Arrakis Systems *6604 Powell Street / Loveland, Colorado 80538*

Input and Output wiring for the 150sc, 500sc, 2000sc and 2100sc audio consoles.

'A' Input Channel Wiring
        (Back of Console)
6. Left Input –
5. Left Input +
4. Ground
3. Right Input +
2. Right Input –
1. Remote Start closure to Ground
        (Front of Console)

Note the 2000sc only uses the 'A' inputs there are no 'B' inputs for this console. The remote start closure is located on the channel control card which is mounted on the top lid of the console.

'B' Input Channel Wiring
        (Back of Console)
1. Right Input –
2. Right Input +
3. Ground
4. Left Input +
5. Left Input –
6. Remote Start closure to Ground
        (Front of Console)

Output PC Board
The output pc board has wiring designations on the front edge of the PC board layout.
The layout below is from left to right there are three rows of terminal strips for wiring.

Utility
| 1 | 2 | 3 | 4 | 5 | 6 |
Mix Minus 1 | Mix Minus 2|
1. Utility Left + (mix minus 1)
2. Utility Left–
3. Ground
4. Ground
5. Utility Right + (mix minus 2)
6. Utility Right -

Update note add two 100 ohm resistors in series with the Utility Right + and – outputs. Use one for the + output and one for the – output. Now connect your wire to the resistor side instead of directly connecting it to the utility terminal strip. This update will prevent the utility amplifier from oscillating and burning up.

Pin 5 + ----/\/\/\/---- Red wire to phone hybrid send input.
Pin 6 – ----/\/\/\/---- Black wire to phone hybrid send input.

External Monitor
| 1 | 2 | 3 | 4 | 5 | 6 | 1 | 2 | 3 | 4 | 5 | 6 |
External Monitor Input | Mic Out | Mic Input |
1. Ext Monitor Input Left
2. Ground
3. Ext Monitor Input Right
4. Ground
5. Microphone Preamp Out + (used as a second microphone preamp or for talkback)
6. Microphone Preamp Out -
1. Ground
2. Mircrophone Preamp Input +

3. Microphone Preamp Input –
4. Ground
5. Monitor Mono Input + (note used on 150, 500, 2000, 2100 sc series consoles only)
6. Monitor Mono Input – (note used on 150, 500, 2000, 2100 sc series consoles only)

Main Output
|1|2|3|4|5|6|7|8|9|10|11|12|1|2|3|4|5|6|7|8|9|10|11|12|1|2|3|4|5|6|7|8|9|10|11|12|
Audition | Program | Pro Mono | Aud Mono| Earphone | Cue | Mute Relay | Monitor |
1. Audition Output Left +
2. Audition Output Left –
3. Ground
4. Audition Output Right +
5. Audition Output Right –
6. Program Output Left +
7. Program Output Left –
8. Ground
9. Program Output Right +
10. Program Output Right –
11. Program Output Mono +
12. Program Output Mono –

1. Ground
2. Audition Output Mono +
3. Audition Output Mono –
4. Earphone Output Left
5. Earphone Ground
6. Earphone Output Right
7. Cue Speaker Output Left
8. Cue Speaker Ground Left
9. Cue Speaker Output Right
10. Cue Speaker Ground Right
11. Mute Relay Wiper 1 (wiper alternates between the NC and the NO contacts)
12. Mute Relay NC 1 (normally closed contact)

1. Mute Relay NO 1 (normally open contact)
2. Mute Relay NO 2
3. Mute Relay NC 2
4. Mute Relay Wiper 3
5. Mute Relay Wiper 2
6. Mute Relay NO 3
7. Mute Relay NC 3
8. Monitor Line Output Left + (connect monitor line outputs to an external power amp input)
9. Monitor Line Output Left –
10. Ground
11. Monitor Line Output Right +
12. Monitor Line Output Right –

The Mute Relay is used to turn on your On Air light however DO NOT connect or switch 120vac with these relay connections.

Auto Cue Connector
The auto cue is a feature where the earphone automatically switches to its autocue function whenever any channel is placed into the cue detent position from the slide fader. By moving the autocue jumper wires you may select different autocue options for the earphone. The connector is located on the output PC board back center in front of the DC power connector.

A. Cue Mono Mix Output
B. Earphone Mono Mix Output
C. Cue Left Output
D. Cue Right Output

E. Earphone Left Input
F. Earphone Right Input

Stereo Autocue jumper C to E and D to F
Split Autocue jumper A to E and B to F

To disable the autocue remove the second 10K ohm resistor below the reed relays. This resistor is next to the black heatsink the location is shown below.

