

ARTIST

The Digital Matrix Platform for Intercom, Audio & IP-Routing

Installation Guide

Thank you for choosing the Artist S digital matrix platform.
This manual provides detailed information about Artist S installation and interfacing information for easy system integration. For additional information please contact our support.

We are always happy to assist you with system design and application of our products..

Riedel Communications GmbH
Uellendahler Str. 353
D-42109 Wuppertal
Germany
Phone: +49 (0) 202 292 – 90

Riedel Communications GmbH
Ernst-Augustin-Str. 12
D-12489 Berlin
Germany
Phone: +49 (0) 30 67 82 61 – 59

Riedel Communications GmbH
Schottenfeldgasse 60/2/1
A-1070 Wien
Austria
Phone: +43 1 526 77 05

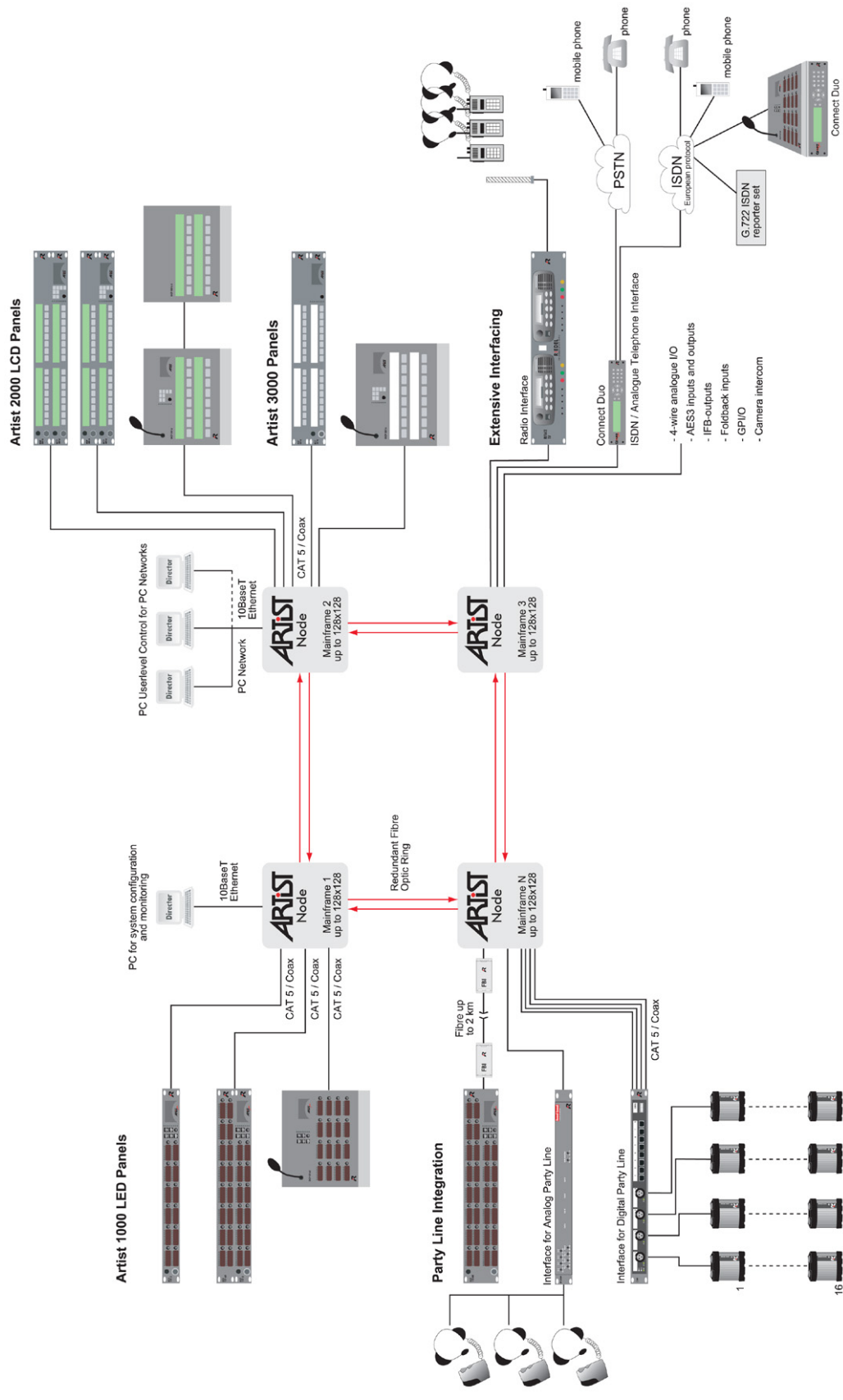
Riedel Communications GmbH
3605 W. Pacific Avenue
Burbank, CA 91505
USA
Phone: +1 818.563.4100

www.riedel.net

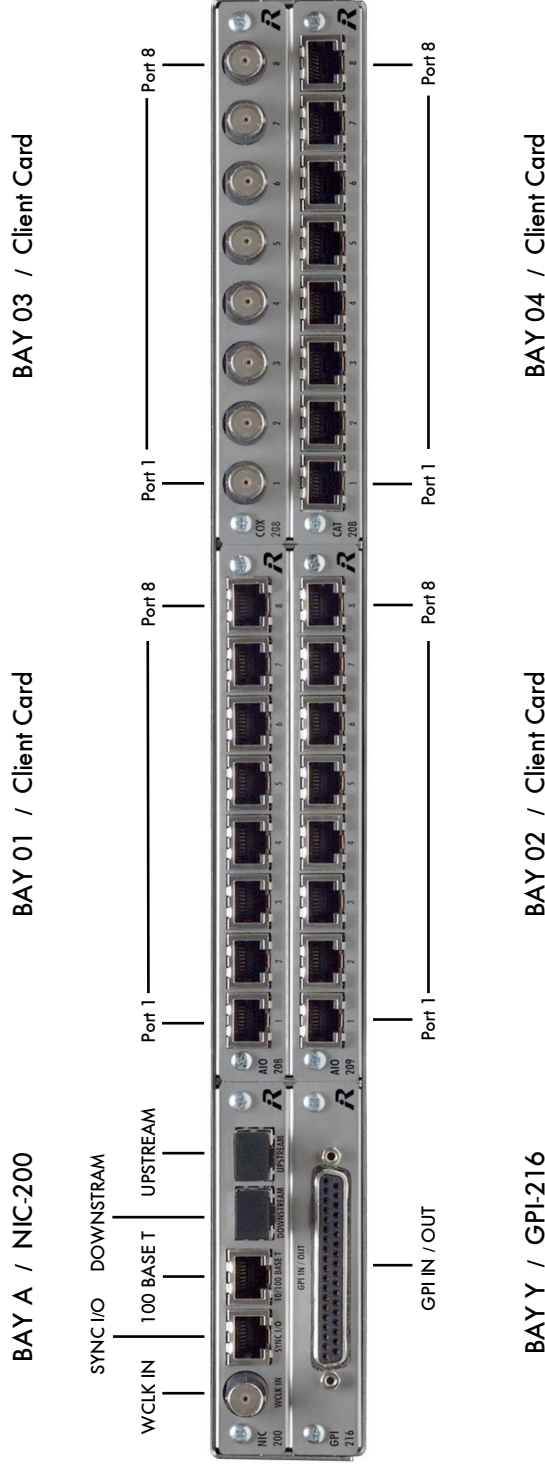
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Decentralized Matrix Structure



Artist S Mainframe: Bay Arrangement and Card Types

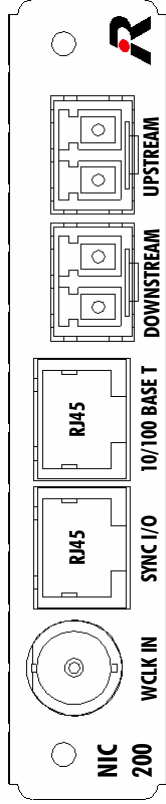


Note:

The Client Card bays BAY01 to 04 support operation of the card types listed below:

- COX-208
- CAT-208
- AIO-208
- AIO-209
- AES-208

Artist S Mainframe: NIC-200 Sync I/O & Alarm Connector

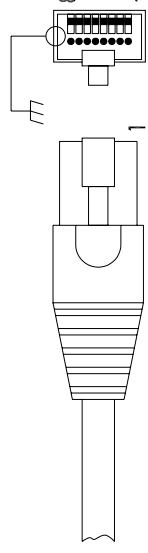


Note:
Alarm Out contact rating: 60V / 500mA

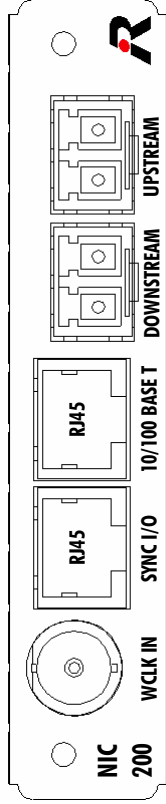


"NIC-200" "SYNC I/O" RJ-45	
Pin	Signal
1	Sync In +
2	Sync In -
3	Sync Out +
4	Alarm normally open
5	Alarm common
6	Sync Out -
7	Alarm normally closed
8	Alarm common

