



Installation Manual

Part II:
Connectors
Pinning Diagrams
Description of Connectors

for Consoles without Patchbay



Version 1.6/14 • English

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Preface

This manual contains all information that is necessary to prepare and plan the installation of the mixing console and accessory components.

Please, read this manual carefully. We point out common mistakes and problems that are connected with the installation and provide suggestions to avoid such problems. You will save a lot of time and unnecessary start up problems by investing a couple of hours in the reading of this manual.

The first part of the manual contains everything about the power supply units and crossover devices that are necessary for fail safe power supply configurations and the implementation of the mains connections. Part 2 is about the audio installation. Besides detailed information about basic principles of audio installation and the methods of grounding, this chapter contains all pinning diagrams, the locations of the connectors, and a detailed description of their functions. Part 3 contains general information about the assembly of the console, environmental considerations, the recommended maintenance, and a couple of remarks about the operation of the console to ensure a long and problem free lifespan.



**This manual concerns the 5.1 surround sound versions of the SRC51 console system for consoles without patchbay
Version V1.6/2014**

Another manual is available for Consoles with patchbay

3. Connectors

3.1 Technical data of Inputs and Outputs

The characteristic data of all audio inputs and outputs of the modules are identical. Here is a listing of the basic data of the different types.

Level

The nominal level of the SRC51 system is determined by the customer. It is only fixed by the adjustment of the system meters that can be set to any level between 0 dBu and +15 dBu. If no nominal level is specified by the customer, it will be set to + 6 dBu = 1.55 V RMS

Headroom

The maximum level of a particular signal chain always refers to an overall gain of 0 dB. With positive gain values, the maximum value is equivalent to the output value, with negative gain settings, the maximum value is equivalent to the input level. The design of the internal circuitry can handle the maximum level in each stage of the signal chain; however, if the internal chain adds gain stages and attenuation stages as well, the maximum level is the level of the circuit of the highest level in the chain.

Transmission Band

The entire system is designed for the transmission of audio frequencies between 20 Hz and 50 kHz. Variations of the amplitude vs frequency (frequency response) are in accordance to German IRT rulebook 3/5.

The worst case value for any line level signal chain is > +/- 0.5 dB

RF- and Subsonic Filters

The suppression of subsonic and RF frequencies depends on the execution of the internal filters. The default filters are adjusted for edge frequencies (- 3 dB) of < 10 Hz and > 120 kHz. Other values in accordance to customers requirements are possible.

The suppression of subsonic and RF frequencies for microphone preamplifiers defaults to edge frequencies (- 3 dB) of < 15 Hz and > 80 kHz.

Other values in accordance to customers requirements are possible.

Inputs

Microphone inputs

All microphone inputs are transformer balanced and floating. The input impedance is > 2kOhm in the transmission band without input pad and > 3 kOhms with pad. CMRR in accordance to IRT standards is > 70dB at frequencies <=15 kHz.

Line level inputs

All line level inputs, including insert inputs, are electronically balanced.

Electronically balanced line level inputs

Nominal level + 6dB (or custom level, respectively)

Maximum level from 20 Hz to 50 kHz is >= +30 dBu.

Input impedance in the transmission band > 8 kOhm.

CMRR corresponding to IRT rulebook measurement method > 50 dB, in the transmission band

Outputs

All outputs are electronically balanced. The maximum output level of all outputs is >= + 30 dBu into a higher load than 1200 Ohms, >= + 26 dBu into 600 Ohms load, and >= + 21 dBu into 300 Ohms load between 20 Hz and 50 kHz. Overloading outputs by low load resistances does not affect the internal headroom.

Nominal level +6dB (or custom level, respectively)

Source impedance < 50 Ohms

CMRR/IEC > 34 dB, typical value 46 dB

Level Diagram

The entire level diagram of the SRC51 console system is flat. All inputs, outputs, and inserts operate on the same level. In combination with the high supply voltage of +/- 25 Volts this principle results in an overall headroom of more than + 30 dBu throughout the entire console circuitry. Since full level is processed on all amplifiers, processing stages and the

mixing busses as well, maximum dynamic range is achieved, also as far as the mix noise is concerned. The mix noise in particular suffers from a level diagram, that uses lower internal levels to achieve a nominal higher output level.

3.2 Connector Types

Four versions of the connector panel

The connections for each module type of the SRC51 consoles are standardized. There are two types of connector panels.

Please note that this manual concerns the SRC51 version without internal patchbay. Patchbay versions use different connector panels.

Version 1 is used for all types of input modules for consoles without internal patch bay.

Version 2 is used for the master section

The master panel also contains the power supply connector. One of these panels is part of each SRC51 console.

Location of the connector panels

The connector panels are mounted right behind the belonging input modules, and behind the master section at the rear side of the frame. The connector panels are inside the frame and can be covered by additional rear cover sheets. A row of metric 4 mm threads allows the installation of cable clips at the rear bottom of the console frame. These clips can be used to hold the cable tree. The connector panels are mounted approximately 75 mm inside the frame.

Routing bus and master bus Assignment

The assignment of the 16 routing bus rails to the module slots is part of the frame installation. It can be changed by the rearrangement of jumpers on the frame boards. See the drawings of the frame boards for details on this configuration. This configuration determines which routing bus is connected to a particular module slot. If not otherwise specified, the

busses will be assigned to the first 16 channels in the frame.

The module slots for the entire master section are entirely different as far as the wiring pcb's in the frame are concerned. These boards contain the assignment of the main master busses and the auxilliary busses to the corresponding master amplifiers. There are also a couple of configuration options for custom modifications and add ons as well as special console versions. If you're in doubt if your console has some special features that affect the connector pinning, please ask.

While the master section requires a total of 4 module slots to be fully functional, some frames add another 4 to 8 slots right next to the master section. These slots are usually used for the keyboard of the optional automation system; however they can be used for customers remote switches, other keyboards, mouse pads, etc. We recommend to include an appropriate number of free slots to have some free space available.

Pinning

Only 3-Pin XLR connectors, TRS-connectors and female 25-pin D-Sub connectors are used for all audio connections of the entire console.

XLR 3-Pin connectors use the standard connection scheme with + on 2, - on 3 and screen on 1. The 25-pin D-Sub connectors use the common "Tascam" pinning with 8 balanced audio lines. See the drawings on the next pages for details. The different pinnings of the D-Sub connectors are described on the following pages.

IMPORTANT NOTE:
All D-Sub connectors use UNC4-40 fixing nuts.

