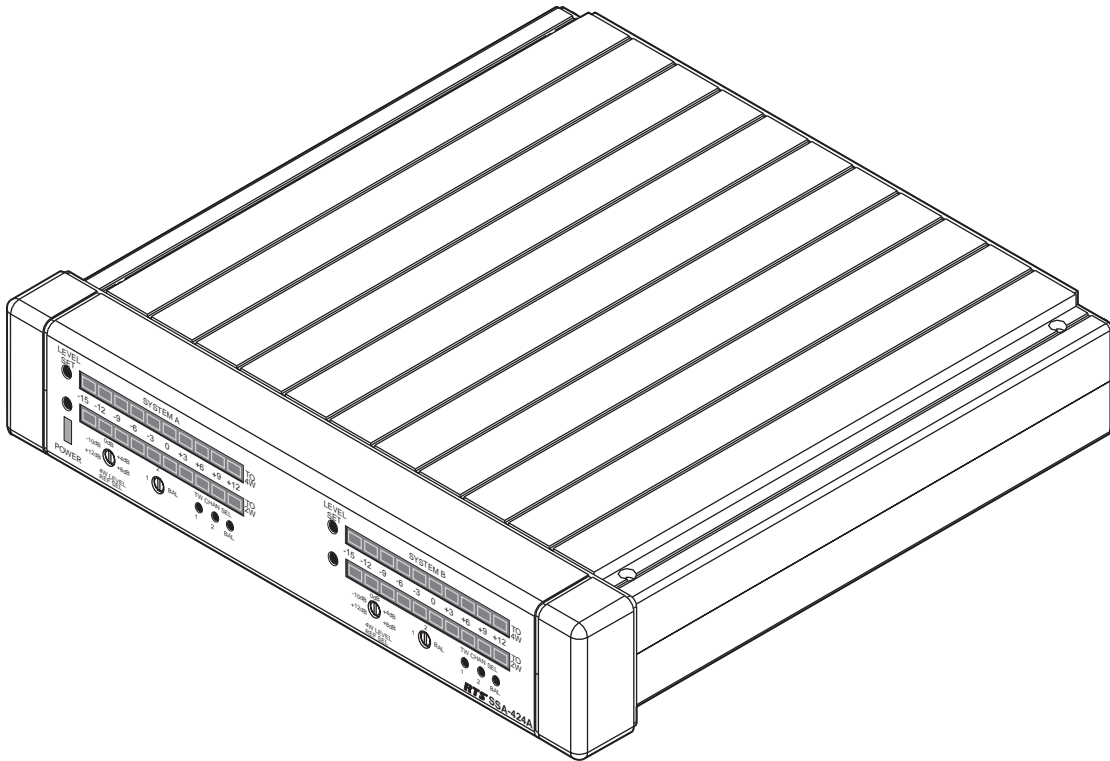


# User Instructions

## SSA-424A

### Dual Digital Hybrid

ADAM™, ADAM CS™, Zeus™ Intercom Systems



# RTS™

## PROPRIETARY NOTICE

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## UNPACKING AND INSPECTION

Immediately upon receipt of the equipment, inspect the shipping container and the contents carefully for any discrepancies or damage. Should there be any, notify the freight company and the dealer at once.

## WHAT'S IN THIS PACKAGE?

QTY	DESCRIPTION	PART NUMBER
1	final assy., SSA-424A or final assy., SSA-424A w/option board	9010-7824-000  9010-7824-100
1	power supply	532026-000
1	cord power	550006-100
1	user manual	9350-7824-000

## WARRANTY INFORMATION

For Warranty Information, see the enclosed warranty card.

## CUSTOMER SUPPORT

Technical questions should be directed to:

Customer Service Department  
RTS/Telex  
12000 Portland Ave South  
Burnsville, MN 55337 U.S.A.  
Phone: 1-800-392-3497  
Fax: 1-800-323-0498

## RETURN SHIPPING INSTRUCTIONS

### Procedure for Returns

If a repair is necessary, contact the dealer where this unit was purchased.

If repair through the dealer is not possible, obtain a **Return Authorization** from:

Customer Service Department  
RTS/Telex Communications, Inc.  
Phone: 1-800-392-3497  
Fax: 1-800-323-0498

**DO NOT RETURN ANY EQUIPMENT DIRECTLY TO THE FACTORY WITHOUT FIRST OBTAINING A RETURN AUTHORIZATION.**

Be prepared to provide the company name, address, phone number and a person to contact regarding the repair, the type and quantity of equipment, a description of the problem and the serial number(s).

## SHIPPING TO MANUFACTURER

All shipments of RTS products should be made via United Parcel Service or the best available shipper, prepaid. The equipment should be shipped in the original packing carton; if that is not available, use any suitable container that is rigid and of adequate size. If a substitute container is used, the equipment should be wrapped in paper and surrounded with at least four inches of excelsior or similar shock-absorbing material. All shipments must be sent to the following address and must include the Return Authorization.

Factory Service Department  
Telex Communications, Inc.  
1930 West 1st Street  
Blue Earth, MN 56013 U.S.A.

Upon completion of any repair the equipment will be returned via United Parcel Service or specified shipper collect.

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# 1 Description and Specifications

## 1.1 GENERAL DESCRIPTION

The SSA-424A Dual Digital Hybrid interfaces two, 2-wire intercom lines to two, 4-wire intercom lines. Unlike earlier analog hybrids, the SSA-424A features advanced digital signal processing to achieve automatic nulling of the 2-wire lines. Plus, each hybrid features convenient peak-reading level meters to quickly match the levels between the lines that are being interfaced. The result is easy and accurate setup. With the SSA-424A, all need for test tones, nulling adjustments and ducking adjustments have been eliminated.

Compatible 2-wire intercom systems include RTS™ TW, Audicom®, and Clear-Com®. Compatible 4-wire intercom systems include Telex's ADAM™, ADAM™CS, and Zeus™ Digital Matrix Intercom Systems.

