it in the **Object Tree** as shown below.



For more information on using audio devices and channel objects, see the following topics:

- **AV Devices**
- **Creating AV Devices**
- **Channel Objects**
- **Database Tab**
- **Drag & Drop Configuration**

Optimizing Output Gain Structure

Optimizing gain structure for output channels ensures optimal audio performance. When initially configuring an output channel, ClearOne recommends that you follow the procedures outlined in the **Optimizing Gain Structure** topic.

For additional information, refer to the Table of Contents for these related topics:

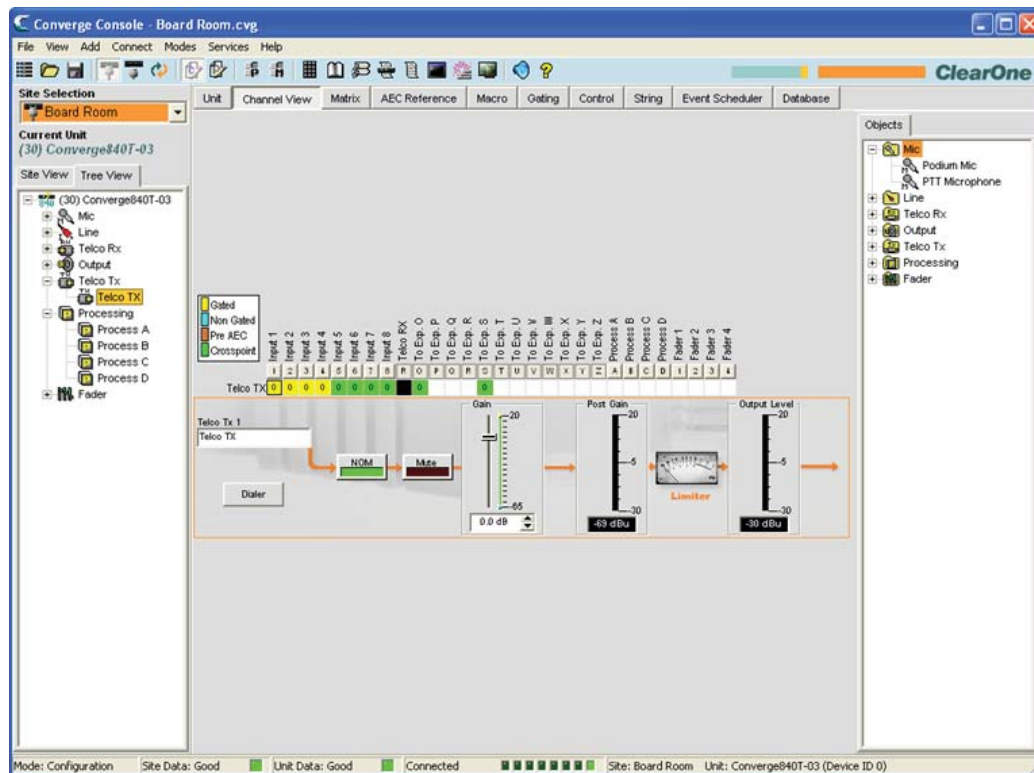
- **Channel View Tab Overview**
- **Gating (Channel View)**
- **Gating Tab (Gating Groups)**
- **Line Input Settings**
- **Mic Input Settings**
- **Processing Settings**
- **Fader Settings**
- **Telco Rx Settings (840T and TH20)**
- **Optimizing Gain Structure**

TELCO TX SETTINGS

Telco Tx Settings enable you to customize telephone transmit channel settings using the **Channel View** screen.

Accessing Telco Tx Settings

With the **Channel View** tab selected on the **Tab Bar**, select the **Telco Tx** channel on the **Tree View** tab in the **Site Pane**.



As shown above, the **Center Pane** displays a signal flow diagram for the telco tx channel, real-time peak-level meters, as well as a channel routing matrix that shows the audio routing configuration for the channel. Configuration settings for the telco tx channel are displayed as controls (buttons, sliders, etc.) which are located at the appropriate stage in the signal flow.

The following sections describe how to use these controls to configure telco transmit settings for your installation.

Channel Label

Telco Tx 1
Telco TX

Rename the channel by entering a name in the **Label** entry field (optional).

Dialer Button



The **Dialer** button opens the telephone dialer, allowing you to place calls to establish a conference call with a remote location.



See **Dialer** for more information on using the dialer and its features .

NOM (Number of Open Mics/Constant Level)



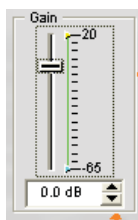
Maintains a constant output level by automatically adjusting gain levels based on the number of mics gated on and routed to the selected output channel. When using NOM over the expansion bus, only the first four audio channels (O, P, Q, and R) support passing NOM information. The default is on.

Mute Button



Clicking the **Mute** button toggles muting. The default is off.

Gain Slider

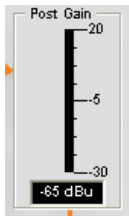


The **Gain** slider Adjusts output gain level. Use the Gain slider to adjust output volume level. You can also enter the level directly in the 0.0dB box. If you select any level below -60dB, the signal will be muted. To change the value, use the slider or selector box. Range is from -65 to +20dB in .5dB increments. The default is 0dB.

Min/Max Limits

Use the yellow and green upper and lower limit arrows on the **Gain Scale** in the **Gain** section of the screen to set minimum and maximum gain level limits. These limits only apply when using relative gain commands; absolute gain commands can exceed the min and max limits. Min/Max limits apply to all serially connected control devices and prevent users from adjusting levels beyond the min/max levels.

Post-Gain Meter



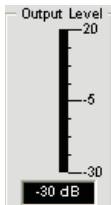
The **Post Gain** level meter displays the post-gain signal level in dB.

Limiter Meter



The **Limiter** limits the output level to the telco side to comply with FCC requirements.

Output Level Meter



Shows the signal level in dB when a signal is present. Range is from -30 to +20dB.

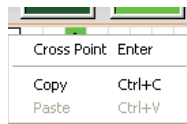
Channel Routing Matrix

The graphic below shows the Telco TX channel routing matrix.

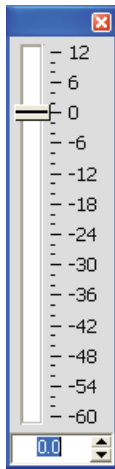


All inputs from **Exp. O**, and from **Exp. S** are selected as cross points and the first four inputs are gated by default. Clicking a cross point box selects it, clicking it a second time sets the cross point, as indicated by a green box. The dB level for set cross points is shown numerically in the box.

To adjust cross-point gain/attenuation, right-click on a cross point box and select **Cross Point** from the pop-up menu.



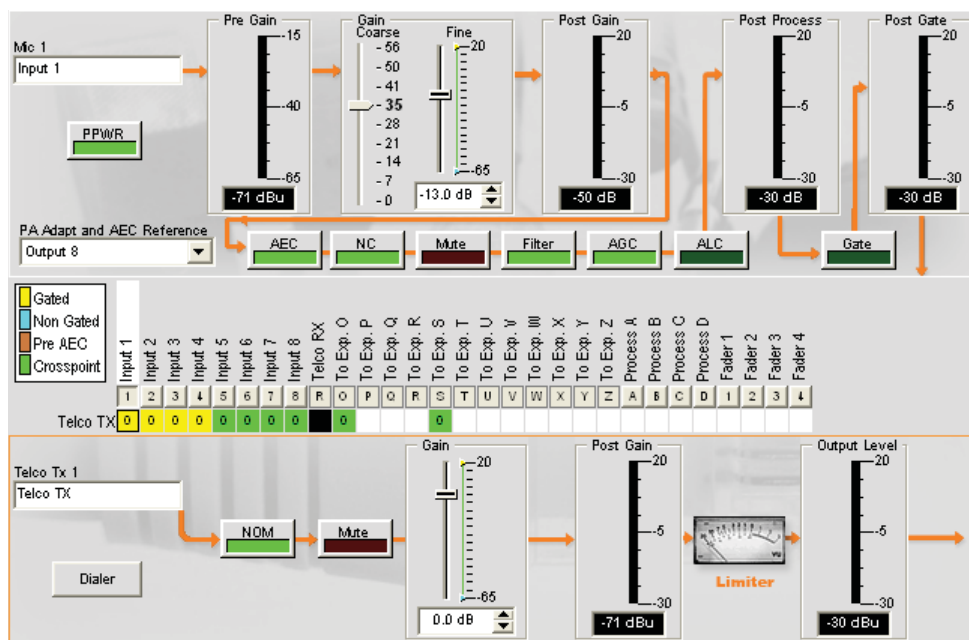
The **Cross Point Attenuation** slider appears. Move the slider or use the selector box to set the gain/attenuation level in dB. The range is from -60 to 12dB in .5dB increments. The default is 0dB.



NOTE: Your changes are automatically saved when you close the slider.

Channel Routing Matrix: Inputs, Processing, Faders

In the channel routing matrix section, pressing the button above an **Input**, **Process**, or **Fader** cross-point box displays the signal flow diagram and configuration controls for the channel as shown below.



This display is identical to that shown in **Channel View** when the channel is selected in the **Tree View** pane. See **Mic Input Settings**, **Line Input Settings**, **Processing Settings**, and **Fader Settings** for more information.

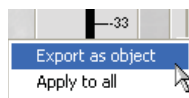
You can change the label (name) of the channel in the **Telco Tx** entry box, toggle the **NOM** button to turn constant gain mode on or off, toggle the **Mute** button to mute or un-mute the channel, and use the **Gain** slider to set the gain level for the channel. The **Output Level** meter shows the level for the channel in real time.

NOTE: Changes to channel configuration settings made in the channel routing matrix apply globally to that channel. For example, changing the label (name) from “Input 1” to “Podium Mic” in the Mic 1 entry box changes the name of the channel in the Tree View pane, and everywhere else the label appears in Console.

Creating Channel Objects

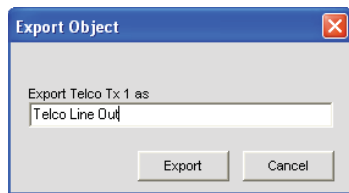
One of the most powerful features of the Console software is the ability to create **Channel Objects**. After configuring an output using the **Channel View** tab as described in this topic, you can save it into the **Database**, and use **Drag and Drop Configuration** to streamline configuration tasks for your Converge Pro installations.

To save an input channel configuration, right click in the **Channel View** screen (anywhere above the channel routing matrix). From the menu that appears, select **Export Object** as shown below.



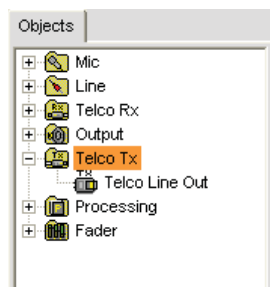
NOTE: You can apply the channel configurations for the current channel to all channels of the same type by selecting the **Apply to all** option.

Enter an appropriate **Label** (name) in the entry field of **Export Object** dialog as shown below.



Click **Export** to save the configuration to the database, or **Cancel** to return to the Channel View screen.

Console saves the object to the database and displays it in the **Object Tree** as shown below.



For more information on using audio devices and channel objects, see the following topics:

- **AV Devices**
- **Creating AV Devices**
- **Channel Objects**
- **Database Tab**
- **Drag & Drop Configuration**

Optimizing Output Gain Structure

Optimizing gain structure for output channels ensures optimal audio performance. When initially configuring output channels, ClearOne recommends that you follow the procedures outlined in the **Optimizing Gain Structure** topic.

For more information on using AV devices and objects, refer to the *Table of Contents* for these related topics:

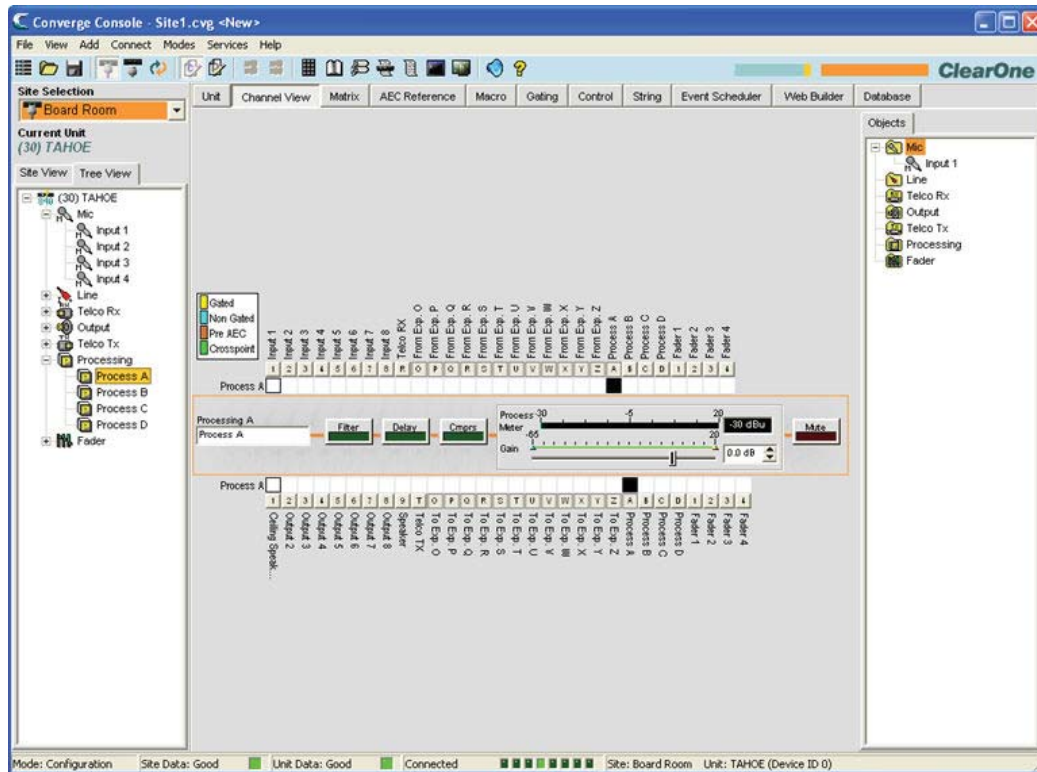
- **Channel View Tab Overview**
- **Gating (Channel View)**
- **Gating Tab (Gating Groups)**
- **Line Input Settings**
- **Mic Input Settings**
- **Processing Settings**
- **Fader Settings**
- **Telco Rx Settings (840T and TH20)**
- **Optimizing Gain Structure**

PROCESSING SETTINGS

Processing Settings enable you to configure Filters, delay, compression, and gain to create precise audio configurations for any venue. There are four processing blocks available for the 840T and eight for the 880 and 8I (A-D for 840T, A-H for 880 and 8I).

Accessing Processing Settings

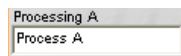
With the **Channel View** tab selected on the **Tab Bar**, select the desired processing block on the **Tree View** tab in the **Site Pane**.



The Center Pane displays a signal processing diagram, meters, and configuration controls for selected processing block as shown above.

The meters and configuration controls for processing blocks are explained in the following sections.

Channel Label

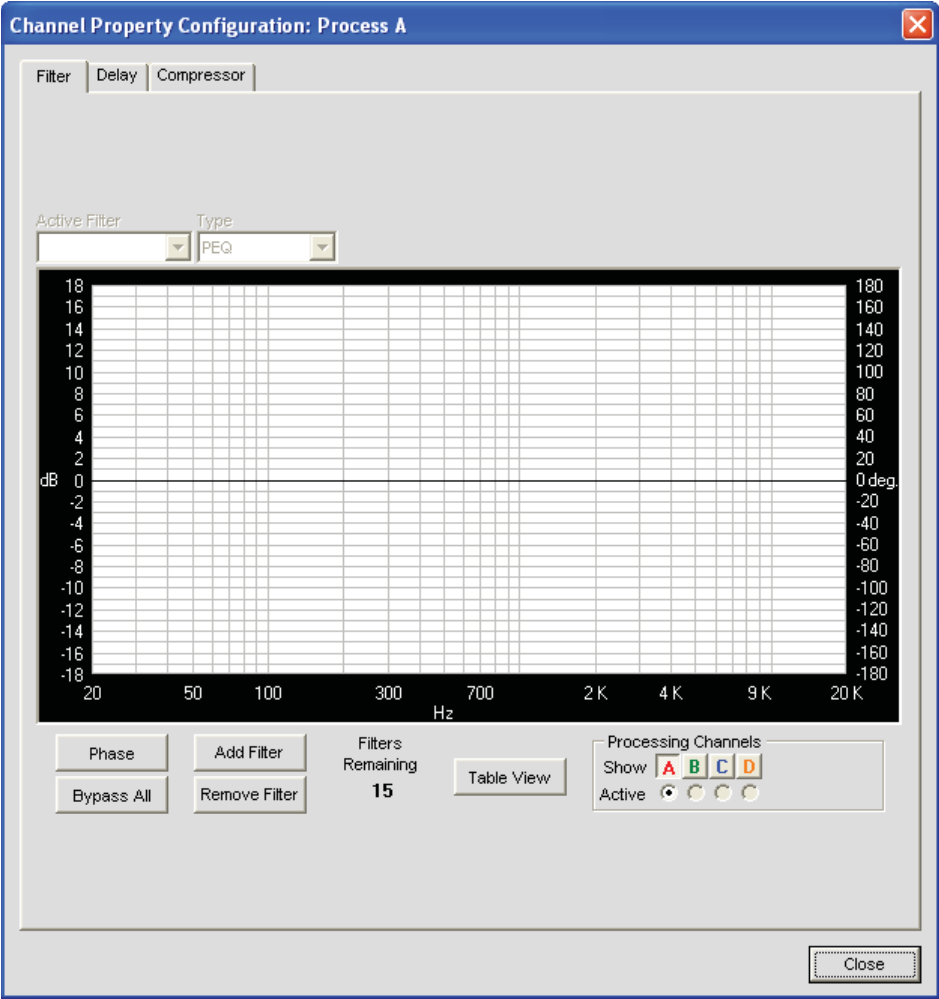


Rename the channel by entering a name in the Label entry field (optional).

Filter Button



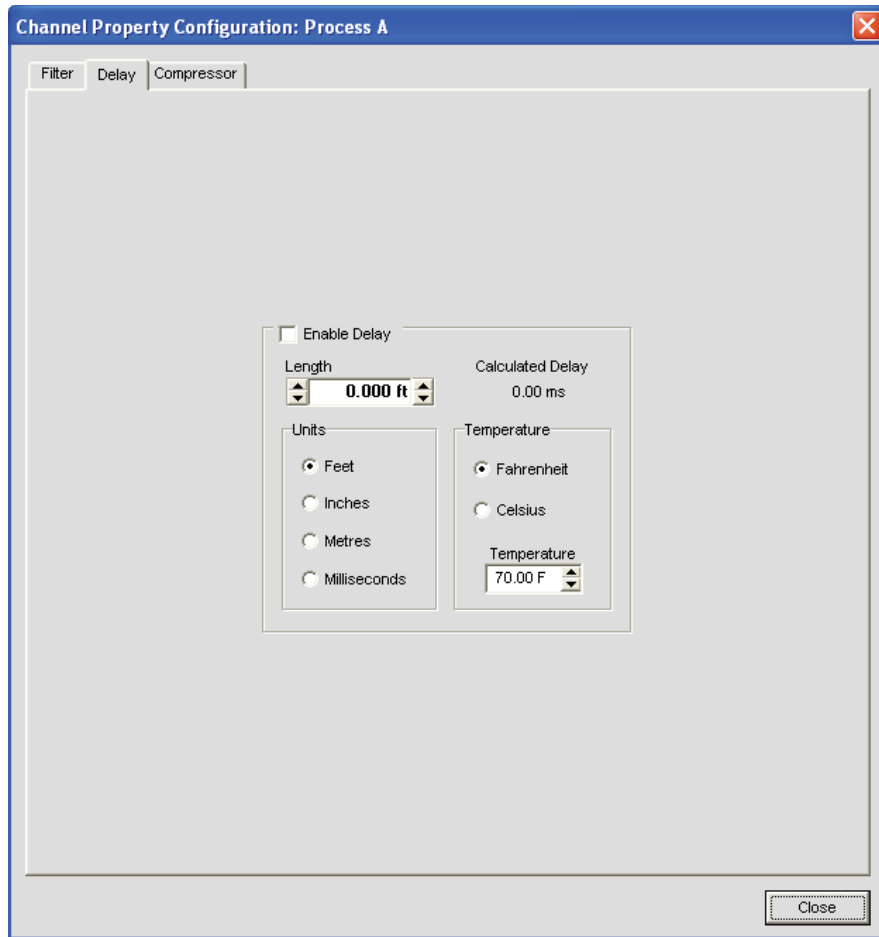
Pressing the **Filter** button brings up the **Channel Property Configuration** window with the **Filter Tab** selected as shown below. For more information on using filters, see **Filters**.



Delay Button



Pressing the **Delay** button brings up the **Channel Property Configuration** window with the **Delay Tab** selected as shown below.



Introducing an appropriate amount of delay to the forward-mounted driver(s) re-establishes the acoustical alignment necessary for proper sound imaging in a room. The same principle of introducing delay applies to separate speaker enclosures located various distances from the listening area.

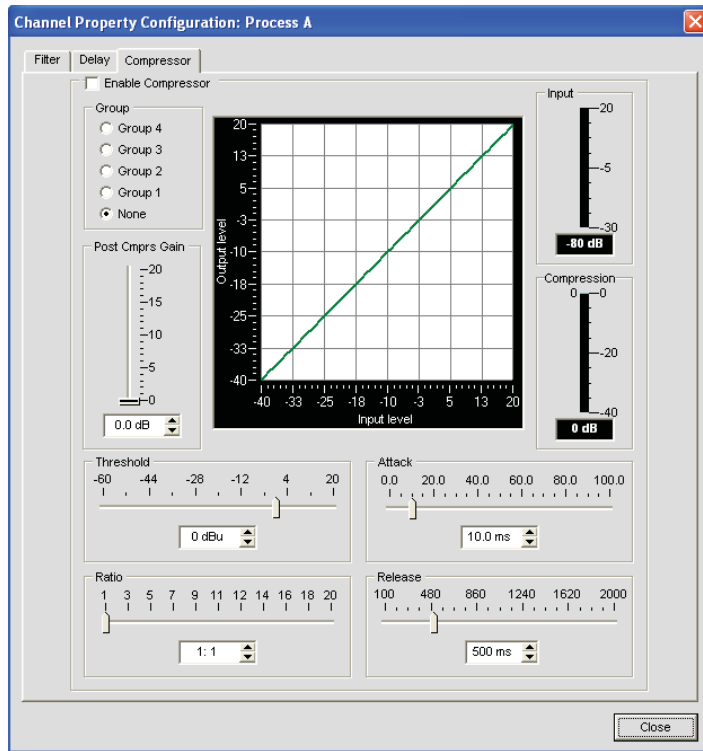
Other types of delay to consider when establishing delay parameters are delays which occur naturally as a result of processing within the Converge Pro unit. Propagation delay is an example. This delay is caused by operations such as the conversion of the signal between analog and digital formats.

Select the **Enable Delay** checkbox to enable it. Calibrate the amount of delay using the **Length** and **Temperature** configuration controls. **Length** is defined as the distance between the source and audience. The **Calculated Delay** reading reflects any changes you make in the **Distance** and **Temperature** fields.

Click **Close** to save changes and return to the **Process/Channel View** window.

Cmprs (Compression) Button

Pressing the **Cmprs** button opens the **Channel Property Configuration** window with the **Compressor** tab selected as shown below.



Select the **Enable Compressor** checkbox to activate the compressor.

With the compressor you can change the gain transfer characteristics of the signal path and control the dynamics of a signal. When the signal exceeds the **Threshold** level, gain reduction occurs at the rate specified by the reduction **Ratio**. The **Attack** time determines how aggressively the compressor reacts to increases in level. The **Release** time controls how aggressively the compressor reacts to reductions in level.

Compressors and compressor groups can be established only for the Converge Pro unit being configured. They cannot be configured for use across multiple units.

Group

Use the **Group** radio buttons to assign this compressor to a compressor group. The default is None. When you assign a compressor to a compressor group—such as a group of three configured for bass, midrange, and treble—the compressors will monitor each other. When one compressor channel compresses, all compressors in the group compress together. When configured properly, this results in a smooth audio response throughout the frequency range, with no bass, midrange, or treble dropouts. A given compressor group must be configured for a single Converge Pro unit; a group cannot use compressors from multiple units.

Post Compressor Gain

Adjust the compressor gain with the slider or by using the **Up/Down** arrow buttons. The graph reflects the input/output decibel levels with the gain setting you select.

Threshold

Determines the RMS level at which the compressor begins to operate. The range is from -30 to +20dBu. The default is 0dBu.

Ratio

Changes the rate of compression applied to the input signal as the signal exceeds the threshold level. The range is 1:1 to 1:20dB. The default is 1:1.

Attack

Determines how quickly compression is enabled. It is calibrated in milliseconds. The range is 0 to 100ms in .5ms steps. Default is 10ms.

Release

Determines how quickly compression is disabled. The range is 100ms to 2 seconds, in 5ms increments. Default is 500ms.

Input Meter

Shows the level of the signal as it enters the compressor.

Compression Meter

Shows the instantaneous compression value at a given time.

Gain Slider & Process Meter



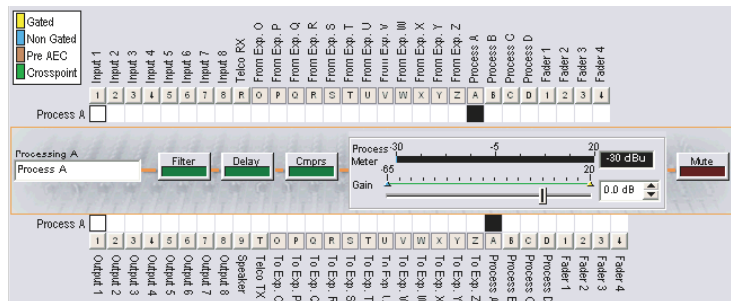
Use the **Gain Slider** to establish the gain level for this processing channel. Range is -65 and 20dB. The **Process Meter** shows the signal level when a signal is present.

Min/Max Limits

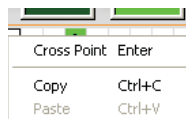
Use the yellow and green upper and lower limit arrows on the **Gain Scale** to set minimum and maximum gain level limits. These limits only apply when using relative gain commands; absolute gain commands can exceed the min and max limits. Min/Max limits apply to all serially connected control devices and prevent users from adjusting levels beyond the min/max levels, provided relative gain commands are used.

Channel Routing Matrix

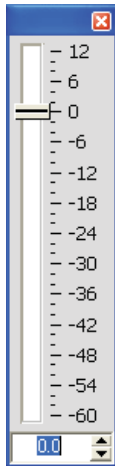
The channel routing section of the **Channel View** screen shows the associated **Matrix** row and audio routing configuration for the selected channel (Process A in this case). Clicking a cross point box selects it, clicking it a second time sets the cross point, as indicated by a green box. The dB level for set cross points is shown numerically in the box.



You can click directly on any cross point box to set a cross point, or leave it blank, as required for your installation. To adjust cross-point gain/attenuation, right-click on a cross point box and select **Cross Point** from the pop-up menu.



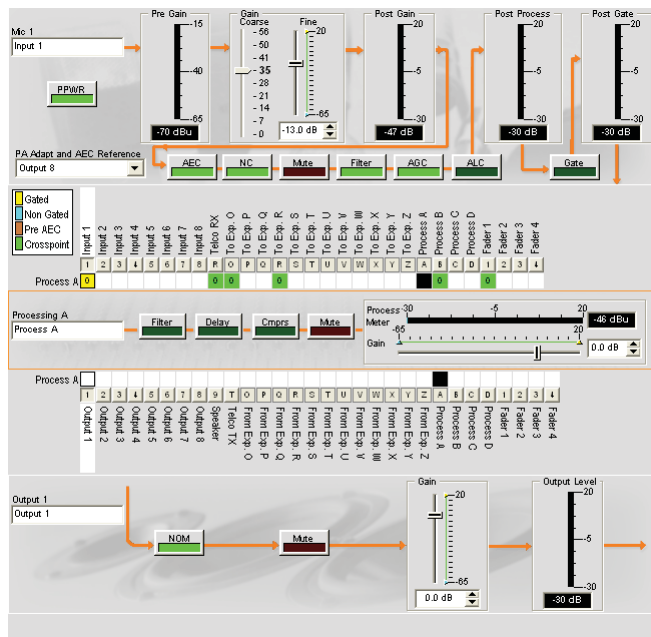
The **Cross Point Attenuation** slider appears. Move the slider or use the selector box to set the gain/attenuation level in dB. The range is from -60 to 12dB in .5dB increments. The default is 0dB.



NOTE: Your changes are automatically saved when you close the slider.

Expanded Channel Routing Matrix

In the channel routing matrix, pressing the button above or below the cross-point box for a channel displays the signal flow diagram and configuration controls for that channel as shown below.



This display is identical to that shown in **Channel View** when the channel is selected in the **Tree View** pane. See **Line Input Settings**, **Mic Input Settings**, **Telco Rx Settings (840T and TH20)**, **Telco Tx Settings (840T and TH20)**, and **Fader Settings** for more information.

You can change the label (name) of the channel in the label entry box. You can also change channel configuration settings. For example, for an output channel you can toggle the NOM button to turn constant gain mode on or off, toggle the Mute button, and use the Gain slider to set the gain level for the channel.

Channel Objects

To streamline site setup tasks, you can save channel configurations as **Channel Objects** into the Converge Pro **Database**. For more information, see **Creating Channel Objects**.

For more information on using AV devices and objects, refer to the *Table of Contents* for these related topics:

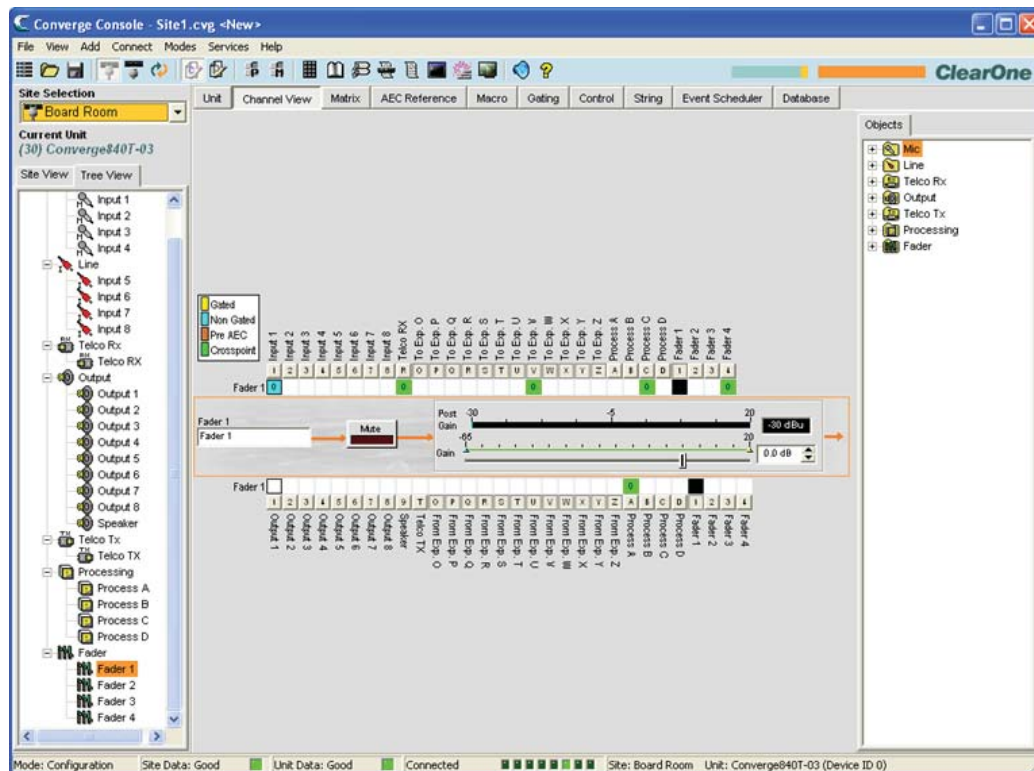
- **Channel View Tab Overview**
- **Filters**
- **Line Input Settings**
- **Mic Input Settings**
- **Processing Settings**
- **Fader Settings**
- **Telco Rx Settings (840T and TH20)**
- **Telco Tx Settings (840T and TH20)**
- **Drag & Drop Configuration**

FADER SETTINGS

Fader Settings allow you to set configuration parameters for fader channels using the **Channel View** screen. Fader channels are internal sub-bus channels similar to **Processing Channels** that provide additional sub-bus mixes that control volumes within a site.

Accessing Fader Settings

With the **Channel View** tab selected on the **Tab Bar**, select the desired processing block on the **Tree View** tab in the **Site Pane**.



As shown above, the **Center Pane** displays the configuration controls and gating for the selected Fader channel. Fader configuration controls are described in the following sections.

Channel Label



Rename the channel by entering a name in the **Label** entry field (optional).

Mute Button



Clicking the **Mute** button toggles muting. The default is off.

Gain Slider & Post Gain Meter



Adjusts output gain level. Use the **Gain** slider to adjust output volume level. You can also enter the level directly in the 0.0dB box. The **Post Gain** meter reflects the post-gain level of the signal in dB.

Min/Max Limits

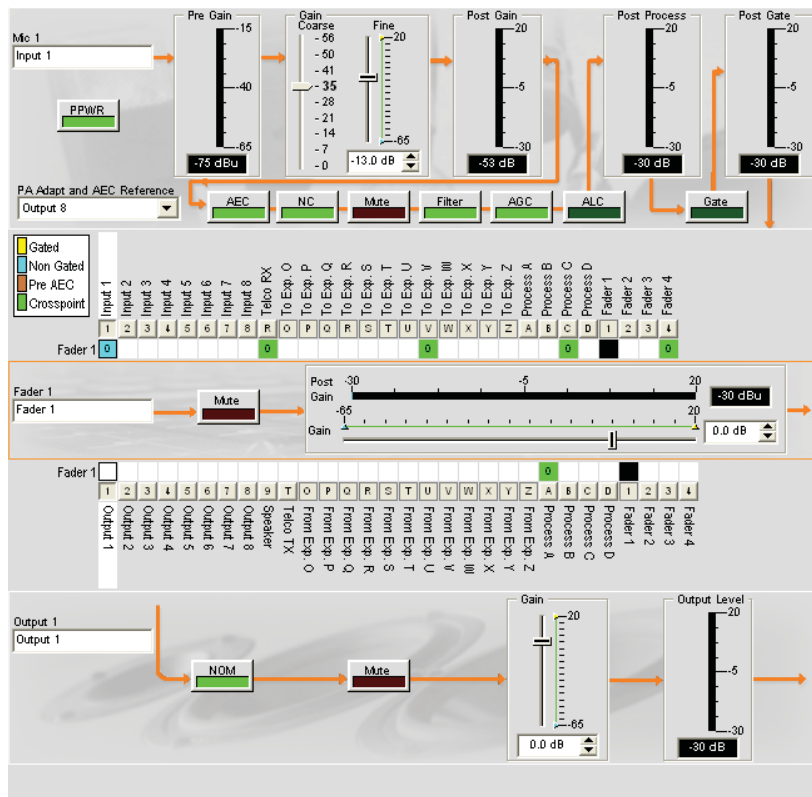
Use the yellow and green upper and lower limit arrows on the **Gain** scale to create minimum and maximum gain level limits. These limits only apply when using relative gain commands; absolute gain commands can exceed the min and max limits. **Min/Max** limits apply to all serially connected control devices and prevent users from adjusting levels beyond the min/max levels.

Channel Routing Matrix: Faders

The channel routing matrix shows the associated **Matrix** row and audio routing configuration for the selected channel (Fader 1 in this case). Clicking a cross point box selects it, clicking it a second time sets the cross point, as indicated by a green box. The dB level for set cross points is shown numerically in the box

Fader 1	1	2	3	4	5	6	7	8	9	T	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J
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Expanded Channel Routing Matrix



This display is identical to that shown in **Channel View** when the channel is selected in the **Tree View** pane. See **Line Input Settings**, **Mic Input Settings**, **Telco Rx Settings (840T and TH20)**, **Telco Tx Settings (840T and TH20)**, and **Processing Settings** for more information.

You can change the label (name) of the channel in the label entry box. You can also change channel configuration settings. For example, for an output channel you can toggle the **NOM** button to turn constant gain mode on or off, toggle the **Mute** button, and use the **Gain** slider to set the gain level for the channel.

NOTE: Changes to channel configuration settings made in the channel routing matrix apply globally to that channel. For example, changing the label (name) from "Input 1" to "Podium Mic" in the Mic 1 entry box changes the name of the channel in the Tree View pane, and everywhere else the label appears in Console.

Channel Objects

To streamline site setup tasks, you can save channel configurations as **Channel Objects** into the Converge Pro **Database**. For more information, see **Creating Channel Objects**.

For more information on using AV devices and objects, refer to the *Table of Contents* for these related topics:

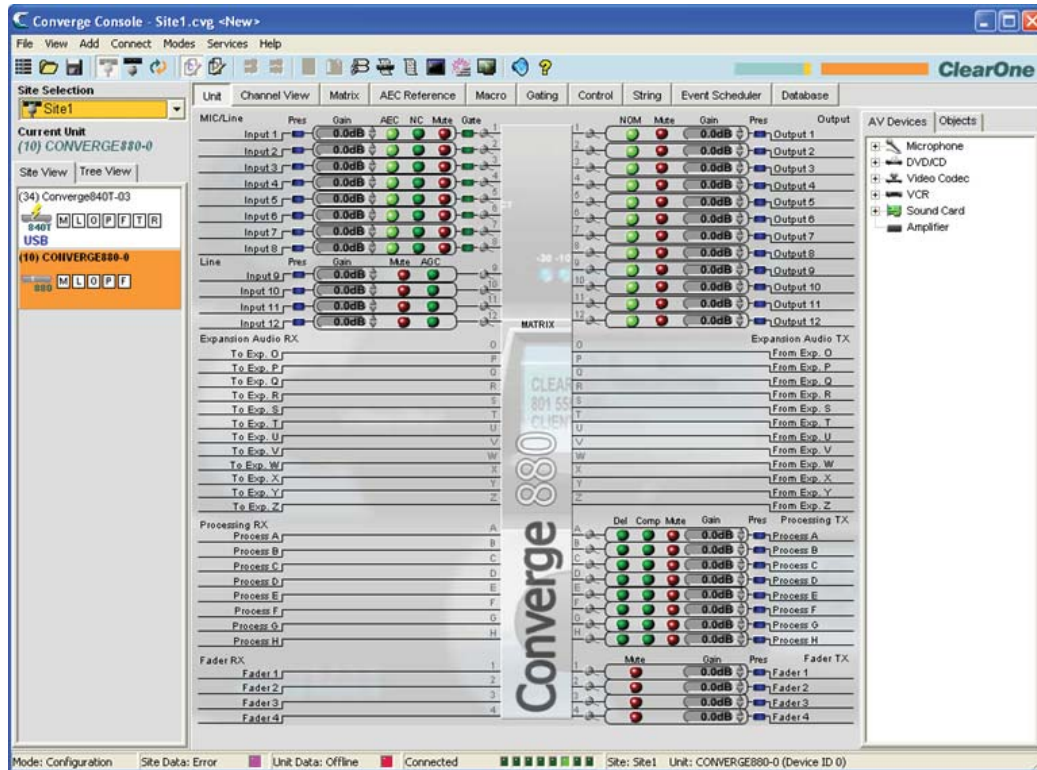
- **Channel View Tab Overview**
- **Line Input Settings**
- **Mic Input Settings**
- **Telco Rx Settings (840T and TH20)**
- **Output Settings**
- **Telco Tx Settings (840T and TH20)**
- **Filters**
- **Processing Settings**
- **Matrix Tab**
- **Drag & Drop Configuration**

UNIT TAB

The **Unit Tab** shows a detailed block diagram for the Converge Pro unit selected in the **Site Pane**. The diagram shows the path of the audio signal, based on the current unit configuration, and provides a graphical explanation of each stage of audio processing.

Accessing the Unit Tab

Console automatically starts in **Configuration Mode** with the Unit tab displayed as shown below. To switch to the Unit tab from any other tab, click the **Unit** tab on the **Tab Bar**.



NOTE: The **Unit** tab shown above is for an 840T with the **Tree View** tab selected in the **Site Pane**. All Converge units that are connected and belong to the site will also appear in the Tree View tab. The Unit tab display for other Converge Pro unit types will vary from that shown, depending on the number of inputs, outputs, telco connections, etc. for that model type.

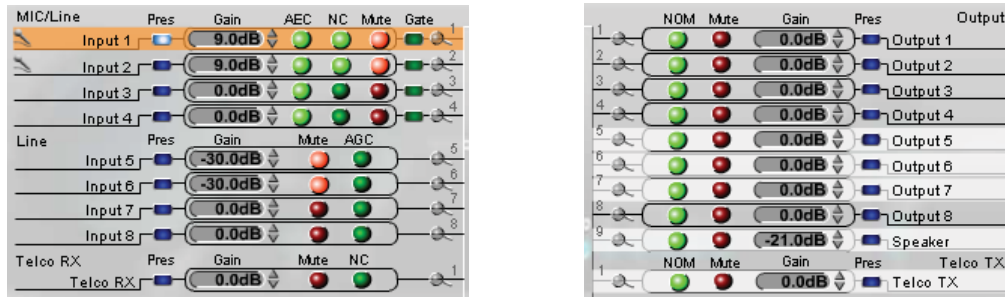
Unit Tab Functionality

The graphical elements shown in the block diagram of the Unit tab provide shortcuts to the basic configuration settings for each channel type. For full configuration control of a channel, see the **Channel View** tab.

For all channels in the Unit tab display, the blue **Pres (Audio Presence)** LEDs illuminate to indicate the presence of audio on the channel. For **Mic Input Channels**, the green **Gate LEDs** illuminate to indicate that the Mic is gated on.

The following sections describe the configuration setting shortcuts available in the Unit tab.

Input Channel Settings

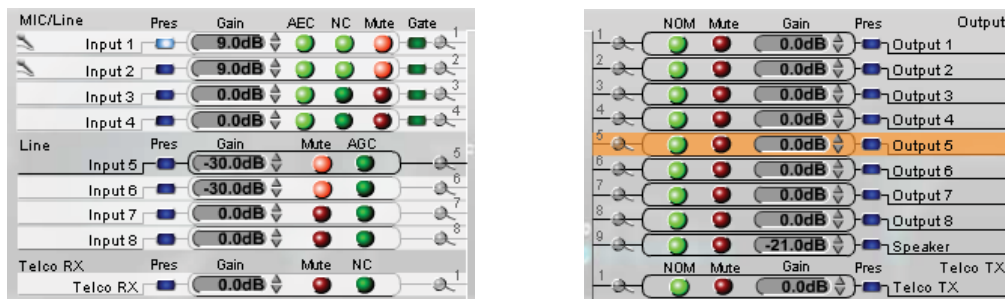


Pointing to an Input channel on the LEFT side of the screen highlights it in orange as shown above. Clicking the channel selects it, which enables setting changes and shows the Output channel routing (white highlights) in the Output channel section on the RIGHT side of the screen as shown above.

Set the desired Gain settings for the Input channel using the **Gain Arrows** to the right of the **Gain Display**. Toggle **AEC (Auto Echo Cancellation)**, **NC (Noise Cancellation)**, and **Mute** on and off by clicking the associated **LED Buttons**.

To access the **Channel View** and full set of configuration settings for the channel, click on the **Magnifying Glass** icon for located next to the Input channel designator (number).

Output Channel Settings

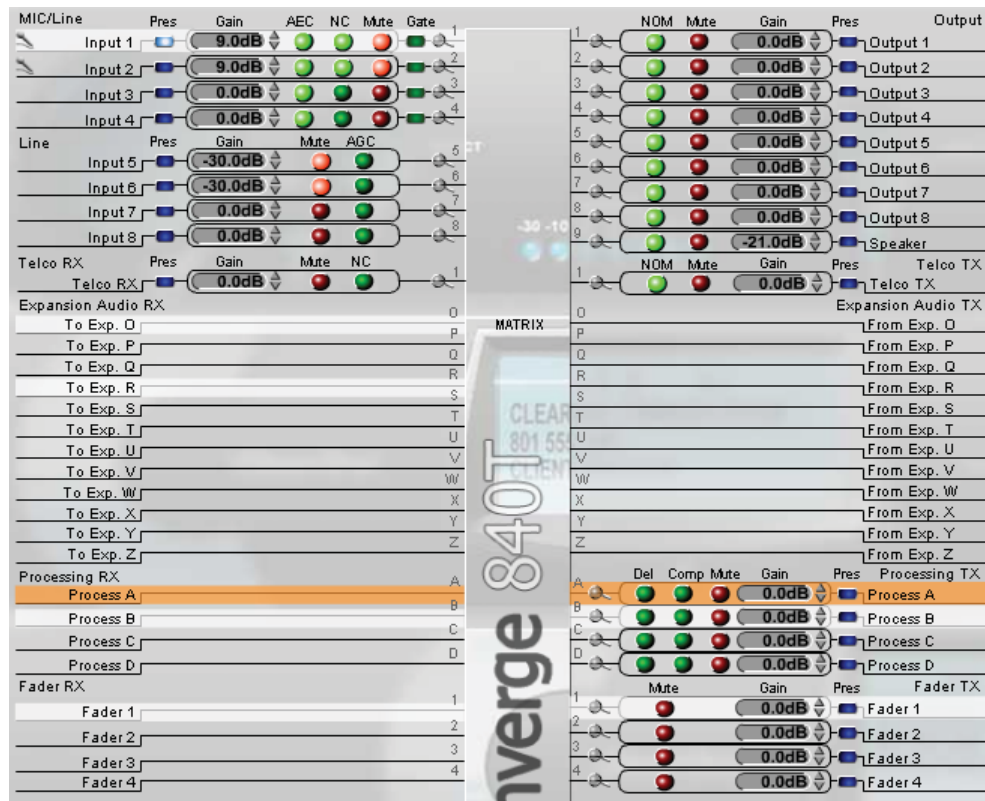


Pointing to an Output channel on the RIGHT side of the screen highlights it in orange as shown above. Clicking the channel selects it, which enables setting changes and shows the Input channel routing (white highlights) in the Input channel section on the LEFT side of the screen as shown above.

