RTS / Telex

RVON I/O Serial Set-Up
Using Hyper Terminal

Third Party Setup Guide

rvon i_o serial.doc
Rev J 2/14/07
G. Behrend

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NOTES.....

RVON I/O Serial Set-Up Using Hyper Terminal

Not Intended As a Substitute for the Telex RVON I/O User Manual

System Requirements

Before you install the RVON-I/O, verify the following devices are updated:

Product	***Firmware Version Required***
Windows Operating Platform	
RVON-I/O	*1.0.0 or higher*
RVON-1	*1.1.0 or higher*
RVON-8	*1.2.0 or higher*
Master Controller	*9.22.0 or higher*
KP-32	*2.0.2 or higher*
AZedit	*2.08.0 or higher*
VKP	*1.6 or higher*

To access an RVON I/O for Serial setup, the following is required:

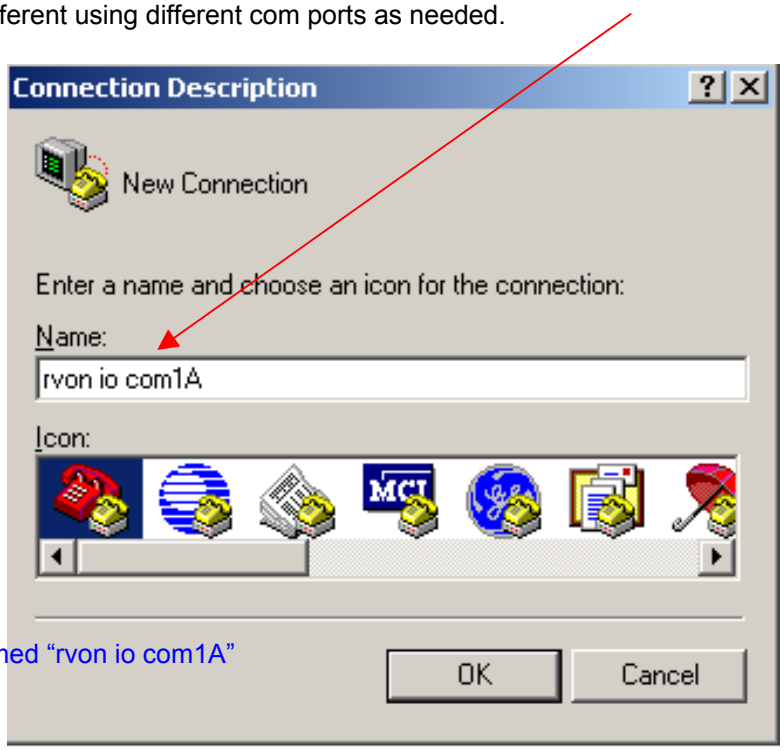
Null Modem Serial cable. (see page 19)
USB to Serial converter for those computers without hard Serial ports.

Note: com ports may change from time-to-time when using USB/Serial converters. Windows Device Manager may need to be used to determine what COM port the USB device is allocating and a new profile may need to be created. See Hyper Terminal Setup.

For editing, the RVON I/O you must have S-1 **dip switch #2** in the "**closed**" (down) position, and then power cycle.the RVON I/O. After editing the RVON I/O, type "**activate**" to send changes and **return dip switch #2** to the "**open**" (up) position and power cycle the RVON again.

Hyper Terminal Setup

To run Hyper Terminal from Windows go into <*programs\accessories\communications\hyper terminal*>.
Make a new connection should pop up. Make a new profile from this screen by naming the profile. Additional profiles can be made specifying different using different com ports as needed.



This profile is named "rvon io com1A"

Next in the “Connect using” window, select the proper com port (in this case com1). Then click ok. Recognized com ports can be determined under *System Properties\Hardware\Device Manager\Serial Devices*.

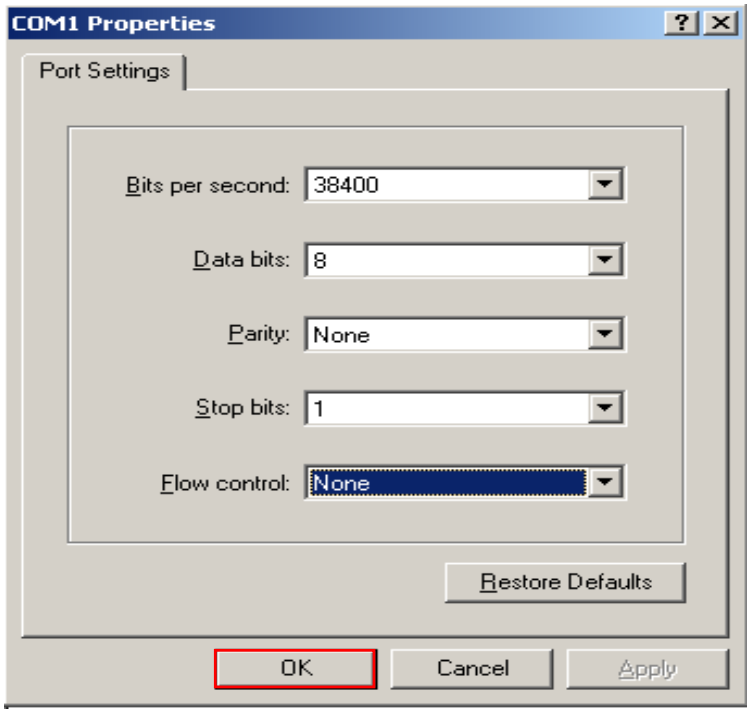
Next, under Port Settings, set the com port parameters to read as follows

Bits per second = 38400
Parity = none
Flow control = None

Data bits = 8
Stop bits = 1

Then click ok.

This will open the Hyper Terminal command screen on next page.



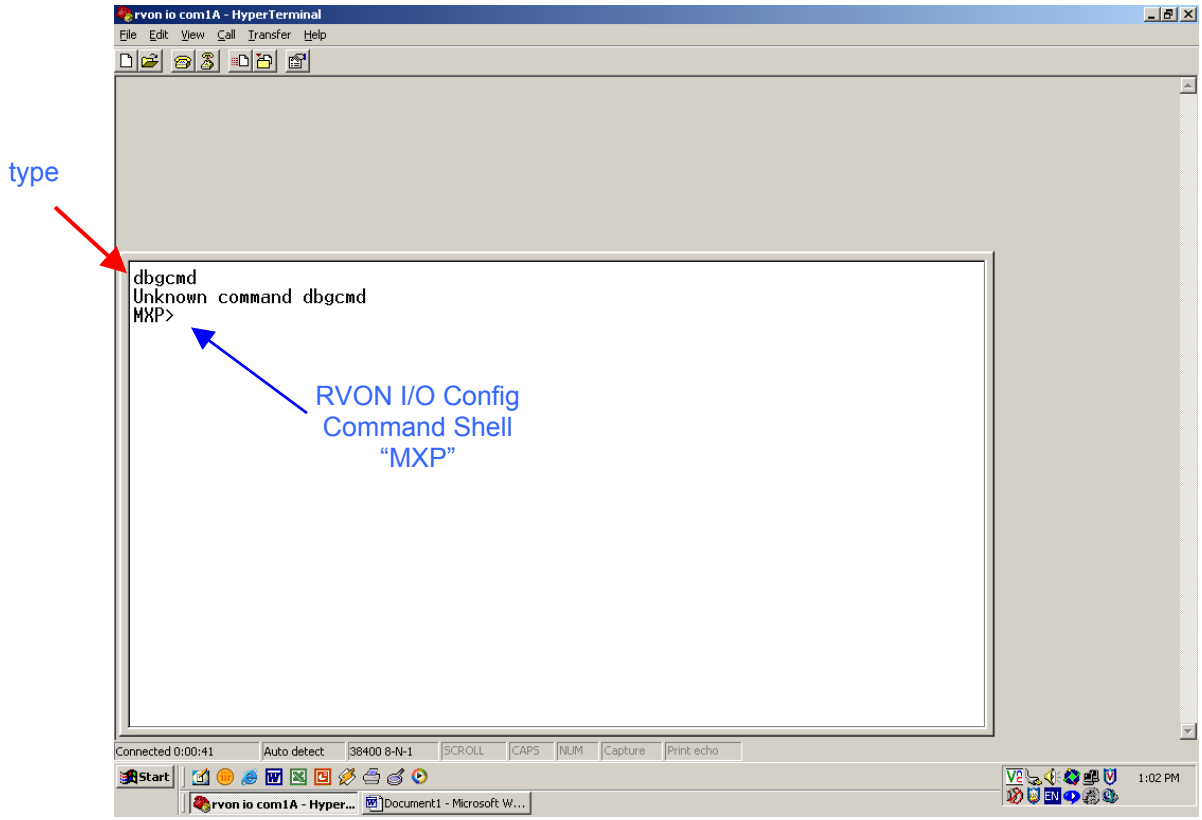
Entering Debug Command Mode

In the clear Hyper Terminal screen type <dbgcmd>. This will get you into the command shell “MXP”.

