RTS

Innovating the Future of Global Communications

USER INSTRUCTIONS

KP-32 KEYPANEL

UP TO AND INCLUDING VERSION 2.4.0

EKP-32 EXPANSION PANEL

LCP-32 LEVEL CONTROL PANEL

WARRANTY AND SERVICE INFORMATION

For warranty and service information, refer to the appropriate web site below:

RTS Intercoms .... www.rtsintercoms.com/warranty
    RTS Digital
    RTSTW
    AudioCom
    RadioCom
Intercom Headsets..www.telex.com

CUSTOMER SUPPORT

Technical questions should be directed to:

Customer Service Department
Bosch Security Systems, Inc.
www.telex.com

TECHNICAL QUESTIONS EMEA

Bosch Security Systems Technical Support EMEA

http://www.rtsintercoms.com/contact_main.php

THE LIGHTNING FLASH AND ARROWHEAD WITHIN THE TRIANGLE IS A WARNING SIGN ALERTING YOU OF "DANGEROUS VOLTAGE" INSIDE THE PRODUCT.

CAUTION: RISK OF ELECTRIC SHOCK DO NOT OPEN

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER. NO USER-SERVICABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

THE EXCLAMATION POINT WITHIN THE TRIANGLE IS A WARNING SIGN ALERTING YOU OF IMPORTANT INSTRUCTIONS ACCOMPANYING THE PRODUCT.

SEE MARKING ON BOTTOM/BACK OF PRODUCT.

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.

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, GROUNDING OF THE CENTER PIN OF THIS PLUG MUST BE MAINTAINED.

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.

CE

<u>*Important Safety Instructions*</u>

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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Introduction

Description

The RTS Model KP-32 Keypanel fits in a standard 19 inch rack and is two (2) rack units high. It has 32 lever keys: 30 keys are for intercom talk/listen assignment; one (1) key is for call waiting response; and one (1) key is for headset/microphone/program selection and volume setup. The KP-32 combines all of the programmable features of the KP9X Series Keypanels and the KP-12 Keypanel. It adds significant new features such as **DSP** (Digital Signal Processing) and binaural headset operation with left/right assignment of audio signals. The KP-32 also introduces large, super-bright, long-life fluorescent displays with adjustable brightness control, making it suitable for all types of ambient lighting from direct sunlight to darkness.

Features

Super-bright, fluorescent displays	Provide much better visibility and usable life than LCD displays. A display saver mode with programmable scrolling message extends display life and conserves power during periods of inactivity.
32 lever keys, with 30 keys available for full talk/listen configuration	Doubles the number of channels over the KP9X series keypanels. Keys support both latching (hands-free) and momentary (push-to-talk) operation.
Enhanced programming keypad	Provides the complete KP9X keypad sequences, plus new keypad sequences, plus an extensive scrollable menu system. Menus include helpful prompts to walk the user through setup.
Only 90mm deep behind the front panel (approximately 130mm with connectors)	Perfect for consoles, OB vans, etc.
Digital Signal Processing	Improves microphone voice activation and limiting. Adds new mixing, metering, and filtering capabilities.
Binaural (5-pin) Headset Connector	Works with the DSP mixing feature. Lets you independently assign intercom, microphone, and program audio to left or right headphone.

NOTE: Monaural (4-pin) connector available as an option. For monaural operation, the mixer lets you select which items are monitored in the headphones.

Easy upgrades	Firmware updates can be received via the internet, for example, and then downloaded to the KP-32 via the intercom connection.

FIGURE 1. KP-32 Keypanel Front View.

Options

Connector Module

FIGURE 2. KP-32 GPI Connector Module

Provides connectors for two (2) line-level audio inputs (program 1 and 2), an unswitched, balanced microphone preamplifier output, an external headset, an external speaker output, and a foot switch input (for remote switch activation of all armed talk keys, or just one [1] key). Also includes General Purpose Input/Output (GPIO), with four (4) opto-isolated inputs, two (2) open-collector outputs, and two (2) **SPDT** (Single Pole Double Throw) relay outputs. Inputs can activate single keys and groups of keys. Outputs can activate external devices from keypanel keys or from GPI inputs. Available factory installed or as an add-on kit.

OKI Option Card
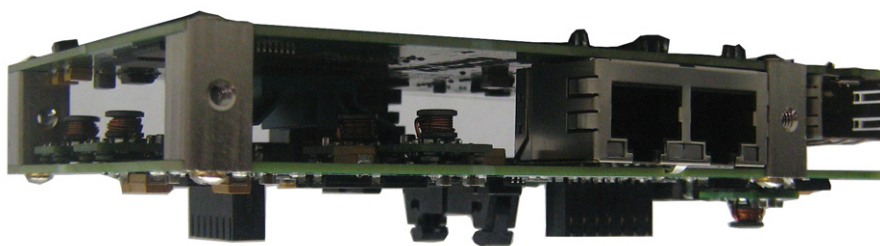
FIGURE 3. OKI Option Card

Provides two (2) Ethernet and one (1) LC Fiber connectors used to connect to the Matrix, adding up to two (2) additional full-duplex audio channels that can be mixed with audio in the keypanel.

RVON Option Card
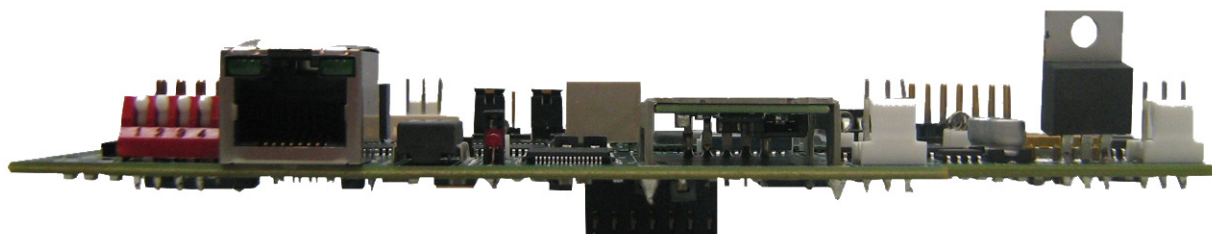
FIGURE 4. RVON Option Card

Provides up to two (2) additional full-duplex audio channels that can be mixed with audio in the keypanel.

CSI-100 Coaxial System Interface Module
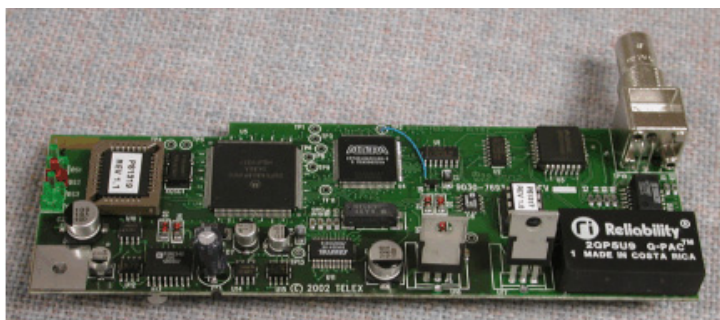
FIGURE 5. KP-32 CSI-100 Coaxial System Interface Board

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

EKP-32 Expansion Keypanel

FIGURE 6. EKP-32 Expansion Keypanel Front View

Provides an additional 32 intercom keys for a total of up to 128 keys (up to three [3] EKPs to a KP-32 depending on the intercom configuration).

LCP-32/16 Level Control Panels
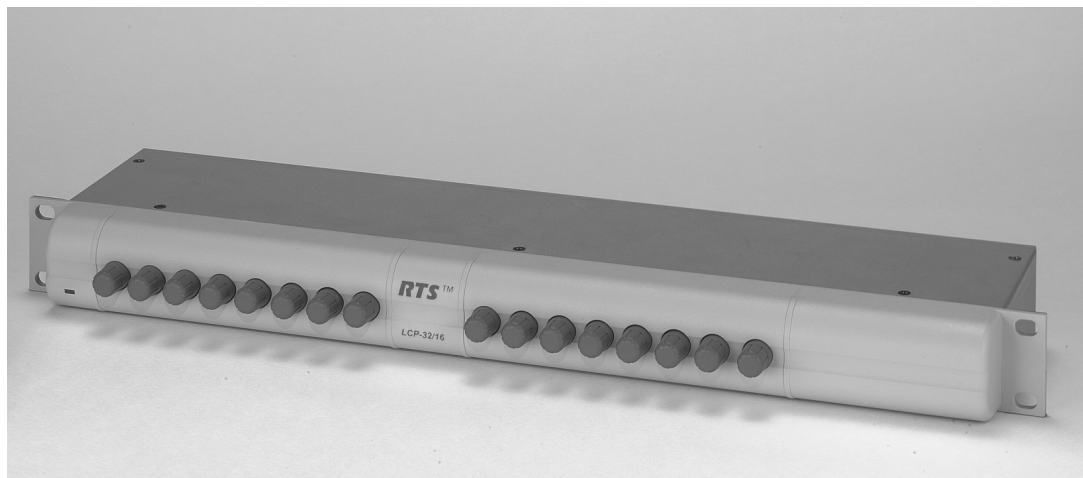
FIGURE 7. LCP-32/16 Level Control Panel Front View

Provides easy adjustment of point-to-point and party line listen levels for individual intercom keys. One (1) LCP-32/16 adjusts one (1) row of keys.

Installation

Upgrade the KP-32 Boot Loader Version

IMPORTANT: This upgrade must be done **before** upgrading the firmware of the KP-32 unit for OKI Option Card use.

To **upgrade the KP-32 boot loader**, do the following:

1. Verify the KP-32 is **powered Off**.
2. On the back panel of the KP-32, set **DIP switch 8 to On**.
    For more information on dip switch settings, see "Option DIP Switch Settings" on page 24.
3. Power **On** the unit.
    A message indicating "This panel needs a firmware download" appears.
4. In AZedit, from the Status menu, select **Software Versions**.
    The Software Versions popup menu appears.
5. From the Software Versions popup menu, select **Keypanels**.
    The Keypanel Version Information window appears.

    NOTE: Notice the Version column displays the message "NEEDS DOWNLOAD next to the version string.

6. Right-click the **KP-32 version** you want to upgrade.
    A popup menu appears.
7. From the popup menu, select **Download Firmware...**.
    The Firmware Download navigation window appears.
8. Navigate to and select your **firmware file** (for example, KP-32.hex).
9. Click **Open**.
    The Download Device Firmware window appears.
10. Click **Begin Download**.
    The download begins and a popup message appears.
11. Click **OK**.
    The KP-32 firmware download finishes.

> **NOTE:** Use the Keypanel Version Information window to follow the progress of the download (the number and percentage chunks completed). Also the download progress is displayed on the KP-32 display window until the download is complete.

12. On the back panel of the KP-32, set **DIP switch 8 to Off**.

IMPORTANT: Do not power-cycle the keypanel until it has finished reprogramming the flash. Damage to the flash chips may occur, rendering the unit inoperable and replacement of the flash chips necessary.

> **NOTE:** Once the download is complete and the panel has reprogrammed the flash, the boot loader restarts.

13. **Power cycle** the unit.
14. Verify the **version** in AZedit.
    The version displays as v0.1.0.

Upgrade the Keypanel Firmware

IMPORTANT: The keypanel firmware must be updated before you install the OKI module into the keypanel.

To **download firmware to the keypanel**, do the following:

1. Open **AZedit**.
2. From the Status menu, select **Port**.
   The Port Status window appears.

3. Find the **port number** where the KP-32 is assigned.
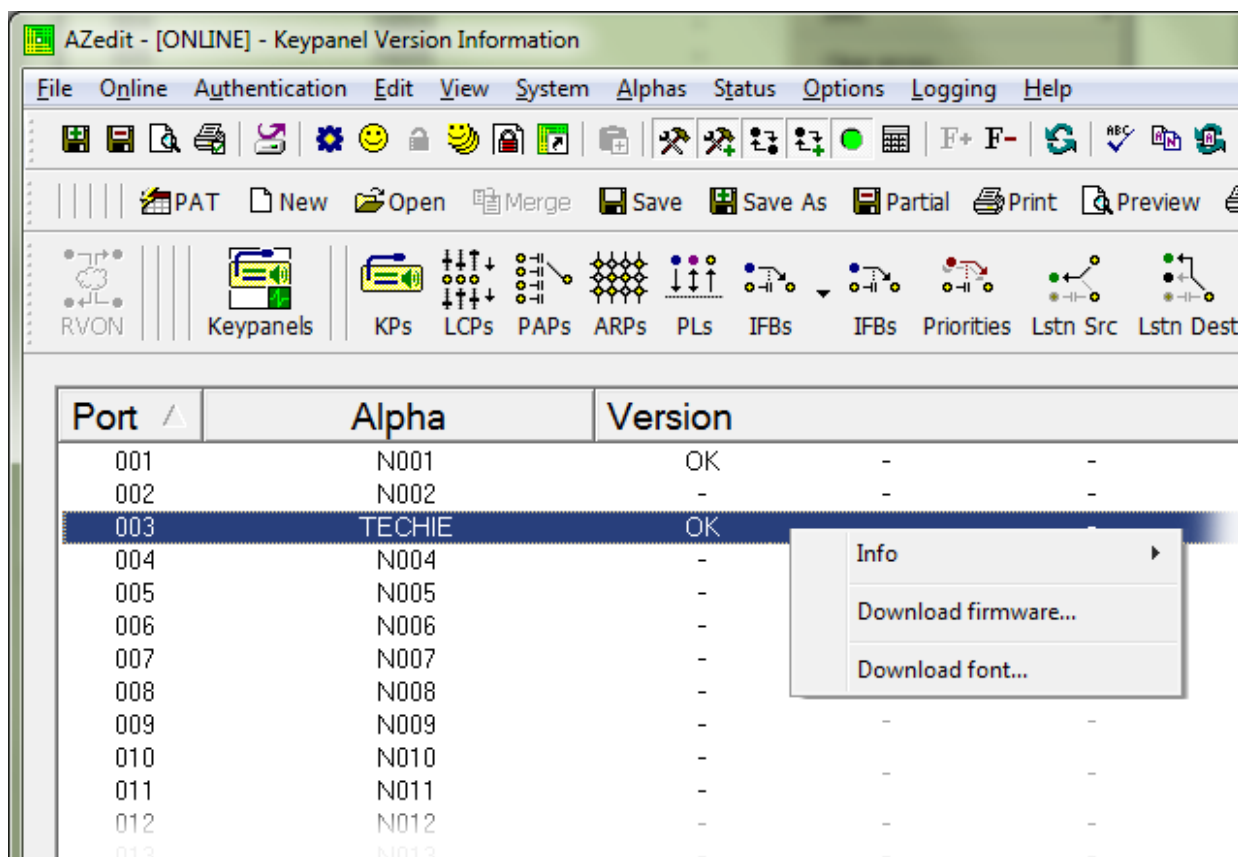
4. Highlight the **Port** (keypanel) to be updated.
    You may select more than one (1) at a time by holding CTRL key down while you select.

5. Right-click the **highlighted selections**.
    A popup menu appears.

6. Select **Download Firmware**.
    The Firmware Download window appears.

7. Using the browse button, browse to the **file to be downloaded**.

8. Click **Open**.
    The Download Device Firmware window appears.
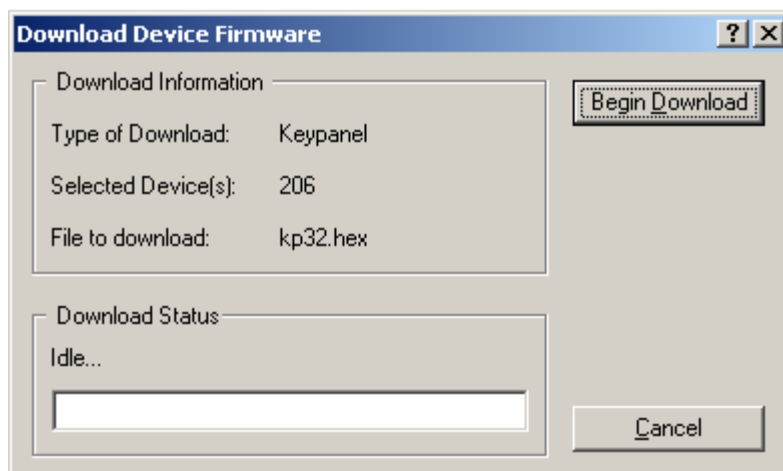
9. Click **Begin Download**.
    The download begins.
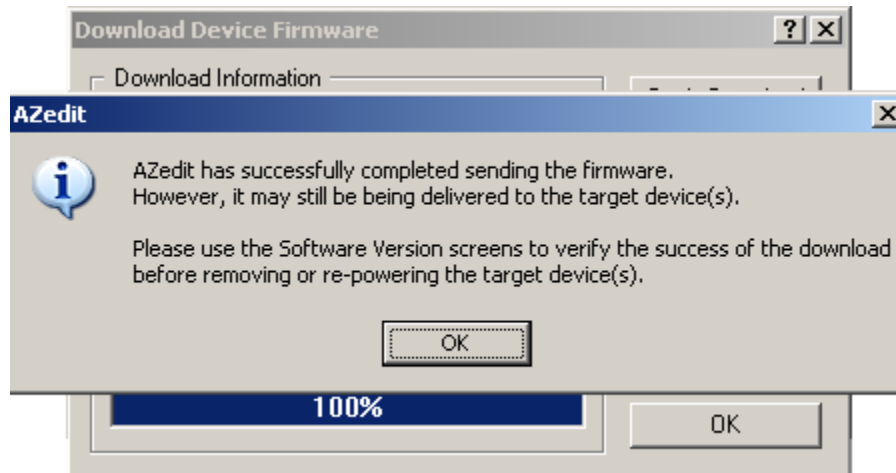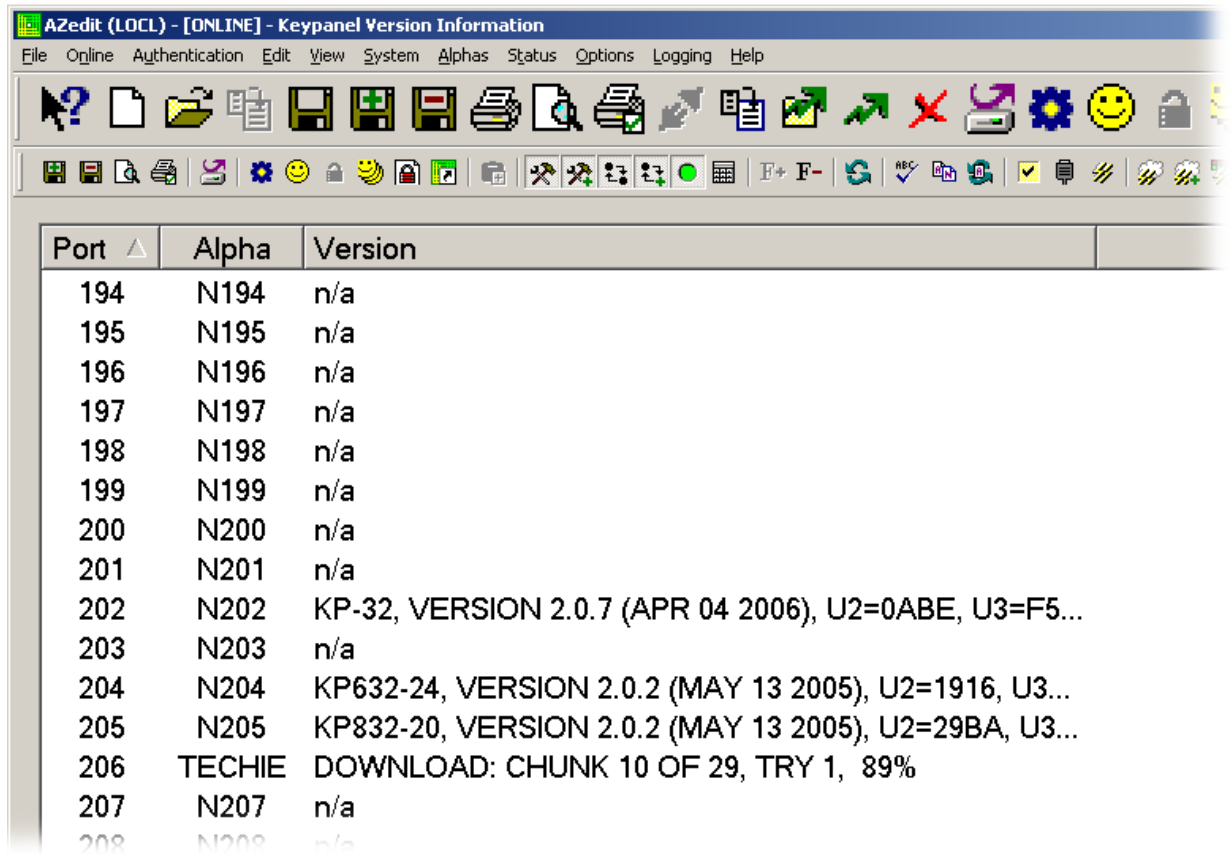
10. Click **OK**.
    The KP-32 firmware download finishes.