Set the desired Gain settings for the Output channel using the **Gain Arrows** to the right of the **Gain Display**. Toggle **NOM (Number of Open Mics/Constant Level)**, and **Mute** on and off by clicking the associated **LED Buttons**.

To access the **Channel View** and full set of configuration settings for the channel, click on the **Magnifying Glass** icon for located next to the Output channel designator (number).

Processing Channel Settings

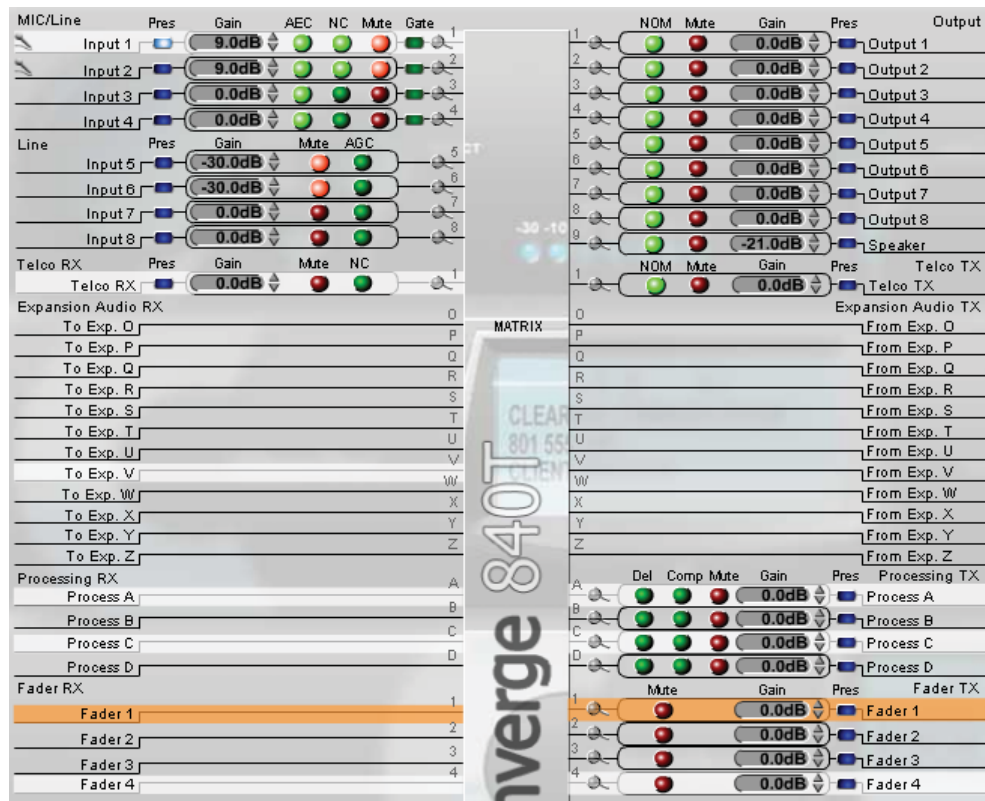


Pointing to a Processing channel in the **Matrix** section of the screen highlights it in orange. Clicking the channel selects it, which enables setting changes and shows the **Input**, **Output**, **Processing**, **Expansion**, and **Fader** channel routing (white highlights) for the selected Processing channel as shown above.

Set the desired Gain settings for the Processing channel using the **Gain Arrows** to the right of the **Gain Display**. Toggle **Del (Delay)**, **Comp (Compression)**, and **Mute** on and off by clicking the associated **LED Buttons**.

To access the **Channel View** and full set of configuration settings for the channel, click on the **Magnifying Glass** icon for located next to the Processing channel designator (letter).

Fader Channel Settings

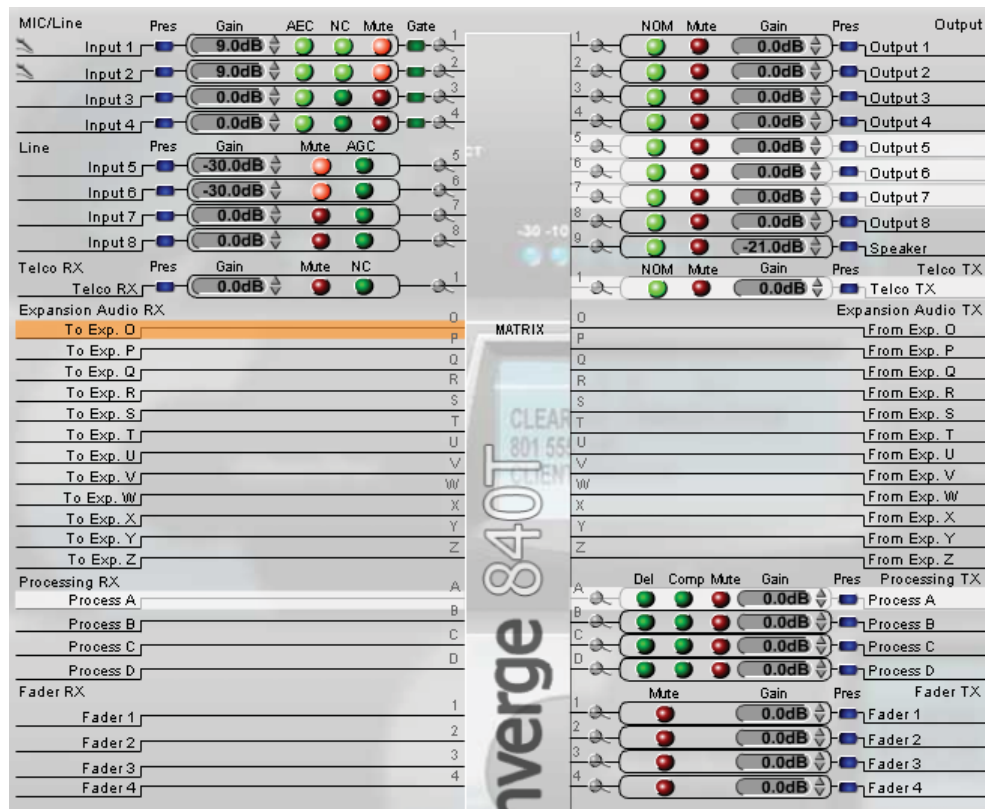


Pointing to a Fader channel in the **Matrix** section of the screen highlights it in orange. Clicking the channel selects it, which enables setting changes and shows the **Input, Output, Processing, Expansion, and Fader** channel routing (white highlights) for the selected Fader channel as shown above.

Set the desired Gain settings for the Processing channel using the **Gain Arrows** to the right of the **Gain Display**. Toggle **Mute** on and off by clicking the associated **Mute LED Button**.

To access the **Channel View** and full set of configuration settings for the channel, click on the **Magnifying Glass** icon for located next to the Fader channel designator (number).

Expansion Audio RX and TX



Pointing to an Expansion RX or TX channel in the **Matrix** section of the screen highlights it in orange. Clicking the channel selects it and shows the **Input** (TX channels only), **Output** (RX channels only), **Processing**, **Expansion**, and **Fader** channel routing (white highlights) for the selected channel as shown above.

For more information on using AV devices and objects, refer to the *Table of Contents* for these related topics:

- **AEC (Auto Echo Cancellation)**
- **NC (Noise Cancellation)**
- **Configuration Mode**
- **Channel View Tab**
- **Matrix Tab**
- **Processing Settings**
- **Fader Settings**

MATRIX TAB

The **Matrix Tab** is used to route audio to one or more destinations (outputs, expansion bus, or processing) and to create cross-points between channels.

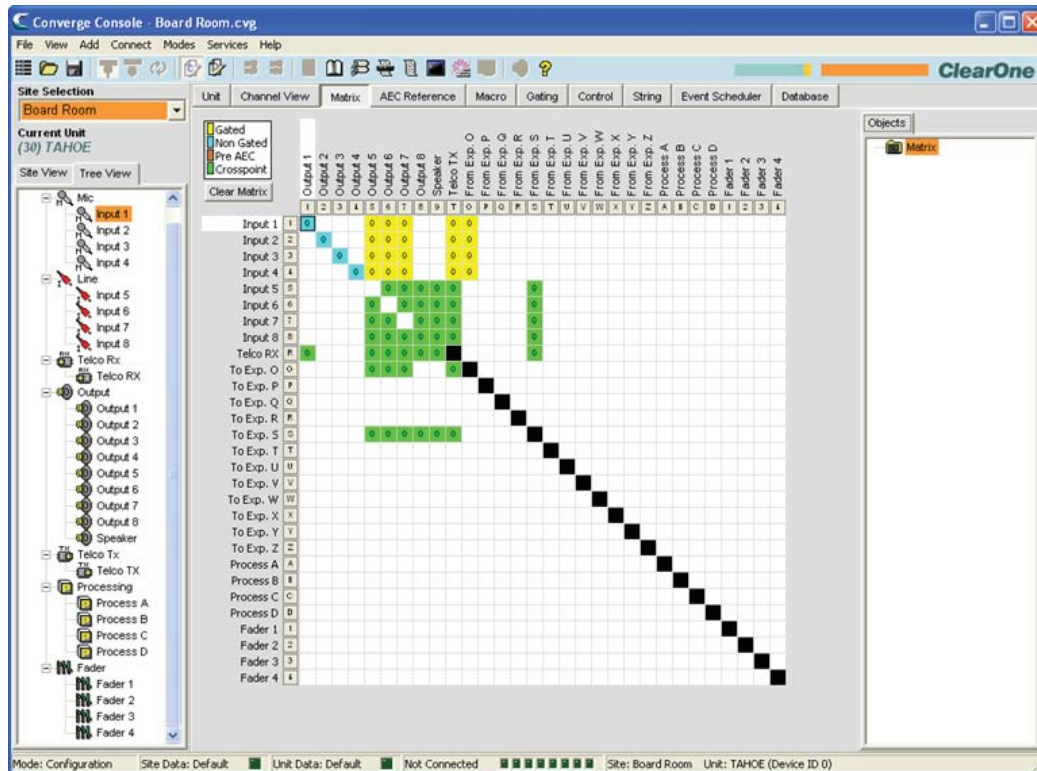
Any number of input-to-output connections can be made in the matrix, with level control at each cross point. Any input or combination of inputs can be routed to any output or combination of outputs. The channels available in routing matrix for each Converge Pro model are summarized below:

- **Converge Pro 840T:** 25 inputs x 26 outputs
- **Converge Pro 880:** 36 inputs x 36 outputs
- **Converge Pro 8i:** 36 inputs x 28 outputs
- **Converge Pro TH20:** 15 inputs x 15 outputs

For more information on connecting input and output devices, see Controls and Connections.

Accessing the Matrix

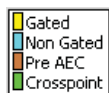
To access the matrix, select the **Matrix Tab** from the **Tab Bar** in Console.



The matrix appears with the current routing configuration displayed for the channel selected in the **Tree View** tab of the **Site Pane**.

The functionality of the matrix screen is described in the following sections.

Routing Legend



Shows the status of cross-points using colored cells that mark the intersection or cross point of the routing from

input to output. The color of the cross point cell identifies the input type:

- **Yellow** = gated mic input
- **Blue** = non-gated mic input
- **Brown** = pre-AEC
- **Green** = all other inputs

NOTE: The current level (in dB) is shown in cross point cells.

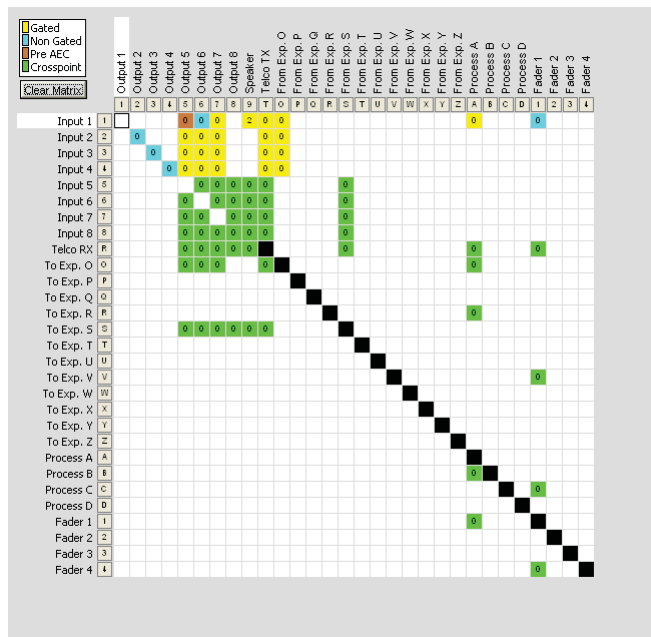
Black cells are restricted routing paths which prevent **Telco**, **E-Bus**, **Processing**, and **Fader** channels from being routed back to themselves.

Clear Matrix Button

Clear Matrix

Press the **Clear Matrix** button to clear ALL current matrix settings and restore the default matrix configuration. A **Confirm** dialog appears asking you to confirm the clear matrix operation.

Audio Routing Matrix



The numbers and letters along the top and left side of the matrix show the cross point coordinates. The Labels for each channel are also shown to make them easy to identify. As you move the cursor over the matrix, the labels for the channels are highlighted in white for each cross point.

NOTE: Clicking on a channel label opens the Channel View screen for that channel, allowing you to modify the channel label and change channel configuration settings as needed.

Input Routing

To route an input to an output, click in the routing matrix at the intersection between the input and the output. A mic input can be designated as gated (yellow) or non-gated (blue) by clicking repeatedly in the cross point. All other input cross points will be colored green.

Expansion Bus O-Z Routing

Audio on any Converge Pro unit in the E-bus network can be placed on the bus or taken off the bus and routed to

any destination within the unit.

The Converge Pro 840T has 12 digital mix-minus buses:

- **O–R** buses are defaulted as the mic mix buses and can communicate the **NOM** count. Gated mics are routed to the O-bus by default.
- **S–Z** buses are defaulted as the auxiliary mix buses. They are used to carry auxiliary audio such as that from codecs and Converge Pro TH20s. These buses are used as mic-mix buses when NOM count is not required.

Process A–D Routing for 840T (Process A–G for 880 and 8I)

There are four processing blocks on the Converge Pro 840T (Processing A–D). With these processing channels, you can apply **Filters**, equalizers, and other **Processing** settings to an input or a group of inputs which can then be routed to a single output or group of outputs.

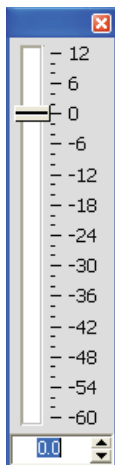
Cross Point Shortcut Menu

In addition to setting levels, the **Cross Point Shortcut Menu** (shown below) enables you to copy and paste the configuration of the current cross point to other cross points. To access the shortcut menu, right-click anywhere in the **Center Pane** of the **Matrix** screen.

Cross Point	Enter
Copy Cell	Ctrl+C
Paste Cell	Ctrl+V
Copy Matrix	Ctrl+G
Paste Matrix	Ctrl+P
Clear Matrix	
Export as object	

Cross Point Level Control

To adjust the level for a cross-point, right-click on the cross point and select **Cross Point** from the shortcut menu. The **Cross Point Attenuation** slider appears. Move the slider or use the selector box to set the gain/attenuation level in dB. The range is from -60 to 12dB in .5dB increments. The default is 0dB.



NOTE: Your changes are automatically saved when you close the slider.

The level you select now appears numerically in the cross point box within the matrix.

Copy and Paste Cells

You can copy a single cell or the entire matrix using the shortcut menu options.

To copy a cross point to multiple cross points, press **<Ctrl+C>** to copy, then press **<Ctrl+V>** while holding down the left-mouse button and dragging the mouse over the cross points to which you want to copy the settings.

Copy and Paste Matrix

To copy the entire matrix, use the shortcut menu commands or press **<Ctrl+G>** to copy the matrix, select the unit you want to copy the matrix to in the **Site View Tab**, and press **<Ctrl+P>** to paste the matrix into the matrix screen for the selected unit.

Clear Matrix

Press the **Clear Matrix** button to clear ALL current matrix settings and restore the default matrix configuration. A **Confirm** dialog appears asking you to confirm the operation.

Exporting Matrix Objects

Matrix objects allow you to save customized matrix configurations into the Database and reuse them. This enables you to instantly re-configure the entire matrix to accommodate changes in conferencing or venue configuration requirements, and to rapidly configure additional Converge Pro units using Drag and Drop Configuration.

To capture the current matrix configuration and save it as a matrix object, right click anywhere in the center pane of the matrix screen and select Export as object from the pop-up menu.

To apply a matrix object, drag it from the Objects Pane and drop it onto the matrix in the Matrix Tab screen.

For more information on using AV devices and objects, refer to the *Table of Contents* for these related topics:

- **Controls and Connections**
- **Channel View Tab Overview**
- **Expansion Bus Overview**
- **NOM**
- **Gating**
- **Filters**
- **Processing**
- **Database Tab**
- **Drag & Drop Configuration**
- **Line Input Settings**
- **Mic Input Settings**
- **Telco Rx Settings (840T and TH20)**
- **Output Settings**
- **Telco Tx Settings (840T and TH20)**
- **Fader Settings**

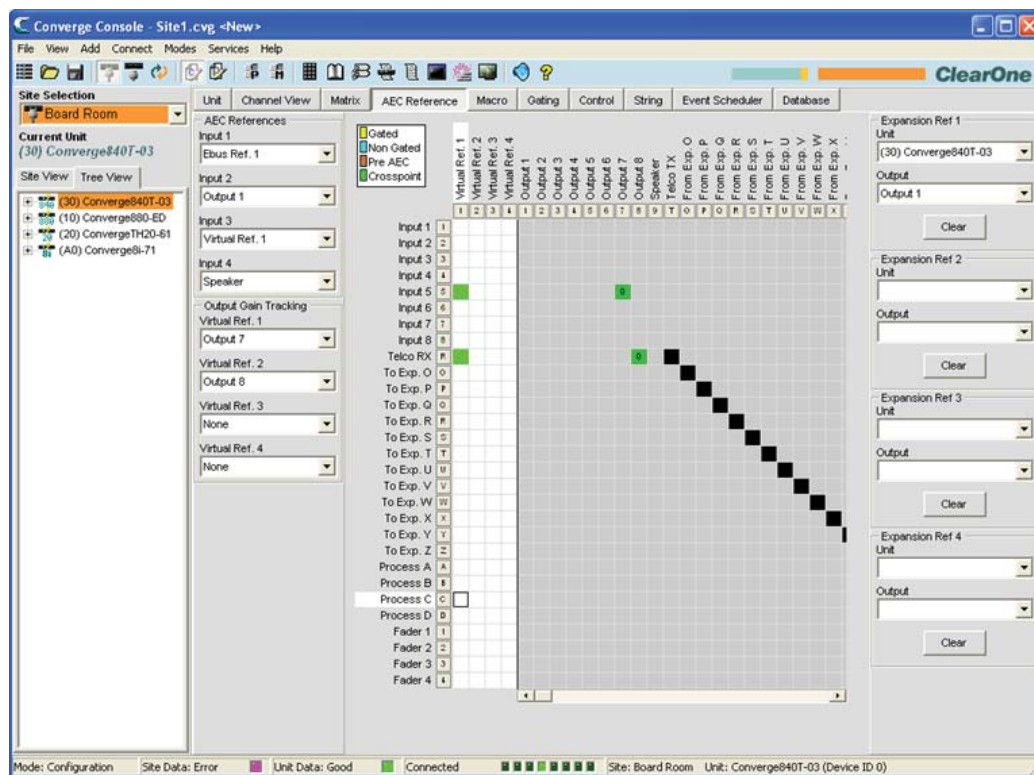
AEC REFERENCE TAB

The **AEC Reference Tab** allows you to establish reference sources for **Acoustic Echo Cancellation (AEC)**. AEC uses reference signals as the basis for acoustic echo cancellation. An AEC reference is a digital sample of the receive audio signal (sampled at the far end) that is used by the AEC filter model for adaption and convergence.

You can use both unit and expansion bus audio sources as AEC references for the **Mic Inputs** connected to a unit. In addition, you can define virtual reference sources that combine multiple audio signals into a single AEC reference source. Virtual references improve AEC performance in stereo speaker and combined audio/video conferencing applications.

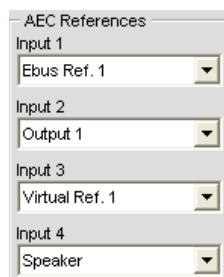
Accessing AEC Reference

To access AEC Reference, select the unit that you want to define AEC references for in the **Tree View** Tab of the **Site Pane**, then select the **AEC Reference Tab** from the **Tab Bar** in Console.



The **AEC Reference** screen appears in the center pane of Console. AEC reference configuration is explained in the following sections.

AEC References Sources



Use the drop-down lists to select an AEC reference for each input channel as required for your application. As shown above, you can select any of the following as an AEC reference source in the **AEC References** section of the screen:

- **Output channels**
- **Expansion bus channels**
- **Speaker outputs (840T only)**
- **Virtual references**

Virtual AEC References

Virtual AEC References allow you to combine multiple audio sources for applications where there are two speakers (left and right) providing audio to the far side, combined audio/video conferencing, and audio/video teleconferencing. In these and other multiple output applications, using virtual AEC references improves AEC performance.

Output Gain Tracking

Virtual Ref. 1
Output 7

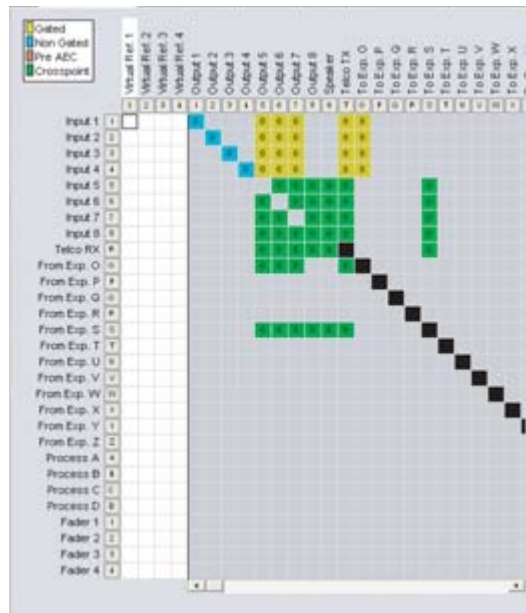
Virtual Ref. 2
Output 8

Virtual Ref. 3
None

Virtual Ref. 4
None

AEC requires a physical output reference to track output gain changes. Therefore when multiple sources are combined into an virtual AEC reference, you must use output gain tracking to provide level information to the AEC process. Use the **Output Gain Tracking** section of the screen (shown above) to specify the level source for each virtual reference that you define.

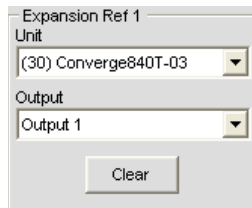
Virtual AEC reference sources are defined in a special section of the Matrix (shown below, highlighted in white):



Use the white cross point area to select the outputs for each virtual reference source you want to define. In the example above, **Virtual Ref 1** has been defined for a typical audio/video teleconferencing application, where the audio is routed to amplified room speakers connected to **Output 7**, and the incoming audio from a video feed on the **Telco RX** channel is routed to speakers adjacent to the video screen (**Output 8**). Notice that these audio sources are included in the virtual reference for the associated input channels.

NOTE: If the channels selected for a virtual reference use Processing or Faders, you should select the processing or fader channel as the virtual reference source. This provides the AEC process with the most accurate reference for the signal (after shaping by processing or fader channels), thereby providing faster convergence and more accurate AEC performance.

Expansion Bus Reference Sources



Use the **Expansion References (1-4)** section of the screen to use audio from an expansion bus channel as the AEC reference source. For each expansion reference, select the **Unit** and the **Output** you want to use as an AEC reference using the drop-down lists.

The following types of sources are available for use as expansion AEC reference sources:

- **Output channels**
- **Speakers**
- **Virtual references**

For more information on using AV devices and objects, refer to the *Table of Contents* for these related topics:

- **AEC (Acoustic Echo Cancellation)**
- **Mic Input Settings**
- **Processing Settings**
- **Fader Settings**

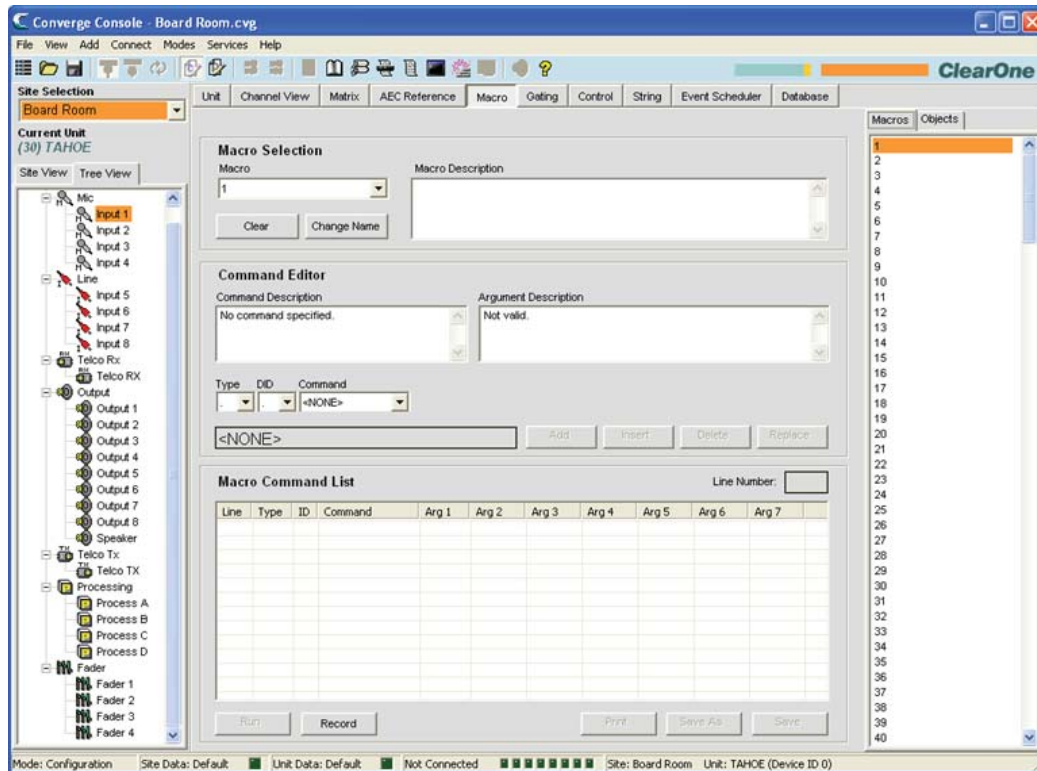
MACRO TAB

Macros define a series of commands which can be run from Console, the Front Panel LCD, or by using Serial Commands executed through an external control device. Macros allow you to make quick configuration changes, and to execute multiple Presets simultaneously. Macros can also contain commands that are executed on other Converge Pro units on the Expansion Bus.

Converge Pro supports up to 255 macros with an average of 150 command lines each. In the unlikely event that you exceed Console's memory capacity, a warning appears indicating the command line at which memory is exceeded.

Accessing Macros

To access macros, press the **Macro Tab** on the **Tab Bar** in Console.

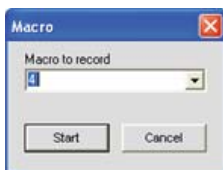


There are two ways to create macros in Console: the Macro Recorder, which records screen selections, and the Macro Editor, which allows you to create command lines. The Macro Editor is also used to modify macros created using the Macro Recorder.

Macro Recorder

Use the following procedure to record a macro using Macro Recorder:

1. Click the **Record** button at the bottom of the Macro screen. The **Macro** dialog appears.



2. Select the macro number from the **Macro to Record** drop-down list (or type a macro name into the entry field) then click **Start**.

3. The **Macro Record** dialog appears.
4. Make the routing and input/output configuration changes (such as gain adjustments, mute, etc.) in Console that you want to include in the macro.
5. Click **Stop** in the Macro Record dialog to end macro recording.
6. The macro **Command Editor** appears with a list of the commands captured.

Command Editor

Command Description: This command selects which output or expansion bus reference is used for a Mic input as a reference for power amp.

Argument Description: Channel 1-8 for an Converge 880, 8i and 1-4 for an 840T. Ref Group: E, O, B. Ref Channel: based on Ref Group and device type: E: O-Z,*, O:

Type: 1, DID: 0, Command: REFSEL, Channel Ref Group: 1, Ref Chnl: B

#10 REFSEL 1 B 1

Buttons: Add, Insert, Delete, Replace

Macro Command List

Line Number: 1

Line	Type	ID	Command	Arg 1	Arg 2	Arg 3	Arg 4	Arg 5	Arg 6	Arg 7
1	3	0	NOM	1	O	0				
2	3	0	MUTE	2	M	0				

Buttons: Run, Record, Print, Save As, Save

7. Click **Save** to save the macro.

You can use the Macro Editor to modify recorded macros as described in the next section.

Macro Editor

Creating Macros

Use the following procedure to create a macro using the Macro Editor:

1. Select the Macro number to create from the **Macro** drop-down list.

Macro Selection

Macro: 2

Buttons: Clear, Change Name

Macro Description:

NOTE: Used macros are indicated by an asterisk in the macro drop-down list, and are not available for use unless they are cleared using the Clear button.

2. Press **Change Name** to assign a name to the macro (optional). Enter the name into the **Change Name** dialog that appears.

NOTE: Macro names appear in Console macro lists and on the LCD Macro menu. Using brief descriptive names makes it easier to identify a macro's functionality.

3. Enter a description of the macro's functionality in the **Macro Description** entry field (optional).

Command Editor

Command Description: No command specified.

Argument Description: Not valid.

Type: ., DID: ., Command: <NONE>

<NONE>

Buttons: Add, Insert, Delete, Replace

4. Select the Converge Pro device **Type**, **DID** (Device ID number), and **Command** from the drop-down lists.
5. When you select a command, a description of it appears in the **Command Description** box. The parameters associated with the command also appear, along with the valid values or range for each parameter, in the **Argument Description** box.

6. Click **Add** to add the command to the end of the macro, or **Insert** to insert the command before the currently selected row of the macro. The command appears in the **Macro Command List**.

Line	Type	ID	Command	Arg 1	Arg 2	Arg 3	Arg 4	Arg 5	Arg 6	Arg 7
1	1	0	RAMP	1	F	-3	-20			

NOTE: When there are multiple commands in the Macro Command List, you can drag and drop them to change their execution order.

You can now add another command (repeat steps 4 through 6), or click **Save** or **Save As** to save the completed macro.

Modifying Macros

Use the following procedure to edit a macro:

1. Select the Macro number to modify from the **Macro** drop-down list.
2. Click **Change Name** to change the macro name (optional).
3. Double-click the command line in the **Macro Command List** you want to edit.
4. Modify the command or its arguments by selecting options from the drop-down lists.
5. Click **Replace** to overwrite the old command line with the new changes.
6. Click **Insert** to insert a new command, or **Delete** to delete the currently highlighted command.
7. When you are finished making changes, click **Save** or **Save As** to save the macro.

Deleting Macros

Use the following procedure to delete a macro:

1. Click **Clear Macro** to delete the entire macro.
2. Click **Delete** to delete the selected command line.

Adding and Inserting Command Lines

Use the following procedure to add or insert command lines into the currently selected macro:

1. Click **Add** to place the current command line into the next available row in the command line table.
2. Click **Insert** to insert the current command line into the row directly above the currently selected command line in the table.
3. When you are finished making changes, click **Save** or **Save As** to save the macro.

Executing Macros

Macros can be run from Console, from the Front Panel LCD, or through external control devices.

Running Macros Using Console

Use the following procedure to run a Macro from the Console software:

1. Select the **Macro** tab from the Console main screen (only available when Console is in).
2. Select the macro from the Select Macro list.
3. Click **Run** to run the macro and close the window.

Running Macros Using the Front Panel

Use the following procedure to run a macro from the front panel:

1. Using the **Menu Dial**, select the **Macros Menu**.
2. Select the macro you want to run from list and press the **Select** button.
3. Answer **Yes** when prompted to run the macro, or **No** to cancel.

Running Macros Using Control Devices

Refer to the **Control Tab** topic for information on running macros using serial commands and external control devices.

Exporting Macro Objects

Macro Objects allow you to save macros into the **Database** and reuse them. To capture a macro and save it as an object, right click anywhere in the center pane of the macro screen and select **Export as object** from the pop-up menu.

For more information about objects, see **Creating Channel Objects, Matrix Objects, Control Objects**, and **Drag & Drop Configuration**.

For additional information, refer to the *Table of Contents* for these related topics:

- **Controls and Connections**
- **Expansion Bus Overview**
- **Device IDs**
- **LCD Programming Overview**
- **LCD Macros Menu**
- **Presets**
- **Configuration Mode**
- **Control Tab**
- **Database**
- **Channel Objects**
- **Matrix Objects**
- **Control Objects**
- **Drag & Drop Configuration**

GATING TAB

The **Gating Tab** of the Console main screen allows you to create **Gating Groups** and assign **Mic Inputs** to them for greater flexibility and control.

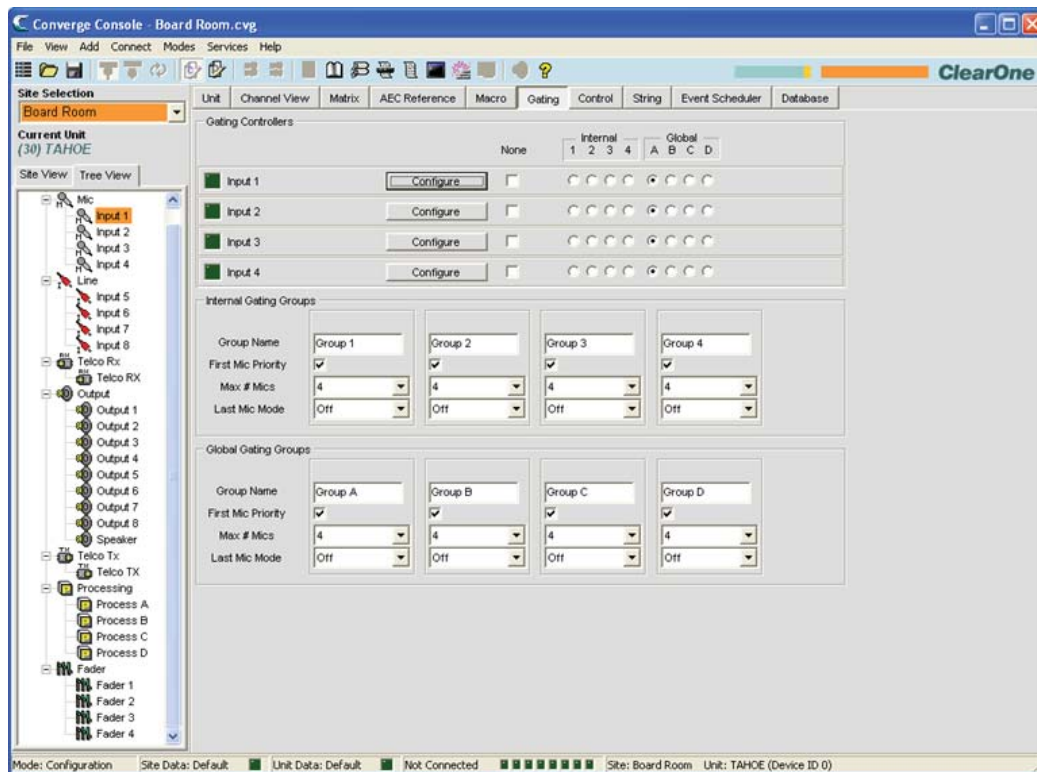
Gating group assignments combine individual channel **Gating** configurations created using the **Channel Properties Configuration** screen. When inputs are assigned to a gating group, the gating information from the assigned inputs is used to control how the entire mixer behaves.

The Converge Pro product family (excluding the TH20) feature four internal gating groups (**Internal 1–4**) and four global gating groups across the expansion bus (**Global A–D**). Mic inputs are routed to **Global Group A** by default. If an input is not assigned to a gating group, that mic's gating properties are independent, and they have no effect on any gating group. When gating groups span two or more units (global gating groups), the settings must be the same for each unit attached to the global gating group.

NOTE: Mic inputs can be assigned to one and only one Gating Group at a time.

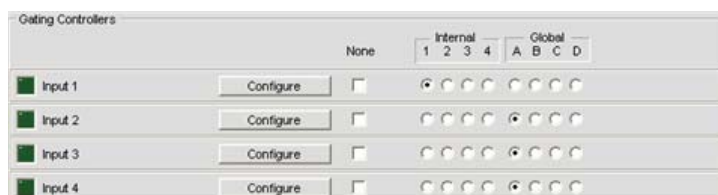
Accessing Gating Groups

To access gating groups, click the **Gating Tab** on the **Tab Bar** in Console.



Gating configurations are shown in the **Center Pane**. The following sections describe how to configure gating groups.

Gating Controllers



Use the **Gating Controllers** section of the screen to assign **Mic Inputs** to a gating group. Use **Internal** gating groups (radio buttons **1-4**) to control mic inputs connected to the unit currently selected in the **Site Pane**. Use **Global** gating groups (radio buttons **A-D**) to control mic inputs connected to the current unit, as well as all units connected to the **Expansion Bus**.

Press the **Configure** button to display and modify individual channel **Gating** configurations using the **Channel Properties Configuration** screen.

Internal Gating Groups

	Group 1	Group 2	Group 3	Group 4
Group Name	Group 1	Group 2	Group 3	Group 4
First Mic Priority	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Max # Mics	4	4	4	4
Last Mic Mode	Off	Off	Off	Off

Internal gating groups control mic inputs connected to a specific Converge Pro unit. Configure Internal Gating Group settings as follows:

- Enter a name in the **Group Name** field (optional).
- Select the **First Mic Priority** checkbox to enable this feature (default), or deselect it to turn First Mic Priority off.

NOTE: ClearOne recommends using First Mic Priority to maintain maximum audio intelligibility by allowing only one mic to gate on to a participant's voice. First Mic Priority allows more than one microphone to gate on at same time, but it restricts more than one mic from gating on to the same audio source. It does this by determining the audio level received by all mics when the first mic is gated on, and then using this audio level as the ambient level for the gating group. If First Mic Priority is disabled, two or more microphones will usually gate on when only one person speaks.

- Select the **Max # of Mics** from the drop-down list (the default is 4). This sets the maximum number of microphones that can be gated on at any one time within a gating group. For global gating groups, the maximum number of mics is 8 for Converge Pro 880 and 8I units, and 4 for 840T units, up to a total of 64 mics in E-bus linked systems.
- Select the **Last Mic Mode** from the drop-down list (the default is off). **Last On** leaves the last mic activated gated on until another mic gates on. The **Input** options allow you to select which mic remains on when all other mics gate off. **Off** gates all mics off when no audio is present. **All** allows all mics to gate on at the same time.

Global Gating Groups

	Group A	Group B	Group C	Group D
Group Name	Group A	Group B	Group C	Group D
First Mic Priority	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Max # Mics	4	4	4	4
Last Mic Mode	Off	Off	Off	Off

Global gating groups control mic inputs connected to all units linked together through the **Expansion Bus**. Configure **Global Gating Group** settings as follows:

- Enter a name in the **Group Name** field (optional).
- Select the **First Mic Priority** checkbox to enable this feature (default), or deselect it to turn First Mic Priority off.

NOTE: ClearOne recommends using First Mic Priority to maintain maximum audio intelligibility by allowing only one mic to gate on to a participant's voice. First Mic Priority allows more than one microphone to gate on at same time, but it restricts more than one mic from gating on to the same audio source. It does this by determining the audio level received by all mics when the first mic is gated on, and then using this audio level as the ambient level for the gating group. If First Mic Priority is disabled, two or more microphones will usually gate on when only one person speaks.

- Select the **Max # of Mics** from the drop-down list (the default is 4). This sets the maximum number of microphones that can be gated on at any one time within a gating group. For global gating groups, the maximum number of mics is 8 for Converge Pro 880 and 8I units, and 4 for 840T units, up to a total of 64 mics in E-bus linked systems.
- Select the **Last Mic Mode** from the drop-down list (the default is off). **Last On** leaves the last mic activated gated on until another mic gates on. The **Input** options allow you to select which mic remains on when all other mics gate off. **Off** gates all mics off when no audio is present. **All** allows all mics to gate on at the same time.

For additional information, refer to the *Table of Contents* for these related topics:

- **Mic Input Settings**
- **Channel View Tab Overview**
- **Gating (Channel View Tab)**
- **Expansion Bus Overview**

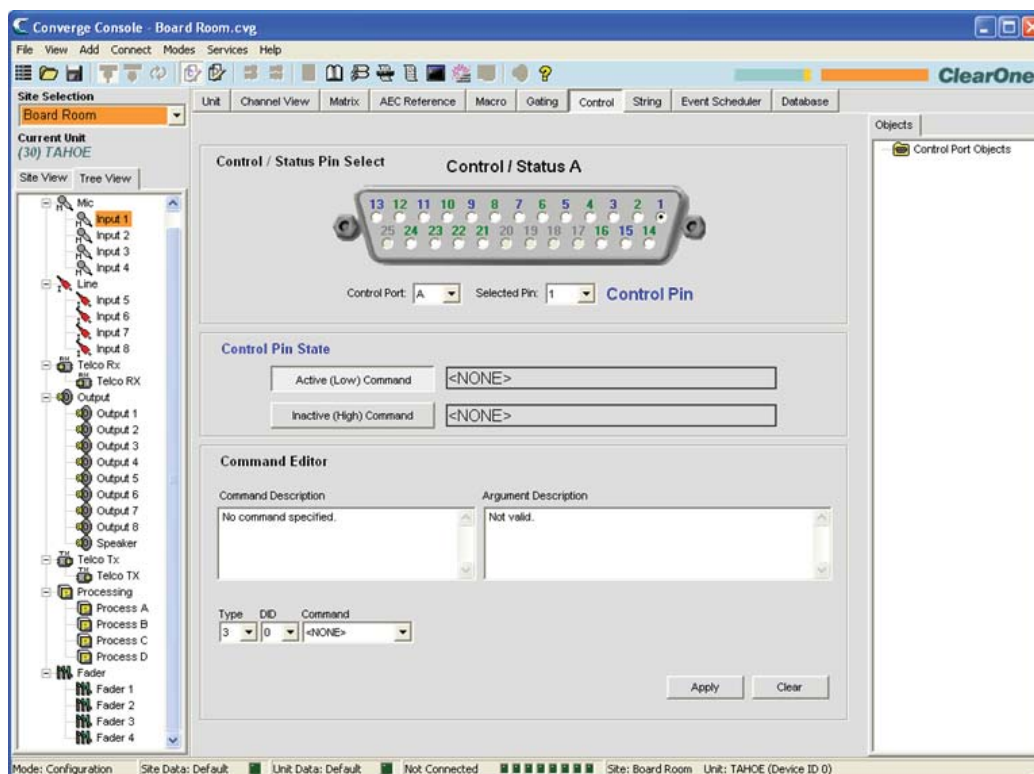
CONTROL TAB

The **Control Tab** allows you to configure pin assignments for the user-definable pins on **Control/Status Port A** and **Control/Status Port B** of Converge Pro units.

The control ports enable external devices to access the Converge Pro complete serial command set, including common functions such as volume control, muting, room combining, and preset changes. All Converge Pro devices connected via the E-bus can be controlled from a single control/status port on any of the devices.

Accessing the Control Tab

To access command control, press the **Control Tab** on the **Tab Bar** in Console.



The **Control** tab of the Console main screen shows a graphical representation of **Control/Status Port A**. The pins numbered in blue are user-definable command pins; the pins numbered in green are status pins. Control interface functionality and pin programming are explained in the following sections.

User-Definable Pins

The user-definable pins provide GPIO control via contact closure, and GPIO status via open collector functions in the unit. There are two user-definable pins on the B port of every unit. The number of user-definable pins on the A port varies by model, as summarized in the following table:

Model	User-Definable Pins Control/Status Port A	User-Definable Pins Control/Status Port B
880	16	2
840T	20	2
8i	16	2
TH20	24	2

Default Pin Assignments

For default pin assignments for Control/Status ports by model, refer to the Converge Pro Installation and Operation Manual.

