



**DI-1000/DI-2000
Telephone Hybrid
Manual**

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Product Description

The DI-1000/DI-2000 is a digital adaptive hybrid designed to interface between the telephone line and professional audio equipment. The DI-1000 is a single line unit while the DI-2000 is a two-line device. Both products occupy a single unit of rack space. While the DI-2000 allows conference calls (DIP switches selectable) both units feature ring detect, auto answer, automatic line release, separate modes of operation and audio inputs/outputs for cue - hold - air, producer phone control, a speaker amplifier, and full remote control. Additionally, an Intelligent Console Control interface is provided.

Installation

All audio wiring is made to 3 conductor 1/4" phone plugs. Wiring a DI-2000 (dual unit) is identical to a DI-1000 unit (single unit) with the exception of the Main and Cue Outputs. It is possible, with a dual hybrid, to provide a Main Output that is a mix of line 1 and line 2. The same is true for the Cue Output. See DIP switch programming.

Inputs

Inputs are normally wired balanced. Tip is "+", Ring is "-" and Sleeve is ground. When wiring an unbalanced piece of equipment to the input of the hybrid, connect the Ring and the Sleeve together.

Cue Inputs

Connect audio to be sent to the caller when the hybrid is in the Answer/Cue Mode (front panel answer/cue switch is illuminated). This would normally be an uninterrupted DJ microphone. This will allow the hybrid to handle off air conversations with the caller.

Hold Inputs

Connect audio to be sent to the caller when the hybrid is in the Hold Mode (front panel hold switch is illuminated). This would normally be the air monitor signal. This will allow the caller to listen to the program while keeping their radio turned down.

Mix-Minus Input

Connect audio to be sent to the caller when the hybrid is in the Air Mode (front panel air switch is illuminated). This would be a mix of all signals (going to air) minus (except) the caller.

Outputs

Outputs are normally wired balanced. Tip is "+", Ring is "-" and Sleeve is ground. When wiring the hybrid outputs to an unbalanced piece of equipment make connections to the Tip and Sleeve only. Leave the Ring unconnected.

Cue Output

Provides caller audio when the hybrid is in the Answer/Cue Mode (front panel answer/cue switch is illuminated). Connect to the console's external cue input. This will allow the hybrid to handle off air conversations with the caller. The DI2000 (dual unit) can provide a mix of line 1 and line 2 Cue Output if desired. In this instance, wire only between the Line 2 Hybrid and the console. Set DIP Switch 4 to the on position. See DIP Switch Programming.

Main Air Output

Provides caller audio when the hybrid is in the Air Mode (front panel air switch is illuminated). Connect to the console's caller input channel. The DI-2000 (dual unit) can provide a mix of line 1 and line 2 Main Air Output if desired. In this instance, wire only between the Line 2 Hybrid and the console. Set DIP Switch 3 to the on position. See DIP Switch Programming.

Cue Speaker Output

Identical to Cue Output except that a speaker amplifier and level control is provided. Connect a 32-ohm speaker between Tip and Ring. Do not make a connection to Sleeve or ground.

Record Output

Provides a mix of caller output and either the Cue Input (if Answer/Cue Mode is selected) or the Mix Minus Input (if AIR mode is selected) for recording purposes.

Telephone Line Wiring

Jack 1 and Jack 2

- Single hybrid wire a single phone line to Jack 1. Make no connection to Jack 2.
 Dual hybrid either wire two phone lines (4 wires) to Jack 1 and make no connection to Jack 2 - or - wire a single phone line to Jack 1 and another single phone line to Jack 2.

Producer's Phone Wiring

Jack 3 and Jack 4

The use of a Producer's Phone is optional.

- Single hybrid wire a single phone line to Jack 3. Make no connection to Jack 4.
 Dual hybrid either wire two phone lines (4 wires) to Jack 3 and make no connection to Jack 4 - or - wire a single phone line to Jack 3 and another single phone line to Jack 4.

Remote Control Wiring

A 25 pin "D" connector provides remote control. Dual hybrids have a separate connector for each line. Unless noted, all switches are momentary pull to ground. To activate make a momentary connection between the desired pin and either ground pin. All indicators are open collector current sinking outputs and will drive a maximum of 100mA at 25 volts. Connect indicators from either +5 volt pin to the desired indicator pin. A series current limiting resistor is recommended.

Pin #	Function
1 Drop Switch	parallel with front panel Drop Switch
2 Hold Switch	parallel with front panel Hold Switch
3 Volume Down Switch	parallel with front panel Volume Down Switch
4 Console On Switch	see Intelligent Console Control Operation. Console must provide momentary pull to ground (pulse) when the console's channel on switch (assigned to the incoming caller) is pressed.
5 Volume Up Indicator	open collector output, operation mimics front panel Volume Up LED
6 Cue/Answer Indicator	open collector output, operations mimics front panel Cue/Answer LED
7 Air Indicator	open collector output, operation mimics front panel Air LED
8 +5 volts	+5 volts
9 +5 volts	+5 volts
10 Off hook normally open relay contact	closes whenever hybrid is "off hook" (see pins 24 and 25)
11 Normally open power relay contact	momentarily closes whenever hybrid changes mode (see pins 12 and 13)
12 Normally closed power relay contact	momentarily opens whenever hybrid changes mode. Power for the producer's phone maybe wired through this relay. If the producer's phone were in speakerphone mode, operation of the hybrid would pulse the relay disconnecting the producer's phone. See pins 11 and 13.
13 Power relay common contact	see pins 11 and 12
14 Air Switch	parallel with front panel Air Switch
15 Cue/Answer Switch	parallel with front panel Cue/Answer Switch
16 Volume Up Switch	parallel with front panel Volume Switch

