

# RTS Intercom Series

Innovating the Future of Communications

## *KP 812 Keypanel* *Desktop with Handset, Desktop,* *Rack Mount and Lever Key*

### *User Manual*



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 <p>THE LIGHTNING FLASH AND ARROWHEAD WITHIN THE TRIANGLE IS A WARNING SIGN ALERTING YOU OF "DANGEROUS VOLTAGE" INSIDE THE PRODUCT.</p>	<p><b>CAUTION</b> RISK OF ELECTRIC SHOCK DO NOT OPEN</p> <p>CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER. NO USER-SERVICABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.</p>	 <p>THE EXCLAMATION POINT WITHIN THE TRIANGLE IS A WARNING SIGN ALERTING YOU OF IMPORTANT INSTRUCTIONS ACCOMPANYING THE PRODUCT.</p>
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**WARNING:** APPARATUS SHALL NOT BE EXPOSED TO DRIPPING OR SPLASHING AND NO OBJECTS FILLED WITH LIQUIDS, SUCH AS VASES, SHALL BE PLACED ON THE APPARATUS.

**WARNING:** THE MAIN POWER PLUG MUST REMAIN READILY OPERABLE.

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**WARNING:** TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPRATUS TO RAIN OR MOISTURE.

**WARNING:** TO PREVENT INJURY, THIS APPARATUS MUST BE SECURELY ATTACHED TO THE FLOOR/WALL/RACK IN ACCORDANCE WITH THE INSTALLATION INSTRUCTIONS.

	This product is AC only.
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## *Important Safety Instructions*

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.



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### *General Description*

The RTS KP 812 keypanel fits in a standard 19" rack and is one (1) rack space high. It has 12 keys; one (1) listen button and one (1) talk button make up a key. Ten keys are for intercom talk and listen, two keys are for call waiting response.

In addition, there are two (2) encoders. One (1) encoder is used for Headset, Microphone, Auxiliary Input, and Matrix In volume adjustment. The other encoder knob is used for menu selection. The KP 812 keypanel has a standard numerical keypad with four (4) extra keys: Mic Mute, User Assignable, Page Up, Page Down.

The KP 812 has a 8-character display panel. The KP 812 keypanels add significant new features such as digital signal processing (DSP). The KP 812 keypanels also offer a custom design LCD display with support for 16x16 Kanji, Katakana, Hiragana, and English characters.

The KP 812 keypanels are made of pressed aluminum/metal and feature state of the art audio processors and drivers. There are four (4) different models of keypanel to choose between—Desktop, Desktop with Handset, Rack Mount, and Rack Mount- Lever Key.

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## Features

Talk/Listen Configuration	12 keys, with 10 keys available for full talk/listen configuration. Keys support both latching (hands-free) and momentary (push-to-talk) operation. Plus an extensive scrollable menu system (accessed using an encoder). Menus include helpful prompts to walk the user through setup.
Call Waiting Window	The 11th and 12th display position are used as a call waiting window (CWW), while the 12th key can be used for menu displays. The CWW is configured through the menu. The user has three (3) assignable options from the menu, as follows: <ol style="list-style-type: none"> <li>1. No CWW</li> <li>2. One CWW (12th key only)</li> <li>3. Two CWW (11th and 12th key)</li> </ol>
Character Display	The LCD display is custom designed to show 16x16 size Japanese or Kanji characters. Each LCD shows two (2) rows of 16-characters for a total of 32 characters. Each display area shows 8-character alphas per key (Talk/Listen). <p><b>NOTE:</b> The KP 812 Keypanels have four (4) keys per display.</p>
Hands-Free Button (Handset Version Only)	The front panel of the handset version has a hands-free button. When this button is active, the user is able to talk through a gooseneck mic and listen through the front speaker.
Connections	The back of each keypad has one (1) DB-9 connector, one (1) RJ-12 connector, and one (1) BNC for the matrix connection. On the rack mount model only, there is one (1) RJ-12 connector for Expansion Panels and one (1) RJ-12 connector for an LCP. There are two (2) mechanical pots for Mic Level Control, one (1) for Headset Mic and one (1) for Panel Mic Gain. <p><b>NOTE:</b> Only one (1) Matrix connection can be used at a time.</p>
Firmware	Every keypad has an in-system downloadable firmware feature, where firmware is downloaded through the AZedit application to the keypanels.
Configuration	With the appropriate configuration, the KP 812 keypad can be used as a digital keypad (sending and receiving digital audio from the matrix) or as an analog keypad. Digital operation is used when coaxial cables are used.
Remote Applications	The KP 812 keypad can be used in remote applications. The front panel can be mounted separately and connected to the keypad using up to a maximum of 50 feet of cable.
Digital Signal Processing (DSP)	Improves microphone voice activation and limiting. Adds new mixing, metering, and filtering capabilities.

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## Options

EKP-816	Provides additional 12 or 16 intercom keys.
LCP-12 or 16	Provides easy adjustment of point-to-point and party line listen levels for individual intercom keys. One LCP-12 or LCP-16 controls volumes for one (1) row of keys.

Keypanel References

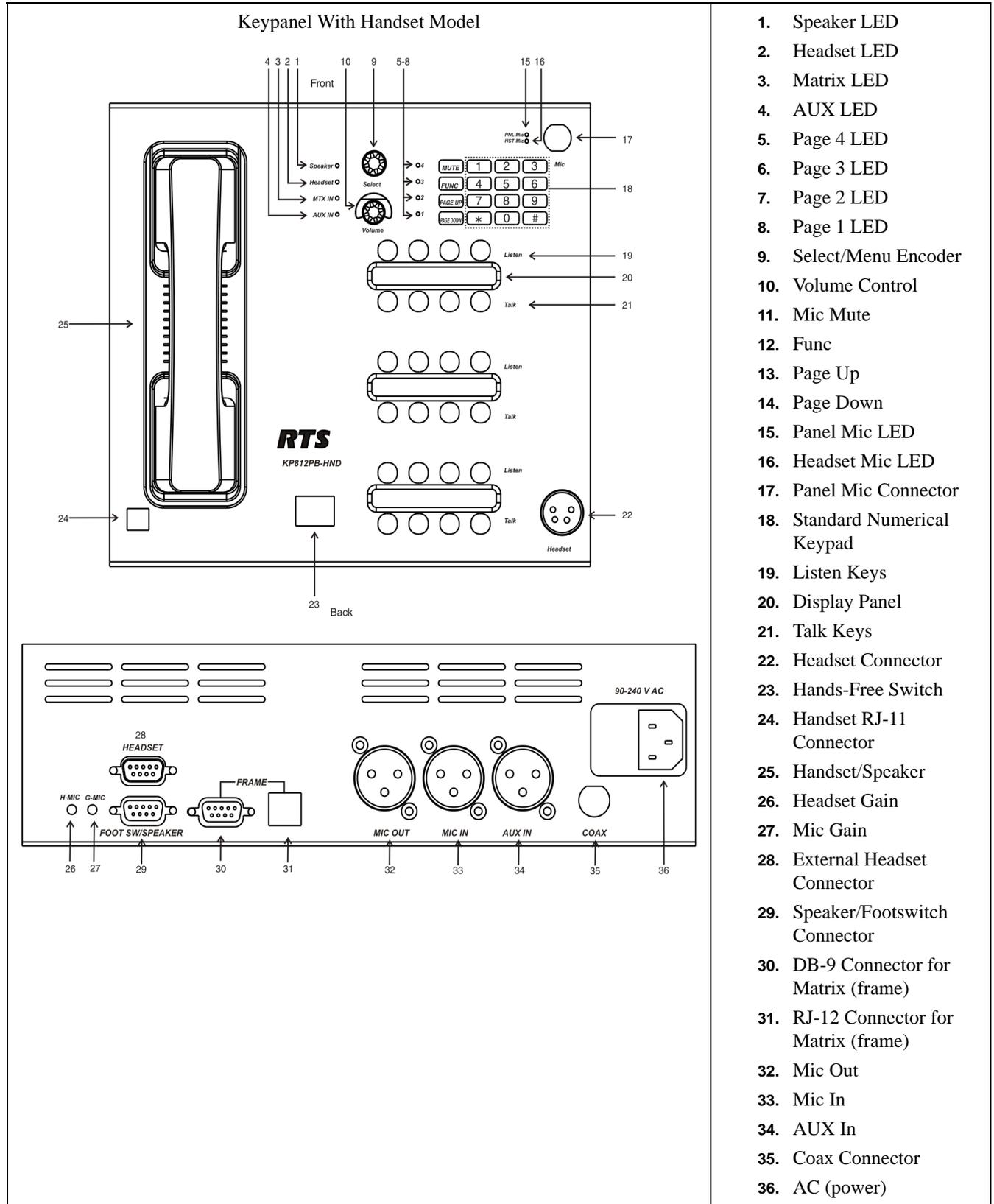


FIGURE 1. Keypanel Reference Views

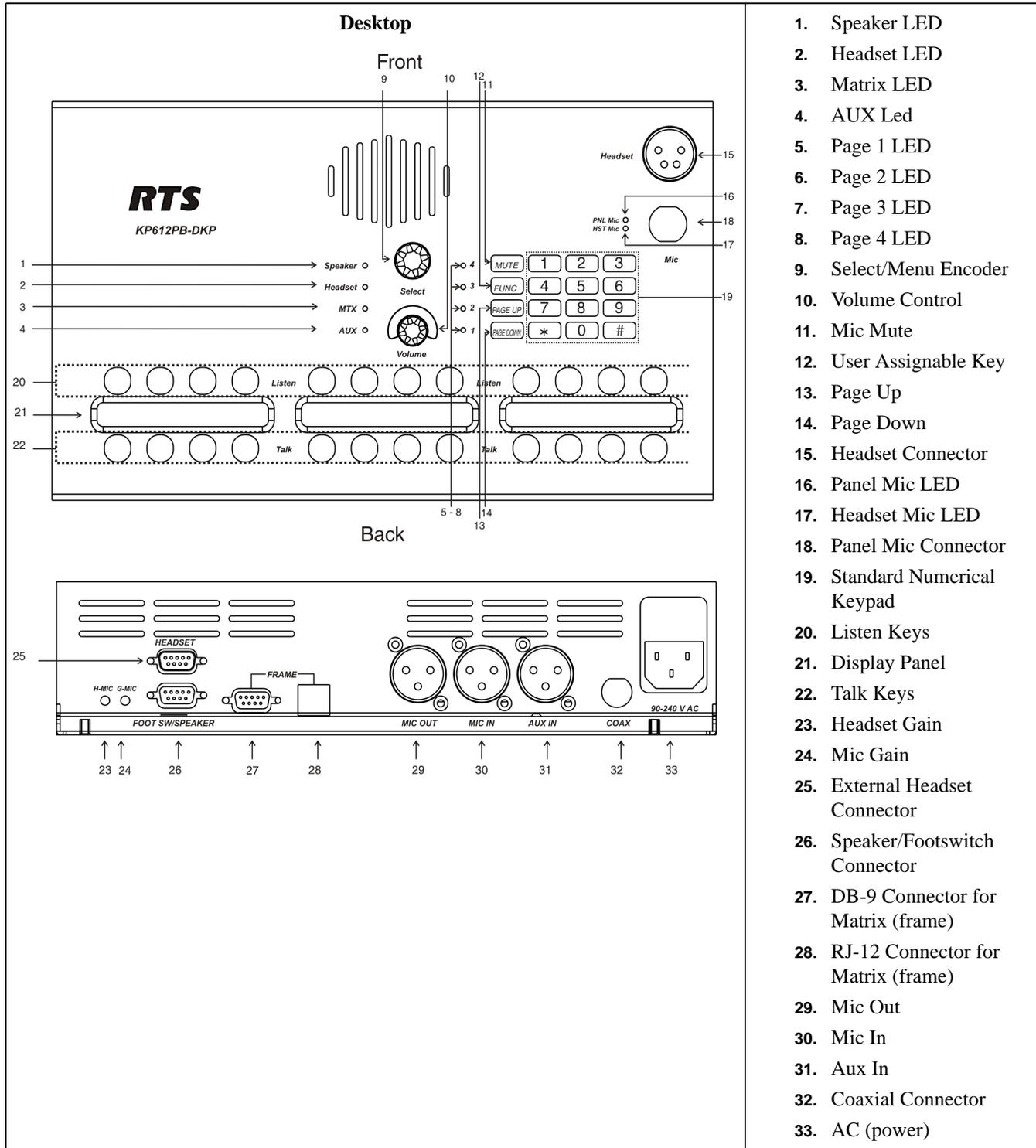
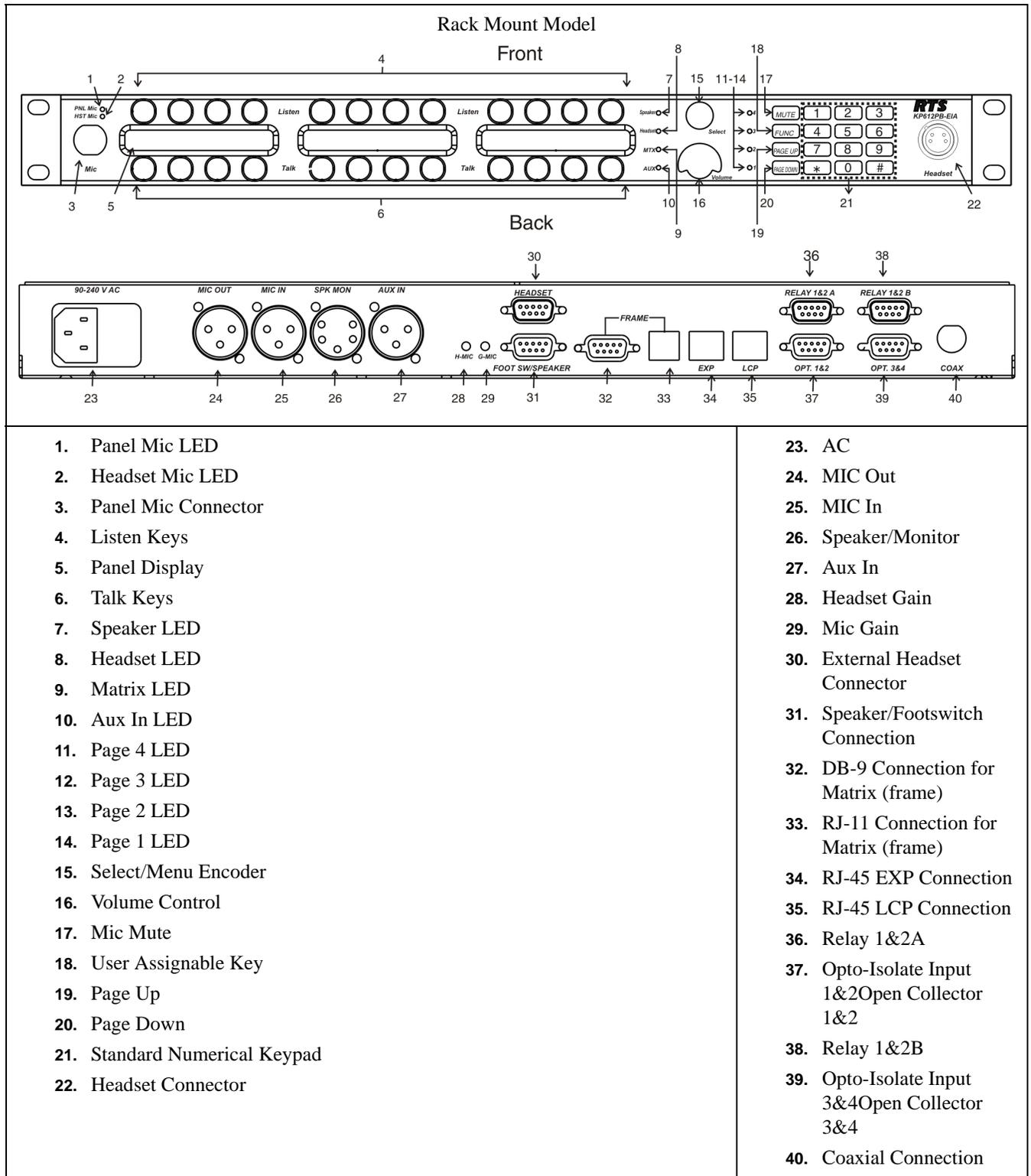


FIGURE 1. Keypanel Reference Views



**FIGURE 1.** Keypanel Reference Views

## Controls Description

Speaker LED	Indicates the user can adjust the speaker levels.
Headset LED	Indicates the user can adjust the headset levels.
Matrix IN LED	Indicates the user can adjust the audio levels from the Matrix to the keypanel.
Aux IN LED	Indicates the user can adjust the audio levels from the Aux IN to the keypanel.
Page 4 LED	When the Page 4 LED is lit, this indicates setup page four is assigned to the main panel.
Page 3 LED	When the Page 3 LED is lit, this indicates the setup page three is assigned to the main panel.
Page 2 LED	When the Page 2 LED is lit, this indicates the setup page two is assigned to the main panel.
Page 1 LED	When the Page 1 LED is lit, this indicates the setup page one is assigned to the main panel.
Menu Encoder	The menu encoder knob turns clockwise and counter-clockwise to scroll through menu options. To select an option, tap the encoder key once. To go back one step, double-tap the encoder knob. Press and hold for one second to exit.
Volume Control	The volume control knob controls the volume of the selected source or destination, as indicated by the lit LED.
Mic Mute	The Mic Mute button mutes whichever microphone is active so no audio can be transmitted through the microphone.
Func Key	The Func Key is a user assignable key or softkey that can be programmed to perform an action frequently used or is difficult to access, such as a lower level menu item. It can also be programmed to operate a local GPI output.
Page Up and Down	The Page Up button or Page Down button changes the active page assigned to the main panel.
Panel Mic Connector	Accepts an electret gooseneck microphone, such as the Telex model MCP-90-XX. The model MCP-90 series panel mic connector is a 1/4" stereo plug, with a threaded shaft for easy installation.
Panel Mic LED	When the Panel Mic LED is lit green, the Panel Mic is active. This is the default setting for the KP 812 Keypanel.
Headset Mic LED	When the Headset Mic LED is lit green, the Headset Mic is active. This automatically becomes active when a headset is plugged in.
Standard Numerical Keypad	Use the keypad to enter autodial numbers, as well as dial an outside number for TIF operation.
Listen Buttons	The listen buttons allow the user to listen to audio coming into the keypanel. To listen, press an upper button. A green LED lights the button.
Display Panel	The 11th and 12th display positions are used as a call waiting window (CWW) and menu display. The CWW is configured through the menu. The user has three (3) assignable options from the menu, as follows: <ol style="list-style-type: none"> <li>1. No CWW</li> <li>2. One CWW (12th key only)</li> <li>3. Two CWW (11th and 12th key)</li> </ol>
Talk Keys	The talk buttons allow the user to talk to other keypanels. To talk, press a lower button. A red LED lights the button.
Headset Connector	The headset connector is a 4-pin XLR connector, which when plugged into the KP 812 keypanel, turns the panel mic off and audio is sent to the headset and the headset mic is activated.

## Specifications

### Microphone Preamplifier

Electret Mic Input Level @ 1kHz	-42dB, 150 Ohms
Dynamic Mic Input Level @ 1kHz	-50dBm, 150 Ohms
Output Level (to Matrix)	+8dBu, $\pm 0.2$ dBu
Max Voltage Gain, Mic to Line	70dB, $\pm 2$ dB
Frequency Response	100Hz to 10kHz, $\pm 2$ dB
Limiter	10dB above nominal

### Tone Generator

Output Level (to Matrix)	+8dBu, $\pm 2$ dBu
Output Frequency	500Hz

### Headphone Amplifier

Maximum Voltage Gain	200dB
Frequency Response	100Hz to 10kHz, $\pm 2$ dB
Headphone Impedance	8 to 600 Ohms
Output Power	1W to 50 Ohms
Output Voltage Level	8 volts peak-to-peak (max.)

### Speaker Amplifier and Speaker

Frequency Response	100Hz to 10kHz, $\pm 2$ dB
Output Power (per amplifier)	5 watt into 8 Ohms
Output Voltage Level	12 volts peak-to-peak

### Volume Control Range

30dB

### Speaker Rating

8 watts max.

### Intercom Input/Output

#### Input

Nominal: +8dBu, Peak +20dBu max.

#### Output

+8dBu,  $\pm 2$ dBu max.

### External Line Input (Program Input)

#### Input Level

+8dBu nominal

### General

#### AC Supply

Internal switching type, 100–240VAC, 50/60Hz with universal IEC connector for connection to various AC main cords.

#### Storage

-40°C (-40°F) to 70°C (158°F)

#### Operating

-20°C (-4°F) to 60°C (140°F)

### DIMENSIONS

#### Desktop

11.3(W) x 7.623(D) x 3.1(H)

#### Rack Mount

19(W) x 7.5(D) x 1.75(H)

#### Approvals

UL, CSA, VDE, CE

### Connectors

#### Panel Mic Connector

Type: 3 circuit, 1/4" phone jack with threaded metal bushing, compatible with RTS MCP-90

#### Pin Out

Tip:	+Audio an DC bias
Ring:	Common
Sleeve	Chassis Ground

Headset Connector

Type: XLR-4 Female

Pin 1	Mic low
Pin 2	Mic high
Pin 3	Headphone low
Pin 4	Headphone high

Intercom Connectors: Parallel-wired DE9S and RJ-12 Connectors

Type: DE9S

Pin 1	Data +
Pin 2	Data -
Pin 3	Audio In (from matrix) Shield
Pin 4	Audio Out (to matrix) +
Pin 5	Audio Out (to matrix) -
Pin 6	Data Shield
Pin 7	Audio In (from matrix) -
Pin 8	Audio In (from matrix) +
Pin 9	Audio Out (to matrix) shield

Type: RJ-12

Pin 1	Data -
Pin 2	Audio In (from matrix) +
Pin 3	Audio Out (to matrix) +
Pin 4	Audio Out (to matrix) -
Pin 5	Audio In (from matrix) -
Pin 6	Data +

Expansion Connector

Type: RJ-45

LCP Connector

Type: RJ-45

GPI Module Connectors (Optional)

Speaker/Monitor Output

Type: 5-pin XLR Male

Pin 1	Line Out (GND)
Pin 2	Line Out (+)
Pin 3	Line Out (-)
Pin 4	SPK Out (+)
Pin 5	SPK Out (-)

Aux 1 In (Auxiliary Program Input

3-pin XLR Female

Pin 1	Ground
Pin 2	Input +
Pin 3	Input -
	Balance Input, +8dBu nominal

Relay 1 & 2 Output

Type: 9-pin male, D-sub

Pin 1	NC contact 1
Pin 2	COM contact 1
Pin 3	NO contact 1
Pin 4	NC contact 2
Pin 5	COM contact 2
Pin 6	NO contact 2
Pin 7	+3.3 VDC
Pin 8	Ground
Pin 9	+3.3 VDC

Relay 3 & 4 Output

Type: 9-pin male, D-sub

Pin 1	NC contact 3
Pin 2	COM contact 3
Pin 3	NO contact 3
Pin 4	NC contact 4
Pin 5	COM contact 4
Pin 6	NO contact 4
Pin 7	+3.3 VDC
Pin 8	Ground
Pin 9	+3.3 VDC

**NOTE:**

The relay 1 and 3 contacts are electrically separate, but operate in unison. The relay 2 and 4 contacts are electrically separate, but operate in unison. The +3.3 VDC pins are connected internally through 1K resistors to +3.3 VDC and can source 3mA. This voltage can be used with the relay contacts to create an active high output for some devices requiring a +3.3 VDC signal to activate. For example, connecting pin 7 to pin 3 of the Relay 1&2 connector results in +3.3 VDC on pin 2 when the relay is activated.