Connector: RJ 45

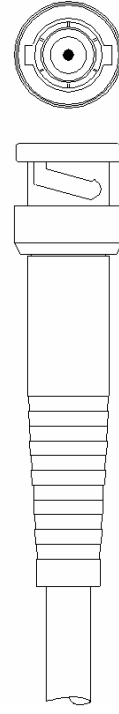


Artist S Mainframe: NIC-200 Wordclock Input



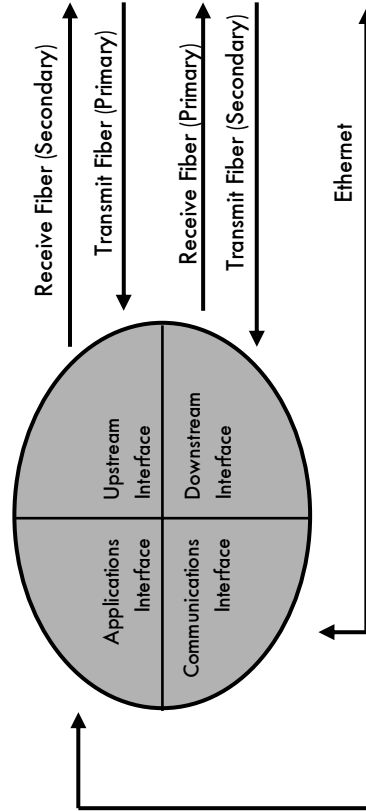
"NIC-200"	
"WORDCLK IN"	
BNC	
Pin	Signal
1	WCLK In
2	Shield

Connector: BNC



Artist S Mainframe:

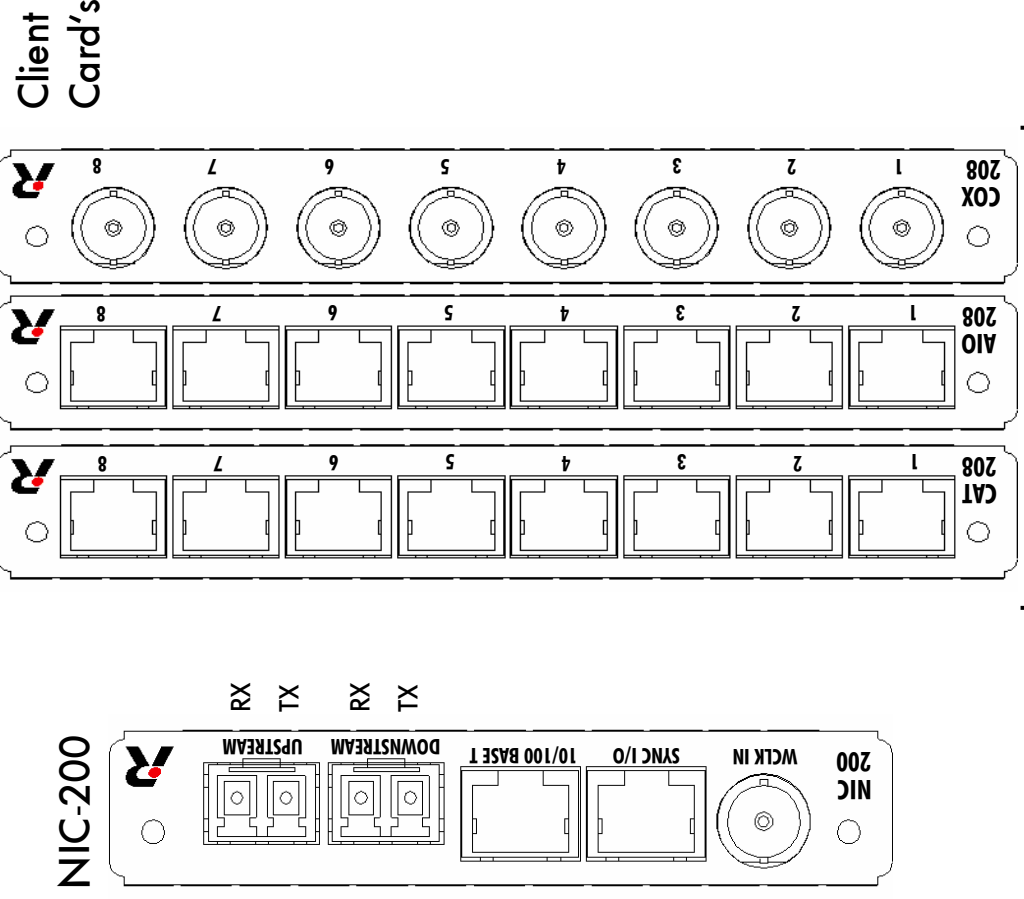
NIC-200 Fiber Connection Up/Downstream



NIC-200 mit FIF-200 Fiber Interface:

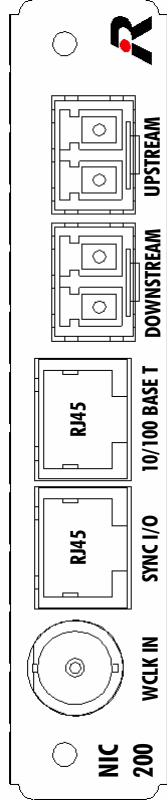
- | | |
|------------------|-------------------|
| FIF-200MM | Multimode |
| Fiber: | MM 50/125µm |
| Connector: | 2x LC-Duplex |
| Max. distance: | 500 m |
| FIF-200SM | Singlemode |
| Fiber: | SM 9/125µm |
| Connector: | 2x LC-Duplex |
| Max. distance: | 10 km |

Application: Intercom, Audio, Video, etc.



Client Card's

Artist S Mainframe: NIC-200 10/100BaseT Ethernet Connector

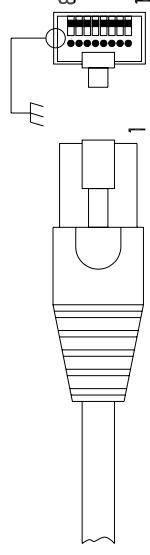


"NIC-200" "10/100BT" RJ-45	
Pin	Signal
1	TxD +
2	TxD -
3	RxD +
4	n.c.
5	n.c.
6	RxD -
7	n.c.
8	n.c.

Note:

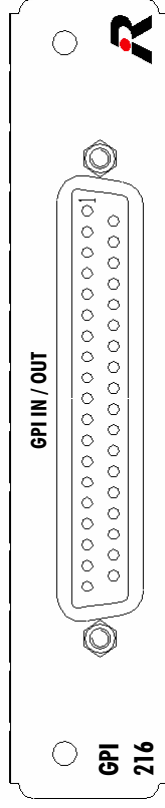
Ethernet connector uses PC-type pinout. For direct connection to a PC use X-over cable. For connection to a hub or switch use 1:1 cable.

Connector: RJ 45

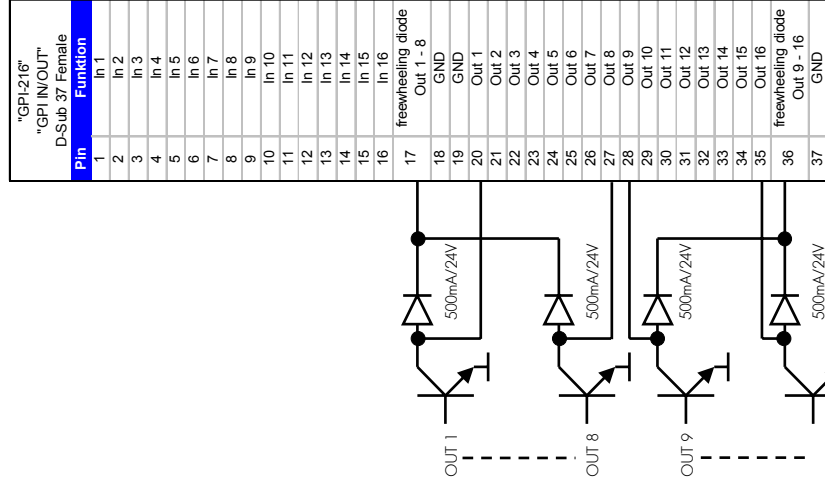


Artist S Mainframe:

GPI-216 Connection of GPI Inputs and Outputs

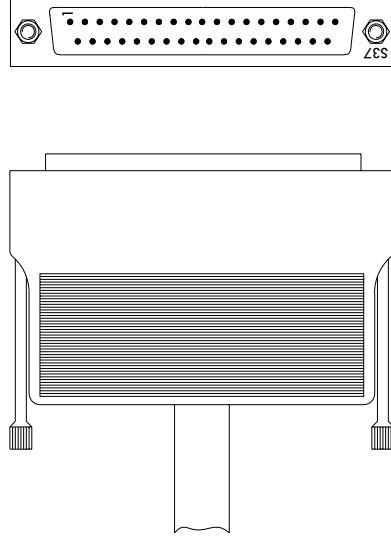


Note:
Open Collector Output rated at: 24V / 500 mA



This shows the circuit inside the matrix on the GPI-Card.