Autocue Connector
Reed Relay 1
Reed Relay 2
10K resistor 1
10K resistor 2 - - remove this resistor to defeat the autocue
Black Heatsink

Channel Control Card Remote Starts
Molex Connector located next to the Reed Relay RY1.
1. Relay Wiper 'A' (when turned on makes closure to NO 'A' contact)
2. Relay Wiper 'B' (when turned on makes closure to NO 'B' contact)
3. NC
4. Relay NO 'A'
5. Relay NO 'B'
6. NC

The channel control card is located on the top lid of the console and has the Program and Audition switches mounted to it. The 500 and 2100 consoles use the 'A' contacts, which are wired through the A/B switch for the remote start logic. This shows up on the input pc boards Remote Start terminal and is switched to the Ground terminal. However, you do have the additional spare 'B' relay contacts that may be used for an isolated remote start closure.

Monitor Power Amplifier
1. Left Speaker Output +
2. NC
3. Left Speaker Output –
4. Right Speaker Output –
5. NC
6. Right Speaker Output +

Note on the 150, 500, 2000 and 2100 sc series audio consoles the Monitor amp is built in however you have the option of using an external power amplifier as well.

Power Supply & Output PC Boards Power Connector
   Molex Connector
    /\ /\ /\
    (1) (2) (3)
    (4) (5) (6)
    (7) (8) (9)
    Top View

1. – 12.3 VDC – Blue Wire – 3 Amp Power Supply
2. Common – Green Wire
3. + 12.3 VDC – Orange Wire
4. No Connection
5. No Connection
6. No Connection
7. + 12.0 VDC – Red Wire – 1.5 Amp Power Supply
8. Common – Black Wire

9. – 12.0 VDC – White Wire

Power Supply PS-300
AC Voltage Settings for 120 VAC and 220 VAC operation.
The jumpers are located on the power supplies AC transformer input side.
For 120 VAC operation connect a jumper between pins 1 and 3 and connect a second jumper between pins 2 and 4 this is the factory default for audio consoles shipped in the USA. For 220 VAC operation remove the jumpers shown above and connect a jumper between pins 2 and 3. Be sure to change the jumpers on both of the 1.5 amp as well as the 3.0 amp power supplies.

Power DIP Switches and Settings
There are 3 DIP switches on the output PC board they all control the plus and minus DC power supply voltages to specific sections of that PC board.

DIP Switch 1 is located underneath the Buss Input connector, which is at the top left hand corner. Below this connector are two LED's for the (+) and (-) DC power input from the power supply. The blue DIP switch is located under the LED's.

M [1] [2] [3] [4] P

Switch 1 (+) DC for the Metering section.
Switch 2 (-) DC for the Metering section.
The metering section includes Program VU meter left right, Audition VU meter left right, Monitor input left right and the Mono microphone preamp.

Switch 3 (+) DC for the Program section.
Switch 4 (-) DC for the Program section.
The Program section includes Program left right, Audition left right, Program mono, Audition mono and Utility right.

DIP Switch 2 is located between the two rows of black heatsinks on the left hand side next to the left hand row of black heatsinks.

Q [1] [2] [3] [4] E

Switch 1 (+) DC for the Cue power amp section.
Switch 2 (-) DC for the Cue power amp section.

Switch 3 (+) DC for the Earphone power amp section.
Switch 4 (-) DC for the Earphone power amp section.

Earphone Cue Output power amp section transistor physical layout.

[Earphone Left]   [Earphone Left]

[Earphone Right]   [Earphone Right]

[Cue Left   ]   [Cue Left   ]

[Cue Right   ]   [Cue Right   ]

DIP Switch 3 is located between the two rows of black heatsinks on the right hand side next to the right hand row of black heatsinks.

M [1] [2] [3] [4] E Q

Switch 1 (+) DC for the Monitor Line Output section.
Switch 2 (-) DC for the Monitor Line Output section.

The monitor line output section is located on the bottom right hand corner of the output board, which includes the muting relay.

Switch 3 (+) DC for the Earphone and Cue preamp sections.
Switch 4 (-) DC for the Earphone and Cue preamp sections.
The cue preamp section is located at the top right hand corner of the output board.
The earphone preamp section is located just underneath the cue section.

Meter Connector
The meter connector is located on the output PC board towards the front and center just to the left of the large muting relay. This connector sends audio to the monitor and earphone select switches and signal to the VU meters.

1. Ground – Brown - - (Ribbon Cable Colors)
2. + 12.3 Volts DC – Red used for the A/B select on the 500 and 2100sc consoles.
3. – 12.3 Volts DC – Orange used for the earphone, monitor, and cue pots.
4. VU Meter Audition Right – Yellow
5. VU Meter Audition Left – Green
6. VU Meter Program Right – Blue
7. VU Meter Program Left – Violet
8. Monitor Switch Position 4 Right Input – Gray
9. Monitor Switch Position 4 Left Input – White
10. Monitor Switch Position 3 Mono Input – Black

Master Control Connector
The master control connector is located on the output PC board at the back right hand corner. This connector returns audio from the monitor and earphone select switches as well as monitor, earphone and cue DC control volume voltage.