Opto 1 - 2 In (Opto-isolated control inputs) / OC 1-2(J11)

Type: 9-pin male, D-sub

Pin 1	3.3 VDC
Pin 2	Emitter OC 2
Pin 3	Emitter OC 1
Pin 4	Ground
Pin 5	Ground
Pin 6	Collector OC 1
Pin 7	Collector OC 2
Pin 8	Opto-Out 2
Pin 9	Opto-Out 1

**NOTE:** A contact closure between any switch and ground activates that input. The switch contact inputs are also connected internally through 1K resistors to internal +3.3 VDC and can source 3mA for use with an external transistor switch circuit.

Opto 3 - 4 In (Opto-isolated control inputs) / OC 1-2(J12)

Type: 9-pin male, D-sub

Pin 1	3.3 VDC
Pin 2	Emitter OC 4
Pin 3	Emitter OC 3
Pin 4	Ground
Pin 5	Ground
Pin 6	Collector OC 3
Pin 7	Collector OC 4
Pin 8	Opto-Out 4
Pin 9	Opto-Out 3

**NOTE:** A contact closure between any switch and ground activates that input. The switch contact inputs are also connected internally through 1K resistors to internal +3.3 VDC and can source 3mA for use with an external transistor switch circuit.

Headset (External headset connector)

Type: 9-pin male, D-sub

Pin 1	Ground
Pin 2	External headset PTT
Pin 3	External headset PTT enable
Pin 4	External headset enable
Pin 5	Balanced dynamic mic input -
Pin 6	Ground

Pin 7	Balanced dynamic mic input +
Pin 8	Left Speaker
Pin 9	Right Speaker

**NOTE:** Mic Input -50dBu nominal. Headset out 0.325 watts into 8 Ohms

Foot Switch / Speaker

Type: 9-pin male, D-sub

Pin 1	Ground
Pin 2	Speaker Plus (+)
Pin 3	Ground
Pin 4	No Connection
Pin 5	Foot Switch
Pin 6	Speaker Minus (-)
Pin 7	No Connection
Pin 8	No Connection
Pin 9	Ground

**NOTE:** A switch contact closure from the foot switch input to ground activates the foot switch input.

MIC In (J7) Unbalanced Panel Microphone Input

Type: 3-pin XLR Female

Pin 1	Ground
Pin 2	DC bias and Audio Plus (+)
Pin 3	Shield (circuit common)

**NOTE:** Input level -42.5dBu nominal

MIC Out (J8) Balanced Microphone Output

Type: 3-pin XLR Male

Pin 1	Shield (circuit common)
Pin 2	Audio output +
Pin 3	Audio output -

**NOTE:** Output level +8dBu nominal (balanced)



**NOTE:** To see where the DIP switch is on the circuit board, see Figure 2 on page 24.

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### *Dip Switch Settings*

Switch 1	Latch Enable/Disable <b>Default Setting:</b> Open (Enable) <b>Description:</b> An intercom key can always be turned on for momentary conversation by pressing and holding the key during the conversation. There is also an electronic latching feature letting you tap intercom keys to turn them on or off. This permits convenient hands-free conversation. However, it can also result in a talk circuit being left on unintentionally. For example, a key that talks to a public address system could be accidentally left on. Or, an IFB key (a type of key assignment often used by a director or producer to give instructions to a listener, such as a news anchor during a television broadcast) could accidentally be left on, causing confusion for the IFB listener. To prevent such accidents, the latching feature can be turned off.  <b>NOTE:</b> DIP Switch 1 disables latching for the entire keypanel. If you need to disable latching for selected keys, leave DIP Switch 1 in the open position, and then, disable latching for the desired keys using the D check box in the Keypanel/Ports setup window in AZedit.
Switch 2	Enable/Disable the adjustment of listen volumes. <b>Default Setting:</b> Open (Enable) <b>Description:</b> Enables or disables the Key Gain item in the Key Assign menu.
Switch 3	Unused <b>Default Setting:</b> Open (Enable)
Switch 4	Call Flash Time-out <b>Default Setting:</b> Closed (Infinite Tally) <b>Description:</b> Whenever there is an incoming call and there is a talk key assigned to the caller, the talk LED next to the key flashes. If this DIP switch is closed the flashing light goes off as the caller's talk key is closed. Otherwise, flash time can be set for a 15 second time-out, or until the caller's talk key is released. Call Flash Time-out can be set to 5 sec, 10 sec, and 15 sec.

Switch 5      Footswitch Enable/Disable  
**Default Setting:** Open (Disabled)

**Description:** The optional Connector Module has a footswitch (GRP CALL) input. If the footswitch is enabled (DIP 5 set to the Closed position), then keys latched on do not activate until the footswitch is closed. Latched keys are indicated by winking amber talk LEDs (on time less than off time), and when the footswitch is activated, the LEDs provide normal talk on indication.

**NOTE:**

1. If the talk key is held down in the Footswitch mode, the channel is activated until the user releases the key. The use of this function does not require the footswitch to be used.
2. If DIP Switch 1 is set to the Closed position, nothing latches.
3. Individual keys can be set to non-latching via AZedit. If this is done, the footswitch has no effect on the keys set to non-latching.

Switch 6      Reserved  
 Switch 7      Reserved. Must be left in the Open position.  
 Switch 8      Reserved. Must be left in the Open position.

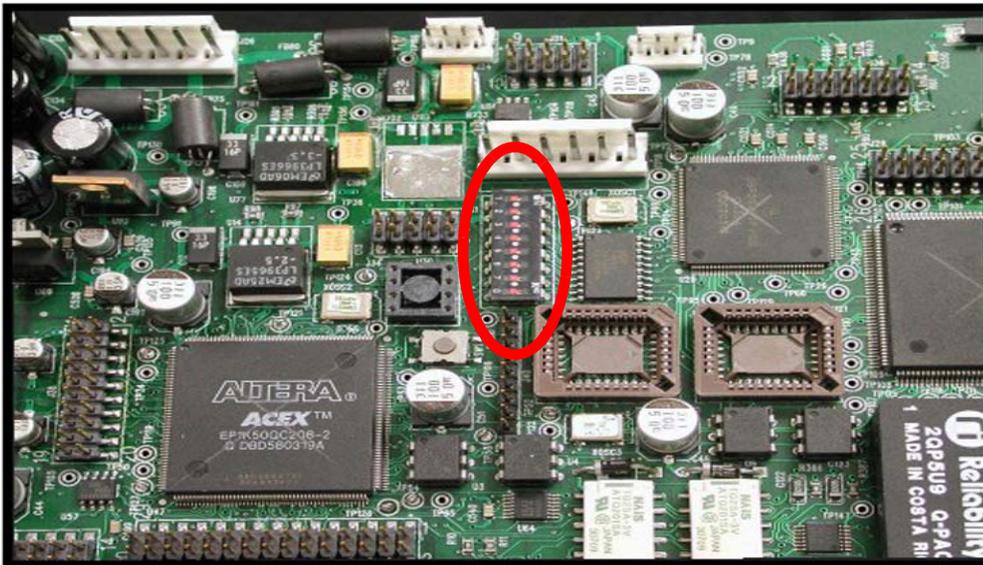


FIGURE 2. KP 812 Keypanel Board, DIP Switch Location

## Connections

### EXP and LCP Connectors

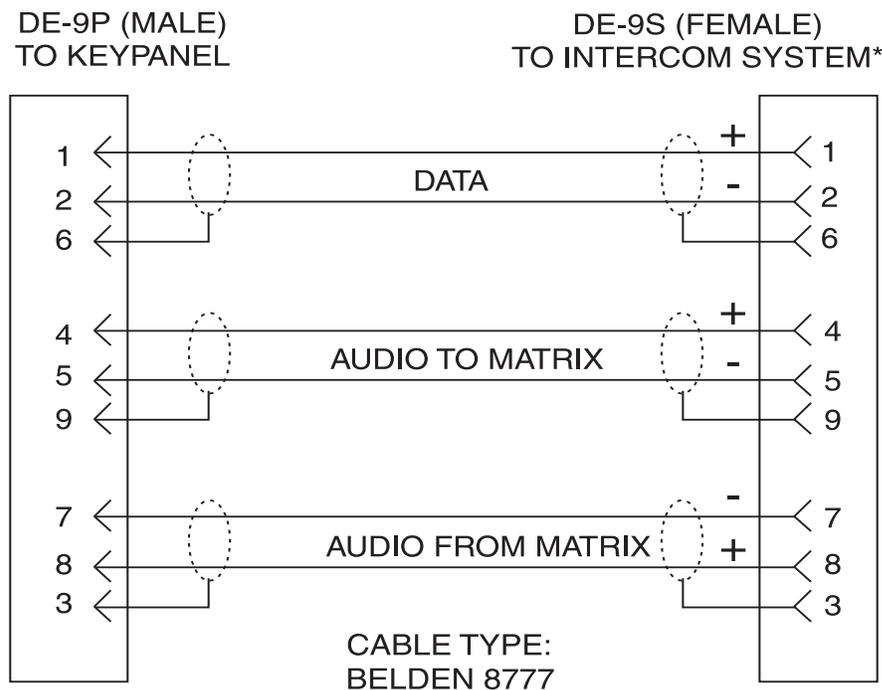
Connect from the EXP connector on the back of the KP 812 keypanel to the Expansion 1 connector of an optional EKP 812 Expansion Panel. Use the interconnect cable supplied with the Expansion Panel.

**NOTE:** JP1 must have pins 1 and 2 shorted to use the LCP connection.

Each LCP adjusts the listen levels for up to 16 keypanel keys, and you can connect as many LCP panels as required to adjust all keys on the KP 812 keypanel and on an EKP 812 Expansion panel. An interconnect cable is supplied with each LCP. Connect the first LCP to the LCP connector on the KP 812. Connect the second LCP to the first LCP, and so forth.

### Frame Connector

Use either of the Frame connectors (but not both) to connect to an intercom port of the intercom system. The intercom port you connect to should agree with the address you set previously (for more information on addressing, see “Addressing” on page 35). Use the following cable diagrams to help you connect your system.



### IMPORTANT!

\* When connecting to an ADAM CS back panel, use only low-profile cable connectors such as AMP Part No. 747516-3 (Telex Part No. 59926-678)

FIGURE 3. DE9S Intercom Cable Wiring

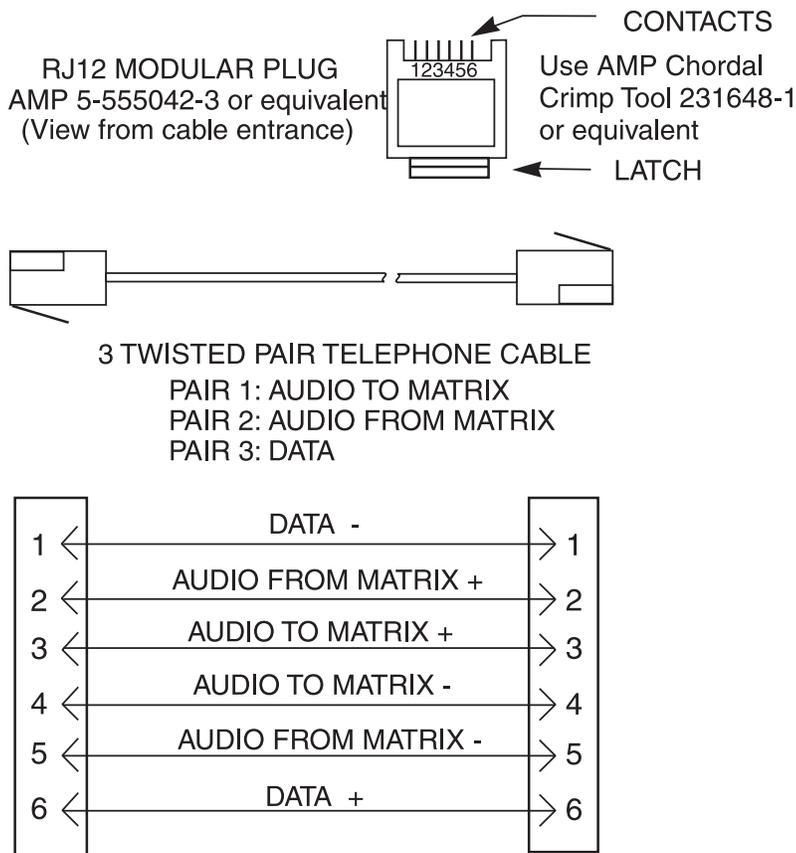


FIGURE 4. RJ-12 Intercom Cable Wiring

### Headset Connector

A dual-sided, mono headset may be connected for use along with or in place of the front panel speaker and a separate microphone. Headphones may be connected for use with a separate microphone.

#### Headset Microphone Gain Adjustment

The gain of the headset microphone preamp can be adjusted via the recessed trim pot located on the back panel (see Figure 1 on page 15).

To **adjust the headset microphone gain**, do the following:

- > Turn the **pot** clockwise to increase gain and counter-clockwise to decrease gain.  
*The limits are ±20dB from nominal.*

### Panel Microphone Connector

A panel microphone may be connected for talking with either the front panel speaker or headphones used for listening. The connector accepts MCP5, MCP6 or MCP90 panel microphones. Insert the microphone and rotate the entire microphone body several turns to lock in place.

### Panel Microphone Gain Adjustment

The gain of the panel microphone preamp can be adjusted via the recessed trim pot located on the back panel.

To **adjust the panel microphone gain**, do the following:

- > Turn the **pot** clockwise to increase gain and counter-clockwise to decrease gain.  
*The limits are  $\pm 20\text{dB}$  from nominal.*

### Aux In

Provides a connector for a line-level audio input (program 1).

### Microphone Preamplifier

Provides an unswitched, balanced, microphone preamplifier output.

### External Headset, Speaker Output, and Footswitch Input

Provides one (1) DB-9 headset connection, one (1) DB-9 Speaker Output/Footswitch Connection.

### GPIO

Opto-Isolate Input 1 - 4 > four (4) general purpose inputs.

Open Collector 1 - 4 > four (4) general purpose output.

### Relay 1 & 2 (A & B)

Includes two (2) SPGT relay outputs.

## Coaxial Connection (CS-100 Coaxial System Interface)

Provides the ability to link the unit to the matrix using a single 75 Ohm coaxial cable. The interface converts all audio and data streams to a single transmission path. Perfect for systems where there are existing, but unused 75 Ohm video cable. Requires CSI-200 interface unit at the intercom matrix end.

To **convert an existing KP 812 keypanel to use the coaxial connection**, do the following:

### Requirements

You must to upgrade the KP 812 P/N 90307761000 [rack mount unit] P/N 90307761001 [desktop unit] board to Rev J.

#### *Flash Cards to Upgrade the Firmware Version to 2.0 or later*

Flash Chip	Part Number
U21	F.01U.267.107
U22	F.01U.267.098

1. On the KP 812 board, find **U21** and **U22** flash chips.
2. Using IC pullers, remove **both flash chips**.
3. Replace the existing flash chips with the **new flash chips** (see above for part numbers). Carefully snap the flash chips in place.

To **cable the CSI-200, KP 812 and frame**, do the following:

1. Connect a **DB-9 connection** to Frame A or Frame B (depending upon the channel being used) on the CSI-200.
2. Connect the **opposite end of the DB-9 cable** to the Frame you want to use (ADAM, ADAM CS, Zeus, or Cronus).
3. Connect the **coaxial cable** (up to 1000ft) to Coax A or Coax B on the CSI-200 (depending upon the channel being used).
4. Connect the **opposite end of the coaxial cable** to the KP 812 COAX connect on the back of the unit.
5. Using AZedit, add **5ms** to the Panel Poll Delay (Keypanels|Edit button|Advanced).
6. Click **Apply**.
7. Send **changes** to the frame.

**NOTE:** Panel Poll Delay must be set for each CSI-200 connected to the frame.

8. **Power on** the CSI-200.
9. **Power on** the KP 812.

**NOTE:** On the CSI-200, the frame LED is solid green for the channel connected and active. The Transfer (TX) and Receive (RX) LEDs for the specified channel flash rapidly to signify the connection is active. On the KP 812, dashes or panel assignments on the port are displayed in the panel window.

## *Basic Operation*

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### *Selecting Headset or Speaker*

By default, the panel mic is active. When a headset is used via the 4-pin XLR connector on the keypanel, the Headset Mic LED indicator activates and the headset mic is used.

---

### *Listen Volume Adjustments*

By default, the Vol control adjusts the listen volume for the speaker, headset, intercom input, or AUX In, as indicated by the lit LED. The level of auxiliary program input 1 (if AUX inputs are enabled) and the level of incoming audio from the intercom matrix can be adjusted. Use the Vol control to adjust the listen volume. The Vol control defaults back to the speaker or headset after approximately one minute of inactivity. The minimum volume level for either the keypanel speaker or headset may be adjusted. See “Service Menu, Min Volume” on page 53.

**NOTE:** You can save the volume adjustments to be the power up defaults by using “Service Menu, Save Cfg” on page 56.

### *Listen Source Selection LED*

There are four (4) LED indicators for Listen Source selection. (Default is speaker LED on, the rest set to off).

- Internal Speaker***
- Headset***
- Matrix Audio IN***
- Auxiliary 1 IN***

On power up Matrix IN audio is routed to the speaker. This is indicated by the following:

<u><b>Speaker Selected</b></u>	<b>Table 1</b>	<u><b>Headset/Handset Selected</b></u>
<input checked="" type="radio"/> <b>Speaker</b>		<input type="radio"/> <b>Speaker</b>
<input type="radio"/> <b>Headset/Handset</b>		<input checked="" type="radio"/> <b>Headset/Handset</b>
<input type="radio"/> <b>Matrix IN</b>		<input type="radio"/> <b>Matrix IN</b>
<input type="radio"/> <b>Aux IN</b>		<input type="radio"/> <b>Aux IN</b>

The audio being heard on the speaker is changed through the volume encoder. The audio being heard on the headset/handset is from Matrix IN. Audio level adjustments on the headset/handset are changed through the volume encoder.

If the encoder is pushed once, it selects between Headset/Handset and Speaker Volume. If it is pushed twice from either headset or speaker it jumps to Matrix IN.

<u><b>Matrix IN Selected</b></u>	<b>Table 2</b>
<input type="radio"/> <b>Speaker</b>	
<input type="radio"/> <b>Headset/Handset</b>	
<input checked="" type="radio"/> <b>Matrix IN</b>	
<input type="radio"/> <b>Aux IN</b>	

The above LEDs indicate the level of audio being adjusted goes to Matrix IN.

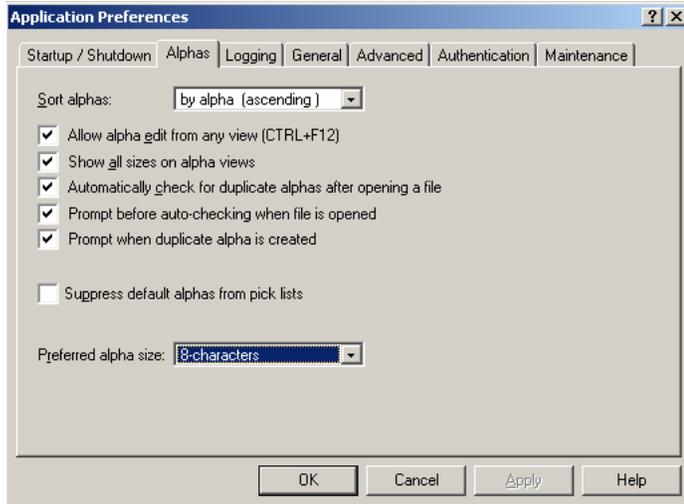
In order to move between Matrix In or AUX In, tap the encoder once.

<u><b>AUX IN Selected</b></u>	<b>Table 3</b>
<input type="radio"/> <b>Speaker</b>	
<input type="radio"/> <b>Headset/Handset</b>	
<input type="radio"/> <b>Matrix IN</b>	
<input checked="" type="radio"/> <b>Aux IN</b>	

The above LEDs indicate the level of audio goes to Aux In. If the encoder is pushed twice, it goes back to the previous selection item (table 1).

## Intercom Keys and Displays

**IMPORTANT:** When using an AIO-8 or AIO-16 with a SCSI connector, or a Zeus Intercom System, only keypanels with the same alpha size can be used. To set the alpha size in AZedit go to the Alphas page in the Application Preferences notebook (in AZedit, *Options/Preferences/Alphas*). For more information, see the AZedit User Manual, which can be found at [www.rtsintercoms.com](http://www.rtsintercoms.com).



### Alphanumeric Display Indications for Intercom Keys

**Upper Case Letters:** Upper case letters indicate keys with any kind of talk assignment, with or without a corresponding listen assignment. For example; *DIR1*.

