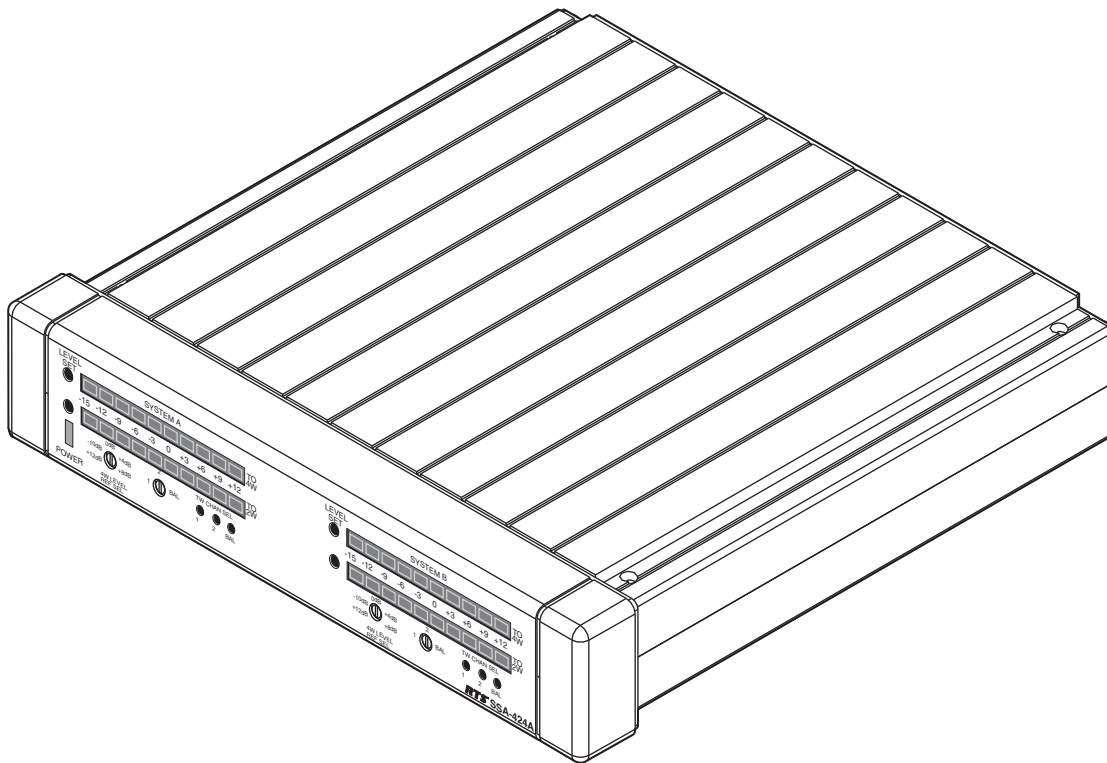


User Instructions

SSA-424A Dual Digital Hybrid

ADAM, ADAM CS, and Zeus Intercoms



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WARRANTY NOTICE

See the enclosed warranty card for further details.

CUSTOMER SUPPORT

Technical questions should be directed to:

Customer Service Department
RTS/Telex Communications, Inc.
12000 Portland Avenue South
Burnsville, MN 55337 USA
Telephone: 800-392-3497
Fax: 800-323-0498
Factory Service: 800-553-5992

RETURN SHIPPING INSTRUCTIONS

Customer Service Department
Telex Communications, Inc. (Lincoln, NE)
Telephone: 402-467-5321
Fax: 402-467-3279
Factory Service: 800-553-5992

Please include a note in the box which supplies the company name, address, phone number, 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 THE MANUFACTURER

All shipments of product should be made via UPS Ground, prepaid (you may request from Factory Service a different shipment method). Any shipment upgrades will be paid by the customer. The equipment should be shipped in the original packing carton. If the original carton 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 (4) inches of excelsior or similar shock-absorbing material. All shipments must be sent to the following address and must include the Proof of Purchase for warranty repair. Upon completion of any repair the equipment will be returned via United Parcel Service or specified shipper, collect.

