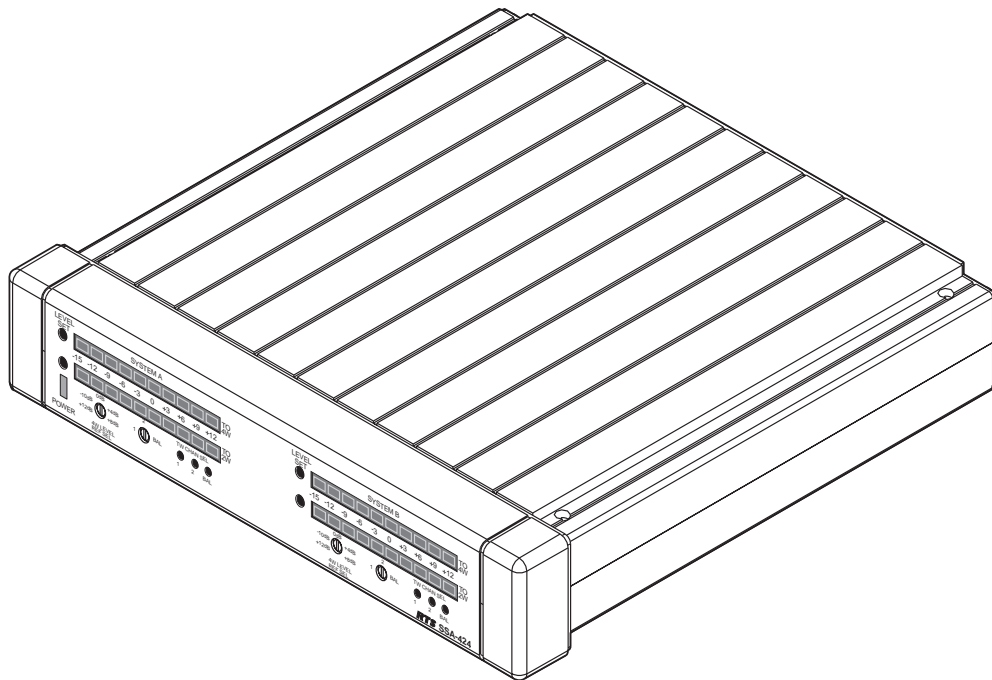


# USER INSTRUCTIONS

## SSA-424 DUAL DIGITAL HYBRID

ADAM™, ADAM™ CS, AND ZEUS™ INTERCOM SYSTEMS



# RTS™

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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.

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The sole obligation of Telex during the warranty period is to provide, without charge, parts and labor necessary to remedy covered defects appearing in products returned prepaid to Telex. This warranty does not cover any defect, malfunction or failure caused beyond the control of Telex, including unreasonable or negligent operation, abuse, accident, failure to follow instructions in the Service Manual or the User Manual, defective or improper associated equipment, attempts at modification and repair not authorized by Telex, and shipping damage. Products with their serial numbers removed or effaced are not covered by this warranty.

To obtain warranty service, follow the procedures entitled "Procedure For Returns" and "Shipping to Manufacturer for Repair or Adjustment".

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# 1 DESCRIPTION AND SPECIFICATIONS

## 1.1 GENERAL DESCRIPTION

The SSA-424 Dual Digital Hybrid interfaces two, 2-wire intercom lines to two, 4-wire intercom lines. Unlike earlier analog hybrids, the SSA-424 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-424, all need for test tones, nulling adjustments and ducking adjustments have been eliminated.

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

The SSA-424 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-424 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 SSA424 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-424'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-424.