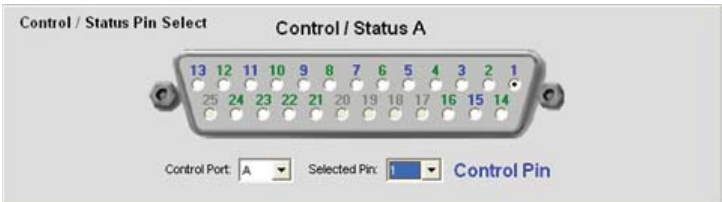
Control/Status Ports

Control/Status A and B ports are female DB25 connectors used for General Purpose Input/Output (GPIO) interactions between Converge Pro devices and external control devices (such as wall switches and push-to-talk microphones), as well as controllers (such as AMX and Crestron). Control programming enables external control devices and controller software to access the Converge Pro serial command set, including common functions such as volume control, muting, room combining, and preset changes.

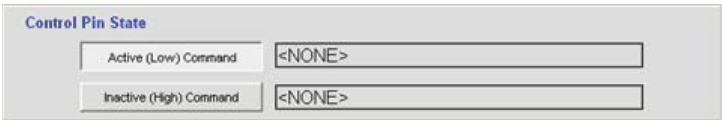
For more information on **Control/Status Port A and B**, and the other physical connections available on Converge Pro products, see **Controls and Connections**.

Control/Status Pin Programming

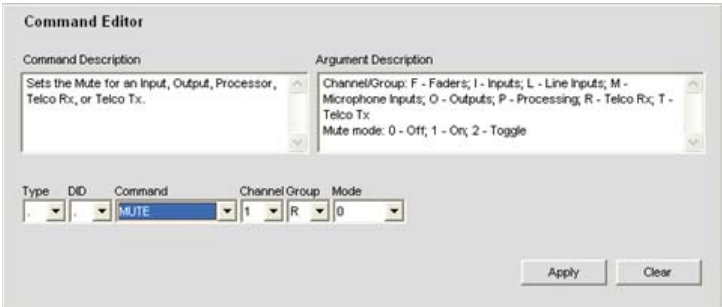
1. Use the following procedure to program user-definable pins:
2. In the **Control/Status Pin Select** section of the screen, select port **A** or **B** from the **Control Port** drop-down list.



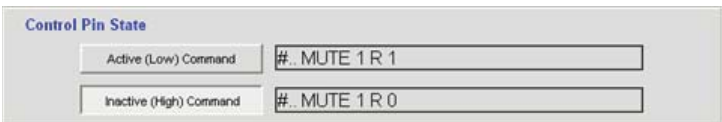
3. Select the pin you want to configure from the **Selected Pin** drop-down list. (**Pin 1** is selected by default for **Control Port A** and **Pin 21** is selected by default for **Control Port B**.)



4. In the **Control Pin State** section of the screen, press the **Active (Low) Command** or **Inactive (High) Command** button to select the pin state that you want to associate a command with.



5. In the **Command Editor** section of the screen, select the Converge Pro device **Type**, **DID**, and **Command** from the drop-down lists. When you select a command, its description appears in the **Command Description** box. The parameters associated with the command appear next to the **Command** drop-down list, and the valid values or range for each parameter appear in the **Argument Description** box.



6. Set parameter values for the command as required, then press the **Apply** button. The command appears in the selected **Active/Inactive Command** text box.
7. To complete programming for the selected pin, repeat steps 3 through 6 to set the **Active Command** for the opposite pin state.
8. Repeat steps 1 through 6 to program additional pins.

Clearing Pin Programming

To clear programming for a pin, select the **Control Port** and **Selected Pin** using the drop-down lists, select the pin state using the **Active Command** buttons, then press the **Clear** button.

Exporting Control Objects

Control Objects allow you to save a **Control Port** objects into the **Database**. To capture the currently displayed control pin programming, right click in the **Control/Status Pin Select** portion of the of the **Control Tab** screen, and select **Export as object** from the pop-up menu. After saving the control port object, it appears in the **Objects** pane on the right side of Console.

For more information about objects, see **Creating Channel Objects, Matrix Objects, Macro Objects**, and **Drag & Drop Configuration**.

For additional information, refer to the *Table of Contents* for these related topics:

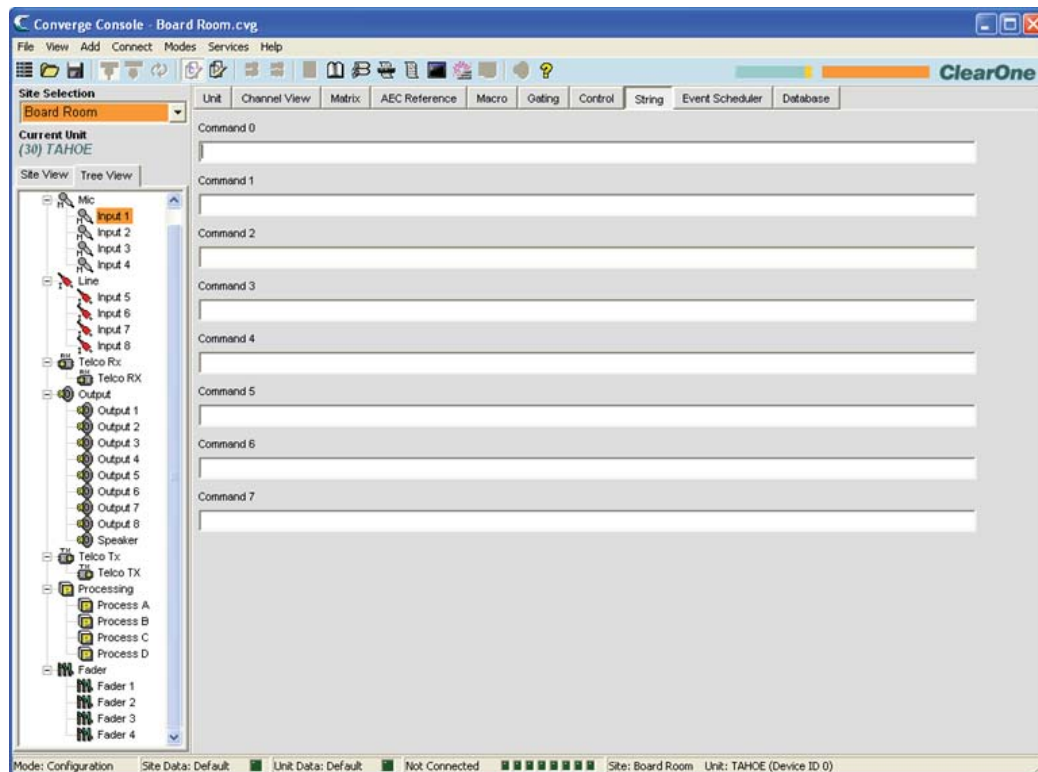
- **Expansion Bus**
- **Controls and Connections**
- **Device IDs (DIDs)**
- **String Tab**

STRING TAB

The String Tab enables you to create up to seven Command Strings that allow Converge Pro devices to control external devices such as lighting, projectors, and room dividers. Command strings are written using the command syntax of the external device being controlled. Converge Pro devices pass command strings as literal text strings to external devices through the RS-232 Port.

Accessing the String Tab

To create command strings, press the String Tab on the Tab Bar in Console.



You can create up to eight serial command strings (limit 80 characters each) on the String screen. The following sections explain how to create and run command strings.

Command String Special Characters

The following character combinations provide basic functionality in Command String syntax:

- **\a** = alert
- **\b** = backspace
- **\f** = formfeed
- **\n** = new line
- **\r** = carriage return
- **\t** = horizontal tab
- **\v** = vertical tab
- **** = backslash

Creating Command Strings

Type a command string in the **Command 0** through **Command 7** text boxes in the center pane of the **Control Tab**. Alternatively, you can copy an existing string from any source, then right-click in a **Command** entry box and select **Paste** from the pop-up menu that appears.

Running Command Strings

Console stores the commands strings created in the Control tab for subsequent execution via the **STRING** serial command. You can execute the **STRING** command in **Macros** and in the **Event Scheduler**. Using macros also enables you to execute command strings from external control devices. See the **Control Tab** topic for more information.

For additional information, refer to the *Table of Contents* for these related topics:

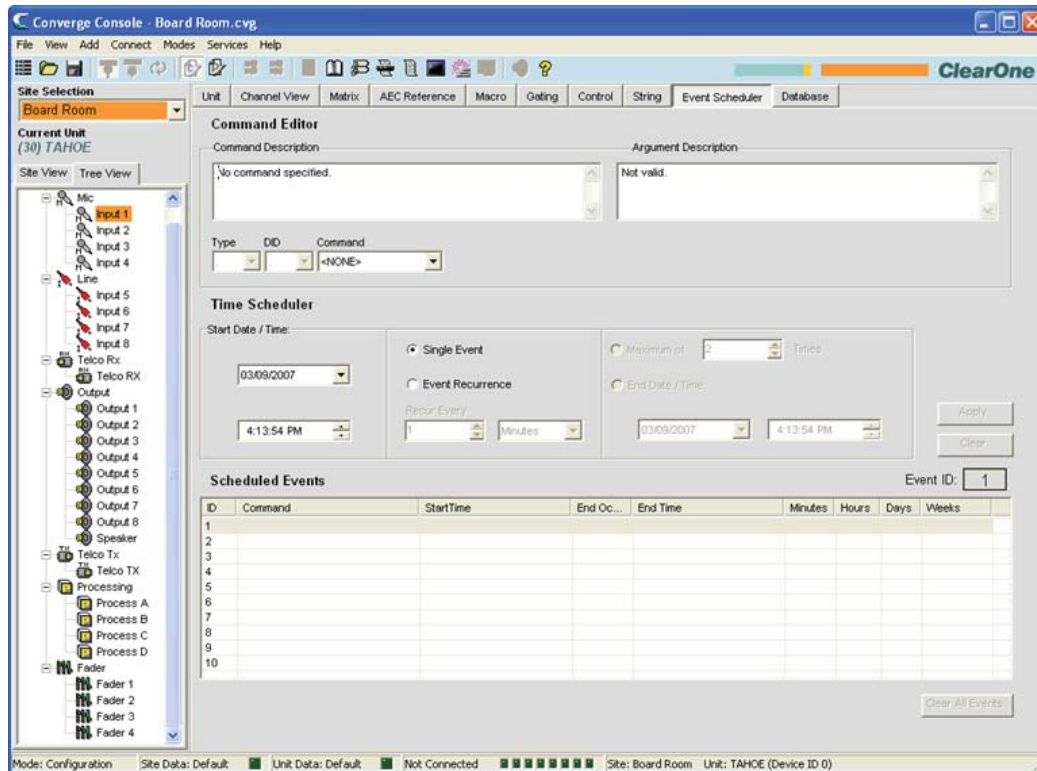
- **Controls and Connections**
- **Front Panel**
- **Control/Status Port**
- **Gating Tab**
- **Macro Tab**
- **Event Scheduler**
- **Control Tab**

EVENT SCHEDULER TAB

The Event Scheduler allows you to schedule commands for execution at a specific time (events). Using the event scheduler, you can schedule single events or recurring events that are executed at pre-defined time intervals.

Accessing the Event Scheduler

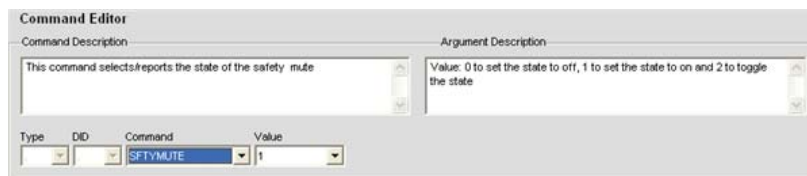
To schedule events, press the **Event Scheduler Tab** on the Tab Bar in Console.



Scheduling Events

Use the following procedure to schedule events:

1. In the **Command Editor** section of the screen, select the Converge Pro device **Type**, **DID** (Device ID number), and **Command** from the drop-down lists. When you select a command, its description appears in the **Command Description** box. The parameters associated with the command appear next to the **Command** drop-down list, and the valid values or range for each parameter appear in the **Argument Description** box.



The Converge Pro commands available for event scheduling include:

- **MACRO** –Executes a macro
- **PRESET** –Executes a preset
- **RESET** –Resets the specified device
- **SFTYMUTE** –Mutes all channels on the specified unit
- **STRING** –Runs a command string
- **SYSCHECKS** –Runs system diagnostics

2. To schedule a single event, select **Single Event** and set the desired **Start Date/Time** in the **Time Scheduler** section of the screen.

Time Scheduler

Start Date / Time:

05/01/2007

8:00:00 PM

☐ Single Event

☒ Event Recurrence

Recur Every: 1 Days

☐ Maximum of: 2 Times

☒ End Date / Time:

04/30/2008 8:00:00 PM

Apply Clear

3. To schedule a recurring event, select **Event Recurrence**; set the recurrence interval using the **Recur Every** fields; and select either **Maximum of Times** or **End Date/Time** to specify the number of repetitions or time period for event execution respectively.

NOTE: Clicking on the arrow button next to a date entry field in the **Time Scheduler** section of the screen displays a calendar for date selection.

4. Click the **Apply** button to schedule the event. The event appears in the Scheduled Events List.

Scheduled Events Event ID: 2

ID	Command	StartTime	End Oc...	End Time	Minutes	Hours	Days	Weeks
1	# SFTYMUTE 0	05/01/2007 07:58:00 PM						
2								
3								
4								
5								
6								
7								
8								
9								
10								

Clear All Events

5. Add additional events as required by repeating steps 1 through 4.
6. To clear scheduled events, press the **Clear All Events** button and answer **Yes** in the **Warning** dialog that appears.

For additional information, refer to the *Table of Contents* for these related topics:

- **Macro Tab**
- **Preset Mode Overview**
- **Safety Mute**
- **String Tab**
- **System Checks**

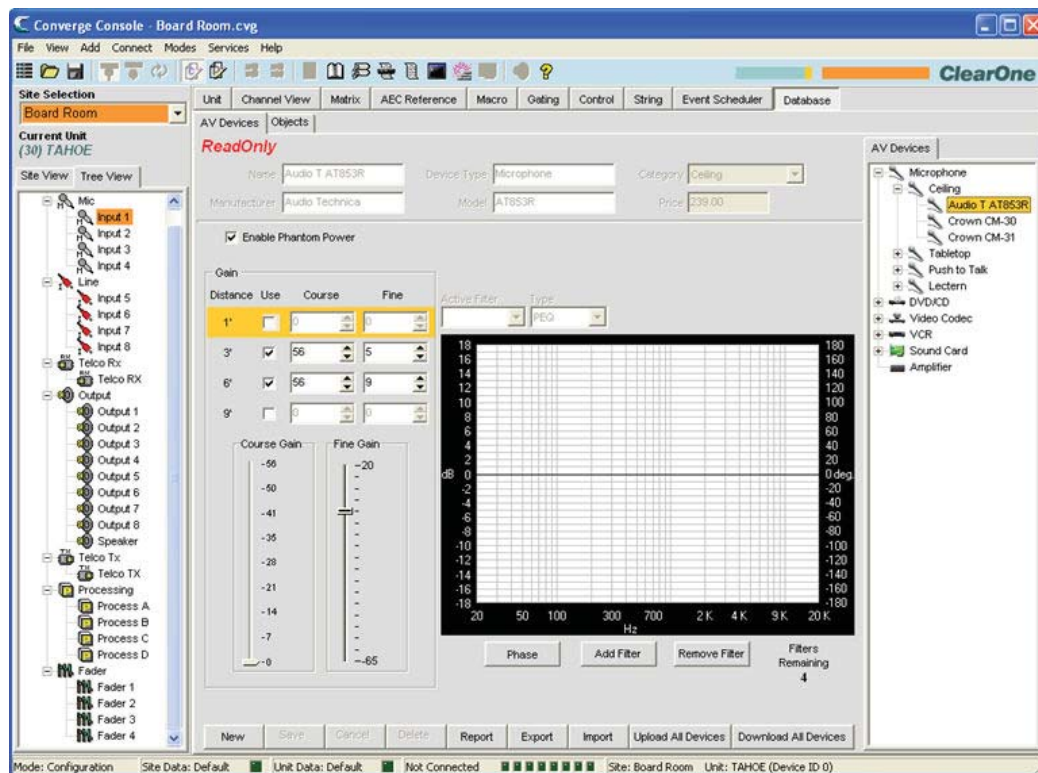
DATABASE TAB

The **Database Tab** enables you to create, modify, and save **AV Devices**, **Channel Objects**, and **Advanced Objects**. AV devices allow you to save pre-defined configurations for a particular type of device, such as a ceiling microphone. Channel objects allow you to save pre-defined configurations for a channel. Advanced objects allow you to save matrix, macro, control, and preset objects for advanced configuration and automation tasks.

Using AV devices and channel objects, you can create standardized configurations for particular room types and equipment, and quickly configure a venue. See **Drag & Drop Configuration** for more information.

Accessing the Database

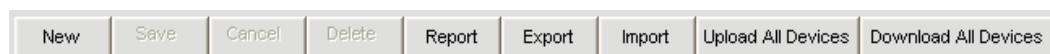
To access the Database, select the **Database Tab** from the **Tab Bar** in Console.



As shown above, there are two tabs available in the **Center Pane: AV Devices** and **Objects**. A corresponding tab is displayed in the **Object Pane** on the right side of the screen. The **Database Button Bar** is located at the bottom of the Center Panel. These components are described in the following sections.

Database Button Bar

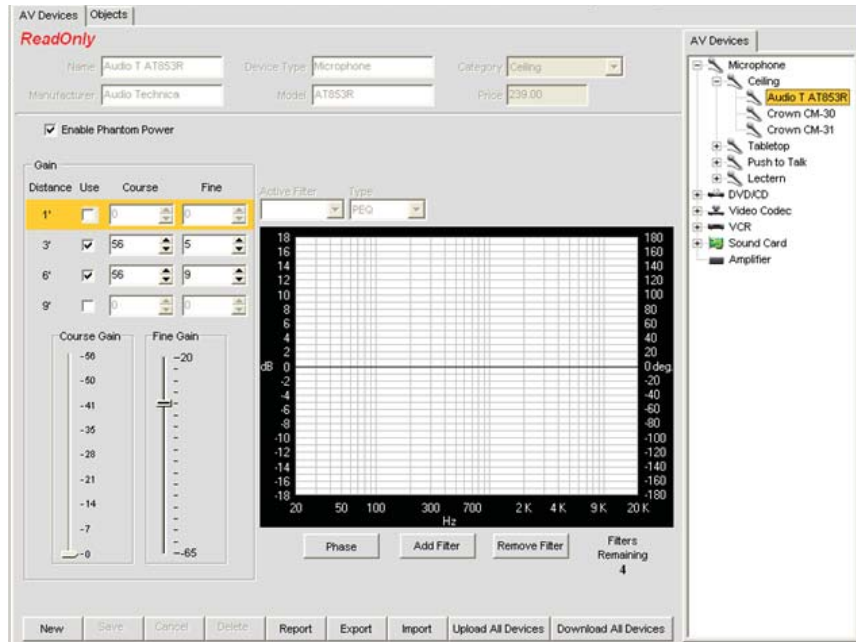
The **Database Button Bar** shown below allows you to create, save, delete, export, import, upload, and download AV Devices and Objects. Buttons available change based on the device/object selected and the status of the configuration screen displayed in the Center Pane.



Click the **Report** button to view a report for the selected AV Device type.

AV Devices

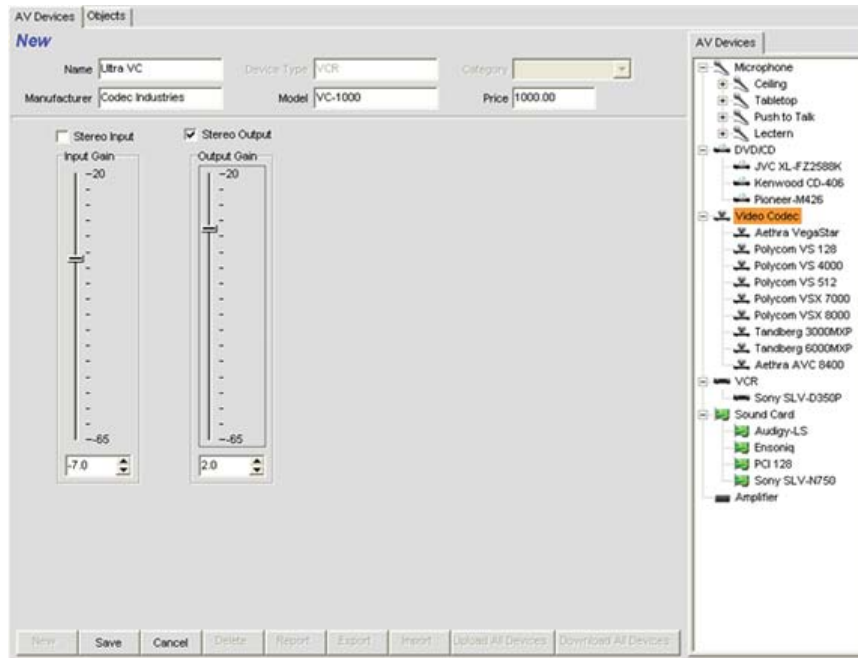
AV Devices allow you to save pre-defined configurations for a particular type of device, such as a ceiling microphone. To access **AV Devices**, expand the **AV Device Tree** in the **AV Devices Tab** in the **Object Pane** on the right side of the screen. Click on a device in the tree to display its configuration in the Center Pane. For example, the default settings for a **ClearOne** tabletop microphone are shown below.



NOTE: Pre-defined AV devices created by ClearOne are **ReadOnly** as indicated in the center pane. They cannot be modified or deleted.

Creating A New AV Device

To create a new AV Device, select the type of device you want to create in the **AV Devices Tree**, then click the **New** button on the **Database Button Bar**. The configuration options for that type of device appear on the **AV Devices Tab** in the **Center Pane**. For example, the configuration options for a new Video Codec device are shown below.



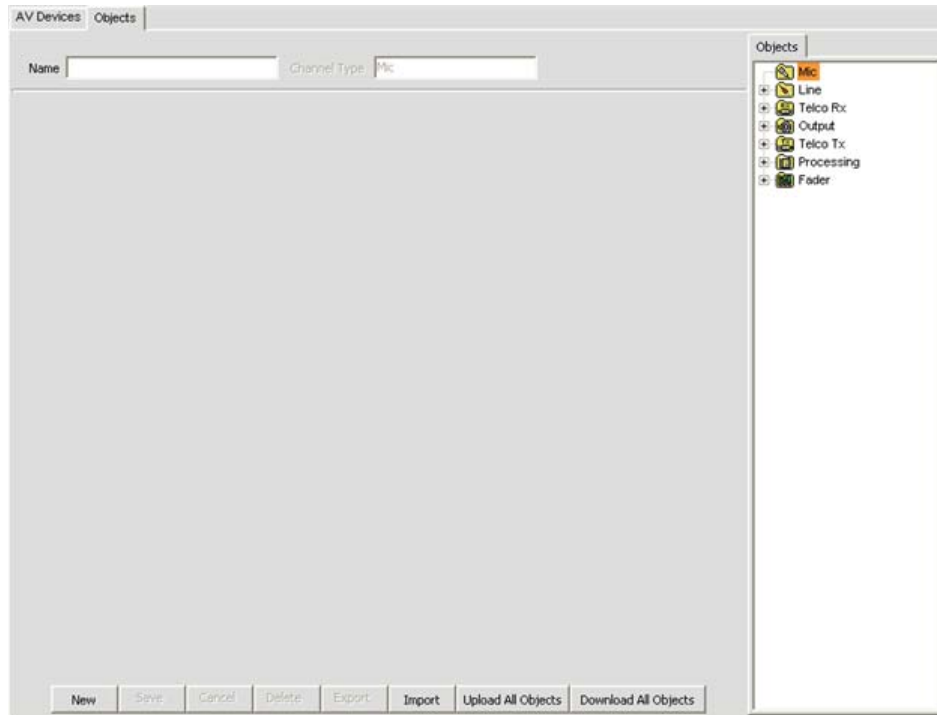
Name the new device using the **Name** field. Enter other information as needed, adjust the configuration controls to optimize device performance, and click the **Save** button to save the changes. The new device now appears in the **AV Device Tree** as shown below.



NOTE: The AV Device Tree is also available when the Unit Tab is selected, making all pre-defined and custom AV Devices available for Drag and Drop Configuration of a venue.

Channel Objects

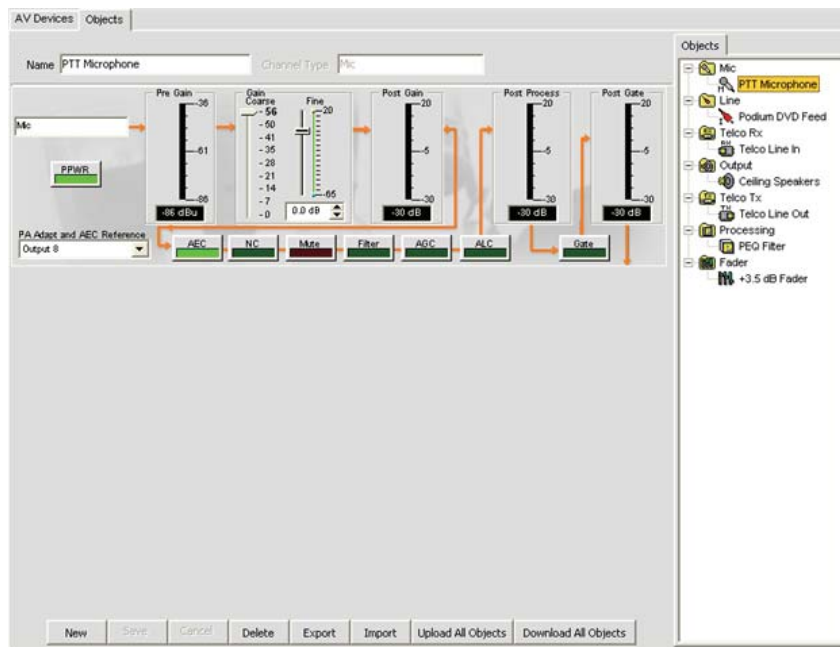
Channel **Objects** allow you to save pre-defined configurations for a channel, such as an Output channel. To access **Objects**, select the **Objects** tab in the **Center Pane**. The **Object Tree** appears in the **Object Pane** on the right side of the screen as shown below.



Available channel object types include:

- **Mic Input**
- **Line Input**
- **Telco Rx**
- **Output**
- **Telco Tx**
- **Processing**
- **Fader Channels**

To create a new channel object, select an object type in the **Object Tree** and click the **New** button. Enter a name for the object in the **Name** field, adjust the channel configuration controls to optimize channel performance for your application, and press the **Save** button. The new channel object appears in the **Object Tree**, along with all other custom channel objects you have created, as shown below.



NOTE: The Object Tree is also available when either the Unit Tab or the Channel View Tab is selected, making all custom channel objects you have defined available for Drag and Drop Configuration of a venue.

Import/Export AV Devices and Objects

All AV Devices and channel Objects are stored as **.XPT files** and **.XMO** files respectively on the host computer or network. To import or export these files, use the **Import** and **Export** buttons on the **Database Button Bar**. These features enable you to share device and object file definitions across sites, applications, and venues.

Upload/Download AV Devices and Objects

To upload or download ALL AV Devices or channel Objects in the database, use the **Upload** and **Download** buttons on the Database Button Bar. These features enable you to share databases among sites, applications, and venues.

Modifying AV Devices and Objects

To modify AV Devices and channel Objects, select the device or object in the **Object Pane**, modify the configuration settings for the device or object in the **Center Pane**, and click the **Save** button on the **Database Button Bar**. When you make changes to the device or object, **Edit** appears at the top of the Center Pane.

NOTE: Pre-defined AV devices created by ClearOne are **ReadOnly** as indicated in the center pane. They cannot be modified or deleted.

Other Object Types

In addition to AV Devices and channel Objects, Console provides additional objects for powerful, flexible, streamlined configuration of Converge Pro installations:

- **Matrix Objects**
- **Macro Objects**
- **Control Objects**

For additional information, refer to the Table of Contents for these related topics:

- **Site Properties**
- **Unit Properties**
- **Unit Tab**
- **Channel View Tab Overview**
- **Line Input Settings**
- **Mic Input Settings**
- **Telco RX Settings (840T and TH20)**
- **Output Settings**
- **Telco TX Settings (840T and TH20)**
- **Processing Settings**
- **Fader Settings**
- **Matrix Tab**
- **Preset Mode Overview**

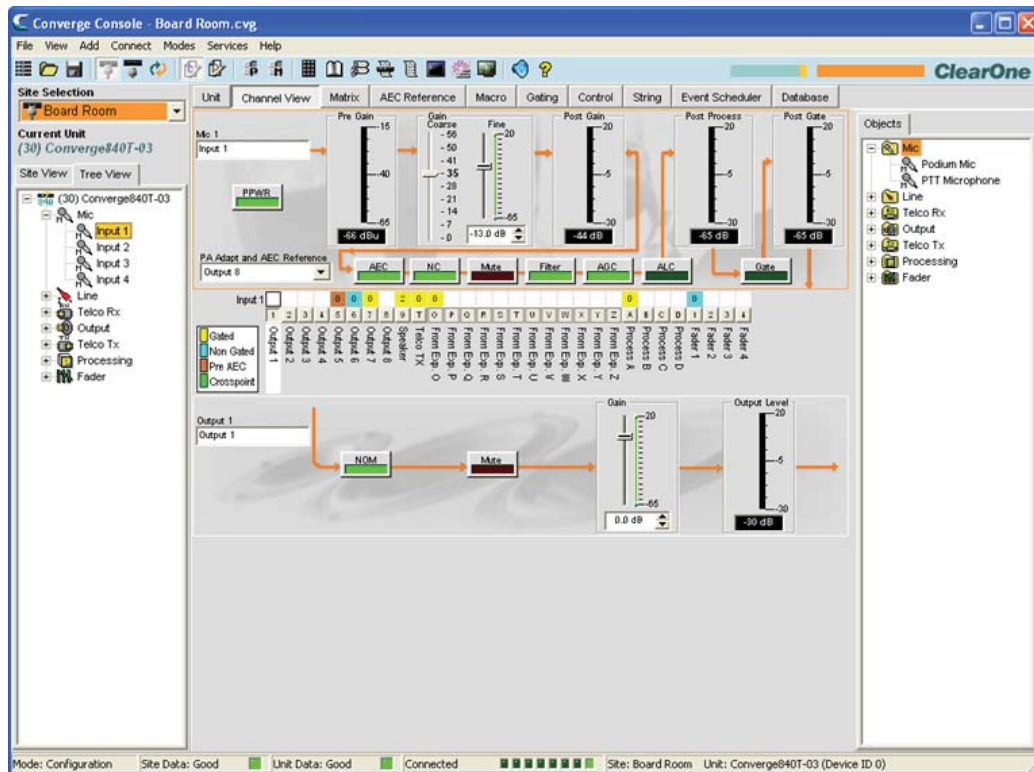
OPTIMIZING GAIN STRUCTURE

Optimizing Gain Structure maximizes the signal-to-noise ratio for each channel, optimizes the performance of Converge Pro processing functions, and ensures optimal audio quality.

- Use these guidelines when optimizing initial gain structure for a venue:
- Connect all input sources and output devices to the Converge Pro unit(s).
- Turn off all processing functions, including **AGC/ALC (Automatic Gain Control/Automatic Level Control)**, **NC (Noise Cancellation)**, and **Filters**.
- Optimize all mic and line inputs that are routed to an output before optimizing the output.
- When optimizing output channels, the objective is to match the output to the nominal gain of the input of the device that is connected to the Converge Pro output channel.
- In general, turn **NOM** off when an output channel feeds an amplifier. Turn NOM on when optimizing telco tx channels, in sound reinforcement applications, and .when optimizing for video codec configurations.
- After optimizing gain using the procedures below, re-enable processing functions and NOM as required.

Optimizing Gain for Mic Input Channels

1. Open the **Channel View Tab** and select the **Mic Input** on the **Tree View Tab** that you want to optimize, as shown below.



2. Have somebody repeat a test count at a normal distance from the microphone (generally this would be seated at the conference table or positioned for a video teleconference).
3. Adjust the **Coarse Gain Slider** until the peaks on the **Post Gain Meter** are close to +6dB (just hitting yellow), and the average level is close to 0dB.
4. Adjust the **Fine Gain Slider** until the peaks on the **Post Gain Meter** are as close to +6dB and the average level is as close to 0dB as possible.
5. Repeat the above steps for each mic input in the venue.

NOTE: The Post Gain Meter is a peak meter. If the meter remains green, the level may be too low. If it peaks into red, clipping occurs.

Optimizing Gain for Line Input Channels

Line inputs are optimized using the same procedure as mic inputs, with the following exceptions. Select the **Line Input** you want to optimize on the **Tree View Tab**. With the line source connected, monitor the **Post Gain Meter** and adjust the gain level.

NOTE: Line sources, including video codecs, consumer grade CD players, DVD players and VCRs, commonly require 10-12 dB of gain to bring their levels up to 0 dB.

Optimizing Gain for Telco Rx Channels

Optimize telco rx inputs using the same procedure as mic inputs, with the following exceptions. Select **Telco Rx** on the **Tree View Tab**. With someone talking on the phone, monitor the **Post-Gain Meter** and adjust the gain level.

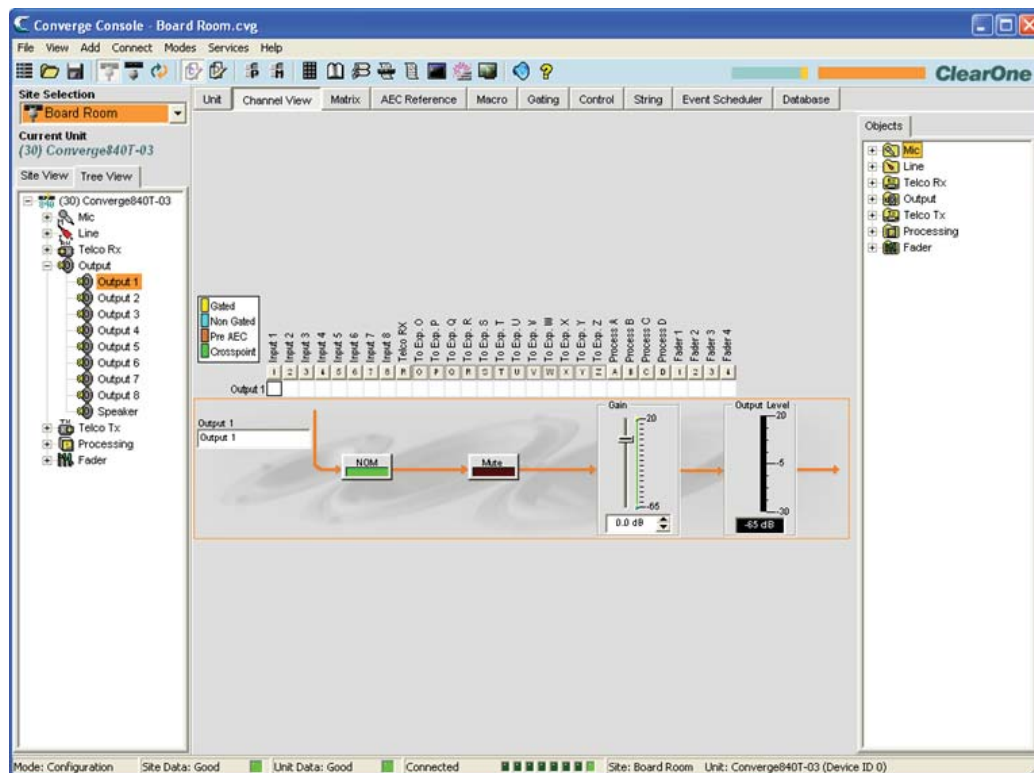
Optimizing Gain for Telco Tx Channels

Optimize telco tx outputs using the same procedure as output channels, with the following exceptions. Select **Telco Tx** on the **Tree View Tab**. With someone speaking into the microphones routed to the telco tx, monitor the **Post Gain Meter** and adjust the gain level.

NOTE: Use a standard handset on the far end because levels can be unpredictable from speaker phones and amplified headsets.

Optimizing Gain for Output Channels

1. Open the **Channel View Tab** and select the **Output Channel** on the **Tree View Tab** that you want to optimize, as shown below.



2. Optimize the gain level for all mic, line, and telco rx inputs routed to the selected output channel.
3. Adjust the **Gain Slider** until the average level on the **Gain Meter** matches the nominal level of the next device in the chain.
4. Repeat the above steps for each output channel in the system.

For additional information, refer to the *Table of Contents* for these related topics:

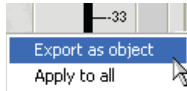
- **Configuration Mode Overview**
- **Mic Input Settings**
- **Line Input Settings**
- **Telco Rx Settings (840T and TH20)**
- **Telco Tx Settings (840T and TH20)**
- **Output Settings**
- **AEC (Acoustic Echo Cancellation)**
- **AGC/ALC (Automatic Gain Control/Automatic Level Control)**
- **NC (Noise Cancellation)**
- **Filters**

CREATING CHANNEL OBJECTS

One of the most powerful features of the Console software is the ability to create **Channel Objects**. After configuring a channel using the **Channel View** tab, you can save a channel object into the **Database**, and use **Drag and Drop Configuration** to streamline configuration tasks for your Converge Pro installations.

Accessing Channel Objects

To create a channel object with the current configuration settings, right click in the **Channel View** screen anywhere inside of the orange rectangle that surrounds the signal flow diagram for the channel. From the menu that appears, select **Export Object** as shown below.



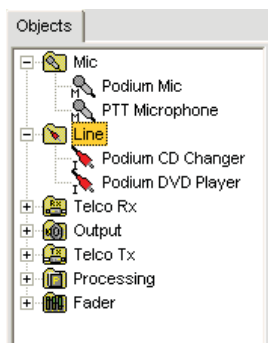
NOTE: You can apply the current channel configuration settings for the current channel to all channels of the same type by selecting the Apply to all option. (This option is not available for telco rx or telco tx channels.)

Enter an appropriate **Label** (name) in the entry field of **Export Object** dialog as shown below.



Click **Export** to save the configuration to the database, or **Cancel** to return to the Channel View screen.

Console saves the object to the database and displays it in the **Object Tree** as shown below.



The channel object is now available for use in configuring any channel of the same type. For more information on using audio devices and channel objects, see the following topics:

- **AV Devices**
- **Creating AV Devices**
- **Channel Objects**
- **Database Tab**
- **Drag & Drop Configuration**

DRAW AND DROP CONFIGURATION

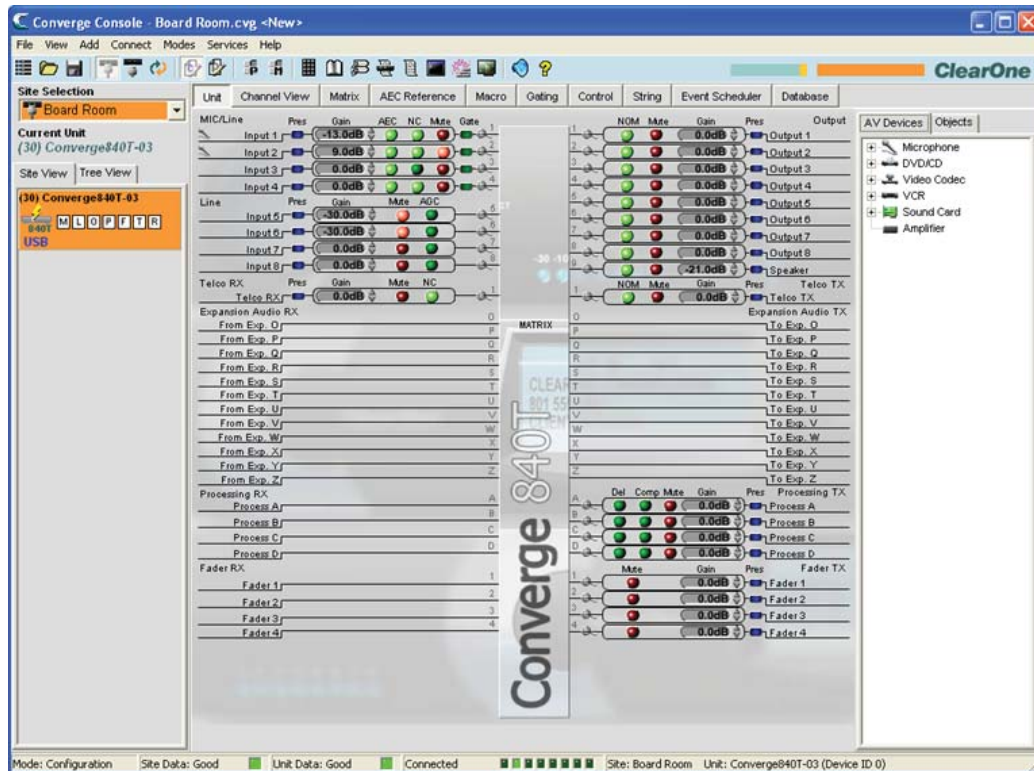
Console provides powerful **Drag and Drop Configuration** capabilities that allow you to quickly configure Converge Pro devices and perform advanced system configuration tasks.

The types of objects available in Console for drag and drop configuration include:

- AV Devices
- Channel Objects
- Matrix Objects
- Control Objects
- Macro Objects
- Preset Objects

Accessing Drag and Drop Configuration

To select objects for drag and drop configuration, use the **Objects Pane** on the right side of Console. The objects available in the objects pane vary depending on the tab selected on the Console **Tab Bar**. For example, when the **Unit Tab** is selected, both AV devices and channel objects are available as shown below.



Using Drag and Drop Configuration

Drag and drop configuration is a three step process for all object types:

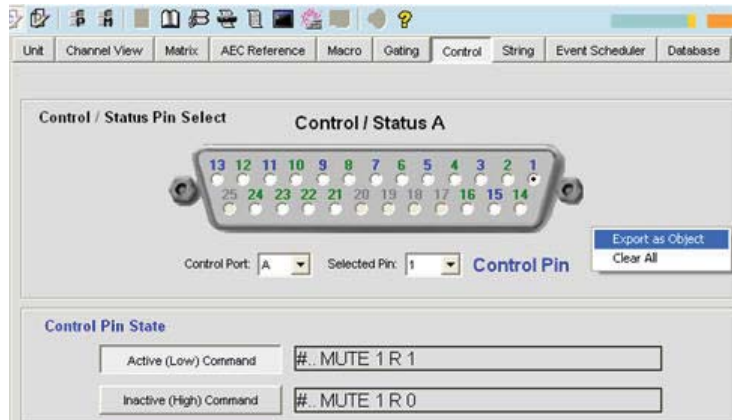
1. Create an object
2. Store it in the **Database**
3. Drag the object from the objects pane onto a channel or screen area (as appropriate for the object type)

The following sections describe creating and applying objects in Console.

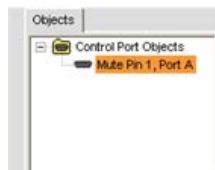
Creating Objects

With the exception of custom AV devices, which can only be created using the **Database Tab**, all objects can be created by right clicking on a screen and using the pop-up menu that appears.

For example, to capture the currently displayed control pin programming as a control port object, right click in the **Control/Status Pin Select** portion of the of the **Control Tab** screen, and select **Export as object** from the pop-up menu (see below).



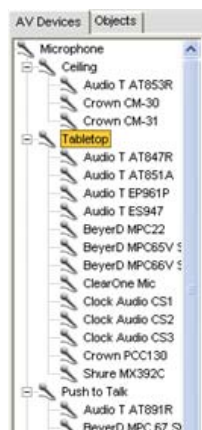
The control object now appears in the objects pane as shown below.



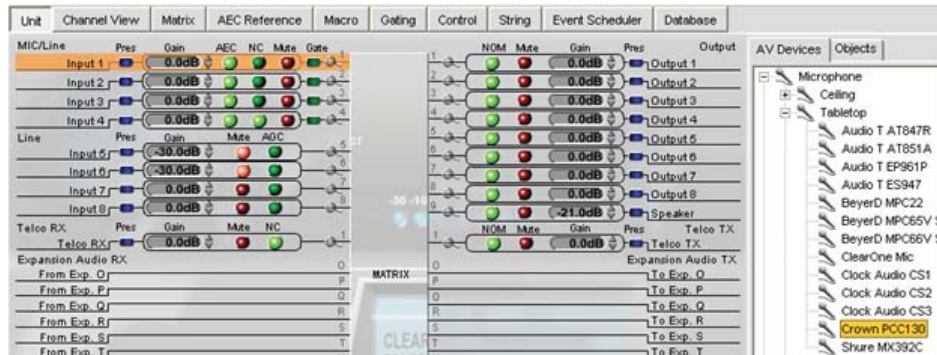
The object is now available for drag and drop configuration.

AV Devices

ClearOne provides numerous pre-configured AV devices, with settings that optimize the performance of the device for a typical (baseline) room. These devices are available in the **AV Devices** tab of the **Objects Pane** as shown below. Click a device type in the **AV Device Tree** to show the available devices of that type.