Factory Service Department
Telex Communications, Inc.
8601 East Cornhusker Hwy.
Lincoln, NE 68507 U.S.A.
Attn.: Service

This package should include the following:

QTY	Description	Part No.
	Final Assy, SSA-424A	9010-7824-000
	or	
1	Final Assy, SSA-424A with option board	9010-7824-001
1	Power Supply	532026-000
1	Cord, Power	550006-100
1	User Manual	9350-7824-000
1	Statement of Conformity	38109-675
1	Warranty Statement	38110-389

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Description and Specifications

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, Audiocom®, 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 bi-directional call signal compatibility between the 2-wire and 4-wire intercom systems.

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

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 DB-9 or RJ-11 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 +5 VDC 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 with 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-424As fit into a single rackspace. Compatible with RTS TW rack mount hardware. Can be mixed with other TW equipment.

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

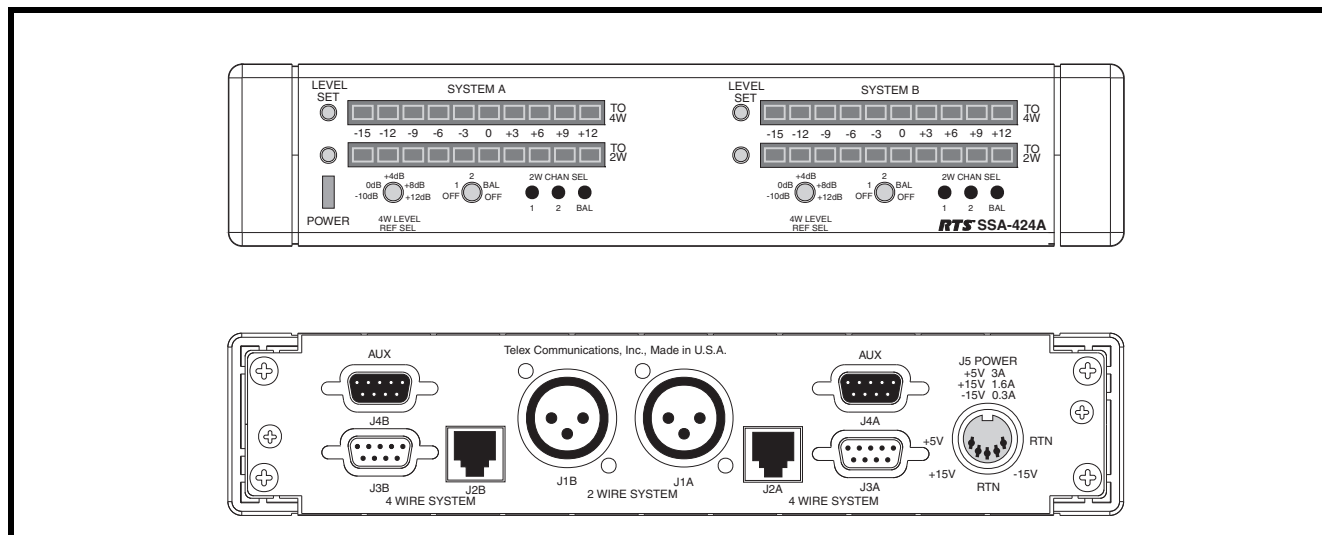


FIGURE 1. SSA-424A Reference View

Front and Back Panel Descriptions

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, if the call signal option board is installed. 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 Audiocom balanced channel. There are 3 LED indicators to display the current selection.

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 DB-9F connector and an RJ-11 connector for 4-wire intercom connection. These are directly compatible with standard ADAM/Zeus keypanel cables. Next to the 4-wire connectors, there is a 3-pin female XLR audio connector for connection to the 2-wire intercom system.