Screening

All screen contacts of all audio connectors are internally connected to ground. This means that each pin 1 of an XLR, the sleeves of the TRS jacks and the 8 screen pins of a 25-pin D-Sub are connected to an internal ground network of the console that is bridged to audio ground. Read the

chapter about the audio installation about our recommendations what principles of wiring should be used.

As mentioned in this chapter, all screen pins are separated from ground. If the console has to be installed in a very 'dirty' electric environment, it is possible to float the entire connector ground network and connect to audio ground via a low ohm resistor of approximately 1 to 5 ohms. This will avoid any ground loop current. However, **call us for advice before you do so.**

The exception from this principle are the microphone input screens. Since the microphone input screens are used as return path of the phantom power, compensation currents on these screen lines can reduce the signal to noise of the sensitive microphone inputs considerably. For this reason, the microphone input screens are directly connected to the ground of the particular input modules.

Please, make shure that you don't connect this ground to other grounds on separate connector panels or patch bays.

Connecting these grounds to other ground terminals might cause ground loops that reduce the signal to noise performance of the microphone preamps and the mixing busses as well.

The best choice is always to take care about clean grounding, before any kind of compensation techniques are used. Please, aks for advice (0049 2043 51061 – support@adt-audio.com) if you have any questions or problems.

Special Terms:

* Connector-ground:

separate ground network that connects all screen contacts of the audio lines

** Audio-ground:

the internal electrical audio reference ground of the console

STANDARD AUDIO CONNECTORS



3-PIN XLR - MALE

2 OUTPUT + / Phase a / hot

3 OUTPUT - / Phase b / cold

1 SCREEN connected to Ground



3-PIN XLR - FEMALE

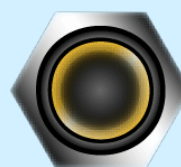
2 INPUT + / Phase a / hot

3 INPUT - / Phase b / cold

1 SCREEN connected to Ground

ALL SCREENING PINS ARE CONNECTED TO CONSOLES CONNECTOR-GROUND

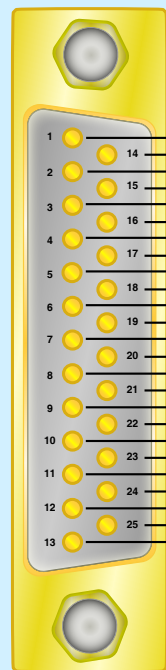
1/4"/6.3 mm JACK - USED FOR PHONES



TIP LEFT OUTPUT

RING RIGHT OUTPUT

SLEEVE COMMON / GROUND



STANDARD AUDIO LINES ON SubD-25 CONNECTORS

1	+	AUDIO 8
2	-	Screen
3	+	AUDIO 7
4	-	Screen
5	+	AUDIO 6
6	-	Screen
7	+	AUDIO 5
8	-	Screen
9	+	AUDIO 4
10	-	Screen
11	+	AUDIO 3
12	-	Screen
13	+	AUDIO 2
14	-	Screen
15	+	AUDIO 1
16	-	Screen
17	+	Screen
18	-	Screen
19	+	Screen
20	-	Screen
21	+	Screen
22	-	Screen
23	+	Screen
24	-	Screen
25	+	Screen

SubD-25 Connector
Female in Console Frame

3.3 Connector Panels

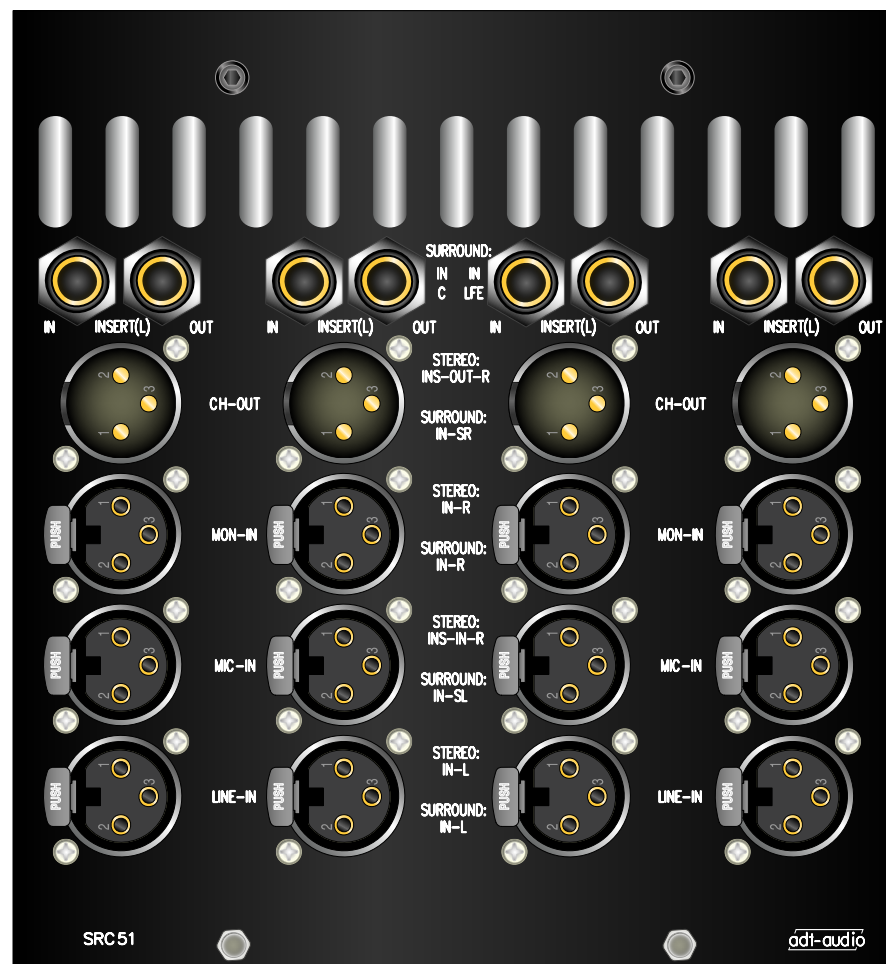
The connector panels for input channels combines 4 module slots. The connector panel of the master section is 4 slots wide. Each connector panel is located behind the belonging modules.

Input Channel Connector Panels

The input connector panel can be used with all sorts of input channels.

The 3-pin XLR connectors are used for the microphone input, the line/keyboard input, the mon-(daw-return) input, and the channel output (daw-send) with the IM5 mono input modules. Two TRS jacks are used for insert send and insert return.