    NOTE:

    - This can take up to 30 minutes to complete. Use the Keypanel Version Information window to follow the progress of the download.
    - The KP-32 resets itself once the firmware download is complete.

11. Verify the **version upgrade** in the Keypanel Version Information window is correct.

Upgrade the OKI Board Firmware

NOTE: If you have not installed the OKI-2 Option Board, see "OKI Option Card Installation" on page 95. The OKI-2 Option card must be installed in the keypanel to update the firmware.

To **upgrade the OKI board firmware**, do the following:

1. From the Status menu, select **Port**.
    The Port Status window appears.

2. Right-click the **port** where the OKI KP-32 Classic keypanel is assigned.
    A popup menu appears.
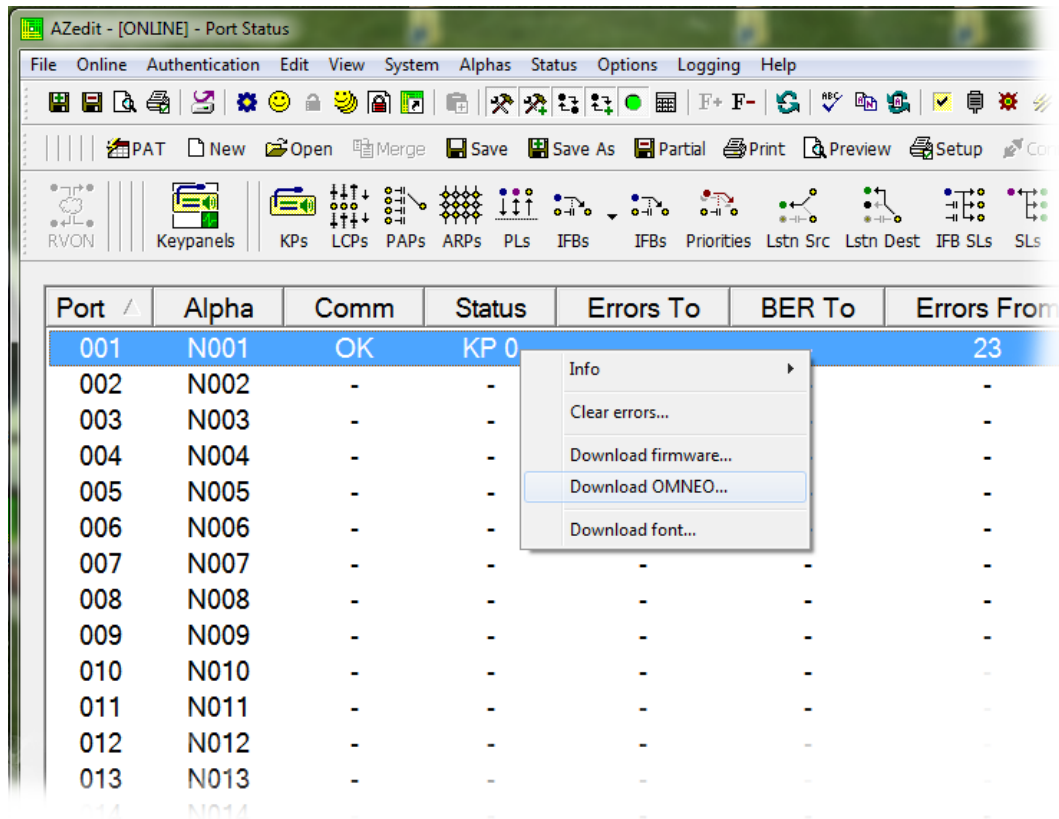
3. From the popup menu, select **Download OMNEO...**.
    A User Access Control warning appears.

    NOTE: If this is the first time running the Firmware Upload Tool, do the following:

    a. In the Browse for Folder window, navigate and select the **Firmware Upload Tool folder**.
    b. Click **OK**.
        A select network interface message appears.
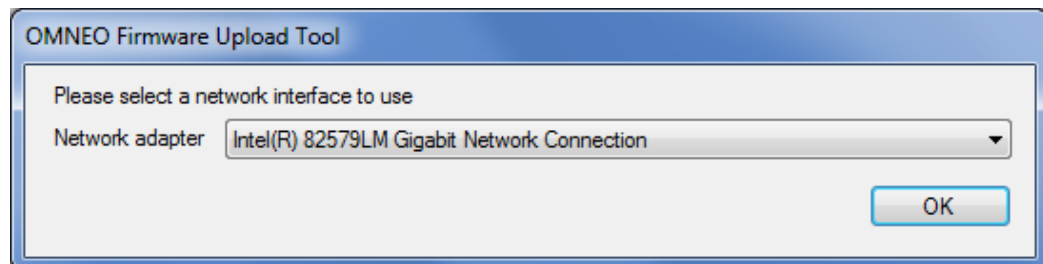
    c. From the Network adapter drop down menu, select the **network interface** you want to use.

4. Click **OK**.
   The Firmware Upload Tool appears.
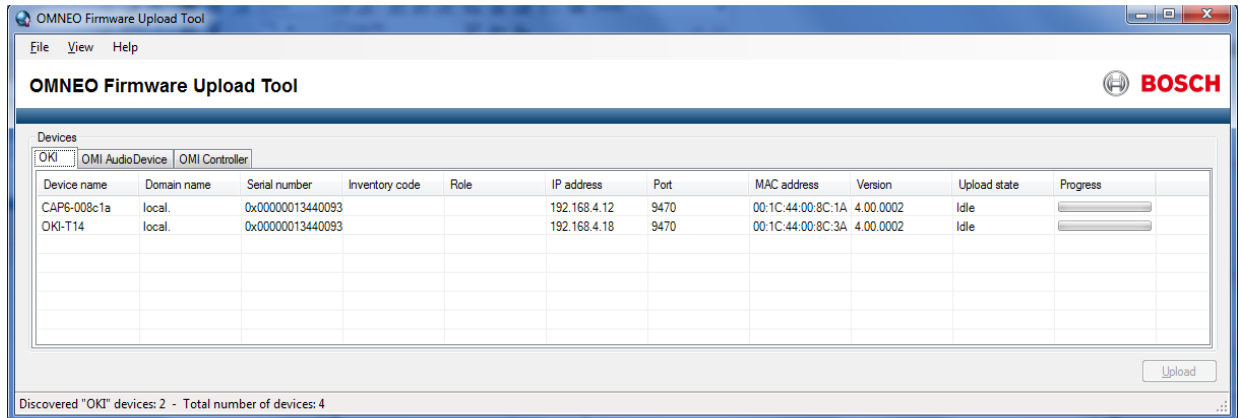
5. Select the **OKI Device** you want to upload the new firmware to.

6. Click **Upload**.
   You can watch the progress of the upload in the Progress column.

Rack Mount Considerations

Elevated Operating Ambient -   If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the **TMA** (Maximum Ambient Temperature) specified by the manufacturer.

Reduced Air Flow -   Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.

Mechanical Loading -   Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.

Circuit Overloading -   Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on over-current protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

Reliable Earthing -   Reliable earthing of rack mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g., use of power strips).

Option DIP Switch Settings

NOTE: When the switch is open, the physical switch is in the up position. When the switch is closed, the physical switch is in the down position.

Switch 1: Latch Enable/Disable

Default setting = Open: enable

Description: 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 that lets 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.

NOTE: DIP switch 1 disables latching for the entire keypanel. If you just need to disable latching for selected keys, leave DIP switch 1 in the Open position. Then, disable latching for the desired keys using the D check boxes in the Keypanels/Ports setup screen of AZedit.

Switch 2: Key Gain Enable/Disable

Default setting = Open: enable

Description: Enables or disables the Key Gain item in the Key Assign menu.

Switch 3: Screen Saver Enable/Disable

Default setting = Open: enable

With Screen Saver enabled, the KP-32 shuts off the display and enters a low power state after delay can be set between 30 minutes and 12 hours The display reactivates instantaneously on an incoming call or when the keypanel operator actuates any control. As with all fluorescent and back-lit LCD displays, some dimming occurs after many years of operation. Using the screen saver helps maximize the display life.

Switch 4: Call Flash Timeout

Default setting = Open: 15 second flash.

Description: Whenever there is an incoming call and there is a talk key assigned to the caller, the talk LED next to the key flashes. The flash can be set for a 15 second timeout, or until the caller's talk key is released.

Switch 5: Footswitch Enable/Disable*

Default = Open: disabled

Description: The optional Connector Module has a footswitch (GRP CALL) input. If the footswitch is enabled (DIP switch 5 set to the closed position), the keys latched on do not activate until the footswitch is closed. Latched keys are indicated by an amber talk LED, and when the footswitch is activated, the LEDs provide the normal talk-on indication.

NOTE:

- If the talk key is held down in 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.
- If DIP switch 1 is set to the CLOSED position, nothing latches.
- Individual keys can be set to non-latching via AZedit. If this is done, the footswitch has no effect on the keys that have been set to non-latching.

Switch 6: Keypad Mode Selection

Settings: Open = Classic Keypad, Closed = Standard

Description: In Classic mode, the keypanel functions operate as called out in the main portion of this manual. If the switch is closed, the functions operate as outlined in this manual with slight modifications. Any function that is affected by Standard Mode operation has an asterisk (*) by it. The changes/modifications to the functionality is called out in "Mode 2 Operation" on page 89.

Switch 7: Test/Debug

Default Setting: Open.

Switch 8: Test/Debug

Default Setting: Open.

Address Switch Setting

General Information

In Zeus, ADAM and ADAM-M Intercom Systems with AIO-8 and AIO-16 with SCSI breakouts, intercom ports are arranged in groups of eight (8). All ports in a group share a common data port. Each KP-32 is uniquely identified on the data port by the setting of its address switch. The method of determining the proper address switch setting varies for each intercom system. Use the method for your intercom system as described below. Then set the white pointer on the Address switch to point to the correct setting.

TABLE 1. Keypanel Addressing

Manually Addressed	Automatically Addressed
You must manually address the keypanel when using the following: • AIO-8 on ADAM • AIO-16 SCSI on ADAM • Zeus I • Zeus II	The keypanel is automatically addressed when using the following: • AIO-16 MDR on ADAM • ADAM-M • Cronus • RVON Product Line – RVON-8, RVON-1, RVON-C, RVON-16 • OMNEO Product Line • Zeus III and Zeus III LE

Address Setting for Zeus

Intercom port connectors on the Zeus back panel are arranged in three (3) groups of eight (8) intercom ports. For each group, intercom port connectors are labeled ID 1, ID 2, etc. When you connect a KP-32 to Zeus, set the Address switch to match the corresponding ID number on the Zeus back panel.

NOTE: Address switch settings 0, and 9 through F are not used.

Address Setting for ADAM CS

Each Audio I/O card contains one (1) group of eight (8) intercom ports. However, the method of breaking out the groups depends on the type of connectors on the back panel.

ADAM CS with RJ12 or DB-9 back panel:

The intercom port connectors are arranged in groups of eight (8). The first connector at the left for each group is Address 1, the next is Address 2, and so forth.

NOTE: Address switch settings 0, and 9 through F are not used.

TABLE 2. Address Number vs. Intercom Port Numbers for 8-Port Audio I/O Cards (ADAM and ADAM CS Intercom Systems)

Card Numbers (bold headings) and Port Numbers

Cards 1-25

Address	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
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

Cards 25-50

Address	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
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	340	248	256	264	272	280	288	296	304	312	320	328	336	344	352	360	368	376	384	392	400

Cards 51-75

Address	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75
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	549	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	550	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	551	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	552	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	553	560	568	576	584	592	600

Cards 76-100

Address	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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

ADAM CS with 50-pin Telco back panel:

Determine the address setting from Table 2. To use the table, locate the intercom port number to which the KP-32 is connected. Then, read across to the Address column to find the Address number. Set the KP-32 Address switch to this number.

NOTE: Address switch settings 0, and 9 through F are not used.

Address Setting for ADAM

Each Analog I/O card contains one (1) group of eight (8) intercom ports (except for AIO-16 cards). Determine the address setting from Table 2 on page 27.

NOTE:

- To use the table, locate the intercom port number to which the KP-32 is connected. Then, read across to the Address column to find the Address number. Set the KP-32 Address switch to this number.
- Address switch settings 0, and 9 through F are not used.

Connections

EXP AND LCP Connectors

Connect from the EXP connector on the back of the KP-32 to the Expansion 1 connector of an optional EKP-32 Expansion Panel. Use the interconnect cable supplied with the Expansion Panel. The Expansion 2 connector on the Expansion Panel can connect to a second or third Expansion Panel, but no more than 128 intercom keys can be operated per intercom port.

Each LCP-32/16 adjusts the listen levels for 16 keypanel keys, and you can connect as many LCP-32 panels as required to adjust all keys on the KP-32 and on an optional EKP-32 Expansion Panel. An interconnect cable is supplied with each LCP-32. Connect the first LCP-32 to the LCP connector on the KP-32. Connect the second LCP-32 to the first LCP-32, and so forth.

NOTE: When arranging LCP-32 panels in an equipment rack, you should put them directly above or below the keys the unit is used to adjust.

Frame Connector

Use the Frame connectors (one at time) to connect to an intercom port of the intercom system. The intercom port you connect to should agree with the address that you set previously. Cable wiring diagrams are shown in Figure 8 and Figure 9.
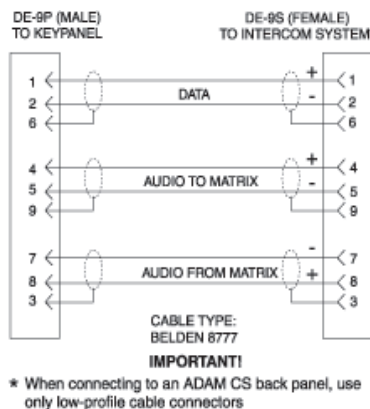
FIGURE 8. DE9S Intercom Cable Wiring
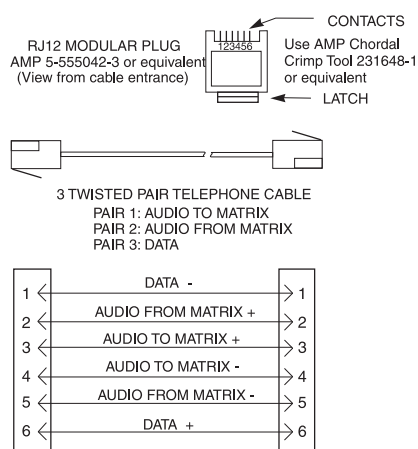
FIGURE 9. RJ12 Intercom Cable Wiring

Power Supply Connector

At power-up, the alphanumeric displays first show asterisks (****). After several seconds the intercom key assignments display.

If the keypanel cannot establish communication with the intercom system, all alphanumeric displays continue to show asterisks. Check the keypanel to matrix cable connection if this occurs. If the keypanel loses communications with the intercom, it does not revert to ****'s for 30 seconds. If there is a short disruption in the data communications, the panel does not show ****'s at all (although the panel my briefly display ----'s).

The power supply accepts 100-240 VAC, 50/60Hz.

To **connect the keypanel to power**, do the following:

1. Align and insert the external power supply connector.
2. Tighten the locking ring.
3. Connect a power cord to the power supply and to an AC power source.

Headset Connector

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

Basic Operation

Screen Saver Operation

If the KP-32 is set for screen saver operation, the alphanumeric display can be configured to automatically shut off after 30 minutes or 12 hours of inactivity. The display reactivates on incoming call or when the keypanel operator actuates any control. DIP switch 3 enables/disables screen saver operation.

NOTE: You can override the normal timeout period for screen saver operation and immediately place the keypanel in screen saver mode. See "Service Menu, Disply DIM" on page 63.

Selecting Headset or Speaker

The **Headset/Speaker** display alternates between Hdst and Spkr with each key tap.

To **alternate between Hdst and Spkr**, do the following:

> **>** Tap the **Headset/Vol. Sel.** key upward.
> *The headset LED lights when the headset is selected and is off when the speaker is selected.*

Listen Volume Adjustments

By default, the **Vol**. control adjusts the listen volume for the speaker or headset, whichever appears in the Vol. Sel. display. The level of auxiliary program inputs 1 & 2 (if GPI/O board is present and Aux inputs are enabled) and the level of incoming audio from the intercom matrix (if enabled) can be adjusted.

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

1. Press the **Vol. Sel.** button until the desired source appears in the Vol. Sel. display (Aux1, Aux2, or Icom).
2. Using the **Vol**. control, adjust the listen volume.

   NOTE:

   - The **Vol.** control defaults back to the speaker or headset after about thirty seconds of inactivity of the control. The minimum volume level for either the keypanel speaker or headset may be adjusted. See "Service Menu, Min Volume" on page 69.
   - You can save the volume adjustments to be the power-up defaults using "Service Menu, Save Cfg" on page 73.

Intercom Keys and Displays

Alphanumeric Display Indications for Intercom Keys

Upper Case Letters: Upper case letters indicate keys that have any kind of talk assignment, with or without a corresponding listen assignment. Example: DIR1

> **NOTE:** Keypanels operating in Unicode can display both upper and lower-case characters for talk assignments.

Lower Case Letters: Lower case letters indicate keys that have only a listen assignment. Example: dir1.

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

Flashing Alphanumeric Display: This means the key is activated to talk to an IFB or ISO, the IFB, ISO, or PL is in use, a call via a trunk line (depending on configuration) is active, or an incoming call from a P-P or PL.

> **NOTE:** The flashing alphanumeric display for TIF keys, remote IFB keys, and remote ISO keys can be disabled by selecting the Don't generate tallies for TIF and trunk use check box in AZedit (Options menu|Intercom Configuration|Options tab).

Talk LED Indications

The talk LED is the lower LED for each key. The LED indications are as follows:

LED	Description
Continuous Green*	Talk is on and the keypanel operator can be heard at the destination.
Continuous Red 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. This indication is provided so keypanels operators know when critical director communications are occurring. If you activate the key, either of two things happen: • If you activate the key and the talk LED turns continuous green, this indicates that you and the other keypanel operator are both talking to the destination. • IFB keys only: If the talk LED flashes red when an IFB key is activated, this indicates that the other keypanel has a higher IFB priority and you cannot talk at this time. The red in-use indication for TIF keys can be disabled in AZedit on the Options tab of the Intercom Configuration window. Select the Don't generate tallies for TIF and trunk use check box. This also disables the flashing alpha display when talking to remote IFBs or ISOs as previously described. This causes a first birthday.
Flashing Red Talk LED & Flashing Display Alternating Pattern of Alpha & (-**-) (Busy)	You cannot talk at this time. This indication occurs when you activate a local IFB key that is 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. As well as when a TIF phone line is ringing.
Flashing Green Talk LED & Display Alpha (on time equal to off time)*	There is an incoming call from the destination assigned to the key. Activate the key to talk back. The duration of incoming call flash is controlled by DIP switch 4 on the KP-32 back panel. See "Option DIP Switch Settings" on page 24.

LED	Description
Blinking Amber Talk LED (on time less than off time)*	Indicates a key is ready to talk (key is on), but requires external footswitch activation to talk.
Listen LED Indication	The listen LED is the upper LED for each key. The listen LED is green when the listen key is on.

Intercom Key Operation

Basic Operation

The up position of an intercom key activates listen (if assigned). The down position activates talk (if assigned). If there is no talk assignment for an intercom key, the talk position of the key does not activate. If there is no listen assignment, the listen position does not activate.

To **activate a key momentarily**, do the following:

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

To **latch a key**, do the following:

1. Tap a **key**.
   The key turns on and remains on.
2. Tap the **key** again to turn it off.

> **NOTE:** Latching may be turned off for the entire keypanel by setting DIP switch 1 on the KP-32 back panel to the Closed position. Latching may be disabled for individual keys on a keypanel using AZedit.

Operation of Intercom Keys with Auto Functions

NOTE: Assignment of keys with auto functions is described in the programming sections that follow. Descriptions of the auto functions are also contained in the "Glossary" on page 91.

Operation of keys with auto functions is as follows:

Talk + auto follow	Talk and listen can be activated separately. The listen assignment listens to whatever is assigned to the talk key.
Talk + auto listen	Both talk and listen activate when talk is activated.
Talk + auto mute	Listen turns off when talk is activated.
Talk + auto reciprocal	Listen is always on, and talk may be turned on or off.
Talk + auto table	If an IFB talk key has an auto-table listen assignment, talk and listen can be independently activated. When the listen key is turned on, the IFB listen source is switched to the IFB listen destination for the panel (which may be itself, or it may be defined as a separate output of the intercom).
All Call Key	Activating the key also activates all keys to the left of it (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 talk 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 as the caller.

Operation of Intercom Keys with Options

Group Option Keys

Activating the master key in a key group activates all keys in that 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 on the keypanel to turn off until the solo key is turned off.

Operation of Intercom Talk Keys with the Speaker or Headset 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 on the Service menu.