17 Console Off Switch	see Intelligent Console Control Operation. Console must provide a momentary pull to ground (pulse) when the console's channel off switch (assigned to the incoming caller) is pressed.
18 Volume Down Indicator	open collector output, operation mimics front panel Down LED
19 Hold Indicator	open collector output, operation mimics front panel Hold LED
20 Console Ready Indicator	see Intelligent Console Control Operation. Open collector output. Must be connected to console channel (assigned to the incoming caller) so that hybrid has control of the console's ready (channel off) lamp.
21 Ground	Ground
22 Ground	Ground
23 Conference Allow Switch	if conference has been enabled via DIP switch (see DIP Switch Programming) holding this pin to ground will inhibit conferencing.
24 Off hook normally closed relay contact	opens whenever hybrid is "off hook" (see pins 10 and 25)
25 Off hook relay common connector	see pins 10 and 24

AC Power Wiring

AC power is connected to the hybrid through a removable IEC type power cord. An internal switch is provided for 115V/230V selection.

DIP Switch Programming

Switch 1

Air Mode Conference Enable.

Turn this switch on to allow callers on line 1 to talk to (conference) with callers on line 2 when both lines are in Air Mode.

Switch 2

Answer/Cue Mode Conference Enable.

Turn this switch on to allow callers on line 1 to talk to (conference) with callers on line 2 when both lines are in Answer/Cue mode.

Switch 3

Combine Air Outputs #1 & #2 to Air Output #2.

Turn this switch on to provide a mix of line 1 and line 2 Main Air Output audio. This signal appears on line 2 Main Air Output only when both lines are in the Air Mode.

Switch 4

NOTE: DIP Switch #1 must be engaged for this function to work.

Combine Cue Outputs #1 & #2 to Cue Output #2.

Turn this switch on to provide a mix of line 1 and line 2 Cue Output audio. This signal appears on line 2 Cue Output and Cue Speaker Output only when both lines are in the Answer/Cue Mode.

Switch 5

NOTE: DIP Switch #2 must be engaged for this function to work. (not used)

Controls and Indicators

Front Panel

Volume Up Switch

Increases incoming caller volume

Volume Up Indicator (housed in the Volume Up Switch)

Illuminates solid while volume is increasing, flashes at maximum volume.

Volume Down Switch

Decreases incoming caller volume

Volume Down Indicator – (housed in the Volume Down Switch)

Illuminates solid while volume is decreasing, flashes at minimum volume.

Answer/Cue Switch

Takes hybrid “off hook” (answers call).

Places hybrid into Answer/Cue Mode.

When the hybrid is “on hook” holding the Drop Switch and then pressing the Answer/Cue Switch will place the hybrid into the Auto Answer – Answer/Cue Mode.

Answer/Cue Indicator (housed in the Answer/Cue Switch)

Illuminates to indicate that the hybrid is in the Answer/Cue Mode.

Flashes fast with breaks (ring cadence) when line is ringing.

Continuous blink and pause when producers phone is “off hook”.

Flashes slow in the Auto Answer – Answer/Cue Mode.

Hold Switch

Takes hybrid “off hook” (answers call).

Places hybrid into Hold Mode.

When hybrid is “on hook” holding the Drop Switch and then pressing the Answer/Cue Switch will place the hybrid into the Auto Answer – Hold.

Hold Indicator (housed in the Hold Switch)

Illuminates to indicate that the hybrid is in the Hold Mode.

Flashes slow in the Auto Answer – Hold Mode.

Air Switch

Takes hybrid “off hook” (answers call).

Places hybrid into Air Mode.

When the hybrid is “on hook” holding the Drop Switch and then pressing the Air Switch will place the hybrid into the Auto Answer – Air Mode.

Air Indicator (housed in the Air Switch)

Illuminates to indicate that the hybrid is in the Air Mode.

Flashes slow in the Auto Answer – Air Mode.

Drop Switch

Places hybrid “on hook” (drops call).

Terminates all modes of operation.

Rear Panel

Cue speaker level

Sets desired incoming caller volume when hybrid is in the Answer/Cue mode.

DIP switches

See DIP Switch Programming - pages 6, 7, 9,10

Operation

Manually answering a call (line ringing - Answer/Cue Indicator flashing with breaks - ring cadence)

Pressing the Answer/Cue or the Hold or the Air switch will answer a call and place the hybrid into the desired mode.

Automatically answering a call (line ringing)

The hybrid can automatically answer an incoming call and enter the desired mode of operation if it was previously placed in any of the Auto Answer Modes. To do so, depress the Drop Switch and then momentarily press the Answer/Cue, Hold or Air Switch. Then release the Drop Switch. The associated indicator will flash slowly. When the line rings the hybrid will answer the call with the desired mode. When the caller hangs up the hybrid will automatically go "on hook" and resume the Auto Answer Mode. Momentarily pressing the Drop Switch will cancel the Auto Answer Mode.