The SSA-424A is also available with optional call signal interfacing. This option provides bidirectional call signal compatibility between the 2-wire and 4-wire intercom systems.

With features like digital signal processing, peak-reading level meters and optional call signal interfacing, the SSA-424A Dual Digital Hybrid assures ease of setup and maximum transparency between intercom systems.

## 1.2 GENERAL FEATURES

**Two Independent Hybrids:** Interface two separate 2-wire lines to two separate 4-wire lines.

**Automatic Nulling:** Digital hybrids eliminate all nulling and ducking adjustments. Quick, trouble-free setup. Puts an end to concerns about echo and feedback when interfacing 2-wire lines.

**Peak Reading Level Meters:** Quick and accurate visual audio level adjustment. No extra setup equipment or guesswork is required.

**Direct ADAM/Zeus Audio Connection:** Accepts standard ADAM/Zeus DB9 or RJ11 keypanel cables.

**Transformer Isolated:** All audio inputs and outputs are transformer isolated to prevent ground loops and hum.

**Call Signal Option:** Detects call signals from any of the compatible 2-wire intercom systems, and then provides a +5VDC output to the 4-wire intercom system. Accepts a contact closure input from the 4-wire system and converts it to the call signal format required by the 2-wire system. The SSA-424A can be directly connected to an ADAM, ADAM CS, or Zeus GPI (General Purpose Interface). GPI inputs can be programmed to activate call signals and audio paths to any of the available types of communication within the 4-wire system, including intercom ports, camera ISO circuits, IFB circuits, etc. GPI outputs can be set up to place calls only from a specific keypanel within the 4-wire system, or from any keypanel within the 4-wire system that wishes to call the 2-wire system.

**Half-rack Wide, 1RU High:** Two SSA-424A's fit into a single rack space. Compatible with RTS TW rack mount hardware. Can be mixed with other TW equipment.

**Universal Power Pack:** Ready for worldwide use. Automatically accepts any mains voltage from 100-250 VAC, 50/60 Hz. Power pack equipped with locking DIN connector for attachment to the SSA-424A.

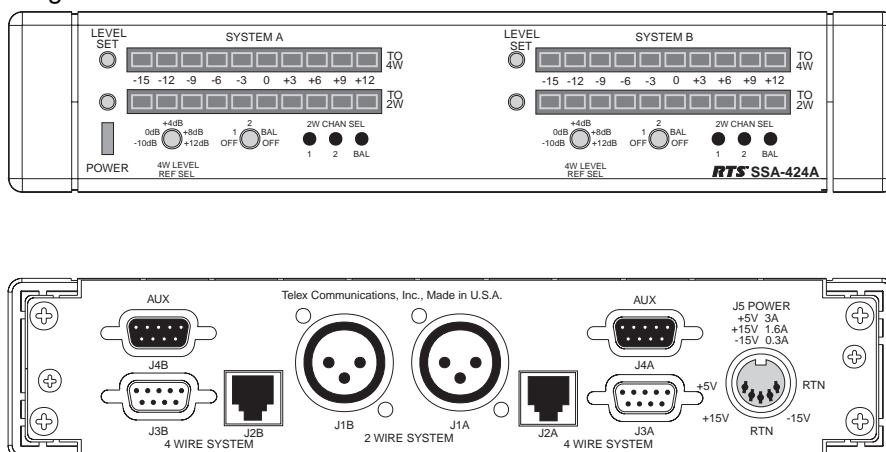


Figure 1. SSA-424A Reference View

## 1.3 FRONT AND BACK PANEL DESCRIPTIONS

### 1.3.1 FRONT PANEL

There is a power ON/OFF and call indicator at the left of the front panel. This indicator lights continuously when the SSA-424A is turned on and flashes when an incoming call signal is detected. The remainder of the front panel is divided into controls and indicators for the two separate hybrids, labeled SYSTEM A and SYSTEM B. For each hybrid, there is a 10-segment, peak reading level meter to display the 4-wire output level (TO 4W). There is a recessed level set control to the left of the 4-wire meter (LEVEL SET) and there is also a recessed, 5-position range select control for the 4-wire output (4W LEVEL REF SEL). Under the 4-wire meter, is an identical meter for the 2-wire output level, and there is a recessed level set control for the 2-wire output to the left of the meter. Under the 2-wire meter, there is a recessed, 5-position selector. The selector has two OFF positions for when no 2-wire input is connected. The three remaining switch positions select the 2-wire system as follows: position 1 selects RTS TW channel 1; position 2 selects RTS TW channel 2 or a Clear-Com channel; the BAL position selects an Audicom balanced channel. There are 3 LED indicators to display the current selection (2W CHAN SEL).

### 1.3.2 BACK PANEL

The power pack connector is located at the right end of the back panel. This is a locking DIN connector. The remainder of the back panel is divided into connectors for the two separate hybrids. Connectors are labeled with "J" numbers followed by "A" or "B" to indicate system A or system B. For each hybrid, there is an AUX connector. This is used to connect to/from the optional call signal card. Below the AUX connector, there are both a DB9F connector and an RJ11 connector for 4-wire intercom connection. These are directly compatible with standard ADAM/Zeus keypad cables. Next to the 4-wire connectors, there is a 3-pin female XLR audio connector for connection to the 2-wire intercom system. The pin-out of this connector is determined by the position of the TW CHAN SEL control on the front panel.