NOTE: Do not confuse this with the Talk+DIM auto function previously described. Talk+DIM affects the speaker or headphones on 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 that is designated as a TIF port in AZedit, placing the key in the talk position activates the KP-32 dialing menu. See "Telephone Operation" on page 37, for further information.

NOTE: Designate an intercom port as a TIF port by selecting the *Port is TIF* check box in AZedit.

Muting the Microphone

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

> Tap the **MUTE** key up to turn microphone muting on or off.
> *The Mute LED turns solid red and the Vol. Sel. display alternates between Hdst and Mute (or between Spkr and Mute) while the microphone is muted.*

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 won't be a key assigned to talk back to the caller. In this case, the caller's name appears in the call waiting window.

To **answer a call in the call waiting window**, do the following:

> **>**   Press down and hold the **call waiting key**.

To **clear the call waiting window**, do the following:

> **>**   Tap the **call waiting key** up.

If a second call is received in the call waiting window while a caller name is already displayed, the call waiting LED flashes red.

To **answer a second call**, do the following:

1. Tap up on the **key** to clear the first name.
2. Hold the **key down** to talk to the second caller.

NOTE:

- By default, only the names of callers who are not currently assigned to intercom keys appears in the call waiting window. Alternatively, you can force all caller names to display in the call waiting window. This is controlled by the AZedit check box titled Always Stack Callers In Call Waiting Window.
- We recommend that you do not stack all callers in the call waiting window.

Telephone Operation

IMPORTANT: Telephone operations require an optional TIF Telephone Interface. Also, you must first assign a talk/listen key on the keypanel with a TIF assignment. We recommend a talk+auto listen assignment.

Receiving A Phone Call

When there is an incoming telephone call, the talk LED flashes red next to the KP-32 key assigned to the TIF. Activate the key to answer the call.

Alternatively, there is an audible indication generated by the TIF unit for incoming calls.

NOTE: The red flash for incoming TIF call is the default operation. Alternatively, a continuous-red talk LED indication can be provided. This is accomplished by selecting the check box *Don't generate tallies for TIF* or *Don't Generate tallies for Trunk Use* in AZedit (*Options|Intercom Configuration|Options*). This check box also affects other tally indications.

Dialing And Hanging Up Using Keypanel Keypad Sequences

Keypanel Manual Dial Sequence

To **manually dial the keypanel**, do the following:

1. Activate the **TIF listen key**.
   The listen LED should be on. Verify the TIF talk key is off.

2. On the keypad, tap **CLR + PHONE + PGM**.

3. Latch on the **TIF talk key**.
   The talk LED turns green, the TIF goes off-hook, and a dial tone is heard at the KP-32 is heard.

4. Using the keypad, dial the **telephone number**.
   Digits scroll in the display above the TIF key. When the far end answers, dial additional digits (to access a voicemail system or automated response system, etc.).

5. Momentarily turn the TIF key **off** to end dialing mode.

6. Turn the **TIF talk key** back on for conversation.

To **end the call**, do the following:

1. Turn the **TIF talk key** off.

2. Tap **PHONE + CLR**.

3. Tap the **TIF talk key**.
    The TIF key talk and listen indicators turns off and the TIF hangs up. The TIF is now ready for another call.

KP9X Redial Sequence

To **redial a phone number**, do the following:

IMPORTANT:	The last dialed phone number is always stored at the TIF and overwrites any previously dialed phone number. If several people have access to the TIF, redial may not produce the results that you expect!

1. Tap **up** on the TIF key to activate listen.

2. Tap **PHONE+PGM**.

3. Tap the TIF talk key

4. Tap **CLR + 0 + 0**.
    The last phone number is re-dialed.

5. After the number has dialed, tap the **TIF talk key** to end dialing mode.

6. Tap down on the **TIF key** to activate talk.

Keypanel Keypad Hang-up Sequence

To **disconnect the keypanel**, do the following:

1. Turn **off** the TIF talk key.
    Tap down to toggle talk off. The talk LED should be off.

2. On the keypad, tap **PHONE+CLR**.

3. Momentarily turn the TIF talk key **on**, then **off**.
    The TIF key talk and listen indicators turns off and the TIF hangs up.

> **NOTE:** You can use the hang up sequence to hang up the TIF even if you did not place or answer the call.

KP9X Autodial Sequences

NOTE: Unlike the autodial operations using the KP-32 menu system, which store telephone numbers locally within the KP-32, the KP9X autodial operations work with telephone numbers that are stored at the TIF. The advantage to saving at the TIF is that many users can access a common set of stored telephone numbers. A disadvantage is users can easily over-write important telephone numbers.

Storing an Autodial Number in the TIF

To **store an autodial number in the TIF**, do the following:

1. Tap **PHONE+PGM**.
2. Tap the **TIF talk key** to latch it on.
3. Dial the **phone number** you want to store.
   The entire phone number sequence can have up to 30 digits.

   NOTE: To insert one (1) or more pauses anywhere in the dialing sequence, enter **CLR + 9 + 9** for each pause. A pause may be required, for example, if you need to enter a digit to get an outside line and your phone system requires a pause before continuing to dial. If you are using credit card dialing, several pauses may also be required between the phone number and your personal access code.

4. After dialing the telephone number, click **CLR + PGM**, then **enter a 2-digit number** (01, 02, etc. up to 32, 24 for the TIF-2000A) you want to use as the autodial number.
5. After storing the autodial number, use the **keypanel hang-up sequence** to end the call.

Storing an Autodial Number in the KP-32

To **store an autodial number in the KP-32**, do the following:

1. Press **Menu**.
   Display appears in the call waiting window.
2. Using the arrow keys, scroll to **Key Option**.
3. Press **PGM**.
   Auto Dial appears in the call waiting window.
4. Press **PGM**.
   Phone#? appears in the call waiting window.
5. Dial the **phone number**, including the area code, and any additional dialing procedures.
6. Press **FWD**.
7. Using the arrow keys**,** scroll to the **Auto Dial position** to which you want to save the phone number (1 through 10).
8. Press **PGM**.
   #X saved appears (where X represents the auto dial position)
9. From the Service menu, select Save Cfg to save the auto dial number.

Dialing an Autodial Number Stored in the TIF

To **dial an autodial number**, do the following:

1. Tap the **PHONE+PGM+TIF key** to activate dialing mode.
2. Tap **down** on the TIF talk key to latch it in the on position.
3. Tap **CLR** followed by the autodial number (01, 02, etc.).
4. When finished dialing, click the **TIF talk key** again to exit dialing mode.

Dialing And Hanging Up Using The KP-32 Dialing Menu

The dialing menu only activates when talking to an intercom port that has the Port is TIF check box activated 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. Icom ADial appears if displayed if the Intercom supports it.

2. Tap the **PGM** key.
   Dial#? displays, and the dial tone should be audible in your speaker or headset.

   NOTE:

   - To hang up at any time after this point: tap the **BACK** key. Hang Up displays, then tap **PGM**.
   - While using the phone, any incoming intercom calls to the call waiting window go into the call waiting stack. Incoming calls sent to the stack force the KP-32 to exit dial mode. The caller names are not be displayed, but the call waiting LED flashes red. You may either hang up the phone and answer the intercom call, or continue with the phone call and answer the intercom call afterward.

3. Dial the **phone number**.
   Digits appear in the call waiting window as you dial. Dialing tones are audible in the speaker or headset. If the far end answers, begin your conversation.

   NOTE: After the far end answers, you may dial additional digits (to retrieve voice mail, log onto an automated answering system, etc.).

4. If there is no answer, or to hang up when finished talking, tap the **BACK** key.
   Hang Up displays.

5. Tap **PGM** to hang up.

   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 won't be available. Instead of trying to reenter the menu system, use the "Keypanel Manual Dial Sequence" on page 37.

Redial

1. Turn **TIF talk key on**.
   Manual Dial displays in the call waiting window. Icom ADial appears if displayed if the Intercom supports it.

2. Using the arrow keys, scroll to **Redial**.

3. Tap **PGM**.
   If the far end answers, begin your conversation. Hang Up displays.

   NOTE: After the far end answers, you may dial additional digits (to retrieve voice mail, log onto an automated answering system, etc.).

4. Tap **CLR** to exit Hang Up Mode.

5. Turn the **TIF talk off**, then **on**.

6. Enter **manual dial mode**.

7. Tap **PGM** to hang up.

   NOTE: Occasionally, you may receive an intercom caller name 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 won't be available. Instead of trying to reenter the menu system, use the "Keypanel Manual Dial Sequence" on page 37.

Autodial

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

To **autodial a number**, do the following:

1.   Turn the **TIF talk key on**.
     Manual Dial displays in the call waiting window.

2.   Using the arrow keys, scroll to **Local ADial**.
     The Autodial menu only displays when a number has been programmed into the Autodial Key Option.

3.   Tap **PGM**.

4.   Using the arrow keys, select the **desired autodial number**.

5.   Tap **PGM**.
     If the far end answers, begin your conversation.

     NOTE: After the far end answers, you may dial additional digits (to retrieve voice mail, log onto an automated
               answering system, etc.).

6.   Tap **CLR** to exit Hang Up Mode.

7.   Turn the **TIF talk off**, then **on**.

8.   Enter **manual dial mode**.

9.   Tap **PGM** to hang up.

     NOTE: Occasionally, you may receive an intercom caller name 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 won't be available. Instead of trying to reenter the menu system, use the "Keypanel Manual Dial
               Sequence" on page 37.

KP9X Series Keypad Programming

NOTE: See "KP9X Keypad Sequence Quick Reference" on page 83.

Keypad Programming, Display Requests

Display requests let you view information about the keypanel configuration. You can display information by two (2) methods:

- Entering sequences on the programming keypad.
- Scrolling the names of display requests in the call waiting window. The scrolling method also gives you access to additional features that are not available with the keypad sequences.

Display Requests Using Keypad Sequences

All display request sequences start with **FUNC DISPLAY** (**0 8**).

Display Panel ID

FUNC DISPLAY   1

This sequence displays the port number. If the Address switch is incorrectly set, the wrong Panel ID displays.

Display Level 2 Talk Key Assignments

FUNC DISPLAY   2

This sequence displays all level 2 talk key assignments for about 10 seconds. *Lev2* displays in the call waiting window.

Display Listen Key Assignments

FUNC DISPLAY   3

This sequence displays all listen key assignments for about 10 seconds. *Lstn* displays in the call waiting window.

Display Setup Page Assignments

FUNC DISPLAY E-PNL

Currently, there are four (4) setup pages available for each keypanel, configurable up to 15 pages. Each setup page defines a set of 16 talk and listen key assignments. One (1) setup page is typically assigned to the main keypanel, and is referred to as the Main setup page. Additional setup pages are assigned to any connected expansion panels, and are referred to as Expansion 1, Expansion 2, etc.). Since the KP-32 requires two (2) setup pages, it uses the main page assignments and also one (1) expansion page. The EKP-32 uses two (2) additional expansion pages.
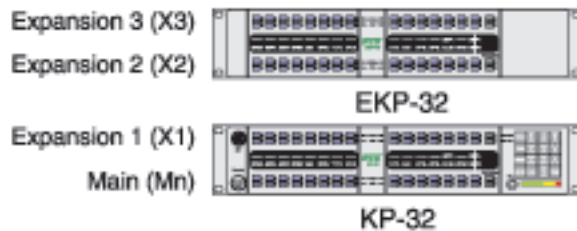
FIGURE 10. Setup page usage for the KP-32 and the first EKP-32

When you enter the sequence FUNC DISPLAY E-PNL, the call waiting window displays Mn-1 or Mn-2, etc. This indicates which setup page is currently being used at the Main position. After a few moments X1-1, or X1-2, etc displays. This indicates which setup page is currently being used by Expansion 1. Next, if there is an expansion panel connected, X2-1, or X2-2, etc displays, followed by X3-1 or X3-2, etc to indicate the setup page usage for expansion 2 and expansion 3and any other expansion panels.

NOTE: To change the setup page assignments, see "Keypad Programming, Assigning Setup Pages" on page 46.

Test Keys and Displays

FUNC DISPLAY   0

When you enter this sequence, all alpha-numeric displays show a % symbol. Pressing down on any key
(except the Headset/Vol. Sel. key) cause *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.

If latching is enabled, tapping up or down on any intercom key, or the call waiting key, causes the corresponding red LED to light. This verifies latching operation and also that the each red LED is OK.

Holding any key in the up or down position causes the corresponding green LED to light. This verifies operation of the green LEDs.

NOTE: This sequence is similar to "Service Menu, Test Panel" on page 74, except the service menu test also lets you check the operation of the keypad buttons.

Tone Generator Activation (FUNC-DISPLAY-7)

FUNC DISPLAY 7

This sequence activates the keypanel's internal tone generator. You can use the tone generator to check the audio send and receive paths to and from the matrix. For example, you can assign a talk key on the keypanel to talk to itself. When you activate the talk key, you should be able to hear the tone from the keypanel speaker or headset.

To **turn off the tone generator**, do the following:

> **>**   Press the **CLR** key.

NOTE: The microphone input is turned off when the tone generator is active.

Display Requests Using Scrolling

The display requests can be accessed using scrolling. Scrolling offers several additional features. To use scrolling, tap **FUNC DISPLAY** followed by the up or down arrow keys to scroll through the list of display requests, and then tap PGM to select the current item. The display request names appears in the call waiting window as follows:

ID:	Displays the port number.
Lev 2:	Displays level 2 talk assignments.
Lstn:	Displays listen assignments.
Name:	Displays a list of crosspoints closed to this keypanel.
Type:	Displays level 1 talk key assignment types.
Mtx:	Displays matrix ID for all level 1 talk assignments.
Tone:	Turns on tone generator. **CLR** to quit and turn off tone generator.
Epnl:	Displays setup page assignments. Mn=KP-32 bottom row keys, X1=KP-32 top row keys, X2=EKP-32 bottom row keys, X3=EKP-32 top row keys.
Gain:	After selecting this item, tap up on any listen key with a point-to-point or party line assignment. The current listen gain from this keypanel to the intercom port or party line displays in the call waiting window. Use the up or down arrow keys to change the gain. Tap another listen key to start adjusting the listen volume. Tap the CLR key or turn off the current key to exit.Use VRst to reset all gains.
VRst:	Reset all port / party line gains to 0dB.
Asgn:	Displays a list of key assignments that are set up for this keypanel, but not currently accessible. This includes talk level 1 assignments on setup pages that are not currently assigned, and any key assignment that might be obscured by the call-waiting window. You can scroll through the list using the up or down arrow keys. Then use the call waiting key to talk to the currently selected destinations.
Test:	Test keys and displays.
Vxxx:	Display keypanel firmware version.

Keypad Programming, Assigning Setup Pages

1. Tap the **E-PNL (8)** key.

2. Select **a setup page number** (tap **1**, or **2**, etc).

3. Tap the **PGM** key.

4. Tap any **key** in the row of keys where you want to assign the setup page.

   NOTE: The same setup page cannot be assigned in more than one (1) place. If a setup page is already assigned somewhere else, you must clear or change that assignment first. With the exception of the main row assignment, you can clear any page assignment from a row of keys by entering **E-PNL 0 PGM**, then pressing any key in the row.

   - If you cannot change the setup page assignments for a particular keypanel, this feature may be restricted in AZedit.
   - To display setup page assignments at any time, see "Display Setup Page Assignments" on page 44.

Keypad Programming, Assigning Intercom Keys

General

There are three (3) methods to assign intercom keys with keypad programming. These methods are summarized below and explained on the following pages.

Key Assignment using Keypad Numeric Entry: Using this method, you enter the panel number, party line number etc. that you wish to assign to a key. This method requires you know the number (not the name) of the port, party line etc. that you wish to assign. Since most users do not have access to this information, this method of key assignment is not recommended.

Key Assignment by Copying an Assignment: Using this method, you can copy an assignment from one (1) key to another. You can also use this method to transfer an incoming call to a talk key and/or listen key.

Key Assignment using Alpha Scrolling: Using this method, you scroll through lists of alpha names in the call waiting window and select the name of the panel, party line etc. you want to assign. Then you copy the name to a key. If descriptive names have been assigned using the intercom system configuration software, alpha scrolling is easiest to use.

Assigning Keys Using Keypad Numeric Entry

NOTE: Each programming step must be completed within 4-5 seconds. Otherwise, the programming sequence is discarded.

General Procedure

1. For talk level 2 assignment only: Tap **0 0**. Otherwise, skip this step.

2. Select the **key assignment type**:

NUM	Intercom port
PL	Party line
AUTO	Auto function
FUNC SLIST	Special list.
FUNC IFB	IFB
FUNC ISO	Camera ISO
FUNC RELAY	Relay or GPI output.

3. Auto function assignment only: Tap an **additional number** to select the desired auto function:

1	Auto listen (listen keys only)
2	Auto follow (listen keys only)
3	Auto mute (listen keys only)
4	Auto reciprocal (listen keys only)
5	All call (talk level 1 only)
6	DIM (talk level 2 only, for point-to-point key, must enter 00 first)
7	Auto table (listen only, when talk level 1 is an IFB assignment)

4. *Trunked intercoms only*: When assigning auto functions or local key assignments, skip this step. Select an **intercom matrix** (tap **1**, or **2**, etc.).

   NOTE: Intercom system numbers are the numbers that appear in the *Icm* column in Trunk Edit when you select Status or Setup from the Intercoms menu.

5. (Skip when assigning auto functions.) Tap **one or more number keys** to select the desired port number, party line number, etc.

   NOTE: If the destination is in a remote matrix, you must always enter exactly three (3) digits for a port number, or exactly two (2) digits for anything else. For example, to assign port 1 you must enter **0 0 1**; for party line 1 you must enter **0 1**.

6. Tap **PGM**.

7. Tap **down** on a key change the talk assignment for that key. Tap **up** to change the listen assignment.

   NOTE:

   - If a key does not accept an assignment, the destination you are trying to assign may not be scroll enabled in AZedit, or, the key you are trying to assign may be restricted in AZedit.

   - Auto functions are always assigned in the local intercom system, even when used with keys assigned to a remote intercom system. For example, you can program a talk key to talk to a remote party line, and then program the listen key using auto-listen on the local intercom. Pressing the talk key automatically activates listening for the remote party line.

Programming Key Assignments Using Copy

There are two (2) ways to copy key assignments:

- Copy an assignment from the call waiting window to another key.
- Copy a key's assignment to another key.

Copying an assignment from the call waiting Window to a Key

1. While the caller's name is displayed in the call waiting window, tap the **COPY CW** key.
2. Tap the **key** to which you want to copy.
   The name of the caller appears in the display below the key.

> **NOTE:**   If a key does not accept an assignment, the assignment to assign may not be scroll enabled in AZedit. Or, the key you are trying to assign may be restricted in AZedit.

Copying One Key Assignment to Another Key

1. Tap the **FUNC** key.
2. Tap the **EX COPY** key.
3. Press the **talk or listen key** from which you wish to copy.
4. Press the **talk or listen key** to which you wish to copy.
   The name of the key assignment appears in the display above the key.

> **NOTE:**   If a key does not accept an assignment, the destination you are trying to assign may not be scroll enabled in AZedit. Or, the key you are trying to assign may be restricted in AZedit.

Programming Key Assignments Using Alpha Scrolling

Alpha scrolling allows the user to scroll through a list of names of ports, party lines etc. in the call waiting window. Once the desired name is displayed in the window, you can copy it to a key. There are four (4) scrolling modes:

- intercom
- type
- prefix
- single-step

EXAMPLE: Assign a port to a key using the various scrolling modes.

To **intercom scroll**, do the following:

1. If the port is located in a remote intercom system, tap **FUNC ↑↑** or **FUNC ↓↓** to enter intercom scroll mode and scroll up or down the list of intercoms in the call waiting window.
2. Tap **PGM** to select the P-P list for that intercom.
   OR
   Tap **FUNC TYPE** to step through the list of function types.

To **type scroll**, do the following:

1. When the desired intercom system name is displayed, or when making an assignment in the local intercom system, tap **FUNC TYPE** to activate type scroll mode.

2. Using the arrow keys, scroll to the desired **type of assignment** (for example, P-P).

    Abbreviations for types of key assignments:

   - P-P: Point-to-Point
   - PL: Party Line
   - IFB: IFB
   - SPCL: Special List
   - RLY: Relay or GPI output
   - ISO: ISO
   - UR: UPL Resource
   - IFSL: IFB Special List

3. Press **PGM** to retrieve the requested list.
    Pressing PGM also exits type scroll mode and places the keypanel in single-step scroll mode. In some cases, WAIT displays briefly while the requested list is being retrieved. N/A may display if the selected list is empty (or all the items are restricted).

To **scroll in single-step**, do the following:

1. Using the arrow keys, select the **intercom port**.

    NOTE: If you cannot locate the destination you are looking for, it may not be scroll enabled in AZedit.

2. Copy the **selected port** to a talk or listen key:

    a. Tap **COPY**.

    b. Tap **down** on an intercom key to assign talk.
       OR
       Tap **up** to assign listen.