**Lower Case Letters:** Lower case letters indicate keys with only a listen assignment. For example, *dir1*.

**Dashes ----:** Dashes indicate a key has no talk or listen assignment.

**NOTE:** The flashing alphanumeric display for the TIF keys, remote IFB keys, and remote ISO keys can be disabled by placing a check mark in the *Don't generate tallies for TIF and trunk use* check box, found in AZedit (Options Menu|Intercom Configuration|Options Tab).

## LED Indications for Intercom Keys

**NOTE:** For the Japanese model KP 812 keypanel, the talk on LED appears red, while the Listen on LED appears green.

### *Talk LED Indications*

Each button is backlit with a bi-colored LED as an indicator. The talk LED is the button below the display panel. The talk LED indications are as follows:

**Continuous Red** - Talk is on and the keypanel operator can be heard at the destination.

**Continuous Green Talk LED & Flashing Display Alpha (“in use”)** - The key is off, but someone is talking to the destination. This indication is provided for any local PL, IFB, ISO, or TIF key. It does not apply to remote IFB or ISO keys. This indication is provided so keypanel operators know when critical director communications are occurring. If you activate the key, one of two things may occur:

- If you activate the key and the talk LED turns continuous red, this indicates you and the other keypanel operator are both talking to the destination.
- IFB keys only! If the talk LED flashes green when an IFB key is activated, this indicates the other keypanel has a higher IFB priority and you cannot talk at this time.

**NOTE:** The green in use indication for TIF keys can be disabled in AZedit (Options|Intercom Configuration|Options tab). Select the *Don't generate tallies for TIF and trunk use* check box. Be sure to send the change to the intercom system.

**Flashing Green Talk LED** - You cannot talk at this time. This indication occurs when you activate a local IFB key already in use by a keypanel with a higher IFB priority. It also occurs when you activate any key assigned to a remote destination, but there are currently no trunks available.

**Flashing Red Talk LED** - There is an incoming call from the destination assigned to the key. Activate the key to talk back.

**NOTE:** The duration of incoming call flash is controlled by DIP Switch 4 on the KP 812 keypanel. See “Dip Switch Settings” on page 23.

**Amber Talk LED (on time less than off time)** - This indicates a key is ready to talk (key is on), but requires external footswitch activation to talk or the key has been selected but the handset is still on the receiver.

### *Listen LED Indication*

Each button is backlit with a bi-color LED as an indicator. The listen LED is the button above the display panel.

## Intercom Key Operation

### Basic Intercom Key Operation

The upper button of an intercom key is on continuously (if assigned). The lower button activates the talk (if assigned). If there is no talk assignment for an intercom key, the talk button does not activate. If there is no listen assignment, the listen button does not activate.

For **momentary activation of a key**, do the following:

1. Press and hold the **key**.
2. Release the **key** when finished talking.

For **latching operation** (if enabled), do the following:

1. Tap the **button**; it turns on and remains on.
2. Tap the **button** again to release the latch.

**NOTE:** Latching may be turned off for the entire keypanel by setting DIP Switch 1 on the keypanel to the Closed position. Latching may be disabled for individual keys on a keypanel using AZedit or the latching menu (Menu|Key Option|Latching). Click the KP button in the AZedit toolbar to open the Keypanels/Ports setup window. Select the intercom port where the keypanel is connected. Place a check mark in the check box marked “D” for any keys where you want to disable latching. Be sure to save your changes to the intercom system.

### Operation of Intercom Keys with Auto Functions

**NOTE:** Assignment of keys with auto functions is described in the programming following sections. Descriptions of the auto functions are also contained in the Glossary.

Operation of keys with auto functions is as follows:

<b>Talk + auto follow</b>	Talk and listen can be activated separately. The listen assignment listens to whatever is assigned to the talk key.
<b>Talk + auto listen</b>	Both talk and listen activate when talk is activated.
<b>Talk + auto mute</b>	Listen turns off when talk is activated.
<b>Talk + auto reciprocal</b>	Listen is always be on, and talk may be turned on or off.
<b>Talk + auto table</b>	If an IFB talk has an auto-table listen assignment, talk and listen can be independently activated. The listen key listens to whatever is defined as the IFB Listen Source for the IFB assigned to the talk key. For an assignment other than IFB, auto-table acts like auto-follow.

**NOTE:** A full explanation of the auto-table feature is beyond the scope of this manual. For further information, search for IFB in the AZedit help file or user manual. Read the topics *IFB Auto-Table Description* and *IFB Setup Procedures*.

**All Call Key**                      Activating the key activates all keys to the left of the original key (up to, but not including, another all call key).

**Talk + DIM**                      If a point-to-point key has the DIM function as a level 2 talk assignment, activating the key causes the crosspoint levels to diminish for any other intercom ports currently listening to the same destination and are in the same DIM table.

**NOTE:** A full explanation of DIM tables is beyond the scope of this manual. For further information, search for DIM table in the AZedit help file or user manual.

## Operation of Intercom Keys with Options

### *Group Option Keys*

Activating the master key in a key group activates all keys in the group according to each key's individual key assignment. Activating a slave key does not affect any other keys in the group.

### *Solo Key*

Activating a key with the solo option causes all other keys to turn off until the solo key is turned off.

### *Exclusive Key*

Activating a key with the exclusive option causes all other keys to turn off and stay off after the exclusive key is turned off.

## Operation of Intercom Talk Keys with Speaker DIM Setting

Activating any talk key causes the speaker or headphone volume at this keypanel to diminish by the amount specified in the Dim menu item in the Service menu.

**NOTE:** Do not confuse this with the Talk+DIM auto function previously described. Talk+DIM affects the speaker or headphones on the other keypanels when a particular talk key is activated on this keypanel. Speaker DIM affects the speaker or headphone level on this keypanel when any talk key on this keypanel is activated.

## Operation of Intercom Keys Assigned to TIF Ports

If an intercom key is assigned to talk to an intercom port designated as a TIF port in AZedit, tapping the talk button activates the KP 812's dialing menu. See "Telephone Operation" on page 37.

**NOTE:** You can designate an intercom port as a TIF by selecting the "Port as TIF" check box in AZedit. In AZedit, click the KP icon on the toolbar to access the Keypanels/Ports setup window. Select the intercom port where the TIF is connected, then click Edit. Select the Advanced tab. Select the Port is TIF check box. Remember to send the changes to the intercom system.

---

## *Muting the Microphone*

To **mute the microphone**, do the following:

- > Tap the **Mic Mute key** to turn microphone muting on or off.  
*The Mic Mute LED indicator activates with a blinking green light.*

**NOTE:** While muting is on, you cannot be heard on the intercom by anyone on the telephone or by any device connected to the mic preamp output of the optional connector module.

---

## Call Waiting Operation

Occasionally, a keypanel may call and there is no key assigned to talk back to the caller. In this case, the caller's name appears in the call waiting window. Press the appropriate key to talk back.

To **clear a name from a call waiting window**, do the following:

- > Tap the **listen key** above the assignment.

If two (2) call waiting windows are configured on the keypanel, the first call displays in the left window. If a second call comes into the keypanel, it displays in the right call waiting window. Once the first call is complete the call in the right call waiting window moves to the left window. However, if the first call waiting window key is latched on and a call is waiting in the second call waiting window, and a third call comes in, then the second call is dropped and the third call displays in the right call waiting window.

**NOTE:** By default, only the names of callers who are not currently assigned to intercom keys appear in the Call Waiting Window. This is a configuration option in the Master Controller.

---

## Addressing

**NOTE:** SET ADDR must be used during installation or whenever the keypanel is reset or moved to a new port.

### *Determining the Keypanel Address for ADAM and ADAM CS Intercoms*

See Table 1 on page 36.

### *Determining the Keypanel Address for Zeus Intercom Systems*

The address is the number (1-8) printed next to the connector on the back panel of the Zeus frame. (This number repeats for each group of eight (8) connectors. The intercom system is able to distinguish between two (2) keypanels set to the same address by the group where each one is connected.)

### Setting the Keypanel Address

1. Turn the encoder knob and scroll to **Menu**, tap the knob once.
2. Turn the encoder knob and scroll to **Service**, tap the knob once.
3. Turn the encoder knob and scroll to **Set Address**, tap the knob once.
4. Turn the encoder knob and scroll to **Address X**, tap the knob once.
5. Tap on the **selected address**.  
*The CWW displays Save Config?*
6. Tap the **encoder knob** to save.  
*The display shows "\*\*\*\*\*" and change to "XXXXX", where XXXXX is the address*

**TABLE 1.** Correspondence between ADDR numbers and intercom port numbers for ADAM and ADAM CS intercom systems.

ADDR SETTINGS	INTERCOM PORT NUMBERS																										
	1	9	17	25	33	41	49	57	65	73	81	89	97	105	113	121	129	137	145	153	161	169	177	185	193		
1	1	9	17	25	33	41	49	57	65	73	81	89	97	105	113	121	129	137	145	153	161	169	177	185	193		
2	2	10	18	26	34	42	50	58	66	74	82	90	98	106	114	122	130	138	146	154	162	170	178	186	194		
3	3	11	19	27	35	43	51	59	67	75	83	91	99	107	115	123	131	139	147	155	163	171	179	187	195		
4	4	12	20	28	36	44	52	60	68	76	84	92	100	108	116	124	132	140	148	156	164	172	180	188	196		
5	5	13	21	29	37	45	53	61	69	77	85	93	101	109	117	125	133	141	149	157	165	173	181	189	197		
6	6	14	22	30	38	46	54	62	70	78	86	94	102	110	118	126	134	142	150	158	166	174	182	190	198		
7	7	15	23	31	39	47	55	63	71	79	87	95	103	111	119	127	135	143	151	159	167	175	183	191	199		
8	8	16	24	32	40	48	56	64	72	80	88	96	104	112	120	128	136	144	152	160	168	176	184	192	200		
1	201	209	217	225	233	241	249	257	265	273	281	289	297	305	313	321	329	337	345	353	361	369	377	385	393		
2	202	210	218	226	234	242	250	258	266	274	282	290	298	306	314	322	330	338	346	354	362	370	378	386	394		
3	203	211	219	227	235	243	251	259	267	275	283	291	299	307	315	323	331	339	347	355	363	371	379	387	395		
4	204	212	220	228	236	244	252	260	268	276	284	292	300	308	316	324	332	340	348	356	364	372	380	388	396		
5	205	213	221	229	237	245	253	261	269	277	285	293	301	309	317	325	333	341	349	357	365	373	381	389	397		
6	206	214	222	230	238	246	254	262	270	278	286	294	302	310	318	326	334	342	350	358	366	374	382	390	398		
7	207	215	223	231	239	247	255	263	271	279	287	295	303	311	319	327	335	343	351	359	367	375	383	391	399		
8	208	216	224	232	240	248	256	264	272	280	288	296	304	312	320	328	336	344	352	360	368	376	384	392	400		
1	401	409	417	425	433	441	449	457	465	473	481	489	497	505	513	521	529	537	545	553	561	569	577	585	593		
2	402	410	418	426	434	442	450	458	466	474	482	490	498	506	514	522	530	538	546	554	562	570	578	586	594		
3	403	411	419	427	435	443	451	459	467	475	483	491	499	507	515	523	531	539	547	555	563	571	579	587	595		
4	404	412	420	428	436	444	452	460	468	476	484	492	500	508	516	524	532	540	548	556	564	572	580	588	596		
5	405	413	421	429	437	445	453	461	469	477	485	493	501	509	517	525	533	541	549	557	565	573	581	589	597		
6	406	414	422	430	438	446	454	462	470	478	486	494	502	510	518	526	534	542	550	558	566	574	582	590	598		
7	407	415	423	431	439	447	455	463	471	479	487	495	503	511	519	527	535	543	551	559	567	575	583	591	599		
8	408	416	424	432	440	448	456	464	472	480	488	496	504	512	520	528	536	544	552	560	568	576	584	592	600		
1	601	609	617	625	633	641	649	657	665	673	681	689	697	705	713	721	729	737	745	753	761	769	777	785	793		
2	602	610	618	626	634	642	650	658	666	674	682	690	698	706	714	722	730	738	746	754	762	770	778	786	794		
3	603	611	619	627	635	643	651	659	667	675	683	691	699	707	715	723	731	739	747	755	763	771	779	787	795		
4	604	612	620	628	636	644	652	660	668	676	684	692	700	708	716	724	732	740	748	756	764	772	780	788	796		
5	605	613	621	629	637	645	653	661	669	677	685	693	701	709	717	725	733	741	749	757	765	773	781	789	797		
6	606	614	622	630	638	646	654	662	670	678	686	694	702	710	718	726	734	742	750	758	766	774	782	790	798		
7	607	615	623	631	639	647	655	663	671	679	687	695	703	711	719	727	735	743	751	759	767	775	783	791	799		
8	608	616	624	632	640	648	656	664	672	680	688	696	704	712	720	728	736	744	752	760	768	776	784	792	800		
1	801	809	817	825	833	841	849	857	865	873	881	889	897	905	913	921	929	937	945	953	961	969	977	985	993		
2	802	810	818	826	834	842	850	858	866	874	882	890	898	906	914	922	930	938	946	954	962	970	978	986	994		
3	803	811	819	827	835	843	851	859	867	875	883	891	899	907	915	923	931	939	947	955	963	971	979	987	995		
4	804	812	820	828	836	844	852	860	868	876	884	892	900	908	916	924	932	940	948	956	964	972	980	988	996		
5	805	813	821	829	837	845	853	861	869	877	885	893	901	909	917	925	933	941	949	957	965	973	981	989	997		
6	806	814	822	830	838	846	854	862	870	878	886	894	902	910	918	926	934	942	950	958	966	974	982	990	998		
7	807	815	823	831	839	847	855	863	871	879	887	895	903	911	919	927	935	943	951	959	967	975	983	991	999		
8	808	816	824	832	840	848	856	864	872	880	888	896	904	912	920	928	936	944	952	960	968	976	984	992	1000		

# Telephone Operation

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**NOTE:** Telephone operations require an optional TIF Telephone Interface. Also, you must first assign an intercom key to talk/listen to the TIF. We recommend a talk+auto listen assignment.

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## Receiving a Phone Call

When there is an incoming telephone call, the talk LED flashes green on the selected key.

**NOTE:** The green flash for incoming TIF calls is the default operation. Alternatively, a continuous green talk LED indication can be provided. This is accomplished by selecting *Don't generate tallies for TIF or trunk use* check box in AZedit (Options|Intercom Configuration|Options Tab). This check box also affects other tally indications. For further information, see the AZedit User Manual.

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## Dialing and Hanging Up Using the KP 812 Keypanel Dialing Menu

The dialing menu only activates when talking to an intercom port with the *Port is TIF* check box selected in AZedit.

### Manual Dialing

To **manual dial**, do the following:

1. Turn **on** the TIF talk key.  
*Manual Dial displays in the call waiting window.*
2. Tap the **menu encoder**.  
*Dial#? appears and a dial tone should be audible in your speaker or headset.*

**NOTE:** To hang up at any time after this point, tap the encoder knob. Hang Up displays. Tap the encoder knob again.

3. Dial the **phone number**.  
*Digits appear in the Call Waiting Window as you dial. Dialing tones are audible in the speaker or headset.*
4. If the end answers, begin your **conversation**.

**NOTE:** After the far end answers, you may dial additional digits to retrieve voice mail, or log on to automated answering systems, etc. Or refer to the hang up instructions0.

To **hang up**, do the following:

1. Verify the **CWW window is clear**.
2. Hold the **encoder** for 1 second.  
*Hang Up TIF displays.*
3. Continue holding the encoder knob, and tap the **talk key** assigned to the TIF.  
*When the encoder is released the CWW window is cleared.*

**NOTE:** Occasionally you may receive intercom caller names in the Call Waiting Window while you are talking on the phone. In this case, the dialing menu options are cleared from the Call Waiting Window, and the Hang Up option is not be available.

## Redial

To **redial**, do the following:

1. Rotate the **encoder knob until Manual Dial** displays in the Call Waiting Window.
2. Tap the **encoder knob**.
3. Rotate the **encoder knob until Redial** displays.
4. Tap the **encoder knob**.
5. If the far end answers, begin your **conversation**.

**NOTE:** After the far end answers, you may dial additional digits to retrieve voice mail, or log on to automated answering systems, etc. Or refer to the hang up instructions.

**NOTE:** Occasionally you may receive intercom caller names in the Call Waiting Window while you are talking on the phone. In this case, the dialing menu options are cleared from the Call Waiting Window, and the Hang Up option is not be available.

## Autodial

To **autodial**, do the following:

**NOTE:** Autodial is only available after you have saved autodial numbers.

1. Turn on the **TIF talk key**.  
*Manual Dial appears in the Call Waiting Window.*
2. Rotate the **encoder knob until Autodial** appears.
3. Tap the **encoder knob**.
4. Rotate the **encoder knob until the desired number** to autodial appears.
5. Tap the **encoder knob**.
6. If the far end answers, begin your **conversation**.

**NOTE:** After the far end answers, you may dial additional digits to retrieve voice mail, or log on to automated answering systems, etc. Or refer to the hang up instructions.

**NOTE:** Occasionally you may receive intercom caller names in the Call Waiting Window while you are talking on the phone. In this case, the dialing menu options are cleared from the Call Waiting Window, and the Hang Up option is not be available.

## *KP 812 Keypanel Menu System*

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**NOTE:** A menu system quick reference is located at the back of this manual on page 61.

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### *Menu System, Menu Access*

To **access the keypanel menu system**, do the following:

1. On the front panel of the KP 812 keypanel, turn the **encoder knob** to scroll to the menu.
2. Tap the **encoder knob** to select the menu.
3. Turn the **encoder knob** clockwise to scroll forward and counter-clockwise to scroll backward through a list of menus.
4. Tap the **encoder knob**.

Within a menu, do the following:

1. Turn the **encoder knob** clockwise to scroll forward and counter-clockwise to scroll backward through a list of menu options.
2. Tap the **encoder knob** to enter a menu.
3. Tap the **encoder knob** twice to exit a menu or press the encoder knob for 1 second to exit the menu system.

---

## Menu System, Display Menu

Use this menu to display information about the keypanel configuration.

### Display Menu, Assign Type

The **Assign Type** is used to display the talk level 1 assignment types for all keys. Abbreviations for the key assignment types appear in the alphanumeric displays as follows:

P-P	Point-to-Point talk key
PL	Party Line talk key
IFB	IFB (interruptible foldback) talk key
SPCL	Special List talk key
RLY (system relay)	This key activates a GPI output at the intercom frame, or a relay output at a UIO-265 or FR9528 frame.
ISO	Camera ISO (isolate) talk key
UPL	UPL resource key
AC	All Call key

### Display Menu, Chan ON

The **Chan On** menu is used to display an alpha list in the call waiting window of all intercom ports currently have talk crosspoints closed to this keypanel. Chans ON is typically used to locate an open mic or other open audio source needing to be shut off. The most likely cause is typically a talk key left on at a keypanel. In this case, turn the encoder knob to scroll through the list of names. Then use the call waiting button to ask the user at the other end to turn off the talk button.

### Display Menu, Key Groups

The **Key Groups** display the members in a key group.

To **set up key groups**, do the following:

1. Turn the encoder knob to select **Group 1, Group 2**, etc.
2. Tap the **encoder button** to display the group.  
*The talk and listen LEDs of the master key light red and talk and listen LEDs for the slave keys light green.*

### Display Menu, Key List

The **Key List** menu is used to display and allow access to all the other assignments on the other keypanel pages not currently showing in the keypanel display.

### Display Menu, Level 2

The **Level 2** menu is used to display the talk level 2 assignments for all keys.

### Display Menu, Listen

The **Listen** menu is used to display the listen assignments for all keys.

## Display Menu, Matrix

The **Matrix** menu is used to display the intercom system name for all talk level 1 key assignments. In non-trunked intercom systems, the intercom system name is always LOCL (local). In trunked intercom systems, intercom system names are created in TrunkEdit (Intercoms|Names).

## Display Menu, Panel ID

The **Panel ID** menu is used to display the calculated port number the keypanel connects to. The calculation is based on the data group the keypanel is connected to, along with the address switch setting on the keypanel. If the address switch is incorrectly set, the wrong Panel ID displays. If available, the entire alpha can be seen by rotating the encoder knob.

## Display Menu, Version

The **Version** menu is used to display the firmware version of the keypanel.

**NOTE:** For firmware upgrades, contact your intercom system dealer. The KP 812 firmware can be upgraded through AZedit. See “KP 812 Keypanel Firmware Download” on page 59.

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## *Menu System, Key Assign Menu*

The **Key Assign** menu is used to assign intercom keys, to adjust listen levels for point-to-point keys and party line keys, to assign setup pages, to configure quick assign and reset all volumes.

## General Procedure to Use the Key Assign Menu

To use the key assign menu, do the following:

1. Using the encoder knob, rotate to **Key Assign**.
2. Tap the **encoder** to enter the menu.

**NOTE:** If you do not have a trunking intercom system, go to step 3.

### Remote key assignment only (trunking systems only)

If your intercom is trunked, *Matrix* displays in the Call Waiting Window. You must select a remote intercom matrix before assigning intercom keys to destinations in the matrix. You do not need to select an intercom matrix if you are assigning keys in your own intercom system. Also, do not select an intercom matrix if you are assigning alt-functions or setup pages, or if you are changing listen gains for remote point-to-point keys or remote party line keys. Select a matrix as follows:

- Tap the **encoder key** once to access the Matrix list.
- Turn the **encoder knob** clockwise to scroll forward to locate the desired Matrix.
- Once you have found the Matrix, tap the **encoder knob** once to select it.  
“Wait” may display while the scroll lists for the matrix are loading.

Pt-to-Pt should now display in the Call Waiting Window (both for local and remote key assignments). This is the list of available point-to-point key assignments.

- Turn the knob to select a different list as follows:

<i>Pt-to-Pt</i>	Assign a key to talk/listen to another intercom port.
<i>Party Line</i>	Assign a key to talk/listen to a party line.
<i>IFB</i>	Assign a key to talk/listen to an IFB.
<i>Spcl List</i>	Assign a key to talk/listen to a special list.
<i>Sys Relay</i>	Assign a key to activate a relay or GP Output.
<i>Camera ISO</i>	Assign a key to talk/listen to an ISO.
<i>Groups</i>	Assign a key to talk/listen to a group.
<i>UPL Resrc</i>	Assign a key to activate a UPL resource.
<i>Quick Assign</i>	Configure the Quick Assign key with talk/listen options.
<i>Reset Vols</i>	Restore the default listen level for keys with a point-to-point or party line assignment. If you select this item, skip the rest of this procedure and go to “Key Assign Menu, Key Gain”.