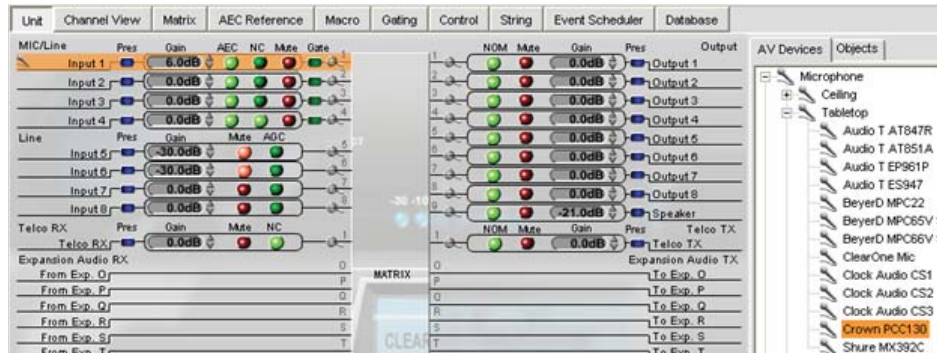
To apply an AV device to a channel, drag the object onto the channel in the **Unit** or **Channel View** tabs. For example, to apply a **Crown PCC130** tabletop microphone to **Mic/Line Input 1**, select the object from the **AV Devices** tree and drag it onto the channel.



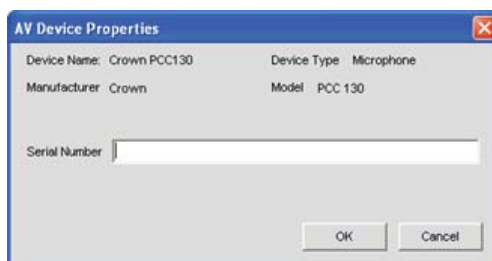
A dialog prompts you for the distance of the microphone to the talker. Enter a value and press **OK** to apply the object to the channel.



A microphone icon appears next to the channel, indicating that the channel is using an AV device object configuration.



Click on the microphone icon to view object properties and enter a serial number in the **AV Devices Properties** dialog.

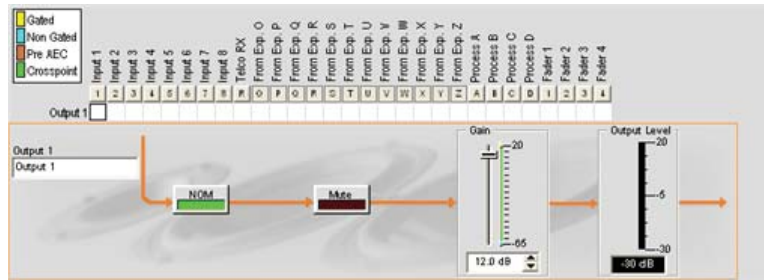


To view detailed information about an AV device's configuration settings, or to create a custom AV device, use the **AV Devices** pane of the **Database** tab.

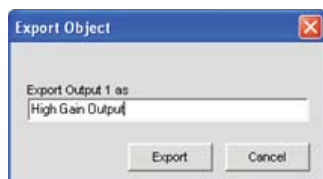
Channel Objects

In addition to using AV devices, you can drag and drop **Channel Objects** in the **Unit Tab** and the **Channel View Tab** to instantly apply a saved configuration to a channel. You can save channel objects for all Converge channel types, including **Mic Input**, **Line Input**, **Telco Rx**, **Telco Tx**, **Output**, **Processing**, and **Fader** channels.

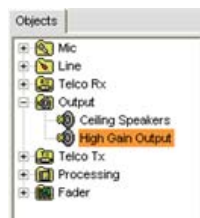
For example, you can configure matrix routing, NOM on/off, mute, and gain settings for **Output 1** on the **Channel View** tab as shown below.



Right click anywhere in the signal flow diagram and select **Export as Object** from the pop-up menu. Enter a descriptive object name in the **Export Object** dialog, and click **Export** to save the object to the database.

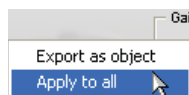


The object now appears in the **Objects** pane.



You can now drag and drop the object onto any channel of the same type to instantly apply the object's configuration settings to the channel.

NOTE: To instantly apply the current channel settings to ALL channels of the same type without saving an object in the database, select **Apply to all** from the pop-up menu when right-clicking on the signal flow diagram. (Menu option not available for Telco Rx or Telco Tx channels.)



To view detailed information about an AV device's configuration settings, or to create a custom AV device, use the **AV Devices** pane of the **Database tab**.

Advanced Configuration Objects

For advanced configuration tasks, Console allows you to create and apply **Matrix Objects**, **Control Objects**, **Macro Objects**, and **Preset Objects** as described below.

Matrix Objects

Matrix Objects allow you to save customized matrix configurations into the **Database** and reuse them. This enables you to instantly re-configure the entire matrix to accommodate changes in conferencing or venue configuration requirements, and to rapidly configure additional Converge Pro units using drag and drop configuration.

To capture the current matrix configuration and save it as a matrix object, right click anywhere in the center pane of the matrix screen and select **Export as Object** from the pop-up menu.

To apply a matrix object, drag it from the **Objects Pane** and drop it onto the matrix in the **Matrix Tab** screen.

Control Objects

Control Objects allow you to save control port objects into the **Database**. To capture the currently displayed control pin programming, right click in the **Control/Status Pin Select** portion of the of the **Control Tab** screen, and select **Export as Object** from the pop-up menu. After saving the control port object, it appears in the **Objects** pane on the right side of Console.

To apply a control object after saving it to the database, drag it from the **Objects Pane** and drop it onto the **Control/Status Pin Select** portion of the **Control Tab** screen.

Macro Objects

Macro Objects allow you to save macros into the **Database** and reuse them. To capture a macro and save it as an object, right click anywhere in the center pane of the macro screen and select **Export as object** from the pop-up menu. After saving a macro as an object, it appears in the **Objects** pane on the right side of Console.

To use a macro object, drag it from the **Objects Pane** and drop it onto the **Macro Command List** portion of the **Macro Tab** screen.

Preset Objects

Preset Objects allow you to save preset configurations into the **Database** and reuse them. This enables you to instantly apply preset changes, and to rapidly configure additional Converge Pro units using drag and drop configuration.

To capture the current preset and save it as an object, right click anywhere in the center pane of the preset screen and select **Export as Object** from the pop-up menu.

To apply a preset object, drag it from the **Objects Pane** and drop it onto the **Site Pane** of Console while in Console is in **Preset Mode**.

For additional information, refer to the *Table of Contents* for these related topics:

- **Database Tab**
- **Mic Input Settings**
- **Line Input Settings**
- **Telco Rx Settings (840T and TH20)**
- **Telco Tx Settings (840T and TH20)**
- **Output Settings**
- **Processing Settings**
- **Fader Settings**
- **Matrix Tab**
- **Control Tab**
- **Macro Tab**
- **Creating Presets**
- **Preset Mode Overview**

PRESET MODE

Preset Mode allows you to create, modify, and run presets. There are 32 presets available in Console.

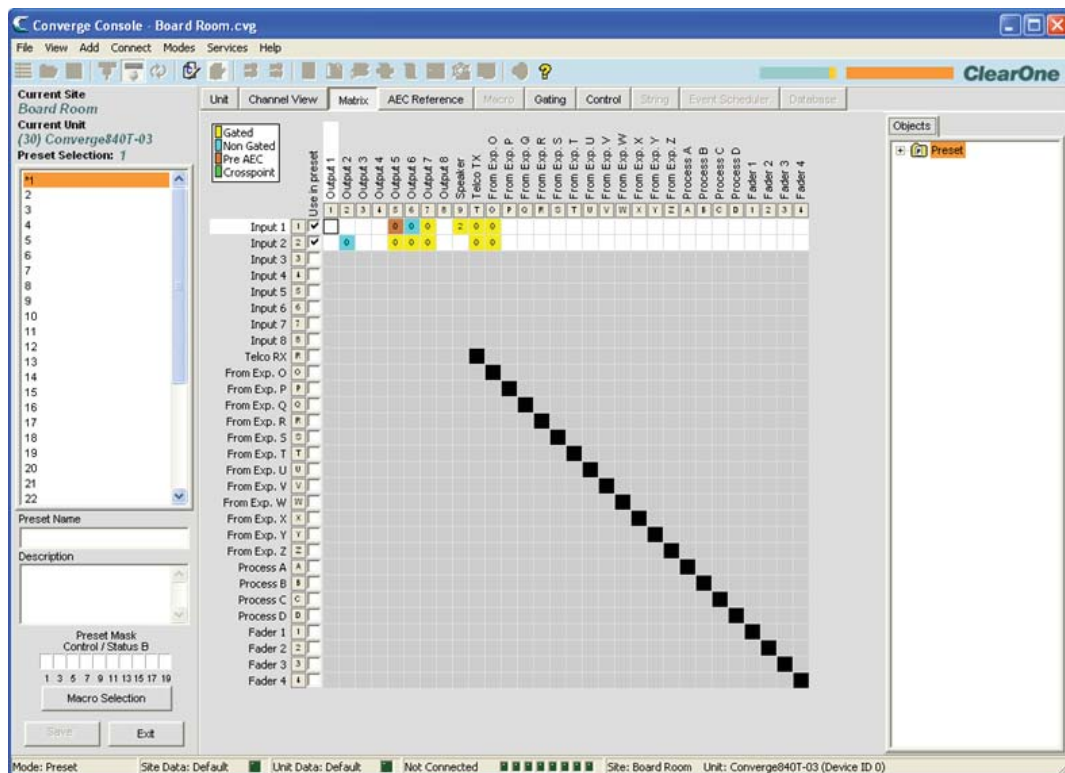
Presets provide the configuration flexibility needed to meet the challenges of changing conference room requirements. These changes include audio routing, gating, muting, levels, AEC referencing, and signal processing, as well as room combining and room configuration. Presets allow you to make configuration changes instantaneously—without interrupting or affecting any conferences in progress.

This topic covers:

- **Preset Configuration Tabs**
- **Creating Presets**
- **Executing Presets**
- **Preset Execution Flags**
- **Preset Control Masking**
- **Preset Storage Space Considerations**
- **Exporting Preset Objects**

Accessing Preset Mode

To access preset mode, press the **Preset**  button on the Console **Button Bar**, or select **Preset** from the **Modes** menu.



As shown above, Console displays the **Matrix Tab** by default in preset mode (rather than the **Unit Tab** that is the default display in **Configuration Mode**). The **Site Pane** also changes to display the **Current Site**, **Current Unit**, **Preset Selection** list and the **Preset Name**, **Description**, and **Preset Mask** entry fields.

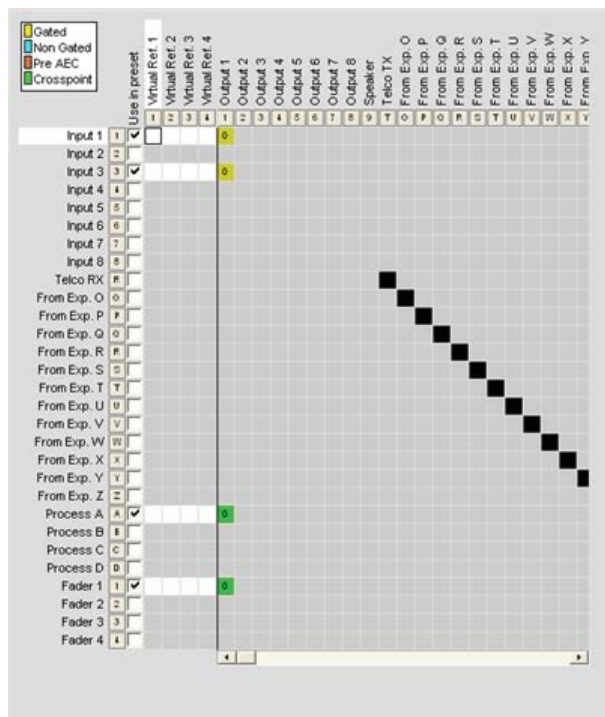
Preset Configuration Tabs

In preset mode, the following tabs are available on the Console **Tab Bar** for defining preset configurations:

- **Unit Tab**
- **Channel View Tab**
- **Matrix Tab**
- **AEC Reference Tab**
- **Gating Tab**
- **Control Tab**

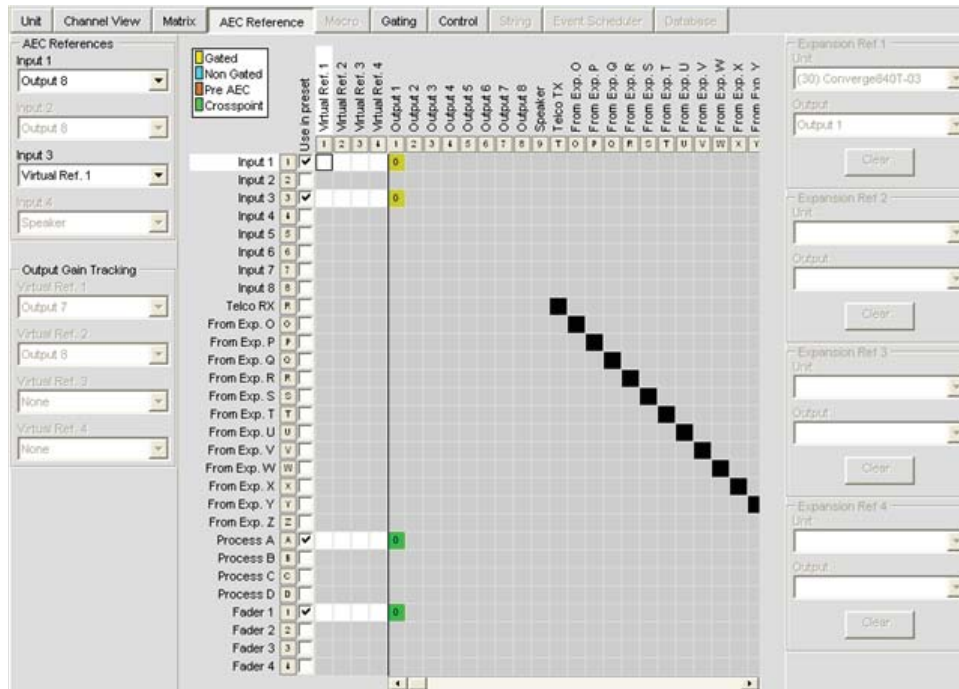
The channels available for configuration in a preset are determined by the channels selected in the **Use in preset** row on the matrix tab. Rows that are not selected in the matrix are grayed out, making them unavailable for preset configuration changes. In addition, only output channels that have a cross-point set in the matrix tab will be available in the preset.

When you click a check box in the **Use in preset** row, the row becomes active and you can change its routing, gating, AEC reference, and other settings. All changes will be saved in the preset and executed when the preset is ran. Channels that are not selected remain unchanged after preset execution.



In the example above, Input 1 and Input 3 are selected for use in the preset, and routed to Output 1 with gating enabled and a cross-point level adjustment of zero. Cross-points are also set for Output 1 on the Process A and Fader 1 channels.

For AEC reference changes in a preset, you can also select channels in the Use in preset row as shown below. (Note that only the channels selected and cross-pointed in the matrix are available, and that they are selected by default.)



Creating Presets

Use the following procedure to create presets:

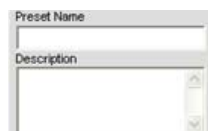
1. Press the Preset Mode button on the Button Bar to put Console into preset mode.



2. Select the number of the preset you want to configure in the Preset Selection list.

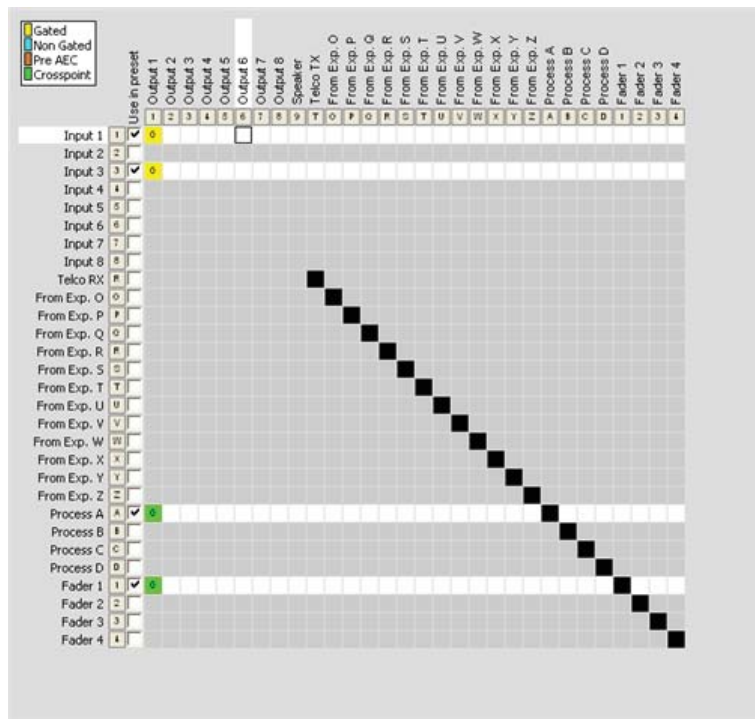


3. Enter a Preset Name and Description in the entry fields (optional).



4. Select the channels you want to include in the preset using the Use in preset check boxes in the matrix.

- Set the output channel cross-points that you want to include in the preset using the matrix.



- Configure the desired setting changes for the preset including:
 - Mic Input, Line Input, Output, Telco Rx, Telco Tx, Processing, and Fader channel settings
 - Gating settings
 - Control settings
 - AEC Reference settings
- Click on the Preset Mask Control/Status B boxes to set the pin states (H = High, L = Low) required to trigger preset execution (optional). See Preset Control Masking for more information.



- Press the Macro Selection button to execute one or more macros when the preset executes (optional).



NOTE: In most cases, macros should not be used in a preset, unless the desired functionality requires using a serial command. Some examples that require using a macro include: querying device GPIO status when a preset executes; turning Safety Mute on when a preset executes; and sending a Command String to an external control device to indicate preset/room configuration status. For more information on serial commands, see the Converge Pro Installation and Operation Manual.

- Press the Save button to save the preset
- Click the Exit button to exit preset mode and return to configuration mode.

The preset is now available for execution as described below.

Executing Presets

There are four ways to execute presets:

1. Using Console
2. Using the LCD Preset Menu on the Front Panel
3. Using Control programming and external control devices (such as the closure contacts on a room partition)
4. Using Macros

NOTE: Presets only run on the current unit shown in the site pane. However, you can execute a preset on a unit connected to the Expansion Bus by using a macro.

Executing Presets Using Console

Select **Execute Preset** from the **Services** menu, select the preset you want to execute from the **Execute Preset** dialog that appears, and press the **Execute** button.



NOTE: When executing presets in Console, Console assumes a Preset Execution Flag value of 2, meaning that the preset executes and its execution state is set to off. To use preset masking and execution control, run presets from a macro, or using control programming.

Executing Presets Using the LCD Preset Menu

Press the **Select** button on the front panel, use the **Menu Dial** to select **Presets**, and press the **Select** button.

The **Preset Menu** appears as shown below:



Use the following procedure to execute presets from the front panel LCD display:

1. Use the **Menu Dial** to highlight the preset you want to execute
2. Press the **Select** button
3. Answer **Yes** at the prompt that appears to run the selected preset, or **No** to cancel.

Executing Presets Using Control Programming

Use the **PRESET** serial command in the **Active (Low) Command** or **Inactive (High) Command** fields in the **Control Pin State** section of the Control Tab. To execute multiple presets when a control condition is met, use the **MACRO** command to call a macro with multiple **PRESET** commands embedded, as explained in the next section.

For more information on **PRESET** and the complete Converge Pro serial command set, refer to *Appendix A: Serial Commands*.

Executing Presets Using Macros

Use the **PRESET** serial command to execute presets in a macro. To run multiple presets at the same time, use multiple **PRESET** commands in the macro. Macros can be executed from within Console or by using any external control device. Typically, you will create a macro for each room configuration (group of presets) that you want to execute at the same time.

Preset Execution Flags

Console uses user-selectable preset flags to determine the current execution state of a preset. This gives you complete control over preset execution, and allows you to combine multiple presets in a macro (or multiple macros) while ensuring that only the presets needed for a given room configuration are executed when needed.

The three user-selectable execution flags are:

- 0 = do not execute the preset and set the execution state to **off**
- 1 = execute the preset and set the execution state to **on**
- 2 = execute the preset and set the execution state to **off**

To query the current execution state for a preset, use the **PRESET** command with the preset number and no other arguments.

Preset Control Masking

In traditional room-combining applications, one preset is created and executed for each room configuration. This can cause volume levels, mute states, and other channel configuration settings to reset for all room sections when a preset is executed. In addition, conferences in progress in unaffected room sections lose any custom settings, and the participants hear unnecessary pops and clicks.

Console eliminates these shortcomings through **Preset Control Masking**, which provides the following advantages:

- Automatic preset masking control when room dividers are wired to **Control** port B pins
- Manual preset masking control via serial commands
- Volume levels and mute states are reset only in sections that change
- Unaffected room sections do not lose custom settings
- Participants in unaffected room sections do not hear pops and clicks

To use preset control masking, click on the **Preset Mask Control/Status B** boxes (located in the **Site Pane** while Console is in preset mode) to set the pin states (**H** = High, **L** = Low) required to trigger preset execution. You can use a pin state or combination of pin states to define when a preset will execute.



A typical use for preset masking is a room-combining application which uses automatic partitions with sensors that set the pin to high when a partition is open, and to low when a partition is closed. For example, if **Pin 1** is connected to a first partition and **Pin 3** is connected to a second partition, then the preset mask control/status B settings shown above would activate the preset when the first partition is open and the second partition is closed.

Preset Storage Space Considerations

In most preset configuration scenarios, it is unlikely that you would reach the storage capacity of a Converge Pro unit. In the event that you exceed the preset storage space, Console will alert you when you try to save the preset. You will be asked to reduce the number of cross point changes in the **Matrix**, or reduce the number of **Macros** in the preset. As a general rule, you make cross point changes to three-fourths of the matrix with up to two macros in a given preset; **OR** you can use up to 255 nested macros for a given preset.

Exporting Preset Objects

Preset objects allow you to save preset configurations into the **Database** and reuse them. This enables you to instantly apply preset changes, and to rapidly configure additional Converge Pro units using **Drag and Drop Configuration**.

To capture the current preset and save it as an object, right click anywhere in the center pane of the preset screen and select **Export as object** from the pop-up menu.

To apply a preset object, drag it from the **Objects Pane** and drop it onto the **Site Pane** of Console while in Console is in **Preset Mode**.

For additional information, refer to the *Table of Contents* for these related topics:

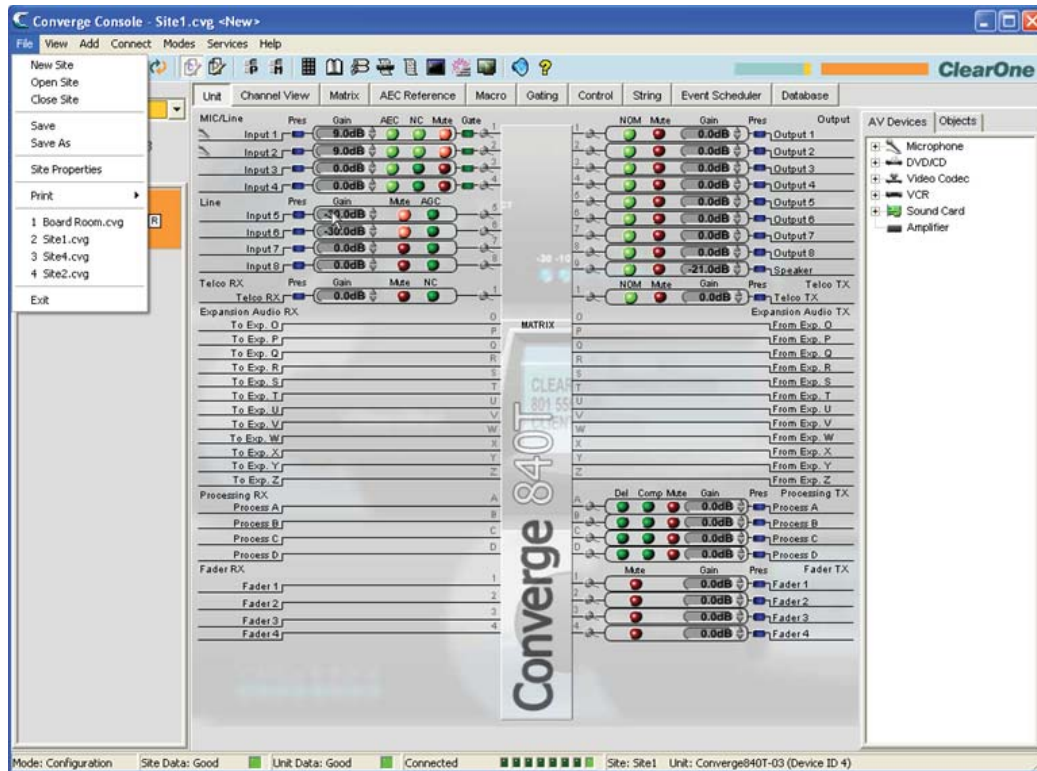
- **Configuration Mode**
- **LCD Presets Menu**
- **Controls and Connections**
- **Expansion Bus Overview**
- **Unit Tab**
- **Channel View Tab**
- **Matrix Tab**
- **AEC Reference Tab**
- **Gating Tab**
- **Control Tab**
- **Macro Tab**
- **String Tab**
- **Database Tab**
- **Drag & Drop Configuration**

FILE MENU OVERVIEW

File Menu allows you to use **Site Files** and **Print Reports**.

Accessing the File Menu

In Console, select **File** from the menu bar. The **File** menu appears as shown below:



File menu options are explained in the following sections.

File Menu: Site Options

The File menu site options allow you to **Create a New Site**, open a saved site with **Open Site**, or close the current site with **Close Site**.

File Menu: Save Options

The File menu save options allow you to **Save** and **Save As** a site file.

File Menu: Print

Print allows you to create, view, print, and save Site and Unit configuration reports.

File Menu: Recent File List

The File menu recent file list displays the last four **Site Files** opened.

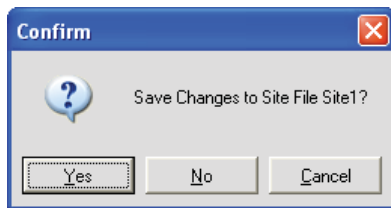
File Menu: Exit

The File menu **Exit** option closes Console. (To close the current Site without exiting Console, use the **Close Site** option.)

If you are **Connected to a Site**, a **Confirm** dialog appears when you select **Exit** as shown below.



Press **Yes** to confirm the exit or **No** to return to Console. Clicking **Yes** brings up another **Confirm** dialog as shown below.



Click **Yes** to save changes to the Site File, **No** to exit Console without saving changes, or **Cancel** to abort the exit and return to Console.

For additional information, refer to the *Table of Contents* for these related topics:

- **Site File Overview**
- **Print Reports**
- **Create a New Site**
- **Connect To A Site**
- **Unit Properties**

PRINT REPORTS

The **Print Reports** option on the **File** menu allows you to print a configuration properties report for a Converge Pro **Site** or **Unit**.

Accessing Print Reports

To print a site or unit report, click on the **File** menu, select **Print**, then select **Print Site Report** or **Print Unit Report** as shown below.



The **Report** window appears as shown below.

Report Window



The report button bar provides buttons for viewing and printing the document, as well as saving the report to a PDF file. When you are finished viewing the report, click **Close** to close the report window and return to Console.

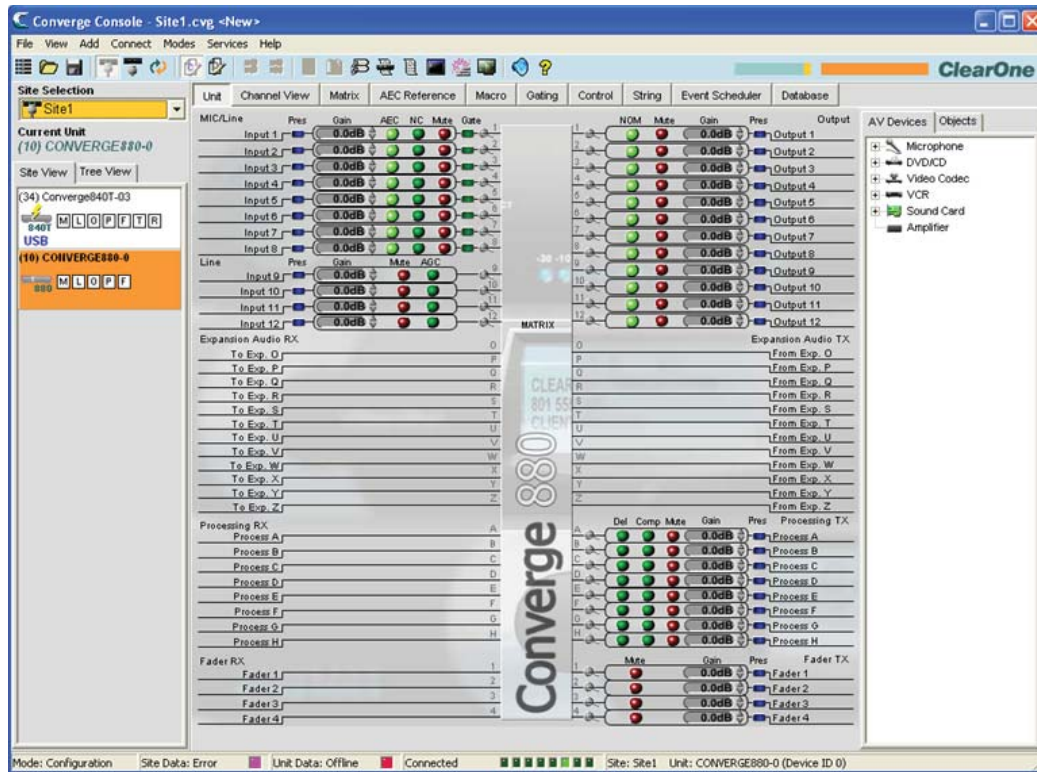
For additional information, refer to the Table of Contents for these related topics:

- **Site Properties**
- **Unit Properties**

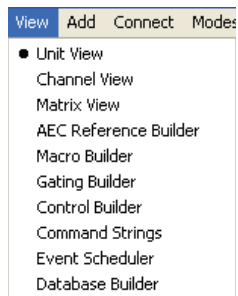
VIEW MENU OVERVIEW

The **View Menu** provides an alternate navigation method for viewing the screens displayed by clicking on the **Console Tabs**.

Accessing the View Menu



In Console, click **View** on the menu bar. The **View** menu appears as shown below:



A bullet indicates the view currently displayed in Console.

View Menu Options

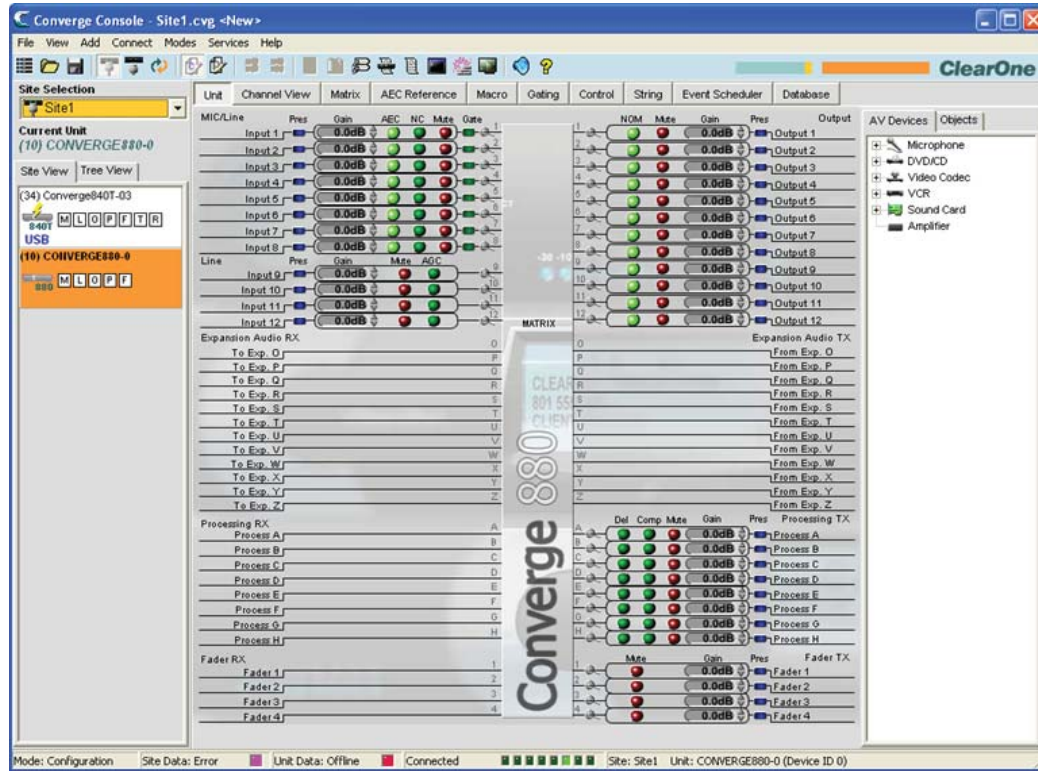
Options available on the View menu include:

- **Unit View**
- **Channel View**
- **Matrix View**
- **AEC Reference**
- **Macro Builder**
- **Gating Builder**
- **Control Builder**
- **Command String**
- **Event Scheduler**
- **Database Builder**

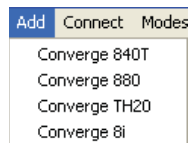
ADD MENU

The **Add Menu** allows you to add Converge Pro units to a site using default configuration settings.

Accessing the View Menu



In Console, click **Add** on the menu bar. The **Add** menu appears as shown below:

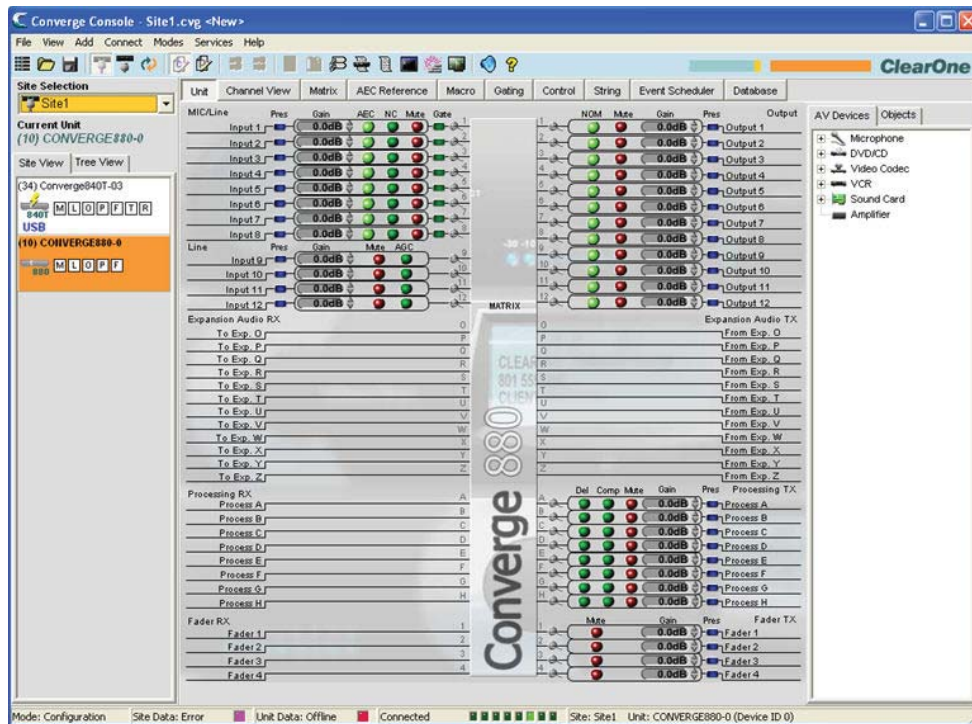


Adding Units

On the Add menu, select the Converge Pro model you want to add to the site. The **Unit Properties** dialog appears as shown below:



Configure the new unit's properties using the **General** tab. Configure the new unit's IP and serial port settings using the **Comm** tab. For more information on configuring unit properties, see **Configure Unit Properties**.



Press **OK** to add the unit to the site or **Cancel** to return to Console. The added unit appears on the **Site View** tab of the **Site pane**, highlighted in orange as shown below:

NOTE: The Status bar at the bottom of the Console window displays the current status of the unit and the site. As shown above, site data errors and unit data errors are indicated by magenta and red LEDs respectively. Complete unit configuration with correct settings to clear the errors. When correct configuration is complete, the status LEDs will change to green.

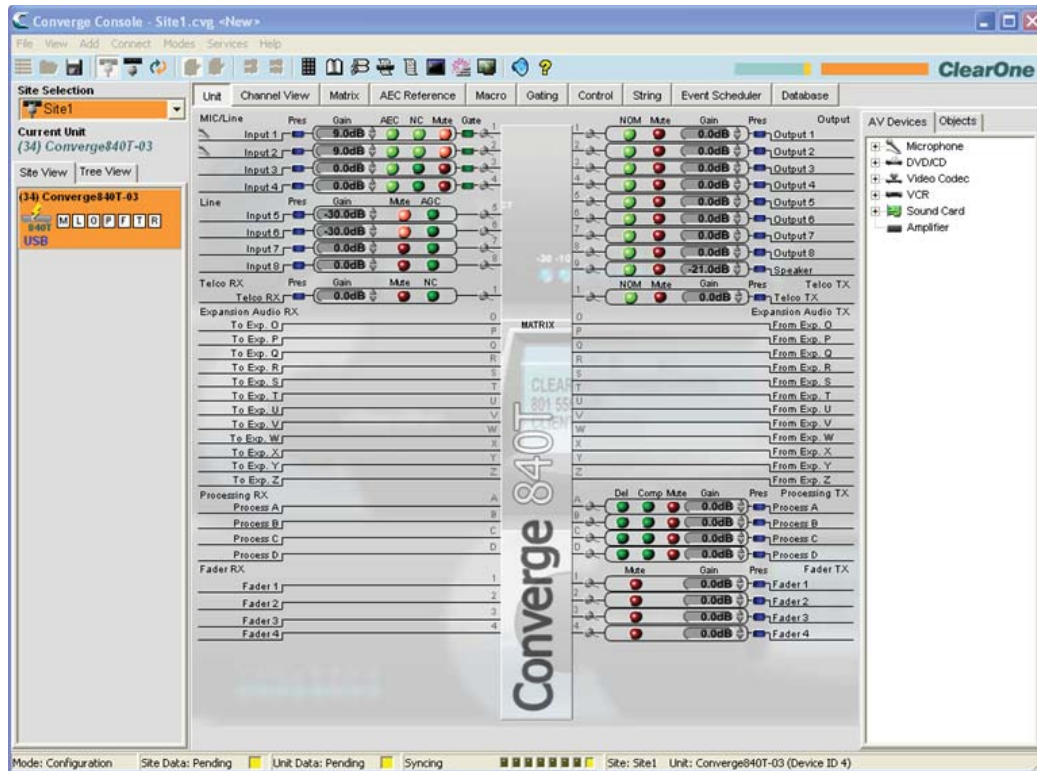
For more information, refer to the Table of Contents for these related topics:

- **Configure Unit Properties**
- **Create A New Site**
- **Connect To A Site**
- **Site Properties**
- **Unit Tab**
- **Configuration Mode Overview**

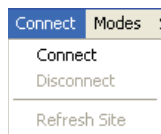
CONNECT MENU OVERVIEW

The **Connect Menu** enables you to connect to a site, disconnect from a site, and refresh the current display for a site. Connecting to a site allows you to control and configure the units in that site. See **Site Setup Overview** for more information.

Accessing the Connect Menu



In Console, select **Connect** from the menu bar. The Connect menu appears as shown below:



Connect Menu Options

- **Connect:** Connects to a site via USB or IP.
- **Disconnect:** Disconnects Console from the currently connected site. (This option is not available if no site is connected.)
- **Refresh Site:** Refreshes site information displayed in the current Console view. (This option is not available if no site is connected.)

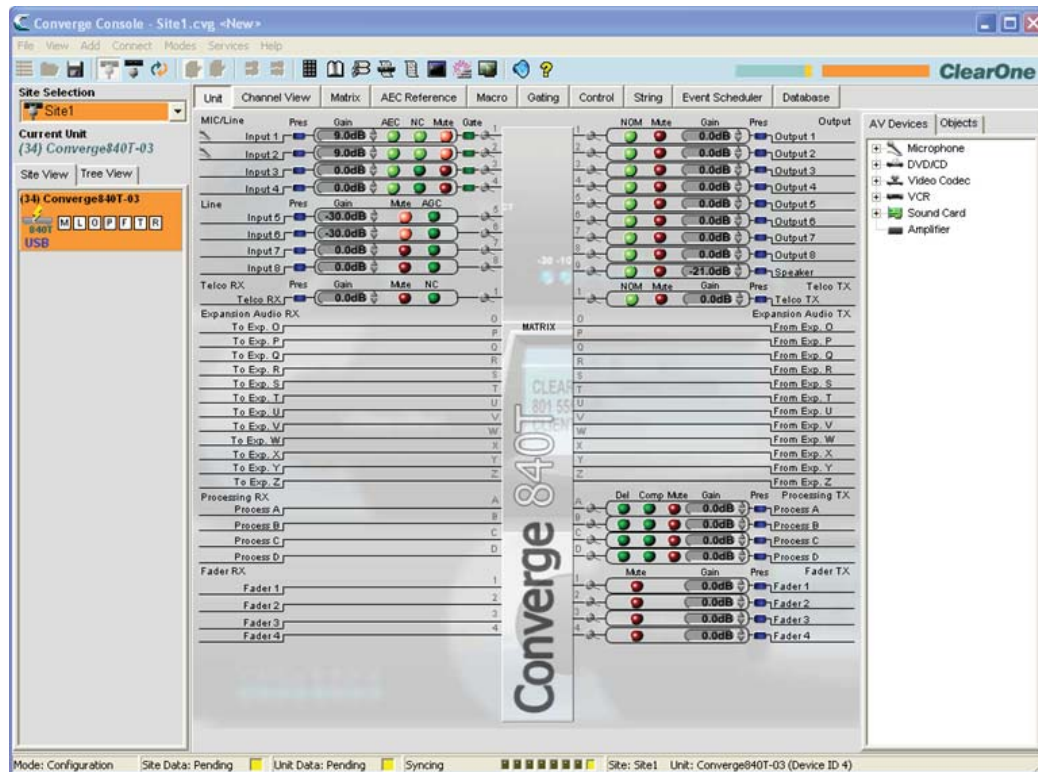
For additional information, refer to the Table of Contents for these related topics:

- **Site Setup Overview**
- **Connect To A Site**
- **Create A New Site**

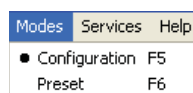
MODES MENU OVERVIEW

The **Modes Menu** allows you to switch Console between **Configuration Mode** and **Preset Mode**. Configuration Mode allows you to configure a wide range of advanced settings for your Converge Pro unit. Preset Mode allows you to create presets for specific venues and apply them to instantly to your Converge Pro unit.

Accessing the Modes Menu



In Console, select **Modes** from the menu bar. The Modes menu appears as shown below:



A bullet indicates the current mode. To switch modes, select **Configuration** or **Preset**. Console immediately reflects mode changes.

NOTE: You can also switch modes using the   buttons on the Console Button Bar.