The function of a particular connector changes with the type of the module that is installed in the corresponding slot. The use of the different connectors for IS5 stereo input modules and ISR surround input modules is printed in the middle of the connector panel.



The pinning of the xlr connectors and the TRS jacks meets international standards:

XLR:

1 = screen, 2 = core a / +, 3 = core b / -.

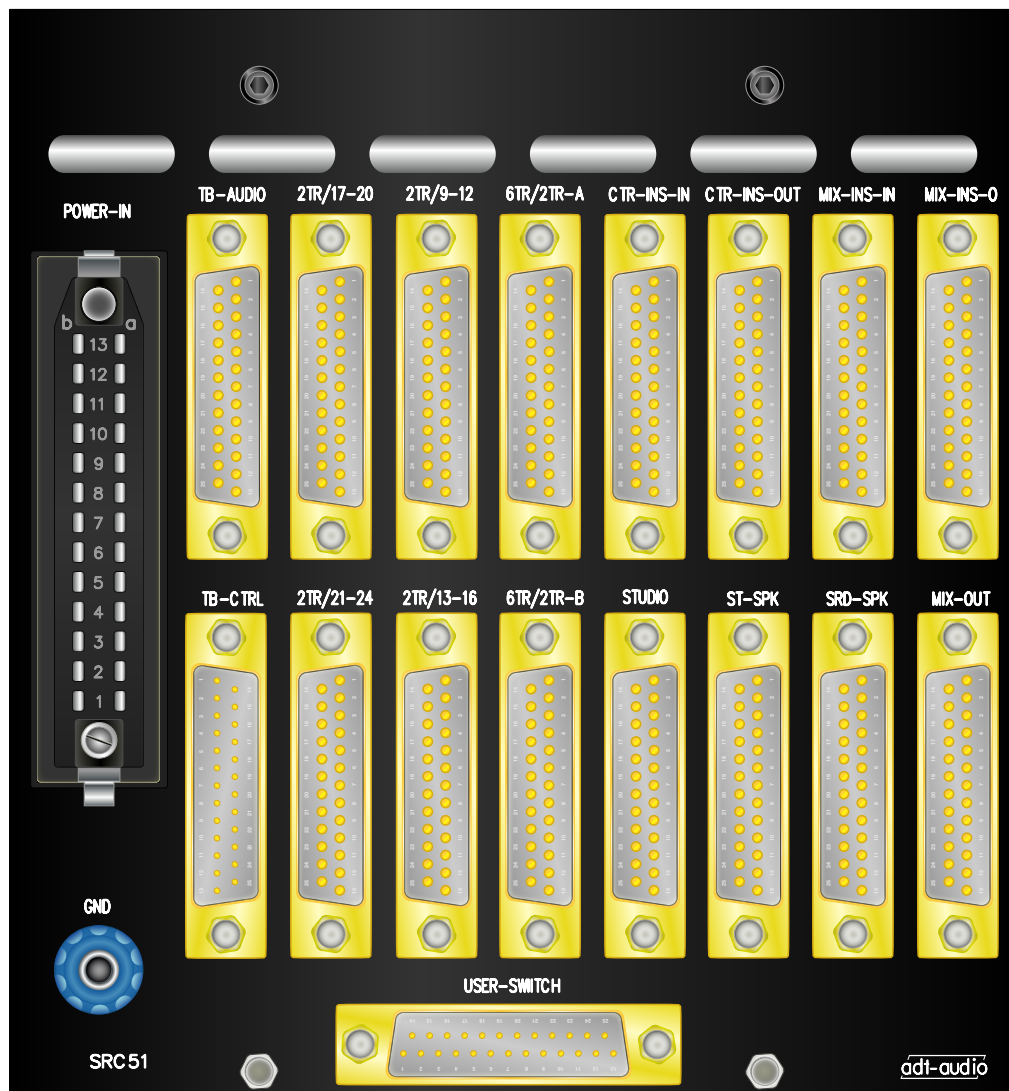
TRS:

Tip = core a / +, Ring = core b / -, Sleeve = screen

All audio lines are fully balanced and at nominal level. Since all modules have switched insert points, there is no need to connect the insert inputs and outputs externally. The insert point is only activated when the insert switch of the particular channel is pressed.

The Master Section Connector Panel

This connector panel is located right behind the master section of the console. It holds 17 D-Sub connectors, the power connector and a ground



connector. Even though the pinning of all connectors is the same with all versions of the console. There are 15 25-pin female audio connectors and 2 25-pin male control connectors.

The Connectors on the Master Panel in Brief

TB-Audio

Audio inputs and outputs of the talkback-, listen-, and oscillator section. This connector is only functional, is the TBO talkback module is installed.

TB-Control

Control inputs and outputs of the talkback-, listen-, and oscillator section. This connector is only functional, is the TBO talkback module is installed.

User-Switch

4 switches for user functions are installed in the optional TBO talkback

module. This connector is only functional, is the TBO talkback module is installed.

2-TR/9-12, 2-TR/13-16, 2TR/17-20, and 2-TR/21-24

The inputs of the additional monitor source selectors, installed in the optional TBO talkback module and the optional STU playback module.

6-TR/2-TR-A, 6-TR/2-TR-B

The inputs of the monitor source selectors in the mandatory CT5 surround control room module

CTR-INS-IN & CTR-INS-OUT

Surround insert outputs of the CT5 monitor module. Allows installation of bass-management systems, x-curve filters, etc., and the outputs of the aux masters 3 & 4

MIX-INS-IN & MIX-INS-OUT

Pre fader surround master insert inputs and outputs and outputs of the stereo cue send and aux-masters 1 & 2

STUDIO

Playback outputs for studio speakers and headphones. Only functional if the optional STU playback module is installed.