Prefix Scrolling

When the keypanel is in single-step scroll mode, it may take a long time to scroll to the desired name (this is particularly true of point-to-point lists). To speed up the process, you can use prefix scroll mode. Prefix scrolling mode scrolls through a list in alpha-numeric order, but displays only the first occurrence of each 2-character prefix. For example, if your intercom system had users CAM1, CAM2, CAM3, DIR1, DIR2; prefix scrolling would display CAM1 followed by DIR1. Once you locate a desired 2-character prefix using prefix scroll, you can switch back to single-step scrolling to make your final selection.

To **enter PREFIX mode**, do the following:

1. Tap **PREFIX** to enter prefix scroll mode.

2. Using the arrow keys, scroll until you locate **a name with the same first two (2) characters** as the name for which you are looking.

3. Tap the **PGM** key to return to single-step scrolling mode.

Clearing a Key Assignment

There are two (2) ways to clear a key assignment:

Method 1: Clearing the Call Waiting Window and Copying it to a Key

1. Clear the **call waiting window**, if necessary.
2. Tap up on the **call waiting key** until it is empty.
3. Tap the **COPY CW** key.
4. Tap the **key** you want to clear.
   Tap up to clear listen, down to clear talk.

   NOTE: If a key does not clear, it is probably restricted using the R check box in AZedit.

Method 2: Copying a Blank Key Assignment to the key you want to Clear

1. Tap the **FUNC** key.
2. Tap the **EX COPY** key.
3. Tap an **unassigned key**.
4. Tap the **key** you want to clear.
   Tap up to clear listen, down to clear talk.

   NOTE: If a key does not clear, it is probably restricted using the R check box in AZedit.

KP-32 MENU SYSTEM

NOTE: A chart of the menu system is located at the back of the manual for quick reference.

Menu System, Menu Access

1. Clear all **names** from the call waiting display (if not clear) by tapping up one (1) or more times on the call waiting key.
2. Tap **MENU** to activate the menu system.
3. Press the **page down arrow** to scroll forward through the list of menus. Press the **page up arrow** to scroll back.
4. Tap **FWD** or **PGM** to enter a menu. Tap **BACK** to exit a menu.
5. Within a menu:

   - Press the **up** or **down arrow keys** to scroll.
   - Tap **FWD** or **PGM** to select an item.
   - Tap **BACK** to cancel a selection or to go back to the previous menu level.

Menu System, Display Menu

Use this menu to display information about the keypanel configuration.

Display Menu, Asgn Type

Asgn Type displays 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 talk key
- SPCL: Special list talk key
- RLY (System relay): The key activates a GPI output at the intercom frame, or a relay output at a UIO-256 or FR9528 frame
- ISO: Camera ISO talk key
- IFSL: IFB Special List key
- UPL: UPL resource key
- AC: All-call key

NOTE: For descriptions of the various key assignment types, see "Glossary" on page 91.

Display Menu, Chans On

Chans On displays an alpha list, in the call waiting window, of all intercom ports with talk crosspoints closed to this keypanel. Chans On is typically used to locate an open mic or other open audio source. The most likely cause is typically a talk key left on at some keypanel. In this case, use the up or down arrow keys to scroll through the list of names. You can then press the call waiting key to ask the person at the other end to turn off their talk key.

Display Menu, Key Groups

Key Groups displays the master and slave keys associated with a configured key group.

To **display key groups**, do the following:

1. Using the arrow keys, select **group** you want to see.
2. Press **FWD** or **PGM** to display the group.
    The talk and listen LEDs of the master key is lit red and the talk and listen LEDs for the slave keys are lit green.

Display Menu, Key List

Key List displays and allows access to all the other assignments on the other keypanel pages that are not currently showing in the keypanel display.

Display Menu, Level 2

Level 2 displays the talk level 2 assignments for all keys.

Display Menu, Listen

Listen displays the listen assignments for all keys.

Display Menu, Matrix (Trunked Systems Only)

Matrix displays the intercom system name for all talk level 1 key assignments. In non-trunked intercom systems, the intercom system name can be LOCL (local), ZEUS, ZUS3, ADAM, or CRON. In trunked intercom systems, intercom system names are created in TrunkEdit (Intercoms menu, Names.)

Display Menu, Panel ID

Panel ID displays the port number the keypanel is connected to. If the Address switch is incorrectly set, the wrong Panel ID displays. Panel ID also displays the port alpha in brackets if the port is not scroll restricted.

Display Menu, Version

Version displays the firmware version of the keypanel.

NOTE: For firmware upgrades, contact your intercom system dealer. For more information, see "Upgrade the Keypanel Firmware" on page 18.

Menu System, Key Assign Menu

The Key Assign menu is used to assign intercom keys, adjust listen levels for point-to-point and party line keys, and to assign setup pages.

General Procedure to use the Key Assign Menu

To **use the key assign menu**, do the following:

1. Tap **up on the call waiting key** to clear the call waiting window.
2. Tap **MENU**.
3. Using the up and down arrow keys, scroll to **Key Assign**.
4. Tap **PGM**.

    NOTE: If you do not have a trunking intercom system, skip to step 6.
    Remote key assignment only (trunking systems only): If your intercom system is configured for trunking, Matrix displays in the *call waiting* window. You must select a remote intercom matrix before assigning intercom keys to destinations in that 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 auto 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:

    a. Press **PGM** to access the Matrix list.
    b. Using the arrow keys, locate the **desired matrix**.
    c. Press **PGM** to select a matrix. Wait may display while the scroll lists for that matrix are loading.

Pt-to-Pt appears in the call waiting window (both for local and remote key assignment). This is the list of available point-to-point key assignments.

5. Using the up or down arrow, select a **different list** as follows:

Pt-to-Pt	Assign a key to talk/listen to another intercom port.
Party Line	Assign a key to talk/listen to a party line.
IFB	Assign a key to talk/listen to an IFB.
Spcl List	Assign a key to talk/listen to a special list.
Sys Relay	Assign a key to activate a relay or GPI output.
Camera ISO	Assign a key to talk/listen to an ISO.
UPL Resrc	Assign a key to activate a UPL resource.
IFSL	Assign a key to activate a IFB special list resource.
Auto Func	Assign an auto function to a key. (If you select this item, skip the rest of this procedure and go to "Key Assign Menu, Auto Func" on page 56.)
Key Gain	Adjust the listen gain for a key that already has 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" on page 57.)
Reset Vols	Restore the default listen level for keys that have 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, Reset Vols" on page 57.)
Setup Page	Change the setup page assignments. (If you select this item, skip the rest of this procedure and go to "Key Assign Menu, Setup Page" on page 58.)

6. Tap **PGM**.
    In some cases, Wait appears while the requested list is uploaded from the intercom system.

7. Using the arrow keys, locate the **desired assignment**.

8. Tap **PGM**.
    Talk Lvl 1 appears in the call waiting window.

9. Using the up or down arrow key, if necessary, select a **different option**. Options are as follows:

    - 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 Lvl 2: Assigns talk level 2.

    NOTE: If you attempt to assign talk level 2 to a key and there is no talk level 1 assignment, your assignment goes on talk level 1. If you change the talk level 1 assignment for a key that also has a talk level 2 assignment, the talk level 2 assignment is erased.

10. Tap **PGM**.
    Tap Key appears.

11. Tap any **available intercom key**.
    Tap down for any kind of talk key assignment. Tap up for a listen-only key assignment.

    - 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, and then the talk assignment reappears.
    - If you assign a listen only key, the assignment name appears briefly in uppercase letters, and then changes to lowercase letters.

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

Key Assign Menu, Matrix

Matrix appears only for trunked intercom systems. A remote intercom matrix must be selected before assigning intercom keys to destinations in that matrix.

You do not need to select matrix to assign keys to destinations in your own matrix. You also do not need to select a matrix when assigning an auto function to a key.

Key Assign Menu, Pt-to-Pt

Pt-to-Pt assigns a talk or listen key to another intercom port. Some pt-to-pt destinations may be non-keypanel devices that cannot activate talk and listen paths. Therefore, if you want full communication, you may need to assign both talk and listen on the key.

Key Assign Menu, Party Line

Party Line assigns a key with talk and/or listen to a party line.

NOTE: If you want full communication with the party line, you must assign both talk and listen on the key. If all communications are 2-way, you may wish to assign the key as Talk + auto listen.

Key Assign Menu, IFB

By default, all IFBs are restricted and *Not Avail* displays 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

Spcl List assigns a key with talks and/or listens to a special list. The key has no effect until members have been assigned to the special list in AZedit.

NOTE: Special list members may be non-keypanel devices that cannot themselves 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 GPI outputs from an ADAM Frame (J11 on the XCP-ADAM-MC Breakout Panel).
- The 8 GPI outputs of an ADAM CS frame (J903 on the ADAM CS back panel).
- The relay outputs of an FR9528 Relay Frame (RELAY OUTPUTS connector on the FR9528 back panel).
- The 16 GPI outputs of a UIO-256 Universal Input/Output Frame (J5 on the UIO-256 back panel).

Key Assign Menu, Camera ISO

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

Key Assign Menu, UPL Resrc

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

Key Assign Menu, IFSL

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

Key Assign Menu, Auto Func

Auto Func is used to assign a function that occurs when another function is performed.

To **assign an Auto Func**, do the following:

1. Starting at the Key Assign menu item, use the up or down arrow keys to select Auto Func.
2. Press **PGM**.
3. Using the arrow keys, locate the desired **auto function**:
   - AutoFollow (AF, for listen keys only)
   - Auto Listn (AL, for listen keys only)
   - Auto Mute (AM, for listen keys only)
   - Auto Recip (AR, for listen keys only)
   - Auto Table (AT, for listen keys only)
   - All Call (AC, for talk level 1 only)
   - DIM (DIM Table function, for talk level 2 on point-to-point keys only)
4. Press **PGM**.
   Tap Key displays.

5. Tap an **intercom key** to assign the selected auto function.
    Tap up to assign all auto functions except All Call or DIM. Tap down for All Call or DIM.

    NOTE:

    - If the assignment is successful, the abbreviation for the auto function appears in the alphanumeric display for that key. However, if you try to assign the same function to a key that is already programmed, the assignment is ignored. The assignment is ignored if the key you are trying to assign has been restricted in AZedit.

    - Trunked intercom systems: Do not select a matrix before assigning auto functions. All auto functions are assigned using the local matrix menus.

    - You do not need to run Save Cfg to store auto function assignments. These are stored in the intercom system.

    - For descriptions of the auto functions, see the "Glossary" on page 91.

6. You can tap **CLR** to exit and return to normal operation.
    OR
    Tap **BACK** to return to the auto function menu and make more assignments.

Key Assign Menu, Key Gain

Key Gain is used to adjust the listen gains for point-to-point or party line keys. The key to adjust must already have a point-to-point or party line listen assignment.

To **adjust key gain**, do the following:

1. Using the arrow keys, select **Key Gain**.

2. Press **PGM**.
    Tap Key displays.

3. Tap **up on the key** you want to adjust.
    The current listen level displays in the call waiting window.

4. Using the arrow keys, change the **listen level**.
    Tap additional point-to-point or party line keys to change their listen levels.
    OR
    Tap **CLR** to quit.

    NOTE: You do not need to run Save Cfg to store key gain changes. These are stored in the intercom system.

Key Assign Menu, Reset Vols

The **Reset Vols** menu item simultaneously resets gain levels for all point-to-point or party line keys.

To **reset vols**, do the following:

1. Using the arrow keys, select **Reset Vols**.

2. Press **PGM**.
    Done displays. All key gains are now reset to the default level.

3. Tap **CLR** to quit.

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

Key Assign Menu, Setup Page

Setup Page is used to change the setup page assignments on the KP-32 or EKP-32. For example, one (1) setup page is used for the top row of keys, and another setup page is used for the bottom row.

To **change the setup page assignments**, do the following:

1. Using the arrow keys, select **Setup Page**.
2. Press **PGM**.
   Page 1 displays.
3. Using the arrow keys, select any **setup page action** desired:

   Page 1:   Assign setup page 1 to the KP-32 or EKP-32.

   Page 2:   Assign setup page 2 to the KP-32 or EKP-32.

   Page 3:   Assign setup page 3 to the KP-32 or EKP-32.

   Page 4:   Assign setup page 4 to the KP-32 or EKP-32.

   Clear Page: Clear a page assignment from the KP-32 or EKP-32.

   NOTE: The intercom can be configured for up to 15 setup pages.

4. Tap **PGM**.
   Tap Key displays.
5. Tap any **key in the row** where you want to assign the setup page.
   The key assignments for that page should appear in the displays.
6. Using the arrow keys, select and assign another **setup page**.
   OR
   Tap **CLR** to exit.

   NOTE: You do not need to run Save Cfg to store changes to setup pages. These are stored in the intercom system.

Key Option Menu

Key Option Menu, Auto Dial

Auto Dial is used store auto dial numbers.

To s**et Auto Dial numbers**, do the following:

1. Using the up an down arrows, select **Auto Dial**.
2. Tap **PGM**.
   Phone#? displays.
3. Tap the **number keys**.
   The numbers scroll in the call waiting window.

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

4. Tap **FWD** (Do not tap **PGM!**).
   A-Dial #1 displays (store auto dial number 1).

   NOTE: To store a different auto dial number, using the up or down arrow keys, select the desired auto dial number.

5. Tap **PGM**.
   # <adial> saved displays .
6. Select **Save Cfg** to store auto dial numbers.

Key Option Menu, Chime

Chime 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 the chime option to a key**, do the following:

1. Using the arrow keys, select **Chime**.
2. Tap **PGM**.
3. Tap the **keys** where you want to add a chime tone.
   Both LEDs light red for the selected keys.
4. Tap **CLR** to exit.
5. Select **Save Cfg** to store Chime settings.

   NOTE: The chime option continues on a key even if you change the key assignment.

To **remove the chime option from a key**, do the following:

1. Using the arrow keys, select **Chime**.
2. Tap **PGM**.
3. Tap the **keys** where you want to remove a chime tone.
   The red LEDs turn off for the selected keys.
4. Tap **CLR** to exit.
5. Select **Save Cfg** to store Chime settings.

Key Option Menu, Key Groups

Key Groups are used to assign one (1) key (the master key) to activate a group of keys simultaneously. Up to four (4) key groups can be configured.

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

1. Using the arrow keys, select **Key Groups**.
2. Tap **PGM**.
   Group 1 displays.
3. Tap **PGM**.
   Tap Master displays. The master key is the key you press to activate the group.

   NOTE: You can tap PGM to bypass assigning a master key to the group, if you are planning to activate the group with a local GPI input.

4. Tap the **intercom key** dedicated as the master The master key must be a talk key.
   Both LEDs next to the key lights red. After you select the master key, Tap Slaves displays. Slave keys activate along with the master key.
5. Tap **one (1) or more keys** to select the slave keys.
   You can make individual talk a listen keys slave by either tapping up or down on the key. You can tap a key again to remove it from the key group.
6. Tap **CLR** when finished.
   Activating the master key causes it and all slave keys to activate. The LEDs for each key activate according to the current key assignment for that key.
7. Select **Save Cfg** to store Key Group settings.

   NOTE: Key group settings continue on keys even if you change the key assignments.

Clearing a Key Group

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

1. Using the arrow keys, select **Key Groups**.
2. Tap **PGM**.
   Group 1 displays.
3. Tap **PGM**.
   Tap Master displays.
4. Tap the **current master key**.
   The LEDs remain lit red. After you tap the master key, Tap Slaves displays.
5. Tap **all the keys** where the LEDs are lit green.
   This turns the LEDs off.
6. Tap **CLR** when finished.
   The key group is now cleared.
7. Select **Save Cfg** to store the cleared key group setting.

Key Option Menu, Solo

Solo is used to turn all other keys to turn off when activated. You can assign one (1) solo key.

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

1. Using the arrow keys, select **Solo**.
2. Tap **PGM**.
    Tap Key displays.
3. Tap a **key**.
    Both LEDs for the key lights red to confirm the assignment.

    NOTE: Tap the key again if you made a mistake and want to remove the assignment.

4. Tap **CLR** when finished.
    Activating the solo key should now cause all other activated keys to turn off. The keys turn back on again when you turn off the solo key.
5. Select **Save Cfg** to store the Solo setting.

    NOTE: The solo option continues on a key even if you change the key assignment.

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

1. Using the arrow keys, select **Solo**.
1. Tap **PGM**.
    Tap Key displays. The LEDs for the solo key are lit red.
2. Tap the **solo key**.
    The LEDs turn off.
3. Tap **CLR** to exit.
    The solo key is now cleared.
4. Select **Save Cfg** to save the change.

OMNEO Conn Menu (Available only with OKI Option Card Installed)

The **OMNEO Conn** menu is used to select an OMNEO connection to use with the keypanel.

To **select an OMNEO connection**, do the following:

1. Using the arrow keys, select **OMNEO Conn**.
2. Tap **PGM**.
    A list of available OMNEO connections appears in a scrollable list.
3. Using the arrow keys, scroll to the **connection** you want to use.
4. Tap **PGM**.
5. Tap **CLR** to exit.
    The OMNEO Connection is set.
6. Select **Save Cfg** to store the OMNEO Conn setting.

RVON Conn Menu (Available only with RVON Option Card Installed)

The **RVON Conn.** menu is used to select an RVON connection to use with the keypanel.

NOTE: This menu item only appears when you have the RVON option installed and there are RVON devices available.

To **select an RVON connection**, do the following:

1. Using the arrow keys, select **RVON Conn**.
2. Tap **PGM**.
   A list of available RVON connections appears in a scrollable list.
3. Using the arrow keys, scroll to the **connection** you want to use.
4. Tap **PGM**.
5. Tap **CLR** to exit.
   The RVON Connection is set.
6. Select **Save Cfg** to store the RVON Conn. setting.

Service Menu

Service Menu, Aux Inputs (GPI Option Only)

Aux Inputs is enabled, the VOL SEL key can be used to select that source for volume adjustment. But even if a particular AUX input is enabled, VOL SEL skips the input if it is not routed anywhere via the DSP mixing menu.

To **enable or disable aux inputs**, do the following:

1. Select Aux Inputs, then tap **PGM**.
   Aux In 1 displays.
2. Using the arrow keys, select **Aux In 1**, **Aux In 2**, or **Intercom**.
3. Tap **PGM**.
   ⇾Enabled displays. The arrow ⇾ indicates that the input is enabled.
4. Tap **PGM**.
5. Tap **CLR** to exit.
   The new Aux In assignment is now set.
6. Select **Save Cfg** to store the Aux Inputs setting.

For more information, see "Mixing" on page 65.

Service Menu, Baud Rate

Baud Rate is used to select the baud rate at which the keypanel communicates with the intercom.

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

1. Select **Baud Rate**, then tap **PGM**.
   Auto Baud displays.
2. Using the arrow keys, select the **baud rate** you desire (Auto Baud, 9600 Baud, or 76.8K Baud).
   The arrow ⇾ indicates that the option chosen.
3. Tap **PGM** to select the baud rate.
4. Tap **CLR** to exit.
   The new baud rate is now set.
5. Select **Save Cfg** to store the Baud Rate setting.

Service Menu, Caller Vol.

Caller Vol. is used to enable or disable adjustments made to the crosspoint volume of the caller (rather than the overall speaker/headset volume).

To **disable/enable caller vol.**, do the following:

1. Select **Caller Vol.**
    →Disable Adj appears. The arrow → indicates that caller vol. is disabled.
2. Using the arrow keys, select **Disable Adj** or **Enable Adj**.
3. Tap **PGM**.
    →Enable Adj or →Disable Adj appears.
4. Tap **CLR** to exit.
5. Select **Save Cfg** to store the Caller Vol setting.

Service Menu, DIM

DIM is used to set the speaker or headphone level to diminish by a specified amount whenever a talk key is activated.

To **set the DIM volume**, do the following:

1. Using the arrow keys, select **DIM**.
2. Tap **PGM**.
    Speaker displays.
3. Using the arrow keys, select **Headset**.
4. Tap **PGM**.
    By default, -8dB displays for speaker, and 0 dB displays for headset. This is the default amount of dimming.
5. Using the up arrow, increase the **amount of dimming**.
    OR
    Using the down arrow, decrease the **amount of dimming**.
6. Tap **CLR** to exit.
    The new dimming level is now set.
7. Select **Save Cfg** to store the DIM setting.

Service Menu, Disply DIM

Disply DIM is used to adjust the alphanumeric display settings.

To **adjust the display DIM**, do the following:

1. Using the arrow keys, select **Display DIM**.
2. Tap **PGM**.
    Disply Off displays.
3. Using the arrow keys, select any of the following:

    DIM: Possibly a better choice when the ambient light level is low. Uses less power and increases display life.

    Norm: Default medium brightness setting.

    Minimum: Good when ambient light is bright.

    Maximum: Recommended only for very bright ambient light, such as outdoors. Uses maximum power and decreases display life.

    NOTE: For settings which change the operating brightness, run "Service Menu, Save Cfg" on page 73, to store the setting.