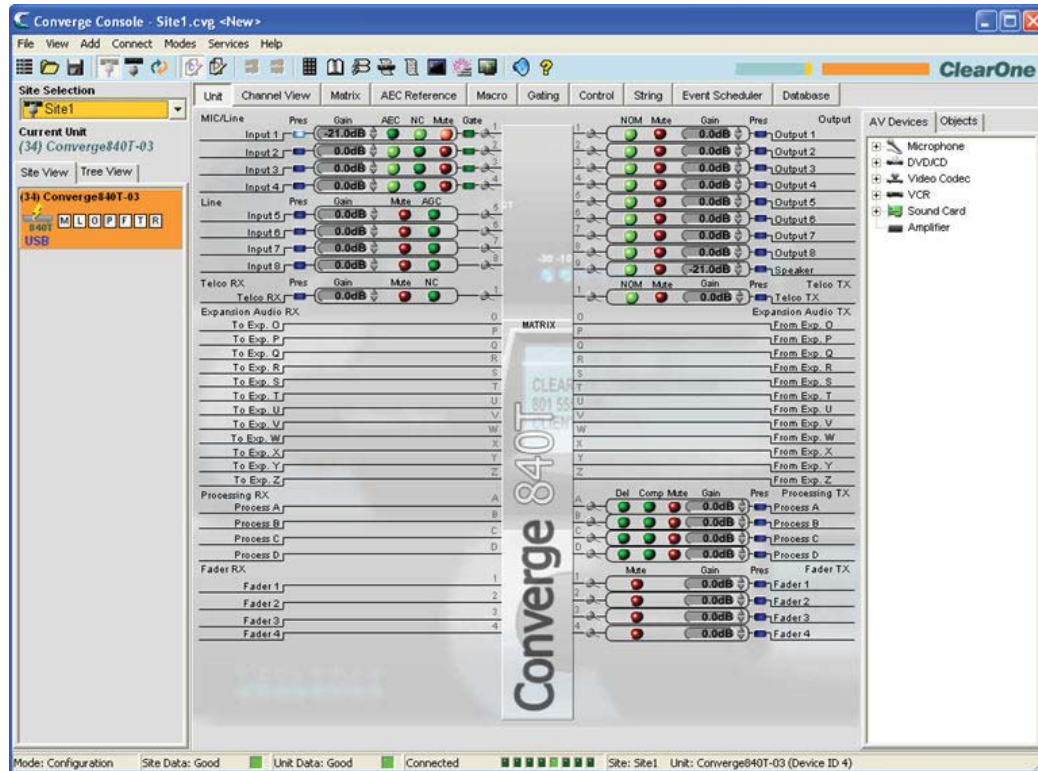
For additional information, refer to the Table of Contents for these related topics:

- **Configuration Mode**
- **Preset Mode**
- **Console Button Bar**

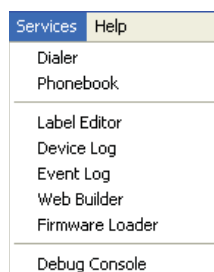
SERVICES MENU OVERVIEW

The **Services Menu** provides various utilities for using and managing Converge Pro units.

Accessing the Services Menu



In Console, click **Services** on the menu bar. The Services menu appears as shown below:



Service Menu Options

Options available on the Services menu include:

- **Dialer**
- **Phonebook**
- **Label Editor**
- **Device Log**
- **Event Log**
- **Firmware Loader**
- **Debug Console**
- **System Checks**
- **Execute Presets**
- **Web Builder**

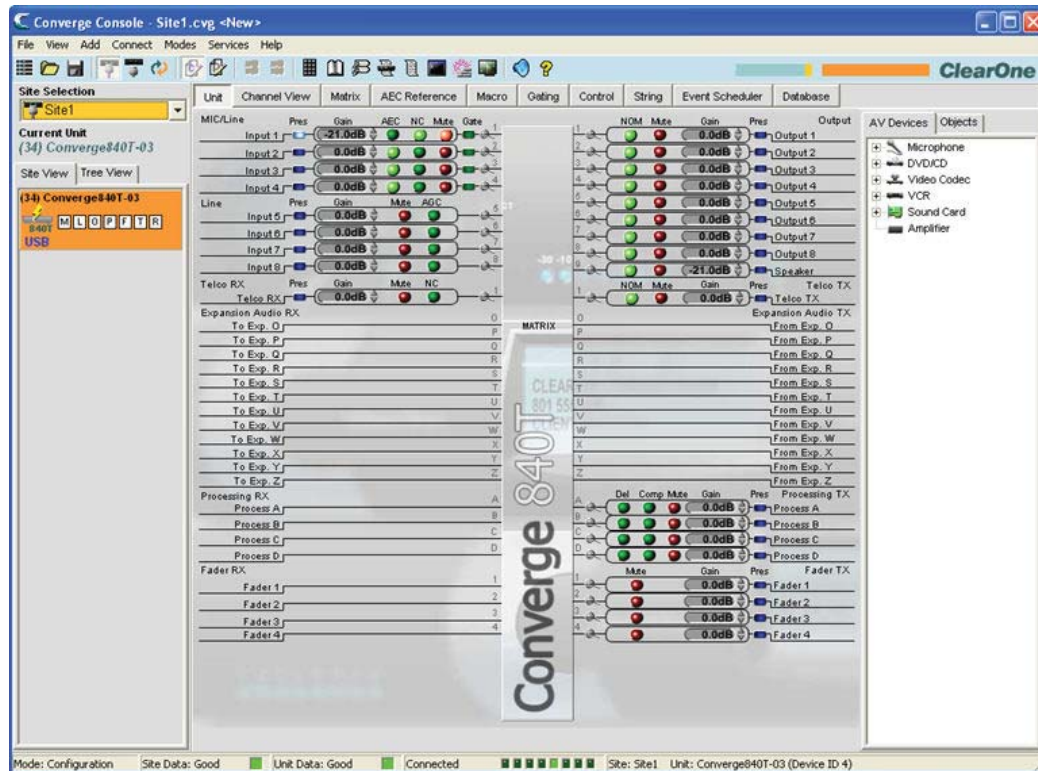
DIALER

The **Dialer** provides a software telephone interface for teleconferencing applications.

NOTE: The dialer is only available when Console is connected to a site.

Accessing Dialer

To access the dialer, select **Dialer** from the Services menu; press the **Dialer**  button on the Console **Button Bar**; or press the **Dialer** button in the **Telco Rx** or **Telco Tx** channel view screens.



Using Dialer

When using the dialer, the date and time, number dialed, and call status are displayed in the LCD section of the dialer window.



Placing and Ending Calls

To place a call, select a number from the **PhoneBook** section of the dialer window, or manually enter a number, then press the **ON/OFF** hook button.

You can also access the Phonebook by pressing the **PHONEBOOK** button.

To end a call, press the **ON/OFF** hook button.

To redial a number, press the **REDIAL** button.

Using Line Features

Use the **FLASH** button to access telco and PBX line features.

Muting

Use the **MUTE Tx** and **MUTE Rx** buttons to mute the transmit and receive signals respectively when a call is in progress.

Renulling the Line

During conference calls, line conditions and other factors can cause divergence in the automatic **Telephone Echo Cancellation (TEC)** adaption process. If side tone occurs during a conference call, press the **RE_NULL** button to send a short burst of white noise over the line and initiate TEC readaption.


For more information, please see these related topics:

- **Connect To A Site**
- **Services Menu Overview**
- **Telco Rx Settings (840T and TH20)**
- **Telco Tx Settings (840T and TH20)**
- **Phonebook**
- **Telephone Echo Cancellation**

PHONEBOOK (840T AND TH20)

The **Phonebook** allows you to store telephone numbers and make speed-dial assignments for teleconferencing applications.

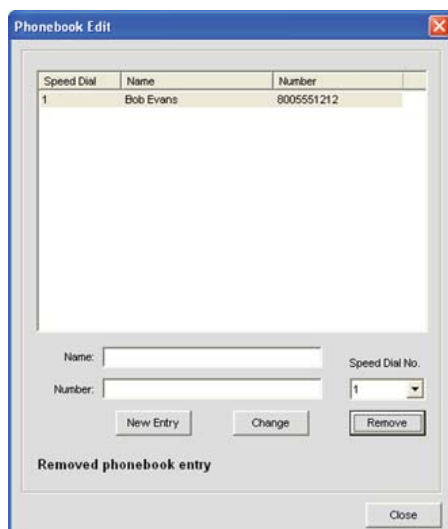
Accessing Phonebook

To access the phone book, select **Phonebook** from the Services menu; press the **Phonebook**  button on the Console **Button Bar**; or press the **Phonebook** button in the **Dialer** screen.



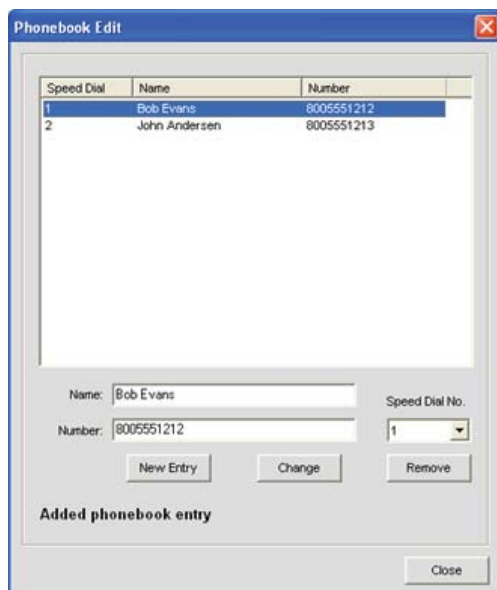
Using Phonebook

To add an entry to the phonebook, press the **New Entry** button; enter a **Name** and **Number**; and select a **Speed Dial Number** (optional).



NOTE: The Number field allows numeric entries only. No special characters (i.e. parentheses and dashes) are allowed.

Press the **Add** button to add the entry to the phonebook. The number now appears in the phonebook list, and in the **Phonebook** portion of the **Dialer** screen.



The image shows a 'Phonebook Edit' dialog box with a table of speed dial entries. The table has three columns: 'Speed Dial', 'Name', and 'Number'. It contains two entries: '1 Bob Evans 8005551212' and '2 John Andersen 8005551213'. Below the table are input fields for 'Name' (Bob Evans), 'Number' (8005551212), and 'Speed Dial No.' (1). There are three buttons: 'New Entry', 'Change', and 'Remove'. A status message 'Added phonebook entry' is displayed at the bottom, and a 'Close' button is in the bottom right corner.

Speed Dial	Name	Number
1	Bob Evans	8005551212
2	John Andersen	8005551213

Name: Speed Dial No.

Number:

Added phonebook entry

To edit an entry, select it and press the **Change** button. To delete an entry, select it and press the **Remove** button.

For additional information, please refer to the Table of Contents for these related topics:

- **Dialer**
- **Button Bar**
- **Services Menu Overview**

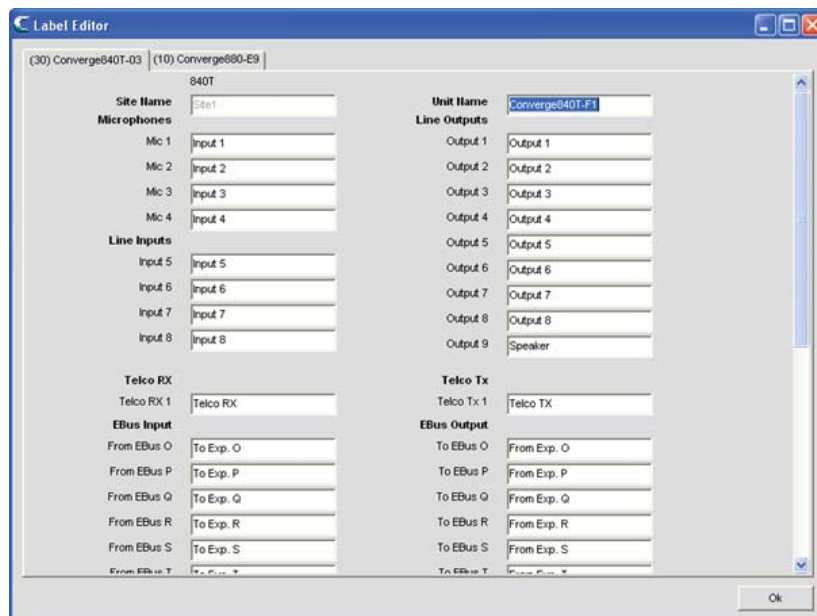
LABEL EDITOR

The Label Editor allows you to quickly change the default names (labels) assigned to all Converge Pro units and channels. Using descriptive names makes it easier to identify units and channels for configuration and management purposes. Label changes are global, and appear throughout Console wherever the label is referenced.

In addition to using the label editor to rename objects, you can use the label entry fields provided throughout Console.

Accessing Label Editor

To access the label editor, select Label Editor from the Services menu, or click the button on the Converge Button Bar.



Using Label Editor

As shown above, the label editor contains one tab for each unit in the currently connected site. To modify a label, select the unit tab and click on the entry field for the object name that you wish to change. When finished, click the **Ok** button to save the changes and close the label editor window.

For additional information, please refer to the *Table of Contents* for these related topics:

- **Services Menu Overview**
- **Mic Input Settings**
- **Line Input Settings**
- **Telco Rx Settings (840T and TH20)**
- **Output Settings**
- **Telco Tx Settings (840T and TH20)**
- **Processing Settings**
- **Fader Settings**

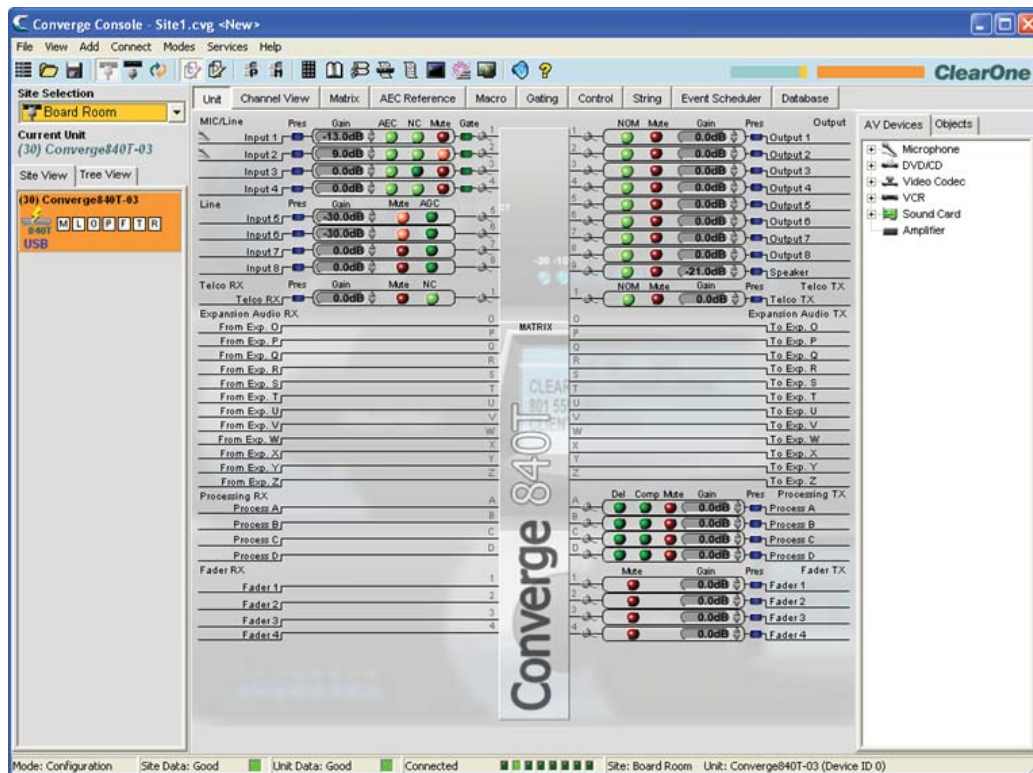
DEVICE LOG

The **Device Log** captures user-selectable system events for administration, configuration, and troubleshooting purposes.

NOTE: The device log can store 256K bytes of data. Once this limit is reached, the first 128K of data is truncated and logging resumes.

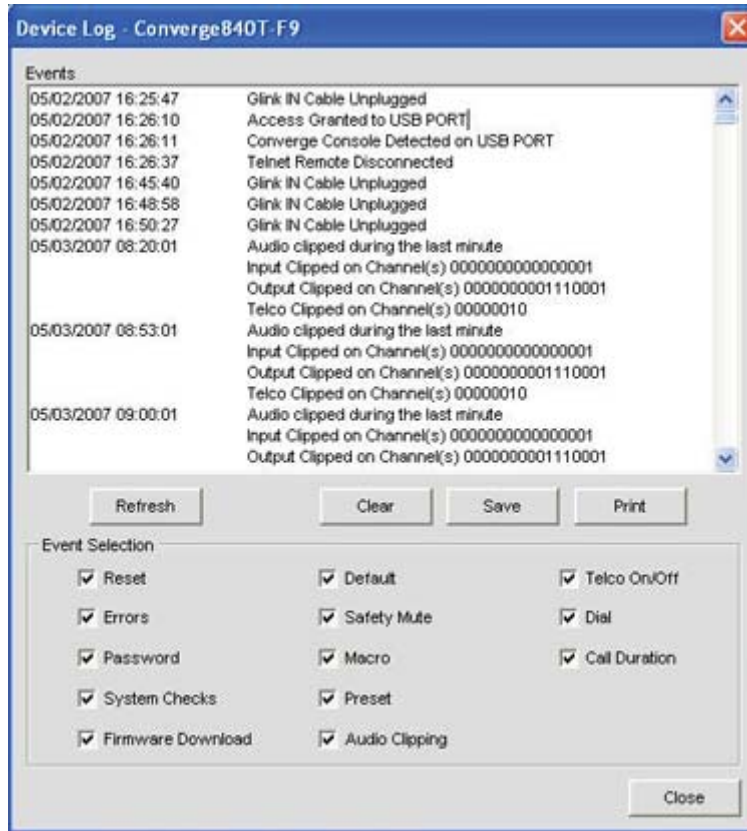
Accessing Device Log

To access the device log, select **Device Log** from the **Services** menu, or click the **Device Log**  button on the Console **Button Bar**.



Using Device Log

In the **Device Log** window, select the events you want to log using the **Event Selection** check boxes.



Events available for logging include:

- **Reset:** Reports unit reset events
- **Errors:** Reports internal unit errors
- **Password:** Reports password changes for all defined users
- **System Checks:** Reports the pass/fail status of System Checks
- **Firmware Download:** Reports firmware downloads
- **Default:** Reports unit default events
- **Safety Mute:** Reports safety mute events
- **Macro:** Reports Macro execution events
- **Preset:** Reports when Presets are run
- **Audio Clipping:** Reports audio clipping events
- **Telco On/Off:** Reports when the telco line goes on or off hook (840T and TH20 only)
- **Dial:** Reports dial command events including DTMF, Phonebook, Speed Dial, and Redial (840T and TH20 only)
- **Call Duration:** Reports the time between on and off hook events for all calls (840T and TH20 only)

NOTE: All device events are selected for logging by default.

Use the **Refresh**, **Clear**, **Save**, and **Print** buttons to refresh the log display, clear the log, save the log to a text file, and print the log.

For additional information, please refer to the Table of Contents for these related topics:

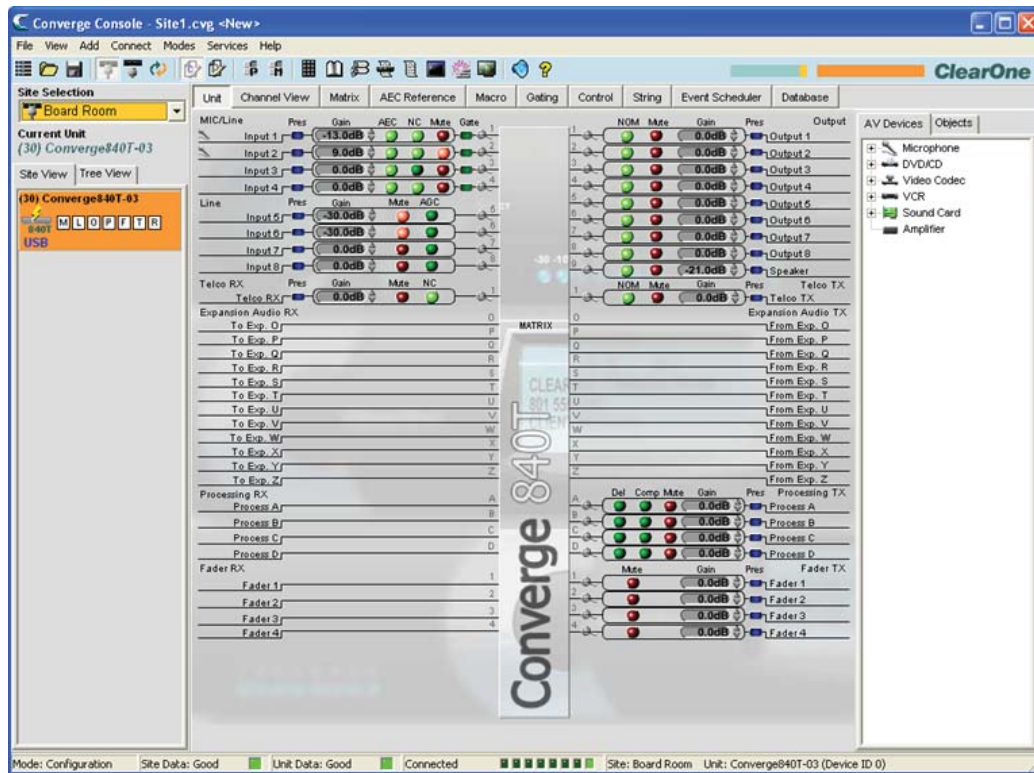
- **Site Properties**
- **System Checks**
- **Firmware Loader**
- **Console Overview**
- **LCD Settings Menu**
- **Macro Tab**
- **Preset Mode Overview**
- **Execute Presets**
- **Dialer**
- **Phonebook**

EVENT LOG

The **Event Log** captures system events for administration and troubleshooting purposes. Event types captured include failed login attempts, site disconnects, unit reboots, socket time outs, internal system errors, and serial command execution errors.

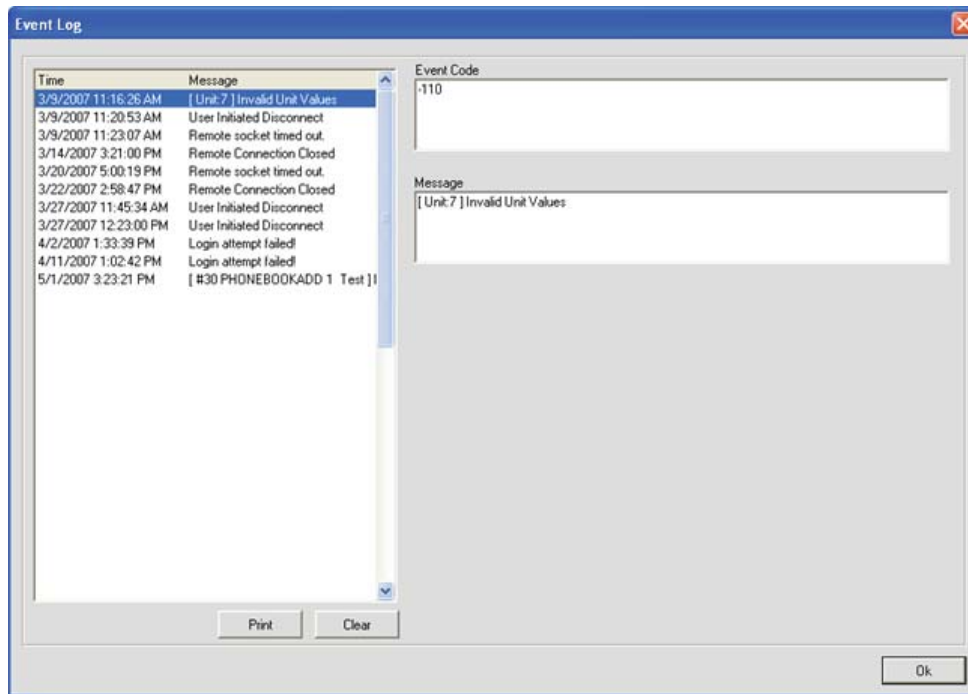
Accessing Event Log

To access the event log, select **Event Log** from the **Services** menu, or click the **Event Log**  button on the Console **Button Bar**.



Using Event Log

Captured events appear in the left section of the Event Log window. **Event Codes** and **Messages** appear in the right section of the window.



To print the event log, press the **Print** button. To clear the event log, press the **Clear** button and answer **Yes** to the confirmation dialog that appears.

For additional information, please refer to the Table of Contents for these related topics:

- **Services Menu**
- **Event Scheduler**

WEB BUILDER TAB

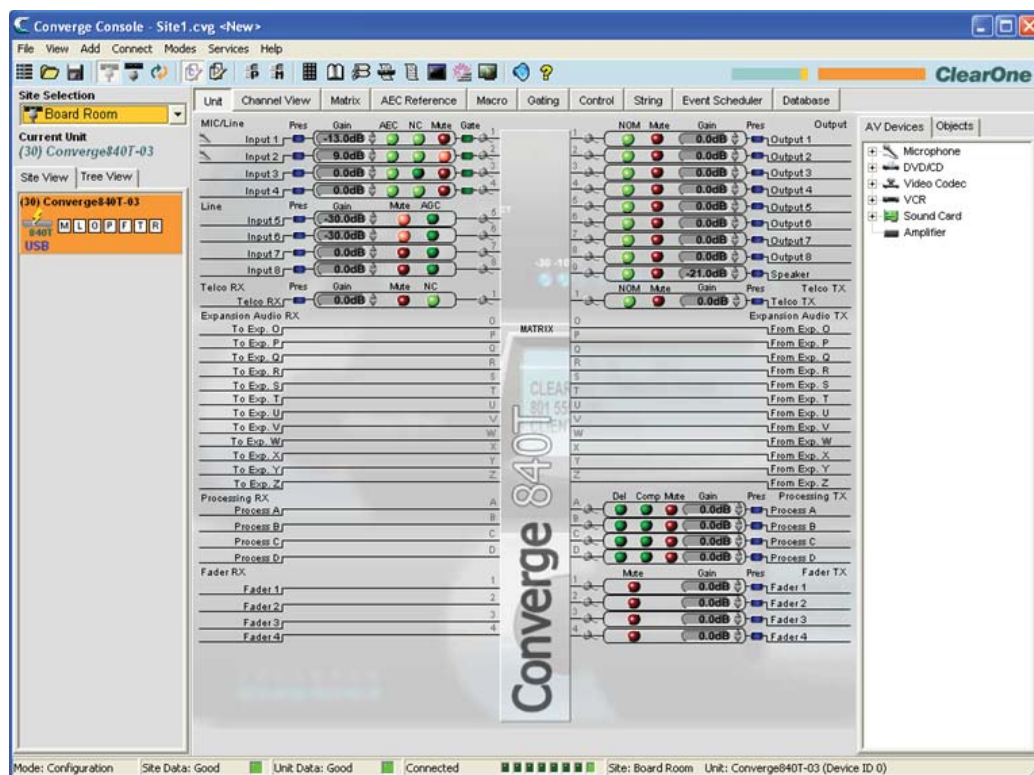
Use the **Web Builder** to configure the **User Console** and **Control Console**. These consoles provide access to a subset of Converge Console's call management and mixing features through a web portal integrated into the Converge Pro firmware. Both consoles are configured using Converge Console software, and are accessed via IP using any PC with Microsoft's Internet Explorer web browser (requires IE version 5.5 or later).

User Console allows you to perform basic call functions, including on/off hook, redial, volume, and mute, for one or two Converge Pro units (840T and TH20 only).

Control Console allows you to perform basic channel configuration and mixing tasks for all Converge Pro units.

Accessing Web Builder

To access the web builder, select **Web Builder** from the **Services** menu, or press the **Web Builder**  button on the Console **Button Bar**.



Configuring User Console

The **User Console** tab provides a software interface that emulates the functionality of Clearone's **Tabletop Controller**. User console provides six user-programmable keys.

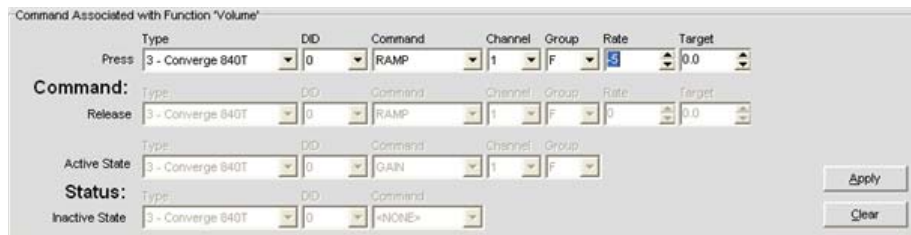


Select the key you want to program from the drop-down list in the upper left hand corner of the screen. Programmable keys include:

- **Line 1**
- **Line 2**
- **User**
- **Volume Down**
- **Volume Up**
- **Mute**

If you are configuring a **Line** or **User** button, enter a name for it in the **Line** (or User) **Name** field (optional).

The key selected determines the commands available in the **Command** drop-down lists in the **Command** section of the screen.



For example, the commands available for the volume buttons include **GAIN**, **MACRO**, and **RAMP**. When you select a command, the configurable parameters for that command appear as shown above. (For more information on the command editor, see Command Editor in the Control Tab topic.)

Select the **Type**, **DID** (device ID), and **Command** from the drop-down lists. After selecting a command and configuring its parameters, press the **Apply** button to save the button programming. To clear a command, press the **Clear** button.

For some commands, such as **MACRO**, the **Status** section of the command editor becomes active. **Status** controls the LED status indicator for the associated button based on the state conditions entered in the **Active State** (LED on) and **Inactive State** (LED off) rows of the **Status** section.

Command Associated with Function 'User Defined Button'

	Type	DID	Command	Macro	Name
Press	3 - Converge 840T	0	MACRO	1	
Release	3 - Converge 840T	0	MACRO	2	
Active State	3 - Converge 840T	0	MACRO	3	
Inactive State	3 - Converge 840T	0	MACRO	4	

Buttons: Apply, Clear

Pressing a programmed button in the Converge Pro **Web Portal** executes the command selected in the **Press** row of the **Command** section. Releasing a button executes the command selected in the **Release** row (if applicable for the programmed command).

Configuring Control Console

The **Control Console** provides eight fader groups (mixers) with gain sliders, mute buttons, and level meters. It also provides four user-programmable buttons. The fader groups can control multiple Converge Pro units in the site.

WebBuilder

User Console Control Console

Fader Group 1

Meter

Command Group Name

Command Description

Argument Description

Command Associated with Function 'Meter'

	Type	DID	Command	Channel	Group	Position	Value
Press	3 - Converge 840T	0	LVLREPORT	1	F		1
Release	3 - Converge 840T	0	<NONE>				
Active State	3 - Converge 840T	0	<NONE>				
Inactive State	3 - Converge 840T	0	<NONE>				

Buttons: Apply, Clear, Close

Select the fader group or user key you want to program from the drop-down list in the upper left hand corner of the screen. For fader groups, you will also need to select **Gain**, **Mute**, or **Meter** from the second drop-down list.

NOTE: You can also select an element to program, such as a gain slider or user button, by selecting its graphical representation in the Control Console window. For example, in the screen shot above, the meter element for Fader Group 1 is selected. The LVLREPORT command associated with the meter will display real-time level of Channel 1 on the Converge Pro 840T unit (DID 0).

The element selected determines the commands available in the **Command** drop-down lists in the **Command** section of the screen.

Command Associated with Function "Volume"

	Type	DID	Command	Channel	Group	Rate	Target
Press	3 - Converge 840T	0	RAMP	1	F	5	0.0
Command:							
	Type	DID	Command	Channel	Group	Rate	Target
Release	3 - Converge 840T	0	RAMP	1	F	0	0.0
Status:							
	Type	DID	Command	Channel	Group		
Active State	3 - Converge 840T	0	GAIN	1	F		
Inactive State	3 - Converge 840T	0	<NONE>				

Apply Clear

For example, the commands available for the mute buttons include **MACRO** and **MUTE**. When you select a command, the configurable parameters for that command appear as shown above. (For more information on the command editor, see **Command Editor** in the **Control Tab** topic.)

Select the **Type**, **DID** (device ID), and **Command** from the drop-down lists. After selecting a command and configuring its parameters, press the **Apply** button to save the button programming. To clear a command, press the **Clear** button.

For some commands, such as **MACRO**, the **Status** section of the command editor becomes active. Status controls the LED status indicator for the associated button based on the state conditions entered in the **Active State** (LED on) and **Inactive State** (LED off) rows of the **Status** section.

Command Associated with Function "User Defined Button"

	Type	DID	Command	Macro	Name
Press	3 - Converge 840T	0	MACRO	1	
Command:					
	Type	DID	Command	Macro	Name
Release	3 - Converge 840T	0	MACRO	2	
Status:					
	Type	DID	Command	Macro	Name
Active State	3 - Converge 840T	0	MACRO	3	
Inactive State	3 - Converge 840T	0	MACRO	4	

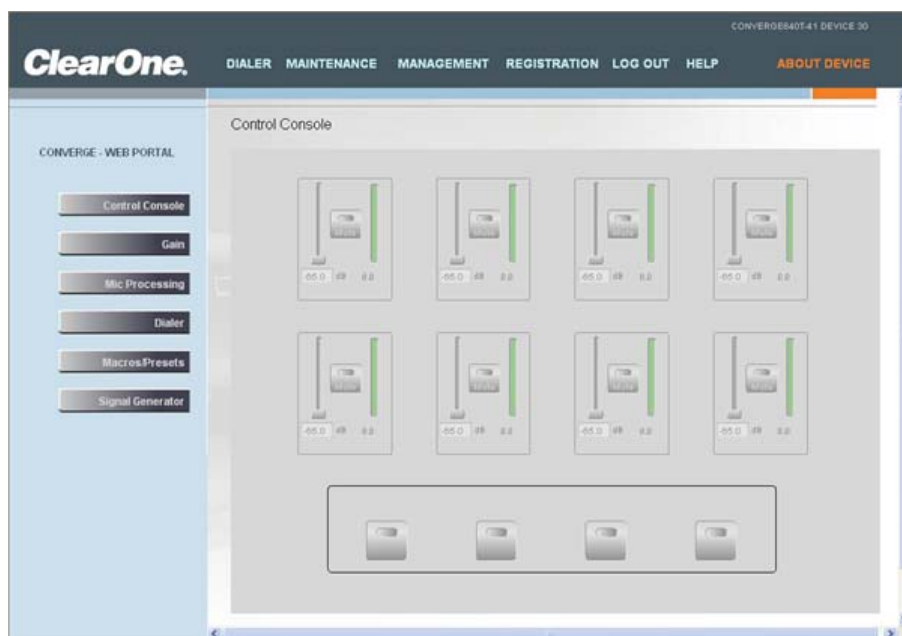
Apply Clear

Changing the settings of a fader group element, or pressing a programmed button in the Converge Pro **Web Portal** executes the command selected in the **Press** row of the **Command** section. Releasing a button executes the command selected in the **Release** row (if applicable).

Accessing the Web Portal

After programming the user console and the control console, you can access them using the Converge Pro **Web Portal** to monitor and manage audio conferences.

To open the web portal, enter the IP address of the Converge Pro unit you want to connect with. The web portal appears as shown below.



To access programmed user console call management functions, click on **DIALER**. To access programmed control console mixing functions, click on **MANAGEMENT** (shown above).

For additional information, please refer to the Table of Contents for these related topics:

- **Dialer**
- **Phonebook**
- **Macro Tab**
- **Gating**
- **Mic Input Settings**
- **Line Input Settings**
- **Telco Rx Settings (840T and TH20)**
- **Telco Tx Settings (840T and TH20)**
- **Output Settings**
- **Matrix Tab**

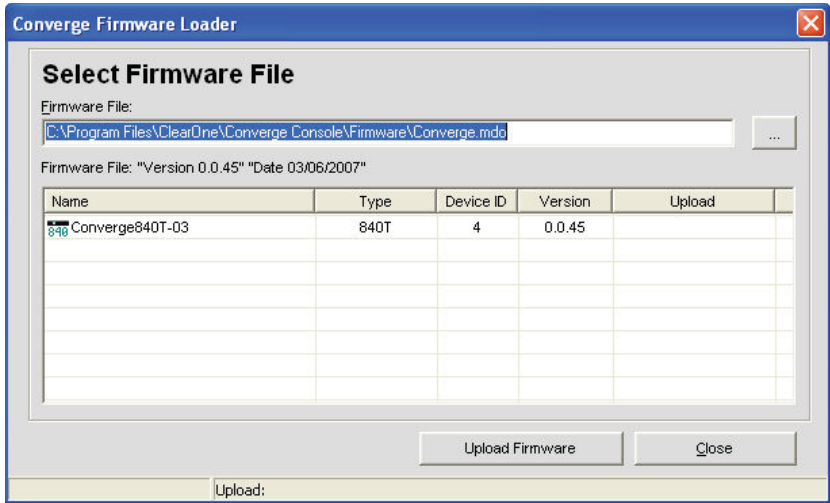
FIRMWARE LOADER

Firmware Loader allows you to upgrade the firmware in your Converge Pro unit when enhancements are released.

NOTE: Before upgrading firmware, save a copy of your Site files using the Save or Save As options on the File menu.


Accessing Firmware Loader

To load firmware, click on the **Services** menu select **Firmware Loader**. The **Converge Firmware Loader** window appears as shown below.

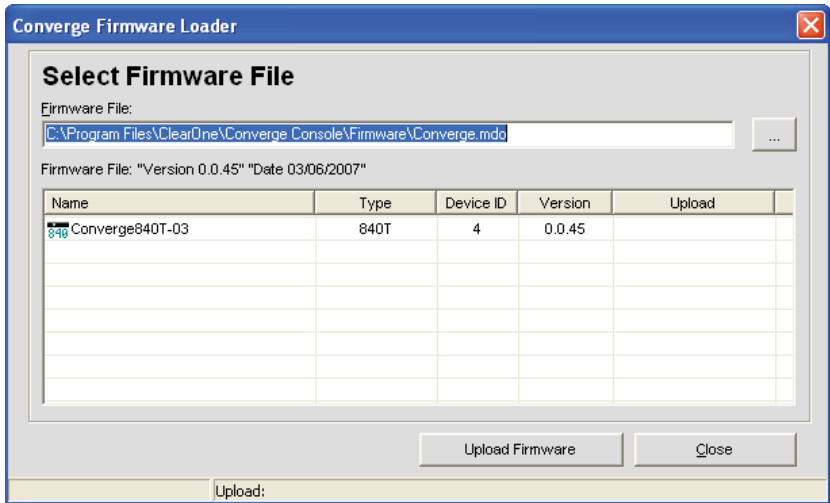


Loading Firmware

Firmware Loader automatically looks for Converge Pro firmware files in the default Converge Console directory.

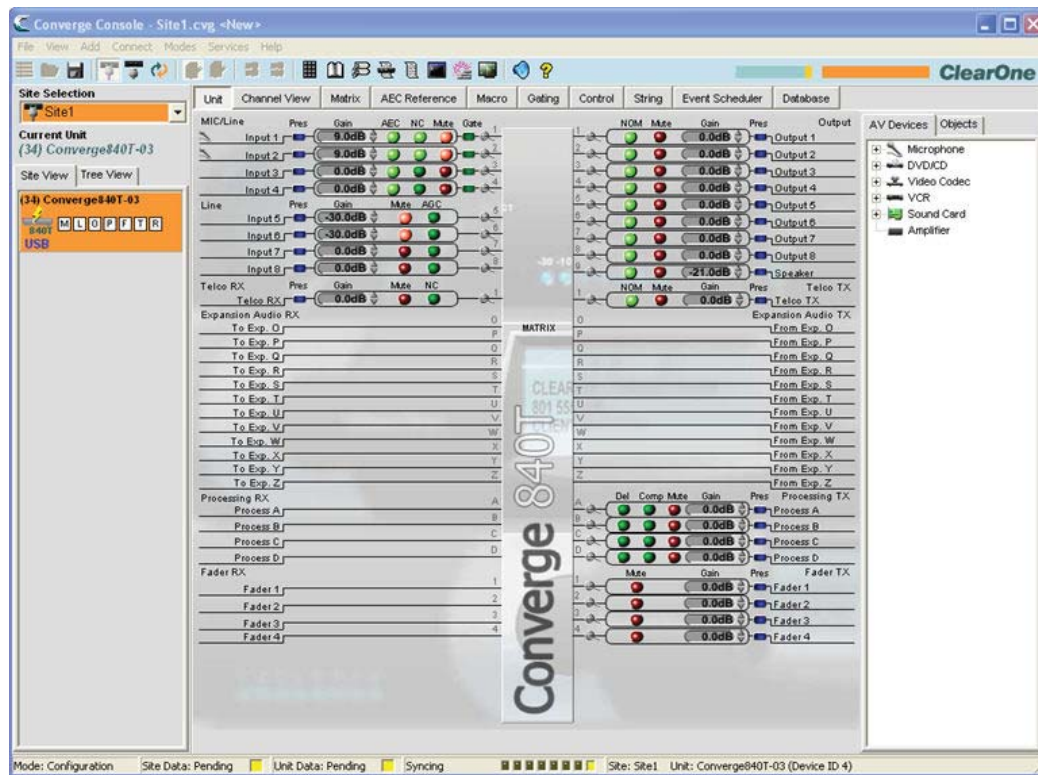
Press the  button to locate firmware files stored in a different directory, or enter an explicit file path into the **Firmware File** entry field. All available firmware files in the chosen directory are displayed in the firmware file table.

Once you have located the firmware file you want to load, select it from the firmware file table and click **Upload Firmware**. The upload begins, and the Firmware Loader displays progress in the **Upload** column of the firmware file table, and in the Status Bar at the bottom of the window as shown below:

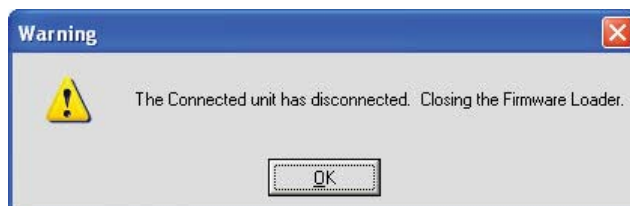


In addition, The LED indicators on the **Status Bar** in Console turn yellow indicating the firmware load is in progress

as shown below:



When the firmware load is complete, the unit reboots, and a **Warning** dialog appears as shown below:



Click **OK** to close the Firmware Loader and return to Console. The unit now has the selected firmware file loaded.

If you experience problems with firmware loads, please contact **ClearOne Technical Support**.

For additional information, please refer to the Table of Contents for these related topics:

- **Configure Unit Properties**
- **Configuration Mode Overview**
- **Customer Service and Support**

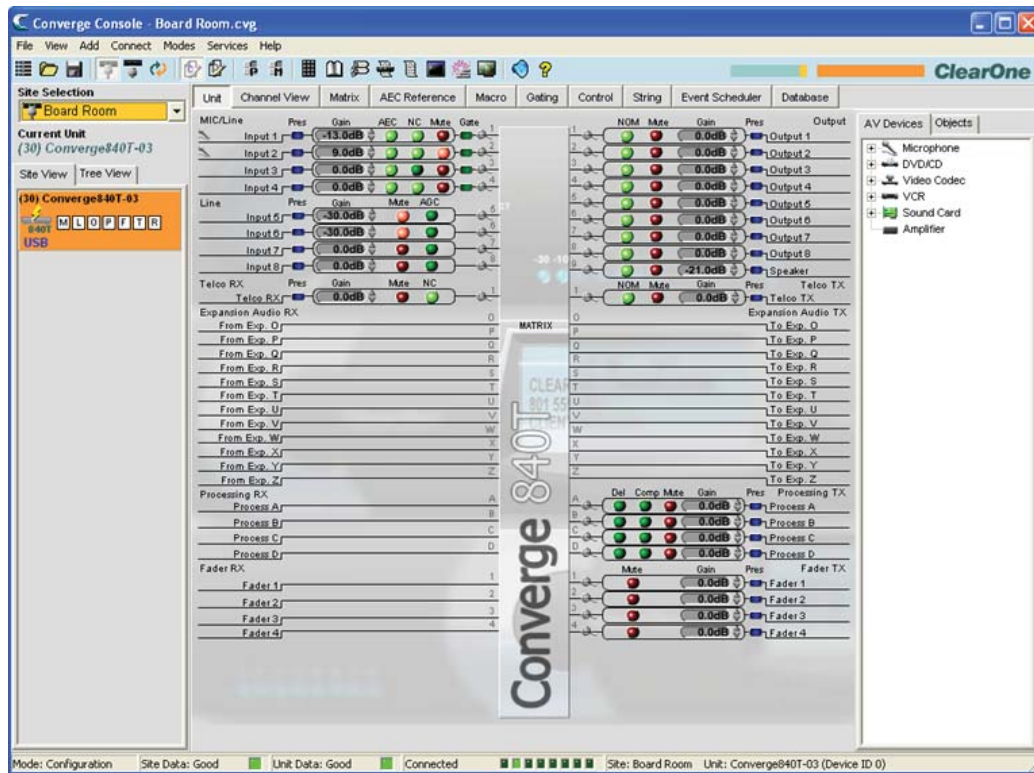
DEBUG CONSOLE

The Debug Console provides five tabs for monitoring system performance, testing and troubleshooting audio performance, and running system diagnostics:

- **Meter View**
- **Gate View**
- **Signal Generator**
- **System Checks**
- **System Check Config**
- **Common applications**

Accessing Debug Console

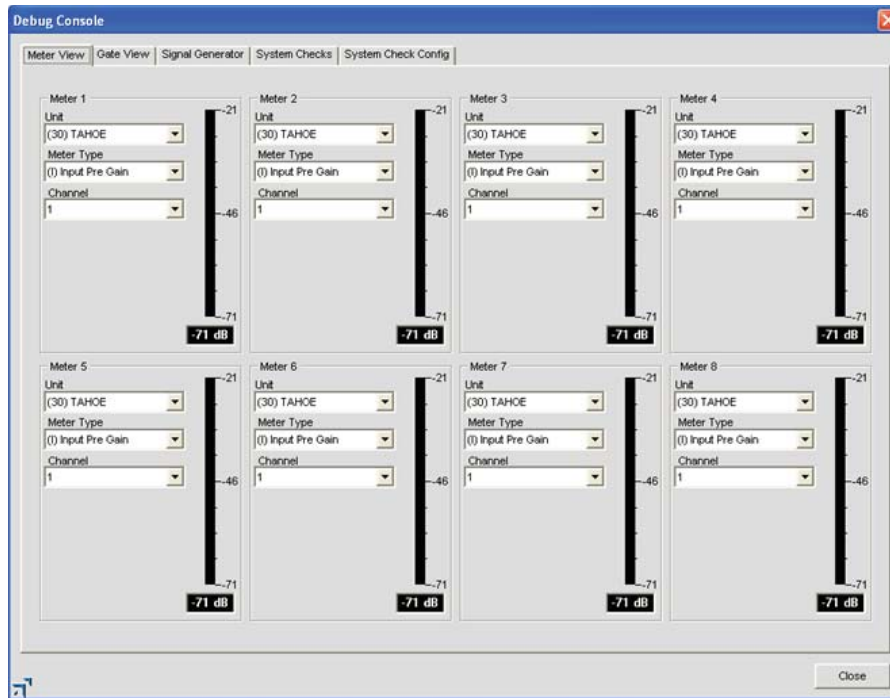
To access the debug console, select **Debug Console** from the **Services** menu, or press the **Debug Console** button on the Console **Button Bar**.