Specifications

2-Wire Ports

Input / Output Impedance

5,000 ohms, nominal

Operating Level

Audiocom: 1 V_{RMS}, nominal

RTSTW/ClearCom: 775 mVRMS, nominal

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 3.5 kHz, ± 4 dB

THD: $\leq 1\%$ @ channel output with nominal input

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

Main Voltage

100 to 250 VAC, 50/60 Hz

Dimensions

1.72" (44mm) High x 8.19" (208mm) Wide x 8.0" (204mm) deep

Weight

5.0lbs (2.3kg)

Finish

Thermoplastic front panel, aluminum case, light gray finish

Approvals

UL, CSA, UDE, CD

Specifications subject to change without notice.

Installation

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. 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 physically 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 “4-Wire Call Signal Connections” on page 8).

NOTE: You may wish to read about the internal mode DIP switches before mounting the SSA-424A. For further information, see Table 1 on page 15.

4-Wire Audio Connections

ADAM, ADAM-CS, or Zeus Audio Connection

1. Use standard 9-pin or RJ-11 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 +8 dB position.

Audio Connections for the Other 4-wire Communications Systems

1. Construct 9-pin or RJ-11 cables to connect from the 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: 9-pin male D-subminiature

Pin 1	No connection
Pin 2	No connection
Pin 3	No connection
Pin 4	Balanced Audio + 4-wire output
Pin 5	Balanced Audio - 4-wire output
Pin 6	No connection
Pin 7	Balanced Audio - 4-wire input
Pin 8	Balanced Audio + 4-wire input
Pin 9	No connection

RJ-11 Connection

Connector Type: RJ-11 plug

Pin 1	No connection
Pin 2	Balanced Audio + 4-wire input
Pin 3	Balanced Audio + 4-wire output
Pin 4	Balanced Audio - 4-wire output

Installation

Pin 5 Balanced Audio - 4-wire input

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 the +8 dB position for now.