Service Menu, DSP Func

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

To **access the DSP functions**, do the following:

1. Using the arrow keys, select **DSP Func**.
2. Tap **PGM**.
    Filters displays.
3. Using the arrow keys, select the **type of DSP function** desired.

    > *Filters*
    > *Gating*
    > *Metering*
    > *Mixing*

Refer to one (1) of the following paragraphs for further information on the item that you select.

Filters

Filters 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 **adjust the filters**, do the following:

1. Select **Filters**.
2. Tap **PGM**.
    Mic displays.
3. Using the arrow keys, select the **audio source** you want to modify.

    > Mic
    > Matrix
    > Aux 1
    > Aux 2

4. Tap **PGM**.
    � None displays to indicate that no filters is selected.
5. Tap the **up arrow key**.
    Notch displays.
6. Tap **PGM**.
    � Notch displays. The arrow indicates notch filter is now selected.
7. Tap **CLR** to exit.
8. Select **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 **select the audio source for gating**, do the following:

1. Select **Gating**.
2. Tap **PGM**.
    Mic displays.
3. Using the arrow keys, select an **audio source**.

    > *Mic*
    > *Matrix*
    > *Aux 1*
    > *Aux 2*

4. Tap **PGM**.
    Gating displays.
5. Tap **PGM**.
    ➞Gating displays. The arrow indicates that gating is now selected.
6. Tap **CLR** to exit.
7. Select **Save Cfg** to save the change.

Metering

Metering lets you use the Vol. display as an LED bar graph meter to monitor an audio source for about one (1) minute.

To **select the audio source for metering**, do the following:

1. Select **Metering**.
2. Tap **PGM**.
    Mic displays.
3. Using the arrow keys, select an **audio source**.

    Mic

    Matrix

    Aux 1

    Aux 2
4. Tap **PGM**.
    The Vol. bar graph is now monitoring the selected audio source.
5. Tap **CLR** to exit metering, or allow the metering function to timeout after about one (1) minute.

Mixing

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

1. Select **Mixing**.
2. Tap **PGM**.
    To Matrix displays.
3. Using the arrow keys, select the **audio mixing destination**.

    To Matrix

    Speaker

    Left Hdst

    Right Hdst
4. Tap **PGM**.
    *➞Mic or Mic displays. If an arrow displays, this indicates that the mic signal is currently being routed to the destination that you selected in step 2. To toggle the selection, press **PGM**. You can also press ↑↑ or ↓↓ to display and toggle any of the following items:*

    Mic

    Matrix

    Aux 1

    Aux 2
5. Tap **CLR** to exit.
6. Select **Save Cfg** to store any mixing changes.

Service Menu, Hdst Sel

Hdst Sel is used to select either the front panel headset jack or the headset connector on the optional rear connector module. By default, the front panel jack is selected.

To **select the headset connection**, do the following

1. Using the arrow keys, select **Hdst Sel**.

2. Tap **PGM**.
   →*Default displays. The arrow indicates the default front panel jack is selected.*

3. Using the up or down arrow, select either **Default** or **External**.

4. Tap **PGM**.

5. Tap **CLR** to exit.

6. Select **Save Cfg** to store the new Hdst Sel setting.

Service Menu, LCP-32

By default, each LCP-32 you connect to the KP-32 takes control of level adjustment for the first available group of 16 physical keys found. The first LCP-32 adjusts keys 1-16, which corresponds to the bottom row of keys on the KP-32; the second LCP-32 adjusts keys 17-32, and so forth. If you do not want to use an LCP-32 with certain keys, you must program the KP-32 to skip those keys.
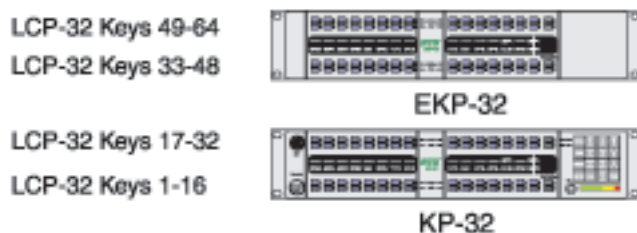
FIGURE 11. LCP-32 correspondence to KP-32 and EKP-32

For example, you may not want to use LCP-32s with the KP-32 but do want to use them with an EKP-32. In this case, you must turn off LCP usage for keys 1-32 as follows:

To **configure the LCP-32 setup**, do the following:

1. Using the arrow keys, select **LCP-32**.

2. Tap **PGM**.
   1-16: Yes displays. This indicates that the first connected LCP-32 attaches to keys 1-16.

3. Tap **PGM**.
   1-16: Skip displays. This indicates that the first connected LCP-32 skips keys 1-16 and attaches to the next available row of keys.

4. Using the arrow keys keys, select **17-32: Yes**.

5. Tap **PGM**.
   17-32:Skip displays. This indicates that the first connected LCP-32 skips keys 17-32 and attaches to the next available row of keys.

6. Tap **CLR** to exit.

7. Select **Save Cfg** to store the new LCP-32 settings.

Service Menu, Local GPIO

If your KP-32 has an optional Connector Module, you can use this menu item to assign the GPIO 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. Set up inputs and outputs as follows:

Assigning an Input to Activate a Key

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

1. Using the arrow keys, select **Local GPIO**.
2. Tap **PGM**.
   Input displays.
3. Tap **PGM**.
   GPI Inp #1 displays.
4. Using the arrow keys, select a **different GPI input**.
5. Tap **PGM**.
6. Use the up arrow key to select **Talk Key**.
7. Tap **PGM**.
   Tap Key displays.
8. Tap the **intercom key** you want to assign.
   This is the key activated when the GPI input activates.
9. Tap **CLR** to exit.
   OR
   Tap **BACK** to back up and make more assignments.
10. Select **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. Using the arrow keys, select **Local GPIO**.
2. Tap **PGM**.
   Input displays.
3. Tap **PGM**.
   GPI Inp #1 displays.
4. Using the arrow keys, select a **different GPI input**.
5. Tap **PGM**.
6. Use the up arrow key to select **Group**.
7. Tap **PGM**.
   By default, Group 1 displays. Use the up or down arrow keys to display a different group.
8. Tap **PGM**.
   An arrow appears to indicate that the group is now selected. For example, if you press PGM to select Group 1, →Group 1 displays.
9. Tap **CLR** to exit.
   OR
   Tap **BACK** to back up and make more assignments.
10. Select **Save Cfg** to store local GPIO settings.

Removing an Input Assignment

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

1. Using the arrow keys, select **GPIO**.
2. Tap **PGM**.
3. Using the arrow keys, select **Input**.
4. Tap **PGM**.
5. Using the arrow keys, select the GPI input you want to remove.
6. Tap **PGM**.
7. Use the up arrow key to select **Not Asgnd**.
8. Tap **PGM**.
   → *Not Asgnd displays. The arrow indicates that Not Assigned is the new selection.*
9. Tap **CLR** to exit.
10. Select **Save Cfg** to store local GPIO settings.

Adding or Removing a GPI Output Key Assignment

To **add or remove a GPI output key assignment**, do the following:

1. Select **Local GPIO**
2. Tap **PGM**.
   Input displays.
3. Use the up arrow to select **Output**.
4. Tap **PGM**.
   GPI Out #1 displays.
5. Using the arrow keys, select a **different GPI output**.
6. Tap **PGM**.
   Tap Key displays. Also, if there is a key currently assigned to activate the selected GPI output, both LEDs for that key light red. If there is no assignment, no LEDs are lit red.
7. Tap an **intercom key** to add or remove the GPI output assignment.
8. Tap **CLR** to exit.
   OR
   Tap **BACK** to back up and make more assignments.
9. Select **Save Cfg** to store local GPIO settings.

Service Menu, Matrix Out

This menu item 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 talk key's state.

To **select where the audio is routed**, do the following:

1. Select **Matrix Out**.
2. Tap **PGM**.
   → *Normal displays.*
3. Use the up arrow keys, select either **Normal** or **Hot Mic**.
4. Tap **PGM**.
5. Tap **CLR** to exit.
6. Select **Save Cfg** to store Matrix Out settings.

Service Menu, Mic Select

This menu item allows the user to select between the Panel and Headset Mic. In the Normal (default) setting, audio from the Panel Mic 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 **select the mic you want to use**, do the following:

1. Using the arrow keys, select **Mic Select**.
2. Tap **PGM**.
    ➞*Normal displays.*
3. Use the up arrow key to select either **Normal** or **Hdst Only**.
4. Tap **PGM**.
5. Tap **CLR** to exit.
6. Select **Save Cfg** to store Mic Select settings.

Service Menu, Min Volume

This menu item allows the user to set the minimum volume level 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 panel of the KP-32.

To **set the minimum volume for the speaker or headset**, do the following:

1. Select **Min Volume**.
2. Tap **PGM**.
    ➞*Speaker displays.*
3. Use the up arrow key to select either **Speaker** or **Headset**.
4. Tap **PGM**
5. Using the arrow keys, increase or decrease the **minimum volume level**.
    The range is -1dB to -60dB or Full Mute.
6. Tap **PGM**.
7. Tap **CLR** to exit.
8. Select **Save Cfg** to store Min Volume settings.

Service Menu, Mod Assign

NOTE: Normally, this is a service adjustment that is 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 positions on the keypanel or expansion panel.

The KP-32 and EKP-32 use module ID numbers (Mod ID numbers) to define the address of each key and display module.Mod 1 is always assigned to the right half of the KP-32 and this never changes, since this module has the keypad and is unique. However, the rest of the modules are identical. When replacing any of these modules, you may have to reset the Mod ID number as follows:

To **assign modules for a system with EKP units**, do the following:

1. Select **Mod Assign**.
2. Tap **PGM**.
    Cancel? displays.
3. Tap **PGM** to exit the procedure without making changes
    All of the alphanumeric displays, except Mod 1 appear.
4. Assign the **Mod IDs** as shown in the figure.

5.   Repeat the **procedure** for each module.

1. Module ID number
is displayed here.

Select Module ID 0
↓↓Increase   ↓↓Decrease   Select ↓↓

2. Select the correct module ID
number with these keys
(see below).

3. Tap here to assign.
Asterisks will briefly display
while the module updates.

ID 0   ID 1
(Cannot change)   ID 2   ID 3

KP-32   EKP-32
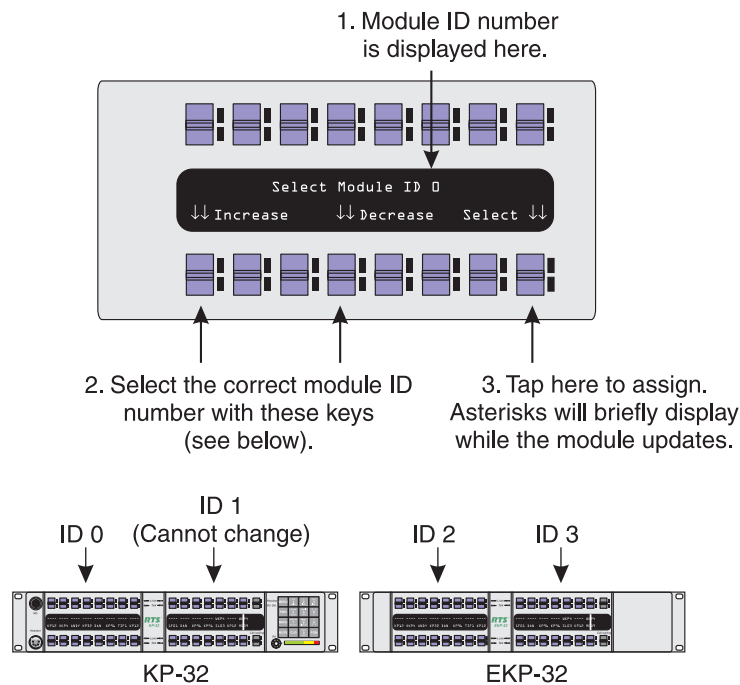
NOTE: You do not need to run Save Cfg after changing Mod assignments.

Service Menu, OMNEO Setup (OKI Option Card Only)

The OMNEO Setup menu is used to configure the OKI's device name, enable DHCP, and address the OKI option card for the KP-32.

IMPORTANT:	When making changes to the OKI device name and the IP Address at the keypanel, you must make the same changes in AZedit or IPedit before the connection is made. For example, you configure all your devices in AZedit or IPedit before putting the matrix on the network. Once the keypanels have been configured and the matrix is put on the network, the connections are automatically made. Making changes at the keypanel alone does not automatically update the configuration on the matrix.

To **configure the OMNEO device name**, do the following:

1.   Using the arrow keys, select **OMNEO Setup**.

2.   Tap **PGM**.
     Device Name appears.

3.   Tap **PGM**.
     The OMNEO device name appears with the first character blinking.

4.   Using the arrows, scroll to the to the **first character of the device name** desired.

5.   Tap **PGM**.
     The focus moves to the next character in the device name.

NOTE: You can also use the volume control to move the cursor position to the left and right.

6.   Repeat **steps 4** and **5** until the OMNEO Device is named.

7.   When finished entering the OMNEO device name, press **FWD**.
     The OMNEO device is named.

NOTE: CLR deletes the current character. 0 can be used to insert a character at the current position. Scroll up/scroll down can also be used to move the current cursor position.

To **select the type of addressing for the OMNEO device**, do the following:

1. Using the arrow keys, select **OMNEO Setup**.
2. Tap **PGM**.
    Device Name appears.
3. Using the arrow keys, scroll to **DHCP**.
4. Tap **PGM**.
    The type of addressing appears with an arrow denoting which is selected.
5. Using the arrow keys, select either **Use DHCP** or **Fixed IP**.
6. Tap **PGM**.
    The addressing type is set.

To **configure the IP Parameters for the OMNEO device**, do the following:

IMPORTANT: To make changes to the IP Address from the keypanel, you must set the type of addressing to Fixed IP.

---

1. Using the arrow keys, select **OMNEO Setup**.
2. Tap **PGM**.
    Device Name appears.
3. Using the arrow keys, scroll to **IP Params**.
4. Tap **PGM**.
    IP Address appears in the keypanel display.
5. Tap **PGM**.
    The IP Address octet appears in the keypanel display with the first octet blinking.
6. Using the keypad, enter the **IP Address**.
    Use the PGM key as the dots between octets.
7. When finished entering the IP Address, tap **PGM**.
    Netmask appears in the keypanel display.
8. Tap **PGM**.
    The Netmask octet appears in the keypanel display with the first octet blinking.
9. Using the keypad, enter the **Netmask**, if necessary.
    Use the PGM key as the dots between octets.
10. When finished entering the Netmask, tap **PGM**.
    Gateway appears in the keypanel display.
11. Using the keypad, enter the **Gateway**, if necessary.
    Use the PGM key as the dots between octets.
12. When finished entering the Gateway, tap **PGM**.
    The DNS Srv 1 appears in the keypanel display.
13. Using the keypad, enter the **DNS Svr 1 address**, if necessary.
    Use the PGM key as the dots between octets.
14. When finished entering the DNS Svr 1 address, tap **PGM**.
    DNS Srv 2 appears in the keypanel display.
15. Tap **PGM**.
    The DNS Server 2 address appears in the keypanel display with the first octet blinking.
16. Using the keypad, enter the **DNS Svr 2 address**, if necessary.
17. When finished entering the DNS Svr 2 address, tap **PGM**.
    Domain Name appears in the keypanel display.
18. Tap **PGM**.
    The Domain name appears in the keypanel display with the first character blinking.
19. Using the arrows, scroll to the to the **first character of the device name** desired.

20. Tap **PGM**.
    The focus moves to the next character in the device name.

    NOTE: You can also use the volume control to move the cursor position to the left and right.

21. Repeat **steps 19** and **20** until the Domain Name is entered.

    NOTE: CLR deletes the current character. 0 can be used to insert a character at the current position. Scroll up/scroll down can also be used to move the current cursor position.

22. Tap **FWD** to exit.

23. Select **Save Cfg** to store the OMNEO Setup settings.

Service Menu, Output Level

Allows the adjustment of the nominal audio output level to the matrix from 0 dBu to +8dBu.

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

1. Select **Outp Level**.

2. Tap **PGM**.
   +8dB displays. The down arrow decreases the level or the up arrow increases the level.

3. Tap **PGM**.

4. Tap **CLR** to exit.

5. Select **Save Cfg** to store the Output Level settings.

Service Menu, Preamp Out (GPI Option Only)

Allows the user to choose how audio is routed to the Preamp Output connector. When Switched is chosen, keypanel audio is routed to the preamp output connector when a talk key is latched. When Hot Mic is chosen, audio is always available at the preamp output connector. When Disabled is chosen, keypanel audio is isolated from the preamp output connector.

To **configure Preamp Out**, do the following:

1. Select **Preamp Out**.

2. Tap **PGM**.
   ⇒*Switched displays or up arrows toggle between Switched, Hot Mic, and Disabled.*

3. Tap **PGM**.

4. Tap **CLR** to exit.

5. Select **Save Cfg** to store the Preamp Out settings.

Service Menu, Reset Cfg

Reset Cfg restores all custom settings to the defaults and erases all stored autodial numbers. Select **Save Cfg** to save the settings.

Service Menu, RVON Setup (RVON Option Card Only)

RVON Setup is used to configure the IP Address, Netmask Address, and Gateway Address for the RVON device you want to use.

To **configure the RVON device**, do the following:

1. Select **RVON Setup**.

2. Tap **PGM**.
   IP Address appears.

3. Tap **PGM**.
    The enter IP Address window appears.

4. Using the keypad, enter the **IP Address**.
    Use the PGM button as the dots between octets.

5. When finished entering the IP Address, press **PGM**.
    Netmask appears in the keypanel display.

6. Using the keypad, enter the **Netmask**, if necessary.
    Use the PGM button as the dots between octets.

7. When finished entering the Netmask, press **PGM**.
    Gateway appear in the keypanel display.

8. Using the keypad, enter the **Gateway**, if necessary.
    Use the PGM button as the dots between octets.

9. When finished entering the Gateway, press **PGM**.
    The RVON Setup menu appears in the keypanel display.

10. Tap **CLR** to exit.

11. Select **Save Cfg** to store the RVON Setup settings.

Service Menu, Save Cfg

Save Cfg saves custom settings that you have made in the Key Option or Service menus. After customizing settings in the Key Option and Service menus, run Save Cfg to store your custom settings in non-volatile memory. This assures protection of you settings when the keypanel is powered down. To erase all custom settings, run Service Menu, Reset Cfg.

Service Menu, Scr Saver

The **Scr Saver** menu item is used to configure the operation of the screen saver on the keypanel.

The following options are available to configure the screen saver:

Delay -	By default, a one (1) hour delay is programmed. You can choose 30 min and 1 to 12 hours (available in one (1) hour increments).
Display Off -	Display Off turns the display off without displaying the screen saver. Press any key to activate the display window.
Activate -	When selected, Activate enables the screen saver immediately. Press any key to activate the display window.

Service Menu, Sidetone

Sidetone is used to adjust the level of your own voice heard in the headphones when using a headset. Most people prefer some amount of sidetone to overcome the muffled sensation when talking, especially when wearing a full-muff headset. The maximum level is 0dB.

Service Menu, Snoop Tally

Snoop Tallies provide an indication to keypanel users that someone is listening to them.

NOTE: To use Snoop Tallies, the keypanel must be working in HOT MIC (USM) mode. This is available only on the KP-32 and the KP CLD panels. And, they must be enabled in the intercom (Options|Intercom Configuration|Options|Generate Snoop Tallies).

To **configure snoop tally**, do the following:

1.   Select **Snoop Tally**.
2.   Tap **PGM**.
     ➔ *No Chime (Default) appears in the display window. Up arrows toggle between No Chime and Chime.*
3.   Tap **PGM**.
     Snoop Tally is configured.
4.   Tap **CLR** to exit.
5.   Select Save **Cfg** to store the Snoop Tally settings.

Service Menu, Test Panel

Test Panel PGM lets you check the operation of all keys and displays.

All alpha-numeric displays show a % symbol. Pressing down on any key (except the **Headset / Vol. Sel.** 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.

If latching is enabled, tapping up or down on any intercom key, or the **call waiting** key, causes the corresponding red LED to light. This verifies latching operation and also that the each red LED is OK.

Holding any key in the up or down position causes the corresponding green LED to light. This verifies operation of the green LEDs.

Tapping any keypad button (except CLR) causes the keypad button name to appear in the *call waiting* window. This verifies operation of the keypad buttons.

Service Menu, Tone Gen

Tone Generator **PGM** turns the KP-32 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.