Debug console tabs are described in the following sections.

Meter View Tab

The **Meter View** tab provides eight user-configurable level meters for monitoring signal levels on any channel in a site.



To configure a meter, select the **Unit**, **Meter Type**, and **Channel** using the drop-down lists. Meter view provides a useful diagnostic tool for system-wide troubleshooting and configuration.

Gate View Tab

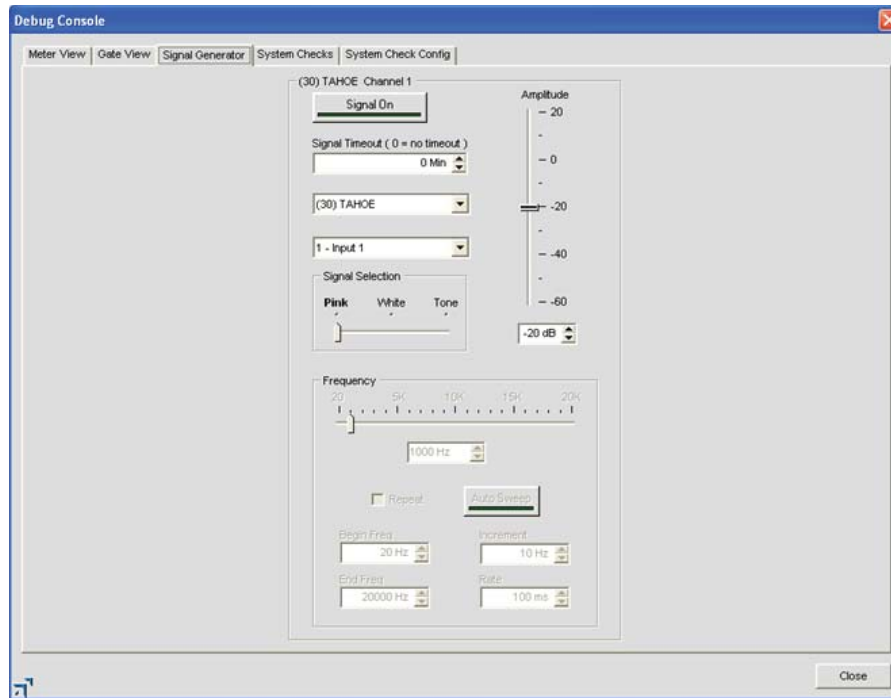
The **Gate View** tab shows real-time gating status, allowing you to monitor gating activity for the mics and gating groups for the currently connected Converge Pro unit.



The gate indicator for each input is dark green in the gate-off condition and light green if the input is gated on.

Signal Generator

The **Signal Generator** tab enables you to generate test signals to audibly test signal paths, gain settings, routing, and channel configuration settings. The signal generator can also be used for noise masking in courtroom, clergy, and corporate applications.



Test Signal Types

The signal generator provides three types of test signals: **Pink**, **White**, and **Tone**.

- **Pink Noise:** A test signal containing all the frequencies in a given audio spectrum, with equal energy in each octave. Pink noise is the default signal.
- **White Noise:** A test signal with equal energy distribution throughout a given frequency range.
- **Tone:** A sine-wave test signal with less than .03% distortion. Selecting **Tone** with the **Signal Selection** slider activates the **Frequency** configuration section of the tab.

Running a Signal Test

Use the following procedure to run a signal test:

1. Select the unit and channel to test using the unit and channel drop down lists.
2. Select the type of test tone using the **Signal Selection** slider.
3. Select the amplitude (volume) of the test tone using the **Amplitude** slider. The amplitude range is from -60 to +20dB. The default is 0dB.
4. Set the level for the test tone using the dB entry field or up/down arrows.
5. Set desired test tone duration using the **Signal Timeout** entry field.
6. For **Tone** signals, set the additional **Frequency** settings as explained in the next section.
7. Press the **Signal On** button to initiate the test signal on the selected unit and channel. The signal will continue using the specified settings until the **Signal Timeout** is reached, or the **Signal On** button is pressed again, whichever occurs first.

Tone Frequency Settings

Configure **Frequency** settings for tone tests as follows:

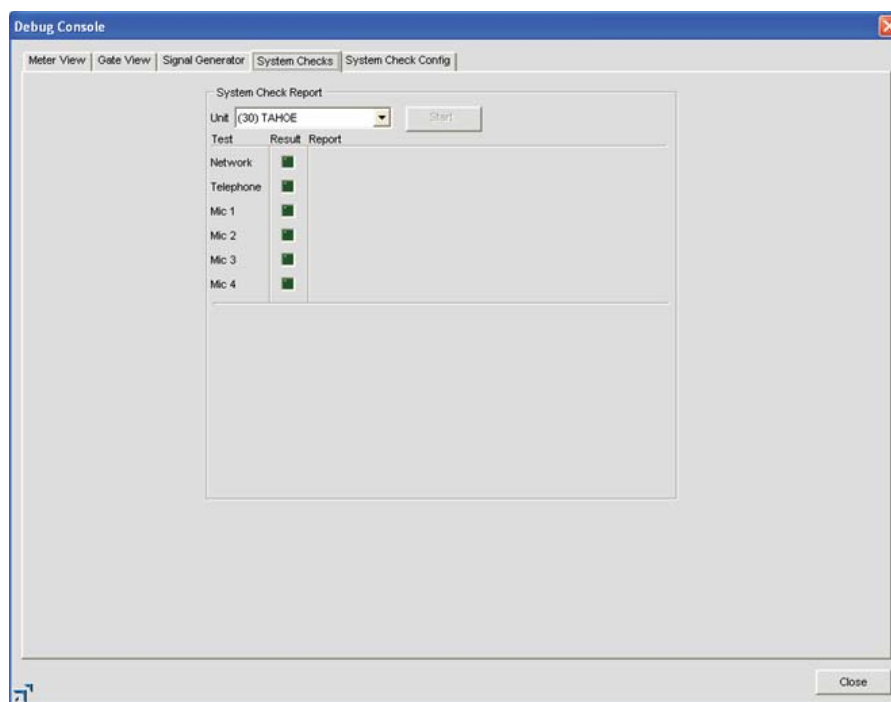
1. Select a tone frequency using the **Frequency** slider, or enter a frequency in the entry box.
2. Alternatively use the **Auto Sweep** button to sweep a range of frequencies using the **Begin Frequency**, **End Frequency**, **Increment**, and **Rate** settings. Select the **Repeat** checkbox if you want the sweep to continue in cycles.

NOTE: Use auto sweep to test the frequency response of a room and speakers, and to identify distortion or rattles produced by the speakers or speaker housings. Auto sweep moves the frequency of the signal generator from a low frequency to a high frequency at the specified rate. The Frequency slide control and readout reflect progress while the sweep is in progress. Sweep range is 20Hz—20kHz; increment range is 10Hz—20kHz, and the rate range is 10ms—2000ms. The default rate is 100ms.

3. Press the **Signal On** button to generate the tone test signal, or press the **Auto Sweep** button to initiate an auto sweep.

System Checks Tab

System Checks performs the network, telephone, and mic diagnostic tests selected on the **System Check Config** Tab, then displays the results on-screen.

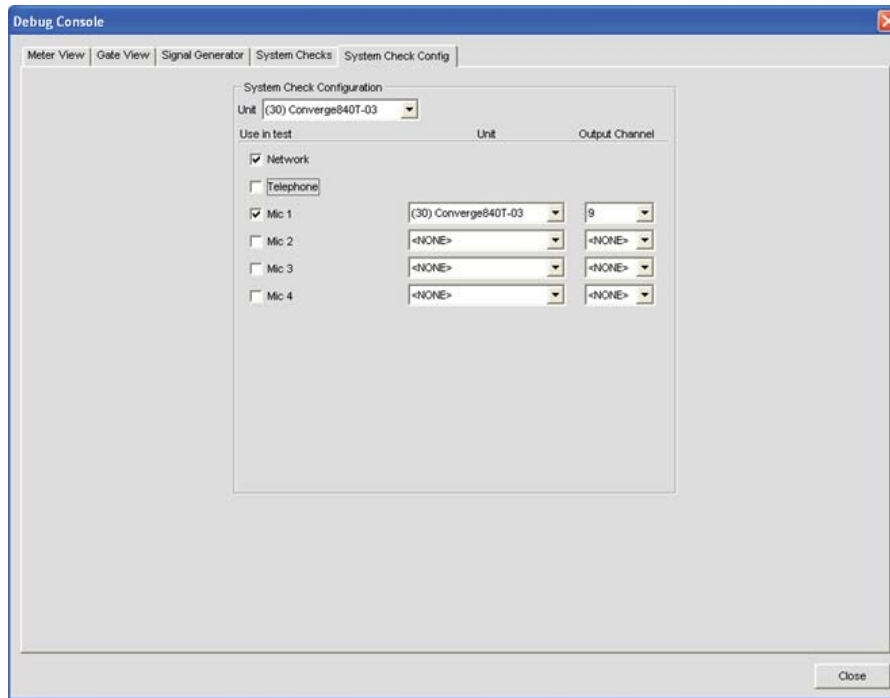


The test LEDs indicate test results as follows:

- **Red** = Test fails
- **Yellow** = Test not enabled in System Check Config
- **Green** = Test passes

System Check Config Tab

The **System Check Config** tab allows you to select and configure the diagnostic tests run on **System Checks** tab.



Select the tests you want to run using the **Use in test** check boxes, and select the unit(s) and channel(s) you want to test using the **Unit** and **Output Channel** drop-down lists. Execute the selected tests by pressing the **Start** button on the **System Checks** tab.

For additional information, please refer to the *Table of Contents* for these related topics:

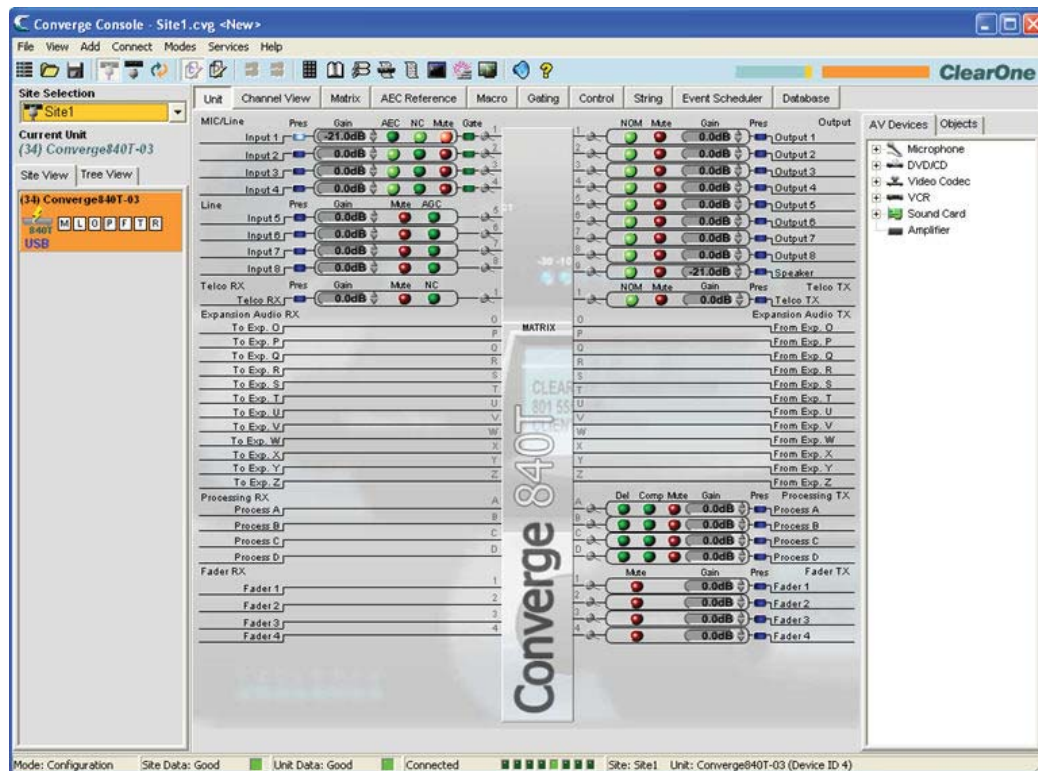
- **Device Log**
- **Event Log**
- **Mic Input Settings**
- **Line Input Settings**
- **Telco Rx Settings (840T and TH20)**
- **Telco Tx Settings (840T and TH20)**
- **Output Settings**
- **Processing Settings**
- **Fader Settings**
- **Matrix Tab**

SYSTEM CHECKS

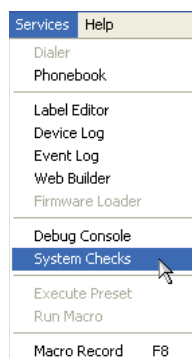
System Checks enable you to test network connections, telephone connections, microphones, and output channels for all Converge Pro units in a site. Running **System Checks** will identify component failures within the system based upon the tests you select and configure in **System Check Config**.

Accessing System Checks

The **System Checks** tab appears in the **Debug Console** screen. To access **System Checks**, click on the **Services** menu on the Console main screen:



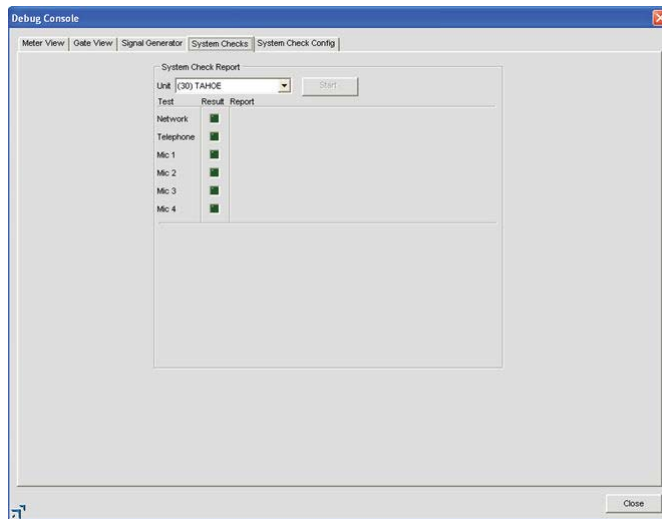
The **Services** menu appears. Select **System Checks**:



Or click the **Debug Console**  button on the **Console Button Bar**.

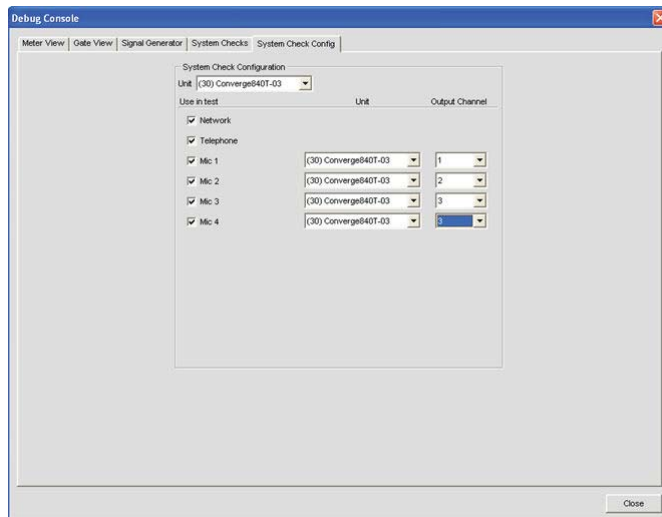
Debug Console Screen

Selecting **System Checks** from the **Services** menu, or clicking the **Debug Console** button on the **Console Toolbar** brings up the **Debug Console** screen (shown below).



System Check Config

On the **System Checks** tab, the **Start** button appears grayed out (as shown above) until you **Connect to a Site**, and select the tests you want to run using the **System Check Config** tab. After connecting to the site you want to test, click the **System Check Config** tab in **Debug Console** (shown below).

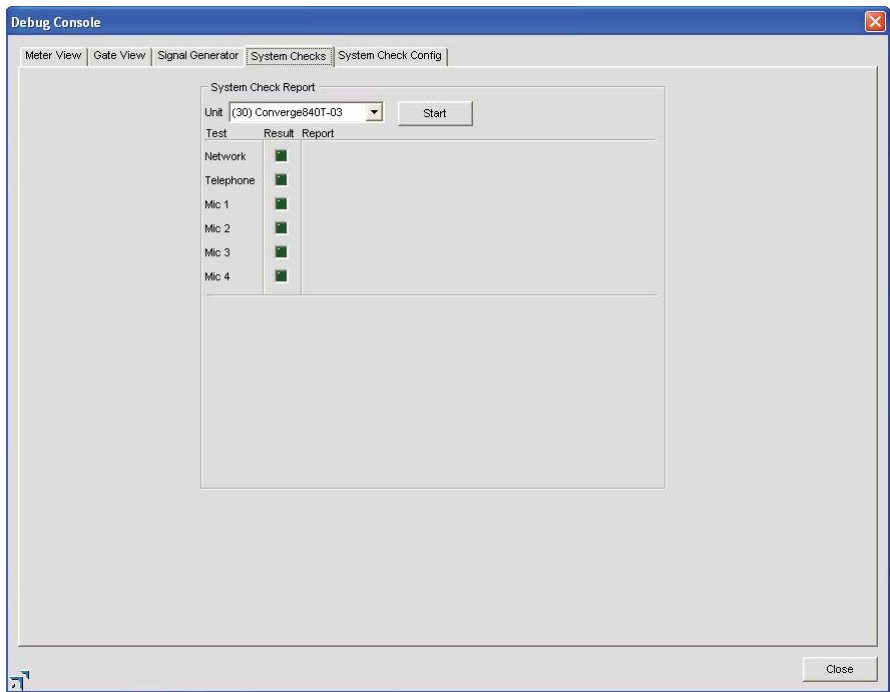


System Check Config settings include:

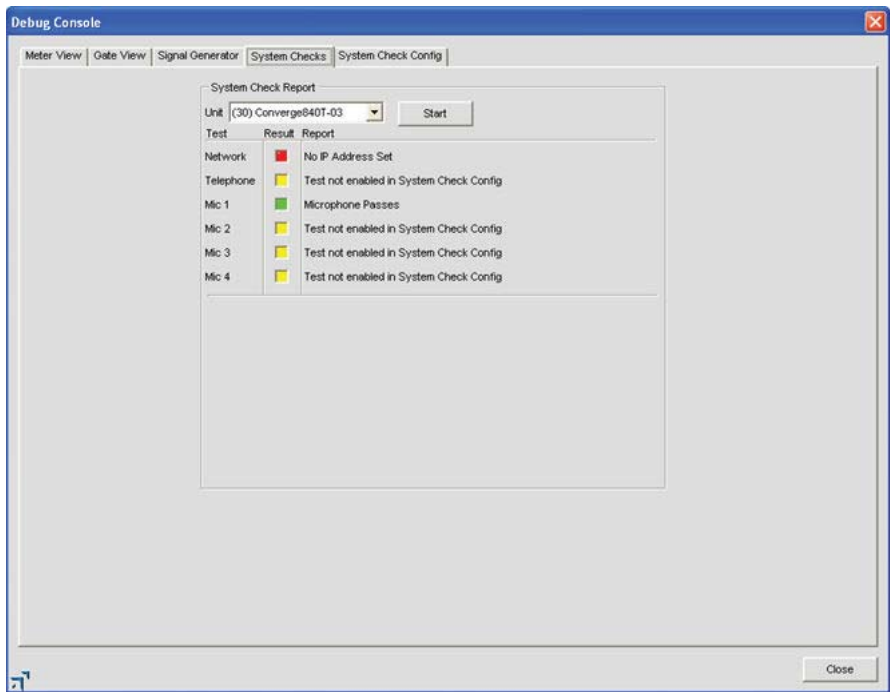
- **Unit (System Check Configuration):** Specifies the unit in the site that you want to test.
- **Network:** Select this check-box to test the IP configuration and network connectivity for the selected unit.
- **Telephone:** Select this check box to test **Telco Rx** and/or **Telco Tx** functionality (840T and TH20 only).
- **Mic 1-4:** Select the check box(es) for the mic input channels that you want to test.
- **Unit (Mic 1-4):** Specifies the unit for mic input channel and output channel testing.
- **Output Channel:** Select the output channel(s) for the selected mic input channel(s) that you want to test.

System Checks

When you are finished selecting test configuration options on the **System Check Config** tab, click the **Systems Check** tab and press the **Start** button (shown below).



Console runs the test(s) you have selected and configured, and displays the results (shown below).



The LEDs display the test status in the **Result** column, and a description of each test result is shown in the **Report** column.

LED status indicators:

- **Red:** Subsystem testing for the selected unit failed.
- **Yellow:** Test not selected on **System Check Config** tab.
- **Green:** Subsystem testing for the selected unit passes.

For additional information, please refer to the *Table of Contents* for these related topics:

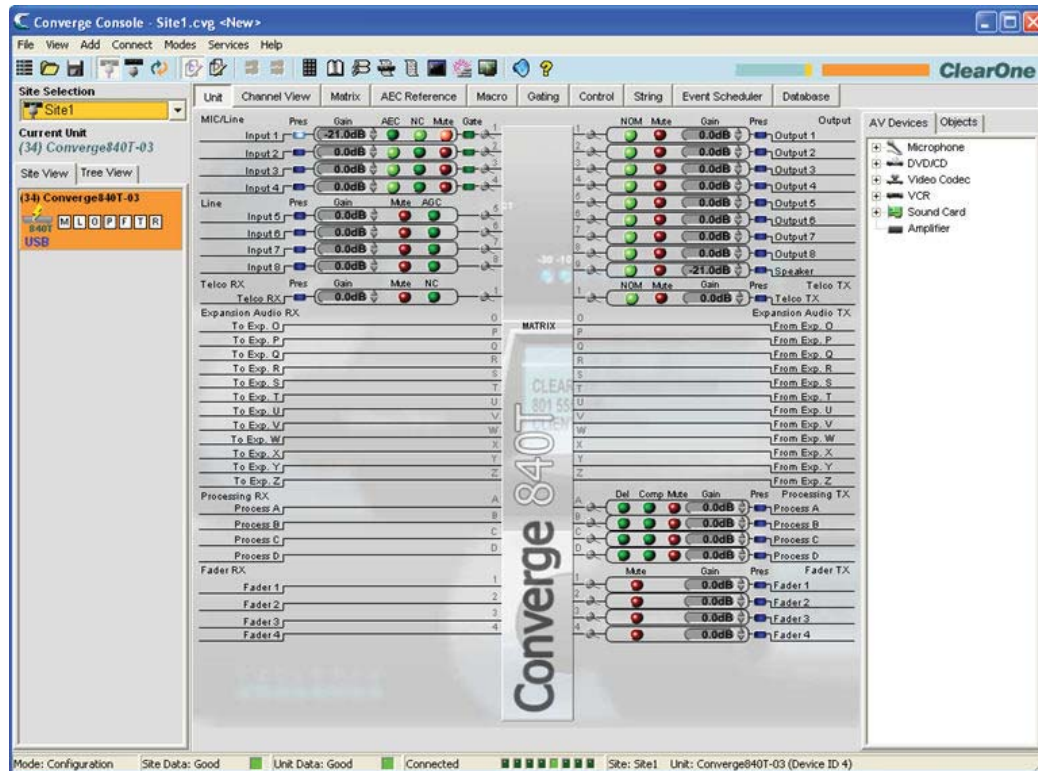
- **Debug Console**
- **Services Menu**
- **Console Button Bar**
- **Connect to a Site**
- **Telco Rx Channel (840T and TH20 only)**
- **Telco Tx Channel (840T and TH20 only)**
- **Mic Input Channels**
- **Output Channels**

EXECUTE PRESETS

The Execute Presets command on the Services menu allows you to run presets while Console is in Configuration Mode.

NOTE: This command is not available while Console is in Preset Mode.

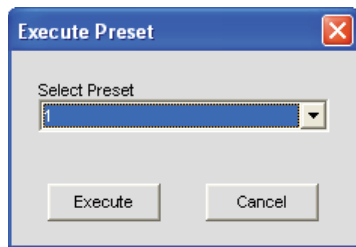
Accessing Execute Presets



From the Console main screen, click on the Services menu and select Execute Presets as shown below.



The Execute Preset dialog appears as shown below.



Select the preset you want to run from the drop-down list, then click Execute to run the preset or Cancel to return to Console.

You can also use Macros to execute presets or multiple presets simultaneously. For more information, see Macro Tab.

For additional information, please refer to the *Table of Contents* for these related topics:

- **Services**
- **Configuration Mode**
- **Preset Mode Overview**
- **Macro Tab**
- **Preset Configuration Pane**

APPENDIX A: SERIAL COMMANDS

CONVERGE PRO SERIAL COMMAND OVERVIEW

This appendix provides summary descriptions of the Converge Pro serial command set. This command set is used for Telnet, RS-232 serial port, and Telnet over USB.

Type and Device IDs

The Type ID and Device ID for current supported boxes on the expansion bus have the following definitions:

Type ID Binary	Type ID Text	Unit type	Device ID Range
0xA	A	Converge 8i	0x0 – 0x7
0x1	1	Converge 880	0x0 – 0x7
0x2	2	Converge 1H20	0x0 – 0xF
0x3	3	Converge 840T	0x0 – 0x7

Conventions

This definition uses the following typographic conventions used in this document:

Convention	Description
<X>	Parameters enclosed in < > indicate a mandatory parameter.
[X]	Parameters enclosed in [] indicate an optional parameter.
1-8	Parameters separated by a '-' indicate a range between the values.
4,7,9	Parameters separated by a ',' indicate a list of available values.
REF	Words in Uppercase bold indicate command text.
DEVICE	Indicates the device type and device number on the Expansion Bus network. It is composed of a device type character and a device number.

General Text Command Form Description

The structure of serial commands is as follows:

<Type ID> <Device ID> <Command> [Options]

(indicates the start of a command line), **Type ID**, **Device ID**, **Command**, then any additional options in the order that they appear in the command descriptions on the following pages. Commands can be either UPPER CASE or lower case. Return values are always in upper case. In order for a command to be recognized by the RS-232 serial port, the command must be terminated by a carriage return.

For example, a command to disable mute for Mic 2 (input channel 2) on Converge 880 device "0" would have the command line: #50 MUTE 2 I 0. In this command line, 5=Converge 880, 0=unit 0, MUTE=command, 2=channel 2, I=input channel, 0=off state.

If a '*' is placed in the Type ID or Device ID fields, the command is to apply to all units or all devices respectively.

For example a command with the Type ID of 1 and a Device ID of '*' would mean that the command is to be applied to all Converge 880 units. A command with a Type ID of '*' and a Device ID of 6 would mean that the command is to be applied to all #6 devices of all unit types.

If a command calls for a "null" value, leave a blank in the command line (for example "#40 MUTE 2 I" would return the current mute state of Mic 2 on device 40).

Designations

Text commands use the alpha designations. Also, different channel groups have different allowable channel ranges.

Group and Channels Table

Group	Alpha	Number	Converge 880 Channel Range	Converge TH20 Channel Range	Converge 840T Channel Range	Converge 8i Channel Range
Unknown	?	0	N/A	N/A	N/A	N/A
Inputs	I	1	1-12	1-2	1-8	1-12
Outputs	O	2	1-12	1-2	1-9 (9 is the power amp.)	N/A
Mic Input	M	3	1-8	N/A	1-4	1-8
Gating Group	G	4	1-8	N/A	1-8	1-8
Processing	P	5	1-8	N/A	1-4	1-8
Expansion						
Bus Audio	E	6	O-Z	O-Z	O-Z	O-Z
Channels						
Line Inputs	L	7	9-12	1-2	5-8	9-12
Expansion						
Bus Reference	A	8	1-4	1-4	1-4	1-4
Channels						
Unit	U	9	0 1 = LOG 2 = Site Wide	0 1 = LOG 2 = Site Wide	0 1 = LOG 2 = Site Wide	0 1 = LOG 2 = Site Wide
GPIO	Y	10	0	0	0	0
Matrix	X	11	0	0	0	0
Fader	F	12	1-4	N/A	1-4	1-4
Presets	S	13	1-32	1-32	1-32	1-32
Macros	C	14	1-255	1-255	1-255	1-255
VxWorks	N	15	2 for HTML skin 3 for Firmware	2 for HTML skin 3 for Firmware	2 for HTML skin 3 for Firmware	2 for HTML skin 3 for Firmware
Transmit	T	16	N/A	1	1	N/A
Receive	R	17	N/A	1	1	N/A
Dictionary	D	18	0	0	0	0
Phonebook	V	19	N/A	0	0	N/A
Virtual						
Reference	B	20	1 – 4	N/A	1 – 4	1 – 4
Timed Events	Q	21	0	0	0	0
Web	W	22	0	0	0	0

Meter Type Definitions Table

Alpha	Numeric	Level position for Mics	Level position for Line Inputs	Level position for Outputs and Telco Transmits	Level position for Faders	Level Position for Processors	Level Position for Telco Receives
I	1	Input level	Input level	Input level	N/A	Level into Compressor	Input Level
A	2	Level after gain adjustment, but before filter	Level after gain adjustment	Level after gain adjustment	Level after gain adjustment	Level after Compressor	Level after gain adjustment
N	3	Level after filter but before gate (non-gated level)	N/A	N/A	N/A	Level after Gain Stage	N/A
G	4	Level after gate (gated level)	N/A	N/A	N/A	N/A	N/A
R	5	Echo Return Loss (Not Valid on 1212)	N/A	N/A	N/A	N/A	Telco Echo Return Loss
E	6	Echo Return Loss Enhancement (Not Valid on 1212)	N/A	N/A	N/A	N/A	Telco Echo Return Loss Enhancement
T	7	ERL + ERLE (Not Valid on 1212)	N/A	N/A	N/A	N/A	TERL + TERLE
C	9	AGC	AGC	N/A	N/A	N/A	N/A
Y	10	Pre AGC RMS meter	Pre AGC RMS meter	N/A	N/A	N/A	N/A
Z	11	Post AGC RMS meter	Post AGC RMS meter	N/A	N/A	N/A	N/A
B	12	Ambient	N/A	N/A	N/A	N/A	N/A
L	13	Room Loss <RETURNS 0's for now>	N/A	N/A	N/A	N/A	N/A
Gating Group Channel							
Alpha							
1							
2							
3							
4							
A							
B							
C							
D							

AA - AUTO ANSWER ENABLE/ DISABLE

This command selects/reports the setting of auto answer.

Command Form: **DEVICE AA** <Channel> [Value]

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See Group and Channels	
Group	Group	1	17 (R)	
Value	Unsigned Integer	2	0 = Off 1 = On 2 = Toggle (Null to query in text)	

AAMB - ADAPTIVE AMBIENT MODE

This command selects/reports the setting of adaptive ambient.

Command Form: **DEVICE AAMB** <Channel> [Value]

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See Group and Channels	
Group	Group	1	3 (M)	
Value	Unsigned Integer	2	0 = Off 1 = On 2 = toggle (Null to query in text)	

AARINGS – NUMBER OF RINGS TO AUTO ANSWER ON

This command selects/reports the setting of the number of rings to auto answer.

Command Form: **DEVICE AARINGS** <Channel> [Value]

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See Group and Channels	
Group	Group	1	17 (R)	
Value	Unsigned Integer	2	2 - 4 (Null to query in text)	

ACONN - AUDIBLE CONNECT / DISCONNECT INDICATION

This command selects/reports the status of the audible connect / disconnect indication.

Command Form: **DEVICE ACONN** <Channel> [Value].

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See Group and Channels	
Group	Group	1	17 (R)	
Value	Unsigned Integer	2	0 = Off 1 = On 2 = Toggle (Null to query in text)	

ACONNLVL - AUDIBLE CONNECT / DISCONNECT LEVEL

This command selects/reports the audible connect / disconnect indicator's level.

Command Form: **DEVICE ACONNLVL** <Channel> [Value]

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See Group and Channels	
Group	Group	1	17 (R)	

Value	Signed Float	2	-12.00 – 12.00 (Null to query in text)	DB
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AD - AUTO DISCONNECT ENABLE/ DISABLE

This command selects/reports the setting of auto disconnect.

Command Form: *DEVICE AD* <Channel> [Value]

Argument Details

Name	Type	Size	Values	Units
Channel Group Value	Channel Group Unsigned Integer	1 1 2	See Group and Channels 17 (R) 0 = Off 1 = Loop Drop 2 = Call Progress 3 = Loop Drop + Call Progress (Null to query in text)	

ADCLIP – AUDIO CLIPPING

This command reports the channels that are currently clipping their audio signals. **This command is read only.** This command is implemented only for inputs. Outputs, processors, faders, and Telco always report non-clipping.

Command Form: *DEVICE ADCLIP* [Values]

Argument Details

Name	Type	Size	Values
Value	Bit Map of Inputs	2	XXXX XXXX XXXX XXXX → Input 1 (lsb) to 12 (msb) → Reserved (Null to query in text)
	Bit Map of Outputs	2	XXXX XXXX XXXX XXXX → Output 1 (lsb) to 13 (msb) ... → Reserved
	Bit Map of Processors	2	XXXX XXXX XXXX XXXX → Processor A (lsb) to H (msb) ----- → Reserved
	Bit Map of Faders	1	XXXX XXXX ----- → Faders 1 (lsb) to 4 (msb) ----- → Reserved
	Bit Map of Telco	1	XXXX XXXX → Telco RX → Telco TX ----- → Reserved

ADPRESENT – AUDIO PRESENCE

This command displays the channels that currently have valid audio signals present. **This command is read only.**

Command Form: *DEVICE ADPRESENT* [Values]

Argument Details

Name	Type	Size	Values
Value	Bit Map of Inputs	2	XXXX XXXX XXXX XXXX → Input 1 (lsb) to 12 (msb) → Reserved (Null to query in text)
	Bit Map of Outputs	2	XXXX XXXX XXXX XXXX → Output 1 (lsb) to 13 (msb) ... → Reserved
	Bit Map of Processors	2	XXXX XXXX XXXX XXXX → Processor A (lsb) to H (msb) ----- → Reserved
	Bit Map of Faders	1	XXXX XXXX ----- → Faders 1 (lsb) to 4 (msb) ----- → Reserved

Bit Map of	1	XXXX XXXX	
Telco			→ Telco RX
			→ Telco TX
			----- → Reserved

AEC - ACOUSTIC ECHO CANCELLER ENABLE/ DISABLE

This command selects/reports the setting of Acoustic Echo Canceller.

Command Form: **DEVICE AEC** <Channel> [Value]

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See Group and Channels	
Group	Group	1	3 (M)	
Value	Unsigned Integer	2	0 = Off 1 = On 2 = Toggle (Null to query in text)	

AGC - AUTOMATIC GAIN CONTROL

This command selects/reports the setting of automatic gain control.

Command Form: **DEVICE AGC** <Channel> <Group> [Value]

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See Group and Channels	
Group	Group	1	1, 3, 7 (I, M, L)	
Value	Unsigned Integer	2	0 = Off 1 = On 2 = Toggle (Null to query in text)	

AGCSET - AUTOMATIC GAIN CONTROL ADJUST

This command selects/reports the settings of the Automatic Gain Control.

Command Form: **DEVICE AGCSET** <Channel> <Group> [Threshold Target Attack Gain]

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See Group and Channels	
Group	Group	1	1, 3, 7 (I, M, L)	
Threshold	Signed Integer	1	-50 – 0 (Null to query in text)	DB
Target	Signed Integer	1	-30 – 20	DB
Attack	Unsigned Float	2	0.10 – 10.00	S
Gain	Unsigned Float	2	0.00 – 18.00	DB

AMBLVL - AMBIENT LEVEL ADJUST

This command selects/reports the ambient level.

Command Form: **DEVICE AMBLVL** <Channel> [Value]

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See Group and Channels	
Group	Group	1	3 (M)	
Value	Signed Float	2	-80.00 – 0.00 (Null to query in text)	DB

AMXDUET – USE AMX DUET DISCOVERY

This command sets and reports the status of AMX Duet Discovery.

Command Form: *DEVICE* **AMXDUET** [Value]

Argument Details

Name	Type	Size	Values	Units
Value	Unsigned Integer	4	0 = Off 1 = On 2 = toggle (Null to query in text)	

Error Number	Text Message	Explanation / Possible Solution
1	Memory error.	The box is out of internal memory. Power cycle the box.
2	No command found.	A command was not found in the string.
3	Argument count error.	The binary argument count is wrong for the command or the command is not supported in text due to variable argument count.
4	Not implemented.	The command is not implemented.
5	Argument error.	The command had an argument that was out of range.
6	Unknown command.	The command is not known to the box.
7	Bad Checksum.	The binary command's checksum was wrong.
8	Preset or Macro Invalid.	A preset or macro failed to program because it was too large or because its command list contained an invalid command.
9	Password Error.	The command cannot be executed at the current user level. Login with a higher access username and password before the command can be performed.
10	Unit is Busy.	The command cannot be executed because the unit is busy performing a previously received command (Such as PUTGET or SYSCHECKS).

AUDIOMASTER – EXPANSION BUS AUDIO MASTER MODE

This command reports the mode of the unit for control of the expansion bus audio.

Command Form: *DEVICE* **AUDIOMASTER** [Value]

Argument Details

Name	Type	Size	Values	Units
Value	Unsigned Integer	4	1 = Master 2 = Slave (Null to query in text)	

BAUD - BAUD RATE

This command selects/reports the baud rate of the serial port.

Command Form: *DEVICE* **BAUD** [Value]

Argument Details

Name	Type	Size	Values	Units
Value	Unsigned Integer	4	9600, 19200, 38400, 57600, 115200 (Null to query in text)	

BOOTERR – BOOT ERROR REPORT

This command reports the last noon-DSP related boot error number. **This command is read only.**

Command Form: *DEVICE* **BOOTERR** [Value]

Argument Details

Name	Type	Size	Values	Units
Value	Singed Integer	1	Error Number (Null to query in text)	

CALLDUR – CALL DURATION

This command indicates how long a call has lasted. If no call is in session, this will report 0. At the time of call termination, this command will automatically be sent out reporting the duration.

Command Form: **DEVICE CALLDUR** <Channel> <Duration>

Argument Details

Name	Type	Size	Values	Units
Channel Group	Channel Group	1	See Group and Channels	
Reserved		2	0	
Duration	String	8	String of format HR:MN:SS	

CALLERID – REPORTS CALLER ID INFORMATION

This command reports Caller Identification Information. **This command is reportable only. It cannot be queried or set.**

Command Form: **DEVICE CALLERID** <Channel> <Number> <Name>

Argument Details

Name	Type	Size	Values	Units
Channel Group	Channel Group	1	See Group and Channels	
Reserved	Unsigned Integer	2	0	
Number	String	16	1 – 16 chars	
Label	String	16	1 – 16 chars	

CGROUP - COMPRESSOR GROUP SELECT

This command selects/reports the setting of the compressor group.

Command Form: **DEVICE CGROUP** <Channel> [Value]

Argument Details

Name	Type	Size	Values	Units
Channel Group	Channel Group	1	See Group and Channels	
Value	Unsigned Integer	2	5 (P) 0 = none 1 – 4 (Null to query in text)	Compressor Group

CHAIRO - CHAIRMAN OVERRIDE MODE

This command selects/reports the setting of chairman override.

Command Form: **DEVICE CHAIRO** <Channel> [Value]

Argument Details

Name	Type	Size	Values	Units
Channel Group	Channel Group	1	See Group and Channels	
Value	Unsigned Integer	2	3 (M) 0 = Off 1 = On 2 = Toggle (Null to query in text)	

CLEAREFFECT – CLEAR EFFECT WIDE BAND TELCO EMULATION

This command enables / disables or reports the current status of the clear effect.

Command Form: **DEVICE CLEAREFFECT** <Channel> [Value]

Argument Details

Name	Type	Size	Values	Units
Channel Group	Channel Group	1	See Group and Channels	

Value	Unsigned Integer	2	0 = Off 1 = On 2 = Toggle (Null to query in text)
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CLOCK – CLOCK SET

This command sets or reports the current time.

Command Form: **DEVICE CLOCK** [Date Month Year Hours Minutes Seconds Day]

Argument Details

Name	Type	Size	Values	Units
Date	Unsigned Integer	1	1 – 31	
Month	Unsigned Integer	1	1 – 12	
Year	Unsigned Integer	2	2000 – 2099	
Hours	Unsigned Integer	1	(NULL to Query in Text) 00 – 23	
Minutes	Unsigned Integer	1	00 – 59	
Seconds	Unsigned Integer	1	00 – 59	
Day of Week	Unsigned Integer	1	1 = Sunday 2 = Monday 3 = Tuesday 4 = Wednesday 5 = Thursday 6 = Friday 7 = Saturday	

COMPRESS - COMPRESSOR ADJUST

This command selects/reports the settings of the compressor.

Command Form: **DEVICE COMPRESS** <Channel> [Threshold Ratio Attack Release Gain]

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See Group and Channels	
Group	Group	1	5 (P)	
Threshold	Signed Integer	1	-60 – 20	dB
Ratio	Unsigned Integer	1	(Null to query in text) 1 – 20	
Attack	Unsigned Float	2	0.00 – 100.00	Ms
Release	Unsigned Integer	2	100 – 2000	Ms
Gain	Unsigned Float	4	0.00 – 20.00	dB

COMPSEL - COMPRESSION SELECT

This command selects/reports the compressor activation.

Command Form: **DEVICE COMPSEL** <Channel> [Value]

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See Group and Channels	
Group	Group	1	5 (P)	
Value	Unsigned Integer	2	0 = Off 1 = On 2 = Toggle (Null to query in text)	

COUNTRY – COUNTRY SELECTION

This command sets / reports the country for compliance.

Command Form: **DEVICE COUNTRY** [Value]

Argument Details

Name	Type	Size	Values	Units
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Name	Type	Size	Values	Units
Value	Unsigned Integer	4	1 = US / Canada 2 = Europe 3 = Mexico 4 = Australia 5 = South Africa 6 = Japan 7 = Brazil 8 = South Korea 9 = China 10 = Singapore 11 = Taiwan 12 = New Zealand 13 = India 14 = Hong Kong 15 = Malaysia 16 = Argentina (Null to query in text)	

CTRLMASTER – CONTROL MASTER MODE

This command reports the mode of the unit for control.

Command Form: *DEVICE* **CTRLMASTER** [Value]

Argument Details

Name	Type	Size	Values	Units
Value	Unsigned Integer	4	1 = Master 2 = Slave (Null to query in text)	

DECAY - DECAY ADJUST

This command selects/reports the setting of the decay rate.

Command Form: *DEVICE* **DECAY** <Channel> [Value]

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See Group and Channels	
Group	Group	1	3 (M)	
Value	Unsigned Integer	2	1 = Slow 2 = Medium 3 = Fast (Null to query in text)	

DEFAULT - DEFAULT THE UNIT

Sets the unit to factory defaults. **There is no query for this command.**

Command Form: *DEVICE* **DEFAULT**

Argument Details

None

DELAY - DELAY ADJUST

This command selects/reports the setting of delay time.

Command Form: *DEVICE* **DELAY** <Channel> [Value]

Argument Details

Name	Type	Size	Values	Units
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Channel	Channel	1	See Group and Channels	
Group	Group	1	5 (P)	
Value	Unsigned Float	2	For Converge 1212, 0.00 – 500.00 For all others, 0.00 – 250.00 (Null to query in text)	Ms

DELAYSEL - DELAY SELECT

This command selects/reports the delay activation of an assignable processing channel.

Command Form: **DEVICE DELAYSEL** <Channel> [Value]

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See Group and Channels	
Group	Group	1	5 (P)	
Value	Unsigned Integer	2	0 = Off 1 = On 2 = Toggle (Null to query in text)	

DEVICENAME – NAME IDENTIFICATION LABEL

This selects/reports the Device Name identification label of the specific channel.

COMMAND FORM: **DEVICE DEVICENAME** <Channel> <Group> [Value]

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See Group and Channels	
Group	Group	1	1, 2, 3, 7	
Reserved	Unsigned Integer	2	(I, O, M, L) 0	
Label	String	12	1 – 12 characters CLEAR = clear the label (Null to query in text)	

DEVICESUBTYPE – SETS THE SUBTYPE OF DEVICE CONNECTED TO AN INPUT OR OUTPUT

This command enables / disables or reports the current type of device connected to an input or output.