## 1.4 SPECIFICATIONS

### 2-Wire Ports

Input/Output Impedance: 5,000 ohms, nominal  
Operating Level: -10dBu to 0 dBu, nominal  
Level Adjustment Range:  $\pm 12$ dB

### 4-Wire Ports

Input Impedance: 10k ohms, nominal  
Output Impedance: 200 ohms  
Operating Levels: -10 dBu, 0 dBu, +4 dBu, +8 dBu, +12 dBu

### System to System

Frequency Response: 200 Hz to 4.5 kHz, +1/-6dB  
S/N Ratio (Ref 1 kHz, 0 dB@2-wire): TBD  
Crosstalk: TBD

### Environmental

Operating Temp: -20°C to 50°C (-4°F to 122°F)  
Storage Temp: -40°C to 85°C (-40°F to 185°F)  
Humidity: 0 to 95%, non-condensing

### Mains Voltage

100 to 250 VAC, 50/60 Hz

### Dimensions

1.72" (44mm) high x 8.19" (208mm) wide x 8.0" (204mm) deep

### Weight

5.0 lbs (2.3kg)

### Finish

Thermoplastic front panel, aluminum case, light gray finish

### Approvals

UL, CSA, UDE, CE

Specifications subject to change without notice.

## 2 Installation

### 2.1 MOUNTING

Place the SSA-424A on a desktop, or install it in an equipment rack using an RTS MCP Rack Mount Kit. Several rack mount options are available (Figure 2, page 8). There are no special ventilation requirements for the SSA-424A, but allow for ventilation around the power pack.

- If the SSA-424A has the call signal option, the power indicator flashes whenever a call signal is received from either 2-wire line, and activity on the level display helps to indicate which line is calling. If the SSA-424A is positioned near the 4-wire operator, this can be used as an incoming call indication for the 4-wire system, if desired (although other methods are available as described in paragraph 2.5).
- You may wish to read about the internal mode DIP switches before mounting the SSA-424A. For further information, see Mode Switch Settings, page 16.

### 2.2 4-WIRE AUDIO CONNECTIONS

#### 2.2.1 ADAM, ADAM CS, OR ZEUS AUDIO CONNECTION

- 1 Use standard 9-pin or RJ11 keypanel cables. Connect from one port of your intercom system to J2A or J3A (System A connection) on the back of the SSA-424A. Connect from another port to J2B or J3B (System B connection).
- 2 On the SSA-424A front panel, set the 4W LEVEL REF SEL switches to the +8dB position.

#### 2.2.2 AUDIO CONNECTIONS FOR OTHER 4-WIRE COMMUNICATIONS SYSTEMS

- 1 Construct 9-pin or RJ11 cables to connect from your 4-wire system to the SSA-424A. To connect to the System A hybrid, use either J2A or J3A; for the System B hybrid, use either J2B or J3B. Pin connections are as follows:

##### 9-Pin Connection

Connector Type (on SSA-424A end of cable): 9-pin male D-subminiature

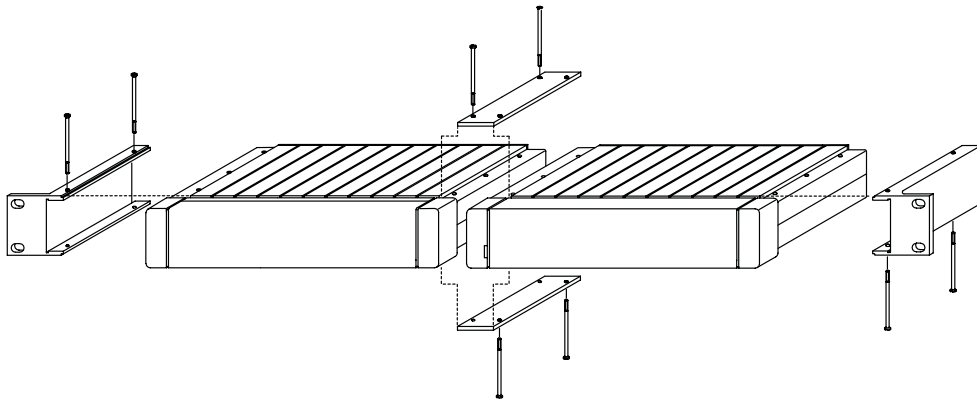
Pin 1:	No connection
Pin 2:	No connection
Pin 3:	No connection
Pin 4:	Balanced Audio + output (to 4-wire system)
Pin 5:	Balanced Audio - output (to 4-wire system)
Pin 6:	No connection
Pin 7:	Balanced Audio - input (from 4-wire system)
Pin 8:	Balanced Audio + input (from 4-wire system)
Pin 9:	No connection

##### RJ11 Connection

Connector Type (on SSA-424A end of cable): RJ11 plug

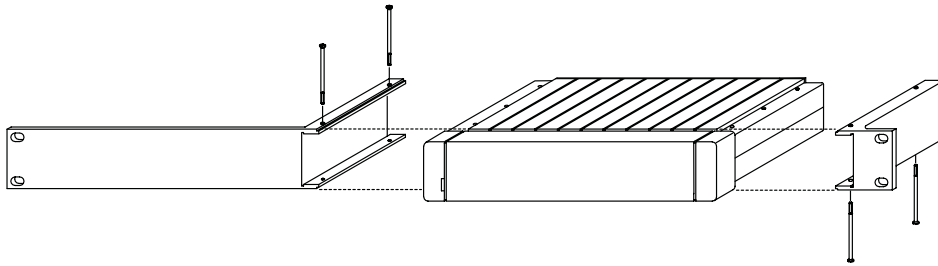
Pin 1:	No connection
Pin 2:	Balanced Audio + input (from 4-wire system)
Pin 3:	Balanced Audio + output (to 4-wire system)
Pin 4:	Balanced Audio - output (to 4-wire system)
Pin 5:	Balanced Audio - input (from 4-wire system)
Pin 6:	No connection

- 2 On the SSA-424A front panel, set the 4W LEVEL REF SEL switches to the position which most closely matches the audio input and output levels of your 4-wire system. If you don't know the levels, select +4dB for now.