ST-SPK

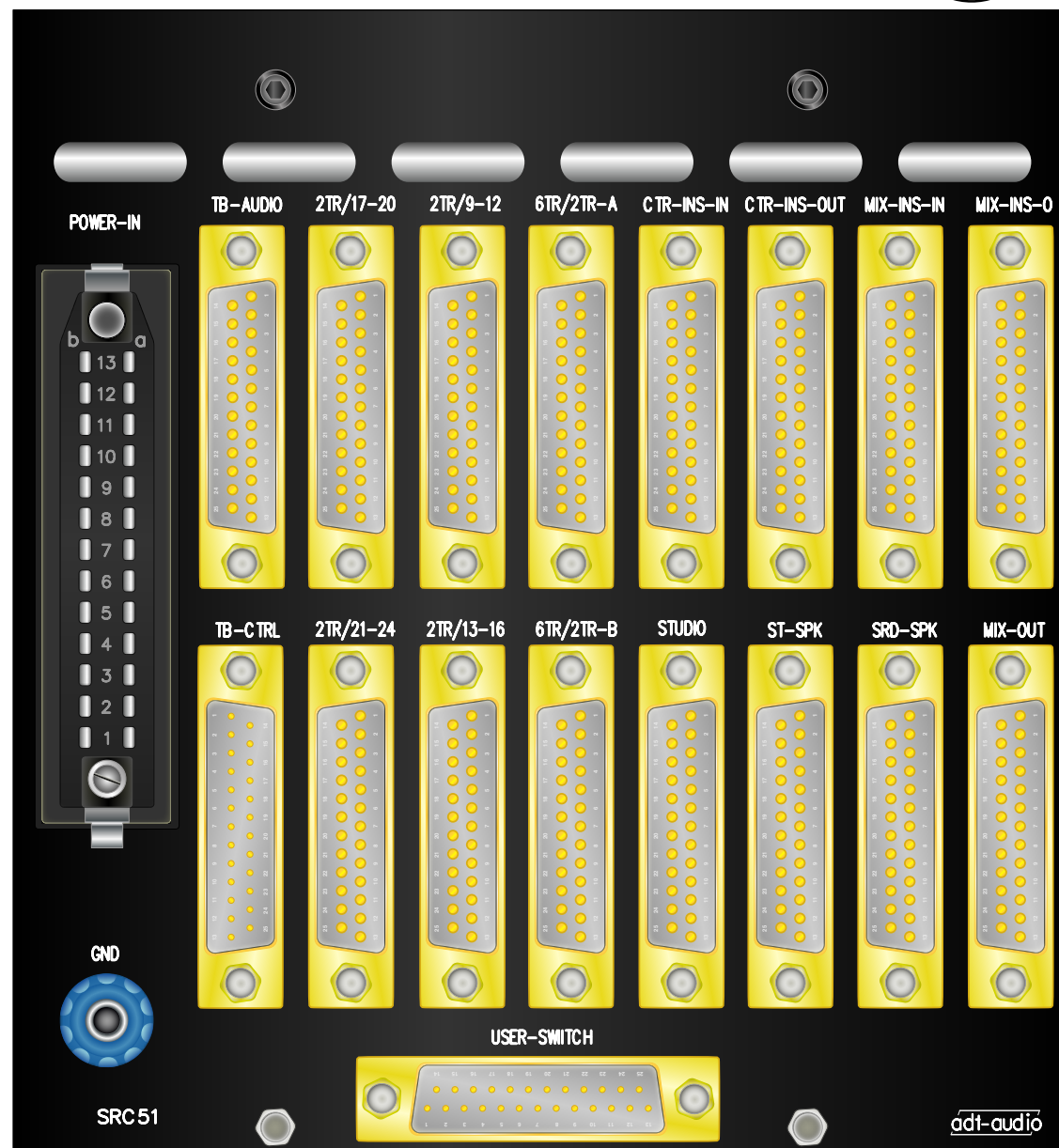
Stereo speaker outputs for the alternate and mini speakers of the CT5 control room module.

SRD-SPK

Outputs of the main surround speakers of the CT5 control room module.

MIX-OUT

Surround master outputs and stereo matrix outputs of the MS5 surround master module.



Pinnings of the Master Connectors

Mix Outputs

This connector holds the main master outputs of the MS5 surround master module. If the console operates in surround mode, all outputs are active. With stereo mode, the outputs SL, SR, C, and LFE are muted and the outputs L and R are used as outputs for the stereo master.

The outputs of the stereo downmix matrix in the MS5 master module are always active. If the console is in surround mode, the stereo downmix signal contains a stereo version of the surround master that is determined by the matrix

setting of the MS5 module. With stereo mode, the downmix outputs are identical to the MIX-OUT-L and MIX-OUT-R signals.

Mix-Insert Out / Cue Out

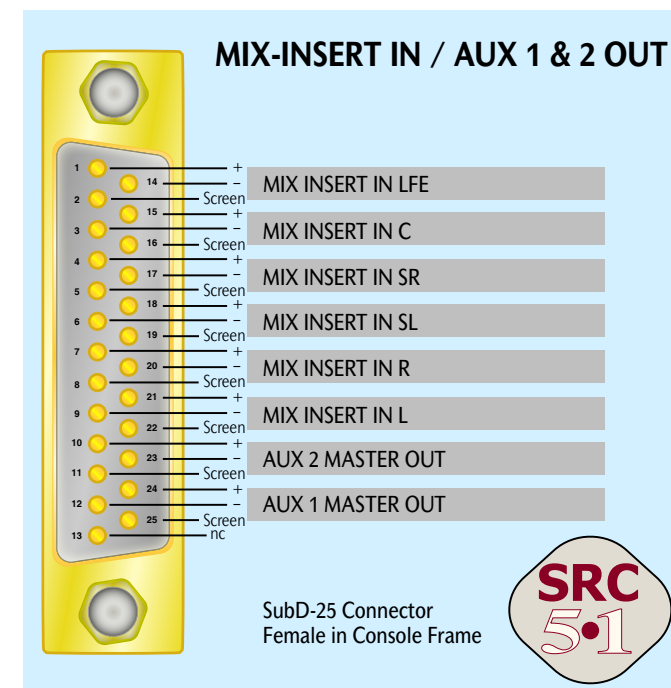
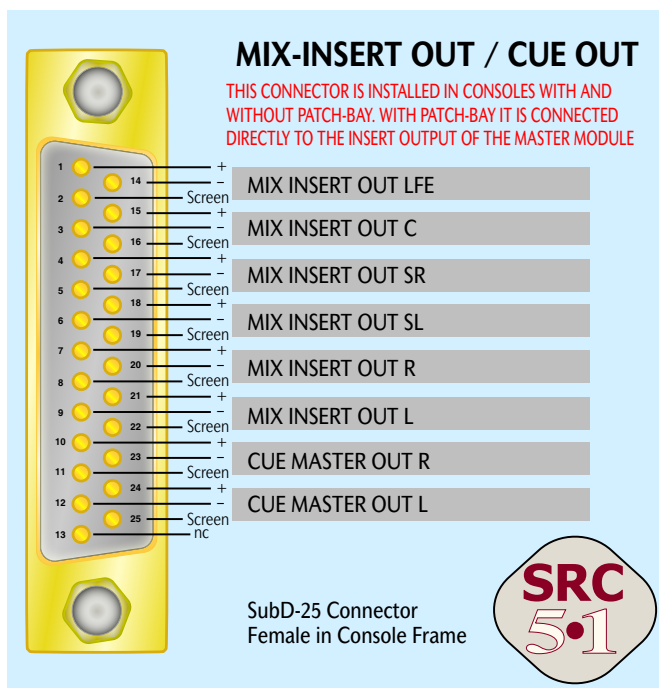
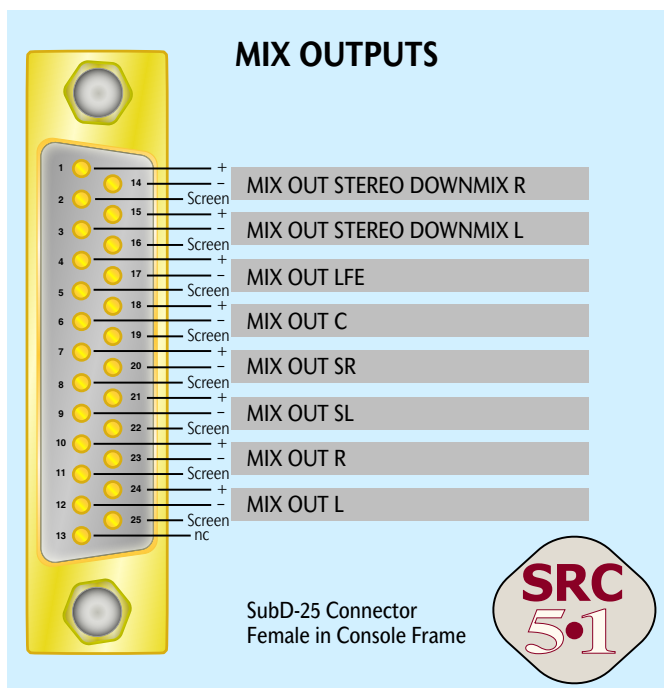
This connector holds the pre fader insert outputs of the MS5 surround master module. The insert outputs are always active, independent of the position of the insert switch in the module. In surround mode, all outputs are active. In stereo mode, only the L and R outputs are functional. All other outputs are muted.