Now you can enter the Rvon I/O commands listed in the “show” & “set” command tables on pages 14, 15.

NOTE: If you experience constant scrolling of polling messages at this point, see page 17, “SPY” Commands.

Hyper Terminal Command Screen



When you eventually exit the edit session, you can save your profile via the file save command in the Hyper Terminal File pull-down for later use.

To exit Debug, click on File, hen Exit.

To recall a saved profile, run Hyper Terminal, cancel out of New Connection & from the File pull down, select Open. Now select the profile desired and double click on it. At the debug command prompt (MXP) type in the desired RVON Show or Set command to begin.

RVON I/O Serial Setup

This paper pertains to programming the RVON I/O via Hyper Terminal, NOT via Ethernet (Telnet).

The main difference between the two procedures is this is a Serial setup. The command structure is the same used in Hyper Terminal as Telnet. The advantage to Hyper Terminal setup is that you do not need a network connection or need to know the RVON I/O's IP address or a password.

DIP Switch Settings

DIP Switch 1: — **RVON I/O Mode**

Default Position: **OPEN**

Switch Positions: OPEN = Local Mode
CLOSED = Remote Mode

Description: There are two modes in which the RVON-I/O can run: LOCAL and REMOTE mode.

See diagrams pages 6 - 11

In **LOCAL** mode, keypanels are directly connected to the RVON-I/O. For example, a KP-32 is connected Serially to the RVON-I/O which is connected via Ethernet to an RVON-8 in the ADAM system. The connection between the KP-32 and the RVON-I/O is called LOCAL.

In **REMOTE** mode, a digital keypanel (such as a KP-32 with RVON-1) is connected to an RVON-I/O via Ethernet, which is then connected to an ADAM CS, Zeus, Cronus or an ADAM with AIO cards via Serial audio cross-over cables.

DIP Switch 2: — ** **Serial Debug Shell** (**Serial setup via Hyper Terminal**)

Default Position: **OPEN (Ethernet connection)**

Switch Positions: OPEN = Serial Pass-through port enabled.

CLOSED = Serial Debug Shell enabled, allowing Hyper Terminal Setup.

Description: The Pass-through Port is used to send Serial port data over Ethernet.

The Serial Debug Shell provides the user access to a command shell (this is similar to Telnet, except the connection is made through a Serial cable).

Special Note: The IP configuration on I/O Port 8 allows users to connect and configure the IP Address of the RVON-I/O using a compatible keypanel (KP-32, KP-632, KP-832, and KP-812) connected Serially to I/O Port 8 on the back of the RVON-I/O. IP Configurations are made from the keypanel service menu. Note, you must have keypanel firmware version 2.02 or higher to configure the IP Address.

DIP Switch 3:	**Telnet Shell**
Default Position:	**OPEN**
Switch Positions:	OPEN = Telnet Shell enabled
	CLOSED = Disabled, user name and password are set to default.
Description:	Using telnet, you can set permissions and configurations within the RVON-I/O application. See Table , “RVON-I/O Command Table,” on page 30 of Telex User Manual.
DIP Switch 4:	**Boot Downloader**
Default Position:	**OPEN**
Switch Positions:	OPEN = Boot Downloader is disabled (runs the native flash program)
	CLOSED = Boot Downloader is enabled (runs the boot downloader)
Description:	Switches to the boot downloader flash program. This program is sent with the RVON-I/O in case the native flash program becomes corrupt.

RVON I/O Serial Set-Up Using Hyper Terminal

BASIC INSTALLATIONS

The RVON-I/O can operate in one of two modes; LOCAL mode or REMOTE mode. When operating in **LOCAL** mode, keypanels are directly connected to the RVON-I/O. For example, a KP-32 is connected Serially to the RVON-I/O, which is connected via Ethernet to the RVON-8. The KP-32 RVON-I/O is in LOCAL mode. When operating in **REMOTE** mode, a digital keypanel (such as KP-32 with RVON-1) is connected via Ethernet to an RVON-I/O, which is then connected to an intercom. See fig. 1, 2.

On the following pages, installation for *Basic **Local** Mode, **Remote** Mode,* and ***Trunked*** systems will be depicted.

NOTE: When using RVON-I/O with on-board GPI/Os, you must **uncheck** the "Configure on-board GPI/Os in FR9528 mode" in Intercom Configuration pull down menu in AZedit. This makes the matrix GPO an active low.

BEFORE you begin to configure your system, **SAVE** your current setup file. If you change the above setting after you configure your panels, it will cause the intercom to perform a “first birthday” and all prior configurations will be lost and must be re-loaded or recreated from scratch.

Types of Systems

Local Mode

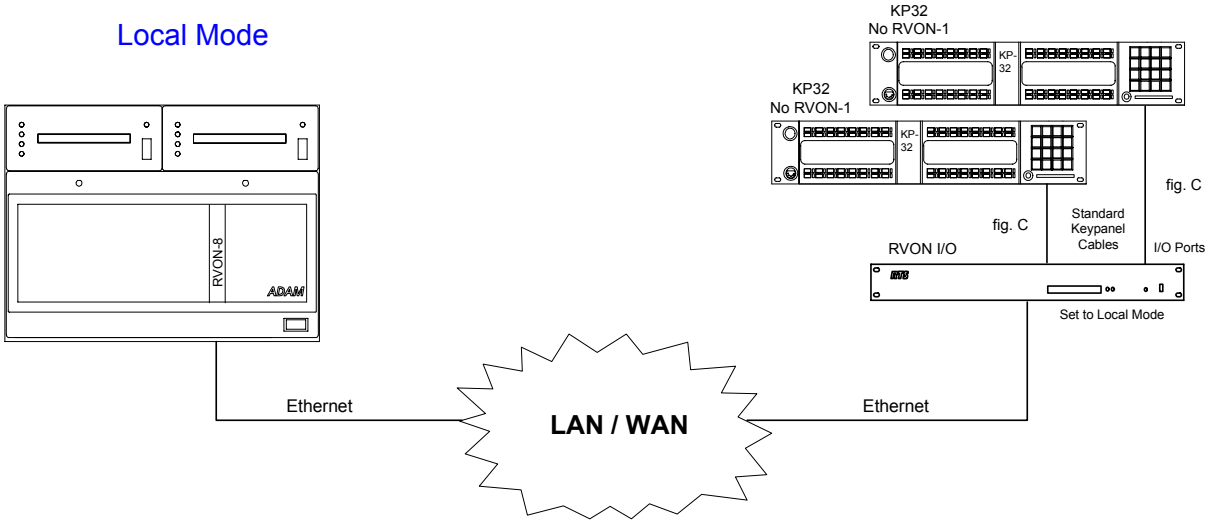


Figure 1. Local Mode – Regular keypanel connected directly to RVON I/O via analog port and to ADAM via RVON-8 card