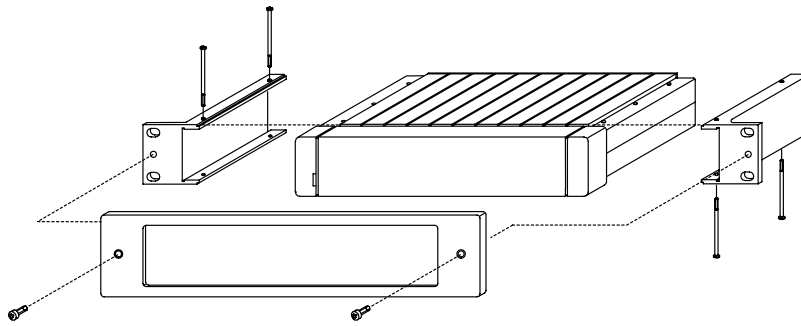
Side-By-Side Rack Mount Configuration Using an MCP1 Rack Mount Kit

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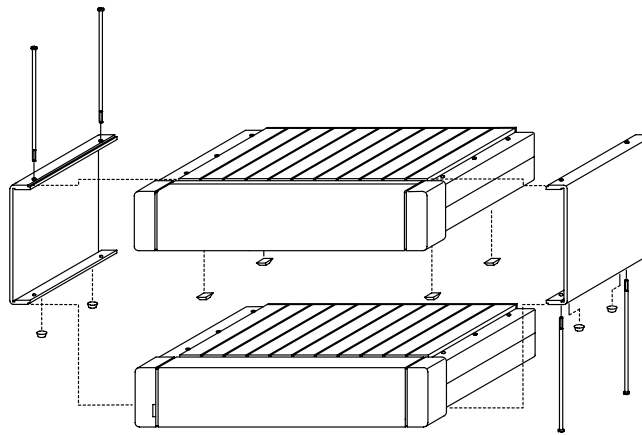
Single-unit Rack Mount Configuration Using an MCP2 Rack Mount Kit

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Console Mount Configuration Using an MCP3 Console Mount Kit

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Tandem Configuration Using an MCP4 Tandem Mount Kit

---

Figure 2. Rack mount configurations

## 2.3 2-WIRE AUDIO CONNECTIONS

### 2.3.1 RTSTW AUDIO CONNECTIONS

1 Use standard TW intercom cables. Note, standard TW system cables can carry either one or two channels, while each hybrid in the SSA-424A can only interface one TW channel to one 4-wire channel (which channel is determined by the front panel 2W CHAN SEL switch). If your TW system cable is only carrying one channel, or if you only need to connect one of two channels, connect directly to J1A (System A) or J1B (System B). If your TW system cable is carrying two channels, and you want to connect both, use a TW-5W or similar device as shown in Figure 3.

- The SSA-424A features internal DC isolation. You can therefore connect the SSA-424A to powered TW cables, and it will not draw any power from the TW system.

2 On the SSA-424A front panel: For each hybrid (System A or System B) set the 2W CHAN SEL switch to the appropriate position. To interface to TW channel 1, select position 1; for TW channel 2, select position 2.

- If the System A or System B hybrid will not be used, set its 2W CHAN SEL switch to either OFF position.

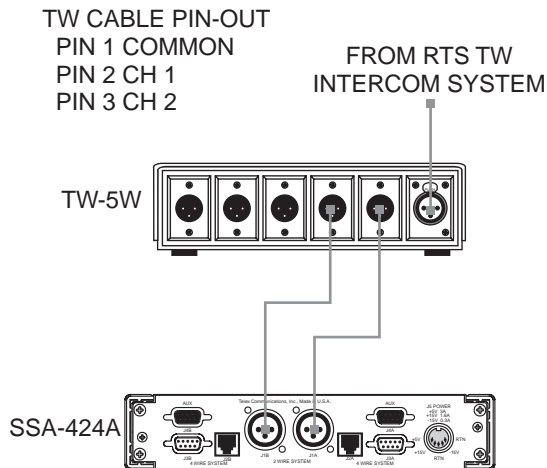


Figure 3. Using a TW-5W to connect two TW channels to the SSA-424A.

### 2.3.2 AUDIOCOM AUDIO CONNECTION

1 You can directly connect standard Audiocom 1-channel cables. Connect one Audiocom channel to the J1A connector on the back of the SSA-424A (System A). Connect a second Audiocom channel to the J1B connector (System B). If your Audiocom system uses 2-channel cables, use a JB-2 Junction Box to split the channels (Figure 4).

- The SSA-424A features internal DC isolation. You can therefore connect the SSA-424A to powered Audiocom cables, and it will not draw any power from the Audiocom system.

2 On the SSA-424A front panel, set the 2W CHAN SEL switches for System A and System B to the BAL position.

- If the System A or System B hybrid will not be used, set its 2W CHAN SEL switch to either OFF position.

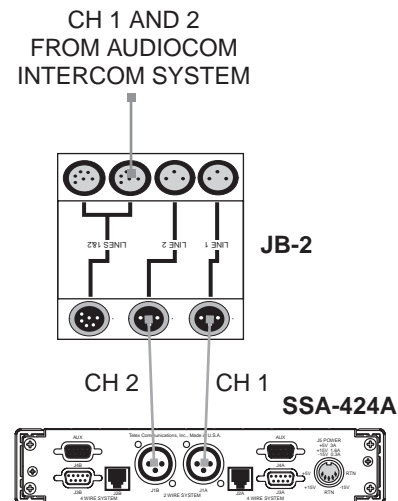


Figure 4. Using a JB-2 Junction Box to split a 2-channel Audiocom cable into two 1-channel cables.

### 2.3.3 CLEAR-COM AUDIO CONNECTION

- 1 Use standard Clear-Com 3-pin cables. Connect one Clear-Com party line to the J1A connector on the back of the SSA-424A (System A). Connect a separate Clear-Com party line to the J1B connector (System B).
  - The SSA-424A features internal CD isolation. You can therefore connect the SSA-424A to powered Clear-Com cables, and it will not draw any power from the Clear-Com system.
- 2 On the SSA-424A front panel, set the System A and System B 2W CHAN SEL switches to position 2.
  - If the System A or System B hybrid will not be used, set its 2W CHAN SEL switch to either OFF position.