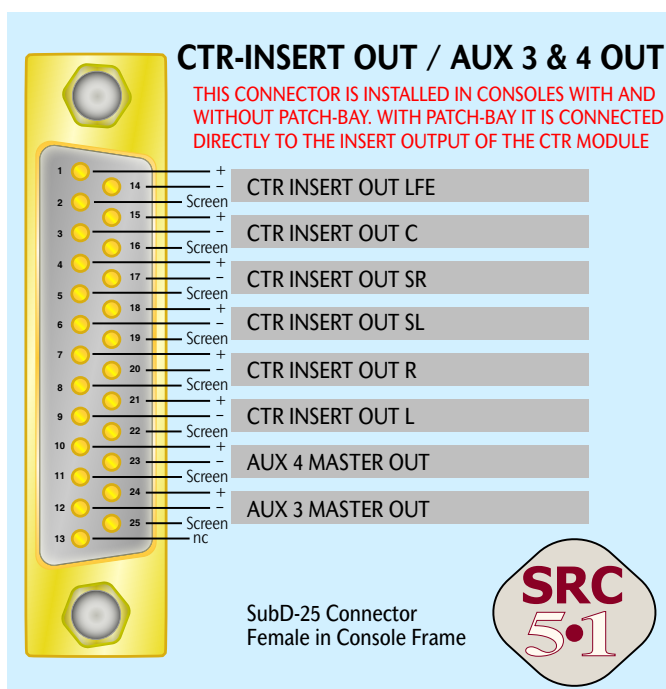
In addition this connector holds the master outputs of the stereo cue-send.

Mix-Insert In / Aux 1 & Aux 2 Out.

The mix insert inputs of the MS5 surround master module are activated by the insert switch in the MS5 master module. In surround mode, all inputs are used, while in stereo mode, only the left and right inputs are active.

In addition, this connector holds the master outputs of the auxiliary sends 1 & 2.

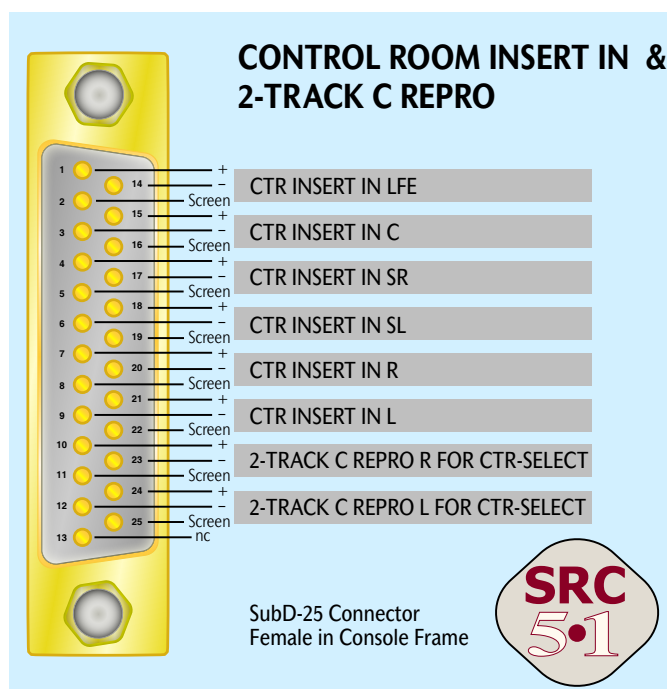




CTR-Insert Out / Aux 3 & 4 Out

The CTR-Insert can be used to add special functions, like bass-management or x-curve filters to the control room monitor chain, using external gear. The insert is located between the output of the control room source selector and the input of the regulator section. The insert point is fully balanced and operates on nominal level with a headroom of + 30 dBu. The outputs are always available, independent of the position of the insert switch in the CT5 control room module.

In addition, this connector contains the outputs of the auxiliary masters Aux 3 and Aux 4.