RVON 1.vsd

Remote Mode

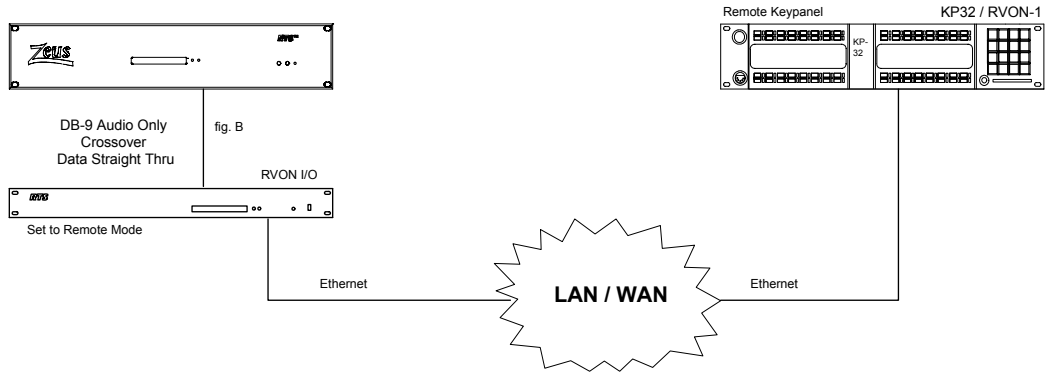


Figure 2. Remote Mode: Keypanel connected to RVON I/O via Ethernet to matrix analog ports

Rvon 2.vsd

RVON I/O Serial Set-Up Using Hyper Terminal

Local & Remote Mode

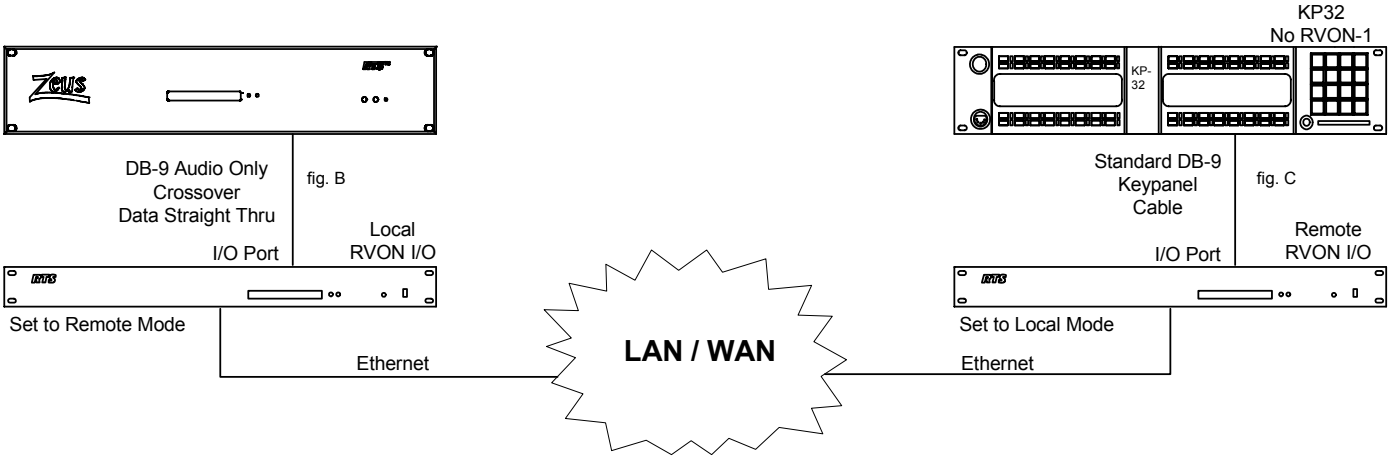


Figure 3. Local and Remote Mode - The right hand portion of the graphic shows a local setup (the KP32 keypanel is directly connected to the RVON-I/O), while the left portion of the graphic shows a remote setup. The RVON-I/O works similar to an audio converter box.

In the right portion of the graphic, the audio coming from the KP-32 going towards the RVON-I/O will be changed from analog to digital audio (and vice versa).

The same holds true for the left portion of the graphic, where the audio coming from the RVON-I/O going towards the Zeus is converted to analog and connected via a audio cross-over cable.

Rvon 3.vsd

Non-Intelligent Trunking with RVON I/O

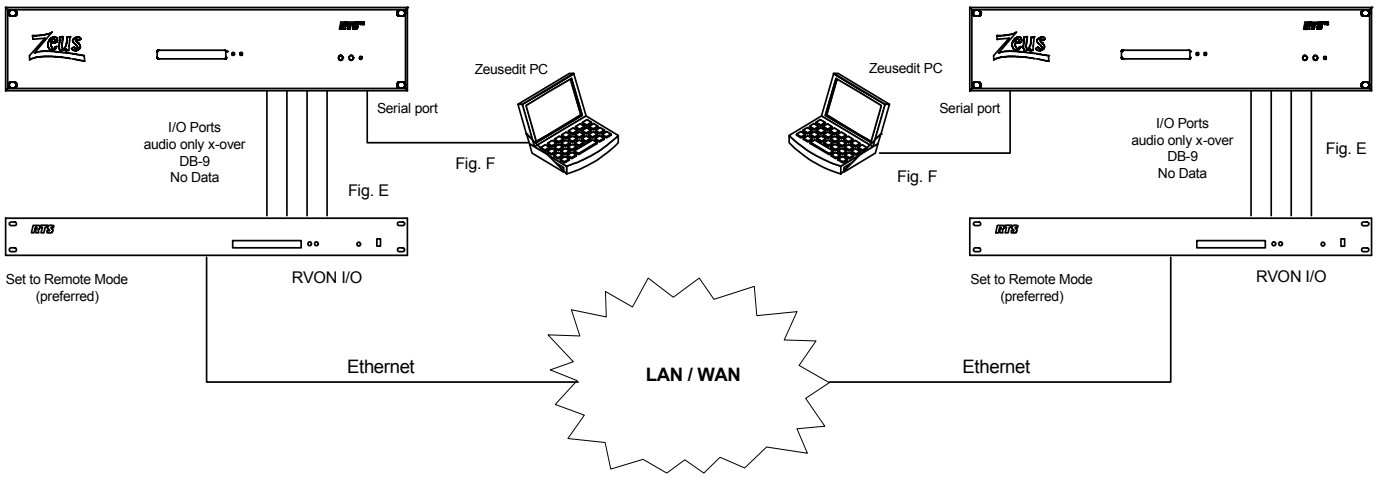


Figure 4. Non-Intelligent Trunking with RVON-I/O - When you trunk two intercom systems together using two RVON-I/ O's, you can configure one as Remote and the other as Local. However, remote to remote setup is the preferred system setup for trunking.

Rvon 4.vsd

NOTE: No tally support without Trunk Master.