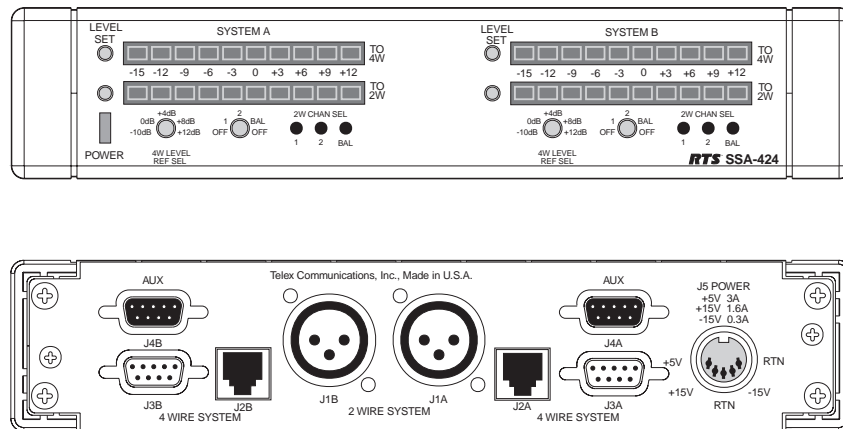


Figure 1. SSA-424 Reference View

## 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-424 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 RTW TW channel 2 or a Clear-Com channel; the BAL position selects an Audiocom 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: -10 dBu to 0 dBu, nominal  
Level Adjustment Range:  $\pm 12$  dB

### 4-Wire Ports

Input Impedance: 10 kohms, 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 / -6 dB  
S/N Ratio (Ref 1 kHz, 0 dB @ 2-wire): TBD  
Crosstalk: TBD

### Environmental

Operating Temperature: -20°C to 50°C  
Storage Temperature: -40°C to 85°C  
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. (2.3 kg)

### Finish

Thermoplastic front panel, aluminum case, light gray finish

### Approvals

UL, CSA, UDE, CE

Specifications subject to change without notice.

## 2 INSTALLATION

### 2.1 UNPACKING AND INSPECTION

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

Qty	Description
1	SSA-424 Dual Digital Hybrid
1	Power Pack with cord, 100-250 VAC, 50/60 Hz
1	Warranty and registration card
1	User Instruction Manual

Fill out and return the registration card.

### 2.2 MOUNTING

Place the SSA-424 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-424, but allow ventilation around the power pack.

☞ If the SSA-424 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-424 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 also available as described in paragraph 2.5).

☞ You may wish to read about the internal mode DIP switches before mounting the SSA-424. For further information, see Mode Switch Settings, page 16.

### 2.3 4-WIRE AUDIO CONNECTIONS

#### 2.3.1 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-424. Connect from another port to J2B or J3B (System B connection).
2. On the SSA-424 front panel, set the 4W LEVEL REF SEL switches to the +8dB position.

#### 2.3.2 Audio Connections for Other 4-Wire Communication Systems

1. Construct 9-pin or RJ11 cables to connect from your 4-wire system to the SSA-424. 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-424 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-424 end of cable): RJ11 plug

Pin 1: No connection

Pin 2: Balanced Audio + input (from 4-wire system)

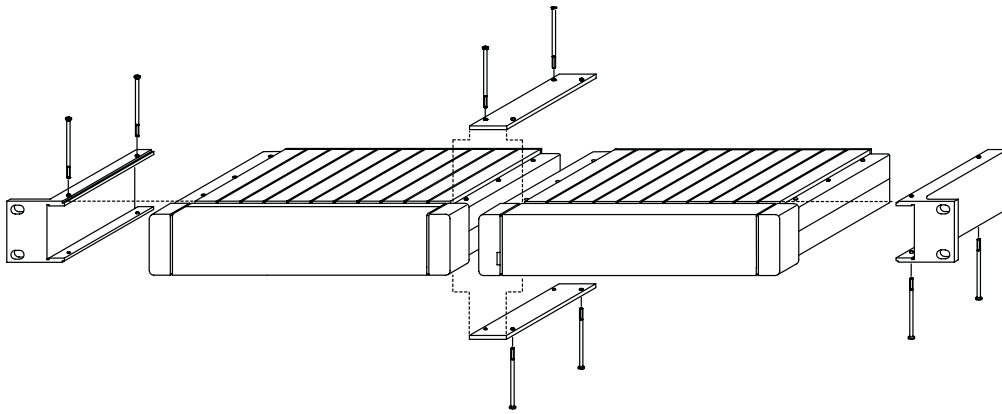
Pin 3: Balanced Audio + output (to 4-wire system)