Answer/Cue Mode

This mode can be entered at any time by pressing the Answer/Cue Switch. The Answer/Cue LED will illuminate. It will take the hybrid "off hook" and answer a call. The incoming caller's audio will be routed to the Cue and Cue Speaker Output. The caller will hear the audio connected to the Cue Input. The producer's phone is disabled.

Hold Mode

This mode can be entered at any time by pressing the Hold Switch. The Hold LED will illuminate. It will take the hybrid "off hook" and answer a call. The incoming caller's audio is muted. The caller will hear the audio connected to the Hold Input. The producer's phone is enabled.

Air Mode

This mode can be entered at any time by pressing the Air Switch. The Air LED will illuminate. It will take the hybrid "off hook" and answer a call. The incoming caller's audio will be routed to the Main Output. The caller will hear the audio connected to the Mix Minus Input. The producer's phone is disabled.

Drop Mode – hybrid "on hook"

This mode, which will terminate the call, can be entered at any time by pressing the Drop Switch. All LEDs will extinguish. The producer's phone is enabled.

Automatic Release

The hybrid automatically monitors line loop current. If the caller hangs up the hybrid will detect the change in the loop current and go "on hook".

Producer's Phone

A producer's phone (desk set) may be connected (optionally) to the hybrid. The hybrid restricts usage of the phone to when the hybrid is "on hook" or in the Hold Mode. When the producer is speaking to the caller the Answer/Cue Indicator will continuously blink and pause. If the producer's phone is taken "off hook" when the hybrid is in the Hold Mode, the hybrid will exit the Hold Mode and release the line. The producer should press the hybrid's Hold Switch to put the caller back on hold.

Conference

The DI-2000 (dual hybrid) allows conferencing between two phone lines if desired. There are two modes of possible conferencing – each has a separate DIP switch that must be set.

Answer/Cue conference – allows callers on both lines to talk to each other when in Answer/Cue Mode with DIP switch #2 has been closed (down position).

Air Conference – allows callers on both lines to talk to each other when in Air Mode when DIP switch #1 has been closed (down position).

A conference inhibit switch is available through the remote control. As long as the switch is closed all DIP switch-programmed conferencing will be inhibited.

Combined Audio Output (Conference Mode)

When in conference mode (cue and/or air), it may be useful to have the cue and/or air outputs combined into one audio feed. To accomplish this, set DIP switch #3 on (down) to combine the air feeds into air feed output #2 (air output #1 is not used). Set DIP switch #4 on (down) to combine cue feeds into cue output #2 (cue output #1 is not used). Note - Combined audio outputs do not function independently of the conference modes (i.e. DIP switch #1 must be on for switch #3 to work; DIP switch #2 must be on for switch #4 to work).

Audio Mix Minus Input (Conference Mode)

Mix Minus inputs are not combined in the conference mode. That is, it is still necessary to wire separate mix minus audio inputs for both callers 1 & 2. Typically mix minus #1 would be minus caller #1, and mix minus #2 would be minus caller #2.

Intelligent Console Control

If desired the console channel assigned to the incoming caller can control and show hybrid status. Wiring must be made between the hybrid remote control and the console channel remote control. Note that the console used must provide access to the off button (ready) lamp, as well as provide multiple remote momentary closures when the channel “off” or “on” button is pushed.

Console Ready (channel off) Lamp

- Off when hybrid is in the Drop Mode “on hook”.
- Illuminates to indicate that the hybrid is in the Answer/Cue Mode.
- Flashes fast with breaks (ring cadence) when line is ringing.
- Continuous blink and pause when producers phone is “off hook”.
- Flashes slow when the hybrid is in the Hold Mode.

Console Channel Off Switch

- Pressing when the line is ringing will put the hybrid into the Answer/Cue Mode.
- Pressing when the hybrid is in Answer/Cue Mode will put the hybrid into the Hold Mode.
- Pressing when the hybrid is in the Hold Mode will put the hybrid into the Answer/Cue Mode.
- Pressing when hybrid is in the Air Mode will put the hybrid into the Drop Mode and terminate the call.

Console Channel On Switch

- Pressing when the line is ringing will place the hybrid into the Air Mode.
- Pressing when the hybrid is in the Air Mode will put the hybrid into the Hold Mode.
- Pressing when the hybrid is in the Hold Mode will put the hybrid into the Air Mode.

Typical Console/Hybrid Control Operation

Line Ringing

Console channel off lamp is flashing fast with breaks (ring cadence).

Press the console channel off switch to answer the call and put the hybrid into the Answer/Cue Mode. Console channel off lamp is illuminated.

Talent speaks to caller "off air".

Press the console channel off switch to put the hybrid into the Hold Mode (console channel off lamp is flashing slowly). Caller hears program on hold.

Press the console channel on switch to put the hybrid into the Air Mode (console channel on lamp is illuminated and console channel off lamp is extinguished). Caller is "on air".

Press the console channel off switch to put the hybrid into the Drop Mode (terminate the call). Both console channel lamps are extinguished.