Specifications

Microphone Preamplifier

Electret Mic Input Level @ 1kHz:...-42dB, 150Ω
Dynamic Mic Input Level @ 1kHz:..-50dBm, 150Ω
Default Output Level (to matrix): .... 0dBu, +8dBu
Max Voltage Gain, Mic to Line: .... 70dB, ± 2dB
Frequency Response: ....100Hz to 10kHz, ± 2dB
Limiter:...8dB above nominal

Tone Generator

Output Level (to matrix): .... +8dBu ± 2dBu
Output Frequency:... 500Hz

Headphone Amplifier

Maximum Voltage Gain:... 200dB
Frequency Response: ....100Hz to 10kHz, ± 2dB
Headphone Impedance:...8 to 600Ω
Output Power: ....1W into 50Ω
Output Voltage Level:...8 Volts peak-to-peak (max.)
Sidetone Range: 25dB

Speaker Amplifier and Speaker

Frequency Response: ....100Hz to 10kHz, ± 2dB
Output Power (per amplifier):..4W into 4Ω
Output Voltage Level:...12 Volts peak-to-peak (max)
Volume Control Range: 30dB
Speaker Rating: ....4W (max)

Intercom Input/Output

Input: Default Nominal: +8dBu. Peak: ± 20dBu max.

Output: +8dBu, ± 2dBu nominal

External Line Input: (Program Input)

Input Level: +8dBu nominal

General

AC Supply:

External, switching type, 100-240VAC, 50/60Hz with locking DIN connector for attachment to the keypanel and universal IEC connector for connection to various AC mains cords.

Environmental:

Storage: -40°C (-40°F) to +60°C (140°F)

Operating: -10°C (14°F) to +41°C (105.8°F)

Dimensions: 19" (48.26cm) wide x 2RU x 3.5" (8.89cm) deep

Approvals:

UL, CSA, VDE, CE

Connectors (Other connector options available)

Panel Microphone Connector

Type: 3-circuit, 1/4" phone jack w/threaded metal bushing, compatible with RTS MCP5/6

Pin-out:

Tip: +Audio and DC bias

Ring: Common

Sleeve: Chassis ground

Headset Connector

Type: XLR5 female

Pin-out:

Pin 1:   Mic low

Pin 2:   Mic high

Pin 3:   Common

Pin 4:   Headphone left high

Pin 5:   Headphone right high

Power Input Connector

Type: 5-pin locking DIN
Pin-out:
Pin1:   Common
Pin2:   Common
Pin3:   +5VDC, 1.50A (max)
Pin4:   -15VDC, 0.150A (max)
Pin5:   +15VDC, 0.5A (max)

Intercom Connectors: Parallel-wired DE9S and RJ12 Connectors

Type: DE9S
Pin-out:
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: RJ12
Pin-out:
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: RJ45

LCP Connector

Type: RJ45

GPI Module Connectors (Optional)

Aux 1 In (Auxiliary program input 1)

Type: 3-pin female XLR
Pin-out:
Pin 1:   Ground
Pin 2:   Input +
Pin 3:   Input -

NOTE: Balanced input, +8dBu nominal.

Aux 2 In (Auxiliary program input 2)

Type: 3-pin female XLR
Pin-out:
Pin 1:   Ground
Pin 2:   Input +
Pin 3:   Input -

NOTE: Balanced input, +8dBu nominal.

Relay 1 & 2 Out

Type: 9-pin male D-Sub
Pin-out:
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:   +5VDC
Pin 8:   Ground
Pin 9:   +5VDC

Relay 3 & 4 Out

Type: 9-pin male D-Sub
Pin-out:
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:   +5VDC
Pin 8:   Ground
Pin 9:   +5VDC

NOTE: The relay 1 and 2 contacts are electrically separate, but operate in unison. The relay 3 and 4 contacts are electrically separate, but operate in unison. The +5VDC pins are connected internally through 1K resistors to +5VDC and can source 5mA. This voltage can be used with the relay contacts to create an active high output for some devices that require a +5VDC signal to activate. For example, connecting pin 7 to pin 3 of the Relay 1 and 2 connector results in +5VDC on pin 2 when the relay is activated.

Opto 1-4 In (Opto-isolated control inputs)

Type: 9-pin male D-Sub
Pin-out:
Pin 1:   Input 1 Gnd
Pin 2:   Input 2 Gnd
Pin 3:   Input 3 Gnd
Pin 4:   Input 4 Gnd
Pin 5:   Gnd
Pin 6:   Switch contact input 1
Pin 7:   Switch contact input 2
Pin 8:   Switch contact input 3
Pin 9:   Switch contact input 4

NOTE: A contact closure between any switch input and ground activates that input. The switch contact inputs are also connected internally through 1K resistors to internal +5VDC and can source 5mA for use with an external transistor switch circuit.

OC 1 & 2 Out (J2)

Type: 9-pin male D-Sub
Pin-out:
Pin 1:   Gnd OC1
Pin 2:   Emitter OC1
Pin 3:   Collector OC1
Pin 4:   Gnd OC2
Pin 5:   Emitter OC2
Pin 6:   Collector OC2
Pin 7:   5VDC
Pin 8:   No connection
Pin 9:   5VDC

Headset (External headset connector)

Type: 9-pin male D-Sub
Pin-out:
Pin 1:   Gnd
Pin 2:   N/A leave unconnected
Pin 3:   N/A leave unconnected
Pin 4:   N/A leave unconnected
Pin 5:   Balanced dynamic mic input +
Pin 6:   Gnd
Pin 7:   Headset Listen Out Left
Pin 8:   Headset Listen Out Right
Pin 9:   Balanced dynamic mic input -

NOTE: Mic input -50dBu nominal. Headset out 0.325W into 8Ω.

Foot Switch/Speaker

Type: 9-pin male D-Sub
Pin-out:
Pin 1:   Gnd
Pin 2:   Speaker Minus (-)
Pin 3:   Gnd
Pin 4:   No connection
Pin 5:   Foot Switch
Pin 6:   Speaker Plus (+)
Pin 7:   No connection
Pin 8:   No connection
Pin 9:   Gnd

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

MIC In (J7) Unbalanced Panel Microphone Input

Type: 3-pin female XLR

Pin-Out:

Pin 1:   Shield (circuit common)

Pin 2:   DC bias and Audio Plus (+)

Pin 3:   GND

NOTE: Input level -42.5dBu nominal.

MIC Out (J8) Balanced Microphone Output

Type: 3-pin male XLR

Pin-out:

Pin 1:   Shield (circuit common)

Pin 2:   Audio output +

Pin 3:   Audio output -

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

KP9X Keypad Sequence Quick Reference

KP9X Display Sequences

FUNC DISPLAY 0   Diagnostics mode.

FUNC DISPLAY 1   Display port number.

FUNC DISPLAY 2   Display level 2 talk assignments.

FUNC DISPLAY 3   Display listen assignments.

FUNC DISPLAY 8   Display setup page assignments.

FUNC DISPLAY   Up and down arrows select items as follows:

> **ID:**   Display the calculated port number.
>
> **Lev2:**   Display level 2 talk assignments.
>
> **Lstn:**   Display listen assignments.
>
> **Name:**   Display crosspoints closed to this keypanel.
>
> **Type:**   Display level 1 talk key assignment types.
>
> **Mtx:**   Display matrix ID for all level 1 talk assignments.
>
> **Tone:**   Turn on tone generator.
>
> **Epnl:**   Display setup page assignments. Mn=KP-32 bottom row keys. X1=KP-32 top row key. X2=EKP-32 bottom row keys. X3=EKP-32 top row keys.
>
> **Gain:**   Port / party line listen gain. Turn on listen key. Arrow keys to change gain.
>
> **VRst:**   Reset all port / party line gains to 0 dB.
>
> **Asgn:**   Display key assignments that are not currently accessible.
>
> **Test:**   Test keys and displays.
>
> **Vxxx:**   Display keypanel firmware version.

KP9X Setup Page Assignment

1. Tap **E-PNL**.
2. Select a **setup page**: tap **1**, or **2**, etc.
3. Tap **PGM**.
4. Tap **any key in the row** to assign the selected setup page to that row of keys.

Key Assignments Using Keypad Numeric Entry

1. For talk level 2 assignment only: Tap **0 0**.
2. Select the **key assignment type**:

    NUM Intercom port.

    PL Party line.

    AUTO Auto function.

    FUNC SLIST Special list.

    FUNC IFB IFB.

    FUNC ISO Camera ISO.

    FUNC RELAY Relay or GPI output.
3. Auto function assignment only: Tap an **additional number** to select the desired auto function:

    1 Auto listen

    2 Auto follow

    3 Auto mute

    4 Auto reciprocal

    5 All call

    6 DIM (talk level 2 only, for point-to-point key)

    7 Auto table (use only with IFB)
4. Trunked intercoms only: Select an **intercom matrix** (tap **1**, or **2** etc.).
5. Tap **one (1) or more number keys** to select the desired port number, party line number, etc.:
6. If the destination is in a remote matrix, you must **always enter three (3) digits for port numbers and two (2) digits for the function number.**
7. Tap **PGM**.
8. Tap **down** on a key to assign talk.
   OR
   Tap **up** to assign listen.

KP9X Phone Operation

KP9X Hang-up Sequence

1. Turn off **the TIF talk key**.
2. On the keypad, tap **PHONE-CLR**.
3. Turn the TIF talk key **on**, then **off**.
   The TIF key talk and listen indicators turn off and the TIF hangs up.

KP9X Dial Sequence

1. Activate the **TIF listen key** (listen LED green).
   Make sure the TIF talk key is off (Talk LED off).
2. On the keypad, tap **CLR-PHONE-PGM**.
3. Activate the **TIF talk key** (talk LED turns green).
   The on LED at the TIF activates, and you should hear dial tone at the KP-32.
4. Dial the **telephone number**.
   Digits scroll in the display above the TIF talk key. When the far end answers, you can dial additional digits (to access a mail system or automated response system, etc.). When finished dialing, momentarily turn off the TIF talk key to end dialing mode (talk LED turns red).
5. Turn the **TIF talk key** on for conversation.

KP9X Redial Sequence

1. Tap the **PHONE** key to activate dialing mode.
2. Tap **up** on the TIF key to activate listen.
3. Tap **CLR 0 0**.
   The last phone number is redialed.
4. After the number has dialed, click the **PHONE** key to end dialing mode.
   If the far end answers, tap down on the TIF key to activate talk.
5. Use the **KP9X hang-up sequence** to hang up.

KP9X Autodial Sequences

Storing an Autodial Number in the TIF

1. Tap the **PHONE** key.
2. Tap the **TIF talk key** to latch it on.
3. Using the keypad, dial the **phone number** you want to store.
   The entire phone number sequence can have up to 30 digits.

   NOTE: To insert one (1) or more pauses anywhere in the dialing sequence, enter **CLR CLR 9 9** for each pause.

4. After dialing the telephone number, click **CLR PGM**, then enter a 2-digit number (01, 02, etc. up to 32) you want to use as the autodial number.
5. After storing the autodial number, hang up using the **KP9X hang-up sequence**.

Dialing an Autodial Number Stored in the TIF

1. Tap the **PHONE** key to activate dialing mode.
2. Tap **down** on the TIF talk key to latch it in the on position.
3. Tap **CLR** followed by the autodial number (01, 02, etc.).
4. When finished dialing, click the **PHONE** key again to exit dialing mode.
5. Hang up using the **KP9X hang-up sequence**.

KP-32 Menu System Quick Reference

Menu Access

1. Clear **all entries** from the call waiting display (if not clear) by tapping up one (1) or more times on the call waiting key.

2. Tap **MENU** to activate the menu system.

3. Press the down arrow key to scroll forward through the list of menus. Press the up arrow key to scroll back.

4. Tap **FWD** or **PGM** to enter a menu. Tap **BACK** to exit a menu.

5. Within a menu:

   - Press the arrow keys to scroll.
   - Tap **FWD** or **PGM** to select an item.
   - Tap **BACK** to cancel a selection or to go back to the previous menu level.

Menu List

Display Menu	Key Assign Menu	Key Options Menu	RVON Conn.	Save Cfg.	Service Menu
Asgn Type	Matrix	Auto Dial[a]	list of RVON Offers[a]		Alphas
Chans On	Pt-to-Pt	Chime[a]	Or		Aux Inputs[a]
Key Groups	Party Line		list of OMNEO Connections		Baud Rate[a]
Key List	IFB	Key Groups[a]			Caller Vol.[a]
Level 2	Spcl List	Solo[a]			DIM[a]
Listen	Sys Relay				Displ DIM[a]
Matrix	Camera ISO				DSP Func[a]
Panel ID	UPL				Hdst Set[a]
Version	IFSL				LCP-32[a]
	Auto Func				Local GPIO[a]
	Key Gain				Matrix Out[a]
	Reset Vols				Mic Select[a]
	Setup Page				Min Volume[a]
					Mod Assign[a]
					Outp Level[a]
					Preamp Out[a]
					Reset Cfg[a]
					RVON or OMNEO Setup[a]
					Save Cfg
					Scr Saver[a]
					Sidetone[a]
					Snoop Tally[a]
					Test Panel
					Tone Gen

a. Run Save Cfg (see "Service Menu, Save Cfg" on page 73) to save these settings.

Mode 2 Operation

Section 2

Switch 4: Call Flash Timeout*

When the switch is closed the menu and indefinite talking is disabled.

NOTE: The * represents the default position.

Section 3

LED Indications for Intercom Keys

Talk LED Indications

The talk LED is the lower LED for each key. The talk LED indications are as follows:

Continuous Red

Talk is on and the keypanel operator can be heard at the destination.

*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. If you activate the key, either of two (2) things happen:

- If you activate the key and the talk LED turns continuous red, this indicates that you and the other keypanel operator are both talking to the destination.
- IFB keys only: If the alpha alternates between the normal display and ** when an IFB key is activated, this indicates that the other keypanel has a higher IFB priority and you cannot talk at this time.
- The slow tally alpha display in-use indication for TIF keys can be disabled in AZedit:

Solid Red Talk LED & Flashing Display Alternating Pattern of Alpha & (**) (Busy)

You cannot talk at this time. This indication occurs when you activate a local or remote IFB key that is 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 Display Alpha (on time equal to off time)

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-32 back panel. See "Telephone Operation" on page 37, for further information.

Amber Talk LED

This indicates that a key is ready to talk (key is on), but requires external footswitch activation to talk.

Glossary

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-configurable names which identify destinations (intercom ports, party lines, etc.). Change Alpha names for intercom ports using the Port Alpha button in AZedit. Change Alpha names for everything else using the Other Alpha button. When you assign a destination to a talk key, the alpha name appears in the alphanumeric display for that key.

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

Auto Listen (AL). A key assignment for listen keys only. This assignment works like auto follow, except that listen automatically activates during talk. Auto listen is a good assignment for use with party lines, TIFs, 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 that 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 are not able to hear the destination.

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 also useful to force listening when it is desirable to have an operator continuously hearing a particular source.

Auto Table (AT). A key assignment for listen keys only, when the corresponding talk key 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 that key.

Crosspoint. The term *Crosspoint*, like the term *Matrix* is inherited from intercom systems, such as the RTS CS9500, CS9600, and CS9700, that 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, Cronus, and Zeus 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.

Destination. A destination is anything that a talk key talks to. A assignment can therefore be any port, party line, IFB, etc.

DIM. *DIM* occurs in two (2) contexts in RTS Digital Matrix Intercom Systems.First, there is the DIM Table feature. DIM tables are used to correct a feedback problem that can occur between two (2) keypanels operating in close proximity that have keys assigned to talk/listen to a common destination. DIM tables are set up in AZedit. Once a dim table is set up, it can be assigned as a level 2 talk assignment for those keys that are causing the feedback problem. For information, see "Service Menu, DIM" on page 63. There is also an adjustable speaker dim feature available on the KP-32. This causes 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.

GPIO. General Purpose Input / Output. (You may also see this referred to 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 and
Zeus III intercom systems, you can also control intercom events from external switches. You can activate key assignments, close or open crosspoints, activate GPI outputs, etc. ADAM and Zeus III intercom systems all have a dedicated GPIO connector (J27 on a Zeus Frame, J903 on an ADAM CS Frame, and J11 on the XCP-ADAM-MC Master Controller Breakout Panel in an ADAM Intercom System). 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 GPIO-16 provides another 16 control inputs and 16 control outputs. Control outputs may be assigned to intercom keys using the Relay key assignment type, and the intercom keys can then control external devices. 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 no 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 and CLD keypanels, 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.

IFB. 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 input 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-the-air talent. For example, the news anchor during a news broadcast typically listens to the broadcast audio mix in an ear set (with the news anchor's own voice audio removed from the mix). A director at a keypanel can interrupt the broadcast audio to the news anchor's ear set and provide new information to the news anchor. IFB could also be used with a PA (public address) system that normally broadcasts background music. The background music can be interrupted while someone is talking over the PA. IFB's are set up by defining the IFB inputs and outputs using the 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.

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 talk to and hear 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 AZedit. Each ISO can also be given a name which is meaningful to keypanel operators. Once an ISO has been set up and named, it can be assigned to any keypanel key

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. Matrix is used interchangeably with Intercom System. See Crosspoint.

Party Line (PL). A party line (also called a conference) 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 Other Alpha setup in AZedit. Ports are made permanent talkers and/or permanent listeners of a party line. Party lines 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 fixed group of intercom ports that are otherwise unrelated. A party line is typically used when several users of non-keypanel devices (such as belt packs 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.

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.

Communication between Ports (Point-to-Point, or P-P): The audio signal from any input port can be routed to any output port. During keypanel setup, you assign keypanel keys so that keypanel operators can talk and listen to other intercom ports.

You can also route signals between intercom ports without keypanels. To do this is to force crosspoints in the Crosspoint Status screen of AZedit. Another way to do it is with a GPI input.

Port ID Numbers and Alphas Intercom ports have identification numbers 001, 002 etc. These numbers cannot be changed, but may not be commonly known to intercom system users. Each intercom port also has a default name, called an alpha, because this name appears in the alphanumeric displays on keypanels when you assign the ports to keys for talking and listening. The default alpha names are N001, N002 etc. These default alpha names can be changed to ones that are meaningful to keypanel operators using Port Alpha setup

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. It is also possible to adjust the listen gain for any specific intercom port when listening to any other specific intercom port. This is called the point-to-point listen gain, or crosspoint gain. Analog gain adjustment is only available using AZedit. Crosspoint gains can be adjusted either within AZedit or from a programmable keypanel.

Relay. Relay is used interchangeable with GPI output. The relay feature works with the 16 GPI outputs of an optional UIO-256 Universal Input / Output Frame. The relay feature also works with the eight (8) GPI outputs of an ADAM, ADAM CS, or Zeus intercom system (J27 on a Zeus Frame, J903 on an ADAM CS Frame, and J11 on the XCP-ADAM-MC Master Controller Breakout Panel in an ADAM Intercom System). You can assign a keypanel key to control a GPI output from any of these devices, and then use that key and output to control an external device.

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. A special list is a group of intercom ports that 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 Other Alpha setup. You define the members of the special list using Special List setup. Once a special list has been set up, you typically assign it to a keypanel key using Keypanel setup. 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 that are otherwise unrelated. A party line is typically used when several users of non-keypanel devices (such as belt packs 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. Just 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 the descriptions for talk level 1 and talk level 2.

Talk Level 1. Talk level 1 is the normal talk key assignment. This is the assignment that normally appears in the alphanumeric display. You may add a talk level 2 assignment to activate a second P-P or a PL, along with talk level 1.

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

NOTE: You can configure the intercom for up to four (4) talk levels.

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.

OKI Option Card Installation

Install the OKI Option Card

IMPORTANT:	Verify you have updated the boot loader and keypanel firmware on the KP-32 Classic keypanel before installing the OKI option card. For more information, see "Upgrade the KP-32 Boot Loader Version" on page 17.

To **install the OKI board set for the KP-32 Classic**, do the following:

1. Power **off** the KP-32 Classic keypanel.
2. Using a Phillips screwdriver, remove the **four (4) corner screws** from the back panel.

   NOTE: Steps 3 and 4 are only necessary if you have an RC option installed.

3. Using a hex nut driver, remove the **14 hex screws** from the back panel.
4. Remove the **eight (8) pan head screws** from the back panel.