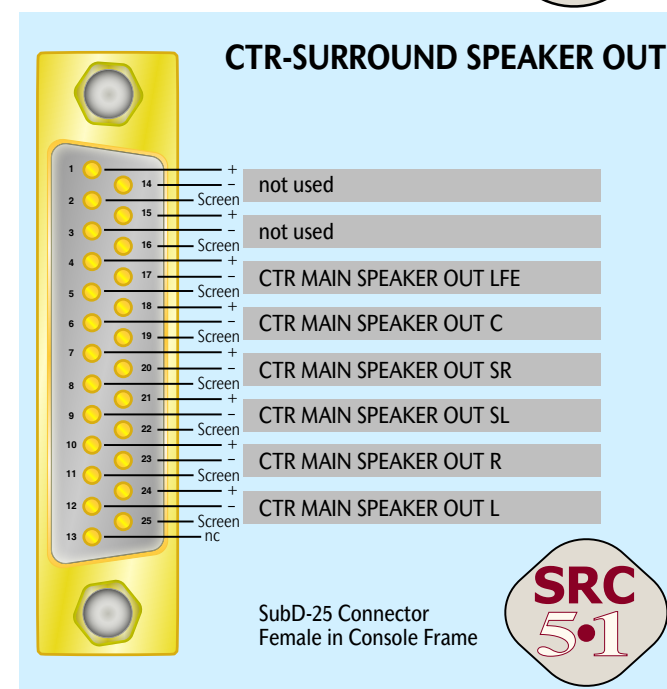


CTR-Insert In / 2-Track C Repro

The CTR-Insert Inputs are corresponding to the CTR-Insert outputs. These inputs are activated when the insert switch in the CT5 control room module is pressed.

The CTR-Insert is not affected by the console's operation modes ,Surround' and ,Stereo'; however, in stereo mode, SL, SR, C, and LFE will not be used.

In addition, this connector contains the inputs of the 3rd 2-Track-Input ,C' of the control room monitor selector.



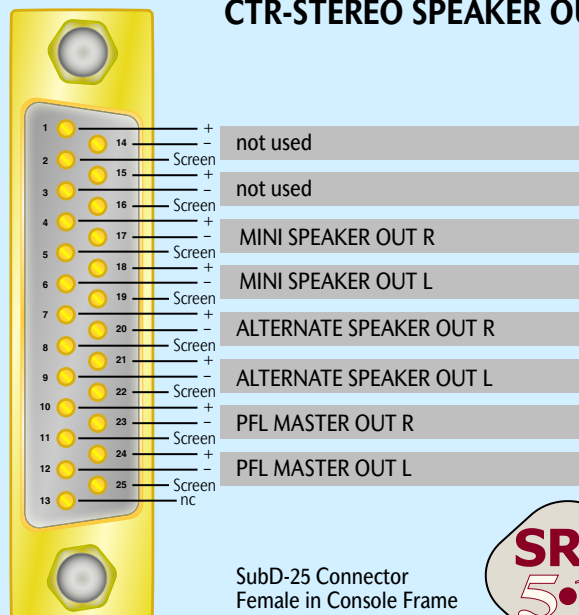
CTR-Surround Speaker Out

These are the outputs for the main control room surround speaker system that is active unless either Alternate or Mini is selected in the CT5 control room module.

The outputs for the Alternate and Mini Speakers are available on the connector CTR-Stereo-Speaker Out - see the next page for details. **CTR-Surround Speaker Out**

These are the outputs for the main control room surround speaker system that is active unless either Alternate or Mini is selected in the CT5 module. See the next page for details.

CTR-STEREO SPEAKER OUT



SubD-25 Connector
Female in Console Frame



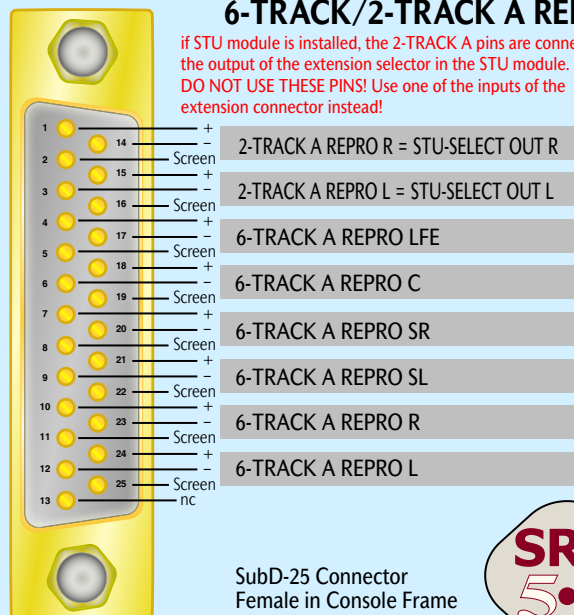
CTR Stereo Speaker Out

These are the outputs of the stereo control room speakers ,Alternate` and ,Mini`. If the console is in surround operation mode, these outputs are fed by the stereo downmix matrix in the CT5 control room module. Both, alternate and mini outputs are electronically balanced.

In addition, this connector holds the direct output of the console's stereo PFL system. These outputs can be used for an external PFL-Speaker system.

6-TRACK/2-TRACK A REPRO

if STU module is installed, the 2-TRACK A pins are connected to the output of the extension selector in the STU module. **DO NOT USE THESE PINS!** Use one of the inputs of the extension connector instead!



SubD-25 Connector
Female in Console Frame



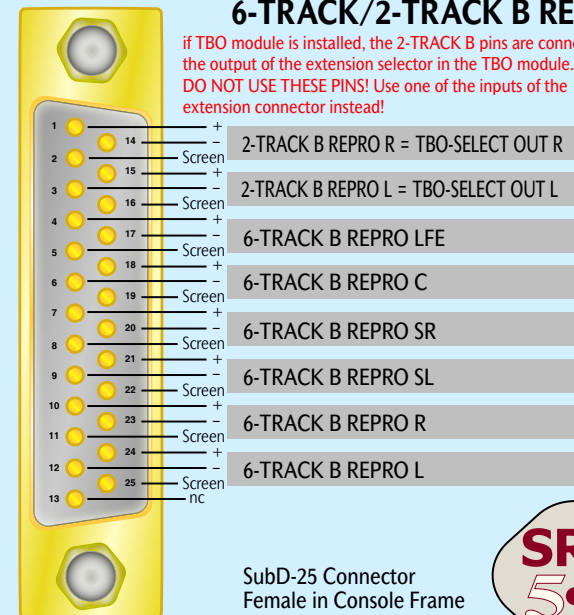
6-Track/2-Track A Repro

This connector holds the control room selector inputs for the surround 6-track recorder outputs A and the 2 track recorder output A. All inputs are balanced.

Please note that the 2-Track A inputs are used for the selection of the extension selector in the optional STU module, if this module is installed. In this case, the 2-Track A L & R holds the output of this selector. See the connectors 2-TR 9-12 and 2TR 13-16 on the next page for details.