Pin 4: Balanced Audio - output (to 4-wire system)

Pin 5: Balanced Audio - input (from 4-wire system)

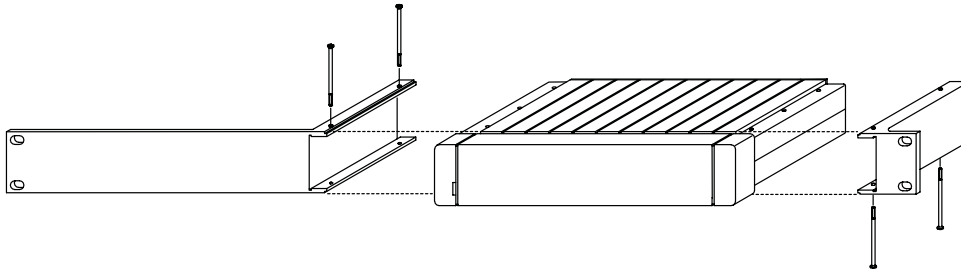
Pin 6: No connection

2. On the SSA-424 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.



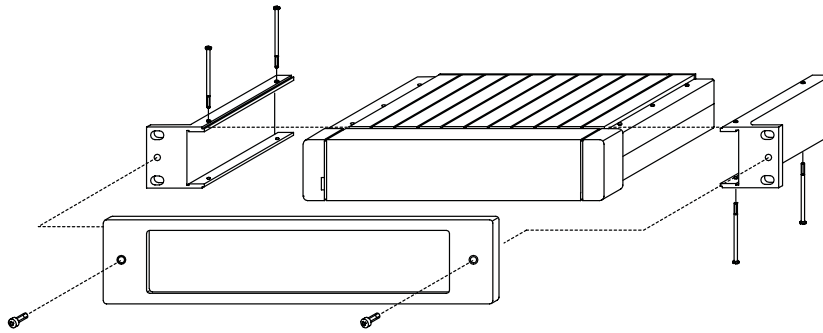
Side-By-Side Rack Mount Configuration Using an MCP1 Rack Mount Kit

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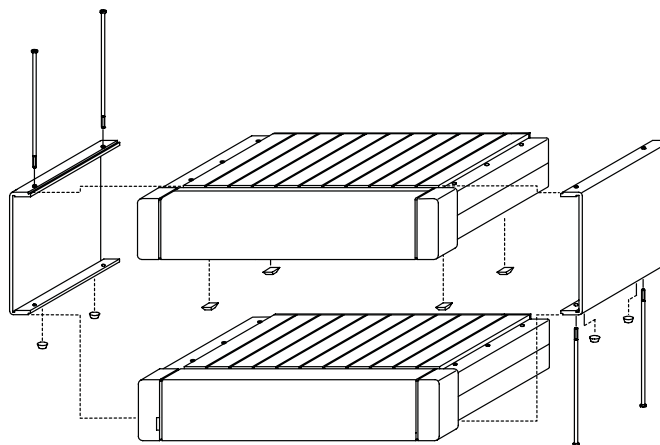
Single-unit Rack Mount Configuration Using an MCP2 Rack Mount Kit

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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

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**Figure 2. Rack mount configurations**

## 2.4 2-WIRE AUDIO CONNECTIONS

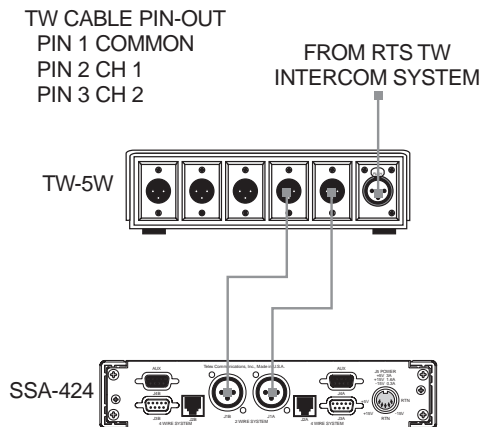
### 2.4.1 RTS TW Audio Connections

1. Use standard TW intercom cables. Note that standard TW system cables can carry either one or two channels, while each hybrid in the SSA-424 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-424 features internal DC isolation. You can therefore connect the SSA-424 to powered TW cables, and it will not draw any power from the TW system.