### 2.3.4 OTHER 2-WIRE AUDIO CONNECTION

- 1 Use the J1A connector on the back of the SSA-424A to connect one 2-wire line to the System A hybrid. Use the J1B connector to connect a second 2-wire line to the System B hybrid. The pin configuration for the J1A and J1B connectors depends on whether you are connecting a balanced or unbalanced 2-wire line:

#### Balanced Configuration

- |        |                               |
|--------|-------------------------------|
| Pin 1: | No connection                 |
| Pin 2: | Balanced Audio + Input/Output |
| Pin 3: | Balanced Audio - Input/Output |

There are two possible configurations for unbalanced connection:

#### Unbalanced Configuration 1

- |        |                      |
|--------|----------------------|
| Pin 1: | Audio Common         |
| Pin 2: | Audio + Input/Output |
| Pin 3: | No connection        |

#### Unbalanced Configuration 2

- |        |                      |
|--------|----------------------|
| Pin 1: | Audio Common         |
| Pin 2: | No connection        |
| Pin 3: | Audio + Input/Output |

- 2 On the SSA-424A front panel, set the CHAN SEL switches as follows:

- **Balanced Configuration:** set the CHAN SEL switches to the BAL position
- **Unbalanced Configuration 1:** set the CHAN SEL switches to position 1.
- **Unbalanced Configuration 2:** set the CHAN SEL switches to position 2.

- If the System A or System B hybrid will not be used, set its 2W CHAN SEL switch to either OFF position.

## 2.4 4-WIRE CALL SIGNAL CONNECTIONS

- These connections require the call signal option.

### 2.4.1 CALL SIGNAL CONNECTIONS FOR ADAM, ADAM CS, AND ZEUS

You can use the General Purpose Interface (GPI) connector to interface call signals. The pin-out of the connector is the same for all of these intercom systems (Table 1).

**ADAM GPI Connector:** XCP-ADAM-MC, J11

**ADAM CS GPI Connector:** J903

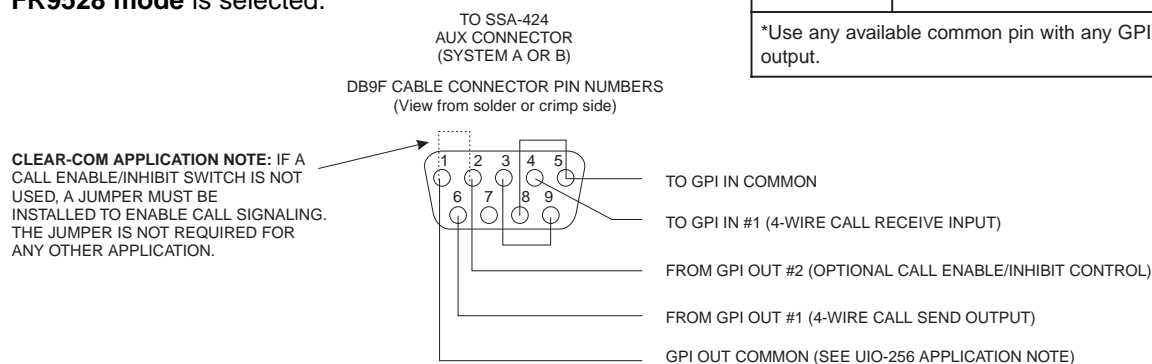
**Zeus GPI Connector:** J27

If your intercom system is equipped with a UIO-256 Universal Input/Output Frame, you can also use that for connections (Tables 2 and 3, page 12).

As an alternative to using the GPI, you can use external components to send and receive call signals as described in paragraph 2.5.2.

Typical GPI connections are shown in Figure 5. Note, the example uses GPI outputs #1 and #2 and GPI input #1. You may substitute other GPI inputs and outputs.

**IMPORTANT NOTE FOR AZEDIT USERS:** AZedit version 1.06 or higher includes a feature which allows you to invert the action of the GPI outputs. By default, these outputs are set to duplicate the action of the RTS FR9528 Relay Frame accessory. This is the correct setting for use with the SSA-424A. To check the AZedit setting, select Intercom Configuration in the Options menu. Click on the Options tab, then verify that **Configure onboard GPI outputs in FR9528 mode** is selected.



**UIO-256 APPLICATION NOTE:** GPI OUT - AT THE UIO-256 END, USE THE NORMAL OPEN (NO) CONTACT FOR GPI OUT CONNECTION, AND USE THE RELAY COMMON CONTACT FOR THE COMMON CONNECTION.  
GPI IN - USE THE INPUT HIGH PIN FOR THE GPI IN CONNECTION, AND USE THE COMMON PIN FOR THE COMMON CONNECTION.

**Figure 5. Call signal connections for ADAM, ADAM CS, or Zeus Intercom Systems.** This example uses GPI outputs #1 and #2 and GPI input #1; however, you may use any other available GPI inputs and outputs. The Call Enable/Inhibit connection is optional. It gives you the ability to disable call signaling using a GPI output. However, when connecting to a Clear-Com intercom system, if an enable/inhibit switch is not connected, a jumper must be installed as shown to enable call signaling. The jumper should not be installed for any other application. Note, you DO NOT have to use GPI outputs for call signaling or call enable/inhibit: you can use simple switches instead as shown in Figure 6.