6-TRACK/2-TRACK B REPRO

if TBO module is installed, the 2-TRACK B pins are connected to the output of the extension selector in the TBO module. **DO NOT USE THESE PINS!** Use one of the inputs of the extension connector instead!



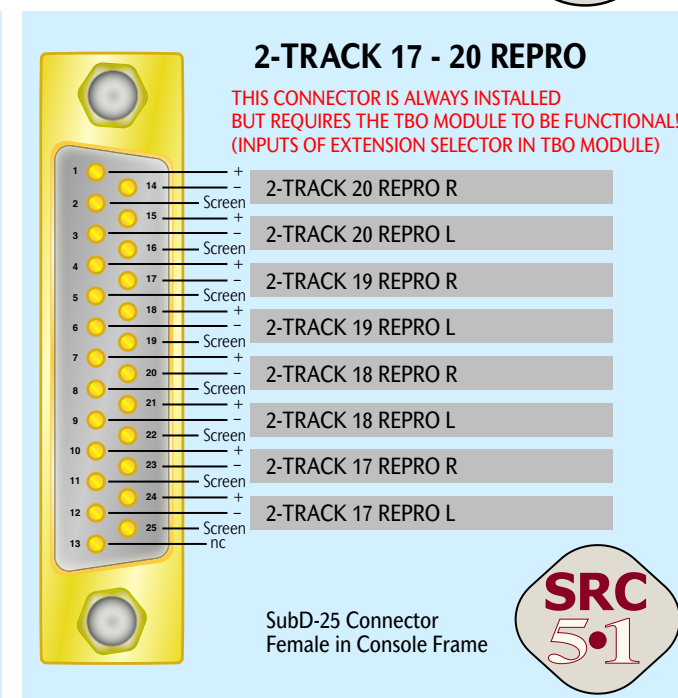
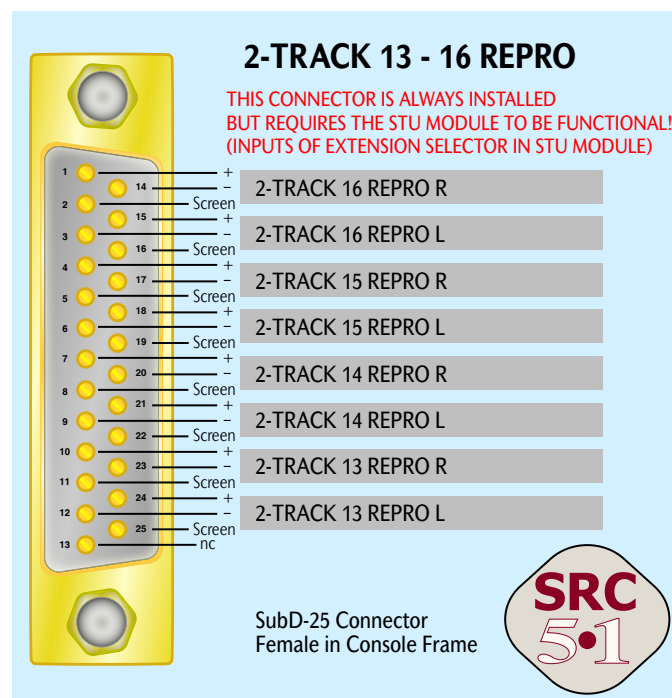
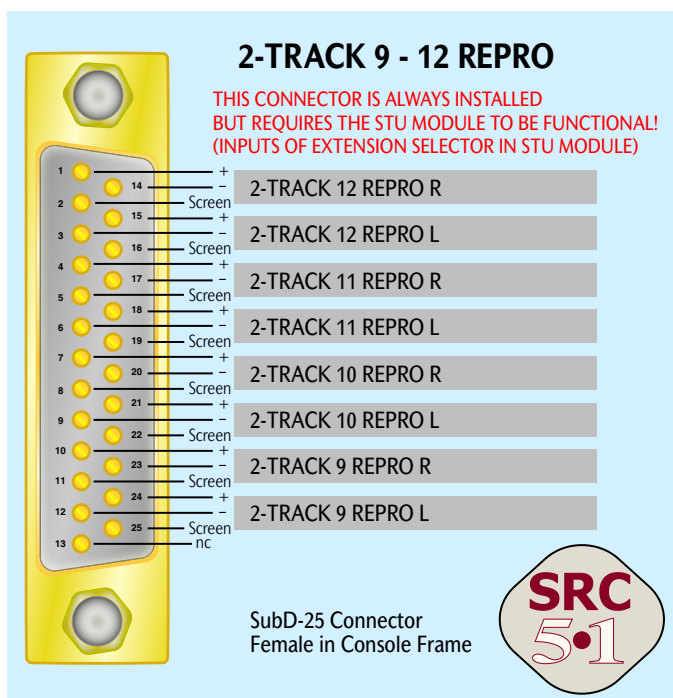
SubD-25 Connector
Female in Console Frame



6-Track/2-Track B Repro

This connector holds the control room selector inputs for the surround 6-track recorder outputs B and the 2 track recorder output B. All inputs are balanced.

Please note that the 2-Track B inputs are used for the selection of the extension selector in the optional TBO module, if this module is installed. In this case, the 2-Track B L & R holds the output of this selector. See the connectors 2-TR 17-20 and 2TR 21-24 on the next page for details.



2-Track 9-12 Repro

The optional STU playback module contains a source selector with 8 balanced stereo inputs. If this module is installed, the connector 2-Track 9-12 repro feeds the first 4 stereo inputs of this selector block.

The output of this selector feeds the 2-TR-A input of the main control room selector in the CT5 surround master module.