2. On the SSA-424 front panel: For each hybrid (System A and 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 SSA424.**

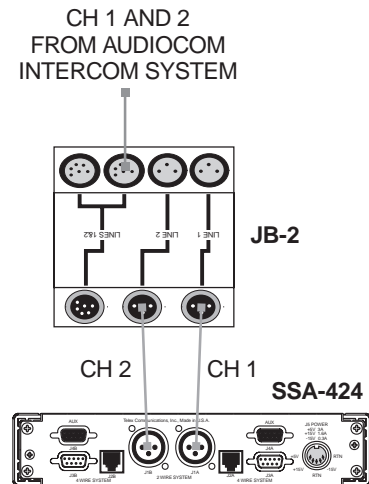
### 2.4.2 Audiocom Audio Connection

1. You can directly connect standard Audiocom 1-channel cables. Connect one Audiocom channel to the J1A connector on the back of the SSA-424 (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-424 features internal DC isolation. You can therefore connect the SSA-424 to powered Audiocom cables, and it will not draw any power from the Audiocom system.

2. On the SSA-424 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.**

### 2.4.3 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-424 (System A). Connect a separate Clear-Com party line to the J1B connector (System B).

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

2. On the SSA-424 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.

### 2.4.4 Other 2-wire Audio Connection

1. Use the J1A connector on the back of the SSA-424 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-424 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.

## 2.5 4-WIRE CALL SIGNAL CONNECTIONS

☞ These connections require the call signal option.

### 2.5.1 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.

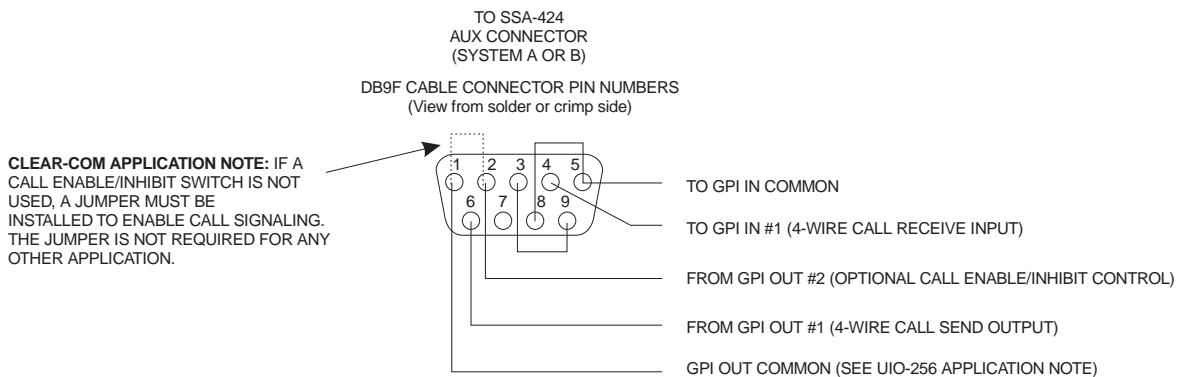
Typical GPI connections are shown in Figure 5. Note that the example uses GPI outputs #1 and #2 and GPI input #1. You may substitute other GPI inputs and outputs.

**Important Note for ADAMedit users:** ADAMedit version 1.06 includes a feature which lets you 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 SSA424. To check the ADAMedit setting, select Intercom Configuration in the Options menu. Click on the Options tab, and make sure that there is a check mark next to **Configure onboard GPI outputs in FR9528 mode**.