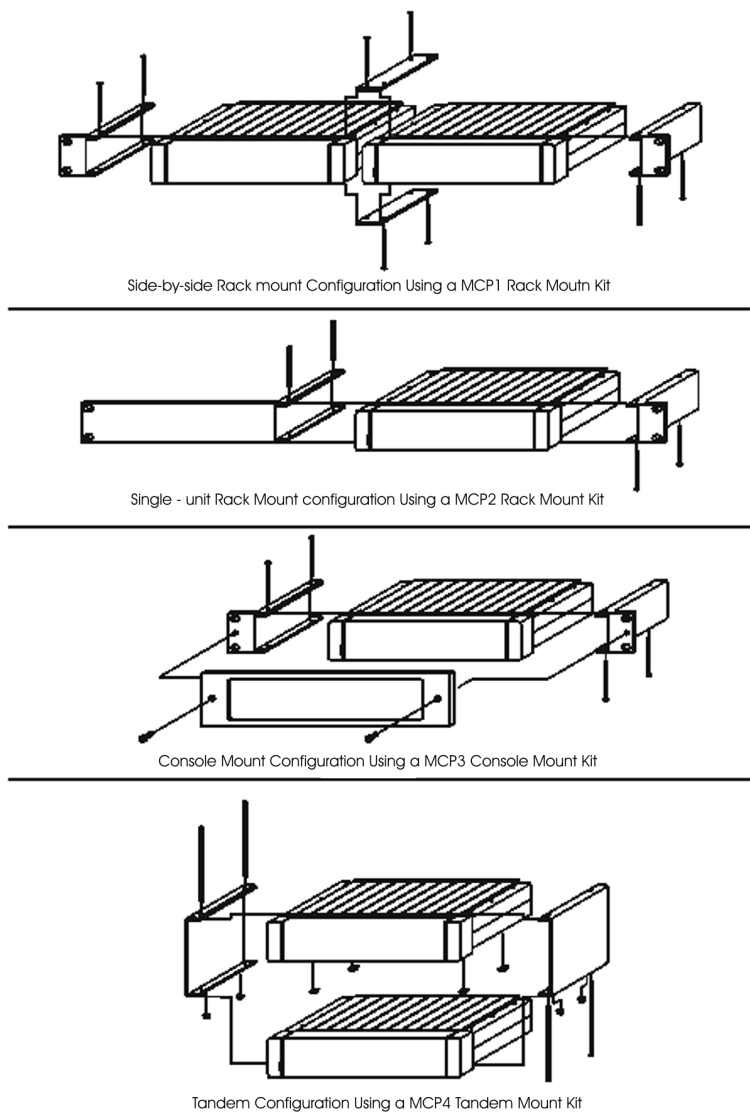


FIGURE 2. Rack Mount Configurations

2-Wire Audio Connections

RTS TW Audio Connections

1. Use standard TW intercom cables. 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 to both, use a TW-5W or similar device as shown in Figure 3 on page 7.

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

- On the SSA-424A front panel: For 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.

NOTE: If the System A or System B will not be used, set the 2W CHAN SEL switch to the OFF position and attach a dummy load to the TW XLR connector.

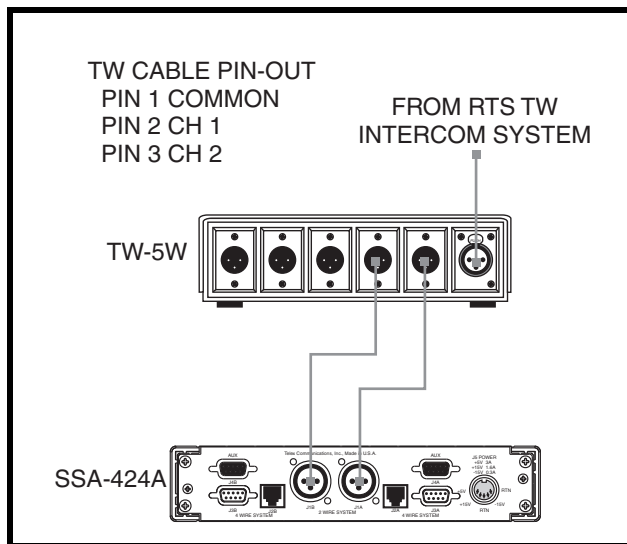


FIGURE 3. Using a TW-5W to connect to two TW channels to the SSA-424A

Audiocom Audio Connection

- You can directly connect standard Audio 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)

NOTE: 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.

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

NOTE: If System A or System B hybrid will not be used, set the 2W CHAN SEL switch to the OFF position and attach a dummy load to the TW XLR connector.

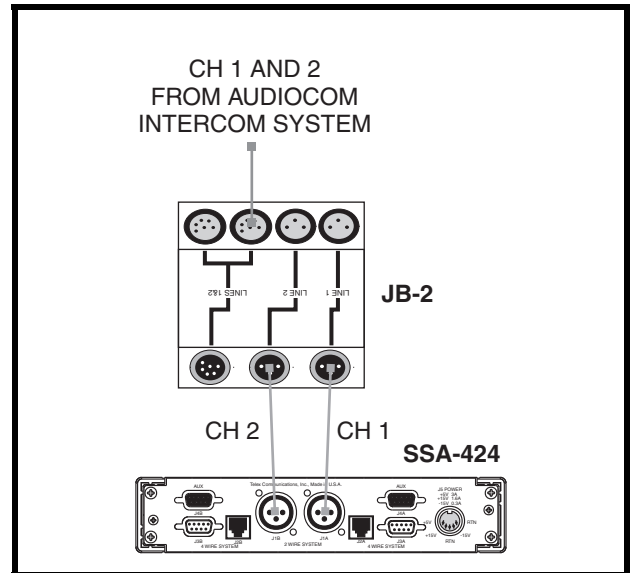


FIGURE 4. Using a JB-2 Junction Box to split a 2-channel Audiocom cable into two 1-channel cables.

Clear-Com Audio Connection

- 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).

NOTE: The SSA-424A features internal DC 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.

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

NOTE: If the System A or System B hybrid will not be used, set the 2W CHAN SEL switch to the OFF position and attach a dummy load to the TW XLR connector.