Serial Pass-Through Intelligent Trunking

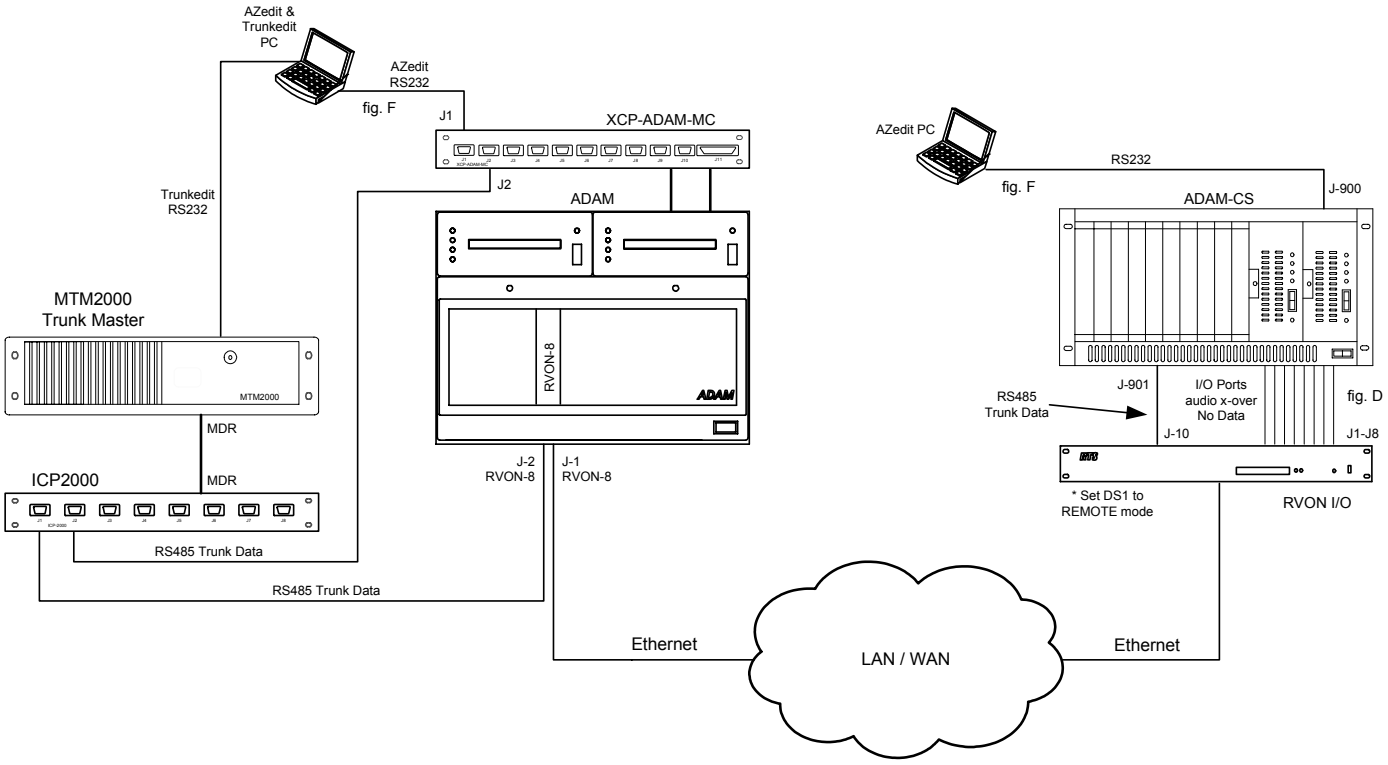


Figure 5. Serial Pass-Through (intelligent) Trunking Connection
ADAM & ADAM-CS with RVON I/O

RVON5.vsd

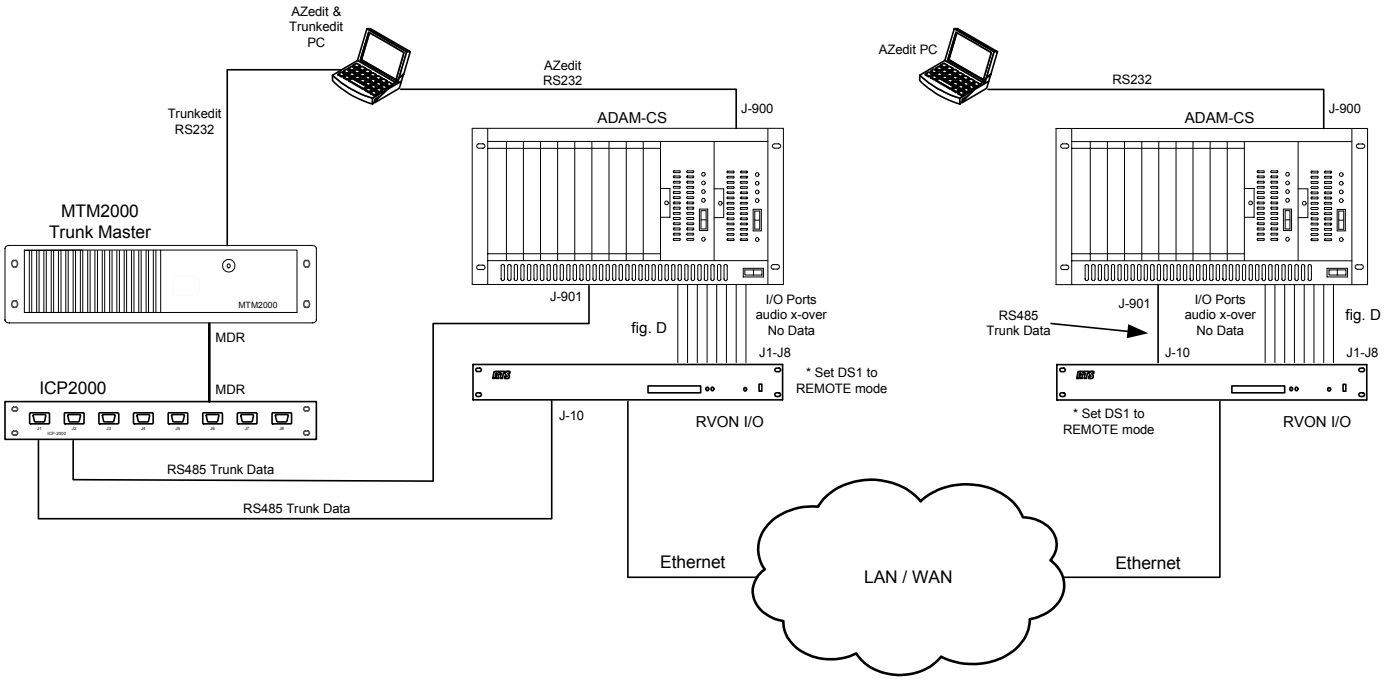


Figure 6. Serial Pass-Through (intelligent) Trunking Connection
ADAM-CS & ADAM-CS with RVON I/O

RVON6.vsd
9/13/06

RVON I/O Serial Set-Up Using Hyper Terminal

Serial Pass-Through Intelligent Trunking

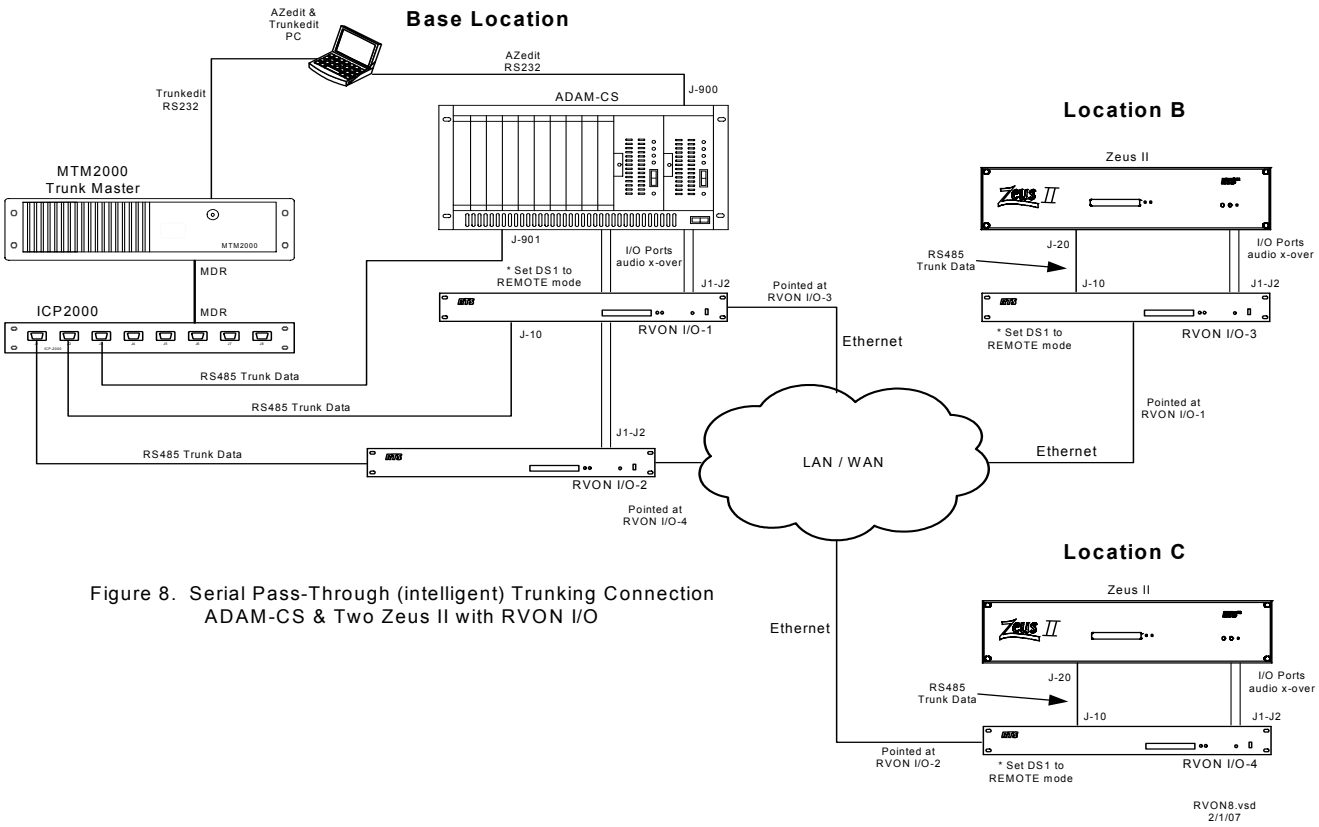


Figure 8. Serial Pass-Through (intelligent) Trunking Connection ADAM-CS & Two Zeus II with RVON I/O

RVON I/O Serial Set-Up Using Hyper Terminal

Basic Local Mode Setup (set DIP RVON S-1 switch #2 in CLOSED position & power cycle)

NOTE: Keypanel version is not relevant in Local Mode.