**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.



**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 2. UIO-256 GPI 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 High (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)**

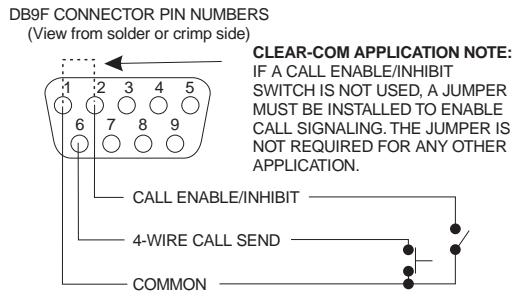
Relay Output Numbers*				Relay Contact Pin Numbers**		
UIO-256 #1	UIO-256 #2	UIO-256 #3	UIO-256 #4	Normal Closed (NC) Contact	Common Contact	Normal Open (NO) Contact
1	17	33	49	38	13	40
2	18	34	50	39	14	15
3	19	35	51	41	16	43
4	20	36	52	42	17	18
5	21	37	53	44	19	46
6	22	38	54	45	20	21
7	23	39	55	47	22	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.

## 2.5.2 Call Signal Connections for Other 4-Wire Communication Systems

### 2.5.2.1 4-Wire Call Send and Call Enable/Inhibit

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

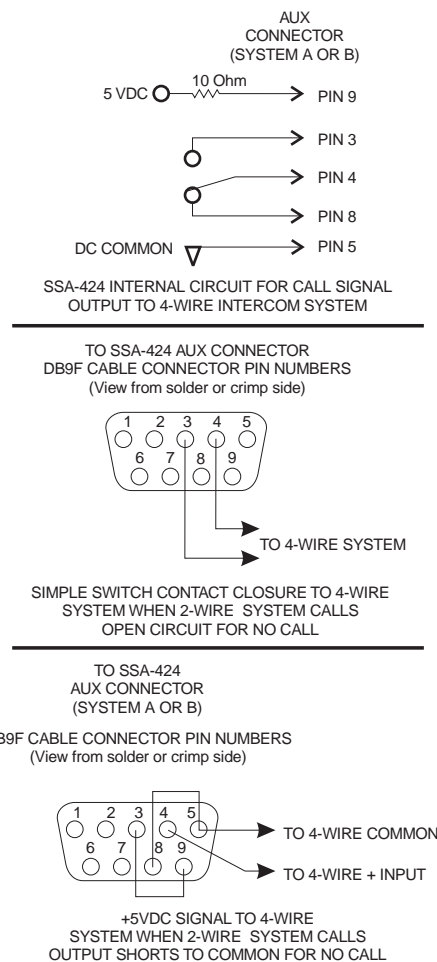


**Figure 6. Typical call send and call enable/inhibit connections for a 4-wire intercom system.**

### 2.5.2.2 4-Wire Call Receive

The SSA-424 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-424 also provides +5VDC 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-424 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.



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

## 2.6 2-WIRE CALL SIGNAL CONNECTIONS

### 2.6.1 Call Signal Connections for Audiocom, RTS TW 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](#).

### 2.6.2 Call Signal Connections for Other 2-wire Communication System

Any other 2-wire device must be able to generate and receive a 20 kHz 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-424 Signal Specifications for balanced configuration:

SSA-424 Receive: 20 kHz  $\pm$ 100 Hz, 100mV p-p

SSA-424 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-424 Signal Specifications for unbalanced configurations:

SSA-424 Receive: 20 kHz  $\pm$ 100 Hz, 0.3 Vrms

SSA-424 Send: 20 kHz  $\pm$ 200 Hz, 100 mVrms

## 3 OPERATION

### 3.1 GENERAL INSTRUCTIONS

1. Attach the power pack to the SSA-424, and apply power to all components. Confirm that the power indicator is lit on the SSA-424 front panel.
2. The power indicator flashes when a call signal is received from a 2-wire line. The SSA-424 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.