Cable Connector: D-SUB 37 Male



Artist S Mainframe:

NIC and Client Card connector pinouts



"NIC-200" "SYNC I/O" RJ-45	
Pin	Signal
1	Sync In +
2	Sync In -
3	Sync Out +
4	Alarm normally open
5	Alarm common
6	Sync Out -
7	Alarm normally closed
8	Alarm common

"NIC-200" "10/100BT" RJ-45	
Pin	Signal
1	TxD +
2	TxD -
3	RxD +
4	n.c.
5	n.c.
6	RxD -
7	n.c.
8	n.c.

"CAT-208" "Port 1-8" RJ-45	
Pin	Signal
1	RxD +
2	RxD -
3	TxD +
4	n.c.
5	n.c.
6	TxD -
7	n.c.
8	n.c.

"AIO-208" "Port 1-8" RJ-45	
Pin	Signal
1	RxD +
2	RxD -
3	TxD +
4	Audio In +
5	Audio In -
6	TxD -
7	Audio Out +
8	Audio Out -

"AES-208" "Port 1-8" RJ-45	
Pin	Signal
1	RxD +
2	RxD -
3	TxD +
4	n.c.
5	n.c.
6	TxD -
7	n.c.
8	n.c.

Note:
Alarm Out contact rating: 60V/500mA

Note:
Ethernet connector uses PC-type pinout. For direct connection to a PC use X-over cable. For connection to a hub use 1:1 cable.

"NIC-200" "WORDCLK IN" BNC	
Pin	Signal
1	WCLK In
2	Shield

"COX-208" "Port 1-8" BNC	
Pin	Signal
1	RxD / TxD
2	Shield

"AIO-209" "Port 1-8" RJ-45	
Pin	Signal
1	RxD +
2	RxD -
3	TxD +
4	Audio In +
5	Audio In -
6	TxD -
7	Audio Out +
8	Audio Out -



Artist S Mainframe: GPI Card connector pinout



"GPI-216"	
"GPI IN / OUT"	
D-Sub 37 Female	
Pin	Signal
1	In 1
2	In 2
3	In 3
4	In 4
5	In 5
6	In 6
7	In 7
8	In 8
9	In 9
10	In 10
11	In 11
12	In 12
13	In 13
14	In 14
15	In 15
16	In 16
17	Freewheeling diode
18	GND
19	GND
20	Out 1
21	Out 2
22	Out 3
23	Out 4
24	Out 5
25	Out 6
26	Out 7
27	Out 8
28	Out 9
29	Out 10
30	Out 11
31	Out 12
32	Out 13
33	Out 14
34	Out 15
35	Out 16
36	Freewheeling diode Out
37	GND