In **LOCAL** mode, the keypanel is directly connected to the RVON-I/O through the use of a standard DB-9 KP cable.

To setup an RVON-IO local mode system, do the following:

1. On the back of the RVON-I/O, put DIP switch S1-1 in the OPEN position (**LOCAL mode**).
2. Power ON the RVON-I/O unit.
3. Connect keypanels to the RVON-I/O (I/O ports), using a standard RTS DB-9 KP cable.
4. Set the IP Address for the **RVON-I/O** (see "Set Command Table" on page 14).
5. Using Serial programming (see "RVON-I/O Set Command Table" on pages 14 & 15), configure the RVON-I/O as follows:

Set RVON: IP, Net Mask, Gateway, etc.

set channel (x):

dest ip (IP Address of the RVON-1, RVON-8, or RVON-I/O that is connected to the RVON-I/O)
dest_type x:: (the type of device, either an RVON-1, RVON-8, or RVON-I/O) see
dest_chan x
dest channel_codec x: (optional)

6. Once you are finished configuring the RVON-I/O, type ACTIVATE at the command prompt to activate the configuration setup on the RVON-I/O. (set DIP switch #2 in OPEN position, power cycle)

Basic Remote Mode Setup (set DIP switch #2 in CLOSED position, power cycle)

In **Remote** Mode, the keypanel with RVON-1 installed is directly connected to the RVON-I/O via Ethernet.

To setup a basic **Remote Mode** system, do the following:

1. On the back of the RVON-I/O, put DIP switch S1-1 in the CLOSED position (**Remote Mode**).
2. Power ON the RVON-I/O unit.
3. Connect the **matrix system to the RVON-I/O** (I/O ports), using a DB-9 audio crossover cables.
4. Set the IP Address for the **RVON-I/O** (see "Set Command Table" on page 14).
5. Using Serial programming (see "RVON-I/O Command Table" on pages 14 & 15), configure the RVON-I/O as follows.

Set RVON: IP, Net Mask, Gateway, etc.

set channel x:

dest ip (IP Address of the RVON-1, RVON-8, or RVON-I/O that is connected to the RVON-I/O)
dest type x: (the type of device, either an RVON-1, RVON-8, or RVON-I/O)
chan_codec x: (optional)

set panel (x) *poll_id x:_ (see "Set Panel" on page 15))*
set panel (x) baud x: normally 9600 *(see "Set Panel" on page 15)*

6. Once you are finished configuring the RVON-I/O, type **ACTIVATE** at the command prompt to activate the configuration setup on the RVON-I/O. (set DIP switch #2 in OPEN position, then power cycle)

NOTE: If you do not have a RVON-1 pre-installed, the KP-32 or the KP-812 must have the RVON-1 component installed prior to Remote setup (See the RVON-1 User Manual for details).

RVON I/O Trunk Setup

SET DIP SWITCH 2 in the CLOSED position, then power cycle.

When trunking two intercom systems over Ethernet using RVON-I/O, you can setup the RVON-I/O on both ends of the trunks in either **LOCAL** or **REMOTE** mode. However, a **REMOTE to REMOTE** mode system is the preferred way of trunking.

To setup remote mode in a trunked system, do the following:

1. On the back of the RVON-I/O, put DIP switch S1-1 in the **CLOSED** position (Remote Mode).
2. Power ON the RVON-I/O unit.
3. Connect the **Matrix to the RVON-I/O** (via I/O ports), using a DB-9 audio crossover cable. See pages 18, 19 for connection drawings.
4. **Set** the **IP Address** for the RVON-I/O (see "Setup IP Addresses" on page 10 & 11).
5. Using Serial programming (see "RVON-I/O Command Table" on pages 14 & 15), configure the RVON-I/O as follows.

set channel (x): To see actual command structures, see "RVON-I/O Command Table" on pages 14 & 15.

dest ip_addr x: (IP Address of the RVON-1, RVON-8, or RVON-I/O that is connected to the RVON-I/O)
dest_type x: (the type of device, either an RVON-1, RVON-8, or RVON-I/O)
dest_chan x:
dest_codec x:
set panel (x) *poll_id x: (see "Set Panel" on page 15)*

NOTE: *If the RVON-I/O is in Remote Mode, set the Panel Poll ID to 0, so it will not be seen as keypanel baud.*

6. Once you are finished configuring the RVON-I/O, type **ACTIVATE** into the command prompt to activate the configuration setup on the RVON-I/O. (set DIP switch #2 in OPEN position, power cycle)
7. Connect the **RVON-I/O to Ethernet.**

NOTE: To set up the other side of the trunk system, repeat steps 1 through 7.

RVON Configuration

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

Mandatory Router Port Requirements for RVON card functionality:

These ports must be open. (*responsibility of IT administrator*)

Port	Port Description	Port	Port Description
2076	UDP Call Control Signaling	2082	TCP Firmware Download
2077	UDP Audio Packets	2100	Remote Administration
2079	UDP Telex Proprietary Signaling	2102	Authentication Server
2080	TCP Telex Keypanel Protocol	23	TELNET Access
2081	UDP Pass Through Serial		

KP32 with RVON-1

KP-32 / RVON Setup (requires ver 2.0.2 or higher) RVON-1 must have been installed in the KP32 prior to this setup.

To set the IP Address on the KP32, do the following:

1. On the KP-32, press **Menu**.
2. Using the scroll keys, scroll to **Service.**
3. Press PGM.
4. Using the scroll keys, scroll to **RVON Setup.**
5. Press PGM.
7. Enter the **first number** in the IP Address.
8. Press PGM.
9. Repeat steps 7 and 8 until the entire IP Address is entered.
10. Press PGM.
11. Enter the **first number** in the Netmask.
12. Press PGM.

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

13. Repeat steps 12 and 13 until the entire Netmask is entered.
14. Press **PGM**.
15. Enter the **first number** in the Gateway IP Address.
16. Press **PGM.**
17. Repeat steps **17** and **18** until the entire Gateway is entered.
18. Press **PGM.**
19. Press **CLR** to exit the menu. *The changes are now enabled.*
20. Next, from the MENU keypad button, scroll to “Save Cfg” and press the “PGM” key.
    This saves the above changes to the keypanel.

KP32 KEYPANEL CONNECTION TO RVON (on keypanel itself)

Select an RVON Connection from the Top Level Menu Select "RVON Conn".

1. On the KP-32, press **Menu.**

2. Using the scroll 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 will see "none".

4. Using the scroll keys, scroll to the network connection offer that you want to accept. The arrow to left of the connection offer designates which connection offer was chosen. (*if you can't see anything but <none>, then re-check the RVON I/O channel settings for the KP32*). After you select an offer, press PGM.