Command Form: **DEVICE DEVICESUBTYPE** <Channel> <Group> [Value]

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See Group and Channels	
Group	Group	1	1, 2, 3, 7 (I, O, M, L)	
Value	Unsigned Integer	2	(NULL to query in text)	

DEVICETYPE – SETS THE TYPE OF DEVICE CONNECTED TO AN INPUT OR OUTPUT

This command enables / disables or reports the current type of device connected to an input or output.

Command Form: **DEVICE DEVICETYPE** <Channel> <Group> [Value]

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See Group and Channels	
Group	Group	1	1, 2, 3, 7 (I, O, M, L)	
Value	Unsigned Integer	2	(NULL to query in text)	

DFTLM - DEFAULT METER

This command selects/reports the setting of the default meter on the front panel.

Command Form: *DEVICE DFLTM* [Channel Group Position]

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See Group and Channels (Null to query in text)	
Group	Group	1	1, 2, 3, 7, 16, 17 (I, O, M, L, T, R)	
Position	Meter Type	2	1 – 4, as applicable for group See Meter Type Definitions	

DIAL – DTMF DIALING

This command dials a DTMF sequence or reports back the last sequence dialed.

Command Form: *DEVICE DIAL* <Channel> [Number]

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See Group and Channels	
Group	Group	1	17 (R)	
Reserved				
Number	String	40	1 – 40 Chars of '0' – '9', 'A' – 'D', '*', '#', ',' (Null to query last number dialed in text)	

DID - DEVICE ID

This command reports the device id. **This command is read only except through the front panel.**

Command Form: *DEVICE DID* [Value]

Argument Details

Name	Type	Size	Values	Units
Value	Unsigned Integer	4	See Type And Device IDs (Null sent in text, Value returned)	

DSPMEM - DSP MEMORY PEEK / POKE

This command peeks and pokes at DSP memory.

Command Form: *DEVICE DSPMEM* <DSP Number> <Memory> <Address> [Value]

Argument Details

Name	Type	Size	Values	Units
DSP Number	Hexadecimal	2	0 – 9	
Memory Space	Hexadecimal	2	0 = P, 1 = X, 2 = Y, 3 = Y (or DAA registers where applicable)	
Address	Hexadecimal	4	0x0000000 – 0x00FFFFFF	
Value	Hexadecimal	4	0x0000000 – 0x00FFFFFF (Null to query (peek) in text)	

DSPVER - DSP VERSION

This command reports the version of the DSP code in the unit. **This command is read only.**

Command Form: *DEVICE DSPVER* <Value> [Time/Date]

Argument Details

Name	Type	Size	Values	Units
Value	Unsigned Integer	4	0 for Host 1 – 8 for Satellite 9 for Telco	
Time / Date	String	16	(Null to query in text)	

DTMFC – DTMF CONTINUOUS

This command sends a continuous DTMF tone.

Command Form: **DEVICE DTMFC** <Channel> <On/Off> <Number>

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See Group and Channels	
Group	Group	1	17 (R)	
On/Off	Unsigned Integer	2	0 = Off 1 = On	
Number	Character	1	'0' – '9', 'A' – 'D', '*', '#'	
Reserved		3	0	

DTMFLVL - DTMF TONE LEVEL

This command selects/reports the DTMF tone's level.

Command Form: **DEVICE DTMFLVL** <Channel> [Value]

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See Group and Channels	
Group	Group	1	17 (R)	
Value	Signed Float	2	-12.00 – 12.00 (Null to query in text)	DB

DTONELVL - DIAL TONE LEVEL

This command selects/reports the audible dial tone's level.

Command Form: **DEVICE DTONELVL** <Channel> [Value]

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See Group and Channels	
Group	Group	1	17 (R)	
Value	Signed Float	2	-12.00 – 12.00 (Null to query in text)	dB

DUPDATE – DOWNLOAD UPDATE

This command reports the status of download updates.

Command Form: **DEVICE DUPDATE** [Channel Group Status Percent Done Message]

Argument Details

Name	Type	Size	Values
Channel	Unsigned Integer	1	
Group	Unsigned Integer	1	
Status	Unsigned Integer	1	(Null to query in text)
Percent Done	Unsigned Integer	1	
Message	Char	60	

DVER - COMMAND DICTIONARY VERSION

This command reports the version of the command dictionary being used by the unit. **This command is read only.**

Command Form: **DEVICE DVER** [Value]

Argument Details

Name	Type	Size	Values	Units
Value	Unsigned Integer	4	(Sent with a Null in text)	

ENETADDR - ETHERNET PORT IP ADDRESS

This command selects/reports the IP address of the Ethernet port on the unit.

Command Form: *DEVICE* **ENETADDR** [Value]

ENETDHCP - ETHERNET DHCP SELECTION

This command selects/reports the use of DHCP of the Ethernet port on the unit.

Command Form: *DEVICE* **ENETDHCP** [Value]

Argument Details

Name	Type	Size	Values	Units
Value	Unsigned Integer	4	0 = On 1 = Off 2 = Toggle (Null to query in text)	

ENETDNS - ETHERNET DNS SELECTION

This command selects/reports the use of DNS of the Ethernet port on the unit.

Command Form: *DEVICE* **ENETDNS** [Value]

Argument Details

Name	Type	Size	Values	Units
Value	Unsigned Integer	4	0 = On 1 = Off 2 = Toggle (Null to query in text)	

ENETDNSA - ETHERNET DNS SERVER ADDRESS

This command selects/reports the DNS server IP address of the Ethernet port on the unit.

Command Form: *DEVICE* **ENETDNSA** [Value]

Argument Details

Name	Type	Size	Values	Units
Value	IP Address	4	(Null to query in text)	

ENETDNSA2 - ETHERNET DNS SERVER ADDRESS 2

This command selects/reports the alternate DNS server IP address of the Ethernet port on the unit.

Command Form: *DEVICE* **ENETDNSA2** [Value]

Argument Details

Name	Type	Size	Values	Units
Value	IP Address	4	(Null to query in text)	

ENETDOMAIN - ETHERNET DOMAIN NAME

This command selects/reports the Domain Name of the Ethernet port on the unit.

Command Form: *DEVICE* **ENETDOMAIN** [Value]

ENETGATE - ETHERNET DEFAULT GATEWAY ADDRESS

This command selects/reports the default gateway of the Ethernet port on the unit.

Command Form: *DEVICE* **ENETGATE** [Value]

Argument Details

Name	Type	Size	Values	Units
Value	IP Address	4	(Null to query in text)	

ENETSUBN - ETHERNET SUBNET MASK

This command selects/reports the Subnet mask of the Ethernet port on the unit.

Command Form: *DEVICE ENETSUBN* [Value]

Argument Details

Name	Type	Size	Values	Units
Value	IP Address	4	(Null to query in text)	

EREF - EXPANSION BUS REFERENCE

This command selects an output or reports which output is the expansion bus reference.

Command Form: *DEVICE EREF* <Channel> [Value Channel Value Group]

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See Reference Channels in Group and Channels	
Group	Group	1	8 (A)	
Value	Channel	1	0 = none	
			See 2, 20 (O, B) in Group and Channels	
			(Null to query in text)	
Value	Group	1	0 for none or 2, 20 (N for none or O, B)	

FILTER – FILTER ADJUST

This command selects/reports the settings of a filter.

Command Form:

DEVICE FILTER <Channel> <Group> <Node> [Type Frequency Gain/Slope Bandwidth/Subtype]

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See Group and Channels	
Group	Group	1	3, 5 (M, P)	
Node	Unsigned Integer	1	Group 3 Group 5	1 – 4 1 – 15
Type	Unsigned Integer	1	0 = None 1 = All Pass 2 = Low Pass 3 = High Pass 4 = Low Shelving 5 = High Shelving 6 = Parametric Equalizer 7 = CD Horn 8 = Bessel Crossover 9 = Butterworth Crossover 10 = Linkwitz-Riley Crossover 11 = Notch	
Frequency	Unsigned Float	4	(Null to query in text) Type 0 Type 1 – 6, 8 – 11 Type 7	0 (Null in text) 20.00 – 20000.00 500.00 – 5000.00
Gain/Slope	Signed Float	2	Type 0 – 3, 7, 11 Type 4 – 6 Type 8 – 9 Type 10	0 (Null in text) -15.00 – 15.00 12, 18, 24 12, 24
				Hz dB / Octave

Bandwidth/Subtype	Unsigned Float	2	Type 0 – 5, 7 Type 6, 11 Type 8 – 10	0 (Null in text) 0.05 – 5.00 2, 3	Octaves / Type
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FILTSEL - FILTER SELECT

This command turns on and off the filters.

Command Form: **DEVICE FILTSEL** <Channel> <Group> <Node> [Value]

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See Group and Channels	
Group	Group	1	3, 5 (M, P)	
Node	Unsigned Integer	1	Group 3 1 – 4 0xFF for all (* text) Group 5 1 – 15 0xFF for all (* text)	
Value	Unsigned Integer	1	0 = Off 1 = On 2 = Toggle (Null to query in text)	

FLOW - FLOW CONTROL

This command selects/reports the flow control of the serial port on the unit. Hardware flow control is implemented using DTR and DSR.

Command Form: **DEVICE FLOW** [Value]

Argument Details

Name	Type	Size	Values	Units
Value	Unsigned Integer	4	0 = Off 1 = On 2 = Toggle (Null to query in text)	

FMP - FIRST MIC PRIORITY MODE

This command selects/reports first Mic priority mode.

Command Form: **DEVICE FMP** <Channel> [Value]

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See Group and Channels	
Group	Group	1	4 (G)	
Value	Unsigned Integer	2	0 = Off 1 = On 2 = Toggle (Null to query in text)	

FPGAVER - FPGA VERSION

This command reports the version of the FPGA code in the unit. **This command is read only.**

Command Form: **DEVICE FPGAVER** [Value]

Argument Details

Name	Type	Size	Values	Units
Value	String	12	(Sent with a Null in text)	

GAIN - GAIN ADJUSTMENT

This command changes or reports back the gain for a channel.

Command Form: **DEVICE GAIN** <Channel> <Group> [Value] [Absol/Rel]

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See Group and Channels	
Group	Group	1	1, 2, 3, 5, 7, 12, 16, 17 (I, O, M, P, L, F, T, R)	
Value	Signed	2	-99.90 – 99.90 **	DB
	Float		(Null to query in text)	
Absol /		0	A = Absolute	
Rel			R = Relative	
			Null = Relative	

** Note: Values indicate entry range only. Actual internal range of the gain stage is from –65 to 20. Absolute values will be limited to the internal gain range.

GATE - GATE STATUS

This command reports the gate status of Mics. **This command is read only.**

Command Form: **DEVICE GATE** [Value]

Argument Details

Name	Type	Size	Values	Units
Value	Hexadecimal	4	Bits 0 – 7 represent gate status on Mics 1 – 8 (Null sent in text, Value returned)	

GGRPMODE – GATING GROUP MODE

This command selects/reports the mode for a Gating Group.

Command Form: **DEVICE GGRPMODE** <Channel> [Value]

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See Group and Channels	
Group	Group	1	4 (G)	
Value	Unsigned Integer	2	0 = Traditional 1 = Proportional (Null to query in text)	

GHOLD - GATE HOLD TIME ADJUST

This command selects/reports the setting of hold time.

Command Form: **DEVICE GHOLD** <Channel> [Value]

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See Group and Channels	
Group	Group	1	3 (M)	
Value	Unsigned Float	2	0.10 – 8.00 (Null to query in text)	S

GMODE - GATING MODE

This command selects/reports the setting of gating mode.

Command Form: **DEVICE GMODE** <Channel> [Value]

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See Group and Channels	
Group	Group	1	3 (M)	

Value	Unsigned Integer	2	1 = Auto 2 = Manual On 3 = Manual Off (Null to query in text)
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GOVER - GATING OVERRIDE

This command selects/reports the setting of gating override.

Command Form: **DEVICE GOVER** <Channel> [Value]

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See Group and Channels	
Group Value	Group Unsigned Integer	1 2	3 (M) 0 = Off 1 = On 2 = Toggle (Null to query in text)	

GPIOSTATUS – GENERAL PURPOSE STATUS

This command sets the state of a General Purpose Status Pin.

Command Form: **DEVICE GPIOSTATUS** Pin Port [Value]

Argument Details

Name	Type	Size	Values
Pin	Unsigned Integer	1	1 – 24 (Only user definable status pins. See PGPIO for more details.)
Port	Unsigned Integer	1	1 – 2
Value	Unsigned Integer	2	0 = Low 1 = High 2 = Toggle (NULL to query in text)

GRATIO - GATE RATIO ADJUST

This command selects/reports the setting of the gate ratio.

Command Form: **DEVICE GRATIO** <Channel> [Value]

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See Group and Channels	
Group Value	Group Unsigned Integer	1 2	3 (M) 0 - 50 (Null to query in text)	DB

GREPORT - GATE REPORT

This command selects/reports the mode of gate and audio presence status reporting.

Command Form: **DEVICE GREPORT** [Value]

Argument Details

Name	Type	Size	Values	Units
Value	Unsigned Integer	4	0 = Off 1 = On 2 = Toggle (Null to query in text)	

GRPSEL - GATING GROUP SELECT

This command selects/reports which Gating Group a microphone input is assigned.

Command Form: *DEVICE* **GRPSEL** <Channel> [Value]

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See Group and Channels	
Group	Group	1	3 (M)	
Value	Channel	2	See 4 (G) in Group and Channels (Null to query in text)	

HOOK - HOOK FLASH

This command sends a hook flash. **There is no query for this command.**

Command Form: *DEVICE* **HOOK** <Channel>

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See Group and Channels	
Group	Group	1	17 (R)	
Reserved		2	0	

HOOKD - HOOK FLASH DURATION

This command selects/reports the hook flash duration.

Command Form: *DEVICE* **HOOKD** <Channel> [Value]

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See Group and Channels	
Group	Group	1	17 (R)	
Value	Unsigned Integer	2	50 – 2000 (Multiples of 10 Ms only) (Null to query in text)	Ms

LABEL - LABEL

This selects/reports the label of the specific channel or the unit.

Command Form: *DEVICE* **LABEL** <Channel> <Group> [In/Out] [Value]

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See Group and Channels	
Group	Group	1	1, 2, 3, 4, 5, 6, 7, 8, 12, 13, 14, 16, 17, 20 (I, O, M, G, P, E, L, A, F, S, C, T, R, B)	
Input / Output to Matrix	Unsigned Integer	2	Groups all but 6 Groups 6	0 0 = output 1 = input
Label	String	20	1 – 20 characters CLEAR = clear the label (Null to query in text)	

LCDCONTRAST – LCD CONTRAST

This command selects/reports the LCD Contrast Setting.

Command Form: *DEVICE* **LCDCONTRAST** [Value]

Argument Details

Name	Type	Size	Values	Units
Value	Unsigned Integer	4	0 (lightest) – 63 (darkest) (Null to Query in Text)	

LMO - LAST MIC ON MODE

This command selects/reports last Mic on mode.

Command Form: **DEVICE LMO** <Channel> [Value]

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See Group and Channels	
Group	Group	1	4 (G)	
Value	Unsigned Integer	2	0 = Off 1 - 8 = Mic 1 - 8 to be the last mic 0xFF (* in text) = Last Mic to stay on (Null to query in text)	

LOCALNUM – LOCAL NUMBER

This command sets or reports back the current value of the local number.

Command Form: **DEVICE LOCALNUM** <Channel> [Number]

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See Group and Channels	
Group	Group	1	17 (R)	
Reserved		2	0	
Number	String	16	1 – 16 Chars of '0' – '9', 'A' – 'D', '*', '#', ',' (Null to query in text)	

LOCBLDG – LOCATION: BUILDING

This command sets/reports the location of the unit: Building string.

Command Form: **DEVICE LOCBLDG** [Value]

Argument Details

Name	Type	Size	Values	Units
Value	String	80	CLEAR = Clear current value 1 – 64 Characters (Null to query in text)	

LOCROOM – LOCATION: ROOM

This command sets/reports the location of the unit: Room string.

Command Form: **DEVICE LOCROOM** [Value]

Argument Details

Name	Type	Size	Values	Units
Value	String	80	CLEAR = Clear current value 1 – 64 Characters (Null to query in text)	

LOCREGION – LOCATION: REGION

This command sets/reports the location of the unit: Region string.

Command Form: **DEVICE LOCRACK** [Value]

Argument Details

Name	Type	Size	Values	Units
Value	String	80	CLEAR = Clear current value 1 – 64 Characters (Null to query in text)	

LOCCITY – LOCATION: CITY

This command sets/reports the location of the unit: City string.

Command Form: **DEVICE LOCCITY** [Value]

Argument Details

Name	Type	Size	Values	Units
Value	String	80	CLEAR = Clear current value 1 – 64 Characters (Null to query in text)	

LOCNTRY – LOCATION: COUNTRY

This command sets/reports the location of the unit: Country string.

Command Form: **DEVICE LOCNTRY** [Value]

Argument Details

Name	Type	Size	Values	Units
Value	String	80	CLEAR = Clear current value 1 – 64 Characters (Null to query in text)	

LOCCOMP – LOCATION: COMPANY

This command sets/reports the location of the unit: Company string.

Command Form: **DEVICE LOCCOMP** [Value]

Argument Details

Name	Type	Size	Values	Units
Value	String	80	CLEAR = Clear current value 1 – 64 Characters (Null to query in text)	

LOCSITENAME – LOCATION: SITE NAME

This command sets/reports the location of the unit Site name.

Command Form: **DEVICE LOCSITENAME** [Value]

Argument Details

Name	Type	Size	Values	Units
Value	String	80	CLEAR = Clear current value 1 – 64 Characters (Null to query in text)	

LOCSTATE – LOCATION: STATE

This command sets/reports the location of the unit: State/Prefecture string.

Command Form: **DEVICE LOCSTATE** [Value]

Argument Details

Name	Type	Size	Values	Units
Value	String	80	CLEAR = Clear current value 1 – 64 Characters (Null to query in text)	

LOGMASK – EVENT LOG MASK

This command sets or reports the unit event log mask.

Command Form: **DEVICE LOGMASK** [Value]

Argument Details

Name	Type	Size	Values	Units
Value	Hexadecimal	4	XXXX XXXX XXXX XXXX Access (Null to query in text)	

LVL - LEVEL

This command reports the level of a channel. **This command is read only.**

Command Form: *DEVICE* **LVL** <Channel> <Group> <Position> [Value]

Argument Details

Name	Type	Size	Values	Units
Channel Group	Channel Group	1	See Group and Channels 1, 2, 3, 5, 7, 12, 16, 17, 20 (I, O, M, P, L, F, T, R, B)	
Position Value	Meter Type Signed Float	2 4	See Meter Type Definitions -99.99 – 99.99 (Sent with Null in text, Value returned)	DB

LVLREPORT - LEVEL REPORT

This command selects/reports the status of level reporting for the specified channel.

Command Form: *DEVICE* **LVLREPORT** <Channel> <Group> <Position> [Value]

Argument Details

Name	Type	Size	Values	Units
Channel Group	Channel Group	1	See Group and Channels 1, 2, 3, 5, 7, 12, 16, 17 (I, O, M, P, L, F, T, R, B)	
Position Value	Meter Type Unsigned Integer	2 4	See Meter Type Definitions 0 = Off (Delete from list being reported) 1 = On (Add to list being reported) 2 = Toggle (Null to query in text)	

LVLREPORTEN - LEVEL REPORT ENABLE

Enables level reporting for the unit.

Command Form: *DEVICE* **LVLREPORTEN** [Value]

Argument Details

Name	Type	Size	Values	Units
Value	Unsigned Integer	4	0 = Turn off reporting but leave current list 1 = Turn on reporting 2 = Turn off reporting and clear the list (Null to query in text)	

MACRO - MACRO EXECUTION/REPORTING

This command executes a specified macro or reports the last macro executed.

Command Form: *DEVICE* **MACRO** [Value]

Argument Details

Name	Type	Size	Values	Units
Value	Channel	4	See 14 (C) in Group and Channels (Null to query last macro ran in text)	

NOTE: The response will indicate successful execution of the macro but does not guarantee that each command within the macro was executed.

MAX - MAXIMUM GAIN SETTING

This command changes or reports back the maximum gain setting for an input, output or assignable processing block.

Command Form: *DEVICE* **MAX** <Channel> <Group> [Value]

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See Group and Channels	
Group	Group	1	1, 2, 3, 5, 7, 12, 16, 17 (I, O, M, P, L, F, T, R)	
Value	Signed Float	2	-65.00 – 20.00 (Null to query in text)	DB

MIN - MINIMUM GAIN SETTING

This command changes or reports back the minimum gain setting for a channel.

Command Form: *DEVICE* **MIN** <Channel> <Group> [Value]

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See Group and Channels	
Group	Group	1	1, 2, 3, 5, 7, 12, 16, 17 (I, O, M, P, L, F, T, R)	
Value	Signed Float	2	-65.00 – 20.00 (Null to query in text)	DB

MINMAX - MINIMUM AND MAXIMUM GAIN SETTING

This command changes or reports back the minimum and maximum gain setting for a channel.

Command Form: *DEVICE* **MINMAX** <Channel> <Group> [Min Max]

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See Group and Channels	
Group	Group	1	1, 2, 3, 5, 7, 12, 16, 17 (I, O, M, P, L, F, T, R)	
Min	Signed Float	2	-65.00 – 20.00 (Null to query in text)	DB
Max	Signed Float	4	-65.00 – 20.00	DB

MLINE – MIC / LINE COARSE GAIN SETTING

This command selects/reports the setting of coarse gain.

Command Form: *DEVICE* **MLINE** <Channel> [Value]

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See Group and Channels	
Group	Group	1	3 (M)	

Value	Unsigned Integer	2	0 = 0 dB 7 = 7 dB 14 = 14 dB 21 = 21 dB 28 = 28 dB 35 = 35 dB 41 = 41 dB 50 = 50 dB 56 = 56 dB (Null to query in text) (No other values are valid and accepted)
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MMAX - MAXIMUM NUMBER OF MICROPHONES

This command selects/reports the maximum number of microphones for a Gating Group.

Command Form: **DEVICE MMAX** <Channel> [Value]

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See Group and Channels	
Group	Group	1	4 (G)	
Value	Unsigned Integer	2	0 = Unlimited 1 - 8 = Maximum # of Mics (Null to query in text)	

MTRX – MATRIX ROUTING

This command selects/reports the matrix routing of an input to an output.

Command Form: **DEVICE MTRX** <Src. Ch.> <Src. Gp.> <Dest. Ch.> <Dest. Gp.> [Value]

Argument Details

Name	Type	Size	Values	Units
Source Channel	Channel	1	See Group and Channels	
Source Group	Group	1	1, 3, 5, 6, 7, 12, 17 (I, M, P, E, L, F, R)	
Destination Channel	Channel	1	See Group and Channels	
Destination Group	Group	1	2, 5, 6, 12, 16, 20 (O, P, E, F, T, B)	
Value	Unsigned Integer	4	0 = Cross point off 1 = Cross point on (Not Valid for Mic Sources) 2 = Toggle (Not Valid for Mic Sources) 3 = Non Gated (Mic Sources Only) 4 = Gated (Mic Sources Only) 5 = Pre-AEC (Mic Sources Only) 6 = Routing Prohibited (Cross point is off and may not be turned on) (Null to query in text)	

MTRX2 - MATRIX 2

This command sets the cross points for an entire input.

Command Form:

DEVICE MTRX2 <Src. Ch.> <Src. Gp.> [<Cross Point 1 H> <Cross Point 1 L> <Cross Point 2 H> <Cross Point 2 L> <Cross Point 3 H> <Cross Point 3 L>]

Argument Details

Source Channel	Channel	1	See Group and Channels
Source Group	Group	1	1, 3, 5, 6, 7, 12, 17, 20 (I, M, P, E, L, F, R, B)
Reserved		2	0

Cross point 1 High (Gated Mics & all other inputs)	Hexadecimal	4	Bit mask of columns 31 - max
Cross point 1 Low (Gated Mics & all other inputs)	Hexadecimal	4	Bit mask of columns 0 – 31
Cross point 2 High (Non Gated Mics)	Hexadecimal	4	Bit mask of columns 31 - max
Cross point 2 Low (Non Gated Mics)	Hexadecimal	4	Bit mask of columns 0 – 31
Cross point 3 High (Pre-AEC Mics)	Hexadecimal	4	Bit mask of columns 31 - max
Cross point 3 Low (Pre-AEC Mics)	Hexadecimal	4	Bit mask of columns 0 – 31

Also, a microphone cannot be routed in more than one way to the same output. So the three cross point words anded together should equal zero.

MTRXCLEAR – CLEAR MATRIX

Clears the ENTIRE matrix for the unit. **There is no query for this command.**

Command Form: *DEVICE* **MTRXCLEAR**

Argument Details

None

MTRXLVL - MATRIX ATTENUATION ADJUST

This command selects/reports the matrix level at the cross point.

Command Form:

DEVICE **MTRXLVL** <Src. Ch.> <Src. Gp.> <Dest. Ch.> <Dest. Gp.> [Value] [A/R]

Argument Details

Name	Type	Size	Values	Units
Source Channel	Channel	1	See Group and Channels (I, M, P, E, L, F, R)	
Source Group	Group	1		
Destination Channel	Channel	1	See Group and Channels (O, P, E, F, T)	
Destination Group	Group	1		
Value	Signed Float	4	-99.00 – 99.00 **	DB
Absol / Rel		0	(Null to query in text)	
			A = Absolute R = Relative Null = Relative	

** Note: Values indicate entry range only. Actual internal range of the matrix attenuation is from –60 to 12 and absolute values will be limited to the internal gain range.

MUTE - MUTE

This command selects/reports the setting of mute on a channel.

Command Form: *DEVICE* **MUTE** <Channel> <Group> [Value]

Argument Details

Name	Type	Size	Values
Channel	Channel	1	See Group and Channels (I, O, M, P, L, F, T, R)
Group	Group	1	
Value	Unsigned Integer	2	0 = Off 1 = On 2 = Toggle (Null to query in text)

NAME – NAME

This command sets/reports the name of the unit which is also used for its Ethernet name.

Command Form: *DEVICE* **NAME** [Value]

Argument Details

Name	Type	Size	Values	Units
Value	String	16	1 – 15 Characters (Null to query in text)	

NCD - NOISE CANCELLATION DEPTH ADJUST

This command selects/reports the setting of the Noise Cancellation.

Command Form: **DEVICE NCD** <Channel> <Group> [Value]

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See Group and Channels	
Group	Group	1	3, 17 (M, R)	
Value	Unsigned Integer	2	6 – 15 (Null to query in text)	DB

NCSEL - NOISE CANCELLATION SELECT

This command selects/reports the setting of the Noise Cancellation for each microphone channel.

Command Form: **DEVICE NCSEL** <Channel> <Group> [Value]

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See Group and Channels	
Group	Group	1	3, 17 (M, R)	
Value	Unsigned Integer	2	0 = Off 1 = On 2 = Toggle (Null to query in text)	

NLP - NON LINEAR PROCESSING ADJUST

This command selects/reports the setting of the Non-linear processing for each microphone channel.

Command Form: **DEVICE NLP** <Channel> [Value]

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See Group and Channels	
Group	Group	1	3 (M)	
Value	Unsigned Integer	2	0 = Off 1 = Soft 2 = Medium 3 = Aggressive (Null to query in text)	

NOM - NUMBER OF OPEN MICROPHONES MODE

This command selects/reports the setting of Number of Open Microphones (NOM) on output channels.

Command Form: **DEVICE NOM** <Channel> <Group> [Value]

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See Group and Channels	
Group	Group	1	2, 16 (O, I)	
Value	Unsigned Integer	2	0 = Off 1 = On 2 = Toggle (Null to query in text)	

NTPSRV – NTP NETWORK TIME SERVER ADDRESS

This command selects/reports the IP addresses of the NTP Time Server the unit's NTP client requests time status from.

Command Form: *DEVICE* **NTPSRV** [Value 1 Value 2]

Argument Details

Name	Type	Size	Values	Units
Value 1	IP Address	4	(Null to query in text)	
Value 2	IP Address	4		

NULL - NULL THE LINE

This command nulls the line. **There is no query for this command.**

Command Form: *DEVICE* **NULL** <Channel>

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See Group and Channels	
Group	Group	1		
Reserved		2		

OFFA - OFF ATTENUATION MODE

This command selects/reports the off attenuation value of a Mic channel.

Command Form: *DEVICE* **OFFA** <Channel> [Value]

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See Group and Channels	
Group	Group	1		
Value	Unsigned Float	2	3 (M) 0.00 – 60.00 (Null to query in text)	

PAA - PA ADAPTIVE MODE

This command selects/reports PA adaptive mode for the specified Mic.

Command Form: *DEVICE* **PAA** <Channel> [Value]

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See Group and Channels	
Group	Group	1		
Value	Unsigned Integer	2	3 (M) 0 = Off 1 = On 2 = Toggle (Null to query in text)	

PBDIAL – DIAL A PB ENTRY BY NAME

This command dials a speed dial number by name. **There is no query for this command.**

Command Form: *DEVICE* **PBDIAL** <Channel> <Label>

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See Group and Channels	
Group	Group	1		
Reserved	Unsigned Integer	2		
Label	String	16	0 1 – 16 chars	

PHONEBOOKADD – ADDS AN ENTRY TO THE PHONEBOOK

This command saves an entry in the phonebook. **There is no query for this command.** No two entries can share the same label. An argument error will be returned if an entry already has the name. To change an entry, you must first delete it and then add it again. If label is blank, the first 20 characters of the number will be used as the label. Number must not be blank. If an entry already exists with the assigned speed dial it will be overwritten. The entries are alphabetized based on Label.

Command Form: *DEVICE* **PHONEBOOKADD** <ID Number Label>

Argument Details

Name	Type	Size	Values	Units
Speed Dial	Unsigned Integer	4	0 for not assigned to a speed dial	
Number	String	44	1 – 20	
Label	String	16	1 – 44 chars '0' – '9', 'A' – 'D', '*', '#'	
			1 – 16 chars	

PHONEBOOKCNT – QUERIES THE NUMBER OF ENTRIES IN THE PHONEBOOK

This command queries the number of entries in the phonebook. **This command is query only.**

Command Form: *DEVICE* **PHONEBOOKCNT** <Value>

Argument Details

Name	Type	Size	Values	Units
Value	Unsigned Integer	4	0 – 20	

PHONEBOOKDEL – DELETES AN ENTRY TO THE PHONEBOOK

This command deletes an entry in the phonebook. **There is no query for this command.**

Command Form: *DEVICE* **PHONEBOOKDEL** <Label>

Argument Details

Name	Type	Size	Values	Units
Label	String	16	1 – 16 chars	

PHONEBOOKREAD – QUERIES A ENTRY IN THE PHONEBOOK BY INDEX

This command queries an entry in the phonebook. **This command is query only.**

Command Form: *DEVICE* **PHONEBOOKREAD** <Index> [Speed Number Label]

Argument Details

Name	Type	Size	Values	Units
Index	Unsigned Integer	2	0 – 19 (Must be less than the Number of Phone Book Entries)	
Speed Dial	Unsigned Integer	2	0 for not assigned to a speed dial	
			1 – 20	
Number	String	44	(NULL to query in text)	
Label	String	16	1 – 44 chars '0' – '9', 'A' – 'D', '*', '#'	
			1 – 16 chars	

PP - PHANTOM POWER

This command selects/reports the setting of phantom power.

Command Form: *DEVICE* **PP** <Channel> [Value]

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See Group and Channels	
Group	Group	1	3 (M)	

Value	Unsigned Integer	2	0 = Off 1 = On 2 = Toggle (Null to query in text)
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PRESET - PRESET EXECUTION/REPORTING

This command selects/reports the state of a preset.

Command Form: **DEVICE PRESET** <Channel> [Value]

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	0 (Binary)/Null (Text) = Query Last Preset Ran	
Group Value	Group Unsigned Integer	1 2	See Group and Channels 13 (S) 0 = Set preset state to off 1 = Set state to on and execute if not already on 2 = Execute and return state to off (Null to query current state in text)	

PRGSTRING - PROGRAM STRING

This command sets/reports a programmed string.

COMMAND FORM: **DEVICE PRGSTRING** <ID> [Value]

Argument Details

Name	Type	Size	Values	Units
ID Value	Unsigned Integer String	4 80	0 – 7 CLEAR = Clear current value 1 – 80 Chars (Null to query in text) Special Characters: \a = alert \b = backspace \f = form feed \n = new line \r = carriage return \t = horizontal tab \v = vertical tab \\ = backslash	

PTTTHRESHOLD – PUSH TO TALK THRESHOLD

This command selects/reports the setting of the push to talk threshold for a microphone.

Command Form: **DEVICE PTTTHRESHOLD** <Channel> [Value]

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See Group and Channels	
Group Value	Group Float	1 2	3 (M) -100 to 0 (Null to query in text)	dB

PUSHTOTALK – PUSH TO TALK

This command selects/reports the setting of push-to-talk for a microphone.

Command Form: **DEVICE PUSHTOTALK** <Channel> [Value]

Argument Details

Name	Type	Size	Values	Units
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Channel	Channel	1	See Group and Channels
Group Value	Group Unsigned Integer	1 2	3 (M) 0 = Off 1 = On 2 = Toggle (Null to query in text)

RAMP - RAMP GAIN ADJUSTMENT

This command starts / stops the gain ramp for an input, output or assignable processing block. **There is no query associated with this command.**

Command Form: **DEVICE RAMP** <Channel> <Group> <Rate> [Target]

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See Group and Channels	
Group	Group	1	1, 2, 3, 5, 7, 12, 16, 17 (I, O, M, P, L, F, T, R)	
Rate	Signed Integer	1	-50 – 50 If value=0, the ramp will stop. If value< 0, the gain will ramp down. If value>0, the gain will ramp up.	DB / s
Target	Signed Integer	1	-65 – 20 If NULL in text or 0x80 in binary, the ramp will use the channel's maximum and minimum for a target.	DB

REDIAL – DIAL THE LAST NUMBER AGAIN

This command redials the last number. **There is no query for this command.**

Command Form: **DEVICE REDIAL** <Channel>

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See Group and Channels	
Group	Group	1	17 (R)	
Reserved		2	0	

REFSEL - REFERENCE SELECT FOR POWER AMP ADAPTATION / ACOUSTIC ECHO CANCELLATION

This command selects/reports which output or expansion bus reference is used for a Mic input as a reference for power amp adaptation mode and acoustic echo cancellation where applicable.

Command Form: **DEVICE REFSEL** <Channel> [Ref. Group Ref. Channel]

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See 3 (M) in Group and Channels	
Group	Group	1	3 (M)	
Reference Group	Group	1	2, 8, 20 (O, A, B)	
Reference Channel	Channel	1	See Group and Channels (Null to query in text)	

REFSET – REFERENCE CHANNEL SET UP

This command selects/reports the output the reference channel tracks.

Command Form: **DEVICE REFSET** <Channel> [Reference Output]

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See Group and Channels	
Group	Group	1	20 (B)	
Value	Reference Output	2	0 = none See 2 (O) in Group and Channels (Null to Query in Text)	

RESET - RESET

Resets the unit. **There is no query for this command.**

Command Form: **DEVICE RESET**

Argument Details

None

RING - RING INDICATION

This command indicates a ringing line. **This command is reportable only. It cannot be queried or set.**

Command Form: **DEVICE RING** <Channel> <Value>

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See Group and Channels	
Group	Group	1	17 (R)	
Value	Unsigned Integer	2	0 = Ring Cycle Ended 1 = Ring Cycle Started	

RINGEREN - AUDIBLE RING ENABLE

This command sends/reports the use of an audible ring.

Command Form: **DEVICE RINGEREN** <Channel> [Value]

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See Group and Channels	
Group	Group	1	17 (R)	
Value	Unsigned Integer	2	0 = Off 1 = On 2 = Toggle (Null to query in text)	

RINGERLVL - AUDIBLE RING LEVEL

This command selects/reports the audible ring's level.

Command Form: **DEVICE RINGERLVL** <Channel> [Value]

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See Group and Channels	
Group	Group	1	17 (R)	
Value	Signed Float	2	-12.00 – 12.00 (dB) (Null to query in text)	

RINGERSEL - AUDIBLE RING MELODY SELECTION

This command sends/reports the audible ring melody.

Command Form: **DEVICE RINGERSEL** <Channel> [Value]

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See Group and Channels	
Group	Group	1	17 (R)	
Value	Unsigned Integer	2	1 – 3 (Null to query in text)	

RINGertest - AUDIBLE RING MELODY TEST

This command plays the current audible ringer melody. **This command is executable only. There is no query.**

Command Form: *DEVICE RINGERTEST* <Channel>

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See Group and Channels	
Group	Group	1	17 (R)	
Reserved	Unsigned Integer	2	0	

RXBOOST - RECEIVE BOOST

This command selects/reports the receive boost status.

Command Form: *DEVICE RXBOOST* <Channel> [Value]

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See Group and Channels	
Group	Group	1	17 (R)	
Value	Unsigned Integer	2	0, 3, 6, 9, or 12 (Null to query in text)	dB

RXBSTEN - RECEIVE BOOST ENABLE

This command selects/reports the receive boost status.

Command Form: *DEVICE RXBSTEN* <Channel> [Value]

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See Group and Channels	
Group	Group	1	17 (R)	
Value	Unsigned Integer	2	0 = Off 1 = On 2 = Toggle (Null to query in text)	

RXRD - TELCO RECEIVE REDUCTION

This command selects/reports the status of the Telco receive reduction.

Command Form: *DEVICE RXRD* <Channel> [Value]

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See Group and Channels	
Group	Group	1	17 (R)	
Value	Unsigned Integer	2	0 = Off 1 = On 2 = Toggle (Null to query in text)	

SERECHO – SERIAL ECHO

This command selects/reports the serial echo of the RS232 port.

Command Form: *DEVICE SERECHO* [Value]

Argument Details

Name	Type	Size	Values	Units
Value	Unsigned Integer	4	0 = Off 1 = On 2 = Toggle (Null to query in text)	

Return Values

Unit will return the updated state of the last selection in the same form as the command.

SFTYMUTE – SAFETY MUTE

This command selects/reports the state of the safety mute. When on, the safety mute holds all outputs in a muted state. It used for syncing to a G-Ware document to avoid feedback or blown speakers until the box is in a settled state.

Command Form: *DEVICE* **SFTYMUTE** [Value]

Argument Details

Name	Type	Size	Values	Units
Value	Channel	4	0 = off 1 = on 2 = toggle (Null to Query in Text)	

SIGGEN - SIGNAL GENERATOR

This command selects/reports of the signal generator activation.

Command Form: *DEVICE* **SIGGEN** [Channel Group Type Amplitude Frequency]

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See Group and Channels (Null to query in text)	
Group	Group	1	1, 3, 7 (I, M, L)	
Type	Unsigned Integer	2	1 = Pink Noise 2 = White Noise 3 = Tone	
Amplitude	Signed Float	4	-60.00 – 20.00	DB
Frequency	Unsigned Float	4	Type 1 – 2 0 (Null in text) Type 3 20.00 – 20000.00	Hz

SIGGENEN - SIGNAL GENERATOR ENABLE

This command selects/reports of the signal generator activation.

Command Form: *DEVICE* **SIGGENEN** [Value]

Argument Details

Name	Type	Size	Values	Units
Value	Unsigned Integer	4	0 = Off 1 = On 2 = Toggle (Null to Query in Text)	

SIGGENSWEEP - SIGNAL GENERATOR SWEEP

This command starts the signal generator with a tone and does a sweep. If repeat is 0, the signal generator will turn off after the sweep. If repeat is 1, the signal generator will turn off after signal generator timeout. To stop the sweep, send a SIGGENEN command with a 0. During the sweep, the box will send out updated SIGGEN commands.

Command Form:

DEVICE **SIGGENSWEEP** <Channel> <Group> <Amplitude> <Start Frequency> <End Frequency>
<Increment Frequency> <Rate> <Repeat>

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See Group and Channels	
Group	Group	1	1, 3, 7 (I, M, L)	
Amplitude	Signed Float	2	-60.00 – 20.00	DB

Start Frequency	Unsigned Float	4	20.00 – 20000.00	Hz
End Frequency	Unsigned Float	4	20.00 – 20000.00 (must be greater than the start)	Hz
Increment Frequency	Unsigned Float	4	1.00 – 20000.00	Hz
Rate	Unsigned Integer	2	10 – 2000 ms	Hz
Repeat	Unsigned Integer	2	0 = repeat off 1 = repeat on	

SIGTOUT - SIGNAL GENERATOR TIME OUT

Sets the signal generator time out for the unit.

Command Form: **DEVICE SIGTOUT** [Value]

Argument Details

Name	Type	Size	Values	Units
Value	Unsigned Integer	4	0 = Disable 1 – 30 (Null to query in text)	Min

SLVL - SPEECH LEVEL CONTROL

This command selects/reports the setting of Speech Level Control.

Command Form: **DEVICE SLVL** <Channel> [Value]

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See Group and Channels	
Group	Group	1	3 (M)	
Value	Unsigned Integer	2	0 = Off 1 = On 2 = Toggle (Null to query in text)	

SMTPSRV – SMTP MAIL SERVER ADDRESS

This command selects/reports the IP address of the SMTP Mail server, and the Email Address the unit's SMTP client sends messages to.

Command Form: **DEVICE SMTPSRV** [Value Address]

Argument Details

Name	Type	Size	Values	Units
Value	IP Address	4	(Null to query in text)	
Address	String	40	(0.0.0.0 Clears IP and String) 1 – 116 characters (Null to query in text)	

SNMPMNGRIP – SNMP MANAGER HOST IP ADDRESS

This command selects/reports the IP address of the SNMP Manager.

Command Form: **DEVICE SNMPMNGRIP** [Value]

Argument Details

Name	Type	Size	Values	Units
Value	IP Address	4	IP Address of SNMP Manager to send Traps to (Null to query in text)	

SNMPMNGRPORT – SNMP MANAGER NOTIFICATION PORT

This command selects/reports the SMP Trap port for SNMP Manager.

Command Form: *DEVICE* **SNMPMNGRPORT** [Value]

Argument Details

Name	Type	Size	Values	Units
Value	Unsigned Integer	4	(Null to Query in Text)	

SNMPREADCOMM – SNMP READ COMMUNITY STRING

This command selects/reports the SNMP read community string.

Command Form: *DEVICE* **SNMPREADCOMM** [Value]

Argument Details

Name	Type	Size	Values	Units
Value	String	30	Read Community validation string (GET data) (Null to Query in Text: defaults to “public”)	

SNMPWRITECOMM – SNMP WRITE COMMUNITY STRING

This command selects/reports the SNMP Write Community String.

Command Form: *DEVICE* **SNMPWRITECOMM** [Value]

Argument Details

Name	Type	Size	Values	Units
Value	String	30	Write Community validation string (SET data) (Null to query in text: Default = “private”)	

SPEEDDIAL - SPEED DIALING

This command dials a speed dial number.

Command Form: *DEVICE* **SPEEDDIAL** <Channel> [Value]

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See Group and Channels	
Group	Group	1	17 (R)	
Value	Unsigned Integer	2	1 – 20 (Null to query in text)	

STRING - STRING EXECUTION

This command sends the specified string out the serial port.

Command Form: *DEVICE* **STRING** [ID]

Argument Details

Name	Type	Size	Values	Units
ID	Unsigned Integer	4	0 – 7 (Null to query last string in text)	

SYSCHECKS – SYSTEM CHECKS

Initiates the system checks. **There is no query for this command.**

The “System Check” integer bits simply determine which tests are run. Each bit will result in a separate SYSRESULT response.

COMMAND FORM: *DEVICE* **SYSCHECKS** <System Check>

Argument Details

Name	Type	Size	Values
System Check	Hexadecimal Integer	4	<div style="display: flex; justify-content: space-between;"> 15 14 13 12 11 10 09 08 07 06 05 04 03 02 01 00 </div> <p>All other bits reserved.</p>

SYSRESULT – SYSTEM CHECK RESULT

This command reports the results of the system check. **This command is reportable only. It cannot be queried or set.**

The bits in "System Check" signify which test result is being reported. Each test results in a separate SYSRESULT message.

Argument Details

Name	Type	Values
System Check	Hexadecimal Integer	<div> <div>4</div> <div>15 14 13 12 11 10 09 08 07 06 05 04 03 02 01 00</div> <div> <div>0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</div> <div>0 0 0 0 0 0 0 0 0 0 0 0 0 0 Network</div> <div>0 0 0 0 0 0 0 0 0 0 0 0 0 Telephone</div> <div>0 0 0 0 0 0 0 0 0 0 0 Mic 1</div> <div>0 0 0 0 0 0 0 0 0 0 Mic 2</div> <div>0 0 0 0 0 0 0 0 Mic 3</div> <div>0 0 0 0 0 0 0 0 Mic 4</div> <div>0 0 0 0 0 0 0 Mic 5</div> <div>0 0 0 0 0 0 0 Mic 6</div> <div>0 0 0 0 0 0 0 Mic 7</div> <div>0 0 0 0 0 0 0 Mic 8</div> </div> </div>
Status	Unsigned Integer	<div> <div>2</div> <div> All other bits reserved. 0 = Fail 1 = Pass </div> </div>
	String	<div> <div>40</div> <div> 2 = NULL <Not Tested or Test Disabled in SYSCONFIG> For the telephone on hook: the message will report the line voltage, the line current, other results, and if dial tone is detected. For the telephone off hook: the message will report the line current, other results, and if dial tone is detected. The bit mask for the other results is xxxx xxxx <div> <div> </div> <div> --> set if switched from CTR21 to FCC because of low current </div> </div> <div> <div> </div> <div> --> set if used DIAL bit while dialing </div> </div> <div> <div> </div> <div> --> set if switch from Low Voltage to Japan because of current </div> </div> <div> <div> </div> <div> --> set if switch from Low Voltage to FCC because of current </div> </div> <div> <div> </div> <div> --> DAA OVL status </div> </div> <div> <div> </div> <div> --> DAA DOD status </div> </div> <div> <div> </div> <div> --> DAA OPD status </div> </div> <div> <div> </div> <div> --> Not used </div> </div> </div> </div>

For the network check: the box will report if no IP address is set. If it is set, the box will ping the gateway. The message will say the ping failed if it is not returned in 5 s. Otherwise, the message will report how many seconds it took to return the ping.