Note:

Multiple presses of the console channel off switch will toggle the hybrid between the Answer/Cue (console channel off lamp illuminated) and Hold Modes (console channel off lamp flashing slowly). Multiple presses of the console channel on switch will toggle the hybrid between the Air Mode (console channel off lamp extinguished) and the Hold Mode (console channel off lamp flashing slowly). Pressing the console channel off switch while the hybrid is in the Air Mode (console channel off switch extinguished) will put the hybrid into the Drop Mode (terminate the call). To go back to the Answer/Cue Mode from the Air Mode it is necessary to go through the Hold Mode. First, press the console channel on switch (console channel off lamp will flash slowly) and then press the console channel off switch (console channel off lamp will illuminate).

Press the console channel off switch to put the hybrid into the Drop Mode (terminate the call). Both console channel lamps are extinguished.

Specifications

Audio Inputs

Impedance	10K ohm, active balanced
Maximum Input Level	+21 dBm
Nominal Input Level	+4 dBm
Connectors	1/4" TRS balanced phone connectors
Mix-Minus Input	provides audio to caller when on air
Cue Input	provides audio to caller when in answer/cue
Music on Hold Input	provides audio to caller when on hold

Audio Outputs

Impedance	60 ohms, active balanced
Maximum Output Level	+14 dBm
Nominal Output Level	+4 dBm
Connectors	1/4" TRS balanced phone connectors
Record Output	mix of caller and host audio
Cue Output	caller audio when in answer/cue
Speaker Level	0.3 watts - cue adjustable level
Main Output	caller audio when on air

General

Telco Line Inputs	2 tip/ring standard (POTS) line inputs, ring voltage detect, off-hook line detect (for aux phone), line drop detect (for auto disconnect), RJ-11 (4-wire) connector
Distortion	1% THD at 1 kHz
Frequency Response	300-3300 Hz +/- 1 dB
Noise	65 dB referenced to 0 dBm phone level
Transhybrid Loss	40 dB minimum
Power	115/230 V, 50/60 Hz, switchable

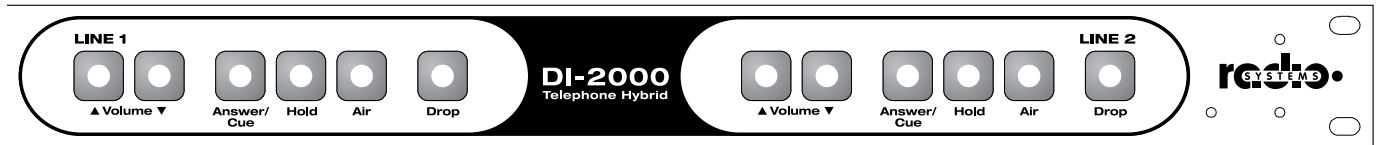
Remote Lines

Answer / cue switch control
Hold switch control
Air switch control
Drop switch control
Answer / cue lamp
Hold switch lamp
Air switch lamp
Line 1 & 2 seize relay (C form)

Console Logic Remote Lines

Off switch control (answer, cue, hold, drop)
On switch control (air, cue)
Off lamp (ring flash, hold flash)

Front Panel Controls



Single Hybrid Operation

Push to Disconnect Call

All LED lights extinguished.

Push to Put Caller on Air

LED lights.
 Caller output applied to main out.
 Caller hears mix minus input.
 Caller hears other caller (in conference air mode)

Push to Put Caller on Hold

LED flashes.
 Caller output is muted.
 Caller hears music on hold input.

Push to Answer Incoming Call

LED flashes with ring in.
 Caller output applied to cue output.
 Caller hears cue input.
 Caller hears other caller (in conference cue mode).

Caller Output Volume Controls

Use these cotrols to raise and lower monitor volume
 (not console controls, or unit will not compensate for acoustical

Second Hybrid Operation

When set for separate (2 hybrid) use

Line 2 Hybrid functions identically and independently from Line 1 with separate available front panel remote controls.

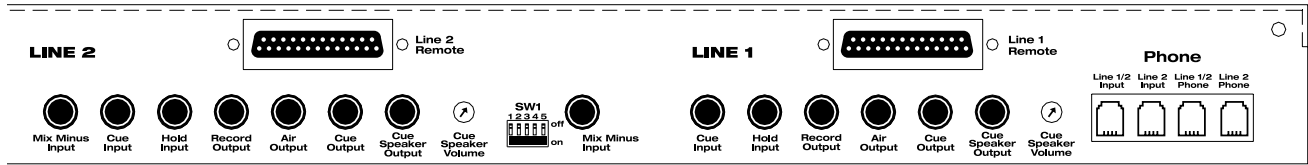
When set for conference use

Callers may communicate with each other and their outputs may be mixed according to rear panel dip switch programming.

When outputs are mixed

Air and/or cue ouputs appear as combined outputs only on hybrid output #2 according to rear panel dip switch programming.

Rear Panel Connections



DIP Switch Programming

Switch 1 - On for callers conferenced in air mode.
 Switch 2 - On for callers conferenced in cue mode.
 Switch 3 - On for caller outputs combined in air mode.
 Switch 4 - On for caller outputs combined in cue mode.
 Switch 5 - Not used.

Cue Speaker Output and Volume

Active when caller is in cue answer
 Two watts direct speaker output.
 (Utilize in place of internal console cue circuit).

Cue Output

Active when caller is in cue/answer mode.
 Provides caller only send to console cue input.