5. Press CLR to exit.
The keypanel will now connect to the selected intercom port. This can take several minutes

REMEMBER - SAVE CFG from the keypad 1st level MENU selections**.**

RVON Show and Set Commands

"SHOW" COMMANDS

Type <dbgcmd> and at MXP prompt type the following:

MXP>**show rvon** **ALL** ***FACTORY DEFAULTS***
Displays RVON I/O Card Configuration:

IP Address:	*192.168.0.1*
Netmask:	*255.255.0.0*
Gateway:	0.0.0.0
MAC Address:	00:0b:7c:80:05:e8
Version:	ADAM RVON-IO Card, Version 1.1.0 (min ver)
RVON-IO:	*Local Keypanel Mode*

MXP>**show emac** (shows Ethernet configuration settings of card)

MXP>**show channel X** (shows what the Rvon I/O channel is looking for)
Displays RVONI/O Channel X Parameters for (chans 0 - 7):

Destination IP Address:	0.0.0.0
Destination Type:	2 (0=RVON-8, 1=RVON-1, 2=RVON I/O)
Destination Channel:	0 (chan 0-7, KP32 = 0)
Channel Coding Profile:	2 (Codec)
Channel VAD Threshold	-20 (dBm)
Channel Input Gain:	0
Channel Output Gain:	0

MXP>**show Serial** (Serial port / Serial pass-thru)
Displays RVON I/O Utility Serial Port Configuration:

Serial Mode:	0 (0=pass-thru, 1=UIO256)
Serial IP:1:	0.0.0.0
Serial IP 2:	0.0.0.0
Serial Baud:	9600

"SET" COMMANDS (set DIP switch #2 in CLOSED position, power cycle)

To view settings being made, be sure to type ACTIVATE before running SHOW commands.

MXP>set rvon
RVON I/O CARD

set rvon desc <description (0-63 characters)>
set rvon ip_addr X.X.X.X
set rvon netmask X.X.X.X
set rvon gateway X.X.X.X
(*other RVON card related commands*)
set rvon user <username> (***telex***) *FACTORY DEFAULT*
set rvon password <password > (***password***) *FACTORY DEFAULT* (8-40 characters)>
set rvon vad_threshold XX (dBm -20 to 10)
set emac (auto, 100 full, 100 half, 10 full, 10 half) default is "auto".

"SET" COMMANDS, cont'd

MXP>**set channel X** (sets what Rvon I/O chans 0-7 are *looking for*)
RVON I/O CHANNEL 0-7
set channel X (or all) desc <description (63 characters)>
set channel X (or all) dest_ip X.X.X.X
set channel X (or all)dest_type X (0-2), 0=**RVON-8**, 1=**RVON-1**, 2=**RVON-I/O**
set channel X (or all)dest_chan X **use 0 for KP32's**
set channel X (or all) chan_codec X (0 – 27) **VAD only works in G.711**
set channel X (or all) vad_threshold (-20 to +10 dBm)
set channel X (or all) input_gain XX (-14 to +14 dB)
set channel X (or all) output_gain XX (-14 to +14 dB)

MXP>**set Serial**
RVON I/O SERIAL PORT RELATED
set serial mode X (0=**Pass-Through**, 1=**UIO-256**)>
set serial ip_addr X.X.X.X
set serial ip_addr_2 X.X.X.X
set serial baud XX (50-115000)

MXP>**set panel**
KEYPANEL RELATED *(polling)*
set panel X poll_id X (1-8) **poll i.d. relates directly to actual real matrix card port number** (1 – 8, 0 = turn off poll) i.e. port 25 = 1, port 32 = 8, etc. This does not follow the 0 – 7 convention of the RVON I/O.
set panel X baud XXXX (9600 or 76800)

Set Panel sets the address at which the RVON-I/O will respond to polls sent by the Intercom. If the RVON-I/O is connecting to a Zeus or AIO-8, you must set a Panel Poll ID. The **panel poll ID** is the data port address from which it communicates. Also, the panel **poll ID is only used in Remote Mode**.

At the MXP> prompt, type "**activate"** (remember to set DIP switch #2 in OPEN position, power cycle)
(saves changes to RVON I/O)

Because the Zeus and ADAM AIO-8s share their data across 8 ports, they need to differentiate ports by using addresses. Therefore, to communicate with the right port you need to communicate with the specified address of the matrix port.

EXAMPLE:
2 RVON-I/O units are connected to the same Zeus System (RVON-I/O A and RVON-I/O B)

RVON-I/O A is connected to Zeus ports 1 and 2 on RVON-I/O ports 1 and 2.

RVON-I/O B is connected to Zeus ports 3 and 4 on RVON-I/O ports 1 and 2.

Because the Zeus cannot differentiate either of the RVON-I/O ports 1 and 2, it is necessary to add an address to the ports:

RVON-I/O (A)	port 1 set to 1 (set panel 0, poll ID 1)
	port 2 set to 2 (set panel 1, poll ID 2)
RVON-I/O (B)	port 1 set to 3 (set panel 0, poll ID 3)
	port 2 set to 4 (set panel 1, poll ID 4)

RVON I/O Serial Set-Up Using Hyper Terminal

If you are using Cronus or AIO-16 with RVON-I/O in Remote mode for keypanels, you will still have to set a panel poll ID. This is because the RVON-I/O has a default panel poll ID of 0 (zero). This must be changed to a real number.

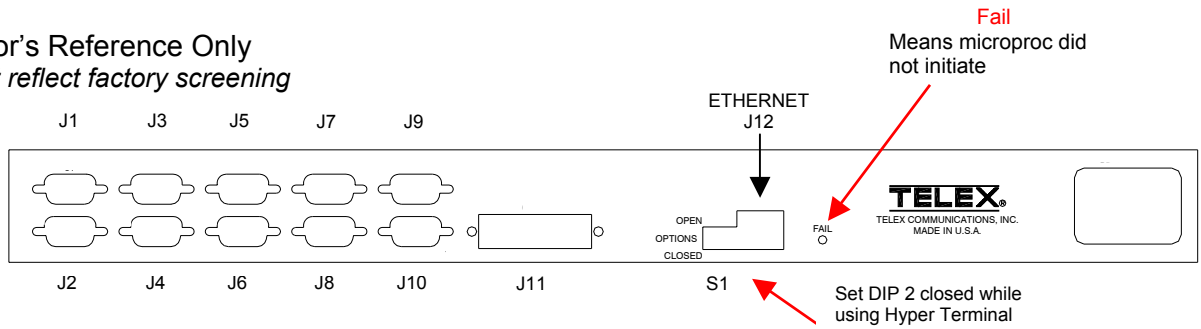
NOTES: Make sure to set the panel poll ID to 0 when trunking in Remote Mode. Doing this will ensure the RVON-I/O will not respond to polls as a keypanel.

If the RVON-I/O in Local Mode is directly connected to a keypanel, the panel poll ID does not have to be set. The RVON-I/O through polling will discover the address of the keypanel.

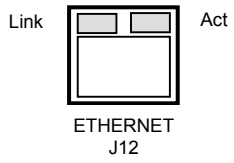
If you connect an RVON-I/O in Local mode to an intercom Serially, you must **NOT** connect the data lines.

Rear Panel View:

Integrator's Reference Only
Does not reflect factory screening



J1 - J8	I/O Ports
J9	Function Relay 1 & 2
J10	Serial Port (Serial setup & Serial Pass-Through)
J11	GPI/O 1 - 8
J12	Ethernet Connection
S1	DIP Switch Options



Resetting the Current IP Address to the Default RVON-I/O IP Addres

(*this is useful if not setting up via the Serial port & Hyper Terminal*)

If using TELNET, not Hyper Terminal, the RVON I/O may be reset to the default IP address by doing the following. Again, it is not necessary to do this when using Hyper Terminal.

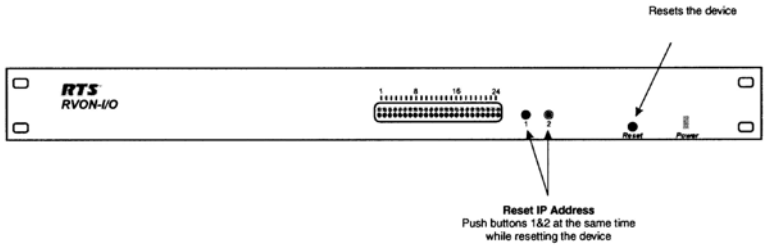
The RVON-I/O is shipped with a default IP Address already configured on the unit. The **default IP Address is 192.168.0.1,** the default **Netmask is 255.255.0.0,** the default **Gateway is set to zero.**

This feature is useful when using an RVON-I/O in the field (i.e.; a mobile truck) where the IP Address is constantly changing from on destination network to the next. By being able to reset the IP Address to a default address, you will be able to connect to the RVON-I/O without having to remember the IP Address of the previous location. This will allow you to Telnet into the RVON I/O via Ethernet connection. Remember, if not connected to a network you must use an Ethernet crossover cable to directly connect your computer to the RVON I/O.