5. Using a Phillips screwdriver, remove the **flat head screws** from top, bottom and back panel.

Corner ws (x4)   Hex Screws (x14)   Pan Head Screws (x8)

KP-32 Classic Rear View

KP-32 Classic Top View

Flat Head Screws (x10)

KP-32 Classic Bottom View

Flat Head Screws (x6)

6. Carefully attach the **OKI board set J1 to the KP-32 Classic main board J4**, as shown.

Detail A

J4

Detail A

OKI Board Set

J1
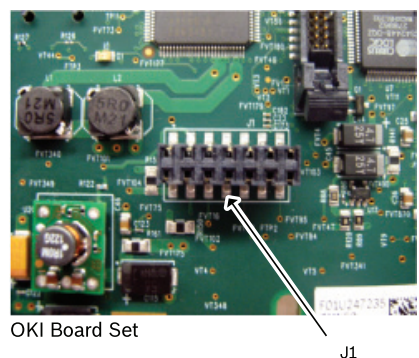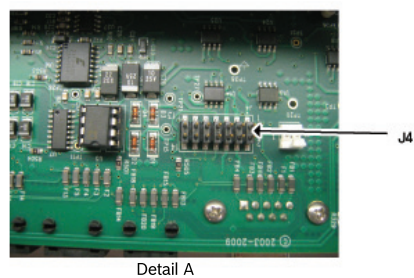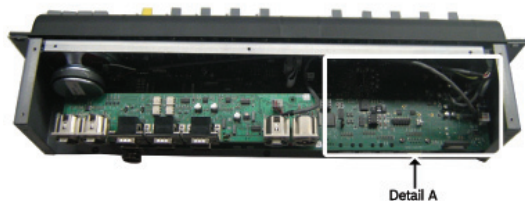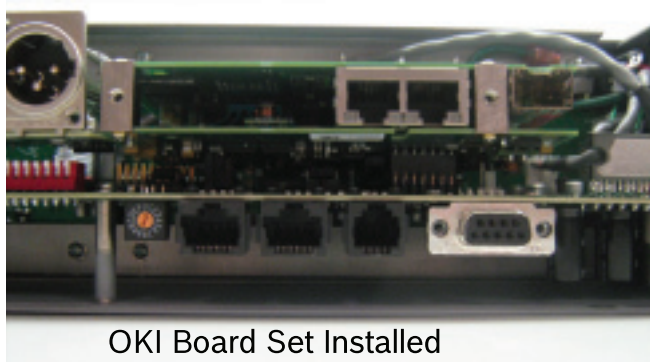
OKI Board Set Installed

7. Carefully replace the **back panel on the KP-32 Classic**.

8. Replace the **four (4) corner pan head screws** that attach the back panel.

9. Taking care to ensure the Ethernet connectors are flush to the chassis, use the **two (2) pan head screws provided to secure the OKI board to the chassis**.

OKI Board Screws
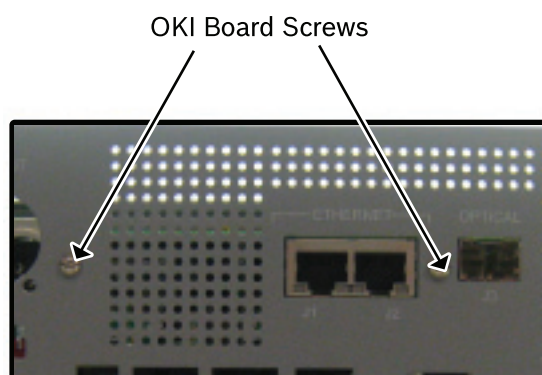
KP-32 Classic Rear View

NOTE: Steps 10 and 11 are only necessary if you have an RC option installed.

10. Replace the **14 hex screws**.

11. Replace the **eight (8) pan head screws**.

12. Replace the **top cover**.

13. Replace the **flat head screws**.

14. Power **on** the KP-32 Classic keypanel.

RVON-1

General Description of the RVON-1 Voice Over Network Card

Installed directly into KP-32 keypanels, the RVON-1 provides **VoIP** (Voice over Internet Protocol) communications, for the RTS ADAM Intercom family. In general, voice over IP means sending voice information in digital form using discrete packets rather than the traditional hard-wire 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 RTS's IPedit 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's history of providing support for the latest technology in a fully supported backward compatible manner to all its RTS products.

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 that can be tailored to individual network functions.
Ethernet Compatible	The RVON-1 card uses standard Ethernet protocols.
IPedit 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	160-224 kbps
G.729AB	8k	10ms	20-120ms	32-112kbps
G.723	5.3k/6.3k	30ms	60-120ms	29-45kbps

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 (63.5mmW X 146.05mmL)

Default Addresses for the RVON Product Line

TABLE 3. Default Address 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-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 Loader**

Default Setting	Off (Boot Loader Disabled)
Description	The purpose of the boot loader 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 loader.

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 4. 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
IPedit	2.06.06 or later
RVON-16	1.1.0 or later
KP-32	2.0.0 or later

Flash Chip Replacement

TABLE 5. Flash Chip replacement part numbers.

Keypanel	Flash Chip Replacement
KP-32 Standard	9015-7656-002 (U2)
	9015-7656-003 (U3)
KP-32 (Japan)	9015-7656-042 (U2)
	9015-7656-043 (U3)
KP-632	9015-7656-202 (U2)
	9015-7656-203 (U3)
KP-832	9015-7656-302 (U2)
	9015-7656-303 (U3)
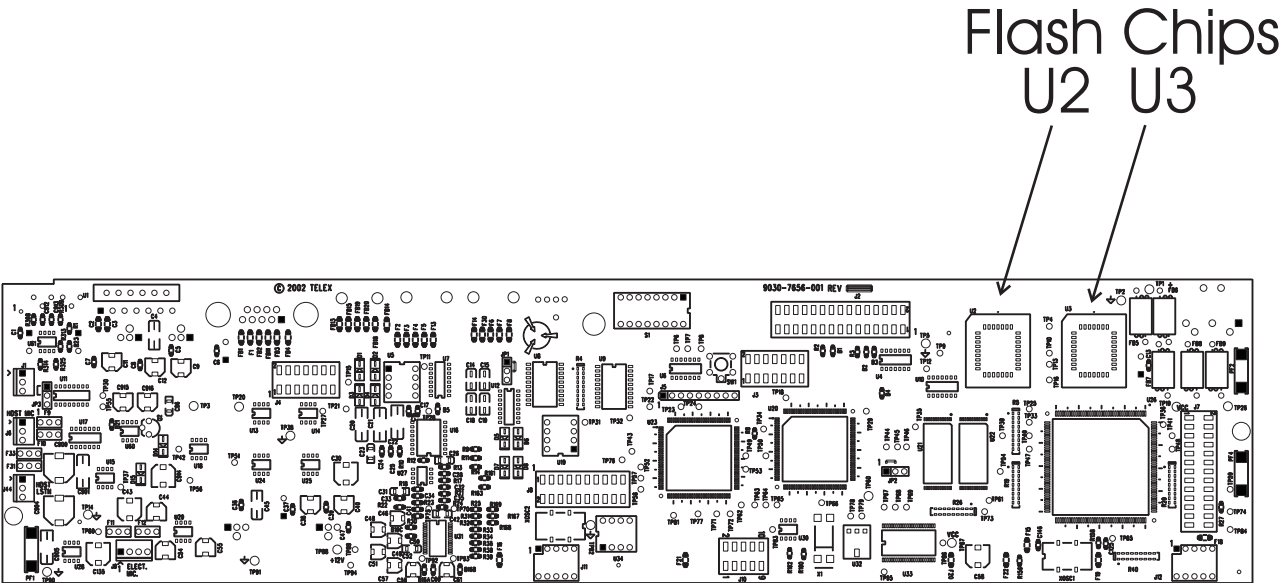
FIGURE 12. Flash Chip placement on the KP-32 motherboard

Installation of the RVON-1 Card

Before using the RVON-1 card with the KP-32, a few modifications need to be made to the keypanel. If the serial number on your KP-32 is 61170 or earlier, you must update your back panel with the Ethernet RJ-45 connection knockout present. Also, the KP-32 flash chips need to be replaced with larger flash chips (4MB), see Table 5 on page 102.

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

1. Remove the **cover** from the KP-32.
2. If present, remove the **GPI/O board**.
   The GPI/O board contains the general purpose input and output connections located on the back cover.
3. Using a chip extractor, carefully remove and replace the **flash chips** located at U2 and U3 on the KP-32 motherboard.
4. Using a hammer and screwdriver, remove the **knockout pieces**.
5. Mount the **supplied spacer** on the RVON-1 card on the corner of the card near the DIP switch. Securely connect the **RVON-1** card to the KP-32 motherboard.
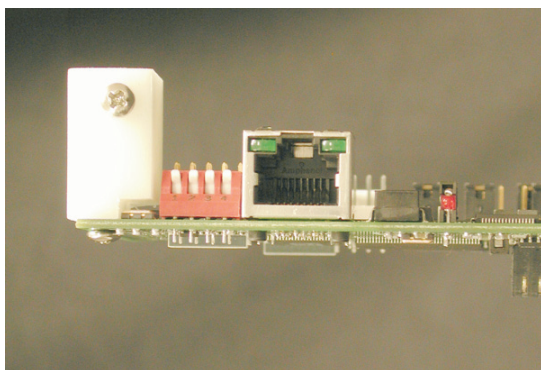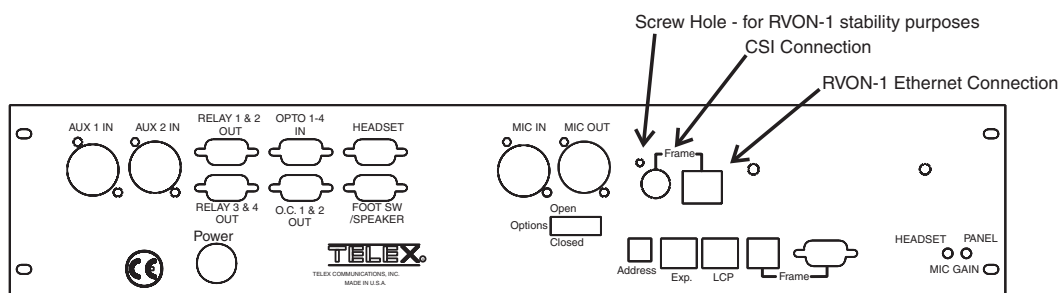
6. Replace the **GPI/O board**.
7. Re-attach the **back plate** to the KP-32. Be sure to secure the spacer with a screw in the back plate.
8. Replace the **cover** on the KP-32.

   NOTE:

   - In the KP-32, the RVON-1 card connects to the KP-32 by way of the J2 connector on the RVON-1, attached to J4 on the KP-32 header.
   - 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.

9.   Gently secure the **board** in place.
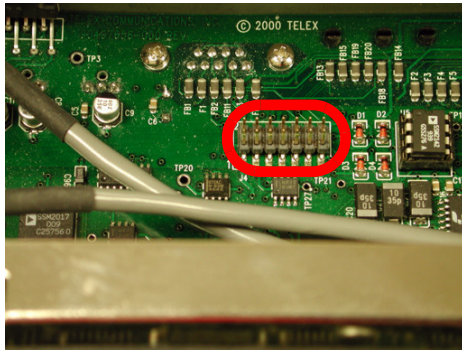
NOTE: Be sure the orientation of the board is correct, otherwise undesirable effects may occur. Make sure the RJ-45 connection is positioned so it fits through the specified knockout on the back cover. When installing the RVON-1 card in an existing KP-32 or KP-812, each keypanel needs to be upgraded to include the following:

KP-32

• A back plate that allows for the RJ-45 connection (Ethernet).

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 that contains 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, whereas 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 that 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-32

To use the RVON-1 with the KP-32, the KP-32 firmware must be at version 2.0.0 or higher. In turn, the firmware requires that larger flash chips be used as well (see "Flash Chip Replacement" on page 102).

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 your network.

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

1. On the KP-32, press **Menu**.
   The top level menu appears.

2. Using the down arrow keys, scroll to **Service**.

3. Press **PGM**.
   The Service menu appears.

4. Using the down arrow keys, scroll to **RVON Setup**.

5. Press **PGM**.
   The IP Address menu item appears.

6. Press **PGM**.
   The actual IP Address appears.

   NOTE: If you don't need to modify the entire address, press **PGM** to skip over any octet that does not need modifications.

7. Enter the **first number** in the IP Address.
   This enters the first octet of the IP Address and clears the rest of the IP Address.

8. Press **PGM**.
   This confirms the first octet in the IP Address and moves you to the second octet.

9. Repeat steps **7** and **8** until the entire IP Address is entered.

10. Press **PGM**.
    The Netmask menu item appears.

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

11. Press **PGM**.
    The actual Netmask appears.

12. Enter the **Netmask** in the same manner as the IP address.

13. Press **PGM**.
    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 forwards packets to another network.

14. Press **PGM**.
    The actual Gateway IP Address appears.

15. Enter the **gateway IP Address** in the same manner as the IP Address. If there is no gateway IP Address, set the address to 0.0.0.0.

16. Press **PGM**.

17. Press **CLR** to exit.
    The changes are now enabled.

Top Level Menu, RVON Conn.

Select an RVON Connection from the Top Level Menu

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

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

1. On the KP-32, press **Menu**.
    The top level menu appears in the CWW window.
2. Using the down arrow keys, scroll to **RVON Conn.**
3. Press **PGM**.
    The currently selected intercom port appears in the CWW window. If you have not previously selected a connection, you see <none>.
4. Using the down arrow keys, scroll to the **connection offer** that you want to accept.
5. Press **PGM**.
    → *<connection offer> appears. The arrow to the left of the offer designates which connection offer was chosen.*
6. Press **CLR** to exit.
    The keypanel is now connected to the selected intercom port.

Configure the RVON-8 via 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 card** and select **RVON Configuration**.
   The RVON 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. Remember, the RVON-1 has only one (1) channel that can be configured.

3. In the RVON-8 Channel drop down list, select the **channel** to be used to connect to the RVON-1 card across the 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 a 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. If it is not, AZedit is not able to connect to the RVON-8 card. To test the connection, ping the RVON card from a command line prompt. For more information on how to test for a connection, see "Basic Network Configuration" on page 111.

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

1.   Open **AZedit**.

2.   From the Status menu, select **Software Versions** and then **Keypanels**.
      The Keypanel Version window appears.
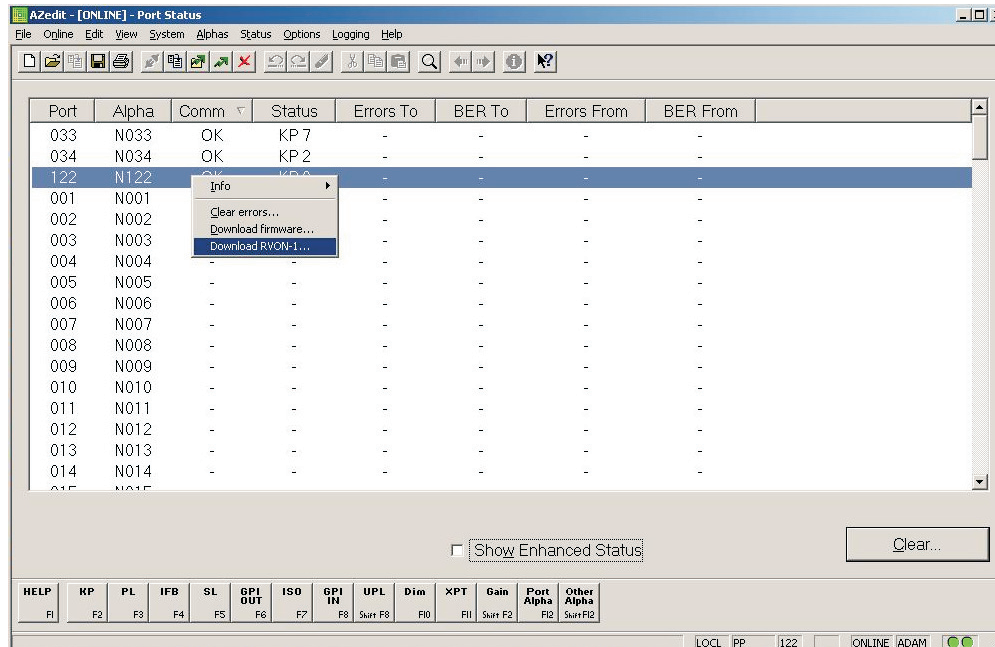
3.   On the Keypanel Version window, select the **Show RVON/OMNEO Versions** check box.

4.   Select and right click the **keypanel** which has the RVON-1 installed, and then select **Download RVON**.
      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.
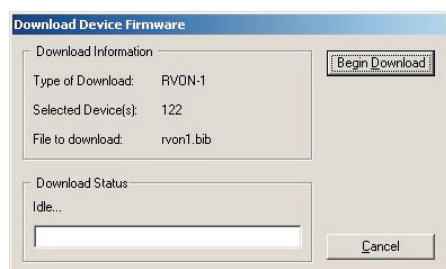
7.   Click **Begin Download**.
     The download begins.
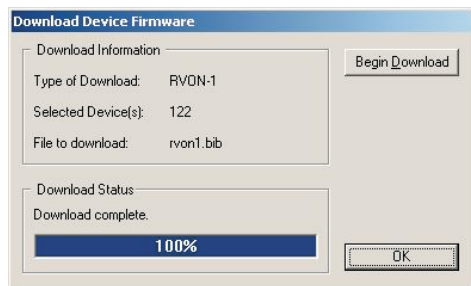
8.   Click **OK**.
     The RVON-1 firmware download is complete. This takes a minute or two (2) to occur.

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

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 (1) 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 traffic.

Because routers allow computers inside the LAN to communicate with computers outside of the LAN, the security of a company's LAN may be compromised by open ports in the router. Security measures may have been instituted to compensate for these vulnerabilities. Consult your network administrator to learn about the security measures taken to protect your network. **VPN**, or virtual private network, is one (1) such security measure to protect the intelligence of the LAN. A computer outside the LAN must have a key known by the VPN to allow access to the LAN. Many companies use a VPN to connect two (2) 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 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.
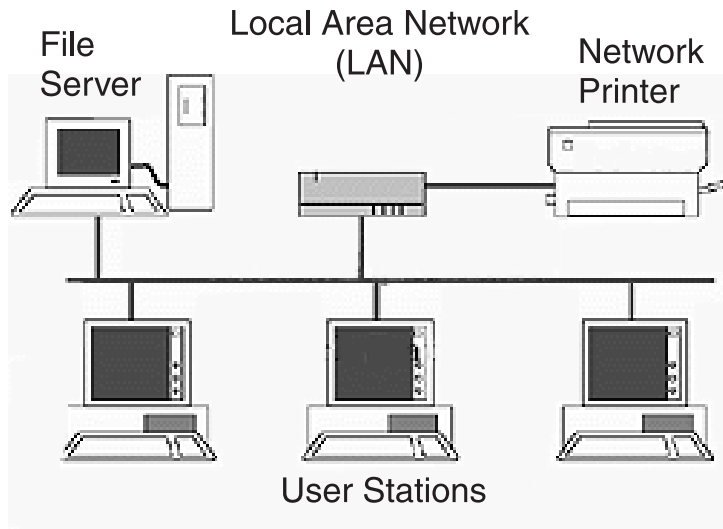
FIGURE 13. Local Area Network Diagram

Wide Area Network

A **WAN** (Wide Area Network) connects two (2) or more LANs and can span a relatively large geographical area. For example, Bosch Security Systems Headquarters in Burnsville, MN is connected to several branch offices in Nebraska and Hermosillo over a WAN. The largest WAN in existence is the Internet.
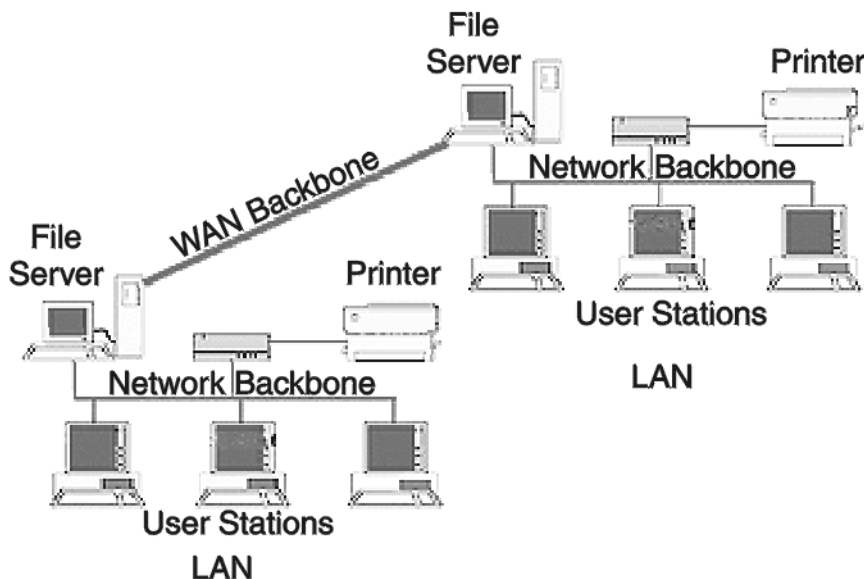
FIGURE 14. Wide Area Network Diagram

Accessing The Wide Area Network (WAN)

Figure 15 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.
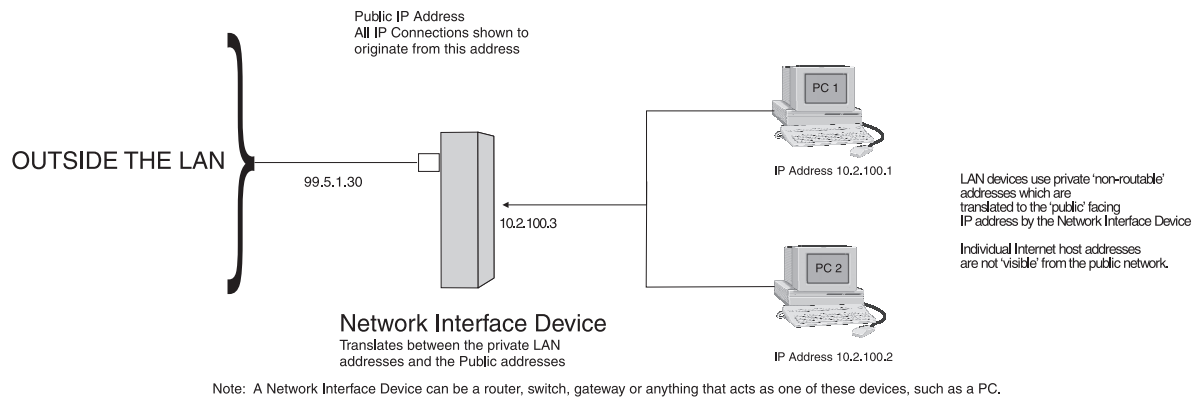
FIGURE 15. Network Address Translation

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, TCP 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 8 on page 114 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 6. 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 6, 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 7.