Main Air Output

Active when caller is on air
 Provides caller only send to console input.

Record Output

Provides full-time mix of caller and host for recording.

Music-on-Hold Input

Active when caller is on hold.
 Connect to air signal.

Cue Input

Active when caller is in answer/cue mode.
 Connect console cue channel send to caller (typically a full-time DJ mic feed)

Mix Minus Input

Active when caller is on air
 Connect mix minus console send to caller (mix minus output equals console program out minus caller input audio)

Phone Line Connections

Jack 1 - Line 1 or line 1 and 2 in.
 Jack 2 - Line 2 in.
 Jack 3 - Producer's phone line 1 or 2 line.
 Jack 4 - Producer's phone for line 2.

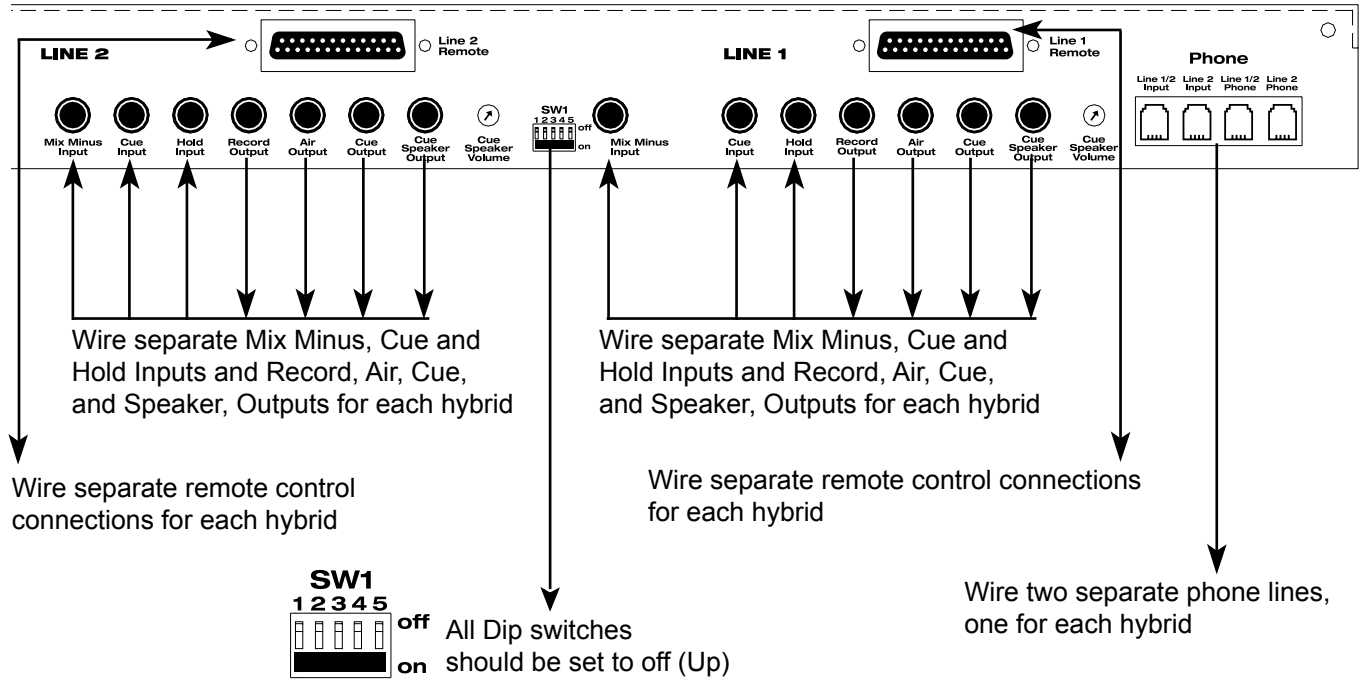
Remote Control Connections

Pin 1 - Drop Switch
 Pin 2 - Hold Switch
 Pin 3 - Volume Down Switch
 Pin 4 - Console On Switch
 Pin 5 - Volume Up LED
 Pin 6 - Cue/Answer LED
 Pin 7 - Air LED
 Pin 8 - + 5 volts
 Pin 9 - + 5 volts
 Pin 10 - Off Hook Relay (n.o.)
 Pin 11 - Power Relay (n.o.)
 Pin 12 - Power Relay (n.c.)
 Pin 13 - Power Relay (common)
 Pin 14 - Air Switch
 Pin 15 - Answer Switch
 Pin 16 - Volume Up Switch
 Pin 17 - Console Off Switch
 Pin 18 - Volume Down LED
 Pin 19 - Hold LED
 Pin 20 - Console Ready LED
 Pin 21 - Ground
 Pin 22 - Ground
 Pin 23 - Conference Allow Switch
 Pin 24 - Off Hook Relay (n.c.)
 Pin 25 - Off Hook Relay (common)