To reset the IP Address to default on the RVON-I/O, do the following:

On the front of the RVON-I/O unit, push and hold buttons 1 and 2, then push the **RESET** button. Hold the buttons in for 15 seconds or until all the LED lights blink rapidly. When all the LED lights blink rapidly, the RVON-I/O IP Address has been reset to the default.

NOTE: If buttons 1 and 2 are pressed during power ON, the unit will also reset the IP Address.



- - "SPY" COMMANDS:

This will maintain a stable screen to view keyboard entries as long as you do not exit the Hyper Terminal edit session.

If continual scrolling appears on the screen while using Telnet commands, it can be stopped by using the Spy command below. This **must be done for each** four character acronym displayed, one at a time, until all are stopped from being displayed in a scroll.

MXP>**spy <xxxx> 5**

The switch "5" means do not show me anything in scroll.

- *or* – **MXP> spy * 5**

The "**RVON: port #, requesting call permission**" messages can also be stopped by using "**spy rvon 5**".

Hit Return.

MXP> (prompt should appear and remain stable)

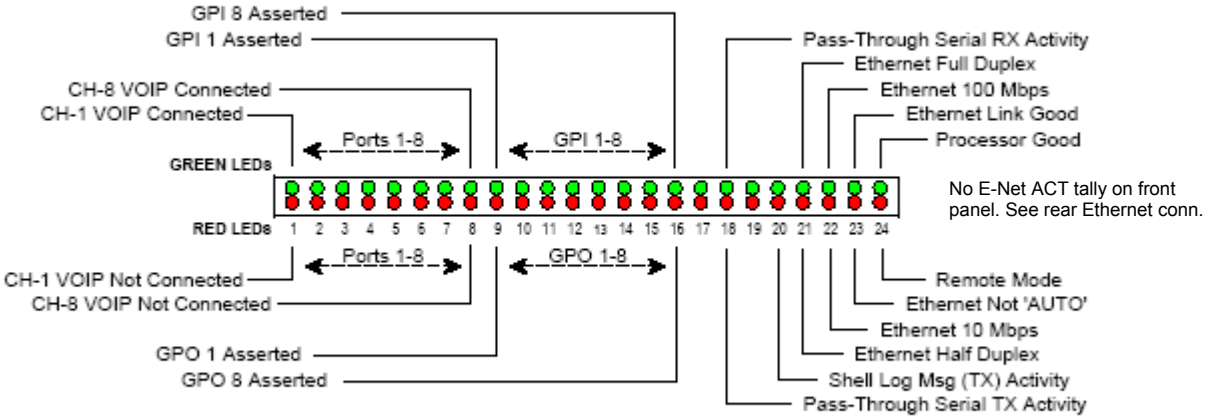
The "**arp**" related messages can't be stopped using the SPY command. However, these messages do not occur in the latest RVON firmware releases which use the VxWorks network stack instead of the Telogy network stack.

The latest RVON versions are:

RVON-8 : V1.3.0
RVON-1: V1.2.0
RVON-IO: V1.1.0
RVON-C: V1.0.0

DIAGNOSTICS:

RVON I/O LED Status Display

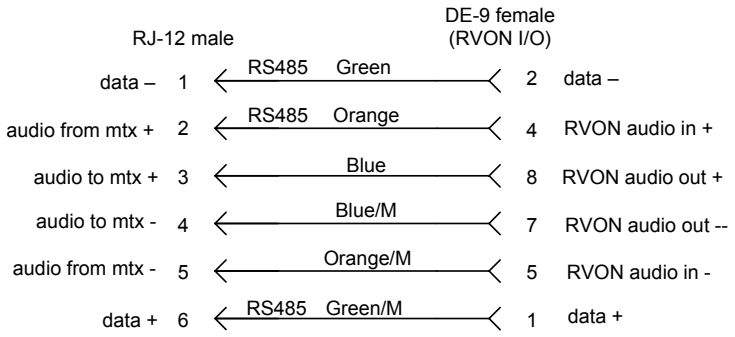


* Green LED wink periodically when a keypanel is connected.
** If both LEDs are off, the channel is not configuered (this only applies to LEDs 1-8).

rvon i_o leds.xls
9/5/2006

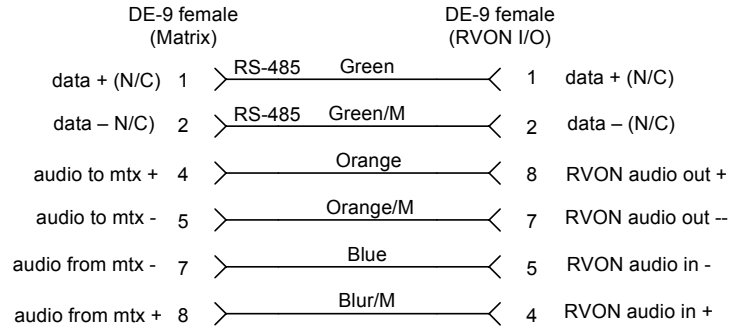
RVON I/O Audio Crossover CAT-5 Cables

DO NOT use data connections when going from RVON to Matrix analog ports

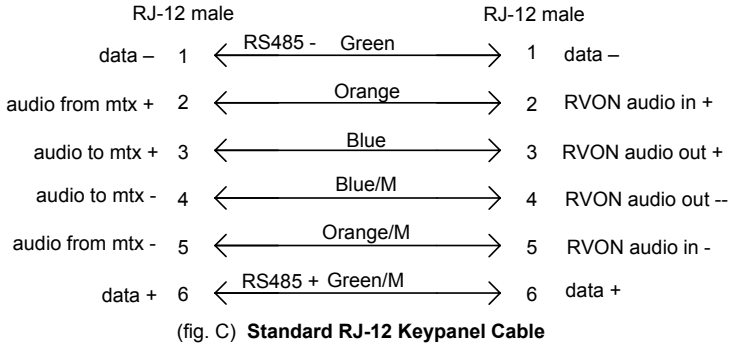


(fig. A) **RJ-12 to DE-9 Audio Crossover Cable**
CUT OFF BROWN PAIR

NOTE: Mark all CAT5 crossover cables clearly. Do not mix up with standard EIA 568A or EIA-568B color codes.

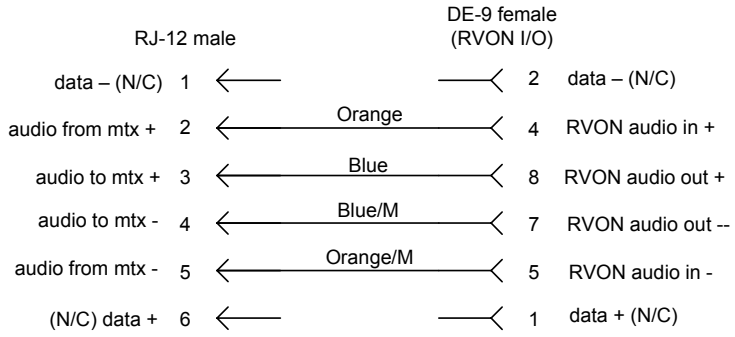


(fig. B) **DE-9 to DE-9 ADAM & Zeus Audio Crossover Cable**
CUT OFF BROWN PAIR

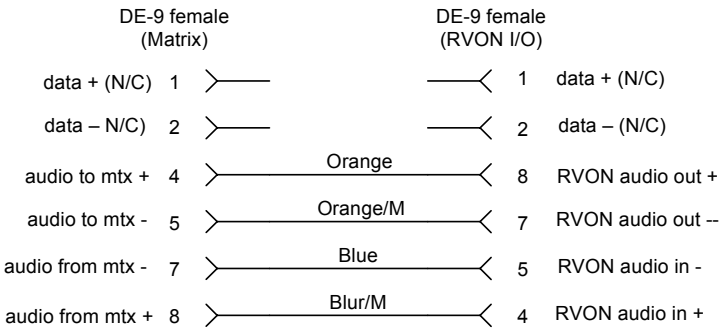


(fig. C) **Standard RJ-12 Keypanel Cable**
CUT OFF BROWN PAIR

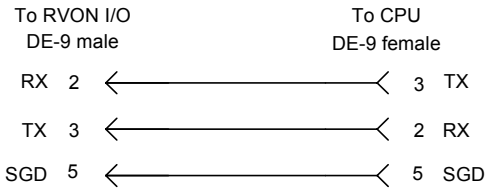
RVON I/O Audio Crossover CAT-5 Cables
NO DATA



(fig. D) **RJ-11 to DE-9 Audio Crossover Cable**
NO DATA
cut off brown & green pair



(fig. E) **DE-9 to DE-9 Audio Crossover Cable**
NO DATA
cut off brown & green pair



(fig. F) **DE-9 to DE-9 RS-232 Null Modem**
Computer Cable

CODEC Codes

VAD: **V**oice **A**ctivity **D**etection, when enabled and only when audio is above a certain threshold, will send packets. Otherwise, a silence packet is sent once, and not again until audio is above the threshold. Enabling this will result in a more efficient network, but care must be taken to because of the mother's day phenomenon. If there is ever a need to have all audio paths open and active, a network designer must account for this scenario.