**Table 1. GPI Connector Pin-out (ADAM, ADAM CS, and Zeus)**

Pin No.	Function
1	GPI Input #1 High (5-18 VDC)
2	GPI Input #2 High (5-18 VDC)
3	GPI Input #3 High (5-18 VDC)
4	GPI Input #4 High (5-18 VDC)
5	GPI Input #5 High (5-18 VDC)
6	GPI Input #6 High (5-18 VDC)
7	GPI Input #7 High (5-18 VDC)
8	GPI Input #8 High (5-18 VDC)
9	Common*
10	Common*
11	Common*
12	Common*
13	Common*
14	GPI Out #1
15	GPI Out #2
16	GPI Out #3
17	GPI Out #4
18	GPI Out #5
19	GPI Out #6
20	GPI Out #7
21	GPI Out #8
22	Common*
23	Common*
24	Common*
25	Common*

\*Use any available common pin with any GPI input or output.

Table 2. UIO-256 GOI Inputs Connector (J7)

GPI Input Numbers*				GPI Input Pin Numbers	
UIO-256 Frame #1	UIO-256 Frame #2	UIO-256 Frame #3	UIO-256 Frame #4	Common	Input Hight (5-18 VDC)
1	17	33	49	9	34
2	18	34	50	10	35
3	19	35	51	11	36
4	20	36	52	12	37
5	21	37	53	13	38
6	22	38	54	14	39
7	23	39	55	15	40
8	24	40	56	16	41
9	25	41	57	1	26
10	26	42	58	2	27
11	27	43	59	3	28
12	28	44	60	4	29
13	29	45	61	5	30
14	30	46	62	6	31
15	31	47	63	7	32
16	32	48	64	8	33

\* Dependent on UIO-256 DIP Switch SW1 Settings for Input/Output Range as summarized in the UIO-256 Manual

Table 3. UIO-256 GPI Outputs Connector (J5)

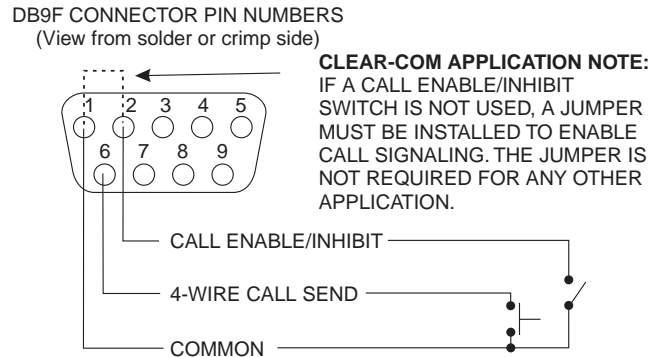
GPI Output Numbers*				Relay Contact Pin Numbers**		
UIO-256 #1	UIO-256 #2	UIO-256 #3	UIO-256 #4	Normal Closed (NC) Contact	Common Contact	Normal Open (NO) Contact
1	17	33	49	38	13	40
2	18	34	50	39	14	15
3	19	35	51	41	16	43
4	20	36	52	42	17	18
5	21	37	53	44	19	46
6	22	38	51	45	20	21
7	23	39	55	47	22	49
8	24	40	56	48	23	24
9	25	41	57	26	1	28
10	26	42	58	27	2	3
11	27	43	59	29	4	31
12	28	44	60	30	5	6
13	29	45	61	32	7	34
14	30	46	62	33	8	9
15	31	47	63	35	10	37
16	32	48	64	36	11	12

\* Dependent on UIO-256 DIP Switch SW1 Settings for Input/Output Range as summarized in the UIO-256 manual.

## 2.4.2 CALL SIGNAL CONNECTIONS FOR OTHER 4-WIRE COMMUNICATION SYSTEMS

### 2.4.2.1 4-WIRE CALL SEND AND CALL ENABLE/INHIBIT

The SSA-424A accepts a switch-contact input from the 4-wire system and then generates a call signal output to the 2-wire system. The SSA-424A also accepts an optional switch contact input to enable or inhibit call signaling between the 4-wire and 2-wire systems. Figure 6 shows the typical connections.

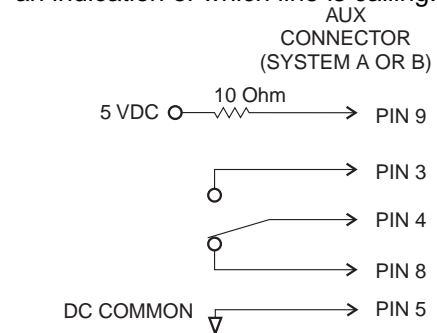


**Figure 6. Typical call send and call enable/inhibit connections for a 4-wire intercom system.**

### 2.4.2.2 4-WIRE CALL RECEIVE

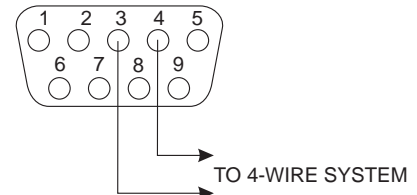
The SSA-424A receives call signals from the 2-wire system, then converts this to relay contact closure for use as a 4-wire call receive indication. The SSA-424A also provides +5 VDC which can be connected to the relay contacts to generate a DC output signal instead of a contact closure. Connections for simple contact closure and DC output signal are shown in Figure 7.

- The SSA-424A power indicator flashes whenever a call signal is received from either 2-wire line. This can be used as an incoming call indication for the 4-wire system, if desired, and the level display should provide an indication of which line is calling.