Note:
Open Collector output rating: 24V / 500 mA

Control Panels 1000 Series



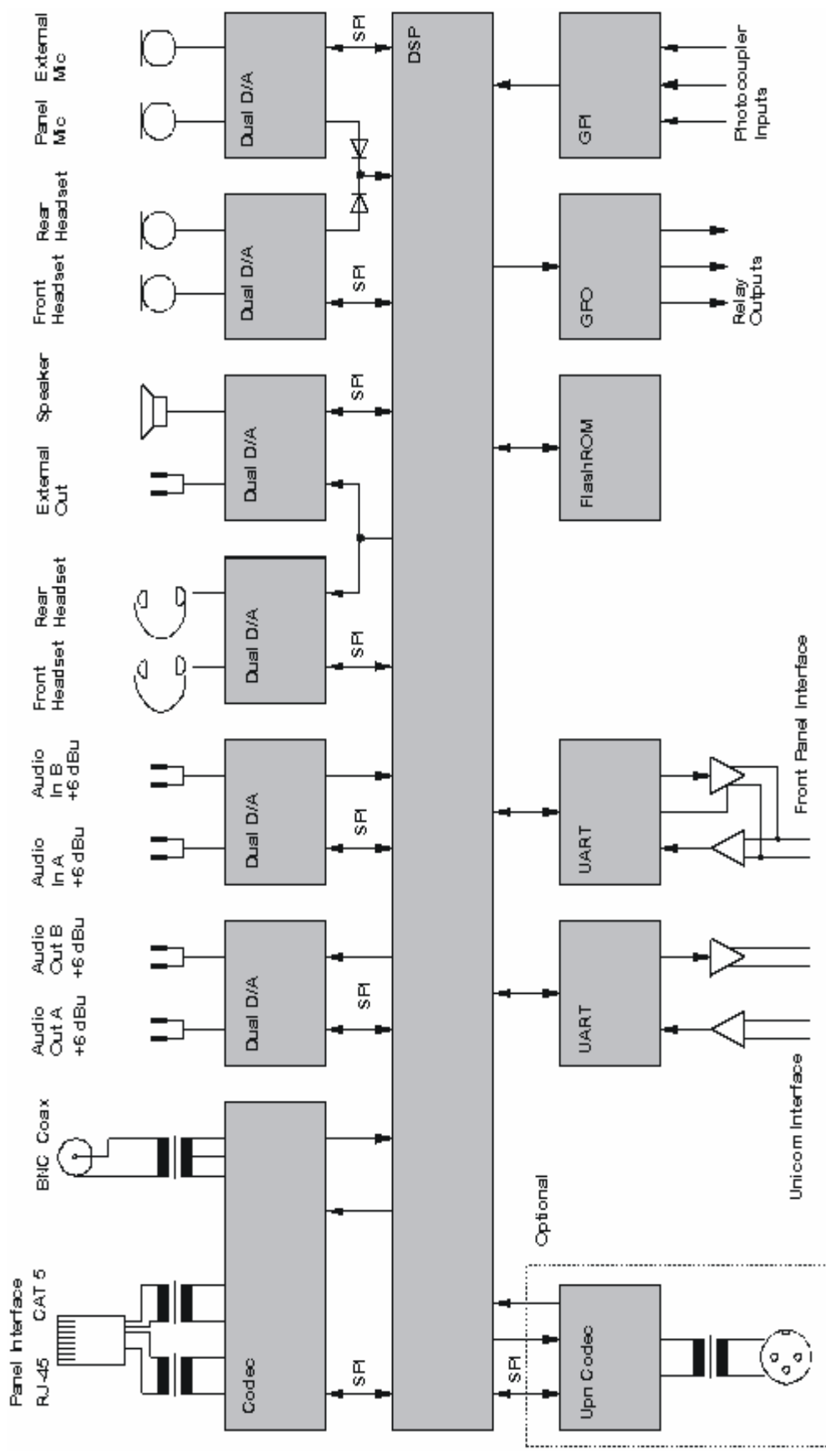
Expansion Control Panel
ECP1016E

Rackmount Control Panels
RCP1012E
RCP1028E

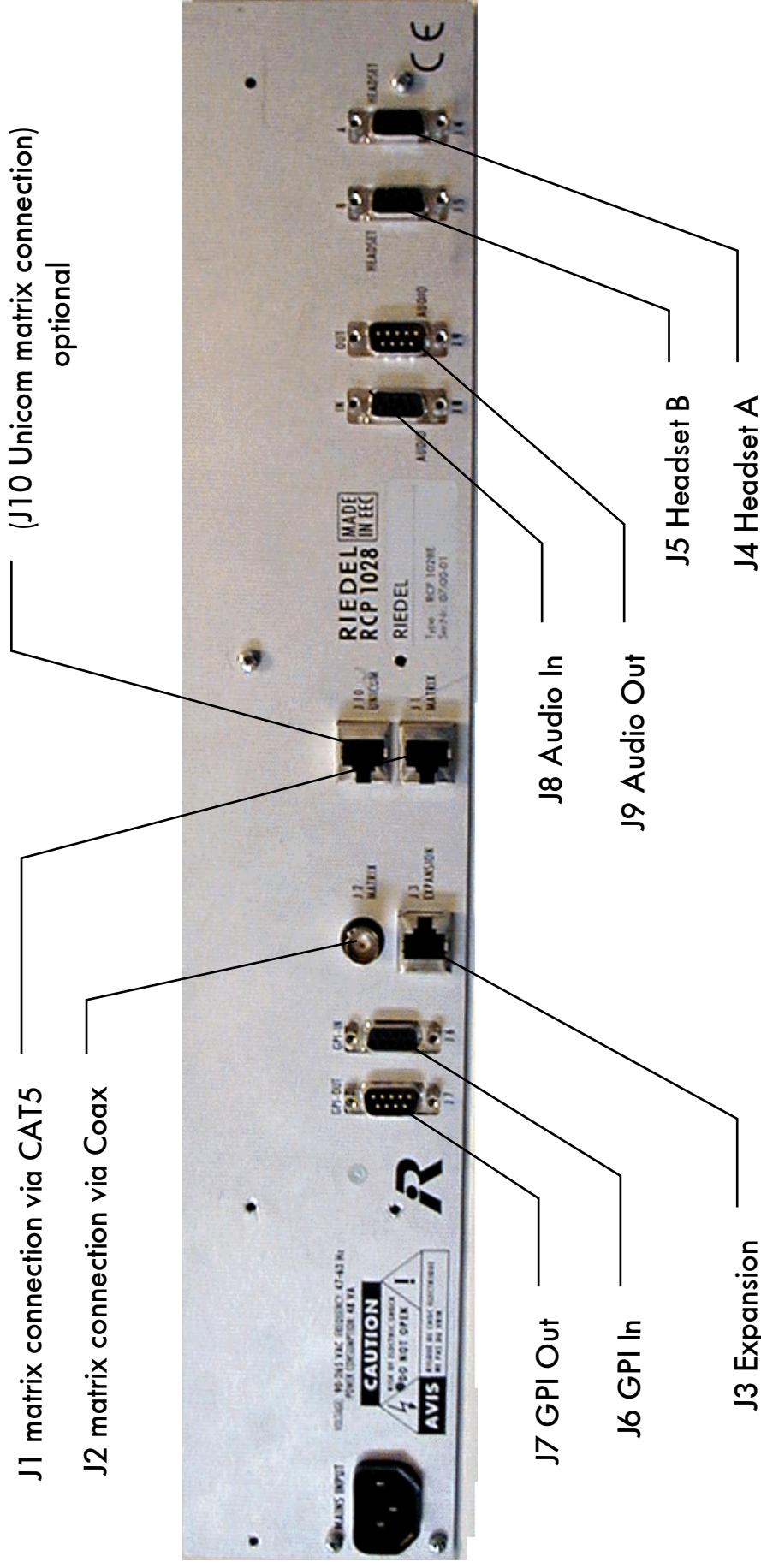


Desktop Control Panel
DCP1016E

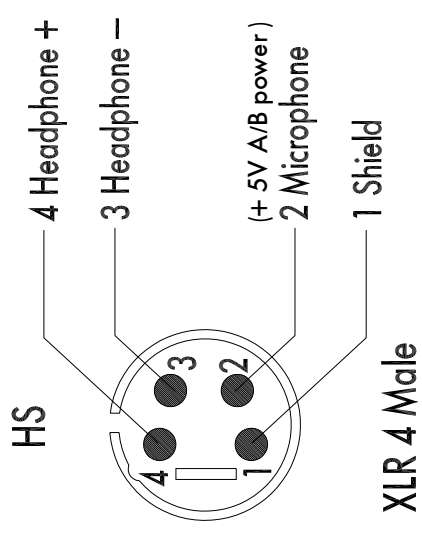
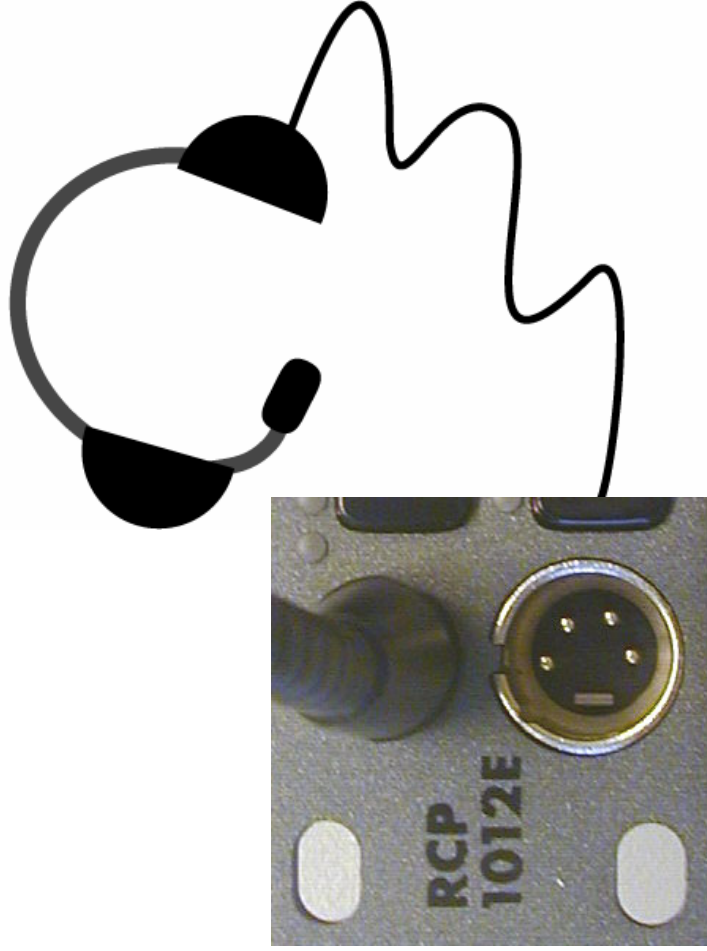
Control Panels 1000 Series Block Diagram



Control Panels 1000 Series Rear Connectors



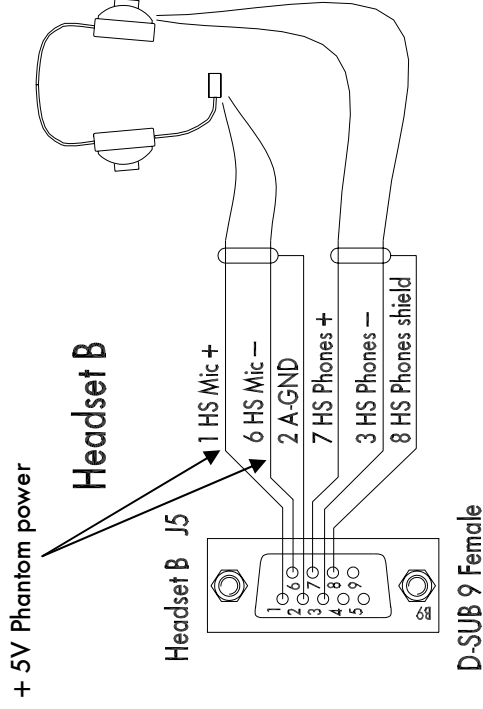
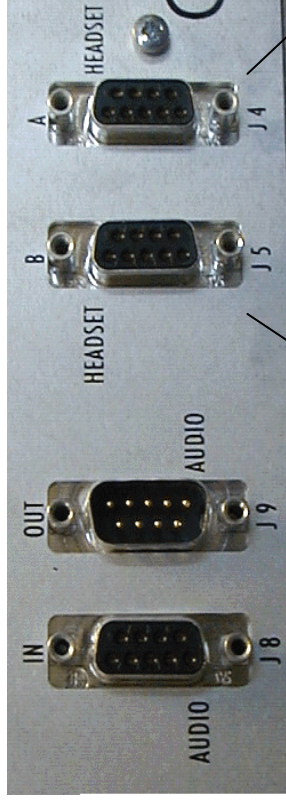
Control Panels 1000 Series Front Headset Connector



connector front view

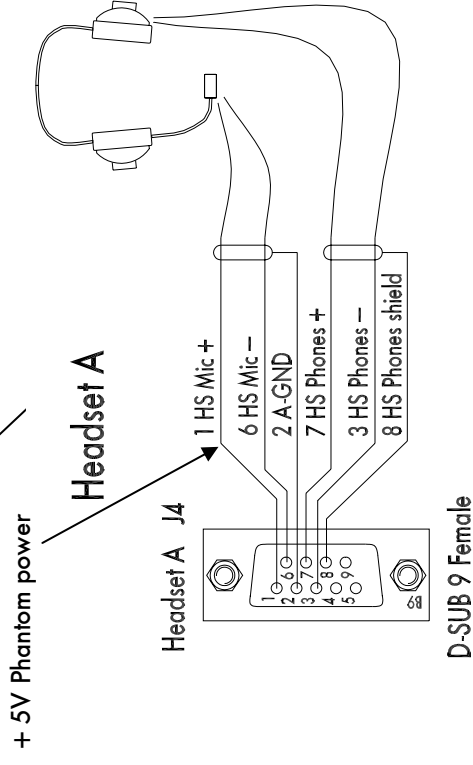
Control Panels 1000 Series

Rear Headset Connector



For unbalanced connection of electret microphones connect Mic+ to PIN 1 and Mic shield to PIN 6 and PIN 2 to provide power to the electret microphone.

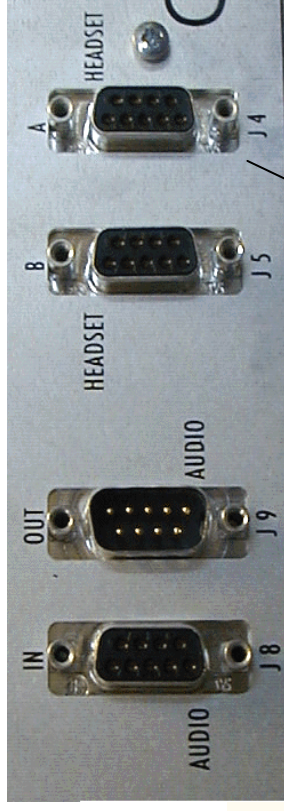
connector front view



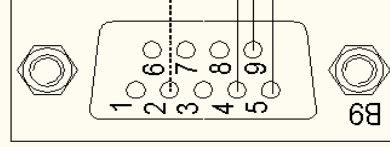
For unbalanced connection of electret microphones connect Mic+ to PIN 1 and Mic shield to PIN 6. Pin 2 can be used for cable shield.