NOTE: VAD **only** supported in G.711u , codes 0,1,2.

Supplemental Coding Table

Coding	Codec	Codec Rate	Size (ms)	VAD	Bandwidth kbps/Ch	Comments
0	G.711u	64k	10	Y		More robust. Decoding more accurate
1	G.711u	64k	20	Y		
2	G.711u	64k	30	Y		More efficient but can have re-assembly problems at other end. Less robust.
3	G.711u	64k	10	N		
4	G.711u	64k	20	N		
5	G.711u	64k	30	N		
6	G.711A	64k	10	Y		Euro Standard (codes 6-11) * See user manual
7	G.723	6.3k	60	N		
8	G.723	6.3k	60	N		
9	G.723	6.3k	60	N		
10	G.723	6.3k	60	N		
11	G.723	6.3k	60	N		
12	G.729AB	8k	10	Y		Lower Fidelity (codes 12-19) * See user manual
13	G.723	6.3k	60	N		
14	G.723	6.3k	60	N		
15	G.723	6.3k	60	N		
16	G.723	6.3k	60	N		
17	G.723	6.3k	60	N		
18	G.723	6.3k	60	N		
19	G.723	6.3k	60	N		
20	G.723	5.3k	30	Y		Economy but avoid using for IFB or music
21	G.723	5.3k	60	Y		
22	G.723	5.3k	30	N		
23	G.723	5.3k	60	N		
24	G.723	6.3k	30	Y		
25	G.723	6.3k	60	Y		
26	G.723	6.3k	30	N		
27	G.723	6.3k	60	N		

See User Manual for greater detail

RVON-I/O Command Table Summary

SHOW COMMANDS

Command	Parameter 1	Parameter 2	Description
show rvon			Shows RVON-I/O IP Address and other general information.
show channel			Shows destination address and connection information.
show serial			Shows serial port setting.
show gpio			Shows gpio settings.
show panel			Shows the channel control settings (poll id and baud rate).
show emac			Shows Ethernet settings.

SET COMMANDS

set rvon			**Help screen which lists all "set rvon" commands.**
set rvon	ip_addr	X.X.X.X	Set the IP Address for the RVON-I/O.
set rvon	net mask	X.X.X.X	Set the Network Mask for the RVON-I/O.
set rvon	gateway	X.X.X.X	Set the Gateway IP Address for the RVON-I/O.
set rvon	user	telex	Set the RVON-I/O user name for Telnet access. **Default = telex** (lower case)
set rvon	password	password	Set the RVON-I/O password for Telnet access (8-40 characters) **Default = password** (lower case)
set rvon	vad_threshold	adaptive (#)	Set the VAD threshold (silence detection). Adaptive refers to autoselect. The # can be -20 to +10 dBm.
set channel			**Help screen, which lists all "set chan" commands (0-7). This refers to VOIP channel setting.**
set channel	dest_ip	X.X.X.X	Set the destination IP Address for this particular RVON channel.
set channel	dest_type	X	X = 0 (rvon-8), 1 (rvon-1, 2 (rvon-I/O
set channel	dest_chan	X	Set the destination channel - the port on the far end (0-7)
set channel	chan_codec	X	Set the profile to use which includes the compression codec (0-27) *see Table on page 19*.
set channel	input_gain	X	Set the input gain for the specified channel -14 to +14
set channel	output_gain	X	Set the output gain for the specified channel -14 to +14 dB
set channel	onhook		Force the channel to disconnect.
set channel	offhook		Force the channel to connect.
set serial			**Help screen, which lists all "set serial" commands.**
set serial	mode	X	Set the serial mode. 0 = Pass Through mode
set serial	ip_addr	X.X.X.X	Set the destination IP Address for this serial pass-through port.
set serial	ip_addr_2	X.X.X.X	Not Available
set serial	baud	X	Set the baud rate to use: 50 through 115000.
set gpio			**Help screen, which lists all "set gpio" commands.**
set gpio	mode	X	Set the gpio mode : 1 = Keypanel 0 = Pass Through 2 = All Keypanels
set gpio	ip_addr	X.X.X.X	Set the destination IP Address for pass-through mode.
set gpio	panel	X	Set the IO port the gpio are associated with on the RVON-I/O.
set panel			**Help screen, which lists all "set panel" commands.**
set panel	poll_id	X	Make sure the panel poll_id corresponds to the source of the audio it is connected to. 0-8 (0= do not respond to polls)
set panel	baud	X	Set the baud rate for the panel. 9600 or 76800

Things To Look Out For

1) If you experience **constant scrolling** of polling messages while trying to edit setups on the RVON I/O, see page 17, "SPY Commands".

2) Com ports may change from time-to-time when using USB/Serial converters. Windows Device Manager may have to be opened to determine what COM port the USB device is on and a new profile may need to be created.

3) For editing, the RVON I/O must have **dip switch #2** in the "**closed**" (down) position, and then power cycle. After editing the RVON I/O, type "**activate**" to send changes and **return dip switch #2** to the "**open**" (up) position and power cycle the RVON I/O again. (see page 4)

4) Again, ***BEFORE*** you configure your system, **SAVE** your current setup file. If you change any settings under Inter Configuration after you configure your panels, it will cause the intercom to perform a "first birthday" and all prior configurations will be lost and must be re-loaded or worse, re-created. **IMPORTANT** When using RVON-I/O with on-board GPI/Os, you must **uncheck** the "Configure on-board GPI/Os in FR9528 mode" in Intercom Configuration pull down menu. This makes the matrix GPO an active low. After this change is made, the intercom will perform a first birthday and you will need to re-load your intercom configuration.

5) When a KP32 / RVON-1 is connected to an RVON I/O, the RVON-1 thinks the RVON I/O is an RVON-8. However, you may have to Hyper Terminal (Telnet) into the KP32 and set it up to talk to the RVON I/O manually. If you put a "2", indicating the KP was connecting to an RVON I/O, the voice channels may not connect. The result is you may have to Hyper Terminal (Telnet) back into the keypanel and put a "0" in the device type for an RVON-8 connection. The KP32 should then come up and work normally.

6) Set panel X poll_id X (1-8)> **poll i.d. relates directly to actual real matrix port number** (1 – 8, 0 = turn off poll) i.e. port 25 = 1, port 32 = 8. This is an exception to rule of following the 0 – 7 convention normally used in Hyper Terminal / Telnet commands.

7) If you are getting audio, but cannot see the alphas on keypanels connected to the RVON I/O, verify the "set panel ID" is set correctly.

8) If you connect an RVON-I/O in Local mode to an intercom Serially, you must **NOT** connect the data lines; just audio only.

9) Once you are finished configuring the RVON-I/O, type **ACTIVATE** at the command prompt to activate the configuration setup on the RVON-I/O. Then set DIP switch #2 in OPEN position, and power cycle.

10) NOTE: If data connection is made between keypanel and RVON I/O but no audio, log into KP32 and check both "destination type" and "polling i.d." The "device type" in the KP32 should be set to "0", not "2".

11) When in "RVON Conn" on a KP32 keypanel and you can't see anything but <none> for a selection, re-check the RVON I/O channel settings for the KP32 related channel.