SSA-424 INTERNAL CIRCUIT FOR CALL SIGNAL OUTPUT TO 4-WIRE INTERCOM SYSTEM

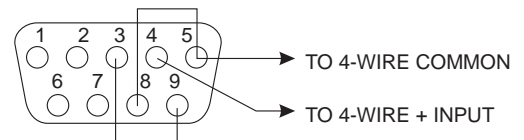
TO SSA-424 AUX CONNECTOR  
DB9F CABLE CONNECTOR PIN NUMBERS  
(View from solder or crimp side)



SIMPLE SWITCH CONTACT CLOSURE TO 4-WIRE SYSTEM WHEN 2-WIRE SYSTEM CALLS  
OPEN CIRCUIT FOR NO CALL

TO SSA-424  
AUX CONNECTOR  
(SYSTEM A OR B)

DB9F CABLE CONNECTOR PIN NUMBERS  
(View from solder or crimp side)



+5VDC SIGNAL TO 4-WIRE SYSTEM WHEN 2-WIRE SYSTEM CALLS  
OUTPUT SHORTS TO COMMON FOR NO CALL

**Figure 7. Call signal connections for a 4-wire intercom system other than ADAM, ADAM CS, and Zeus.**

## **2.5 2-WIRE CALL SIGNAL**

### **2.5.1 CALL SIGNAL CONNECTIONS FOR AUDIOCOM, RTSTW AND CLEAR-COM**

The call signals are superimposed on the audio signal, so no separate call signal connections are required. However, make sure that a call enable switch or jumper is installed for Clear-Com applications as shown in Figures 5 and 6.

### **2.5.2 CALL SIGNAL CONNECTIONS FOR OTHER 2-WIRE COMMUNICATION SYSTEM**

Any other 2-wire device must be able to generate and receive a 20kHz signal superimposed on the audio as follows:

#### **Balanced Audio Configuration**

Pin 1: No connection  
Pin 2: Balanced 20 kHz + Input/Output  
Pin 3: Balanced 20 kHz - Input/Output

SSA-424A Signal Specifications for balanced configuration:

SSA-424A Receive: 20kHz  $\pm$ 100 Hz, 100mV p-p  
SSA-424A Send: 20 kHz  $\pm$ 800 Hz, 1V p-p

#### **Unbalanced Configuration 1**

Pin 1: 20 kHz Common  
Pin 2: 20 kHz Input/Output  
Pin 3: No connection

#### **Unbalanced Configuration 2**

Pin 1: 20 kHz Common  
Pin 2: No connection  
Pin 3: 20 kHz Input/Output

SSA-424A Signal Specifications for unbalanced configurations:

SSA-424A Receive: 20 kHz  $\pm$ 100 Hz, 0.3Vrms  
SSA-424A Send: 20 kHz  $\pm$ 200 Hz, 100m Vrms

## 3 Operation

### 3.1 GENERAL INSTRUCTIONS

- 1 Attach the power pack to the SSA-424A, and apply power to all components. Confirm that the power indicator is lit on the SSA-424A front panel.
- 2 The power indicator flashes when a call signal is received from a 2-wire line. The SSA-424A level displays should help to confirm which line is calling.
- 3 Use the level adjust trimmers (Figure 8) to fine adjust the listen levels.
  - For 4-wire systems other than ADAM, ADAM CS, and Zeus, you may have to change the setting of the 4W LEVEL REF SEL control to establish the correct level. For 2-wire systems other than Audiocom, TW, and Clear-Com, you may have to adjust the level at the 2-wire system if you cannot establish the correct level with the 2-wire listen level trimmers.

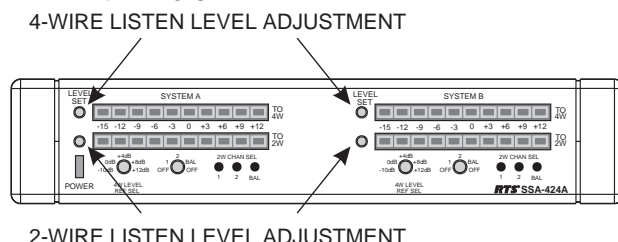


Figure 8. Location of level adjust trimmers

### 3.2 OPERATING NOTES FOR ADAM, ADAM CS, AND ZEUS INTERCOM SYSTEMS

- 1 In AZedit use port alpha setup to name each 4-wire intercom port that is connected to the SSA-424A. Choose names which help indicate which 2-wire line is being interfaced.
- 2 Key assignment, party line assignment, etc. is the same as for any other intercom port.
- 3 Optional call signal output using the GPI: you can assign the GPI output to a talk or listen key, then activate that key to generate a call signal.

Another way to generate a call signal is by assigning the GPI output as a level 2 talk key assignment for any key that is assigned to talk to the SSA-424A. However, this will cause the call lights to flash on the 2-wire line during the entire conversation.

Another solution is to assign a dedicated key as a UPL resource key (which you could name CALL). Then for each key that talks to an SSA-424A hybrid, create a UPL statement that will activate (assert) the appropriate GPI whenever the call key AND the talk key are pressed. This lets you use the same call key with more than one GPI. To use this, you simply activate the call key and the appropriate talk key. Then, when a verbal response is received, release the call key.

#### 4 Optional call signal input using the GPI

- A. In AZedit, click GPI In on the toolbar. *This opens the GPI Setup screen.*
- B. Whichever GPI Input you are using for 4-wire call receive, select that GPI input from the list (double-click). This will open the Edit GPI Input window.
- C. In the Port Alpha list box, select the intercom port that you named in step 1.
- D. In the Key Number box, type 1. This selects key 1 at the intercom port that you selected in step C.
- E. Select Talk Key.
- F. Click Done.
- G. Access keypad setup, and select the same intercom port that you selected in step C.
- H. Make sure the setup page Main is selected.
- I. Assign talk key number 1 to talk to the intercom port that you setup in step 2. We also recommend that you assign auto-listen (AL) to the listen key above that talk key.

- 5 Optional call enable control. If you connected a GPI output for use as a call enable control, you can assign that GPI output to any intercom key in the 4-wire intercom system. If System A is connected to an Audiocom or TW intercom system, pressing the key will disable call signaling. (However, the effect is the opposite if a Clear-Com system is connected: pressing the key will disable the signaling.)

- 6 Send your changes to the intercom system. This completes any required programming for ADAM, ADAM CS, or Zeus intercom system.

## 4 Appendix

### 4.1 INTERNAL ACCESS

- 1 Remove six screws from the back cover.
- 2 Remove the top cover.  
This provides access to all internal adjustments.
- 3 For option card installation, slide the circuit board out toward the back to remove it from the bottom cover.