Control Panels 1000 Series

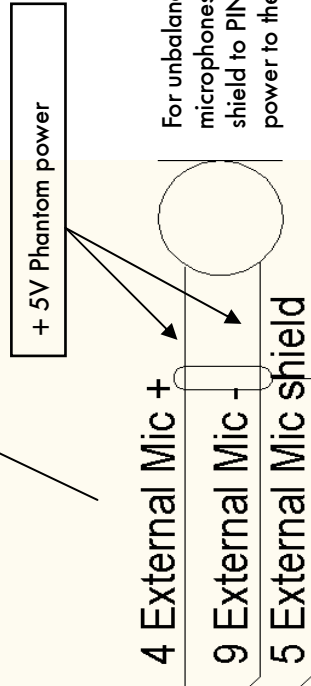
External Microphone Connection



Headset A J4



D-SUB 9 Female

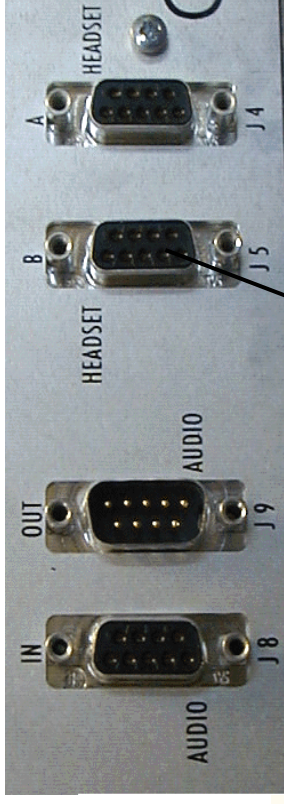


For unbalanced connection of electret microphones connect Mic+ to PIN 4 and Mic shield to PIN 9 and PIN 2 to provide AB power to the electret microphone.

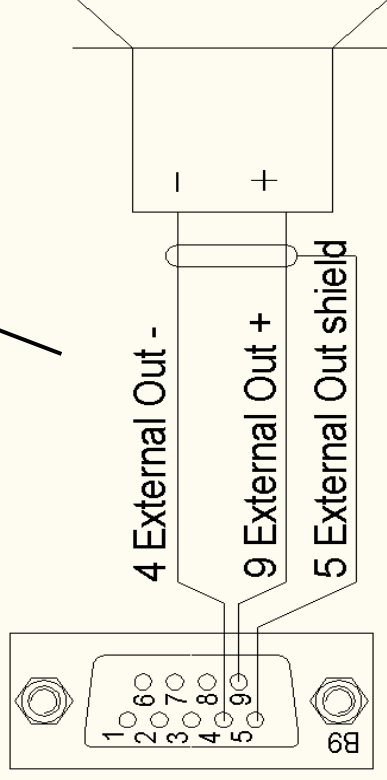
connector front view

Control Panels 1000 Series

External Speaker Connection



Headset B J5

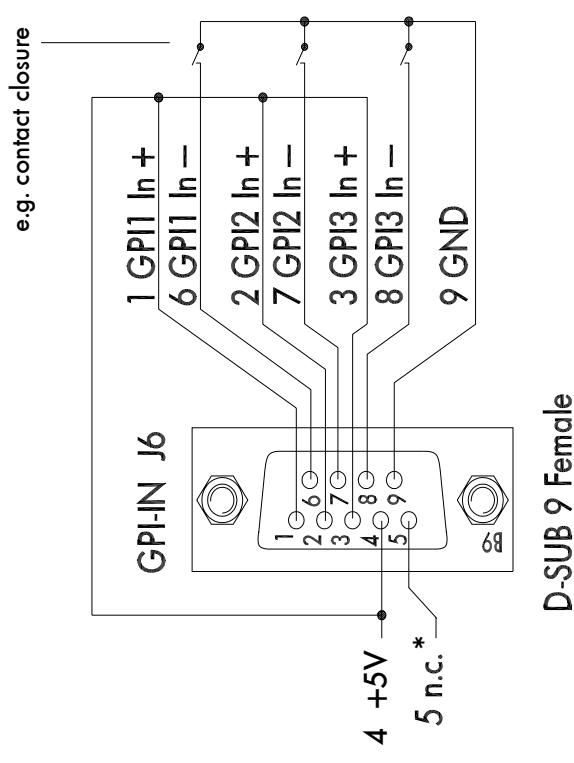
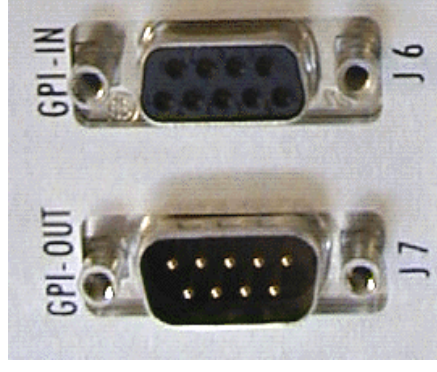
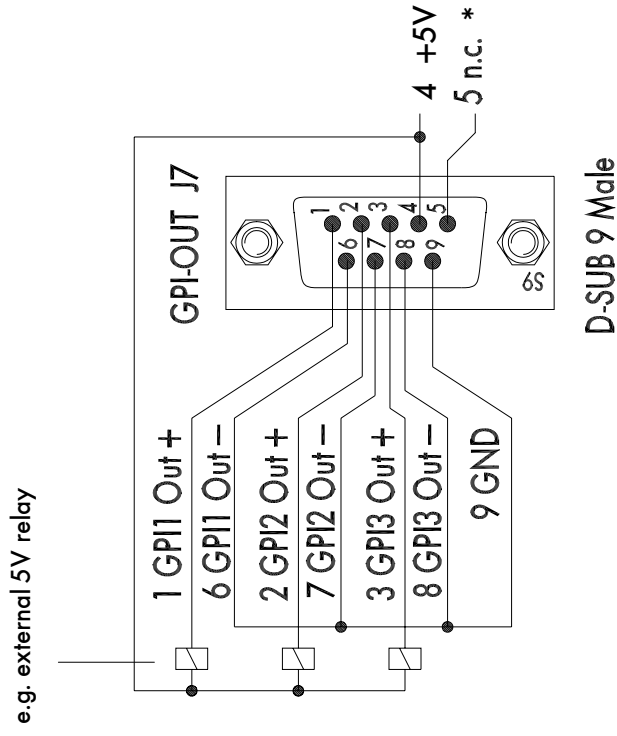


2 W / 4 Ohm

D-SUB 9 Female

Control Panels 1000 Series

Local GPI Inputs and Outputs



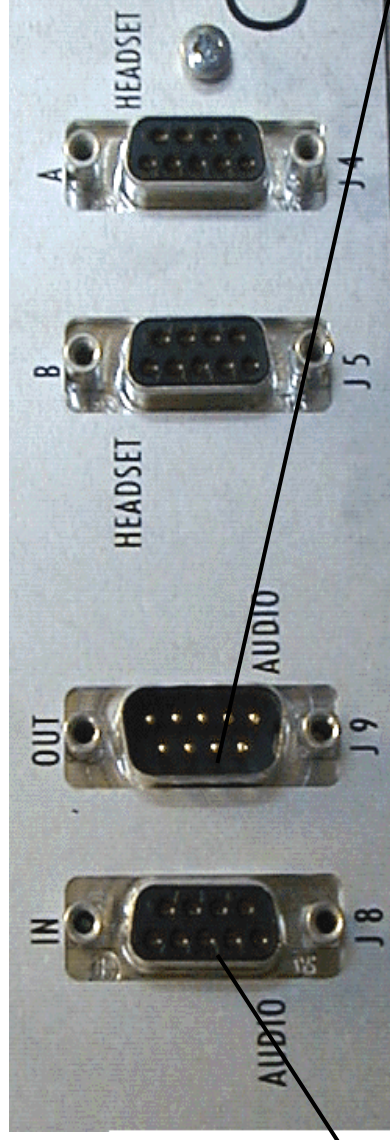
Notes:

- +5V supply (Pin 4) rated for max.: 50 mA
- GPI input voltage range: +5 ... +48V
- GPI output contact rating: 60V/300mA (protected by self-healing fuse)
- * n.c. = not connected