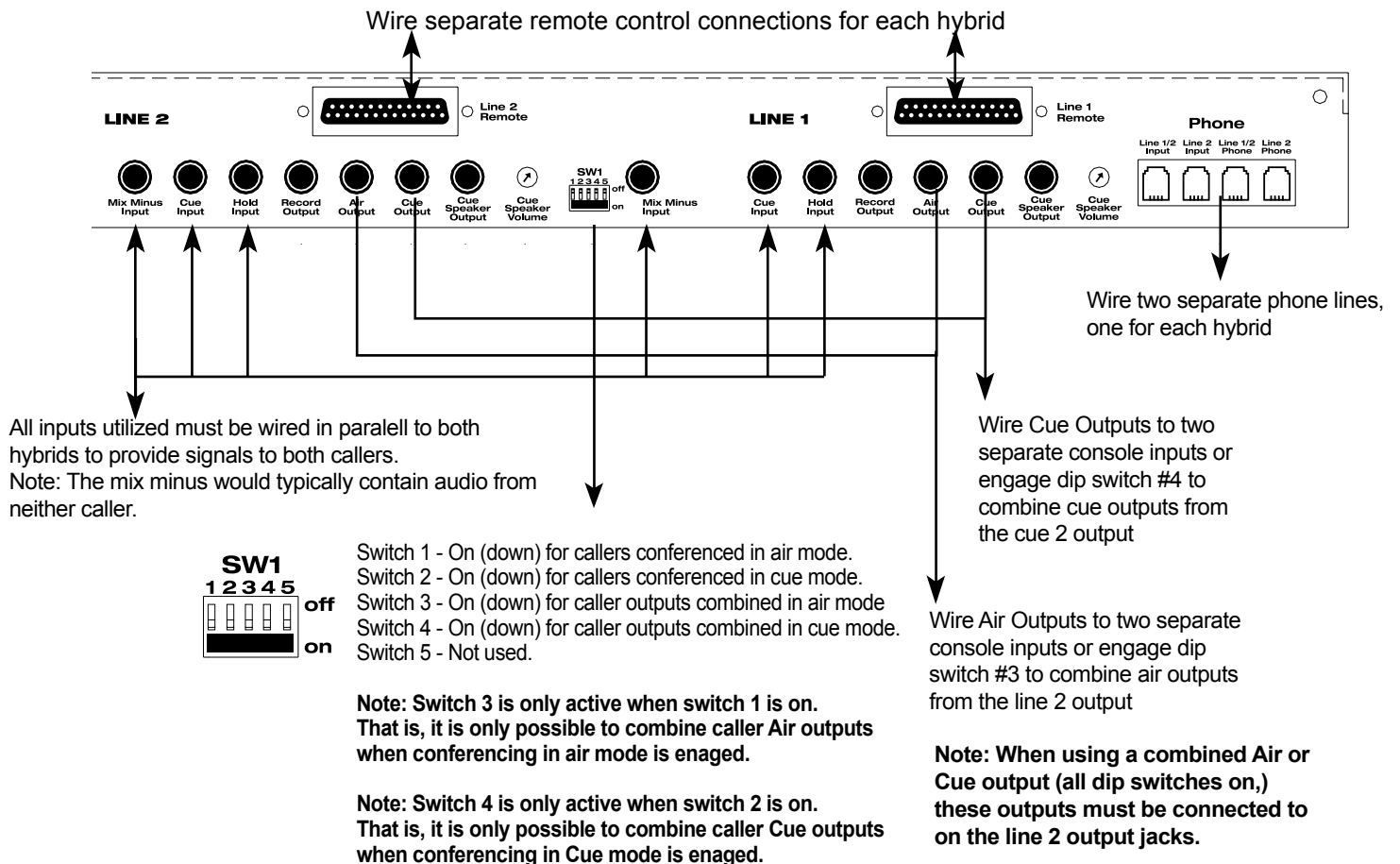
Notes:

Switches are momentary/pull-to ground
 LEDs are open collector drives

Use as two Independent Hybrids



Use in Conference Modes



MILLENIUM - REMOTE CONNECTIVITY

RS-SERIES - REMOTE CONNECTIVITY

Bill of Materials

Level	Seq	Component - Item	Component Description	UOM	Qty.
1	10	10449	BOX 1U RACKMOUNT	EA	1
1	20	16058	FISH PAPER	EA	1
1	30	10688	STANDOFF 440 X 1 7/16	EA	1
1	40	1069	NUT 4-40	EA	2
1	50	10863	DA 4X4 CHASSIS	EA	1
1	60	10889	MILLENIUM BUS SELECT KEYPAD	EA	2
1	70	10995	DI-2000 FRONT PANEL DUAL	EA	1
1	80	11162	DI-2000 SWITCHBOARD ASSY	EA	2
2	10	11161	PCB DI-2000 SWITCHBOARD	EA	2
2	20	13051	RED LED HI BRIGHTNESS LITEON	EA	
14			REF: D1-D7		
2	30	1027	SOCKET 14 PIN DIP	EA	2
			REF: J2		
2	40	7533	RES 220 OHM 1/4W 5%	EA	
14					
1	90	11308	DI-2000 BOARD ASSY	EA	1
2	10	11307	PCB DI-2000 BD	EA	1
2	20	9124	CAP 100PF SILVER MICA	EA	1
			REF: C101		
2	30	5744	CAP 100UF 25V RAD +/- 20%	EA	4
			REF: C106;C116;C119;C139		
2	40	10597	CAP 4700UF 35V	EA	2
			REF: C115;C137		
2	50	8769	CAP 1000UF 6.3V	EA	1
			REF: C136		
2	60	7796	CAP .022UF MYLAR 100V FILM	EA	2
			REF: C140;C142		
2	70	5860	CAP .01UF +/- 5% 50V FILM	EA	2
			REF: C144;C145		
2	80	5743	CAP .1UF FILM	EA	47
			REF: C63;C68;C74-C80;C93-C95,C97-C100; C105;C111;C113;C118;C125;C127;C128; C132;C133;C138;C141;C142		
2	90	5739	CAP 100PF DISK +/- 10% 500V	EA	30
			REF: C21-C50		
2	100	5865	CAP 1UF +/- 20% 50V ELEC	EA	6
			REF: C3;C5;C126;C129;C131;C134		
2	110	2906	CAP 300PF SILVER MICA	EA	2
			REF: C64;C65		
2	120	9082	CAP .0033UF 50V FILM	EA	10
			REF: C67;C69;C70;C72;C88;C92;C107;C109; C112;C114		
2	130	9319	CAP .47UF 50V FILM	EA	12
			REF: C71;C73;C86;C90;C103;C108;C110; C117;C121;C123;C130;C135		
2	140	8191	CAP 10UF 35V ELEC	EA	10
			REF: C81-C83;C96;C102;C104;C120;C122; C124		
2	150	8918	CAP FILM .033UF 50V	EA	2
			REF: C85;C89		
2	160	5863	CAP .0022UF 50V FILM	EA	12
			REF: C9-C20		