Other 2-wire Audio Connection

- 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 depend on whether you are connecting a balanced or unbalanced 2-wire line, as follows:

NOTE: TW systems must provide termination on the audio channel.

Balanced Configuration

Pin 1	No Connection
Pin 2	Balanced Audio + Input/Output
Pin 3	Balanced Audio - Input/Output

** Termination 300 Ω

There are two possible configurations for unbalanced connection:

Unbalanced Configuration 1

Pin 1	Audio Common
Pin 2	Audio Input/Output
Pin 3	No Connection

** Termination 200 Ω

Unbalanced Configuration 2

Pin 1	Audio Common
Pin 2	No Connection
Pin 3	Audio Input/Output

** Termination 200 Ω

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.

NOTE: If System A or System B will not be used, set the 2W CHAN SEL switch to the OFF position and attach a dummy load to the TW XLR connector.

If your intercom system is equipped with a UIO-256 (Universal Input/Output) Frame, you can also use that for connections (Table 2 on page 10 and Table 3 on page 10).

As an alternative to using the GPI, you can use external components to send and receive call signals as described in “Call Signal Connections for other 4-wire Communications Systems” on page 11.

Typical GPI connections are shown in Figure 5 on page 9. The example uses GPI outputs #1 and #2 and GPI Input #1. You may substitute other GPI Input 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 output 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.

4-Wire Call Signal Connections

NOTE: These connections require the call signal option.

Call Signal Connection 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 on page 9.