- Tap the **encoder** once to select a list.  
*In some cases “Wait” may display while the requested list is uploaded from the intercom system.*
- When the requested list is displayed, turn the **encoder knob** to scroll through to the desired assignment.
- Once you come to the desired list, tap the **encoder knob** to select it.  
*Talk Lvl 1 should now display in the Call Waiting Window.* Turn the **encoder knob**, if necessary, to select a different option.

Talk Lvl 1	Assigns only talk level 1. Leaves the listen assignment as is.
Listen	Assigns only listen. Leaves the talk assignment as is.
Talk + AF	Assigns talk level 1, with auto-follow listen.
Talk + AL	Assigns talk level 1, with auto-listen.
Talk + AM	Assigns talk level 1, with auto-mute listen.
Talk + AR	Assigns talk level 1, with auto-reciprocal listen.
Talk + AT	Assigns talk + auto-table.
Talk Lvl 2	Assigns talk level 2.

- If you attempt to assign talk level 2 to a key and there is no talk level 1 assignment, the assignment goes on talk level 1.
- If you change the talk level 1 assignment for a key with a talk level 2 assignment, the talk level 2 assignment is erased.

- Once you have selected an option, tap the **encoder knob**.  
*Tap Key should now display.*
- Tap an **available keypanel key**.  
*The top button is for listen and the bottom button is for talk.*
  - If you assign any type of talk key, the assignment name appears in the alphanumeric display above the key.
  - If you add a listen assignment to an existing talk assignment, the listen assignment appears briefly in the alphanumeric display to confirm the assignment. Then, the talk assignment reappears.
  - If you assign a key with listen only, the assignment name appears briefly in uppercase letters, then changes to lowercase letters.

This completes the key assignment procedure. Refer to any notes below regarding the various key assignment types.

**NOTE:** When reassigning keys, remember to remove any Chime, Solo, or Key Group options if they are not be needed for the new key assignments.

### Key Assign Menu, Pt-to-Pt

The **Pt-to-Pt** menu is used to assign a key that talks or listens to another intercom port. Note, some pt-to-pt destinations may be non-keypanel devices unable to activate talk and listen paths. Therefore, if you want full communications, you may need to assign both talk and listen on the key.

### Key Assign Menu, Party Line

The **Party Line** menu is used to assign a key that talks and/or listens to a party line. Note, party line members are usually non-keypanel devices unable to activate talk and listen paths. Therefore, if you want full communication with the party line, you need to assign both talk and listen on the key. If all communications are normally 2-way, you may wish to assign the key a Talk+Auto Listen.

### Key Assign Menu, IFB

By default, all IFBs are restricted and you see *Not Avail* when you attempt to select this item. To see IFBs, you must check the appropriate Scroll Enable check boxes in AZedit.

### Key Assign Menu, Spcl List

The **Spcl List** menu is used to assign a key that talks and/or listens to a special list. This has no effect until members have been assigned to the special list in AZedit. Note, some or all special list members may be non-keypanel devices unable to activate talk and listen paths. Therefore, if you want full communication with all members of the special list, you may need to assign both talk and listen on the key.

### Key Assign Menu, Sys Relay

Sys Relay refers to any of several types of control devices existing in the intercom system, including:

- the 8 GP outputs from an ADAM frame (J11 on the XCP-ADAM-MC breakout panel)
- the 8 GP outputs of an ADAM CS frame (J903 on the ADAM CS backpanel)
- the relay outputs of an FR9528 Relay Frame (RELAY OUTPUTS connector on the FR9528 backpanel)
- the 16 GP outputs of a UIO-256 Universal Input/Output Frame (J5 on the UIO-256 backpanel)

### Key Assign Menu, Camera ISO

By default, all **ISOs** are restricted and you see *Not Avail* when you attempt to select this item. To see ISOs, you must check the appropriate Scroll Enable check boxes in AZedit.

### Key Assign Menu, Quick Assign

The **Quick Assign** menu is used to configure what talk/listen function is assigned when a Quick Assignment is made. The options are:

- Party Line
- Point-to-Point
- Group
- Special List

Also, from this menu, special functions can be individually assigned to a talk/listen assignment. For the different special assignments, see “Display Menu, Assign Type” on page 40.

## Key Assign Menu, Reset Vols

The **Reset Vols** menu is used to assign simultaneously reset gains for all point-to-point or party line keys.

1. Turn the **encoder knob** until Reset Vols displays.
2. Tap the **encoder knob** to select.  
*Done displays. All key gains are now reset to the default level.*
3. Press the **encoder knob** for 1 second to exit.

**NOTE:** You do not need to run Save Cfg after resetting key gains. These settings are stored in the intercom system.

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## Menus

### Menu, Autodial

The **Autodial** menu is used to store autodial numbers.

To **store auto dial numbers**, do the following:

1. Select **Autodial**, then tap the encoder knob.  
*Phone # displays.*
2. Enter the **phone number** on the keypad.  
*The numbers scroll in the Call Waiting Window.*

**NOTE:** To insert a pause or space at any time, tap \* 9 9. For example, you may have to insert a pause after dialing a 9 to get an outside line.

3. Tap the **encoder knob**.  
*A-Dial #1 displays (store autodial number 1).*
4. To store a different autodial number, turn and tap the **encoder knob** to display and select the desired autodial number  
*#XX saved displays (where XX is the autodial number you select).*
5. Run **Service Menu, Save Cfg** to store autodial numbers.

### Menu, Key Option Chime

The **Key Option Chime** menu is used to add a chime tone to any key for incoming call announcement. The chime tone activates for approximately five (5) seconds after a call is received.

To **add a chime tone**, do the following:

1. Select **Chime**, then tap the **encoder knob**.
2. Tap **any keys** on the keypad where you want to add a chime tone.
3. Press and hold the **encoder knob** for 1 second to exit.
4. Run **Service Menu, Save Cfg** to store chime settings.

**NOTE:** The chime option stays with a key even if you change the key assignment.

### ***Removing the chime option from a key.***

Repeat the procedure to add chime, but tap any keys where the LEDs are lit red to turn them off. Run Save Cfg to store the changes.

## **Menu, Key Option, Key Groups**

The **Key Groups** menu is used to set up a key group so you can activate one (1) key (the master key) and all keys in the group activate. Up to four (4) key groups can be set. The Master LED is indicated by red, while the Slave LED is indicated by green.

To **set up a key group**, do the following:

1. Select **Key Groups**, then tap the **encoder knob** to select.
2. Tap the **encoder knob**.  
*Tap Master displays. The master key is the key you press to activate the group.*

**NOTE:** Tap the encoder knob once to bypass the master. You can define the slaves without the master. For example, using a GP Input to trigger a group.

3. Tap the **keypanel key** you want to use as the master.
4. Once you have assigned the master, turn the **encoder knob** to display Slaves and tap the encoder knob.  
*Tap Slaves displays. Slave keys are the keys activated along with the master key.*
5. Tap **one or more keypanel keys** to select them as slave keys.  
*Tap the key again to remove it from the key group.*
6. Once you are finished, press the **encoder knob** for 1 second to exit.  
*Activating the master key should now cause it and all the slave keys to activate. The LEDs for each key activates according to the current key assignment for the call.*
7. Run **Service Menu, Save Cfg** to store Key Group Settings.

**NOTE:** Key group settings stay with keys even if you change the key assignments.

### ***Clearing a Key Group***

To **clear a key group**, do the following:

1. Select **Key Groups**, then tap the **encoder knob**.  
*Group 1 displays.*
2. Tap the **encoder knob**.  
*Tap Master displays.*
3. Tap the **encoder knob** to clear the master key assignment.  
*The LED turns off.*
4. Tap the **encoder knob**.  
*Tap Slaves displays.*
5. Tap **all the keys where the LEDs are lit green**.  
*This turns the LEDs off.*
6. Press and hold the **encoder knob** for 1 second to exit.  
*The key group is now cleared.*
7. Run **Service Menu, Save Cfg** to store the cleared key group setting.

## Menu, Key Option, Solo

A **Solo** key causes all other keys to turn off when activated. You can assign one (1) solo key.

To **assign a solo key**, do the following:

1. Select **Solo**, then tap the **encoder knob**.  
*Tap Key displays.*
2. Tap a **keypanel key**.  
*Both LEDs for the key light red to confirm the assignment. Tap the key again if you want to remove the assignment.*
3. Press and hold the **encoder knob** for 1 second to exit.

**NOTE:** Activating the solo key should cause all other active keys to turn off. The turns back on when you turn off the solo key.

4. Run **Service Menu, Save Cfg** to store the Solo setting.

**NOTE:** The Solo option continues on a key even if you change key assignments.

### *Removing the Solo Key Option*

To **remove the solo key option**, do the following:

1. Select **Solo**, then tap the **encoder knob**.
2. Tap the **solo key** to turn off the LEDs.
3. Press and hold the **encoder knob** for 1 second to exit.  
*The solo key is now cleared.*
4. Run **Service Menu, Save Cfg** to store the Solo setting.

## Menu, Key Option, Exclusive

An **exclusive key** causes all other keys to turn off when activated; but unlike the solo key, when the exclusive key is released, the other keys do not turn on again. You can assign one (1) exclusive key.

To **assign an exclusive key**, do the following:

1. Select **Exclusive**, and then tap the **encoder knob**.  
*Tap Key displays.*
2. Tap a **key**.  
*Both LEDs for the key light red to confirm the assignment. Tap the key again if you want to remove the assignment.*

**NOTE:** Activating the exclusive key causes all other active keys to turn off. The keys do NOT turn back on when you turn off the exclusive key.

3. Run **Service Menu, Save Cfg** to store the Exclusive setting.

**NOTE:** The Exclusive option continues on a key even if you change key assignments.

## Removing the Exclusive Key Option

To **remove the exclusive key option**, do the following:

1. Select **Exclusive**, and then tap the **encoder knob**.
2. Tap the **exclusive key** to turn off the LEDs.
3. Press and hold the **encoder knob** for 1 second to exit.  
*The exclusive key is now cleared.*
4. Run Service Menu, Save Cfg to store the Exclusive setting.

## Service Menu, Aux Inputs

The **Aux Inputs** is used to control what input levels can be adjusted by the volume knob.

To **adjust the aux input level**, do the following:

1. Select **Aux Inputs**, and then tap the **encoder knob**.  
*Intercom displays.*
2. Tap the **encoder knob**.
3. Turn the **encoder knob** and then tap either **Aux In** or **Intercom**.
4. Tap the **encoder knob** to enable or disable the item.  
*The arrow indicates the input is enabled. This allows the source's volume to be adjusted.*
5. Press and hold the **encoder knob** for 1 second to exit.  
*The new Aux In assignment is now set.*
6. Run **Service Menu, Save Cfg** to store the Aux Inputs setting.

**NOTE:** To assign the destination of the Aux Inputs, see the Mixing entry for Service Menu, DSP Func.

## Service Menu, Baud Rate

The **Baud Rate**, menu is used to set the baud rate.

To **set the baud rate**, do the following:

1. Select **Baud Rate**, and then tap the **encoder knob**.  
*Auto Baud displays.*
2. Turn the **encoder knob** to select *Auto Baud*, *9600 Baud*, or *76.8 Baud*.
3. Tap the **encoder knob** once to select the baud rate.
4. Press and hold the **encoder knob** for 1 second to exit.  
*The new baud rate is now set.*
5. Run **Service Menu, Save Cfg** to store the Baud setting.

## Service Menu, Dim

The **Dim** causes the speaker or headphone level to diminish by a specified amount whenever a talk key is activated.

To **set the dim**, do the following:

1. Select **Dim**, and then tap the **encoder knob**.  
*Speaker displays.*
2. Turn the **encoder knob** to select either *Speaker* or *Headset*.
3. Tap the **encoder knob** once to select.

**NOTE:** By default, -8dB displays for speaker and 0 dB displays for headset.

4. Turn the **encoder knob** clockwise to increase the dim, or counter-clockwise to reduce the dim.
5. Press and hold the **encoder knob** for 1 second to exit.  
*The new dimming level is now set.*
6. Run **Service Menu, Save Cfg** to store the Dim setting.

## Service Menu, LCD Bright

The **LCD Bright** adjusts the alphanumeric display settings.

To **adjust the LCD brightness**, do the following:

1. Select **LCD Bright**, and then tap the **encoder knob**.  
*An option for mods 1 through 8 or All appears.*
2. Turn the **encoder knob** clockwise to increase the brightness and counter-clockwise to reduce the brightness.

**NOTE:** The brightness scale ranges from 0 to 100, with 100 being the brightest.

3. Run **Service Menu, Save Cfg** to store the LCD Bright setting.

## Service Menu, DSP Func

The **DSP Func** is used to access the digital signal processing feature.

1. Select **DSP Func**, and then tap the **encoder knob**.  
*Filtering displays. Turn the encoder knob to see the other DSP function options: Filtering, Gating, Metering, Mixing.*

Refer to one of the following paragraphs for further information on each of these options.

### Filtering

**Filtering** allows you to add a 9.6kHz notch filter to one (1) or more audio sources. This can be useful in a few cases when the keypanel data port signal is being heard in the audio line due to cable routing problems.

To **add filtering**, do the following:

1. Select **Filtering**, and then tap the **encoder knob**.  
*Microphone displays. Turn the encoder knob to display other options for filtering.*
2. Once you have the source to filter, tap the **encoder knob**.  
*→None displays to indicate no filtering is selected.*
3. Turn the **encoder knob** to display Notch.  
*Notch displays.*
4. Tap the **encoder knob**.  
*→Notch displays. The arrows indicates the notch filter is now selected.*
5. Press and hold the **encoder knob** for 1 second to exit.
6. Run **Service Menu, Save Cfg** to save the change.

### Gating

**Gating** minimizes or eliminates background noise problems by shutting off an audio source when the sound level drops below a certain threshold.

To **set up gating**, do the following:

1. Select **Gating**, and then tap the **encoder knob**.  
*Microphone displays. Turn the encoder knob to display other options for filtering: Microphone, Matrix, Aux 1.*
2. Once you have chosen the source to gate, tap the **encoder knob**.  
*Gating displays to indicate no filtering is selected.*
3. Tap the **encoder knob**.  
*→Gating displays. The arrow indicates gating is now selected.*
4. Press and hold the **encoder knob** for 1 second to exit.
5. Run **Service Menu, Save Cfg** to save the change.

### ***Metering***

**Metering** lets you use the Vol. display as an LED bar graph meter to monitor an audio signal for about 1 minute.

To **set up metering**, do the following:

1. Select **Metering**, and then tap the **encoder knob**.  
*Microphone displays. Turn the encoder knob to display other options for metering: Microphone, Matrix, Aux 1.*
2. Once you have chosen the source to meter, tap the **encoder knob**.  
*Meter: Mic displays to indicate no filtering is selected. Turn the encoder knob to display other options:  
Meter: Mic  
Meter: Mtx  
Meter: Aux1*
3. Tap the **encoder knob**.  
*The Vol bar graph is now monitoring the selected audio source.*
4. Press and hold the **encoder knob** for 1 second to exit metering or allow the metering function to time-out after approximately 1 minute.
5. Run **Service Menu, Save Cfg** to save the change.

### ***Mixing***

**Mixing** lets you route selected audio signals to the intercom system, to the speaker, or to the left headphone when using the headset. By default, the microphone signal is routed to the matrix, and the matrix signal is routed to the speaker and the left headphone.

To **set up mixing**, do the following:

1. Select **Mixing**, and then tap the *encoder knob*.  
*Aux In displays.*
2. Tap the **encoder knob** again.  
*To Matrix displays. Turn the encoder knob to display other options for mixing: To Speaker.*
3. Tap the **encoder** to select if the audio should be activated to the destination.  
*An arrow appears to indicate if Aux In audio is being fed to the destination.*
4. Press and hold the **encoder knob** for 1 second to exit the mixing selections.
5. Run **Service Menu, Save Cfg** to save the change.

### **Service Menu, Handset**

The **Handset** gives the user the ability to configure the operation of the handset, if present.

To **configure the handset**, do the following:

1. Select **Handset Sel**, and then tap the **encoder knob**.  
*→ mode displays. Turn the encoder knob to toggle between mode and speaker mute.*

**NOTE:** If there is not a handset present, None must be selected.

2. To change the selection in the mode submenu, turn the **encoder knob** clockwise.  
*The options are: None, Manual, Manual PTT, Auto, Auto PTT.  
For speaker mute, the options are: Normal and No Mute.*
3. Tap the **encoder knob**.  
*An arrow appears to indicate this item is selected.*
4. Press and hold the **encoder knob** for 1 second to exit.
5. Run **Service Menu, Save Cfg** to store the new setting.

## Service Menu, LCP-16

By default, each **LCP-16** you connect to the KP 812 keypanel takes control of level adjustments for the first available group of 16 physical keys it finds. The LCP-16 adjusts keys 1-16, which corresponds to the bottom row of keys on the KP 812 keypanel; the second LCP-16 adjusts keys 17-32, and so forth.

If you do not want to use an LCP-16 with certain keys, you must program the KP 812 keypanel to skip those keys. For example, you may not want to use the LCP-16 with the KP 812 keypanel, but do want to use it with an EKP-KP-816.

To **turn off LCP usage for keys 1-16**, do the following:

1. Select **LCP-16**, and then tap the **encoder knob**.  
*1-16: Yes displays. This indicates the first connected LCP-16 attach to keys 1-16. If you select this option, skip to step 3.*
2. Turn the **encoder knob** to see other options.  
*1-16: Skip displays. This indicates the first connected LCP-16 skips keys 1-16 and attaches to the next available row of keys.*
3. Tap the **encoder knob**.  
*17-32: Yes displays.*
4. Turn the **encoder knob** to see other options.  
*17-32: Skip displays. This indicates the first connected LCP-16 skips keys 17-32 and attaches to the next available row of keys.*
5. Press and hold the **encoder knob** for 1 second to exit.
6. Run **Service Menu, Save Cfg** to store the new LCP-16 settings.

## Service Menu, Local GPIO

The **Local GPIO** is used to assign the GP inputs and outputs. Inputs can be assigned to activate intercom keys (including group master keys and a solo key). Outputs can be activated by intercom keys.

### *Assigning an Input to Activate a Key*

To **assign an input to activate a key**, do the following:

1. Select **Local GPIO**, and then tap the **encoder knob**.  
*Input displays.*
2. Tap the **encoder knob**.  
*GPI Inp #1 displays. Turn the encoder knob to select a different GP Input.*
3. Tap the **encoder knob** to select a GP Input.
4. Turn the **encoder knob** to display Talk Key.
5. Tap the **encoder knob**.  
*Tap Key displays.*
6. Tap the **keypanel key** you want to assign.  
*This is the key activated when the GP Input activates.*
7. Press and hold the **encoder knob** for 1 second to exit, or tap the encoder knob twice to back up and make more assignments.
8. Run **Service Menu, Save Cfg** to store local GPIO settings.

### *Assigning an Input to Activate a Key Group*

To **assign an input to activate a key group**, do the following:

1. Select **Local GPIO**, and then tap the **encoder knob**.  
*Input displays.*
2. Tap the **encoder knob**.  
*GPI Inp #1 displays. Turn the encoder knob to select a different GP Input.*
3. Tap the **encoder knob** to select a GP Input.
4. Turn the **encoder knob** to select Group.
5. Tap the **encoder knob**.  
*By default, Group 1 displays. Turn the encoder knob to select a different group.*
6. Tap the **intercom key** you want to assign.  
*This is the key activated when the GPI Input activates.*
7. Press and hold the **encoder knob** for 1 second to exit, or tap the encoder knob twice to backup and make more assignments.
8. Run **Service Menu, Save Cfg** to store local GPIO settings.

### *Removing an Input Assignment*

To **remove an input assignment**, do the following:

1. Select **GPIO**, and then tap the **encoder knob**.
2. Turn the **encoder knob** to scroll to Input.
3. Tap the **encoder knob** to select Input.
4. Turn the **encoder knob** to display the GP Input you want to remove.
5. Tap the **encoder knob** to select the GP Input.
6. Turn the **encoder knob** until Not Asgnd appears.
7. Tap the **encoder knob** to select Not Asgnd.  
*→Not Asgnd displays. The arrow indicates Not Assigned is the new selection.*
8. Press and hold the **encoder knob** for 1 second to exit.
9. Run **Service Menu, Save Cfg** to store local GPIO settings.

### *Adding or Removing a GP Output Key Assignment*

To **add or remove a GP Output key assignment**, do the following:

1. Select **Local GPIO**, and then tap the **encoder knob**.  
*Input displays.*
2. Turn the **encoder knob** until Output appears.
3. Tap the **encoder knob** to select Output.  
*GPI Out #1 displays. Turn the encoder knob to display a different GP Output.*
4. Tap the **encoder knob** to select a GP Output.  
*Tap Key displays.*

**NOTE:** If there is a key currently assigned to activate the selected GP Output, both LEDs for the key turn red. If there is no assignment, no LEDs are lit red.

5. Tap an **keypanel key or user assignable key** to add or remove the GP Output assignment.
6. Press and hold the **encoder knob** for 1 second to exit or tap the encoder knob twice to back up and make more assignments.
7. Run **Service Menu, Save Cfg** to store local GPIO settings.

## Service Menu, Matrix Out

The **Matrix Out** allows the user to select between Normal or Hot Mic. In the Normal (default) setting, audio from the Mic goes out to the matrix when the talk key is latched. In the Hot Mic setting, audio from the Mic goes out to the Matrix without regard to the key's state.

To **set up matrix out**, do the following:

1. Turn the **encoder knob** until Matrix Out displays.
2. Tap the **encoder knob**.  
*Normal displays.*
3. Turn the **encoder knob** to display either *Normal* or *Hot Mic*.
4. Tap the **encoder** to select either of the options.
5. Press and hold the **encoder knob** for 1 second to exit.
6. Run **Service Menu, Save Cfg** to store Matrix Out settings.

## Service Menu, Mic Select

The **Mic Select** item allows the user to select between the Panel Mic or External Mic Input. In the Panel Mic (default) setting, audio from the Panel Mic is used. In the Hdst Only setting, audio from the Headset Mic is used. This is used to force the use of the headset microphone even when the keypanel's speaker is being used.