1. Monitor Input Right from monitor select switch – Brown - - (Ribbon Cable Colors)
2. Monitor Input Left from monitor select switch – Red
3. Monitor Volume Control DC voltage 0 volts full on –12.3 volts off – Orange
4. Earphone Input Right from earphone select switch – Yellow
5. Earphone Input Left from earphone select switch – Green
6. Earphone Volume Control DC voltage 0 volts full on –12.3 volts off – Blue
7. Cue Volume Control DC voltage 0 volts full on –12.3 volts off – Violet
8. NC
9. NC
10. NC

Channel Control Connector
The channel control connector is located on the input PC boards at the back edge. There is one connector for each channel. On the 2000sc and 2100sc audio consoles, you will have six connectors for each input PC board. On the 500sc console, you will have just four connectors for each input PC board. This connector has switching logic for channel on/off fader volume etc.

1. Program Switch –12.3 volts on 0 volts off – Violet - - (Ribbon Cable Colors)
2. Fader Volume 0 volts full volume on –12.3 volts off – Blue
3. Audition Switch –12.3 volts on 0 volts off – Green
4. Ground – Yellow
5. – 12.3 volts DC – Orange
6. Cue Switch 0 volts on –12.3 volts off – Red
7. Muting for monitor and cue 0 volts muted –12.3 volts unmuted – Brown
8. A/B Input Select Switch +12.3 volts to select the A input 0 volts to select the B input – Black
9. Remote Start logic for B input – Gray
10. Remote Start logic for A input – White

Note Remote Start Logic for the A and B input select on pins 9 and 10 will switch to ground when the channel is on and open when the channel is off.

Channel Control Connector orientation from left to right.
[10] [9] [8] [7] [6] [5] [4] [3] [2] [1]

Buss Input Connector
The buss input connector is a short ribbon cable which is used to connect the input and output PC boards together. This cable connects the DC power supply voltage, audio buss signals and logic functions to and from the PC boards.

This 20 pin male ribbon connector is no longer available. To repair remove the top cover and discard remove the ribbon cable and connect each pin location with a jumper wire. Use a 3 inch length of insulated wire and strip both ends 1/16 inch from the end and solder to the top ribbon connection for each of the 20 pins. Example connect pin 1 from connector A to pin 1 on connector B repeat until you connect all 20 pins.

If your female 20 pin connector is defective, remove it from the PC board and just jumper each trace location over with the same insulated jumper wire as shown above.

1. – 12.3 Volts DC – Brown - - (Ribbon Cable Colors)
2. Muting Buss – Red
3. – 12.3 Volts DC – Orange
4. Auto Cue Buss – Yellow
5. – 12.3 Volts DC – Green
6. Program Left Audio – Blue
7. + 12.3 Volts DC – Violet
8. Program Right Audio – Gray
9. + 12.3 Volts DC – White
10. Audition Left Audio – Black
11. + 12.3 Volts DC – Brown
12. Audition Right Audio – Red
13. Ground – Orange
14. Cue Right Audio – Yellow
15. Ground – Green
16. Cue Left Audio – Blue
17. Ground – Violet
18. Utility Right Audio – Gray
19. Ground – White
20. Ground – Black

Pin 20 on the newer Turbo series PC boards will go to the Utility Left summing amplifier located on the output PC board. However this amplifier input is not connected on the input PC boards and requires a custom modification to use the Utility Left amplifier. The SC series audio consoles only used the Utility Right amplifier. This Mix Minus buss was used to send audio back to the phone caller. Connect the Utility Right output to the phone hybrids send input.

Clock and Timer Connector for 150, 500, 2000sc
The optional ESE 172 Clock and the ESE 570 Timer control wiring is brought out to a 12 pin terminal strip mounted on the VU meter panel. These Clocks and Timers are no longer available.

1. Timer Reset
2. Timer Start
3. Timer Stop
4. Timer + 5vdc
5. NC
6. Timer Ground
7. Clock Hold
8. Clock + 5vdc

9. Clock Ground
10. NC
11. Clock Slow Advance
12. Clock Fast Advance

To control the Timer switch it's logic functions to the Timer ground
To control the Clock switch it's logic functions to the Clock ground

Convert a Stereo Line Input to Microphone Level
The audio level jumpers are located above the "A" input terminal strip it looks like the following.
/\ /\
  J
\/ \/
Install two wires from the bottom \/ to the top /\ PC trace.

Next make the mono input show up on both the Left and Right channels.
This jumper is located between the left NE5532 and the left SSM2013 VCA it looks like the following.
1 2 3
O O O
For left right Stereo add a jumper from 2 to 3
For mono Microphone add a jumper from 1 to 3
Use only one jumper wire.

If you would like the input channel to mute the monitor speakers locate the M just in front of the Channel Control Connector. You will notice a side ways T add a wire jumper from the bottom PC trace to the top PC trace.

If you have, any questions please contact Arrakis Systems customer service at (970) 461 0730 extension 316 or email us at support@arrakis-systems.com.

Thank you for making Arrakis Systems your purchasing choice.