ADAM GPI Connector: XCP-ADAM-MC, J11

ADAM CS GPI Connector: J903

Zeus GPI Connector: J27

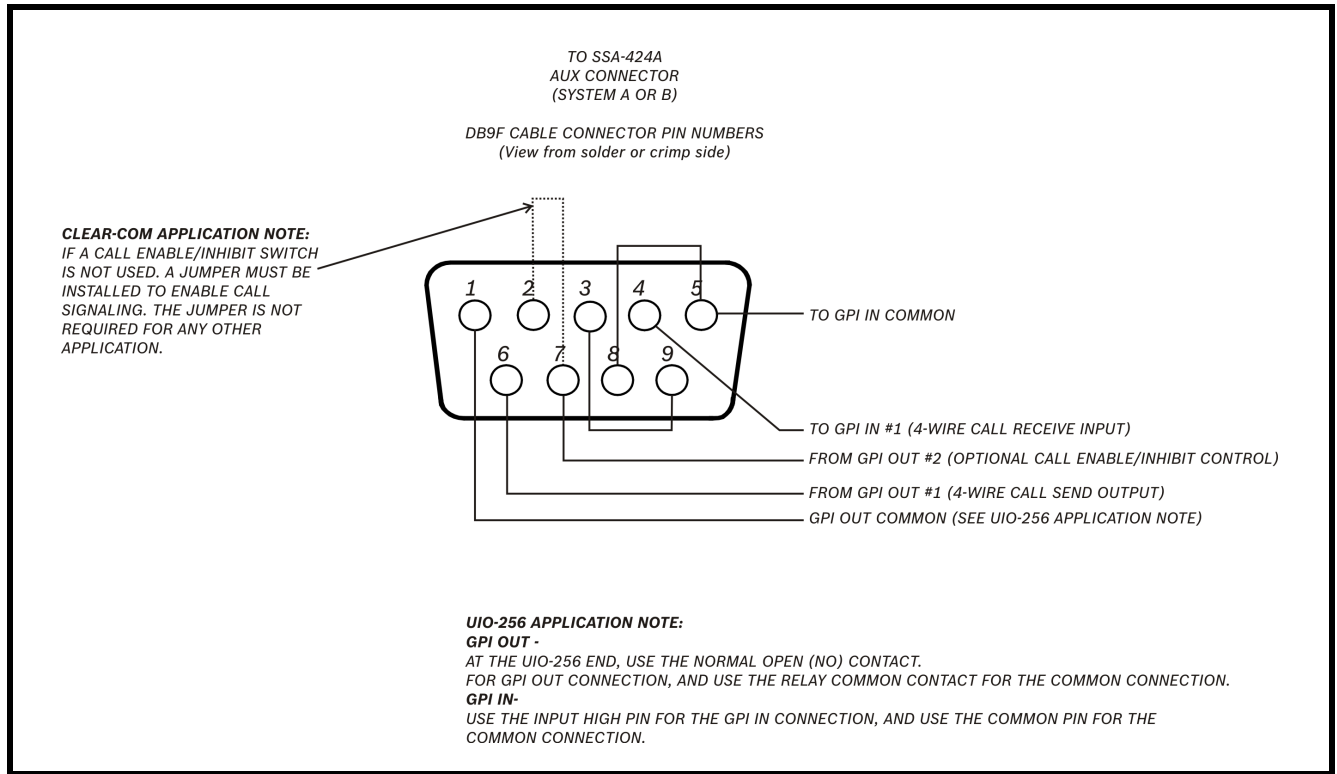


FIGURE 5. Call signal connections for ADAM, ADAM CS, and Zeus Intercom Systems. This example uses GPI outputs #1 and #2 and GPI Input #1; however, you may use any other available GPI inputs and outputs. The Call Enable/Inhibit connection is optional. It gives you the ability to disable call signalling 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 for any other application. You DO NOT have to use GPI outputs for call signalling or enable/inhibit, you can use simple switches instead, as shown in Figure 6 on page 11.

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

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

Pin No.	Function
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 1. GPI Connector Pin-out (ADAM, ADAM CS, and Zeus)

TABLE 2. UIO-256 GPI Input Connector (J7)

GPI INPUT NUMBERS ^a				GPI INPUT PIN NUMBERS	
UIO-256 Frame #1	UIO-256 Frame #2	UIO-256 Frame #3	UIO-256 Frame #4	Common	Input Height (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

a. 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 ^a				RELAY CONTACT PIN NUMBERS		
UIO-256 FRAME #1	UIO-256 FRAME #2	UIO-256 FRAME #3	UIO-256 FRAME #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	41	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

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

GPI OUTPUT NUMBERS ^a				RELAY CONTACT PIN NUMBERS		
UIO-256 FRAME #1	UIO-256 FRAME #2	UIO-256 FRAME #3	UIO-256 FRAME #4	NORMAL CLOSED (NC) CONTACT	COMMON CONTACT	NORMAL OPEN (NO) CONTACT
15	31	47	63	35	10	37
16	32	48	64	36	11	12

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

Call Signal Connections for other 4-wire Communications Systems

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.

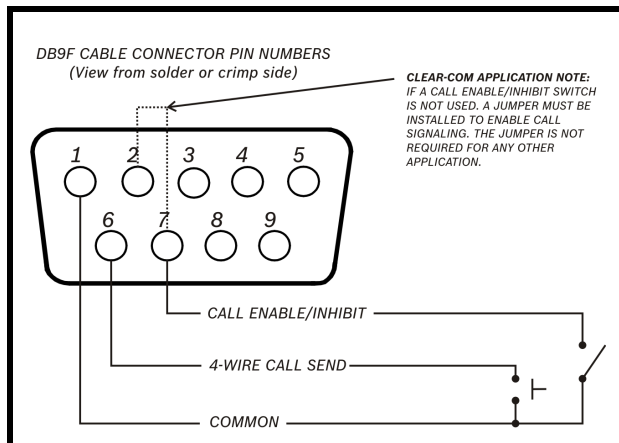


FIGURE 6. Typical call send and call enable/inhibit connections for a 4-wire intercom system.

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 a simple contact are shown in Figure 7 on page 12.