To **set up mic select**, do the following:

1. Turn the **encoder knob** until Mic Select displays.
2. Tap the **encoder knob**.  
*Normal displays.*
3. Turn the **encoder knob** to display either Normal or Extern.
4. Tap the **encoder knob** to select the option.
5. Press and hold the **encoder knob** for 1 second to exit.
6. Run **Service Menu, Save Cfg** to store Mic Select settings.

## Service Menu, Min Volume

The **Min Volume** allows the user to set the minimum volume for both the keypanel speaker and the headset speaker(s). This is the minimum volume level available on the volume control located on the front of the KP 812.

To **adjust the min volume**, do the following:

1. Turn the **encoder knob** until Min Volume displays, and then tap the encoder.
2. Turn the **encoder knob** to increase or decrease the minimum volume level.  
*The range is -1dB to -60dB or full Mute.*
3. Tap the **encoder knob** to select the volume level.
4. Press and hold the **encoder knob** for 1 second to exit.
5. Run **Service Menu, Save Cfg** to store the Min Volume settings.

## Service Menu, Speaker

The **Speaker** menu item allows the user to select the volume level for either the keypanel speaker and the headset speaker(s). The default level is -30dB and the range goes from 0 to -60dB.

To **adjust the speaker**, do the following:

1. Turn the **encoder knob** until Speaker displays, and then tap the encoder knob.
2. Turn the **encoder knob** to select either Headset or Speaker, and then tap the encoder knob.
3. Turn the **encoder** to increase or decrease the minimum volume level.  
*The range is 0 to -60dB or full Mute.*
4. Tap the **encoder knob** to select the volume level.
5. Press and hold the **encoder knob** for 1 second to exit.
6. Run **Service Menu, Save Cfg** to store Speaker settings.

## Service Menu, Mod Assign

**NOTE:** Normally, this is a service adjustment required only when replacing a key and display module. It may also be required if for some reason the key assignments, as displayed in AZedit, appear to be in the wrong position on the keypanel or expansion panel.

The KP 812 keypanel and EKP 612/EKP 412 use Module ID numbers (Mod ID Numbers) to define the address of each key and display module see Figure 5 on page 55.

- > Turn the **encoder knob** to display Mod Assign.  
*All modules go into Select Module ID. To exit this procedure without making changes, tap the encoder once.*

All the alphanumeric displays appear as shown in Figure 5 on page 55. Assign the Mod IDs as shown. Repeat the procedure for each module.

**NOTE:** You do not need to run Service Menu, Save Cfg after changing mod assignments.

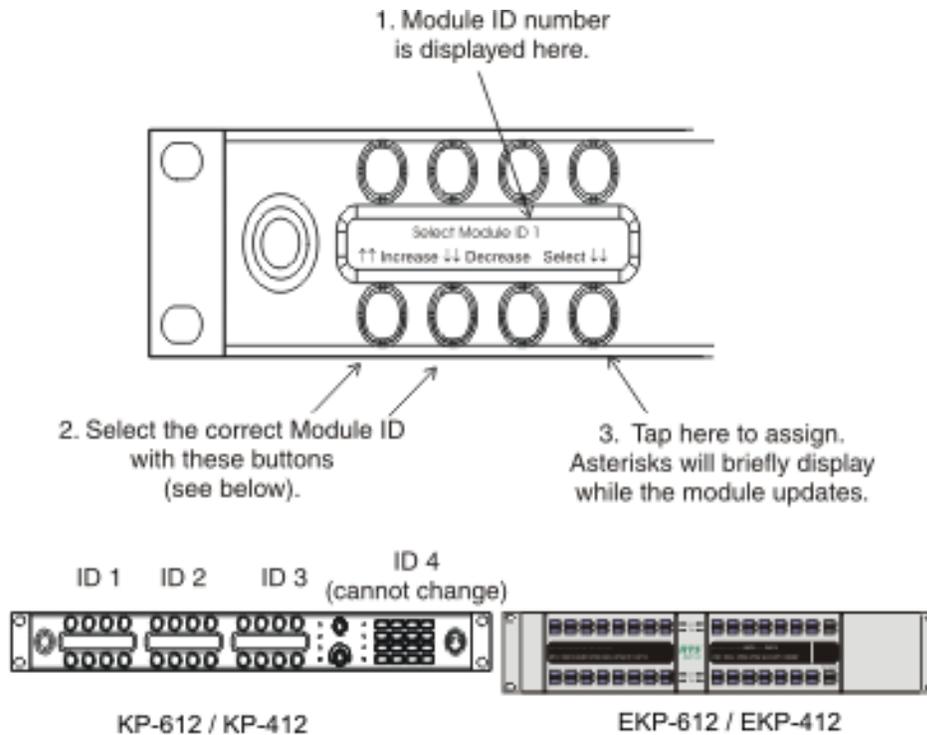


FIGURE 5. Module Assignment Example

### Service Menu, Output Level

The **Output Level** allows the adjustment of the nominal audio output level to the matrix from 0 dBu to +8dBu.

To **adjust the output level**, do the following:

1. Turn the **encoder knob** until Outp Level displays.
2. Tap the **encoder knob**.  
*0 dBu displays.*
3. Turn the **encoder knob** clockwise to increase the output level or turn the encoder knob counter-clockwise to decrease the output level.
4. Tap the **encoder knob** to select the output level.
5. Press and hold the **encoder knob** for 1 second to exit.
6. Run **Service Menu, Save Cfg** to store the Output Level settings.

## Service Menu, Preamp Out

The **Preamp Out** menu item allows the user to choose how audio is routed to the Preamp Out connector. When Switched is chosen, keypanel audio is routed to the Preamp Out connected when a talk key is latched. When Hot Mic is chosen, audio is always available at the Preamp Out connector. When Disable is chosen, keypanel audio is isolated from the USM connector.

**NOTE:** The default setting is 0 dBu

To **adjust the preamp out**, do the following:

1. Turn the **encoder knob** until Preamp Out displays.
2. Tap the **encoder knob** to select Preamp Out.  
→ *Switch displays.*
3. Turn the **encoder knob** to toggle between Switched, Hot Mic, Inverted, and Disabled.
4. Tap the **encoder knob** to select the Preamp Out option.
5. Press and hold the **encoder knob** for 1 second to exit.
6. Run **Service Menu, Save Cfg** to store the USM settings.

## Service Menu, Reset Cfg

The **Reset Cfg** is used to restore all custom settings to the defaults and erases all stored autodial numbers.

## Service Menu, Save Cfg

The **Save Cfg** is used to save custom settings you have made in the Key Option or Service menus. After customizing settings, run Save Cfg to store your custom settings in non-volatile memory. This assures protection of your settings when the keypanel is powered down.

To **erase all custom settings**, do the following:

1. Run Service Menu
2. Reset Cfg

## Service Menu, Sidetone

Currently not available; planned for future firmware release.

## Service Menu, Test Panel

The **Test Panel** is used to check the operation of all keys and displays.

All alphanumeric displays show a % symbol. Pressing down on any key causes OK to display. This verifies operation of the key. Tapping up or down on the Headset Vol Sel. key causes the display to cycle through the available selections.

Tapping either the listen or talk button, or the Call Waiting button causes the corresponding red LED to light. This verifies the latching operation and each red LED is OK.

Holding any button causes the corresponding green LED to light. This verifies operation of the green LEDs.

## Service Menu, Tone Gen

The **Tone Gen** is used to turn the internal tone generator on or off. You can use the tone generator to check the audio path from the keypanel to the matrix and back.

**NOTE:** The microphone is muted when the tone generator is active.

## Service Menu, Tally Duration

The **Tally Duration** is used to set the amount of time the incoming call indicator flashes. You can set the tally to 5, 10 or 15 seconds.

To **adjust the tally duration**, do the following:

1. Turn the **encoder knob** until the Tally Duration displays.
2. Tap the **encoder knob** to select.
3. Turn the **encoder knob** to toggle between 5 sec, 10 sec, and 15 sec.
4. Tap the **encoder knob** to select the Tally Duration.
5. Press and hold the **encoder knob** for 1 second to exit.
6. Run **Service Menu, Save Cfg** to store the Tally Duration settings.

**NOTE:** If DIP Switch four (4) is closed the tally lasts for as long as the caller's talk key is closed.

---

## Special Functions

### Quick Assign

This **Quick Assign** menu function allows the user to assign key assignments to any key on the keypad. This is only used for top level assignments.

To **assign key assignments**, do the following:

1. Tap the **encoder knob** once to access the Quick Assign menu.
2. Turn the **encoder** to select between Assign and Clear Assign.  
*When Assign is selected, the key assign list becomes available.*
3. Turn the **encoder knob** to scroll through the different assignments.
4. Once you have made your selection, tap the **encoder knob** once.  
*Tap Key appears.*
5. Tap the **talk button** of the key you want to assign.

**NOTE:** When a Quick Assign list and the FUNC key are tapped, the next Quick Assign list is displayed.

### User Assignable Key

The **User Assignable** key is used to assign lower level menu items frequently used to operate a single key on the keypad.

To **assign a single key**, do the following:

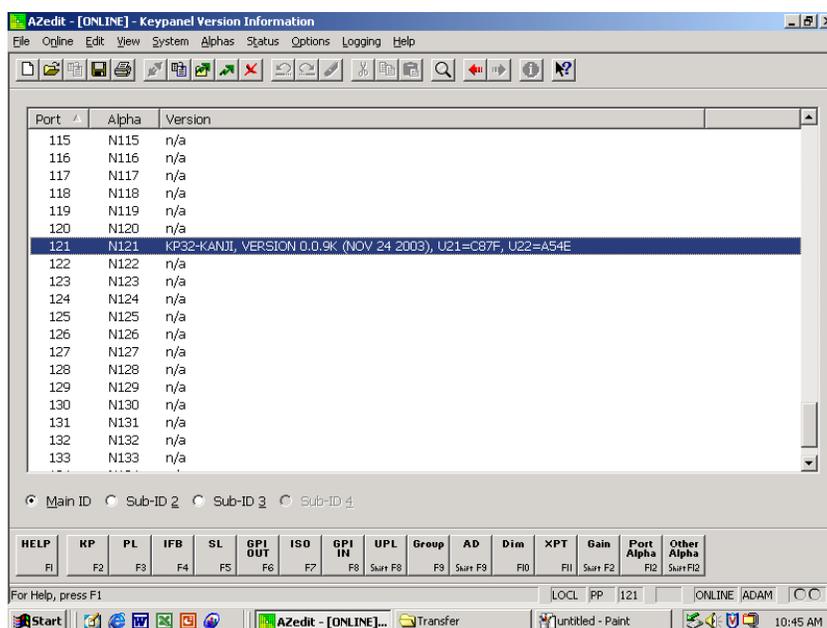
1. Turn the **encoder knob** to scroll to a menu item you wish to assign to the key.  
*The assignment should appear in the Call Waiting Window.*
2. Press and hold the **user assignable key** until the LED behind the key turns a constant green for two (2) seconds.  
*This verifies the assignments have been made.*



# KP 812 Keypanel Firmware Download

## Download Keypanel Firmware through AZedit

1. Open **AZedit**.
2. From the Status menu, select **Software Versions**, then **Keypanels**.  
*The Keypanel Version Information window appears.*



3. Highlight the **port** of the keypanel to be updated.  
*You may select more than one (1) port at a time by holding the CTRL key down while you select the ports.*
4. Right-click the **highlighted selections** and select **Download Firmware**.  
*The Firmware Download Window appears.*
5. Using the browse feature, browse to the **file** to be downloaded (XXX.hex)

6. Click **Open**.

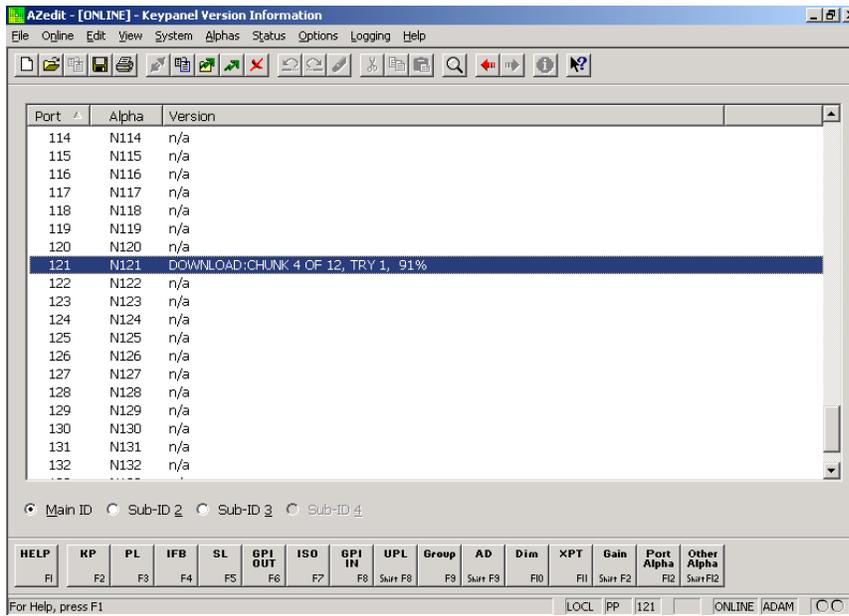
The *Download Device Firmware* window appears.

7. Click **Begin Download**.

The download begins.

8. Click **OK**.

The firmware download to the is complete. This may take a few minutes to occur.

9. Verify the **version upgrade is correct** in the Keypanel Version Information Window.

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## *KP 812 Menu Structure Quick Reference*

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### *Menu Access*

1. On the front panel of the KP 812 keypanel, turn the **encoder knob** to scroll to the menu.
2. Tap the **encoder** to select the menu.
3. Turn the **encoder knob** clockwise to scroll forward, and counter-clockwise to scroll backward through a list of menus.

#### Within a menu:

1. Turn the **encoder knob** clockwise to scroll forward, and counter-clockwise to scroll backward through a list of menus.
2. Tap the **encoder knob** to enter a menu.
3. Tap the **encoder knob** twice to exit a menu or press and hold the encoder knob for 1 second to exit the menu system.

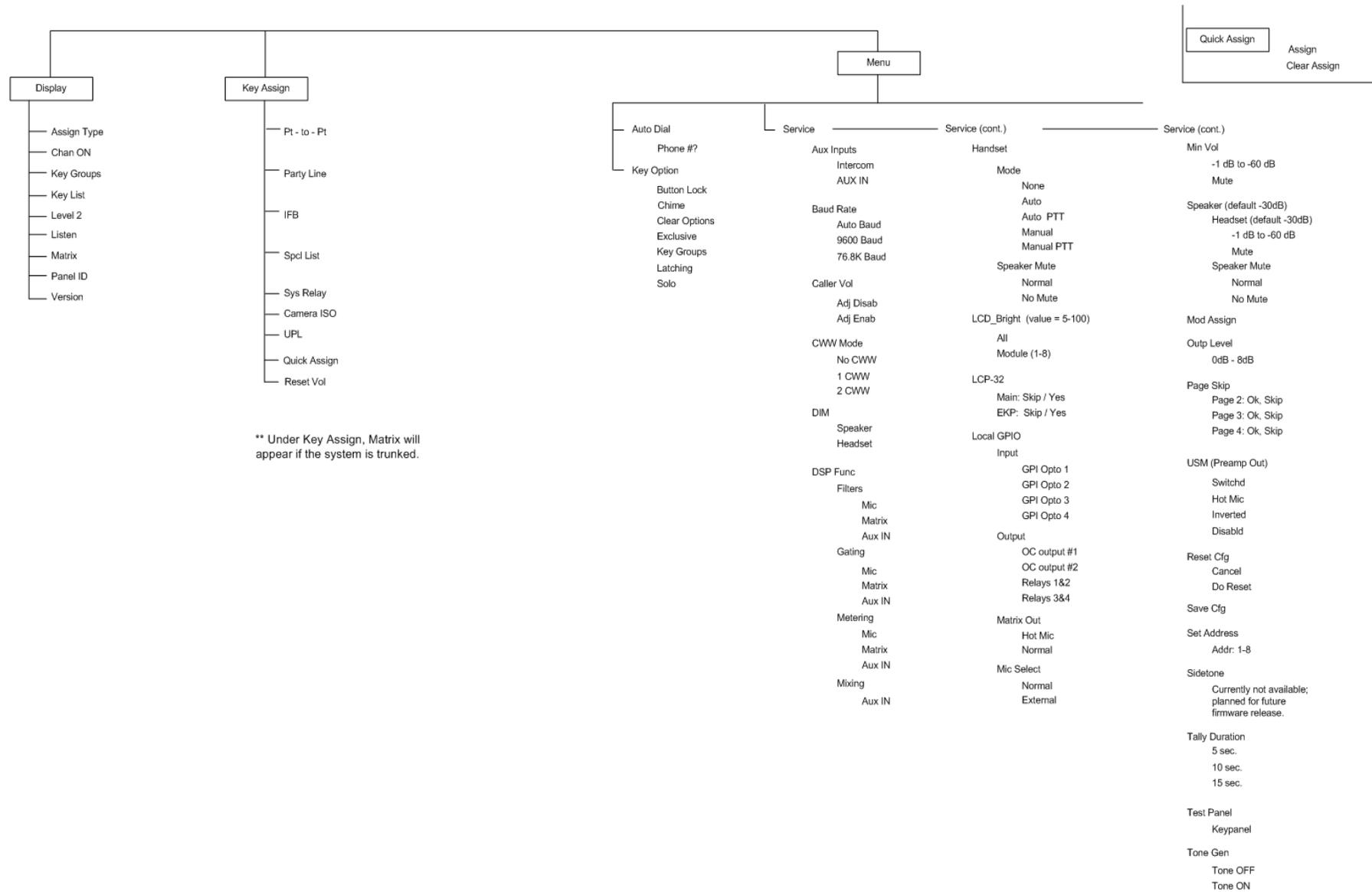


FIGURE 6. Menu List, Exploded

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## A

### **All Call**

For talk key assignment only. Activating an All Call key also activates all talk keys to the left of the All Call key (up to, but not including another All Call key).

### **Alpha**

Alphas are the user-changeable names which identify destinations (intercom ports, party lines, etc.). Change Alpha names by using the Port Alpha button in AZedit. When you assign a destination to a talk key, the alpha name appears in the alphanumeric display for the key (on keypanels so equipped).

### **Auto Follow (AF)**

A key assignment for list keys only. Auto Follow causes a key's listen assignment to always be the same as the talk assigned. Thus, if you change the talk assignment, you do not also have to change the listen assigned. You can manually activate an auto-follow listen key independently of the talk key. If you want auto-activation or deactivation or listen during talk, use one of the other auto key assignments, such as auto-listen, or auto-mute.

### **Auto Functions**

Auto functions are special key assignments that work with other key assignments. For further information, see the glossary description of individual auto functions: auto-follow, auto-listen, auto-reciprocal, auto-mute, auto-table, all-call, DIM.

### **Auto Listen (AL)**

A key assignment for listen keys only. This assignment works like auto-follow, except listen automatically activates during talk. Auto-listen is sometimes a good assignment for use with party lines or other non-keypanel devices that do not have talk-back control of matrix crosspoints.

### **Auto Mute (AM)**

A key assignment for listen keys only. This assignment works like auto-follow, except listen automatically mutes during talk. Auto-mute can help prevent feedback or echo when talking to certain destinations. In some cases, you may find it works better to disable talk latching for this type of key, because if you accidentally leave talk latched on, you can never be able to hear the destination. To disable latching, in the Keypanels|Ports window of AZedit, check the "D" check box for any talk key with auto-mute selected as the listen assignment.

---

### **Auto Reciprocal (AR)**

A key assignment for listen keys only. This assignment forces you to continuously listen to whatever is assigned to the talk key. It is used commonly on keypanels which are not equipped with listen keys, to allow listening to party lines. It is also useful to force listening when it is desirable to have an operator continuously hear a party line or other source.

### **Auto Table (AT)**

A key assignment for listen keys only, when the corresponding talk is assigned to an IFB. Auto Table causes a listen key's assignment to always be the same as the Listen Source for whatever IFB is currently assigned to the talk key. (You define the Listen Source in AZedit during IFB setup.) Auto Table is convenient in a broadcast environment when a director needs 2-way communication with the IFB talent., AND the IFB keys are frequently reassigned during the course of a program to talk to new talent locations. Using AZedit, several IFBs can be set up in advance, and their Listen Sources can also be defined during setup. Then every time an IFB talk key is reassigned on a keypanel, the Listen Source for each new IFB automatically becomes the listen key assignment for the key.

---

## **C**

### **Crosspoint**

The term "Crosspoint", like the term "Matrix", is inherited from intercom systems, such as the RTS CS9500, CS9600, and CS9700 use a switching matrix to route intercom audio. In those systems, the crosspoints are the actual switches that close or open to connect or disconnect talk and listen paths. RTS ADAM, ADAM CS, Zeus, and Cronus Intercom Systems do not actually use crosspoint switches, but use a technique called time division multiplexing (TDM), in which communications are routed as digital packets. However, use of the term crosspoint persists since packet routing basically accomplishes the same thing as conventional crosspoints: namely, connecting distinct talkers and listeners. In this sense, a crosspoint can be thought of simply as a communication link between any two (2) points in the intercom system.

---

## **D**

### **Destination**

A destination is anything a talk key talks to or a listen key listens to. A destination can therefore be any port, party line, IFB, etc.

### **Dim**

Dim occurs in two (2) contexts in RTS Digital Matrix Intercom Systems. First, the Dim Table feature. Dim Tables are used to correct a feedback problem occurring between two (2) keypanels operating in close proximity with keys assigned to talk/listen to a common destination. Dim tables are set up in AZedit. Once a dim table is setup, it can be assigned as a level 2 talk assignment for those keys causing the feedback problem

Second, the adjustable speaker dim available in the KP-32 keypanel. This cause the speaker or headphone volume to diminish by a preset amount whenever a talk key is activated. This can help to prevent occasional feedback between the speaker and microphone, due to volume settings, microphone placement, etc.