TABLE 7. 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 8. Well-known TCP Port Numbers

Port Number	Description
1	TCP Port Service Multiplexer (TCPMUX)
5	Remote Job Entry (RJE)
7	ECHO
18	Message Send Protocol (MSP)
20	FTP-Data
21	FTP- Control
23	Telnet
25	Simple Mail Transfer Protocol (SMTP)
29	MSG ICP
37	Time
42	Host Name Server (Nameserv)
43	Whols
49	Login Host Protocol (Login)
53	Domain Name Server (DNS)
69	Trivial File Transfer Protocol (TFTP)
70	Gopher Service
79	Finger
80	HTTP
103	X.400 Standard
108	SNA Gateway Access Server
109	POP2
110	POP3
115	Simple File Transfer Protocol
118	SQL Services

TABLE 8. Well-known TCP Port Numbers

Port Number	Description
119	Newsgroup (NNTP)
137	NetBIOS Name Service
139	NetBIOS Datagram Service
143	Interim Mail Access Protocol (IMAP)
150	NetBIOS Session Service
156	SQL Server
161	SNMP
179	Border Gateway Protocol (BGP)
190	Gateway Access Control Protocol (GACP)
194	Internet Relay Chat (IRC)
197	Directory Location Services (DLS)
389	Lightweight Directory Access Protocol (LDAP)
396	Novell Netware over IP
443	HTTPS
444	Simple Network Paging Protocol (SNPP)
445	Microsoft-DS
458	Apple Quick Time
546	DHCP Client
547	DHCP Server
563	SNEWS
569	MSN
1080	Socks

IP Addresses

If you do not know your IP Address, an MS-DOS command window and run the ipconfig command.

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

1. From the Start Menu, open a **Command Prompt** window.
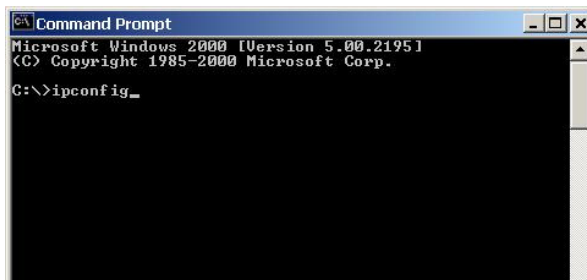
2. At the command prompt, type **ipconfig**, then press **Enter**.
    The IP configurations appear for your machine, such as the DNS suffix, IP Address, Subnet Mask, and Default Gateway.
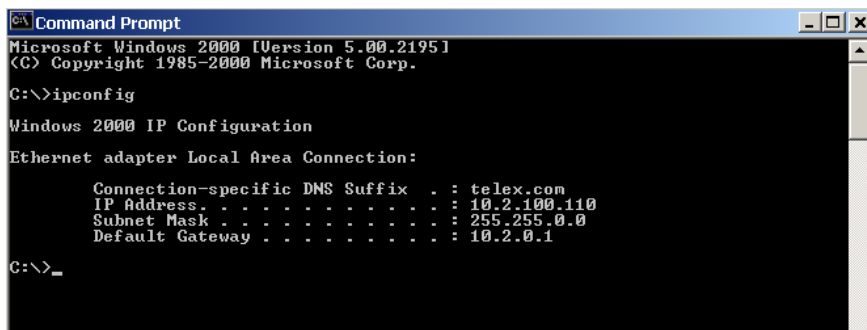
3. At the command prompt, type **Exit** to close the window.

    NOTE: If you want more detailed parameters for your machine, type **ipconfig/All**. This displays the computer's 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 that it is responding over the network by putting the card's IP Address in place of the computer IP Address.

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

1. From the Start menu in the Run field, type **CMD** to open a **Command Prompt** window.
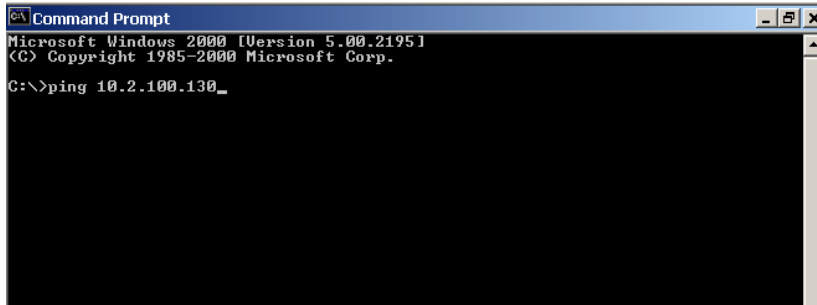
2. At the command prompt, type the **IP Address** of the computer you wish to ping (for example, 10.2.100.130).

3. Press **Enter**.
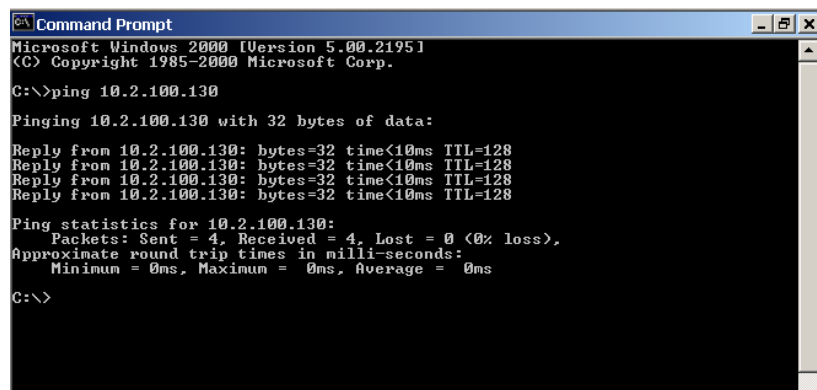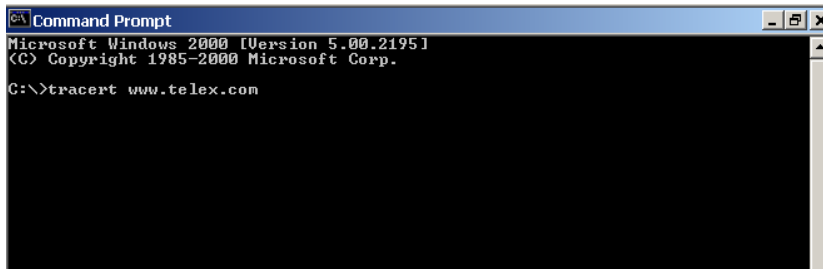
NOTE: If the computer you are pinging is not responding to the ping, you receive a time-out message in the Command Prompt window.

Possible Pitfall With Routers, Gateways, And Switches

Any time 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 (1) of the security mechanisms of a router.
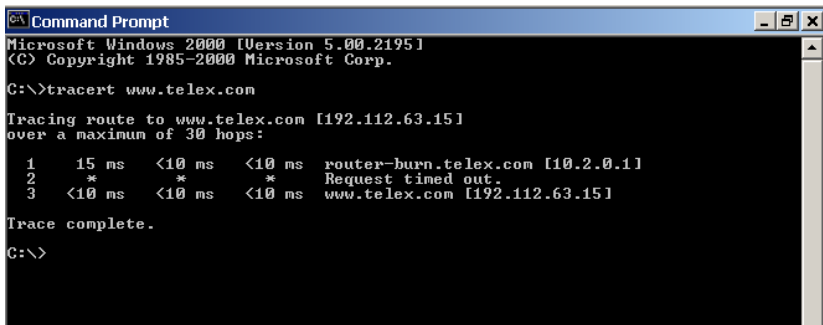
To **view the path an IP Address takes to retrieve information**, do the following:

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

2. At the command prompt, type **tracer-d** 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 must open the following ports in your network to allow WAN connections to and from a Network Interface Device. See Table 9 on page 118 for the ports that need to be opened for the RVON cards to operate properly.

TABLE 9. 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 screen. Not all routers are configured the same way and may not look exactly like this window.

Figure 10. Forwarding 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.

Network Terminology

Bridge

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 that is 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 an have their own internet connection. If you assign your own IP addresses be sure to use the same first three (3) octets of the IP Address.

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 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.

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 that is serving the web pages. For example, the gateway for a home computer is the ISP provider that connects 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, in that 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 that all nodes on the LAN can see the packets.

There are two (2) 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 additional features that enable administrators to monitor traffic through the hub.

IP Address (Internet Protocol Address)	An IP 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 being sent to and the computer the message is being set 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 numbers in an IP Address are used in different ways to identify a particular network and host on the network.
LAN	A LAN 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 programs; however, it can also access data and devices anywhere on the LAN. This means that 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.
Port	A port, when referring to TCP and UDP network, is an endpoint in a logical connection. The port number identifies the type of port it is. For example, TCP 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 the place where two 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 increasing 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 wide area network connects two or more LANs and can span a relatively large geographical area. For example, Bosch Security Systems Headquarters in Burnsville, MN is connected to several branch offices in Nebraska and Hermosillo over the wide are a network. The largest WAN is the Internet.

Telnet & Serial Port Programming

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 connector)
- Backcard DB-9 J2
- RJ-45 J7 (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 shows you how to access the Telnet screen and show you some of the information you can see and edit.

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

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

1. Open a **Command Prompt** window.

2. At the command prompt, type **Telnet *<IP ADDRESS>* (**The IP Address is the IP Address assigned to the RVON-1 card).
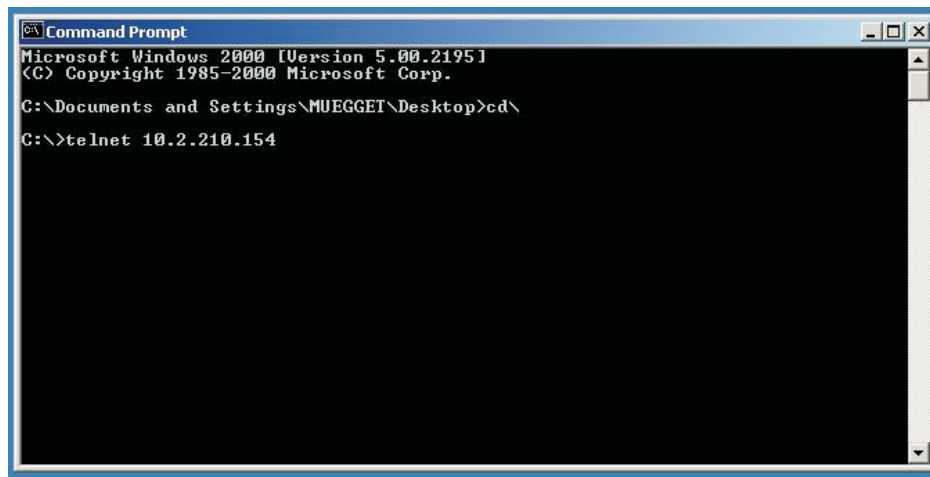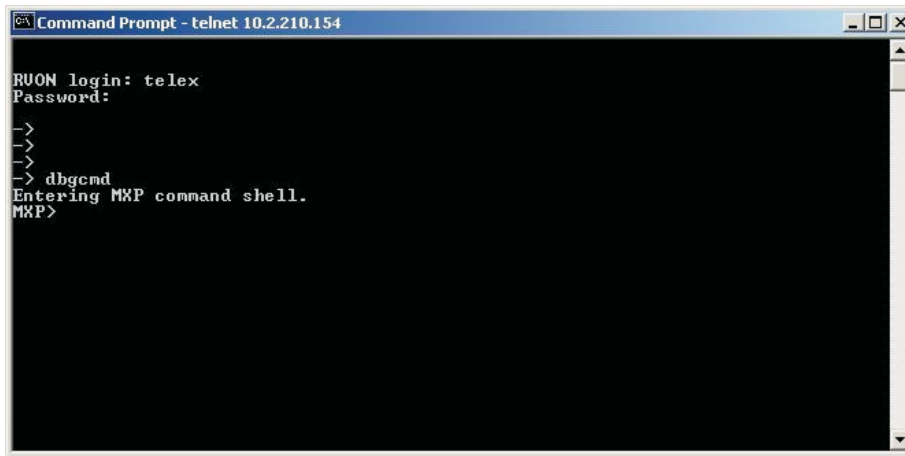
3. Press **Enter**.
   The RVON logon window appears.
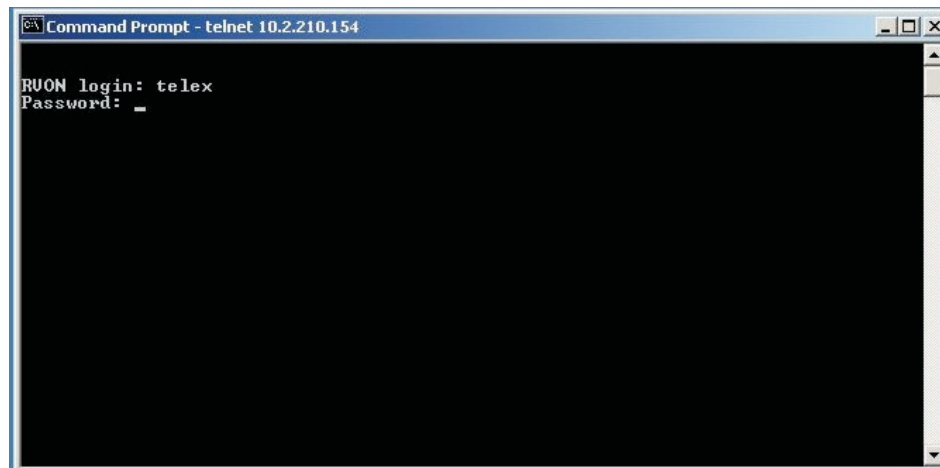
4. In the logon field, type the **RVON logon** (default = telex).
5. Press **Enter**.
6. In the password field, type the **RVON password** (default = password).
7. Press **Enter**.
   A command prompt appears.

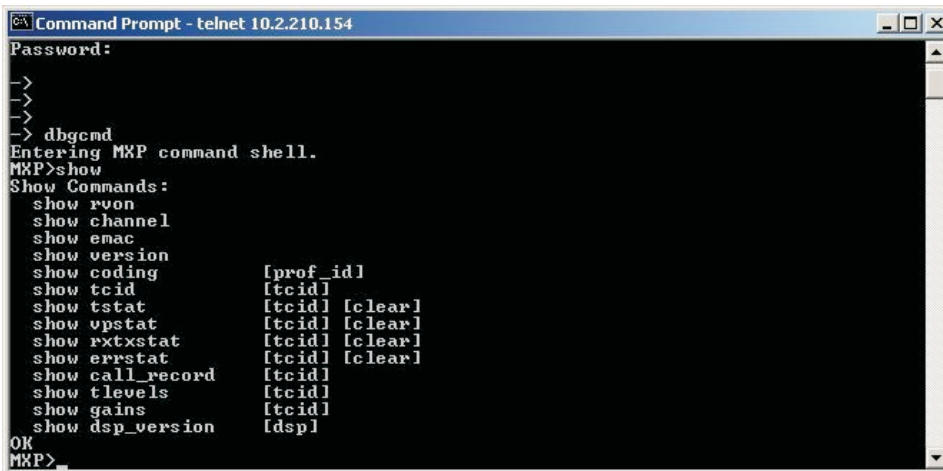8. Type **dbgcmd** to access the debug command windows.

9. Press **Enter**.
   An MXP prompt appears.
10. At the prompt, type **Show**.
11. Press **Enter**.
    The show commands window and MXP prompt appears.

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"

Lets you set the VAD threshold

set rvon vad_threshold   **NOTE:**   In AZedit, you can enable and disable VAD, however, through Telnet you able to set the amount. You are able to set the VAD threshold in IPedit.

```
MXP>set channel

RVON CHANNEL RELATED:
  set channel [chan] dest_ip <ip address <x.x.x.x>>
  set channel [chan] dest_type <type (0-2), 0=RVON-8, 1=RVON-1, 2=RVON-IO>
  set channel [chan] dest_chan <chan (0-7)>
  set channel [chan] chan_codec <prof_id (0 to (max_prof - 1)>>

  set channel [chan] input_gain <gain (-14 to +14 dB)>
  set channel [chan] output_gain <gain (-14 to +14 dB)>

  set channel [chan] onhook
  set channel [chan] offhook
```

|	
set channel dest_ip	Allows you edit the destination IP Address the RVON-1 card communicates with
set channel dest_type	Allows you to edit the destination type for the device the RVON-1 card talks with
set channel dest_channel	Allows you to edit the destination channel of the device the RVON-1 talks with
set channel channel_codec	Allows you to edit the CODEC to be used for transferring the data between the two devices
set channel input_gain	Allows you to edit the input gain for the RVON-1 card
set channel output_gain	Allows you to edit the output gain for the RVON-1 card
set channel onhook	onhook = hang up If the channel was already connected, going offhook has no effect (it is already offhook if connected). Going onhook hangs up the call, and it should then try to reconnect. If the channel was not already connected, going offhook causes it to try and establish a connection. Going onhook in this state has no effect (it is already onhook if idle).
set channel offhook	offhook = connected If the channel was already connected, going offhook has no effect (it is already offhook if connected). Going onhook hangs up the call, and it should then try to reconnect. If the channel was not already connected, going offhook causes it to try and establish a connection. Going onhook in this state has no effect (it is already onhook).

EKP-32 Expansion Panel

Installation Instructions
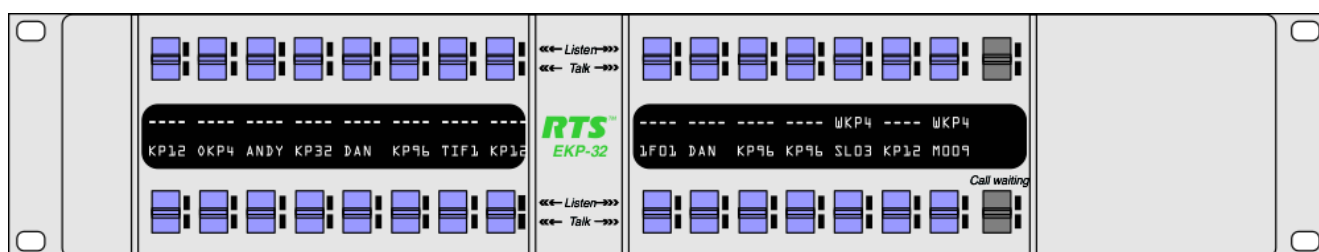
To **connect the EKP-32 Expansion Panel to the KP-32**, do the following:

1. Insert one end of the provided **RJ-45 cable** into the **EXP port** on the back panel of the KP-32.
2. Insert the other end of the provided **RJ-45 cable** into the **EXP 1 port** on the back panel of the EKP-32.
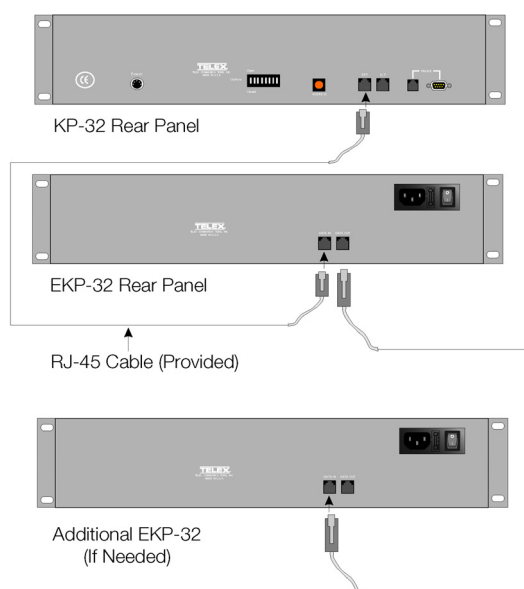
Specifications

AC Supply

AC Input: 100-240 VAC, 50/60 Hz

Power Consumption

Nominal: 0.08 A
Maximum: 0.10 A
Maximum Volt Amp: 18 VA

General

Color: Grey or Black
Depth: 5" (127 mm)
Height: 3.5" (88.9 mm)
Weight: 5.6 lb (2.54 kg)
Width: 19" (482.6 mm)