TAMODE - TELCO ADAPT MODE

This command selects/reports the Telco adapt mode.

Command Form: *DEVICE* **TAMODE** <Channel> [Value]

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See Group and Channels	
Group	Group	1	17 (R)	
Value	Unsigned Integer	2	0 = Auto 1 = Burst (Null to query in text)	

TE - TELCO ENABLE

This command selects/reports the hook status.

Command Form: *DEVICE* **TE** <Channel> [Value]

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See Group and Channels	
Group	Group	1	17 (R)	
Value	Unsigned Integer	2	0 = Off 1 = On 2 = Toggle (Null to query in text)	

TEC – TELCO ECHO CANCEL

This command selects/reports the state of the Telco echo canceller.

Command Form: *DEVICE* **TEC** <Channel> [Value]

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See Group and Channels	
Group	Group	1	17 (R)	
Value	Unsigned Integer	2	0 = off 1 = on 2 = toggle (Null to Query in Text)	

TELCOLVLCtrl – TELCO TX LEVEL CONTROL ENABLE/ DISABLE

This command selects/reports the setting of Telco TX level control.

Command Form: *DEVICE* **TELCOLVLCtrl** <Channel> [Value]

Argument Details

Name	Type	Size	Values	Units
Channel	Channel	1	See Group and Channels	
Group	Group	1	17 (R)	
Value	Unsigned Integer	2	0 = Off 1 = On 2 = Toggle (Null to query in text)	

TELNETEN - TELNET ENABLE

This command selects/reports the allowance of telnet connections.

Command Form: *DEVICE* **TELNETEN** [Value]

Argument Details

Name	Type	Size	Values	Units
Value	Unsigned Integer	4	0 = Off 1 = On 2 = Toggle (Null to Query in Text)	

TELNETPORT - TELNET PORT

This command selects/reports the port for telnet connections.

Command Form: **DEVICE TELNETPORT** [Value]

Argument Details

Name	Type	Size	Values	Units
Value	Unsigned Integer	4	(Null to Query in Text)	

TEP – TIMED EVENT PROGRAMMING

This command programs one of the timed events. There is no query for this command.

Command Form: *not text supported*

Argument Details

Name	Type	Size	Values	Units
Event	Unsigned Integer	4	0 – 9	
Start Time	time_t	4		
End Time	time_t	4	0 if using EndOccur or no End	
End	Unsigned integer	4	1 – 100	
Occurrence	Unsigned integer	1	0 if using EndTime or no End	
Reoccurrence	Unsigned integer	1	0 – 12	
Week	Unsigned integer	1	0 – 31	
Reoccurrence	Unsigned integer	1	0 – 23	
Day	Unsigned integer	1	0 – 23	
Reoccurrence	Unsigned integer	1	0 – 59	
Hour	Unsigned integer	1	0 – 59	
Reoccurrence	Unsigned integer	1	0 – 59	
Minutes				
Event		16	Any defined binary command with 1 argument	

TIMELOCALE – TIME LOCALE SETTINGS

This command sets or reports the time locale settings.

Command Form: **DEVICE TIMELOCALE** [DaylightSavings TimeZone TimeZoneName]

Argument Details

Name	Type	Size	Values	Units
Daylight Savings	Unsigned Integer	4	0 = Do not use Daylight Savings 1 = Use Daylight Savings	
Time Zone	Unsigned Integer	4	(NULL to Query in Text) The number of seconds from UDT. (-86400 – 86400)	
Time Zone Name	String	32	Description of time zone	

TOUT - TIME OUT SELECT

This command selects/reports the inactivity time out before returning to the unit title screen on the front panel.

Command Form: **DEVICE TOUT** [Value]

Argument Details

Name	Type	Size	Values	Units
Value	Unsigned Integer	4	0 = No Time Out 1 – 15 (Null to query in text)	Min

UCLOCK – CLOCK SET BY UDT COORDINATES

This command sets or reports the current time.

Command Form: **DEVICE UCLOCK** [UDT time]

Argument Details

Name	Type	Size	Values	Units
UDT time	Unsigned Integer	4		

UID - UNIT ID

This command reports the unit id. **This command is read only.**

Command Form: *DEVICE* **UID** [Value]

Argument Details

Name	Type	Size	Values	Units
Value	Hexadecimal	4	(Sent with a Null, value returned in text)	

VER - VERSION

This command reports the version of the unit. **This command is read only.**

Command Form: *DEVICE* **VER** [Value]

Argument Details

Name	Type	Size	Values	Units
Value	String	8	Version of format MM.mm.rr (Sent with a Null in text, value returned)	

WAITSTATE – WAIT STATE

This command defines a delay within macros and presets in ½ second increments from ½ second to 5 seconds.

This command can only be included in a preset or macro. It will be ignored from other sources.

Command Form: *DEVICE* **WAITSTATE** <Value>

Argument Details

Name	Type	Size	Values	Units
Value	Unsigned Float	1	0.50 – 5.00	S

SERIAL COMMAND SUPPORT TABLE

Refer to the following table for serial command support by Converge Pro device type.

ID	Command Name	Converge Pro 880	Converge Pro 840T	Converge Pro TH20	Converge Pro 8i
1	AAMB	X	X		X
2	AGC	X	X	X	X
3	AMBLVL	X	X		X
4	BAUD	X	X	X	X
5	CGROUP	X	X		X
6	CHAIRO	X	X		X
7	COMPRESS	X	X		X
8	COMPSEL	X	X		X
9	DECAY	X	X		X
10	DELAY	X	X		X
11	DFLTM	X	X	X	X
12	DID	X	X	X	X
13	SLVL	X	X		X
14	FILTER	X	X		X
15	FLOW	X	X	X	X
16	FMP	X	X		X
17	CLOCK	X	X	X	X
18	GAIN	X	X	X	X
19	GATE	X	X		X
20	GHOLD	X	X		X
21	GMODE	X	X		X
22	GOVER	X	X		X
23	GRATIO	X	X		X
24	EREF	X	X	X	X
25	GREPORT	X	X	X	X
26	LABEL	X	X	X	X
28	LMO	X	X		X
29	LVL	X	X	X	X
30	LVLREPORT	X	X	X	X
31	MACRO	X	X	X	X
32	MASTER	X	X	X	X
33	UCLOCK	X	X	X	X
34	TIMELOCALE	X	X	X	X
35	GRPSEL	X	X		X
36	LOGMASK	X	X	X	X
37	MMA	X	X		X
38	FPGAVER	X	X	X	X
39	MTRX	X	X	X	X
40	MTRXLVL	X	X	X	X
41	MUTE	X	X	X	X
42	NOM	X	X	X	
43	OFFA	X	X		X
44	PAA	X	X		X
45	PP	X	X		X
46	PRESET	X	X	X	X
47	PRGSTRING	X	X	X	X

ID	Command Name	Converge Pro 880	Converge Pro 840T	Converge Pro TH20	Converge Pro 8i
48	REFSEL	X	X		X
49	AARINGS		X	X	
50	RINGERSEL		X	X	
51	SIGGENEN	X	X	X	X
52	SIGGEN	X	X	X	X
53	STRING	X	X	X	X
54	TOUT	X	X	X	X
55	UID	X	X	X	X
56	VER	X	X	X	X
57	MMASK	X	X		X
58	DSPMEM	X	X	X	X
59	CLEARFFECT		X	X	
60	LVLREPORTEN	X	X	X	X
61	DEFAULT	X	X	X	X
62	PGPIO	X	X	X	X
63	TSTMODE	X	X	X	X
64	PUTGET	X	X	X	X
65	MTRX2	X	X	X	X
66	ERROR	X	X	X	X
67	RESET	X	X	X	X
68	FILTSEL	X	X		X
69	DELAYSEL	X	X		X
70	WAITSTATE	X	X	X	X
71	ENETADDR	X	X	X	X
72	ENETSUBN	X	X	X	X
73	ENETGATE	X	X	X	X
74	ENETDNSA	X	X	X	X
75	MANUFACTURER	X	X	X	X
76	MODEL	X	X	X	X
77	ENETDHCP	X	X	X	X
78	ENETDNS	X	X	X	X
79	DUPDATE	X	X	X	X
80	DEVICSERIAL	X	X	X	X
81	SNMPWRTECOMM	X	X	X	X
82	SNMPMNGRIP	X	X	X	X
83	BOOTERR	X	X	X	X
84	DSPERR	X	X	X	X
85	ADPRESENT	X	X	X	X
86	ADCLIP	X	X	X	X
87	SYSCHECKS	X	X	X	X
88	LOCCNTRY	X	X	X	X
89	LOCSTATE	X	X	X	X
90	LOCCITY	X	X	X	X
91	LOCCOMP	X	X	X	X
92	LOCBLDG	X	X	X	X
93	LOCROOM	X	X	X	X
94	LOCREGION	X	X	X	X
95	RAMP	X	X	X	X
96	AGCSET	X	X	X	X
97	NCD	X	X	X	X

ID	Command Name	Converge Pro 880	Converge Pro 840T	Converge Pro TH20	Converge Pro 8i
98	AEC	X	X		X
99	NLP	X	X		X
100	DEVICENAME	X	X	X	X
101	DEVICETYPE	X	X	X	X
102	AA		X	X	
103	AD		X	X	
104	DIAL		X	X	
105	HOOK		X	X	
106	HOOKD		X	X	
107	NULL		X	X	
108	RING		X	X	
109	RINGEREN		X	X	
110	SPEEDDIAL		X	X	
111	DEVICESUBTYPE	X	X	X	X
112	TAMODE		X	X	
113	TE		X	X	
114	PHONEBOOKADD		X	X	
115	PHONEBOOKDEL		X	X	
116	COUNTRY	X	X	X	X
117	RXRD		X	X	
118	SIGTOUT	X	X	X	X
119	MIN	X	X	X	X
120	MAX	X	X	X	X
121	NCSEL	X	X	X	X
122	DVER	X	X	X	X
123	MINMAX	X	X	X	X
124	DSPDUMP	X	X	X	X
125	DSPVER	X	X	X	X
126	ACONN		X	X	
127	ACONNLVL		X	X	
128	DTONELVL		X	X	
129	REDIAL		X	X	
130	RINGERLVL		X	X	
131	RXBOOST		X	X	
132	RXBSTEN		X	X	
133	DTMFLVL		X	X	
134	REFSET	X	X		
135	SFTYMUTE	X	X	X	X
136	PHONEBOOKCNT		X	X	
137			X	X	
138	PBDIAL		X	X	
139	TEC		X	X	
140	TELCOLVLCtrl		X	X	
141	SMTPSRV	X	X	X	X
142	NTPSRV	X	X	X	X
143	LOCALNUM		X	X	
144	CALLDUR		X	X	
145	DSPV	X	X	X	X
146	RINGERTST		X	X	
147	SYSRESULT	X	X	X	X

ID	Command Name	Converge Pro 880	Converge Pro 840T	Converge Pro TH20	Converge Pro 8i
148	NAME	X	X	X	X
149	TELNETEN	X	X	X	X
150	TELNETPORT	X	X	X	X
151	SNMPMNGRPORT	X	X	X	X
152	SNMPREADOMM	X	X	X	X
153	GGRPMODE	X	X		X
154	PUSHTOTALK	X	X		X
155	PTTTHRESHOLD	X	X		X
156	LVLQUERY	X	X	X	X
157	MLINE	X	X		X
158	TEP	X	X	X	X
159	CTRLMASTER	X	X	X	X
160	ENETDNSA2	X	X	X	X
161	ENETDOMAIN	X	X	X	X
168	DTMFC		X	X	
169	TSTRESULTS	X	X	X	X
170	GPIOSTATUS	X	X	X	X
171	SIGGENSWEEP	X	X	X	X
179	CALLERID		X	X	
180	LCDCONTRAST	X	X	X	X
182	FPGATST	X	X	X	X
183	CABLECHNG	X	X	X	X
184	AMXDUET	X	X	X	X
185	LOCSITENAME	X	X	X	X
186	MTRXCLEAR	X	X	X	X
187	SYSCONFIG	X	X	X	X
188	SYSOUT	X	X	X	X

APPENDIX B: DEFAULT PINOUTS

CONTROL/STATUS PORT A & B DEFAULT PINOUTS

Converge Pro 880 Port A

Pin#:	User Definable	Control/Status	Default Description
1	Y	Control (Input)	
2	Y	Status (Output)	
3	Y	Control (Input)	Mute All Mics Toggle
4	Y	Status (Output)	Status of Mute All Mics
5	Y	Control (Input)	Mute Output 9 Toggle
6	Y	Status (Output)	Status of Mute Output 9
7	Y	Control (Input)	Mute Output 10 Toggle
8	Y	Status (Output)	Status of Mute Output 10
9	Y	Control (Input)	Mute Output 11 Toggle
10	Y	Status (Output)	Status of Mute Output 11
11	Y	Control (Input)	Mute Output 12 Toggle
12	Y	Status (Output)	Status of Mute Output 12
13	Y	Control (Input)	Volume Up Output 1 (1 dB)
14	Y	Status (Output)	
15	Y	Control (Input)	Volume Down Output 1 (1 dB)
16	Y	Status (Output)	
17	N	Status (Output)	Microphone 1 Gate Status
18	N	Status (Output)	Microphone 2 Gate Status
19	N	Status (Output)	Microphone 3 Gate Status
20	N	Status (Output)	Microphone 4 Gate Status
21	N	Status (Output)	Microphone 5 Gate Status
22	N	Status (Output)	Microphone 6 Gate Status
23	N	Status (Output)	Microphone 7 Gate Status
24	N	Status (Output)	Microphone 8 Gate Status
25	NA	NA	Ground

Converge Pro 840T Port A

Pin#:	User Definable	Control/Status	Default Description
1	Y	Control (Input)	
2	Y	Status (Output)	
3	Y	Control (Input)	Mute All Mics Toggle
4	Y	Status (Output)	Status of Mute All Mics
5	Y	Control (Input)	Telco On/Off Toggle
6	Y	Status (Output)	Status of Telco On/Off
7	Y	Control (Input)	Auto Answer Toggle
8	Y	Status (Output)	Status of Auto Answer
9	Y	Control (Input)	Mute Output 5 Toggle
10	Y	Status (Output)	Status of Mute Output 5
11	Y	Control (Input)	Mute Input 5 Toggle
12	Y	Status (Output)	Status of Mute Input 5
13	Y	Control (Input)	Volume Up Output 8 (1 dB)
14	Y	Status (Output)	
15	Y	Control (Input)	Volume Down Output 8 (1 dB)
16	Y	Status (Output)	
17	N	Status (Output)	Microphone 1 Gate Status
18	N	Status (Output)	Microphone 2 Gate Status
19	N	Status (Output)	Microphone 3 Gate Status
20	N	Status (Output)	Microphone 4 Gate Status
21	Y	Status (Output)	
22	Y	Status (Output)	
23	Y	Status (Output)	
24	Y	Status (Output)	Ring Indication
25	NA	NA	Ground

Converge PPro TH20 Port A

Pin#:	User Definable	Control/Status	Default Description
1	Y	Control (Input)	Telco On
2	Y	Status (Output)	Telco On Indicator
3	Y	Control (Input)	Telco Off
4	Y	Status (Output)	Telco off indicator
5	Y	Control (Input)	
6	Y	Status (Output)	
7	Y	Control (Input)	
8	Y	Status (Output)	
9	Y	Control (Input)	Transmit Mute
10	Y	Status (Output)	Transmit Mute status
11	Y	Control (Input)	Receive Mute
12	Y	Status (Output)	Receive mute status
13	Y	Control (Input)	
14	Y	Status (Output)	
15	Y	Control (Input)	
16	Y	Status (Output)	
17	Y	Status (Output)	
18	Y	Status (Output)	
19	Y	Status (Output)	
20	Y	Status (Output)	
21	Y	Status (Output)	
22	Y	Status (Output)	
23	Y	Status (Output)	
24	Y	Status (Output)	Ring Indication
25	NA	NA	Ground

Converge Pro 8i Port A

Pin#:	User Definable	Control/Status	Default Description
1	Y	Control (Input)	
2	Y	Status (Output)	
3	Y	Control (Input)	Mute All Mics Toggle
4	Y	Status (Output)	Status of Mute All Mics
5	Y	Control (Input)	Mute Mic 1 Toggle
6	Y	Status (Output)	Status of Mute Mic 1
7	Y	Control (Input)	Mute Mic 2 Toggle
8	Y	Status (Output)	Status of Mute Mic 2
9	Y	Control (Input)	Mute Mic 3 Toggle
10	Y	Status (Output)	Status of Mute Mic 3
11	Y	Control (Input)	Mute Mic 4 Toggle
12	Y	Status (Output)	Status of Mute Mic 4
13	Y	Control (Input)	Mute Mic 5 Toggle
14	Y	Status (Output)	Status of Mute Mic 5
15	Y	Control (Input)	Mute Mic 6 Toggle
16	Y	Status (Output)	Status of Mute Mic 6
17	N	Status (Output)	Microphone 1 Gate Status
18	N	Status (Output)	Microphone 2 Gate Status
19	N	Status (Output)	Microphone 3 Gate Status
20	N	Status (Output)	Microphone 4 Gate Status
21	N	Status (Output)	Microphone 5 Gate Status
22	N	Status (Output)	Microphone 6 Gate Status
23	N	Status (Output)	Microphone 7 Gate Status
24	N	Status (Output)	Microphone 8 Gate Status
25	NA	NA	Ground

All Converge Pro Devices Port B

Pin#:	User Definable	Control/Status	Default Description
1	N	Control (Input)	Preset Mask Bit 0
2	N	Status (Output)	Preset Indicator Bit 0
3	N	Control (Input)	Preset Mask Bit 1
4	N	Status (Output)	Preset Indicator Bit 1
5	N	Control (Input)	Preset Mask Bit 2
6	N	Status (Output)	Preset Indicator Bit 2
7	N	Control (Input)	Preset Mask Bit 3
8	N	Status (Output)	Preset Indicator Bit 3
9	N	Control (Input)	Preset Mask Bit 4
10	N	Status (Output)	Preset Indicator Bit 4
11	N	Control (Input)	Preset Mask Bit 5
12	N	Status (Output)	Preset Indicator Bit 5
13	N	Control (Input)	Preset Mask Bit 6
14	N	Status (Output)	Preset Indicator Bit 6
15	N	Control (Input)	Preset Mask Bit 7
16	N	Status (Output)	Preset Indicator Bit 7
17	N	Control (Input)	Preset Mask Bit 8
18	N	Status (Output)	Preset Indicator Bit 8
19	N	Control (Input)	Preset Mask Bit 9
20	N	Status (Output)	Preset Indicator Bit 9
21	Y	Control (Input)	
22	Y	Status (Output)	
23	NA	NA	+3.3V 100 mA
24	NA	NA	+3.3V 100 mA
25	NA	NA	Ground

APPENDIX C: SPECIFICATIONS

Converge Pro 880

Audio Performance

- Conditions: Unless otherwise specified, all measurements are performed with a 20 Hz to 20 kHz BW limit (no weighting)
- Frequency Response: 20 Hz to 20 kHz ± 1 dB
- Noise (EIN): -126 dBu, 20 kHz BW, max gain, $R_s = 150 \Omega$
- THD+N: < 0.02%
- Dynamic Range: 100 dB (non A-weighted)
- Crosstalk < -91 dB re 20 dBu @ 20 kHz channel to channel

Auto Mixer Parameters

- Number of Open Microphones (NOM)
- PA Adaptive Mode
- First Mic Priority Mode
- Last Mic Mode
- Maximum # of Mics Mode
- Ambient Level
- Gate Threshold Adjust
- Off Attenuation Adjust
- Hold Time
- Decay Rate

Matrix Mixing Parameters

- 36x36 matrix
- 12 analog in/out
- 12 expansion bus in/out
- 8 assignable processing blocks in/out
- 4 assignable fader blocks in/out

Assignable Processing Blocks

- Filters
 - » All pass
 - » Low pass
 - » High pass
 - » Low shelving
 - » High shelving
 - » Parametric EQ
 - » Notch
 - » CD Horn
- Crossovers
 - » Bessel
 - » Butterworth
 - » Linkwitz-Riley
- Compressor
- Delay; adjustable up to 250 ms

Assignable Fader Blocks

- Gain/Mute

Microphone Input Configuration

- Input Gain Adjust
- Mic or Line Level
- Phantom Power on/off
- Echo Cancellation on/off
- Noise Cancellation on/off
- Filters
 - » All Pass

- » Low Pass
- » High Pass
- » Notch
- » PEQ

- Mute on/off
- Chairman Override on/off
- AGC on/off
- Automatic Level Control on/off
- Auto Gate/Manual gate
- Adaptive Ambient on/off
- Pre AEC channel

Mic/Line Inputs 1-8

- Push-on mini-terminal block, balanced, bridging
- Impedance: < 5 K Ω
- Nominal Level: adjustable -56 dBu to 0 dBu (7 dB step coarse gain adjustment)
- Maximum Level: -65 dBu to +20 dBu
- Echo Cancellation: 130 ms tail time (works with 12 dB of room gain)
- Noise Cancellation: 6–15 dB attenuation
- Phantom Power: 24 V, selectable

Line Inputs 9-12

- Push-on mini-terminal block, balanced, bridging
- Impedance: < 5 K Ω
- Nominal Level: 0 dBu
- Maximum Level: 20 dBu

Outputs 1-12

- Push-on mini-terminal block, balanced
- Impedance: < 50 Ω
- Nominal Level: 0 dBu
- Maximum Level: 20 dBu

Expansion Bus In/Out

- Proprietary Network
- RJ-45 (2), 1.9 Mbps
- Category 5 twisted-pair cable, 200' maximum cable length between any two Converge Pro devices

Ethernet

- Autoswitching with Quality of Connection (QoC)
- 10/100 Mbps Ethernet Network Port
- 10/100 Mbps Ethernet PC Port
- RJ-45 Connectors

RS-232

- Serial Command Protocol Only (Console software not supported on RS-232 port)
- DB-9 female
- 9,600/19,200/38,400/57,600/115,200 baud rate; 8 bits, 1 stop bit, no parity
- Hardware flow control on (default)/off

USB

- Version 2.0 compatible
- Type: B-connector

Converge Pro 880 (continued)

Control/Status Ports

- DB-25 female A/B (2)
- Inputs A/B: active low (pull to ground)
- Outputs A/B: open collector, 40 VDC max, 40 mA each
- +3.3 VDC pins (2) (300 mA over-current protected)

Configuration & Administration Software

- Converge™ Console

Power Input Range

- Auto-Adjusting
- 100–240 VAC; 50/60 Hz

Power Consumption

- 30 W Typical

Dimensions (L x D x H)

- 17.25" x 10.25" x 1.75"
- 43.8 x 26 x 4.5 cm

Weight

- 7.5 lbs/3.3375 kg unit weight
- 12 lbs/5.4kg shipping weight

Operating Temperature

- 14° F/-10 °C to 122° F/50° C ambient unit temperature

Approvals

- See *Appendix D: Compliance*
- AES48-2005: AES standard on interconnections — Grounding and EMC practices — Shields of connectors in audio equipment containing active circuitry (self certified)

Optional Accessories

- Converge Pro 840T
- Converge Pro 8i
- Converge Pro TH20
- Tabletop Controller
- Button Microphone - Omni-Directional
- Button Microphone – Uni-Directional
- Delta Microphone
- Tabletop Microphone – Uni-Directional
- JBL Wall-Mount Speakers

Part Number

910-151-880 Converge Pro 880
8-Channel AEC Microphone Mixer

Converge Pro 840T

Audio Performance

- Conditions: Unless otherwise specified, all measurements are performed with a 20 Hz to 20 kHz BW limit (no weighting)
- Frequency Response: 20 Hz to 20 kHz ± 1 dB
- Noise (EIN): -126 dBu, 20 kHz BW, max gain,
- $R_s = 150 \Omega$
- THD+N: <0.02%
- Dynamic Range: 100 dB (non A-weighted)
- Crosstalk <-91 dB re 20 dBu @ 20 kHz channel to channel

Auto Mixer Parameters

- Number of Open Microphones (NOM)
- PA Adaptive Mode
- First Mic Priority Mode
- Last Mic Mode
- Maximum # of Mics Mode
- Ambient Level
- Gate Threshold Adjust
- Off Attenuation Adjust
- Hold Time
- Decay Rate

Matrix Mixing Parameters

- 29x30 matrix
- 8 analog in/out
- 1 speaker out (amplified)
- 12 expansion bus in/out
- 4 assignable processing blocks in/out
- 4 assignable fader blocks in/out
- 1 telco in/out

Assignable Processing Blocks

- Filters
 - » All pass
 - » Low pass
 - » High pass
 - » Low shelving
 - » High shelving
 - » Parametric EQ
 - » Notch
 - » CD Horn
- Crossovers
 - » Bessel
 - » Butterworth
 - » Linkwitz-Riley
- Compressor
- Delay; adjustable up to 250 ms

Assignable Fader Blocks

- Gain/Mute

Microphone Input Configuration

- Input Gain Adjust
- Mic or Line Level
- Phantom Power on/off
- Echo Cancellation on/off
- Noise Cancellation on/off
- Filters
 - » All Pass
 - » Low Pass
 - » High Pass
 - » Notch
 - » PEQ
- Mute on/off
- Chairman Override on/off

- AGC on/off
- Automatic Level Control on/off
- Auto Gate/Manual gate
- Adaptive Ambient on/off
- Pre AEC channel

Mic/Line Inputs 1-4

- Push-on mini-terminal block, balanced, bridging
- Impedance: < 5 K Ω
- Nominal Level: adjustable -56 dBu to 0 dBu (7 dB step coarse gain adjustment)
- Maximum Level: -65 dBu to +20 dBu
- Echo Cancellation: 130 ms tail time (works with 12 dB of room gain)
- Noise Cancellation: 6–15 dB attenuation
- Phantom Power: 24 V, selectable

Line Inputs 5-8

- Push-on mini-terminal block, balanced, bridging
- Impedance: < 5 K Ω
- Nominal Level: 0 dBu
- Maximum Level: 20 dBu

Outputs 1-8

- Push-on mini-terminal block, balanced
- Impedance: < 50 Ω
- Nominal Level: 0 dBu
- Maximum Level: 20 dBu

Amplifier Output

- Binding Post Connection
- 10 Watts @ 4 Ω Impedance
- THD + Noise: < 0.5%

Telco Line

- RJ-11
- POTS (plain old telephone service) or analog extension from a PBX
- A-lead supervision provided

Telco Set

- RJ-11
- POTS (plain old telephone service) or analog extension from a PBX
- A-lead supervision provided

Telephone Audio Performance

- Conditions: Unless otherwise specified, all measurements are performed with Transmit Limiter and Receive ALC disabled
- Frequency Response: 250Hz to 3.3 kHz ± 1 dB
- THD+N: <0.3% re-max level 250 Hz to 3.3 kHz
- SNR: > 62 dB re-max level

Telco Line Echo Cancellation

- Tail Time: 31 ms
- Null: 55 dB nominal

Telephone Noise Cancellation

- Noise Cancellation 6-15 dB attenuation

Expansion Bus In/Out

- Proprietary Network
- RJ-45 (2), 1.9 Mbps
- Category 5 twisted-pair cable, 200' maximum cable length between any two Converge Pro devices

Converge Pro 840T (continued)

Ethernet

- Autoswitching with Quality of Connection (QoC)
- 10/100 Mbps Ethernet Network Port
- 10/100 Mbps Ethernet PC Port
- RJ-45 Connectors

RS-232

- Serial Command Protocol Only (Console software not supported on RS- 232 port)
- DB-9 female
- 9,600/19,200/38,400/57,600/115,200 baud rate; 8 bits, 1 stop bit, no parity
- Hardware flow control on (default)/off

USB

- Version 2.0 compatible
- Type: B-connector

Control/Status Ports

- DB-25 female A/B (2)
- Inputs A/B: active low (pull to ground)
- Outputs A/B: open collector, 40 VDC max, 40 mA each
- +3.3 VDC pins (2) (300 mA over-current protected)

Configuration & Administration Software

- Converge™ Console

Power Input Range

- Auto-Adjusting
- 100–240 VAC; 50/60 Hz

Power Consumption

- 30 W Typical

Dimensions (L x D x H)

- 17.25" x 10.25" x 1.75"
- 43.8 x 26 x 4.5 cm

Weight

- 7.5 lbs/3.3375 kg unit weight
- 12 lbs/5.4kg shipping weight

Operating Temperature

- 14° F/-10° C to 122° F/50° C ambient unit temperature

Approvals

- See *Appendix D: Compliance*
- AES48-2005: AES standard on interconnections — Grounding and EMC practices — Shields of connectors in audio equipment containing active circuitry (self certified)

Optional Accessories

- Converge Pro 880
- Converge Pro 8i
- Converge Pro TH20
- Tabletop Controller
- Button Microphone - Omni-Directional
- Button Microphone – Uni-Directional
- Delta Microphone
- Tabletop Microphone – Uni-Directional
- JBL Wall-Mount Speakers

Part Number

910-151-840 Converge Pro 840T
4-Channel AEC Microphone Mixer with Telephone Hybrid
Amplifier

Converge Pro 8i

Audio Performance

- Conditions: Unless otherwise specified, all measurements are performed with a 20 Hz to 20 kHz BW limit (no weighting)
- Frequency Response: 20 Hz to 20 kHz ± 1 dB
- Noise (EIN): -126 dBu, 20 kHz BW, max gain,
- $R_s = 150 \Omega$
- THD+N: $< 0.02\%$
- Dynamic Range: 100 dB (non A-weighted)
- Crosstalk < -91 dB re 20 dBu @ 20 kHz channel to channel

Auto Mixer Parameters

- Number of Open Microphones (NOM)
- PA Adaptive Mode
- First Mic Priority Mode
- Last Mic Mode
- Maximum # of Mics Mode
- Ambient Level
- Gate Threshold Adjust
- Off Attenuation Adjust
- Hold Time
- Decay Rate

Matrix Mixing Parameters

- 36x24 matrix
- 12 analog in/out
- 12 expansion bus in/out
- 8 assignable processing blocks in/out
- 4 assignable fader blocks in/out

Assignable Processing Blocks

- Filters
 - » All pass
 - » Low pass
 - » High pass
 - » Low shelving
 - » High shelving
 - » Parametric EQ
 - » Notch
 - » CD Horn
- Crossovers
 - » Bessel
 - » Butterworth
 - » Linkwitz-Riley
- Compressor
- Delay; adjustable up to 250 ms

Assignable Fader Blocks

- Gain/Mute

Microphone Input Configuration

- Input Gain Adjust
- Mic or Line Level
- Phantom Power on/off
- Echo Cancellation on/off
- Noise Cancellation on/off
- Filters
 - » All Pass
 - » Low Pass
 - » High Pass
 - » Notch
 - » PEQ
- Mute on/off
- Chairman Override on/off
- AGC on/off
- Automatic Level Control on/off

- Auto Gate/Manual gate
- Adaptive Ambient on/off
- Pre AEC channel

Mic/Line Inputs 1-8

- Push-on mini-terminal block, balanced, bridging
- Impedance: $< 5 K\Omega$
- Nominal Level: adjustable -56 dBu to 0 dBu (7 dB step coarse gain adjustment)
- Maximum Level: -65 dBu to +20 dBu
- Echo Cancellation: 130 ms tail time (works with 12 dB of room gain)
- Noise Cancellation: 6–15 dB attenuation
- Phantom Power: 24 V, selectable

Line Inputs 9-12

- Push-on mini-terminal block, balanced, bridging
- Impedance: $< 5 K\Omega$
- Nominal Level: 0 dBu
- Maximum Level: 20 dBu

Expansion Bus In/Out

- Proprietary Network
- RJ-45 (2), 1.9 Mbps
- Category 5 twisted-pair cable, 200' maximum cable length between any two Converge Pro devices

Ethernet

- Autoswitching with Quality of Connection (QoC)
- 10/100 Mbps Ethernet Network Port
- 10/100 Mbps Ethernet PC Port
- RJ-45 Connectors

RS-232

- Serial Command Protocol Only (Console software not supported on RS-232 port)
- DB-9 female
- 9,600/19,200/38,400/57,600/115,200 baud rate; 8 bits, 1 stop bit, no parity
- Hardware flow control on (default)/off

USB

- Version 2.0 compatible
- Type B connector

Control/Status Ports

- DB-25 female A/B (2)
- Inputs A/B: active low (pull to ground)
- Outputs A/B: open collector, 40 VDC max, 40 mA each
- +3.3 VDC pins (2) (300 mA over-current protected)

Configuration & Administration Software

- Converge™ Console

Power Input Range

- Auto-Adjusting
- 100–240 VAC; 50/60 Hz

Power Consumption

- 30 W Typical

Dimensions (L x D x H)

- 17.25" x 10.25" x 1.75"
- 43.8 x 26 x 4.5 cm

Weight

- 7.5 lbs/3.3375 kg unit weight
- 12 lbs/5.4 kg shipping weight

Converge Pro 8i (continued)

Operating Temperature

- 14° F/-10° C to 122° F/50° C ambient unit temperature

Approvals

- See *Appendix D: Compliance*
- AES48-2005: AES standard on interconnections — Grounding and EMC practices — Shields of connectors in audio equipment containing active circuitry (self certified)

Optional Accessories

- Converge Pro 880
- Converge Pro 840T
- Converge Pro TH20
- Tabletop Controller
- Button Microphone - Omnidirectional
- Button Microphone – Unidirectional
- Delta Microphone
- Tabletop Microphone – Unidirectional
- JBL Wall-Mount Speakers

Part Number

910-151-810 Converge Pro 8i
8-Channel AEC Microphone Mixer (no outputs)

Converge Pro TH20

Telephone Audio Performance

- Conditions: Unless otherwise specified, all measurements are performed with Transmit Limiter and Receive ALC disabled
- Frequency Response: 250Hz to 3.3 kHz ± 1 dB
- THD+N: <0.3% re-max level 250 Hz to 3.3 kHz
- SNR: > 62 dB re-max level

Telephone Noise Cancellation

- Noise Cancellation 6-15 dB attenuation

Telco Line Echo Cancellation

- Tail Time: 31 ms
- Null: 55 dB nominal

Telco Line

- RJ-11
- POTS (plain old telephone service) or analog extension from a PBX
- A-lead supervision provided

Telco Set

- RJ-11
- POTS (plain old telephone service) or analog extension from a PBX
- A-lead supervision provided

Audio Performance

- Conditions: Unless otherwise specified, all measurements are performed with a 20 Hz to 20 kHz BW limit (no weighting)
- Frequency Response: 20 Hz to 20 kHz ± 1 dB
- $R_s = 150 \Omega$
- THD+N: <0.02%
- Dynamic Range: 100 dB (non A-weighted)
- Crosstalk <-91 dB re 20 dBu @ 20 kHz channel to channel

Line Inputs 1, 2

- Push-on mini-terminal block, balanced, bridging
- Impedance: < 5 k Ω
- Nominal Level: 0 dBu
- Maximum Level: 20 dBu

Line Outputs 1,2

- Push-on mini-terminal block, balanced
- Impedance: < 50 k Ω
- Nominal Level: 0 dBu
- Maximum Level: 20 dBu

Expansion Bus In/Out

- Proprietary Network
- RJ-45 (2), 1.9 Mbps, 110 K Ω Impedance
- Category 5 twisted-pair cable, 200' maximum cable length between any two Converge Pro devices

Ethernet

- Autoswitching with Quality of Connection (QoC)
- 10/100 Mbps Ethernet Network Port
- 10/100 Mbps Ethernet PC Port
- RJ-45 Connectors

RS-232

- Serial Command Protocol Only (Console software not supported on RS-232 port)
- DB-9 female

- 9,600/19,200/38,400/57,600/115,200 baud rate; 8 bits, 1 stop bit, no parity
- Hardware flow control on (default)/off

USB

- Version 2.0 compatible
- Type: B-connector

Control/Status Ports

- DB-25 female A/B (2)
- Inputs A/B: active low (pull to ground)
- Outputs A/B: open collector, 40 VDC max, 40 mA each
- +3.3 VDC pins (2) (300 mA over-current protected)

Configuration & Administration Software

- Converge™ Console

Power Input Range

- Auto-Adjusting
- 100–240 VAC; 50/60 Hz

Power Consumption

- 30 W Typical

Dimensions (L x D x H)

- 17.25" x 10.25" x 1.75"
- 43.8 x 26 x 4.5 cm

Weight

- 7.5 lbs/3.3375 kg unit weight
- 12 lbs/5.4kg shipping

Operating Temperature

- 14° F/-10° C to 122° F/50° C ambient unit temperature

Approvals

- See *Appendix D: Compliance*
- AES48-2005: AES standard on interconnections — Grounding and EMC practices — Shields of connectors in audio equipment containing active circuitry (self certified)

Optional Accessories

- Converge Pro 880
- Converge Pro 8i
- Converge Pro TH20
- Tabletop Controller
- Button Microphone - Omni-Directional
- Button Microphone – Uni-Directional
- Delta Microphone
- Tabletop Microphone – Uni-Directional
- JBL Wall-Mount Speakers

Part Number

910-151-820 Converge Pro TH20
Telephone Interface for Converge Pro 880, 840T, 8i

APPENDIX D: COMPLIANCE



WARNING: The country code must be set correctly in Console to ensure that the unit operates properly when connected to the telco network, and that it complies with the country's telco requirements. Changing this code to a country other than the intended country of operation might cause Converge Pro devices to be non-compliant.

FCC PART 15/ICES-003 COMPLIANCE

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules and Industry Canada ICES-003. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his/her own expense.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received including interference that may cause undesired operation.

Changes or modifications not expressly approved by ClearOne Communications could void the user's authority to operate the equipment.

FCC PART 68 COMPLIANCE

US:FBIBR00BCONVPRO
Ringer Equivalence Number (REN): 0.0B(ac)

This equipment complies with Part 68 of the FCC Rules Requirements adopted by ACTA. On the mixer unit of this equipment contains, among other information, a product identifier in the format US:AAAEQ##TXXXX. If requested, this information must be provided to your telephone company.

The REN is used to determine the number of devices that may be connected to the telephone line. Excessive RENs on the telephone line may result in the devices not ringing in response to an incoming call. In most, but not all areas, the sum of the RENs should not exceed five (5.0). To be certain of the number of devices that may be connected to the line, as determined by the total RENs, contact the telephone company to obtain the maximum RENs for the calling area. The REN for this product is part of the product identifier that has the format US:AAAEQ##TXXXX. The digits represented by ## are the REN without a decimal point (e.g. 03 is a REN of 0.3).

If this equipment causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. But if advance notice isn't practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

The telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the operation of the equipment. If this happens, the telephone company will provide advance notice in order for you to make the necessary modifications to maintain uninterrupted service.

This equipment uses an RJ11C jack that is used to connect this equipment to the premises wiring and telephone network. This RJ11C jack complies with the applicable FCC Part 68 Rules and Requirements adopted by the ACTA. A compliant telephone cord and modular plug is provided with this product. It is designed to be connected to a compatible modular jack that is also compliant. See installation instructions for details.

If you experience problems with this equipment, contact ClearOne Communications, 5225 Wiley Post Way, Suite 500, Salt Lake City, Utah 84116, or by phone at (800) 945-7730 for repair and warranty information. If the equipment is causing harm to the telephone network, the telephone company may request you disconnect the equipment until the problem is resolved.

No user serviceable parts are contained in this product. If damage or malfunction occurs, contact ClearOne Communications for instructions on its repair or return.

Connection to party line service is subject to state tariffs. Contact the state public utility commission, public service commission or corporation commission for information. This equipment cannot be used on telephone company provided coin service.

If your home has specially wired alarm equipment connected to the telephone line, ensure the installation of this equipment does not disable your alarm equipment. If you have questions about what will disable alarm equipment, consult your telephone company or a qualified installer.

ELECTRICAL SAFETY ADVISORY

This equipment uses AC power which can be subjected to electrical surges, typically lightning transients which are very destructive to customer terminal equipment connected to AC power sources. The warranty for this equipment does not cover damage caused by electrical surge or lightning transients. To reduce the risk of this equipment becoming damaged it is suggested that the customer consider installing a surge arrestor.

IC COMPLIANCE

IC: 1970A-CONVPRO
Ringer Equivalence Number (REN): 0.0B(ac)

NOTICE: The term "IC" before the certification/registration number signifies that Industry of Canada technical specifications were met.

This certification means that the equipment meets certain telecommunications network protective operational and safety requirements. The Department does not guarantee the equipment will operate to the user's satisfaction.

The REN is used to determine the number of devices that may be connected to the telephone line. Excessive RENs on the telephone line may result in the devices not ringing in response to an incoming call. In most, but not all areas, the sum of the RENs should not exceed five (5.0). To be certain of the number of devices that may be connected to the line, as determined by the total RENs, contact the telephone company to obtain the maximum RENs for the calling area. The REN for this product is listed above.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. In some cases, the companies inside wiring associated with a single line individual service may be extended by means of a certified connector assembly (telephone extension cord). The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be made by an authorized Canadian maintenance facility designated by ClearOne Communications. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment. Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

EUROPEAN COMPLIANCE

Conformity of the equipment with the guidelines below is attested by the CE mark.



EC Declaration of Conformity

Manufacturer's Name: ClearOne Communications

Manufacturer's Address: Edgewater Corporate Park South Tower
5225 Wiley Post Way, Suite 500
Salt Lake City, Utah 84116 U.S.A.

Model: Converge Pro (880, 8I, 840T & TH20).

Declares that the product(s) listed above conform(s) to the following Council Directive(s): 1999/5/EC Radio equipment and Telecommunications Terminal Equipment (R&TTE) Directive.

Product Standard(s) to which Conformity of the Council Directive(s) is declared:

EMC - 89/336/EEC “Electromagnetic Compatibility (EMC) Directive”:

EN 55022: 2006 (Emissions)	Information technology equipment - Radio disturbance characteristics - Limits and methods of measurement.
EN 55024: 1998 (Immunity) +A1+A2	Information technology equipment - Immunity characteristics -Limits and methods of measurements.
EN 61000-3-2: 2004	Part 3: Limits - Section 2: Limits for harmonic current emissions.
EN 61000-3-3: 2002	Section 3: Limitation of voltage fluctuations and flicker in low voltage supply systems for equipment with rated current up to and including 16 A.
EN 61000-4-2: 2001	Electrostatic Discharge Immunity
EN 61000-4-3: 2002	Radiated RF Immunity
EN 61000-4-4: 2004	Electrical Fast Transients Immunity
EN 61000-4-5: 2005	Lightning Surge Immunity
EN 61000-4-6: 2004	Conducted RF Immunity
EN 61000-4-8: 1993	Power Frequency Magnetic Field Immunity
EN 61000-4-11: 2004	Voltage Dips and Voltage Interruptions
EN55024: A1 + A2: 1998	Telecommunication Terminal Equipment

Safety - 73/23/EEC “Low Voltage Directive (LVD)”:

IEC 60950-1: 2001	Safety of Information Technology Equipment, Including Electrical Business Equipment.
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Telecom - Telecom Terminal Equipment (Converge Pro 840T & Converge Pro TH20 Only):

ETSI ES 203 021 - 1, 2 and 3

Access and Terminals (AT); Harmonized basic attachment requirements for Terminals for connection to analogue interfaces of the Telephone Networks; Update of the technical contents of TBR 021, EN 301 437, TBR 015, TBR 017; Part 1: General aspects, Part 2: Basic transmission and protection of the network from harm, Part 3: Basic Interworking with the Public Telephone Networks.

2003/11/EC & 2002/95/EC “RoHS Compliance Directive”:

We herein certify that the Converge Pro (880, 8I, 840T & TH20) including all supplied accessories and cables are in compliance with the EU directive 2003/11/EC and EU directive 2002/95/EC.

We, the undersigned, hereby declare that the equipment specified above conforms to the above directives and standards.

Manufacturer



Signature

Tracy Bathurst
Full Name
VP of Product Line Management
Title

Legal Representative in Europe



Signature

Martin Offwood
Full Name
Managing Director - EMEA North
Title

Waste Electrical and Electronic Equipment “WEEE Directive 2002/95/EC”:

ClearOne is compliant with the WEEE directive. For recovery and recycling information, visit:
www.clearone.com/support/recycling.php?content=main