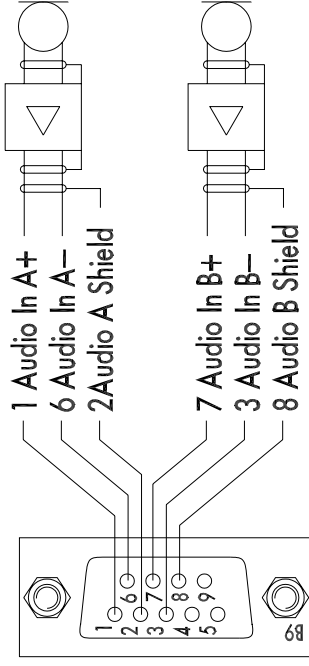
connector front view

Control Panels 1000 Series

Local Audio Inputs and Outputs



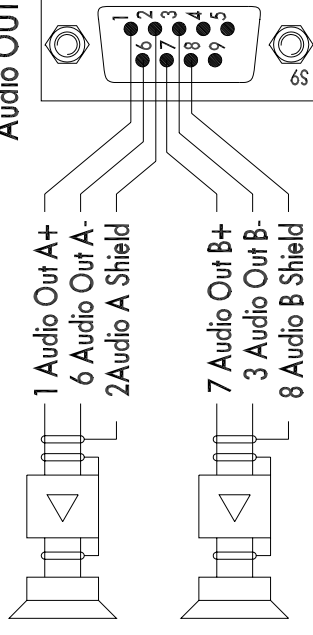
Audio IN J8



D-SUB 9 Female

Level: +6dBu / +18dBu max.
Input Impedance: >20kOhm

Audio OUT J9



D-SUB 9 Male

Level: +6dBu / +18dBu max.
Output Impedance: < 100hm

connector front view

Control Panels 1000 Series

Matrix connection using CAT5

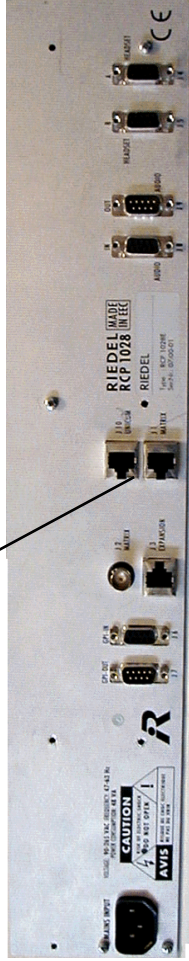


Artist S Mainframe (rear view)

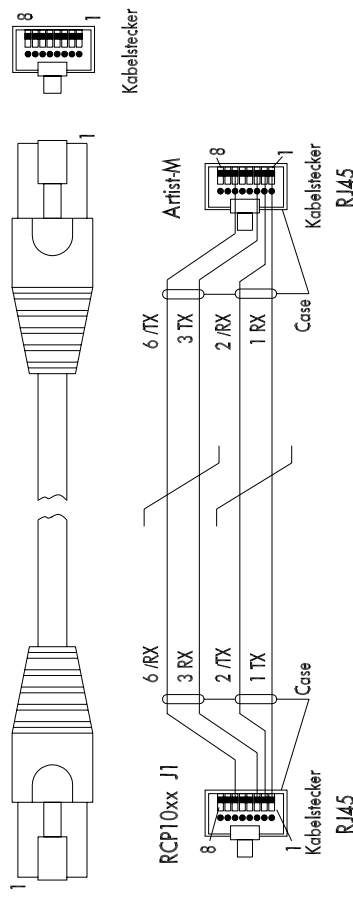


Cable-Specifications

- Type: Cat5 FTP (4x2 AWG24)
overall shielded twisted pair
- Connector: RJ 45
- Cable length: max. 300 Meter



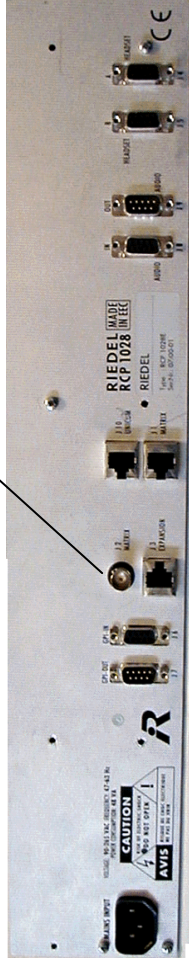
Control Panel, i.e. RCP-1028E (rear view)



Control Panels 1000 Series

Matrix connection using Coax

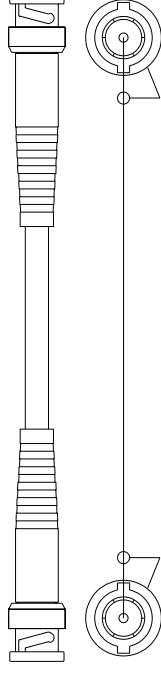
Artist S Mainframe (rear view)



Control Panel, i.e. RCP-1028E (rear view)

Cable-Specifications

- **Type:** RG59 – 20 AWG
75 Ω / 0,8 / 4,9DZ
- **Cable length:** max. 650 m
- **Type:** 75 Ω / 0,6 / 3,7
- **Cable length:** max. 350 m
- **Connector:** BNC 75 Ω



Control Panels 1000 Series

RCP-10xx: Rackmount Panel connector pinouts

"Matrix" RJ45	
Pin	Signal
1	TxD +
2	TxD -
3	RxD +
4	n.c.
5	n.c.
6	RxD -
7	n.c.
8	n.c.
"Matrix" BNC	
Pin	Signal
1	RxD, TxD
2	Shield

„GPI-Input“ D-Sub 9 Female	
Pin	Signal
1	GPI 1 In +
2	GPI 2 In +
3	GPI 3 In +
4	5V
5	n.c.
6	GPI 1 In -
7	GPI 2 In -
8	GPI 3 In -
9	GND
"GPI-Output" D-Sub 9 Male	
Pin	Signal
1	GPI 1 Out A
2	GPI 2 Out A
3	GPI 3 Out A
4	5V
5	n.c.
6	GPI 1 Out B
7	GPI 2 Out B
8	GPI 3 Out B
9	GND

„Headset A“ D-Sub 9 Female	
Pin	Signal
1	HS Mic +
2	A-GND
3	HS Phones -
4	External Mic +
5	Ext. Mic Shield
6	HS Mic -
7	HS Phones +
8	HS Phones Shield
9	External Mic -
„Headset B“ D-Sub 9 Female	
Pin	Signal
1	HS Mic +
2	A-GND
3	HS Phones -
4	External Out -
5	Ext. Out Shield
6	HS Mic -
7	HS Phones +
8	HS Phones Shield
9	External Out +

"Headset A" XLR 4 Male (front)	
Pin	Signal
1	Shield
2	Microphone
3	Headphone -
4	Headphone +

"Unicom" RJ45	
Pin	Signal
1	TxD +
2	TxD -
3	RxD +
4	Audio A Out +
5	Audio A Out -
6	RxD -
7	Audio A In +
8	Audio A In -

„Audio In“ D-Sub 9 Female	
Pin	Signal
1	Audio In A +
2	Audio A Shield
3	Audio In B -
4	
5	
6	Audio In A -
7	Audio In B +
8	Audio B Shield
9	
„Audio Out“ D-Sub 9 Male	
Pin	Signal
1	Audio Out A +
2	Audio A Shield
3	Audio Out B -
4	
5	
6	Audio Out A -
7	Audio Out B +
8	Audio B Shield
9	

"Expansion" RJ45	
Pin	Signal
1	Data +
2	Data -
3	GND
4	GND
5	GND
6	GND
7	GND
8	GND

Note:

- a) 5V supply (Pin4) rated at 50mA (protected by self-healing fuse)
- b) Output contact rated at 60V / 300mA (protected by self-healing fuse)
- c) GPI input voltage range: +5 ... +48V

Note:

"Unicom" connector is available as an option and must be specified with order.

Control Panels 1000 Series

ECP-10xx: Expansion Panel connector pinouts

"EXP IN RJ45	
Pin	Signal
1	Data +
2	Data -
3	GND
4	GND
5	GND
6	GND
7	GND
8	GND
"EXP OUT RJ45	
Pin	Signal
1	Data +
2	Data -
3	n.c.
4	n.c.
5	n.c.
6	n.c.
7	n.c.
8	n.c.

Control Panels 1000 Series

DCP-10xx: Desktop Panel connector pinouts

"Matrix" RJ45	
Pin	Signal
1	TXD +
2	TXD -
3	RxD +
4	n.c.
5	n.c.
6	RxD -
7	n.c.
8	n.c.
"Matrix" BNC	
Pin	Signal
1	RxD, TXD
2	Shield

„GPI-Input“ D-Sub 9 Female	
Pin	Signal
1	GPI 1 In +
2	GPI 2 In +
3	GPI 3 In +
4	5V
5	n.c.
6	GPI 1 In -
7	GPI 2 In -
8	GPI 3 In -
9	GND
"GPI-Output" D-Sub 9 Male	
Pin	Signal
1	GPI 1 Out A
2	GPI 2 Out A
3	GPI 3 Out A
4	5V
5	n.c.
6	GPI 1 Out B
7	GPI 2 Out B
8	GPI 3 Out B
9	GND

"Headset A" XLR 4 Male	
Pin	Signal
1	Shield
2	Microphone
3	Headphone -
4	Headphone +
"Headset B" XLR 4 Male	
Pin	Signal
1	Shield
2	Microphone
3	Headphone -
4	Headphone +

„Audio In“ D-Sub 9 Female	
Pin	Signal
1	Audio In A +
2	Audio A Shield
3	Audio In B -
4	External Mic +
5	Ext. Mic Shield
6	Audio In A -
7	Audio In B +
8	Audio B Shield
9	External Mic -
„Audio Out“ D-Sub 9 Male	
Pin	Signal
1	Audio Out A +
2	Audio A Shield
3	Audio Out B -
4	External Out +
5	Ext. Out Shield
6	Audio Out A -
7	Audio Out B +
8	Audio B Shield
9	External Out -

"Unicom"*) D-Sub 15 Female	
Pin	Signal
1	TXD -
2	RxD -
3	n.c.
4	Audio A Out +
5	n.c.
6	Shield
7	n.c.
8	Audio A In +
9	TXD +
10	RxD +
11	Audio A Out -
12	n.c.
13	n.c.
14	n.c.
15	Audio A In -

Note:
*) "Unicom" connector is available as an option and must be specified with order.