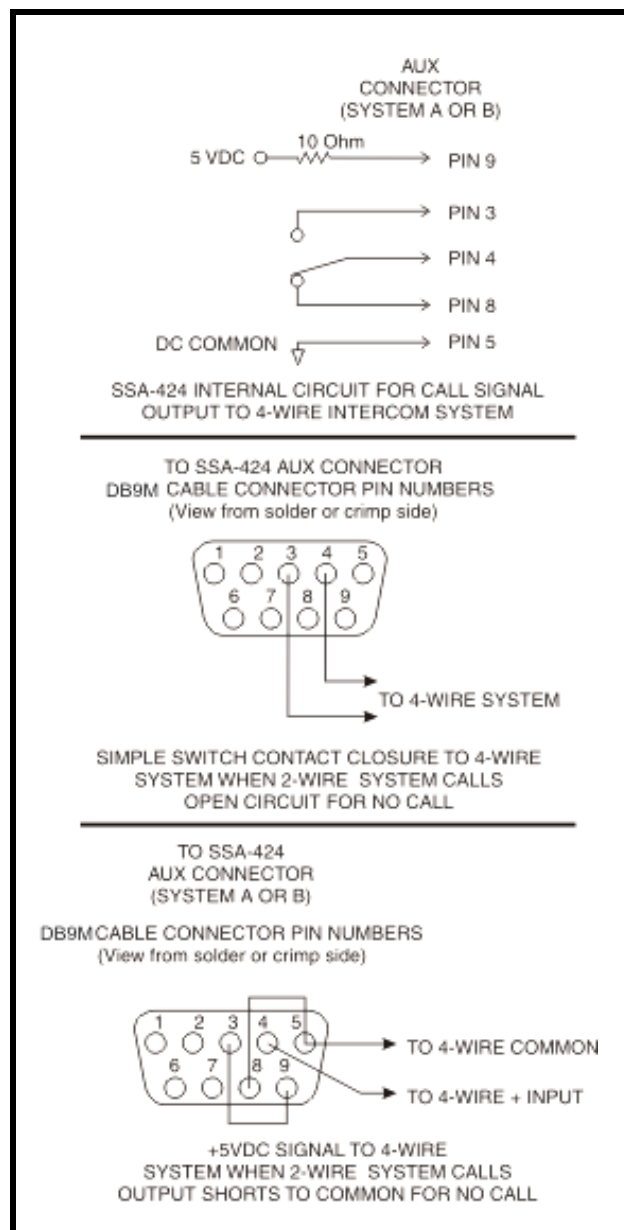


FIGURE 7. Call signal connections for a 4-wire intercom system other than ADAM, ADAM CS and Zeus.

2-Wire Call Signal

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 Figure 6 on page 11 and Figure 7.

Call Signal Connections for Other 2-Wire Communication Systems

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-424A Signal Specifications for balanced configuration:

SSA-424A Receive: 20 kHz \pm 100 Hz, 100 mV_{RMS}

SSA-424A Send: 20 kHz \pm 800 Hz, 500 mV_{RMS}, \pm 10%

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 configuration:

SSA-424A Receive: 20 kHz \pm 100 Hz, 100 mV_{RMS}

SSA-424A Send: 20 kHz \pm 800 Hz, 350 mV_{RMS}, \pm 10%

Operation

General Instructions

1. Attach the power pack to the SSA-424A and apply power to all components. Confirm the power indicator is lit on the SSA-424A front panel.

NOTE: The power indicator flashes when a call signal is received from a 2-wire line, if the call signal option board is attached. The SSA-424A level displays should help to confirm which line is calling.

2. Use the level adjust trimmers (Figure 8) to fine tune the listen levels.

NOTE: 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 system 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.