---

## G

### **GPIO**

General Purpose Input / Output. (You may also see this referred simply as “GPI”.) GPIO is a means of controlling devices using switch contact closures, DC voltages, or similar methods. For example, you can control a lighting system from keypanel keys, or key a transmitter from a talk key during transmit. Or, simply operate a light or buzzer for cueing. In ADAM, ADAM CS, Zeus, or Cronus Intercom Systems, you can also control intercom events from external switches. For example, you can activate key assignments, close or open crosspoints, activate GPI outputs, etc. In CS9000 Series intercom systems, general purpose control outputs are provided by optional FR9528 Relay Frames (8 relays each). In those systems, a relay may be assigned to an intercom key on a keypanel using the Relay key assignment type. Pressing the intercom button activates the relay. ADAM, ADAM CS, Zeus, and Cronus intercom system all have a dedicated GPIO connector (J27 on Zeus, J903 on ADAM CS, J11 on the XCP-ADAM-MC Master Controller breakout panel and J9 on Cronus). This connector supports eight (8) control inputs and eight (8) control outputs. Additionally, one (1) or more UIO-256 Universal Input/Output frames may be connected to the intercom system. Each UIO-256 provides another 16 control inputs and no control outputs. Control outputs may be assigned to the intercom keys using the Relay key assignment type, and the intercom keys can then control external devices the same as the FR9528. Control inputs can be assigned to activate “virtual” key assignments. A virtual key assignment is a key assignment at an intercom port where there is not actually any keypanel connected. Basically, you use an external switch to act like a talk or listen key. The control inputs and outputs can also be used as conditions for UPL statements in AZedit. Finally, there is a GPIO option available for the KP-12 keypanel, and a connector module option for the KP-32, which includes GPIO. These are referred to as “Local” GPIO, since they are assigned and used locally at the keypanel. Each local GPIO includes four (4) control inputs and four (4) control outputs.

---

## I

### **IFB**

Interrupt Foldback is a special type of communication in which a listener at a particular intercom output port normally hears an audio program source connected to a particular intercom port. A keypanel operator can activate a key to interrupt the audio program source and then talk to the listener. Normal operation resumes when the keypanel operator releases the key. IFB is typically used to cue on-air talent. For example, the news anchor during a news broadcast typically listens to the broadcast audio mix in an earset (except the news anchor’s own voice audio is removed from the mix). A director at a keypanel can interrupt the broadcast audio to the new’s anchors earset and provide new information to the news anchor. IFB could also be used with a PA (public address) system normally broadcasts background music. The background music can be interrupted while someone is talking over the PA. IFBs are set up by defining the IFB inputs and outputs, using the intercom system configuration software (AZedit). The intercom output port is called the IFB output and the program input port is called the IFB input. IFBs can also be given names which are meaningful to keypanel operators. Once an IFB has been set up and named, it can be assigned to any keypanel key (provided the IFB assignment has not been restricted or disabled in the intercom system configuration software).

### **ISO (Camera ISO)**

ISO is a means for a keypanel operator to isolate a particular intercom port for private communication. While the intercom port is isolated, it can only hear audio from the keypanel operator. ISO is frequently used in television broadcasting to temporarily isolate a member of a camera party line. The isolated camera operator can then receive directions without interference from other audio traffic on the party line. ISOs are setup using the intercom system configuration software (AZedit). Each ISO can also be given a name which is meaningful to keypanel operators. Once an ISO has been set up and names, it can be assigned to any keypanel key (provided the ISO assignment has not been restricted or disabled in the intercom system configuration software.).

---

## M

### Matrix

“Matrix” is a term inherited from earlier point-to-point intercom systems, where all point-to-point communication was accomplished by closing specific switches in a switching matrix. Examples include RTS CS9500, CS9600, and CS9700 Intercom Systems. In many instances, “Matrix” is used interchangeably with “Intercom Systems”. RTS ADAM, ADAM CS, Zeus, and Cronus intercom systems, on the other hand, do not use a switching matrix, but use a method called Time Division Multiplexing (TDM), in which communications are routed as digital packets. However, use of the term “matrix” persists, since packet routing basically accomplishes the same thing as a conventional switching matrix: namely, connecting distinct talkers and listeners.

---

## P

### Party Line (PL)

A party line, also called a conference line, is a group of intercom ports which can always talk and/or listen to each other. Party lines have default names, PL01, PL02, etc. These names can be changed to more meaningful names using the Alphas button in AZedit. Members are assigned to a party line using Party Line setup in AZedit. Once a party line has been set up, it can also be assigned to a keypanel key either from the configuration software or at a programmable keypanel. This allows the keypanel operator to talk and/or listen to the party line without being a member.

**IMPORTANT:** Do not confuse special lists and party lines. A special list is used when a keypanel operator needs to occasionally talk or listen to a group of intercom ports otherwise unrelated. A party line is typically used when several users of non-keypanel devices (such as beltpacks or camera intercoms) are engaged in a specific common activity and they need to talk and/or listen to each other all the time. Keypanels are almost never members of party lines (although they can be). However, a keypanel key can be assigned to occasionally talk or listen to a party line, if desired. Remember, party lines are primarily set up for party line members, with occasional access by keypanel operators. While special lists are set up exclusively for keypanel operators to talk or listen to several unrelated intercom ports.

---

## Port

The ports are the individual channels that devices are connected to. Devices include: 2-way communication devices, such as, keypanels, belt packs, etc.; audio sources, such as broadcast feeds or background music; miscellaneous audio output devices, such as powered loudspeakers, PA systems, etc. The audio signal from any input port can be routed to any output port. For example, during keypanel setup, you assign keypanel keys so keypanel operators can talk and listen to other intercom ports. Communication of this type is called point-to-point communication. You can also route signals between intercom ports without keypanels. One way to do this is to force crosspoints in the Crosspoint Status window of AZedit. Another way to do this is with GP Inputs. Intercom ports have identification numbers 001, 002, etc. These numbers cannot be changed. Each intercom port also has a default name, called an “alpha”. The default alpha names are N001, N002, etc. These default alpha names may be changed to names more meaningful to keypanel operators. Use the Alphas setup windows in AZedit.

For data routing purposes, port numbers are arranged in groups of eight (8) sequential intercom ports. In an ADAM or ADAM CS Intercom System, each audio I/O card comprises one (1) data group. In a Zeus Intercom System, each group of eight (8) port connectors comprises a data group. Within each data group, each keypanel is uniquely identified by its address setting. Whenever you display the Panel ID, the intercom system determines which data group the keypanel is connected to, and also the address setting. It then reports the calculated address. For example, suppose a keypanel is connected to data group 3 and the keypanel address is set to 5. Since each data group consists of eight (8) sequential intercom ports, the calculated port number for this keypanel is  $(2 \times 8) + 5$ , or 21. This is the total of all intercom port numbers on the first two (2) data groups, plus the offset of five (5) ports into the third data group.

RTS keypanels are calibrated to send and receive audio at the standard operating levels of the intercom system. No audio gain adjustment is normally required when connecting these. However, many other types of devices may not operate at the standard intercom system levels. To assure signal level compatibility between the various types of audio devices connected to the intercom system, there are separate analog input and output gain adjustments for each intercom port when listening to any other specific intercom port. This is called the point-to-point listen gain, or crosspoint gain. For example, a keypanel operator might want to monitor a music source connected at some intercom port, but at a reduced audio level so it does not interfere with normal intercom communications. The crosspoint gain can be reduced for the keypanel port listening to the port where the music source is connected. Analog gain adjustment is only available using AZedit. Crosspoint gains can be adjusted either within AZedit or from a programmable keypanel.

---

## R

### Relay

Relay is used interchangeably with GP Output. The relay feature works with the 16 GP outputs of an optional UIO-256 Universal Input/Output Frame and with the relay outputs of an FR9528 Relay Frame. The relay feature also works with the eight (8) GP outputs of an ADAM, ADAM CS, Zeus, and Cronus intercom system (J27 on a Zeus frame, J903 on an ADAM CS frame, J9 on a Cronus frame, and J11 on the XCP-ADAM-MC Master Controller Breakout Panel). You can assign a keypanel key to control a GP Output from any of these devices, and then use the key and output to control an external device. For example, you could use a keypanel key to control lighting. Or you could assign a relay as a level 2 talk assignment in a stacked talk key arrangement to both send audio and key a device, such as a paging amplifier or a 2-way radio.

---

## S

### Special List

A special list is a means for a keypanel operator to talk and/or listen to several unrelated destinations using a single key. Special lists are useful for group call or zone paging. Special list members are defined in AZedit. Once a special list has been configured, it can be assigned to a keypanel key. A special list is a group of intercom ports a keypanel operator can talk or listen to by activating a single key. Special Lists are typically used for paging, all call, group call, etc. Special lists have default names SL01, SL02, etc. These names can be changed using the Alpha edit window in AZedit. You define the members of the special lists using the Special List setup window. Once a special list has been setup, you typically assign it to a keypanel key, using the Keypanel Setup window. The keypanel operator can then activate the special list key to talk or listen to all members of the special list.

**IMPORTANT:** Do not confuse special lists and party lines. A special list is used when a keypanel operator needs to occasionally talk or listen to a group of intercom ports otherwise unrelated. A party line is typically used when several users of non-keypanel devices (such as beltpacks or camera intercoms) are engaged in a specific common activity and they need to talk and/or listen to each other all the time. Keypanels are almost never members of party lines (although they can be). However, a keypanel key can be assigned to occasionally talk or listen to a party line, if desired. Remember, party lines are primarily set up for party line members, with occasional access by keypanel operators. While special lists are set up exclusively for keypanel operators to talk or listen to several unrelated intercom ports.

### Stacked Key

See Talk Level 1 and Talk Level 2 descriptions.

---

## T

### Talk Level 1

Talk Level 1 is the normal talk key assignment. This is the assignment normally displayed in the alphanumeric display (on keypanels so equipped). You may add a talk level 2 assignment to activate a second device along with talk level 2.

### Talk Level 2

Talk Level 2 is used with stacked talk keys. A stacked talk key activates two (2) types of communication at once. For example, a stacked talk key could simultaneously activate audio output to a transmitter using a relay. The audio output is called the level 1 assignment and the relay is called the level 2 assignment.

### Trunking

Trunking is a method of interconnecting two (2) or more independent intercom systems. The connection is accomplished by reserving one (1) or more audio ports in each of the intercom systems for use as audio links between the systems. A special device, called a Trunk Master is required to control access and usage for the trunked intercom ports. A configuration utility, called TrunkEdit, is used to set up the Trunk Master.

# RVON-1

---

## *General Description of the RVON-1 Voice Over Network Card*

Installed directly into KP-32 or KP 812 keypanels, the RVON-1 provides VoIP (Voice over Internet Protocol) communications, for the RTS ADAM Intercom family. In general, VoIP means sending voice information in digital form using discrete packets rather than the traditional hardwire connection. The RVON-1 delivers an integrated solution for connecting keypanels to the Intercom matrix over standard IP networks.

The RVON-1 is compatible with any RTS Matrix Intercom System equipped with a suitable RVON interface. In conjunction with any new or existing KP-32 or KP 812 keypanel, the RVON-1 brings a new level of enterprise-wide and remote access functionality to your RTS Matrix Intercom.

The RVON-1 card is configurable through the keypanel service menu and Telex's AZedit configuration software. It is also fully compatible with internationally recognized standards and supports the following protocols: G.711, G.729 A, and G.723 (2 bit rates).

The RVON-1 reaffirms RTS' history of providing support for the latest technology in a fully supported backward compatible manner to all its RTS products.

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## *Features*

Installation	The RVON-1 provides a single RJ-45 Ethernet connection for use with a 10 BASE-T or 100 BASE-TX network.
1 Channel of Audio IN and OUT	The RVON-1 card supports one (1) channel IN and OUT and has configurable network and bandwidth parameters tailored to individual network functions.
Ethernet Compatible	The RVON-1 card uses standard Ethernet protocols and is compatible with 10 BASE-T and 100 BASE-TX Ethernet compliant devices and networks.
AZedit Configurations	Users have the ability to adjust the audio parameters of the RVON-1 channel to optimize the available bandwidth.
Swappable Between Ethernet and AIO Connection	When connected to an Ethernet LAN, audio comes from the RVON-1 card; and, when an Ethernet link is not present, the audio comes from the AIO connection. Note, the user does not need to remove the RVON-1 card to switch to AIO mode.

## Specifications

### DIGITAL

Compression	Audio Bit Rate	Coding Delay	Playout Delay	IP Bandwidth
G.711	64k	125µs	20–60ms	160–224kbps
G.729AB	8k	10ms	20–120ms	32–112kbps
G.723	5.3k/6.3k	30ms	60–120ms	29–45kbps

Data depends on CODEC selection.

**NOTE:** The Playout Delay and Bandwidth depend on the configured amount of audio per packet.

### CONNECTIONS

- RJ-45 Ethernet via backcard
- 14-pin KP Compatible Expansion Connector
  - Pin 1..... 5 Volt Analog
  - Pin 2.....-12 Volt
  - Pin 3.....+12 Volt
  - Pin 4..... 5 Volt Digital
  - Pin 5..... Analog GND
  - Pin 6.....Digital GND
  - Pin 7..... To Matrix Audio L
  - Pin 8..... NC
  - Pin 9.....From Matrix Audio L
  - Pin 10..... RS485L
  - Pin 11..... From Matrix Audio H
  - Pin 12..... NC
  - Pin 13..... To Matrix Audio H
  - Pin 14.....RS485H

Power.....Powered internally from keypanel motherboard

Physical .....2.5”W x 5.75”L (63.5mm x 146.05mm)

## Default Addresses for the RVON Product Line

**TABLE 2.** Default Addresses for the RVON Product Line

Product	Default IP Address	Default Subnet Mask
RVON-I/O	192.168.0.1	255.255.0.0
RVON-8	192.168.0.2	255.255.0.0
RVON-1	192.168.0.3	255.255.0.0
RVON-2	192.168.0.3	255.255.0.0
RVON-C	192.168.0.4	255.255.0.0
RVON-16	192.168.0.5	255.255.0.0
GPIO-16	192.168.0.6	255.255.0.0
MCII-e	192.168.0.7	255.255.0.0
Cronus	192.168.0.8	255.255.0.0
Zeus III	192.168.0.9	255.255.0.0

## Dip Switches

**Switch 1    Reserved**

**Switch 2    Disable Telnet Shell**

Default Setting:    off (Telnet Enabled)

Description:        The Telnet shell allows you to access configuration options through the use of Telnet. When DIP switch 2 is off, you can use Telnet to access configuration options on the RVON-1 card. Turn DIP switch 2 on to disable the Telnet shell.

**Switch 3    Enable Boot Downloader**

Default Setting     off (Boot Downloader Disabled)

Description         The purpose of the boot downloader is to allow you to recover from having your main application image corrupted (either by bad flash programming or by downloading an invalid image). Turn DIP switch 3 on to enable the boot downloader.

**Switch 4    Debug Only!**

Default Setting     off

Description         DIP switch 4 should always be left in the off position. It is reserved for debugging and can have unintended consequences.

## Firmware Compatibility Requirements for the RVON-1 Card

**TABLE 3.** Compatibility Requirements for the RVON-1 card

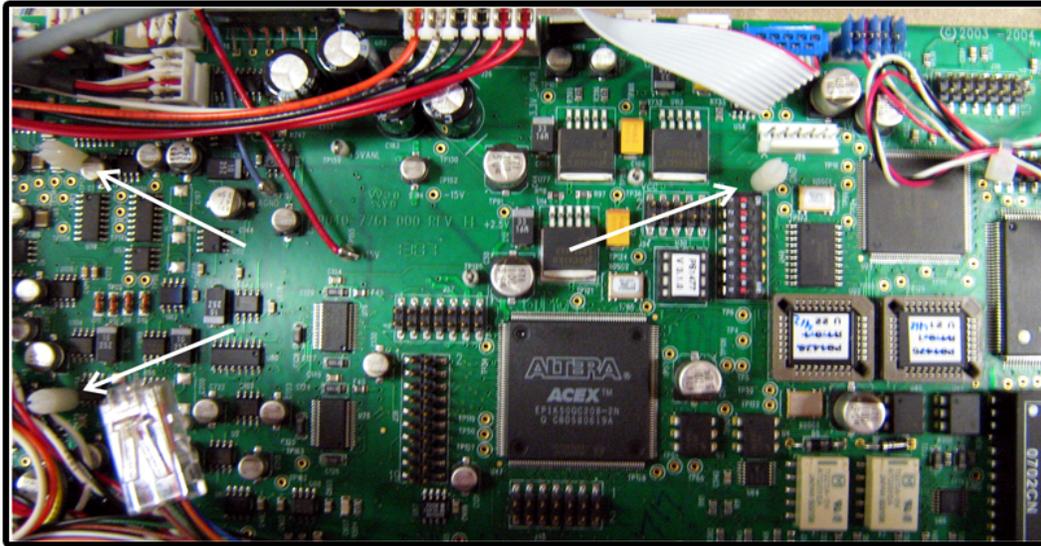
Description	Version
Master Controller	9.19.0 or later
Peripheral Controller	10.10.0 or later
DBX	1.10.1 or later
AZedit	2.06.06 or later
RVON-8	1.1.0 or later
KP-32	2.0.0 or later

## Installation of the RVON-1 Card in a KP 812

To **install the RVON-1 card**, do the following:

1. Remove the **cover** from the KP 812 keypanel.

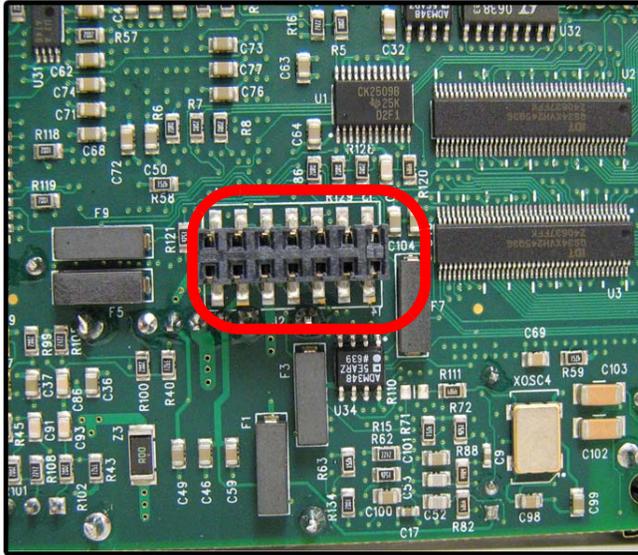
**NOTE:** It is recommended to seat the RVON-1 card on the J2 connector located on the KP 812 motherboard before snapping the RVON-1 board onto the spacers. Be careful to attach J2 to J37 correctly.



**FIGURE 7.** Spacer placement on KP 812 motherboard

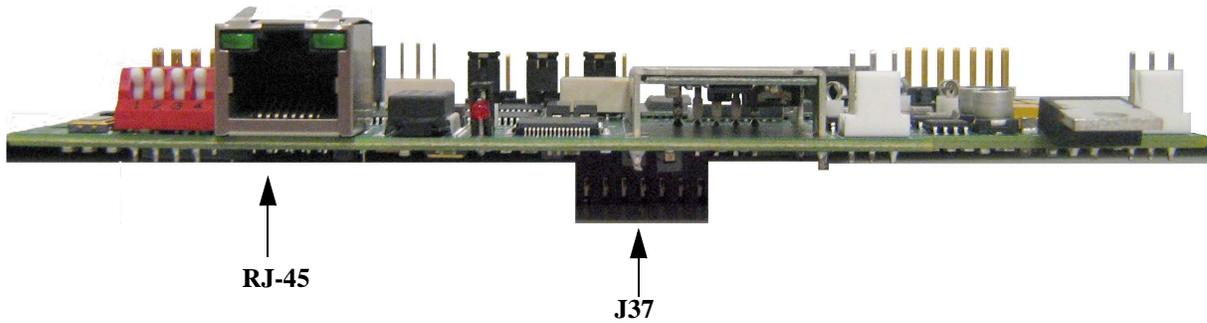
2. Gently secure the **RVON-1 board** in place.

**NOTE:** Be sure the orientation of the board is correct, otherwise undesirable effects may occur. Make sure the RJ-45 connection is positioned so it connects correctly to the RJ-45 connector:



**FIGURE 8.** J2 Connector on the KP 812 Board

In the KP 812, the RVON-1 card connects to the KP 812 by way of the J2 connector on the RVON, attached to J37 on the KP 812 header.



**FIGURE 9.** The J37 connector on the KP 812 board

3. Connect the **RJ-45 extension connector cable** to the RVON-1 board.

***RVON-1 Relay***

When connected to an Ethernet LAN, audio comes from the RVON-1 card; and, when Ethernet is not plugged in, the audio comes from the AIO connection. Note, the user does not need to remove the RVON-1 to switch to AIO mode.

---

**WARNING:** You cannot have both an Ethernet connection and an AIO connection simultaneously. If the Ethernet and AIO are connected simultaneously, no audio communication occurs.

---

---

## *Addresses and the RVON-1*

Because the RVON-1 has an Ethernet interface, it is required to have a MAC (Media Access Control) Address. This is a low level address containing 48 bits. Do not confuse this address with an IP (Internet Protocol) Address. In order to be IP compliant, all cards must have a unique MAC ID when shipped from the manufacturer. Typically, the MAC ID of a piece of hardware, such as the RVON-1 card, has a fixed or static address. Where as the RVON-1 card's IP Address can change over time.

The MAC Address uniquely identifies each node of a network and interfaces directly with the network media. The RVON-1 card has a small 8-pin serial device on the board the processor can read the unique MAC Address from. For more information on MAC IDs, contact technical support.

**NOTE:** Each RVON-1 card needs to be programmed with its own IP Address.

---

## Configure the RVON-1 from the KP 812

### TOP LEVEL MENU, SERVICE, RVON SETUP

#### *Set the IP Address from the Service Level Menu*

The RVON-1 card, when shipped has a default IP Address already configured. This must be changed in order for the RVON-1 card to function properly because the pre-configured IP Address may not work with you network.

To **set the IP Address**, do the following:

1. On the KP 812, scroll to **Menu**.  
*The top level menu appears.*
2. Turning the encoder knob, scroll to **Service**.
3. Tap the **encoder knob** to select Service.  
*The Service menu appears.*
4. Turning the encoder knob, scroll to **RVON Setup**.
5. Tap the **encoder knob** to select RVON Setup.  
*The IP Address menu item appears.*
6. Tap the **encoder knob** to select IP Address.  
*The actual IP Address appears.*
7. Enter the **first number** in the IP Address.  
*This activates the first octet of the IP Address and clears the rest of the IP Address.*
8. Tap the **encoder knob**.  
*This confirms the first octet in the IP Address and moves you to the second octet.*

**NOTE:** Tap the encoder knob to skip over any octet that does not need modifications.

9. Repeat steps **7** and **8** until the entire IP Address is entered.
10. Tap the **encoder knob**.  
*The Netmask menu item appears.*

**NOTE:** Once you have entered the IP Address, you then enter the Netmask. The Netmask is a string of number similar to an IP Address, except it masks or windows out the network part of an IP Address so only the host computer part of the address remains (for example, 255.255.255.0).