Note:
a) 5V supply (Pin4) rated at 50mA (protected by self-healing fuse)
b) Output contact rated at 60V / 300mA (protected by self-healing fuse)
c) GPI input voltage range: +5 ... +48V

In-Key Displays

The 8-digit displays are part of the keys: pressing the display activates the key. The encoder next to the display (right hand side) adjusts the individual crosspoint volume. Turn left to reduce the listen level from this destination, turn right to increase the listen level. A short press of the encoder („click“) mutes the crosspoint. Click again to return to the previous listen level. The mute-function of the encoder can be disabled using the Director configuration software. To reset the crosspoint volume to the default value press & hold NORM and press the display/key. Doubleclick on the master volume encoder resets all crosspoint volumes of the panel to the default value.

Signalising / Key status indication (system default)

To indicate an outgoing call (active talk) the LED-bar above the key shines green while the key shines red. An incoming call is indicated by a green LED-bar again but the volume LED shines amber. „Busy“ and „in use“ indications are also supported (if configured). All command-related LED-bar indications can be edited using the configuration software. This enables the user to adapt to custom requirements or keep existing signaling habits.

Answer-back key (REPLY)

There is no dedicated answer-back key on the panel. Instead, any key, on both main and shift page can be configured as the REPLY key. An incoming call shows up on the Reply key including the label of the caller. Pressing the Reply key answers the call regardless if the caller is configured to a key of the panel or not. The Reply key label displays the last caller and times out to „Reply“ after 10 seconds. The Reply function remains assigned to the last caller and pressing the reply key after the timeout calls up the last callers display label again. The timeout can be adjusted using the configuration software.

Doubleclick on the encoder of the Reply key calls up the answer back stack which holds the 10 most recent callers. Turning the encoder scrolls through the list and pressing the encoder for approx. 1 seconds confirms the selection, hence re-assigning the Reply key to the selected destination.

Control Panels 1000 Series

Function Key Description (1)

SHIFT

The Shift page virtually doubles the number of keys on the panel. Pressing SHIFT toggles between the main page and the shift page not only on the control panel but also on all expansion panels which are connected to the control panel.

HS (Headset)

This function key toggles between speaker mode and headset mode. By default, the built-in loudspeaker and the gooseneck microphone are switched off while headset mic and headset speaker are activated in headset mode. Panel behaviour in speaker and headset mode can be edited using the Director configuration software on a panel by panel basis. To indicate headset mode the master volume LED indication is switched from amber to green and the HS function key LED is switched on.

OPT (Option)

Use this function key to enter the option menu. Please see details on next page.

BEEP

This function key causes an audible call (beep) at the selected destination panel. Press & hold BEEP and press destination key. The beep volume can be adjusted (and switched off) using the Director configuration software on a panel by panel basis.

NORM

Resets the individual crosspoint level (listen level) for a selected destination to the default value. Press & hold NORM and press destination key.

Control Panels 1000 Series

Function Key Description (2)

OPT (Option)

Press & hold OPT to enter the option menu. The keys/displays are relabeled to display firmware version, IP address of the node controller etc. The option menu is primarily used for system administration and maintenance, although the user might be interested in the following information:

- **PORT ADDRESS and PANEL DISPLAY NAME**

The two right hand side display/keys show the systems display-label of this panel and the physical matrix port, to which this panel is connected to.

Custom Control Panel Interface RIF-2064



RIF-2064 Front View

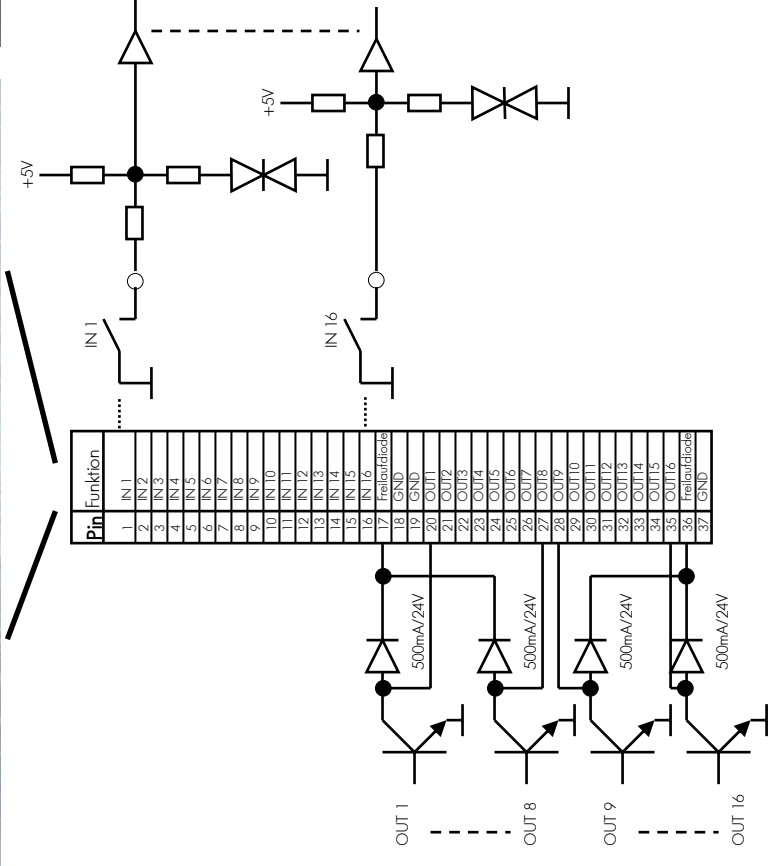
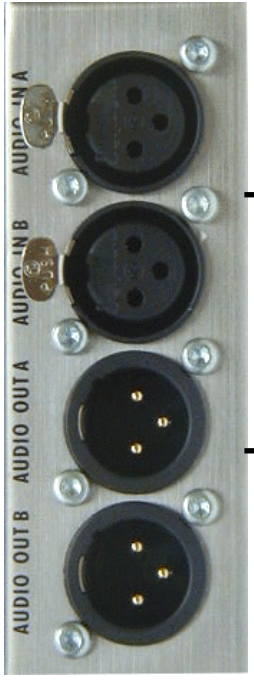
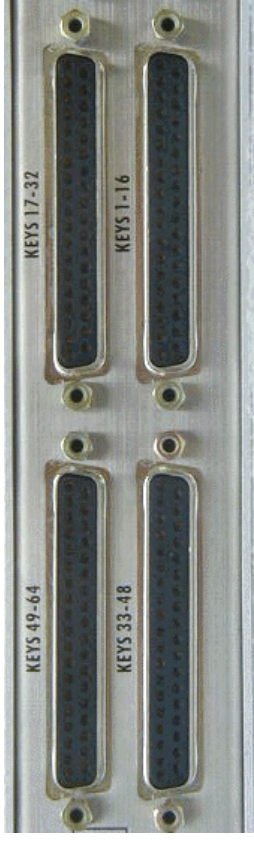


RIF-2064 Rear View



Custom Control Panel Interface RIF-2064

Connectors and pinouts



This shows the circuit inside the RIF-2064.

Pin	Signal
1	GPI 1 In +
2	GPI 2 In +
3	GPI 3 In +
4	5V
5	nc.
6	GPI 1 In -
7	GPI 2 In -
8	GPI 3 In -
9	GND

Pin	Signal
1	GPI 1 Out A
2	GPI 2 Out A
3	GPI 3 Out A
4	5V
5	nc.
6	GPI 1 Out B
7	GPI 2 Out B
8	GPI 3 Out B
9	GND