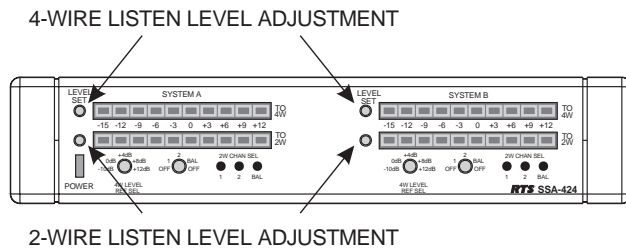


Figure 8. Location of level adjust trimmers

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

1. In ADAMedit (or ZEUSedit) use port alpha setup to name each 4-wire intercom port that is connected to the SSA-424. 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-424. 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-424 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 ADAMedit (or ZEUSedit) access GPI input setup. (Click the GPI In button on the toolbar.)
  - 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 keypanel 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 call signaling.)
6. Send your changes to the intercom system. This completes any required programming for an 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.

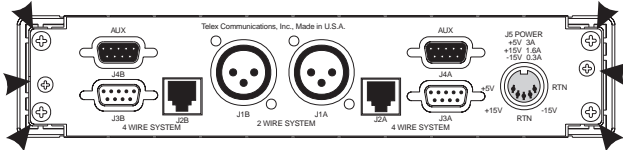


Figure 9. Location of screws for disassembly

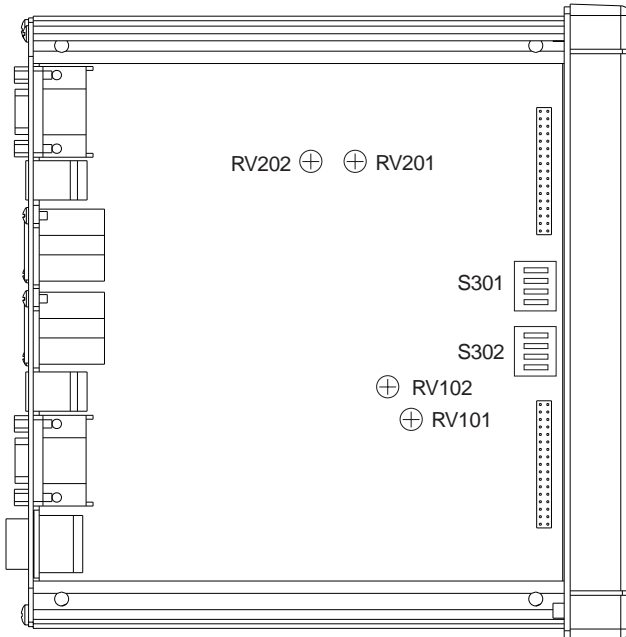


Figure 10. Locations of internal controls

### 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	
Off	Off	Off	Off	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.
On	Off	Off	Off	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.
On	Off	Off	On	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.
Off	Off	On	Off	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 1 kHz, -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 1 kHz, -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

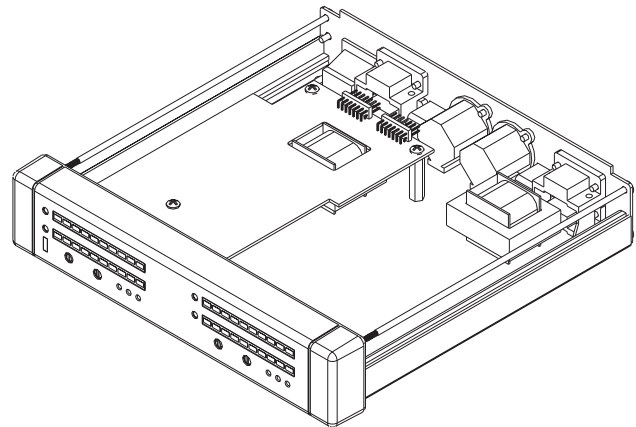
Pin 5: Balanced Audio - input

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-424 that was originally ordered without it.

1. Disassemble the SSA-424 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-424.
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-424.



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