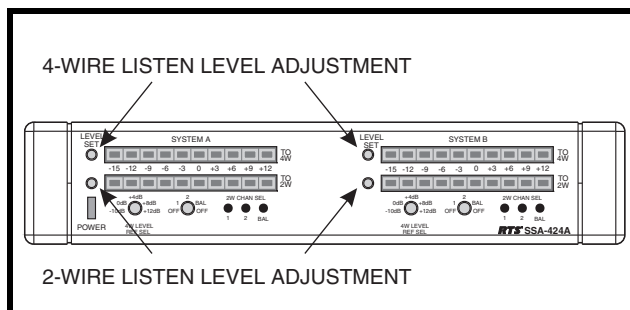


FIGURE 8. Location of level adjust trimmers

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 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, 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
 - In AZedit, click **GPI In** on the toolbar.
This opens the GPI Setup screen.
 - 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.
 - In the Port Alpha list box, select the **intercom port** that is named in step 1.
 - In the Key Number box, type **1**.
This selects key 1 at the intercom you specified in the previous step.
 - Select **Talk Key**.
 - Click **Done**.
 - Access keypad setup, and select the **intercom port** that is named in step 1.
Make sure the setup page, Main is selected.
 - Assign **talk key number 1** to talk to the intercom port that you selected in step C. 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 the call signaling. (However, the effect is 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.

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.

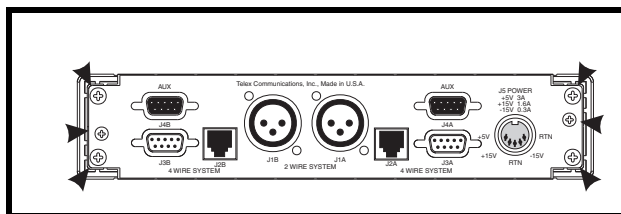


FIGURE 1. Location of screws for disassembly.

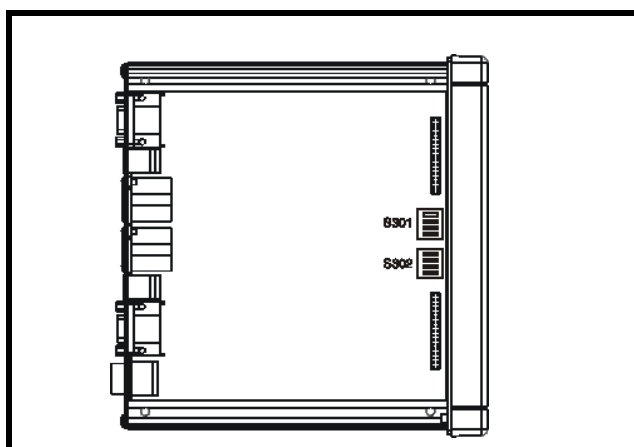


FIGURE 2. Locations of internal controls

Mode Dip Switch Settings

S301 controls the operating mode for System B and S302 controls the operating mode for System A.

Settings are summarized as follows:

TABLE 1. Mode DIP Switch Settings

Switch Settings				Description
1	2	3	4	
Open	Open	Open	Open	Configuration 1, Full-Duplex Mode (Default)
Closed	Open	Open	Open	Configuration 2, Half-Duplex Mode
Open	Open	Open	Closed	Tone Test Mode

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

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. 4-wire systems have priority over 2-wire system in Half-duplex mode.

Tone Test Mode: Disables internal suppression of tones.

Call Signal Option Card Installation

Use these instructions to install a Call Signal Option Card in a 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 lock-washers.
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 lock-washers to secure the standoffs to the main board.
6. Reassemble the SSA-424A.

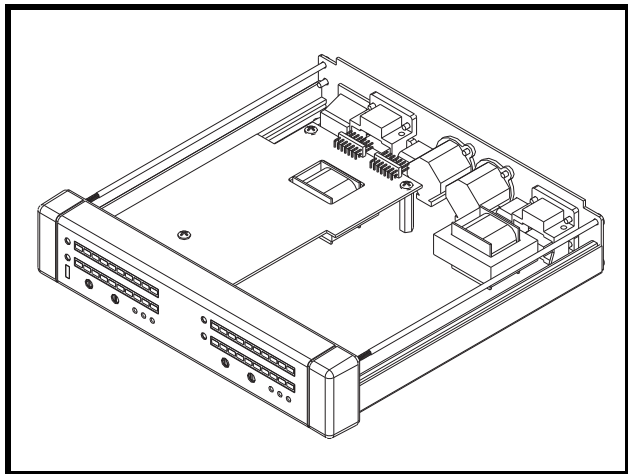


FIGURE 3. *The Call Signal Option Card after installation in the SSA-424A.*