11. Tap the **encoder knob** to select Netmask.  
*The actual Netmask appears.*
12. Enter the **first number** in the Netmask.  
*This activates the first octet of the Netmask and clears the rest of the Netmask.*
13. Tap the **encoder knob**.  
*This confirms the first octet in the Netmask and moves you to the second octet.*

**NOTE:** Tap the encoder knob to skip over any octet that does not need modification.

14. Repeat steps **13** and **14** until the entire Netmask is entered.
15. Tap the **encoder knob**.  
*The Gateway IP Address menu item appears.*

**NOTE:** Once you have entered the Netmask, you may need to enter the Gateway IP Address. A **Gateway** is a node (for example, a computer) on a network that serves as an entrance to another network.

16. Tap the **encoder knob** to select Gateway.  
*The actual Gateway IP Address appears.*

17. Enter the **first number** in the Gateway IP Address.  
*This activates the first octet of the Gateway IP Address and clears the rest of the address.*
18. Tap the **encoder knob**.  
*This confirms the first octet in the Gateway IP Address and moves you to the second octet.*

**NOTE:** Press PGM to skip over any octet that does not need modifications.

19. Repeat steps **19** and **20** until the entire Gateway is entered.
20. Tap the **encoder knob**.
21. Press and hold the **encoder knob** to exit the menu.  
*The changes are now enabled.*

**NOTE:** You can still set the IP Address without being connected to an Ethernet LAN. Once you have entered the IP information, you are prompted to perform a **Save Cfg**. The address is saved in the keypanel until the RVON-1 is connected to an Ethernet LAN.

## TOP LEVEL MENU, RVON CONN.

### *Select an RVON Connection from the Top Level Menu*

The **RVON Conn.** menu is a list of connection offers from other intercoms. This menu allows the keypanel to dynamically select an intercom and port to which it connects.

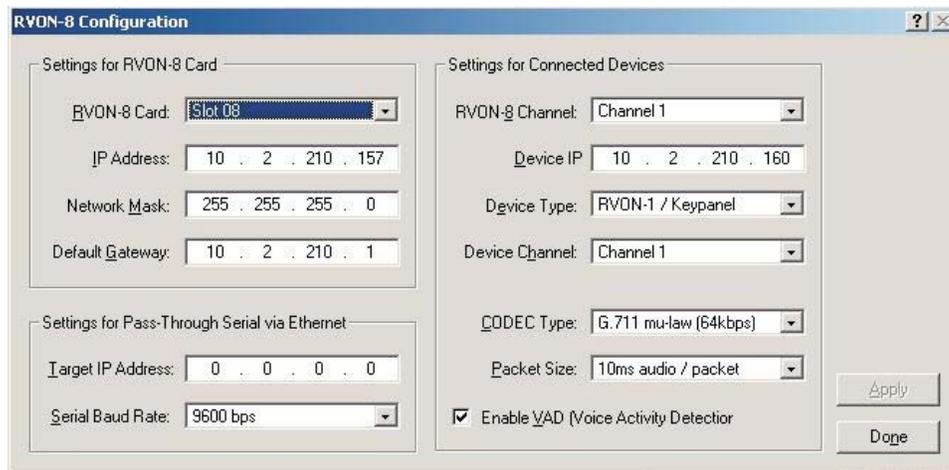
To **select the connection offer**, do the following:

1. Using the encoder knob on the KP-812, scroll to **RVON Conn.**
2. Tap the encoder knob to select **RVON Conn.**  
*The currently selected connection offer appears in the CWW window. If you have not previously selected the connection, none are displayed.*
3. Turn the encoder knob to scroll to the connection offer to which you want to connect.
4. Tap the encoder knob to select the **connection**.  
*The connection offer begins to flash indicating it has been selected.*
5. Press and hold the **encoder knob** to exit the menu.  
*The keypanel is now connect to the select port.*

## Configure the RVON-8 using AZedit to contact the RVON-1

To **configure the RVON-1 card**, do the following in AZedit:

1. From the Status menu, select **I/O Cards**.  
*The I/O Card Status window appears showing the types of installed.*
2. Right click on an **RVON-8 card**, and then select **RVON-8 Configuration**.  
*The RVON-8 Configuration window appears.*



**NOTE:** The RVON-8 you use should be already configured. If it is not configured, refer to your RVON-8 Card User Manual.

**NOTE:** Remember, the RVON-1 has only one (1) channel can be configured.

3. In the RVON-8 Channel drop down list, select the **channel** used to communicate to the RVON-1 card across network.
4. In the Device IP field, enter the **IP Address** for the RVON-1 card.
5. From the Device Type drop down list, select **RVON-1/Keypanel**.
6. From the Device Channel drop down list, select **Channel 1**.  
*There may be two (2) channels listed, but the connection can only be made through channel 1.*
7. From the CODEC Type drop down list, select the **CODEC type**.
8. From the Packet Sized drop down list, select the **size** of each audio packet.

**NOTE:** A CODEC is an algorithm used to compress audio. Codecs dictate the quality of audio you hear and the network bandwidth used. The packet size determines how much audio data is carried across the network in each transmitted packet. The CODEC type and packet size chosen require different amounts of bandwidth from the network. As with the CODEC type, the packet size you choose for the audio transfer affects the audio you hear and the bandwidth you use over the network. The larger the audio packet you choose to use, the lower the bandwidth used. However, the larger packet size can result in a higher delay and longer gaps if the packet is lost. On the other hand, smaller packet sizes result in larger bandwidth use, but lower delays and smaller gaps if the packet is lost. The Intercom System Engineer and the Network Designer may want to work together in choosing the CODEC type and packet size suitable for the size of the network, so degradation of network resources does not occur.

9. Select **Enable VAD (Voice Activation Detection)**, if you want to conserve bandwidth when the audio level is below a given threshold.

**NOTE:** VAD saves network bandwidth by stopping the flow of audio packets when silence is detected. VAD is similar to VOX.

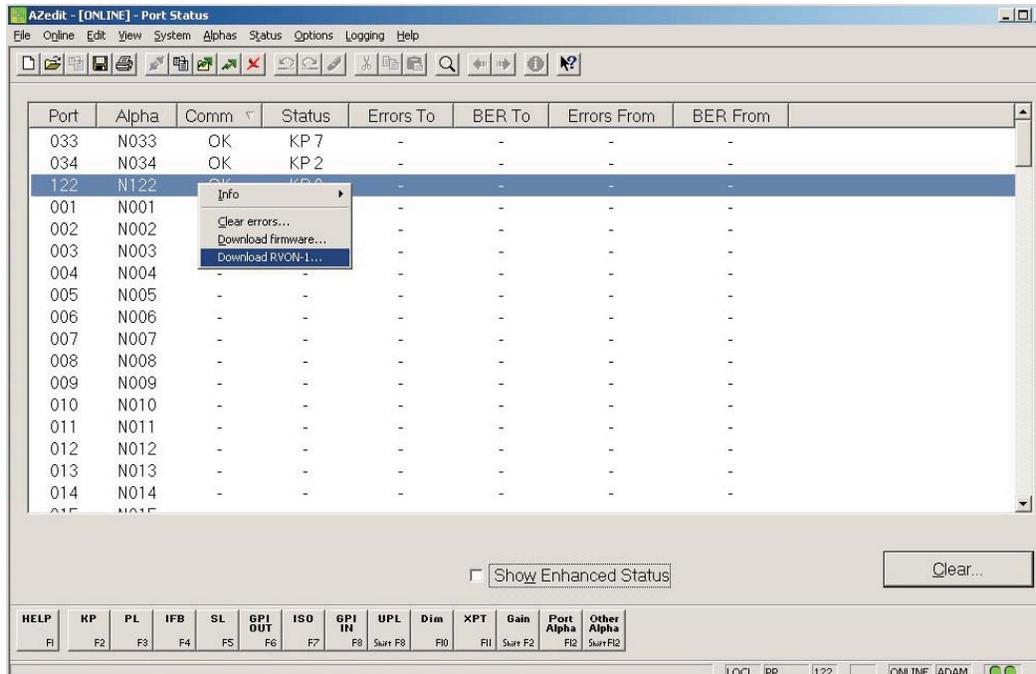
10. Once you are completely finished, click **Apply**.

## Download RVON-1 Firmware Through AZedit

**NOTE:** AZedit sends firmware directly to the RVON-1 card over Ethernet. This is different from other I/O cards (except the RVON-8) that receive the firmware from the Master Controller. For this reason, verify the PC running AZedit is able to contact the RVON-1 card via the network, or is configured with a Gateway IP Address that contacts the RVON card. If it is not, AZedit is not able to find the RVON-8 card. To test the connection, pin the RVON card from a command line. For more information on how to test for a connection, see Appendix A.

To download the **RVON-1 Firmware**, do the following:

1. Open **AZedit**.
2. From the Status menu, select **Software Versions** and then **Keypanel**.  
*The Keypanel Version window appears.*



3. On the Keypanel Version window, select the **Show RVON-1 Versions** check box.
4. Select and right click the **keypanel** which has the RVON-1 installed, and then select **Download RVON-1**.  
*The Download Device Firmware window appears.*
5. Using the Browse feature, browse to the **file to be downloaded**.
6. Click **Open**.  
*The Download Device Firmware window appears.*



7. Click **Begin Download**.  
*The download begins.*



8. Click **OK**.  
*The RVON-1 firmware download is complete. This takes a minute or two to occur.*

---

**WARNING:** Do **NOT** power down the keypanel until you have verified the new version information from AZedit. If the card loses power while reprogramming the onboard flash memory, the card may become unbootable and may need to have its flash chips reprogrammed at the factory.

---

9. Verify the correct version is shown on the Keypanel Version window.

**NOTE:** You can also download the RVON-1 firmware through **Status >Ports**. You are not able to check the version once the download is completed from the Port Status window.

## Basic Network Configuration

This section covers basic network configuration set-up and testing. Also covered are basic concepts and operations, including the difference between LAN and WAN networks and how IP Addressing is used.

In a networked environment, such as a company, typically there are many computers connected together using a **router** or a **switch**. In larger companies, there may be several different routers distributed in buildings and plant locations. A router allows any LAN-side computer to communicate with other computers and devices outside the LAN (local area network). Routers send data packets from one place to another place on a network. routers use network addresses to route packets to the correct destination. For example, in a TCP/IP network, the IP (Internet Protocol) address of the network interface is used to direct router destinations.

Because routers help computers inside the LAN “talk” with computers outside of the LAN, the security of a company’s LAN may be compromised by gaps of open ports in the router. Security measures may have been instituted to compensate for these vulnerabilities. Consult you network administrator to learn about the security measures taken to protect your network. **VPN**, or virtual private network, is one such security measure to protect the intelligence of the LAN. A computer outside the LAN must have an address or key known by the VPN to allow access to the LAN. Many companies use a VPN to connect two different LANs, thus allowing the transfer of data between two (2) networks.

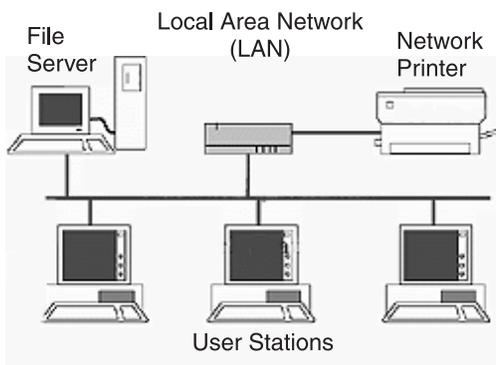
### LAN vs. WAN

#### Local Area Network

Simply put, a **LAN (Local Area Network)** is a computer network that connects a relatively small area (a single building or group of buildings). Most LANs connect workstations and computers to each other. Each computer (also known as a “node”), has its own processing unit and executes its own programs; however, it can also access data and devices anywhere on the LAN. This means many users can access and share the same information and devices. A good example of a LAN device is a network printer. Most companies cannot afford the budgetary or hardware expense of providing printers for each of its users; therefore, one (1) printer (or device) is placed on the LAN where every user can access the same printer.

The LAN uses IP Addresses to route data to different destinations on the network. An IP Address is a 32-bit numeric address consisting of four (4) numbers separated by periods (for example, 1.160.10.240).

**NOTE:** For more information on IP Addresses, see you local network administrator.



**FIGURE 10.** Local Area Network Diagram

**Wide Area Network**

A WAN (Wide Area Network) connects two or more LANs and can span a relatively large geographical area. For example, Telex Headquarters in Burnsville, MN is connected to several branch offices in Nebraska and Arkansas over a WAN. The largest WAN in existence is the Internet.

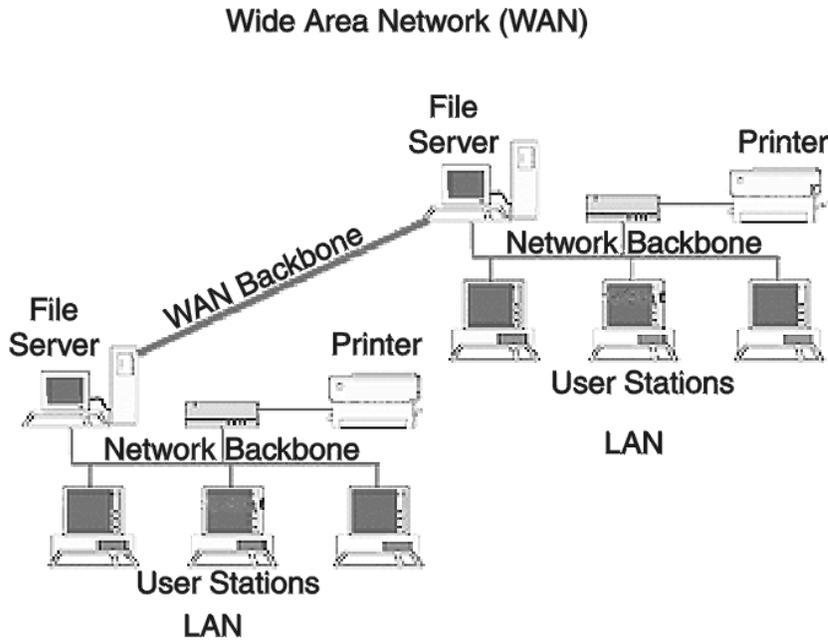


FIGURE 11. Wide Area Network Diagram

**Accessing The Wide Area Network (Wan)**

Figure 11 shows LAN IP Addresses using a common IP Address, 10.2.100.X (192.168.X.X is another common address). Most devices are shipped with these addresses as its default. It is recommended to use these addresses for LANs.

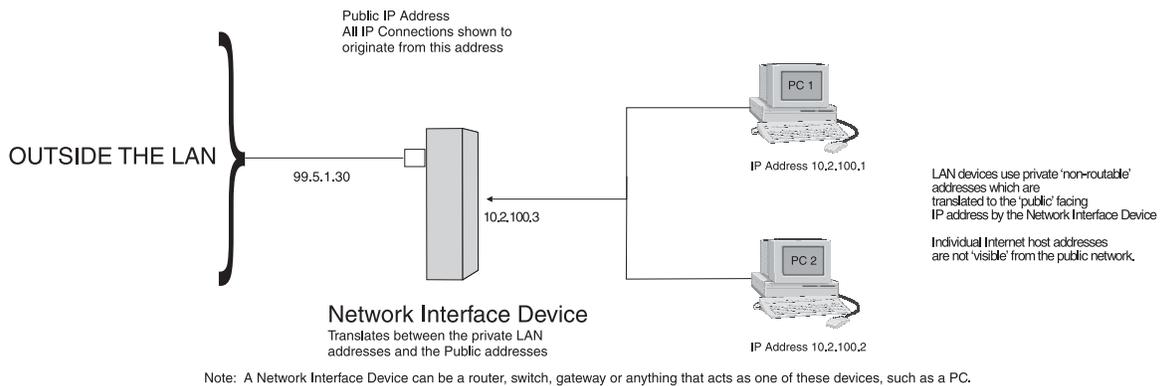


FIGURE 12. Network Address Translation

## Network Address Translation (NAT)

Using the initial IP Address, then converting it to a valid WAN IP Address is how the network address translation works, in theory. Once the IP address is changed, it is up to the network interface device (such as a router, gateway, switch, etc.) to keep track of which computers are talking on which ports. For example, if two (2) local devices (PC1 and PC2 in Figure 3) both wanted to talk via port 1031, then the network interface device would have to change one of the port requests to the next available port, 1032.

### Ports

In general, a network port is an endpoint to a logical connection. The port number identifies what type of port it is. For example, port 80 is used for HTTP traffic. When you type an address into the *address bar* of a web browser, your computer goes to find an IP Address for the URL you are requesting (<http://www.telex.com>). To obtain this address, the computer contacts a DNS server (Domain Name Server). Once the IP Address is found, it tries to connect to the http port of the network device (port 80). See Table 1 for a list of the more well-known port numbers.

Each network device can be set-up to respond or not respond to the various ports. The function of responding or “hosting a service” is called “serving”.

**TABLE 4.** Packet Translation

Packet before Translation				Packet after Translation				
	Source		Destination		Source		Destination	
	IP Address	Port Number	IP Address	Port Number	IP Address	Port Number	IP Address	Port Number
To Internet	10.2.100.2	1031	192.156.136.22	80	99.5.1.30	1031	192.156.136.22	80
From Internet	192.156.136.22	80	99.5.1.30	1031	192.156.136.22	80	10.2.100.2	1031

If a second workstation on the LAN wants to communicate to the same server, and happens to use the same source port number, then the LAN Modem translates the source port number as well as the source IP address. In Table, 2, a second LAN computer wants to access a web page. The NAT device now uses port 1032 for this connection where it used port 1031 in Table 1.

**TABLE 5.** Packet Translation

Packet before Translation				Packet After Translation				
	Source		Destination		Source		Destination	
	IP Address	Port Number	IP Address	Port Number	IP Address	Port Number	IP Address	Port Number
To Internet	10.2.100.1	1031	192.156.136.22	80	99.5.1.30	1032	192.156.136.22	80
From Internet	192.156.136.22	80	99.5.1.30	1032	192.156.136.22	80	10.2.100.1	1031

Amazingly, all the address translation that occurs takes place automatically in order to make web browsing and other functions easier. This is also a way for large web hosting services to speed up the network by having different devices perform different functions.

**TABLE 6.** Well-Known TCP Port Numbers

Port Number	Description	Port Number	Description
1	TCP Port Service Multiplexer (TCPMUX)	118	SQL Services
5	Remote Job Entry (RJE)	119	Newsgroup (NNTP)
7	ECHO	137	NetBIOS Name Service
18	Message Send Protocol (MSP)	139	NetBIOS Datagram Service
20	FTP-Data	143	Interim Mail Access Protocol ()
21	FTP- Control	150	NetBIOS Session Service
23	Telnet	156	SQL Server
25	Simple Mail Transfer Protocol (SMTP)	161	SNMP
29	MSG ICP	179	Border Gateway Protocol (BGP)
37	Time	190	Gateway Access Control Protocol (GACP)
42	Host Name Server (Nameserv)	194	Internet Relay Chat (IRC)
43	Whols	197	Directory Location Services (DLS)
49	Login Host Protocol (Login)	389	Lightweight Directory Access Protocol (LDAP)
53	Domain Name Server (DNS)	396	Novell Netware over IP
69	Trivial File Transfer Protocol (TFTP)	443	HTTPS
70	Gopher Service	444	Simple Network Paging Protocol (SNPP)
79	Finger	445	Microsoft-DS
80	HTTP	458	Apple Quick Time
103	X.400 Standard	546	DHCP Client
108	SNA Gateway Access Server	547	DHCP Server
109	POP2	563	SNEWS
110	POP3	569	MSN
115	Simple File Transfer Protocol	1080	Socks

### IP Addresses

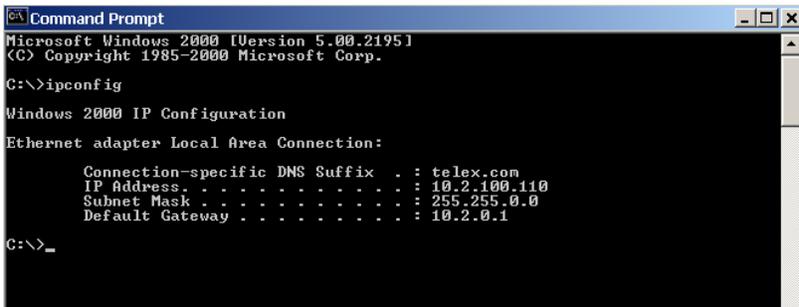
If you do not know your IP Address, you can open a DOS window and bring up the ipconfig command.

To **find your IP Address using ipconfig**, do the following:

1. From the Start Menu, open a **Command Prompt** window.



- At the prompt, type **ipconfig**, then press **Enter**.  
The IP configurations appear for your machine, such as the DNS suffix, IP Address, Subnet Mask, and Default Gateway.



```

Command Prompt
Microsoft Windows 2000 [Version 5.00.2195]
(C) Copyright 1985-2000 Microsoft Corp.

C:\>ipconfig

Windows 2000 IP Configuration

Ethernet adapter Local Area Connection:

    Connection-specific DNS Suffix  . : telex.com
    IP Address . . . . . : 10.2.100.110
    Subnet Mask . . . . . : 255.255.0.0
    Default Gateway . . . . . : 10.2.0.1

C:\>_

```

- At the prompt, type **Exit** to close the window.

**NOTE:** If you want more detailed parameters for your machine, type **ipconfig/All**. This command shows the computers network configuration settings.