2	170	7012	DIODE 1N4005 REF: D1;D2;D5;D6;D13-D16;D18-D21	EA	12
2	180	11187	SIDACTOR P3100EB REF: D3;D4	EA	2
2	190	1012	DIODE 1N4148 REF: D7-D12;D17	EA	7
2	200	10489	FUSE HOLDER REF: F1	EA	1
2	210	1074	CLIP FUSE REF: F2-F5	EA	8
2	220	11340	FUSE 1.25A SLO-BLO REF: F2-F5	EA	4
2	230	10416	CONNECTOR RJ-11C 4 PORT REF: J15	EA	1
2	240	10491	IEC POWER CONNECTOR REF: J16	EA	1
2	250	5756	HEADER 26 PIN DUAL ROW .1 REF: J17;J18	EA	2
2	260	1027	SOCKET 14 PIN DIP REF: J19;J20	EA	2
2	270	1004	PHONO JACK REF: J1-J14	EA	14
2	280	10484	SAMTEC 8 PIN MRT HEADER REF: J21	EA	1
2	290	10490	SAMTEC 8 PIN FRT HEADER REF: J22	EA	1
2	300	11184	RELAY DPDT 5V TELECOM REF: K1;K2	EA	2
2	310	11183	RELAY DPDT 5V REF: K3;K4;K5;K6	EA	4
2	320	11185	FERRITE BEAD REF: L1	EA	1
2	330	10328	TRANSISTOR 2N7000 REF: Q1;Q2	EA	2
2	340	10964	RES 12.1L 1/4W 1% REF: R103;R110;R132;R137	EA	4
2	350	5727	RES 15.0K 1/4W 1% REF: R113;R114	EA	2
2	360	9085	RES 8.2k 1/4W 5% REF: R116;R122	EA	2
2	370	1016	RES 2.2K 1/4W 5% REF: R117;R123	EA	2
2	380	9299	RES 2K 1/4W 1% REF: R118;R124	EA	2
2	390	1161	RES 4.75K 1/4W 1% REF: R119;R125	EA	2
2	400	7133	RES 0.0 OHM 1/4W REF: R120;R126;R171;R177;R178	EA	5
2	410	11179	RES 620K 1/4W 1% REF: R121;R127	EA	2
2	420	2816	RES 10K 1/4W 1% REF: R129;R134;R146;R148;R151;R173;R176	EA	7
2	430	3558	RES 5.11K 1/4W 1% REF: R12-R21;R28;R29;R36-R47	EA	24
2	440	5731	RES 47.5K 1/4W 1% REF: R10;R11;R140	EA	3

2	450	10326	RES NETWORK 10K COMMON REF: R141;R142	EA	2
2	460	9906	RES 240K 1/4W 5% REF: R145;R172	EA	2
2	470	5872	RES 1K 1/4W 1% REF: R147;R175	EA	2
2	480	7514	RES 3.32K 1/4W 1% REF: R159;R179;R181	EA	3
2	490	10659	POT 10K PHIER REF: R1;R2	EA	2
2	500	10485	RES 30.1 OHM 1/4W 1% REF: R22-R27;R30-R35	EA	12
2	510	4205	RES 20K 1/4W 1% REF: R3;R9;R55-R57;R48-R50;R128;R130;R131; R133;R135;R136;R138;R139;R180;R182;	EA	18
2	520	1030	RES 470 OHM 1/4W 5% REF: R4-R8;R152-R158;R160-R168;R174	EA	22
2	530	9071	RES 6.04K 1/4W 1% REF: R51;R58;R64-R70;R74-R80;R85-R88;R90; R92-R95;R97-R102;R105;R106;R109;R112;R115; R143;R144;R149;R150;R169;R170	EA	44
2	540	11178	RES 1.02 1/4W 1% REF: R42-R54;R59-R61;R71-R73;R81-R83	EA	12
2	550	9664	RES 360k 1/4W 5% REF: R62;R63	EA	2
2	560	9270	RES 51.1K 1/4W 1% REF: R84;R89	EA	2
2	570	11316	RES 31.6K 1/4W 1% REF: R91;R96;R104;R111	EA	4
2	580	10847	FUSE 0.3 AMP REF: F1	EA	1
2	590	1011	SOCKET 8 PIN DIP REF: U1-U14; U28;U29	EA	16
2	600	1039	SOCKET 16 PIN DIP REF: U23-U27;U15-U20	EA	11
2	610	3929	SOCKET 18 PIN DIP REF: U30;U31	EA	2
2	620	8228	SOCKET 40 PIN IC REF: U34	EA	1
2	630	11318	5 POSITION DIP SWITCH REF: SW1	EA	1
2	640	10492	SWITCH DPDT REF: SW2	EA	1
2	650	9351	TRANSFORMER REF: T1	EA	1
2	660	5752	IC 4053 REF: U15-U20	EA	6
2	670	11186	IC LM4864 REF: U1;U2	EA	2
2	680	11188	IC MH88435 REF: U21;U22	EA	2
2	690	11180	IC 74HC595 REF: U23-U27	EA	5
2	700	4390	IC LM358N REF: U28;U29	EA	2
2	710	10014	IC ULN2803A REF: U30;U31	EA	2