Pin	Signal
1	TxD +
2	TxD -
3	RxD +
4	5V Out
5	5V Out
6	RxD -
7	GND
8	GND

Pin	Signal
1	Shield
2	OUT +
3	OUT -

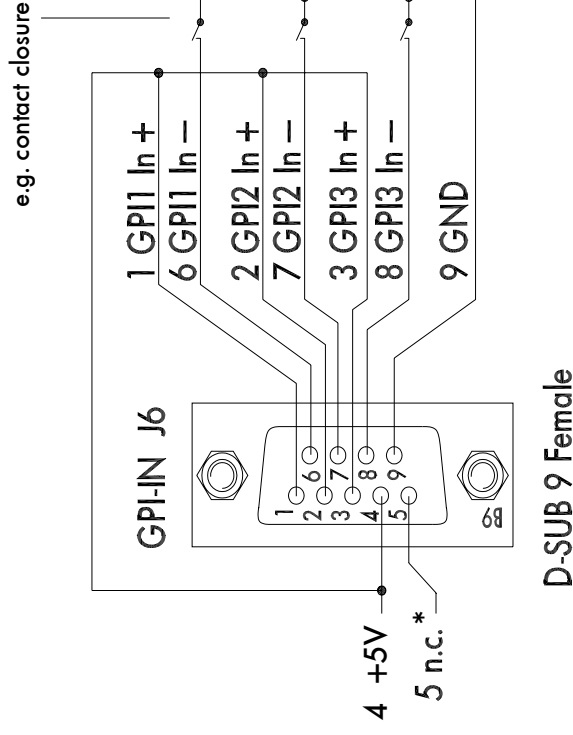
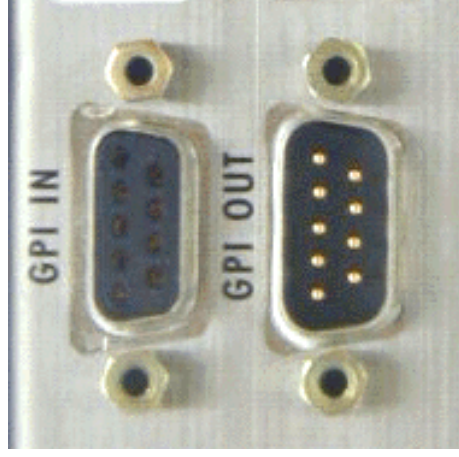
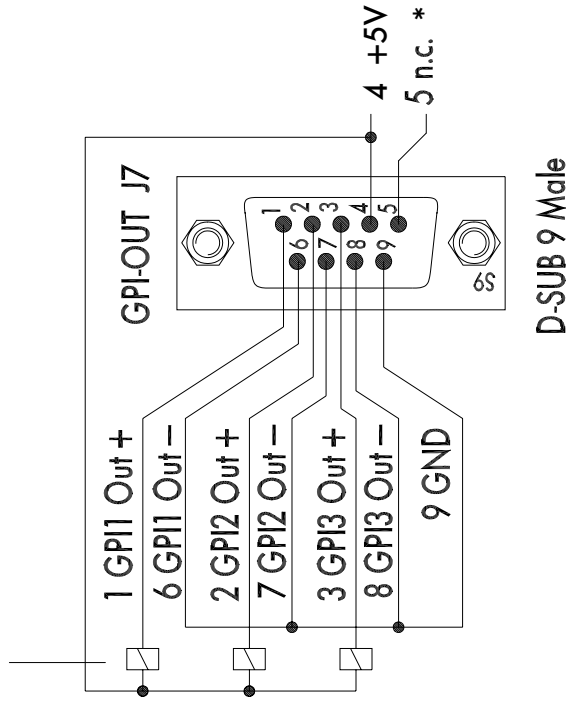
Pin	Signal
1	Shield
2	IN +
3	IN -

- Note:**
- a) 5V supply (Pin4) rated at 50mA (protected by self-healing fuse)
 - b) Output contact rated at 60V / 300mA (protected by self-healing fuse)
 - c) GPI input voltage range: +5 ... +48V

Custom Control Panel Interface RIF-2064

Local GPI Inputs and Outputs

e.g. external 5V relay



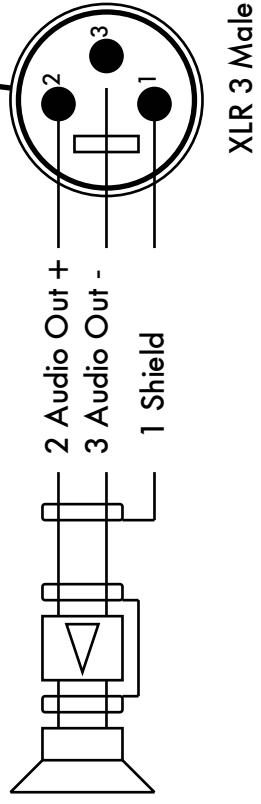
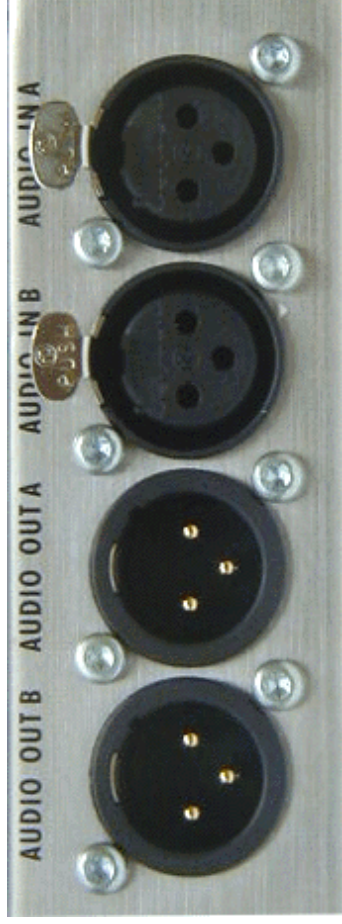
connector front view

Notes:

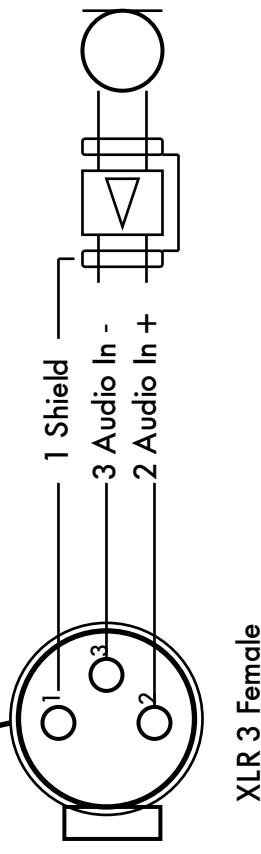
- +5V supply (Pin 4) rated for max.: 50 mA
- GPI input voltage range: +5 ... +48V
- GPI output contact rating: 60V/300mA (protected by self-healing fuse)
- * n.c. = not connected

Custom Control Panel Interface RIF-2064

Local Audio Inputs and Outputs



Level: +6dBu / +18dBu max.
Output Impedance: < 100Ω



Level: +6dBu / +18dBu max.
Input Impedance: >20kΩ

Custom Control Panel Interface RIF-2064

Matrix connection using CAT5



Artist S Mainframe (rear view)

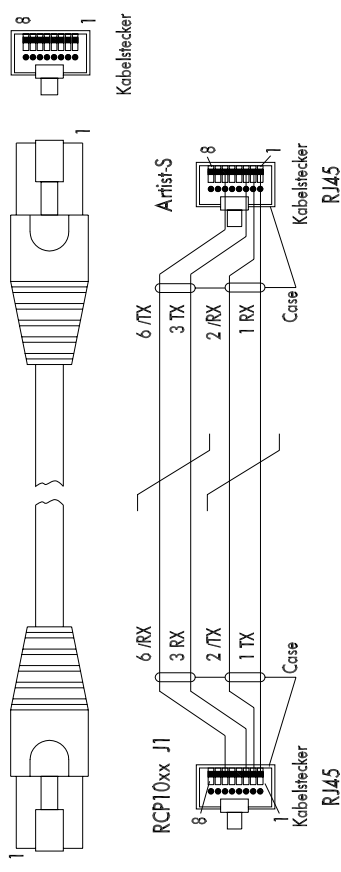


Cable-Specifications

- Type: Cat5 UTP (4x2 AWG24) overall shielded twisted pair
- Connector: RJ 45
- Cable length: max. 300 Meter



RIF-2064 (rear view)



General Specifications

Control Panels

RCP-1012E
 Dimensions (B x H x T): 19"/1RU x 56mm
 Weight: 1,0 kg
 Power consumption: 30 VA

RCP-1028E
 Dimensions (B x H x T): 19"/2RU x 56mm
 Weight : 1,8 kg
 Power consumption : 48 VA

ECP-1016E
 Dimensions (B x H x T): 19"/1RU x 56mm
 Weight : 1,0 kg
 Power consumption : 30 VA

DCP-1016E
 Dimensions (B x H x T): 255 x 77 x 235 mm
 Weight : 1,6 kg
 Power consumption : 30 VA

RIF2064
 Dimensions (B x H x T): 19"/1RU x 160mm
 Weight : 1,0 kg
 Power consumption : 18 VA

AC input voltage : 85-265V / 47-63Hz

Artist S Mainframe

Dimensions (B x H x T): 19" x 1HE x 393 mm
 Power consumption: max. 80 VA
 AC input voltage: 85-265V / 47-63Hz
 Weight: ca. 6,5 kg

Total matrix size: 8 x 8 up to 512 x 512
 Ports per Mainframe: 8 to 32
 Mainframes in fiber ring: 1 to 100

Fiber connection:
 FIF-200MM: 500m (Multimode) 50/125µm
 FIF-200SM: 10km (Singlemode) 9/125µm
 Connector: LC Duplex

Alarm detection:
 PSU failure
 CPU failure
 Client Card failure

Bootup time:
 Cold start ca. 30 sec.
 Warm start ca. 15 sec.