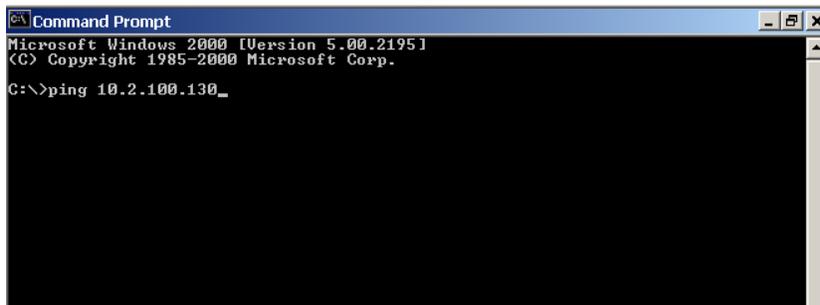
## Ping a Computer

Pinging a computer on the network makes sure it is able to be “seen” and receive messages on the network.

**NOTE:** You can also ping your RVON-8 card to verify it is responding over the network by putting the cards IP Address in place of the computer IP Address.

To **Ping a computer on the network**, do the following:

- From the Start menu, select **Run...**
- At the Run command, type **CMD** to open a **Command Prompt** window.



```

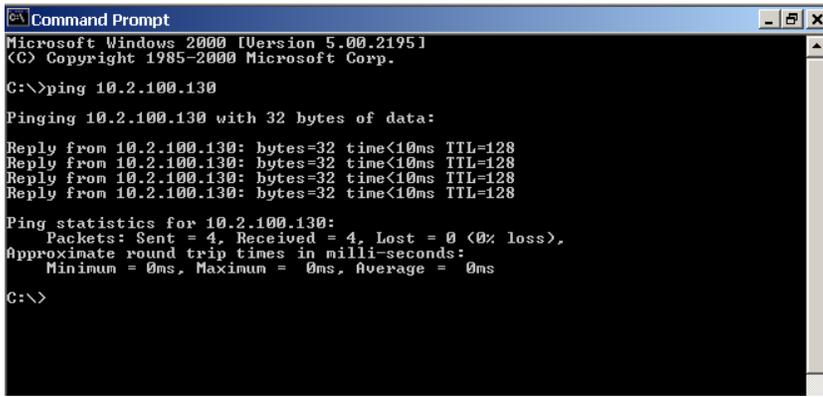
Command Prompt
Microsoft Windows 2000 [Version 5.00.2195]
(C) Copyright 1985-2000 Microsoft Corp.

C:\>ping 10.2.100.130_

```

- At the prompt, type the **IP Address** of the computer you wish to ping (for example, 10.2.100.130).

4. Press **Enter**.



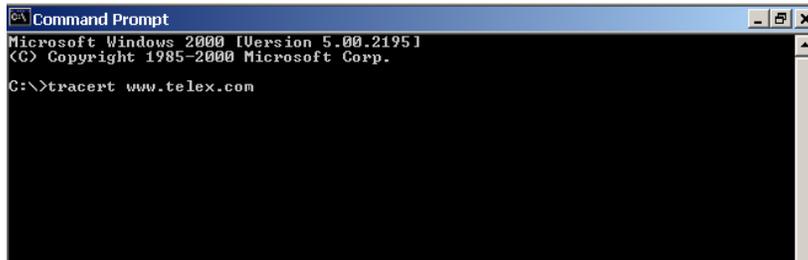
**NOTE:** If the computer you are pinging is not responding to the ping, you receive a time-out message in the command prompt window.

**Possible Pitfall With Routers, Gateways, And Switches**

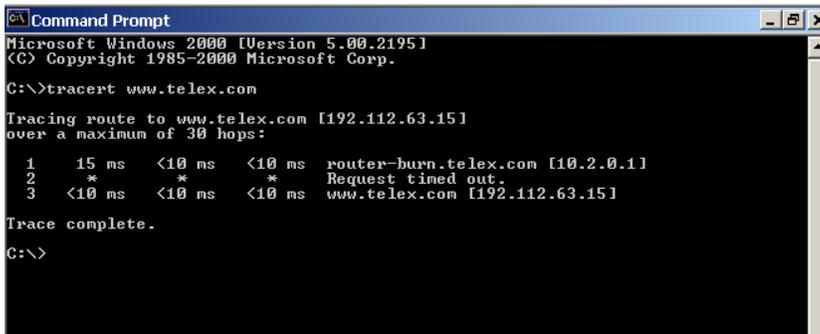
Anytime computers communicate through routers, gateways, and switches, they may be allowed or denied the connection. Network interface devices can be configured to block specific outgoing requests, as well as incoming requests, based on the IP Address and/or port. This is one of the security mechanisms of a router. This also happens when broadcast messages are sent and received.

To view the path an IP Address takes to retrieve information, do the following:

1. From the Start Menu, open a **Command Prompt** window.
2. At the prompt, type **tracert** and type the URL or IP Address you want to trace.



3. Press **Enter**.  
*The details of the tracer route are displayed.*



**NOTE:** You see the message “request timed out” if the IP Address/port IN or OUT is denied to the incoming or outgoing message.

4. When you are finished, type **exit** to close the Command Prompt window.

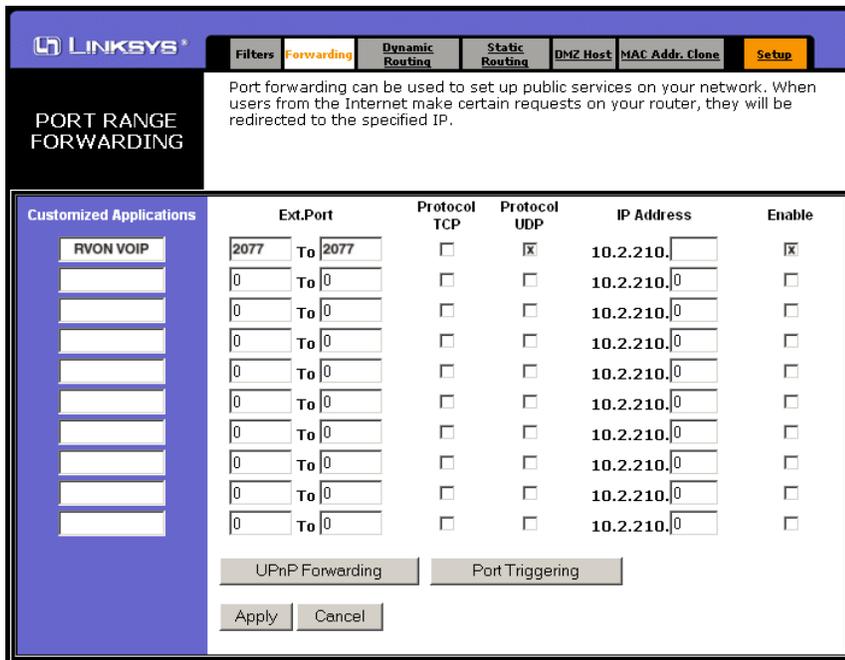
## RVON Configuration

RVON cards use ports for communication of audio and control packets. Because routers can be configured to block certain incoming and outgoing requests, you need to open the following ports in your network to allow WAN connections to and from a Network Interface Device. See Table 7 on page 86 for the ports needed to be opened for the RVON cards to operate properly.

**TABLE 7.** Ports necessary for RVON card functionality.

Port	Port Description
2076	UDP Call Control Signalling
2077	UDP Audio Packets
2079	UDP Telex Proprietary Signalling
2080	TCP Telex Keypanel Protocol
2081	UDP Pass Through Serial
2082	TCP Firmware Download
2100	Remote Administration
2102	Authentication Server

Below, is an example of a router configuration window. Not all routers are configured the same way and may not look exactly like this window.



**Figure 8.** Router Configuration Window

**NOTE:** Linksys supports up to 253 nodes on a router. This is why it is called a router/switch because there are WAN functions like a router as well as having a 4-port LAN switch. It also does not support simultaneous forward and DHCP.

---

## Network Terminology

### **Bridges**

A **bridge** is a device that connects two (2) LANs, or two (2) segments of the same LAN that use the same protocol. Sometimes called “transparent bridges, they work at the OSI model Layer 2. Simply put, they are not concerned with protocols. Their main job is to pass data to a destination address predetermined in the data packet.

With a bridge, all of your computers are on the same network subnet (see Subnet). This means your computers can communicate with each other and have their own Internet connection. If you assign your own IP Addresses be sure to use the same first 3 “octets” of the IP Address (for example, 192.168.0.X).

### **Domain Name Server (DNS)**

A **DNS Server** is an Internet service that translates domain names (for example, in the URL *http://www.telex.com*, the domain name is the *telex.com*) into IP Addresses. The Internet is based on IP Addresses which are numeric and since domain names are alphabetic, they are easier to remember. Every time a domain name is used it must go through the DNS server to be translated into an IP Address.

### **Gateway**

A **gateway** is a node on a network that serves as an entrance to another network. The gateway routes traffic from a computer to an outside network serving the web pages. For example, the gateway for a home computer is the ISP provider connecting the user to the Internet.

In a corporate environment, the gateway often acts as a proxy server and a firewall. Gateways are similar to routers and switches, they forward data to the destination and provide the path for which the data travels to the destination.

### **Hub**

A **hub** is a common connection point for devices in a network. A hub has multiple ports. When a data packet arrives at a hub, it is copied and distributed to all of its ports so all nodes on the LAN can see the packets.

There are three types of hubs:

- passive hub**      this hub serves as a conduit for the data, enabling it to go from one device to another.
- intelligent hub**      (also known as manageable hubs) this hub includes addition features that enable administrators to monitor traffic through the hub.
- switching hub**      this hub reads the destination address of each packet and then forwards the data pack to the appropriate port.

## *IP Address*

An **IP Address** (Internet Protocol Address) is an identifier or numerical name for a computer or device on a network. Data between computers are routed over the network using these addresses to identify the computer the message is being sent to and the computer the message is being sent from.

The format of an IP Address is a 32-bit numeric address written as four numbers separated by periods. For example, an IP Address looks like 10.100.1.1.

---

**IMPORTANT:** When working within an isolated network (meaning there is no Internet access), IP Addresses can be assigned at random just as long as they are unique to each computer and device. When the isolated network is connected to the Internet, registered Internet Addresses must be obtained. This is to prevent duplication of addresses.

---

The four (4) numbers in an IP Address are used in different ways to identify a particular network and host on the network. There are three classes of Internet Addresses.

CLASS A - supports 16 million hosts on each of 127 networks.

CLASS B - supports 65,000 hosts on each of 16,000 networks.

CLASS C - supports 254 hosts on each of 2 million networks.

## *LAN*

A **LAN** (Local Area Network) is a computer network that connects a relatively small area (a single building or group of buildings). Most LANs connect work stations and computers to each other. Each computer (also known as a “node”), has its own processing unit and executes its own processing unit and executes its own programs; however it can also access data and devices anywhere on the LAN. This means many users can access and share the same information and devices. A good example of a LAN device is a network printer. Most companies cannot afford the budgetary or hardware expense of providing printers for each of its users; therefore, one printer (i.e., device) is placed on the LAN where every user can access the same printer.

The LAN uses IP Addresses to route data to different destinations on the network. An IP Address is a 32-bit numeric address written as four (4) numbers separated by periods (for example 1.160.10.240).

## *Port*

A **port**, when referring to TCP and UDP networks, is an endpoint in a logical connection. The port number identifies the type of port it is. For example, port 80 is used for HTTP traffic.

## *Routers*

A **router** is a device that forwards data packets over networks. Most commonly, a router is connected to at least two (2) networks (normally LANs or WANs). Routers are located at gateways, the place where two (2) networks are connected. Routers do little data filtering, they mainly deliver the data.

## *Subnet*

A **subnet** is a portion of a network that shares a common address component. On a TCP/IP network, a subnet is described as all computers or devices whose IP Address have the same prefix.

Subnetting a network is useful because it provides security for the network as well as increases performance of the network. IP networks are divided using subnet masks.

### *Switches*

A **switch** is a device that filters and forwards data packets between networks. Switches operate at the data layer, and sometimes at the network layer.

### **WAN**

A **WAN** (Wide Area Network) connects two (2) or more LANs and can span a relatively large geographical area. For example, Telex Headquarters in Burnsville, MN is connected to several of its branch offices in Nebraska and Arkansas over the wide area network. The largest WAN is the Internet.

---

## *RVON Serial and Telnet Commands*

RVON card programming can be done via direct serial or telnet connection. There are several physical connections to an RVON board:

- Direct serial through custom debug cable (J20 6-pin bottom front). The customer debug cable always functions as the general-purpose debug tool.
- Backcard DB-9 J2 The backcard DB-9 (must be disabled/enabled via a DIP Switch because it can also be used for serial port pass-through. The backcard DB-9 can be used for a debug terminal when DIP switch 6 is switched to the ON position.
- Backcard RJ-45 J1 (Telnet Only)

### **Setup**

Serial Port	38,4000 baud, No-flow control
Telnet	IP Address, port 23

---

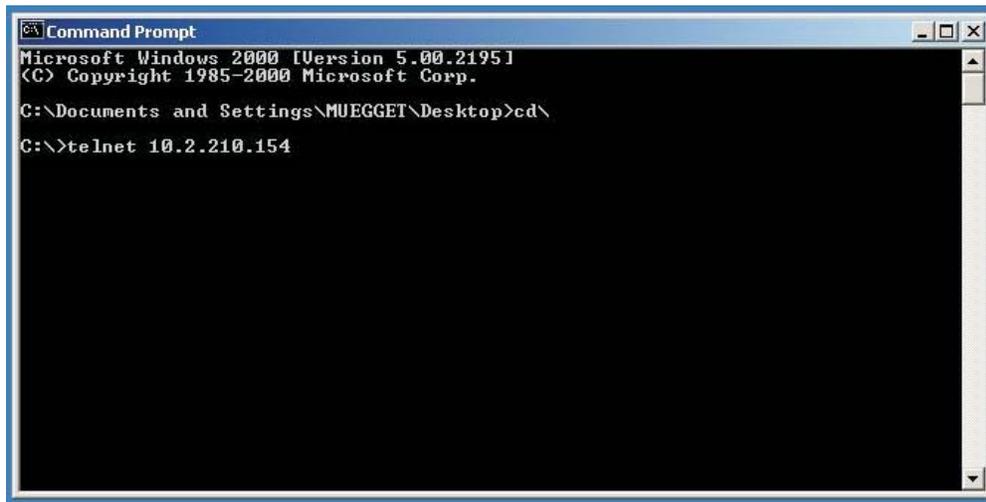
## *How to Configure the RVON-1 using Telnet*

Without access to the physical KP-32 with RVON-1 installed on it, you can still configure the card through the use of Telnet. The following instructions show you how to access the Telnet window and show you some of the information you can see and edit.

**NOTE:** These instructions are to help you get to the Telnet windows and give you an overview of what can be done. This is NOT an all inclusive document. Not every action performed is contained within the document.

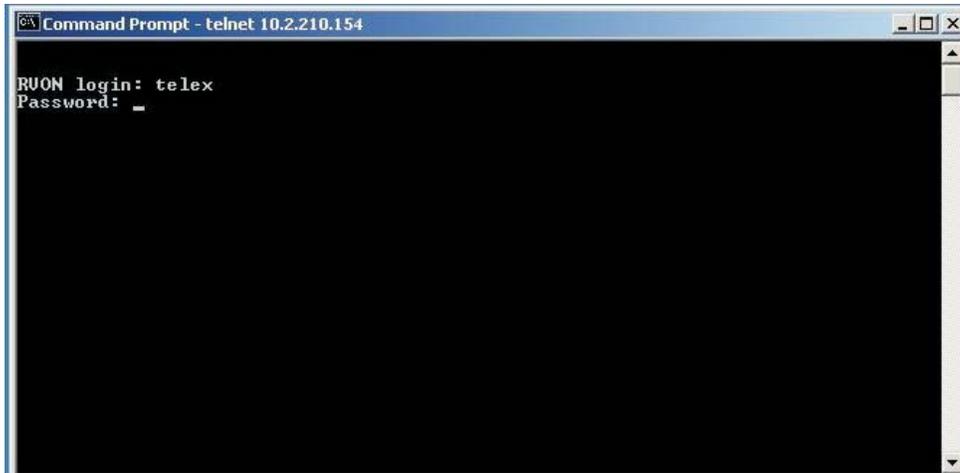
To **display the settings for the RVON-1 Card**, do the following:

1. Open a **command prompt**.
2. At the prompt, type **Telnet <IP ADDRESS>** (The IP Address is the IP Address assigned to the RVON-1 card).



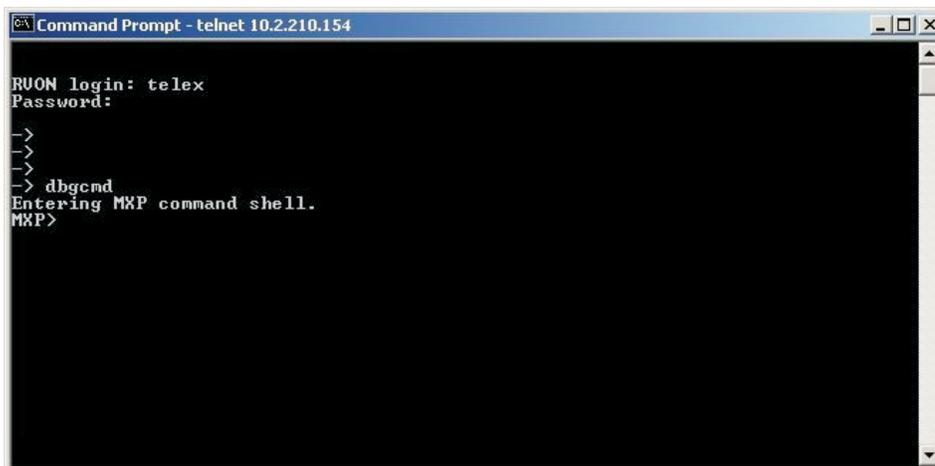
```
Command Prompt
Microsoft Windows [Version 5.00.2195]
(C) Copyright 1985-2000 Microsoft Corp.
C:\Documents and Settings\MUEGGET\Desktop>cd\
C:\>telnet 10.2.210.154
```

3. Press **Enter**.  
*The RVON logon window appears.*



```
Command Prompt - telnet 10.2.210.154
RVON login: telex
Password: _
```

4. In the logon field, type the **RVON logon** (default = telex).
5. Press **Enter**.
6. In the password field, type the **RVON password** (default = password).
7. Press **Enter**.  
*A prompt appears.*
8. Type **dbgcmd** to access the debug command windows.

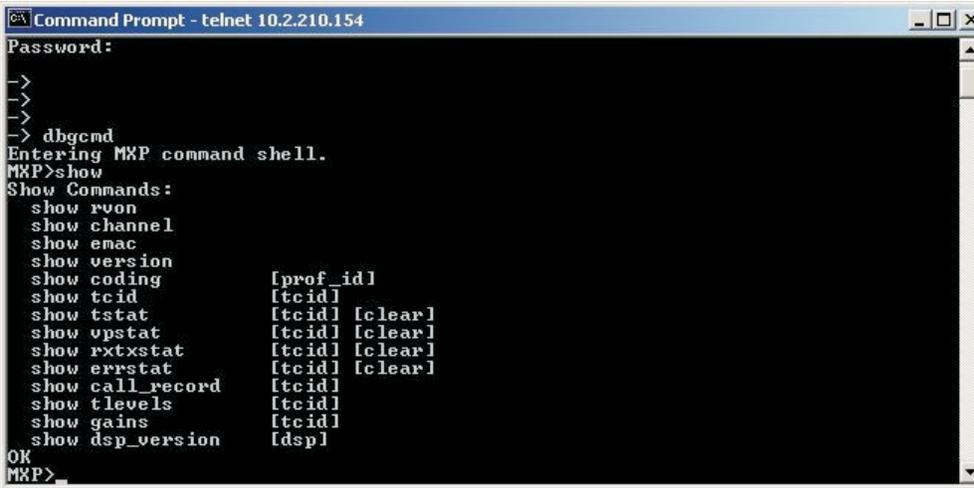


```
Command Prompt - telnet 10.2.210.154
RVON login: telex
Password:
->
->
->
-> dbgcmd
Entering MXP command shell.
MXP>
```

9. Press **Enter**.  
*An MXP prompt appears.*
10. At the prompt, type **Show**.

11. Press **Enter**.

*The show commands window and MXP prompt appears.*



```
Command Prompt - telnet 10.2.210.154
Password:
->
->
->
-> dbgcnd
Entering MXP command shell.
MXP>show
Show Commands:
show rvon
show channel
show emac
show version
show coding          [prof_id]
show tcid            [tcid]
show tstat           [tcid] [clear]
show upstat          [tcid] [clear]
show rxtxstat        [tcid] [clear]
show errstat         [tcid] [clear]
show call_record     [tcid]
show tlevels         [tcid]
show gains           [tcid]
show dsp_version     [dsp]
OK
MXP>
```

12. At the MXP prompt, type the **show command** you want to see (for example, “show rvon”).

13. Press **Enter**.

*The values for the RVON-1 card appear.*

To **edit the RVON-1 configuration**, do the following:

1. Repeat steps **1 through 9** from above.
2. At the MXP prompt, type either **set RVON** or **set EMAC** (see window descriptions below).
3. Press **Enter**.

```

MXP>set rvon
RVON CARD RELATED:
set rvon ip_addr <ip address (x.x.x.x)>
set rvon netmask <netmask (x.x.x.x)>
set rvon gateway <default gateway (x.x.x.x)>

set rvon serial_ip <ip address (x.x.x.x)>
set rvon serial_baud <baud rate (50-38400)>

set rvon user <username>
set rvon password <password (8-40 characters)>

set rvon vad_threshold <adaptive!value -- In dBm (-20 to 10)>

```

set rvon ip_addr	Allows you to edit the IP Address.
set rvon netmask	Allows you to edit the netmask.
set rvon gateway	Allows you to edit the gateway.
set rvon serial_ip	Allows you to edit the serial IP Address.
set rvon serial_baud	Allows you to set the baud rate (50–38400).
set rvon user	Allows you to set the username for the RVON-1 card. By default the user name is “telex”.
set rvon password	Allows you to set the password for the RVON-1 card. By default, the password is “password”.
set rvon vad_threshold	Lets you set the vad threshold.
	<b>NOTE:</b> In AZedit, you can enable and disable VAD, however, through Telnet you able to set the amount. You can set the VAD threshold in later versions of AZedit.

**NOTE:** This Telnet window is almost duplicate to the right side of the Configuration window for the RVON in AZedit.

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