2	720	3679	VR 7805 REF: U32	EA	1	
2	730	1042	IC LM339 REF: U33	EA	1	
2	740	11190	IC PROGRAMMED DI-2000 REF: U34	EA	1	
2	750	10520	VR LM7905CT REF: U35	EA	1	
2	760	11317	IC CS6422 REF: U36;U37	EA	2	
2	770	1010	IC 5532 REF: U3-U14	EA	12	
2	780	11512	CRYSTAL 20.48 MHZ REF: Y1	EA	1	
1	100	11313	DI-2000 COVER	EA	1	
1	110	1134	HEAT SINK AAVID 5750B	EA	1	
1	120	11341	MANUAL DI-2000	EA	1	
1	130	11452	SCREW 4-40 X 3/16 PH PHIL ITLW	EA	11	
1	140	1154	NUT KNURL 6-32	EA	1	
1	150	2919	SCREW 6-32 X 1/2 PH PHIL	EA	3	
1	160	7601	SIL-PAD T-220	EA	2	
1	170	7602	SHOULDER WASHER FOR T-220	EA	2	
1	180	7646	KEP NUT #6	EA	3	
1	190	9155	POWER CABLE 3-COND. TO IEC	EA	1	
1	200	9387	14 VOND. RIBBON CABLE 8"	EA	2	
1	210	11382	PLUG 1/4" TRS MALE	EA	8	
1	220	8309	CONNECTOR 25 PIN MALE D-RING	EA	2	
1	230	8310	HOOD FOR 25 PIN D-RING CONN.	EA	2	
1	240	8161	HARDWARE KIT FOR D CONNECTOR	EA	2	
1	250	13092	RIBBON CABLE 25 FE D->26 SKT.	EA	2	
1	260	1070	WASHER LOCK 4-40	EA	2	
1	270	4954	WASHER #4 FLAT	EA	2	
1	280	11049	SCREW 6-32 X 1/4 BH BLACK	EA	4	
1	290	3516	SCREW 6-32 X 1/4 BLACK PANHEAD	EA	6	
1	300	7583	SCREW 4-40 X 3/16 FLAT PHILLIP	EA	2	

SCHEMATIC 1 OF 3

SCHEMATIC 2 OF 3

SCHEMATIC 3 OF 3

Warranty

Radio Systems, Inc., warrants this equipment to be free from defects in materials and workmanship for a period of one (1) year after purchase.

This warranty extends to first users of the product and future owners who purchase the product within the warranty period.

The terms of this warranty are null and void if this product is stored or operated in an environment not conducive to electronic equipment, or shows signs of misuse or modifications that affect the proper functioning of the product. This warranty does not apply to damage caused by fire, smoke, flood, lightning, or acts of nature and physical abuse.

Radio Systems, Inc., and its associated companies, authorized distributors, and personnel are not liable for loss of revenues or other damages, or effects to the broadcast signal quality or coverage which may result from the from the improper functioning of this product.

Repair Policy

Technical assistance is available at any time, at no charge, by email, phone or correspondence.

During the warranty period, there will be no charge for parts or service made to units that show no sign of misuse by customer or lightning caused damage. The customer is responsible for the cost of shipping their unit back to Radio Systems for repair. During the warranty period, shipment of small parts and assemblies will be made at no charge to the user. Emergency, next day shipments of replacement parts and circuits will also be made at no charge at the user's request. Chargeable services will be made COD or on Net-30 day terms to users with established accounts.

During the warranty period, users must return defective parts upon request to receive no-charge warranty services. Return shipping expenses are the responsibility of the user.

Return Instructions

Contact Radio Systems at +1-856-467-8000 for a return authorization number.
Pack all items carefully and ship prepaid, via UPS insured, to:

Radio Systems, Inc.
Attn: R.A. # _____
601 Heron Drive
Logan Twp., NJ 08085

Enclose a note that includes your name, company, phone number, the serial number, return address (no box numbers), and a complete description of the problem.

For Assy:
Part# DI-1000/DI-2000
Rev Date: 10/09