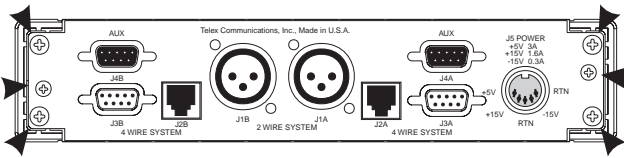


Figure 9. Location of screws for disassembly.

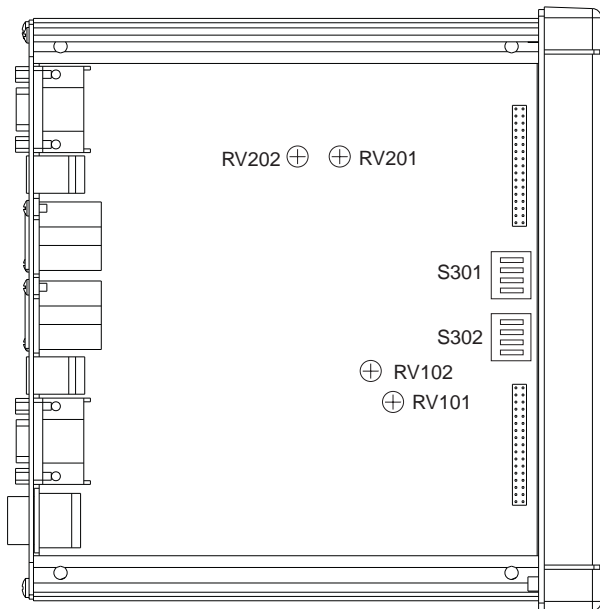


Figure 10. Locations of internal controls.

### 4.2 MODE DIP SWITCH SETTINGS

S301 controls the operating mode for System B and S302 controls the operating mode for System A. Settings are summarized in Table 4

Table 4. Mode DIP Switch Settings

Switch Settings				Description
1	2	3	4	
Open	Open	Open	Open	Configuration 1, Half/Full Duplex Mode (default): Automatically switches between modes. Useful in situations where there is high ambient noise. Also useful when there is acoustic feedback.
Closed	Open	Open	Open	Configuration 2, Switched Full Duplex Mode: Switches from half duplex to full duplex 3-9 seconds after conversation begins on the 4-wire line. Stays in full duplex mode until 60-90 seconds after conversation ceases. This helps to keep the line quiet during periods of no conversation, while permitting natural conversation when people are talking. This is the preferred operating mode for many situations, and particularly for fast, close-coordination, team operations.
Closed	Open	Open	Closed	Configuration 3, Locked Full Duplex Mode: Same as configuration 2, but once a hybrid enters full-duplex mode, it stays in that mode until power-down.
Open	Open	Closed	Open	Configuration 4, Half/Full Duplex Mode: Similar to configuration 1, but with higher sensitivity.

**Half-duplex Definition:** Only one side of the line can talk at a time and the other side must wait until the first side is done talking before responding.

**Full-duplex Definition:** Both sides of the line can talk simultaneously.

### 4.3 LEVEL DISPLAY CALIBRATION

- This is a factory preset adjustment and should not require readjustment.

- 1 On the front panel, set the 4W LEVEL REF SEL controls to -10dB.
- 2 Set the 2W CHAN SEL switches to 1.
- 3 Input a 1kHz, -10dBu test signal at J1A (System A) or J1B (System B). (Pin 1, signal common; pin 2, signal high.)
- 4 Adjust RV101 (System A) or RV201 (System B) while watching the top display (TO4W). All of the green displays should be lit and no amber displays should be lit.
- 5 Remove the test signal.

6 Set the 2W CHAN SEL switches to either OFF position.

7 Input a 1kHz, -10dBu test signal at the 4-wire audio input. Use either connector:

**9-Pin Connector**

Pin 7: Balanced Audio - input  
Pin 8: Balanced Audio + input

**RJ11 Connector**

Pin 2: Balanced Audio + input  
Pin 3: Balanced Audio - input

8 Adjust RV102 (System A) or RV202 (System B) while watching the bottom display (TO2W). All of the green displays should be lit and no amber displays should be lit.

9 Remove the test signal. This completes the adjustment.

#### 4.4 CALL SIGNAL OPTION CARD INSTALLATION

Use these instructions to install a Call Signal Option Card in an SSA-424A that was originally ordered without it.

1 Disassemble the SSA-424A as previously described.

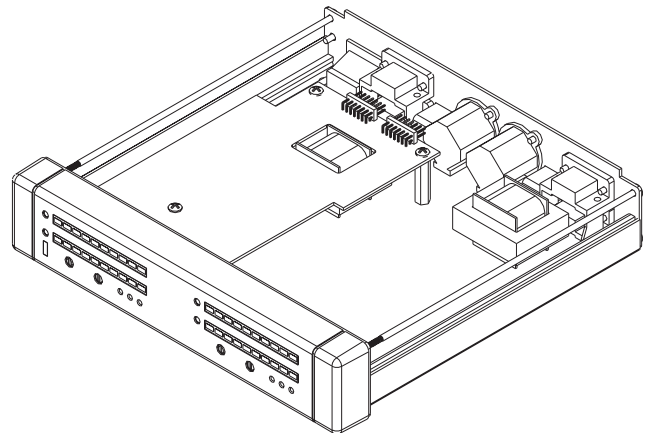
2 Assemble the standoffs to the circuit board using the supplied screws and lockwashers.

3 Connect the supplied power cable from J8 on the option card to J303 on the main board of the SSA-424A.

4 Insert the connectors on the option card into the connectors on the main board.

5 Use the remaining screws and lockwashers to secure the standoffs to the main board.

6 Reassemble the SSA-424A.



**Figure 11. The Call Signal Option Card after installation in the SSA-424A.**