2-Track 13-16 Repro

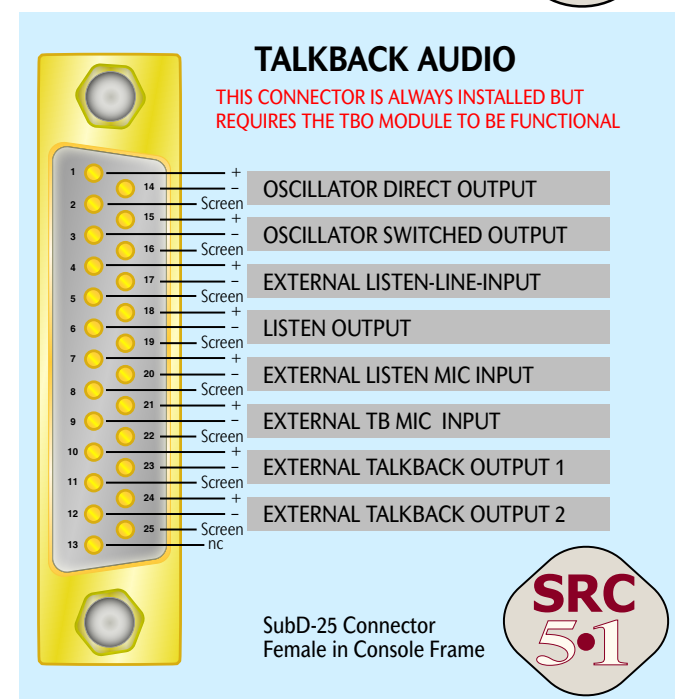
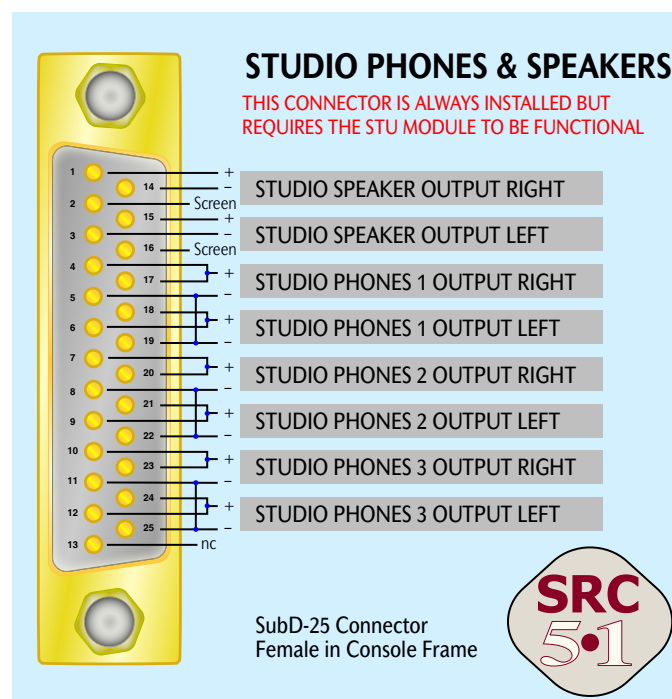
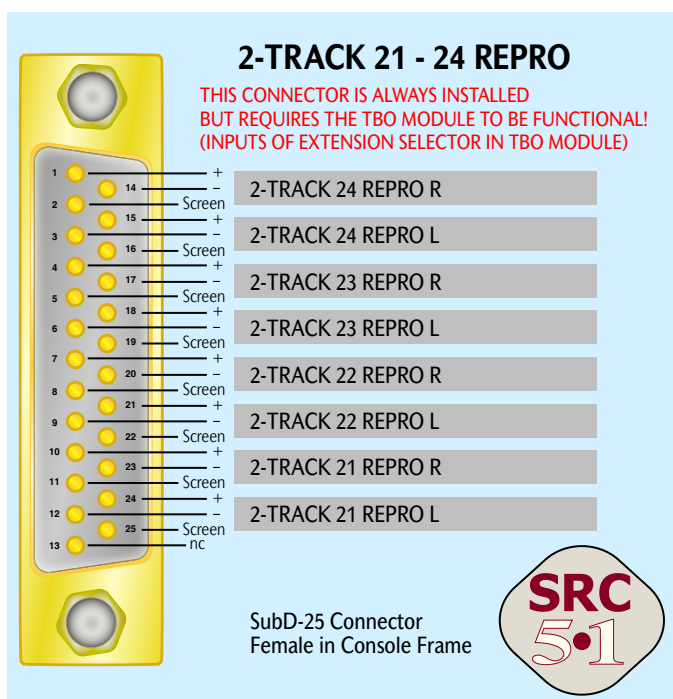
The optional STU playback module contains a source selector with 8 balanced stereo inputs. If this module is installed, the connector 2-Track 13-16 repro feeds the second 4 stereo inputs of this selector block.

The output of this selector feeds the 2-TR-A input of the main control room selector in the CT5 surround master module.

2-Track 17-20 Repro

The optional TBO talkback module contains a source selector with 8 balanced stereo inputs. If this module is installed, the connector 2-Track 17-20 repro feeds the first 4 stereo inputs of this selector block.

The output of this selector feeds the 2-TR-B input of the main control room selector in the CT5 surround master module.



2-Track 21-24 Repro

The optional TBO talkback module contains a source selector with 8 balanced stereo inputs. If this module is installed, the connector 2-Track 21-24 repro feeds the second 4 stereo inputs of this selector block.

The output of this selector feeds the 2-TR-B input of the main control room selector in the CT5 surround master module.

Studio Phones & Speakers

This connector is used for the outputs of the optional STU studio playback module. If this module is not installed, these outputs are not active.

The studio speaker outputs are standard balanced outputs at nominal level, while the studio phones output 1 to 3 are the outputs of headphone amplifiers in the STU module. Please note that these outputs are used for the direct connection to headphones. They are unbalanced and use a non-standard pinning.

Talkback Audio

This connector is used for the audio inputs and outputs of the optional TBO talkback module. If this module is not installed, these outputs are not active.

The **external Talkback outputs 1 and 2** are switched by the corresponding talkback switches in the TBO module. The **external Talkback Mic Input** can be used for an additional talkback microphone or a line-level signal. The input is an electronically balanced zero-ohm input. With no external resistors, a 200 ohms microphone can

be connected directly to the input. Adding to resistors in series make possible to adapt the gain to a line level signal. For 0 dB gain, 2 47 k-ohm resistors are required. Since the input is a zero ohms input, mixing of several signal with series resistors is possible.

The **external listen mic input** uses the same principle as the external talkback mic input. The zero ohms input can be used for the direct connection of the listen microphone. Adding resistors, like explained above, makes possible to use this input for one or more line level signals.

The **external listen line input** is a line level, electronically balanced input. An auto-detect trigger circuitry in the TBO modules can switch the console into Listen mode when a signal is present, if this function is enabled by the corresponding switch in the TBO module.

The listen routing of the TBO modules makes possible to feed the listen signal, that can be the mix of an additional microphone in the studio and external incoming talkback lines to the console's PFL system. In addition, a balanced listen output is available on this connector, if it is required to use an additional external speaker for the listen signal.

There are 2 outputs of the oscillator in the TBO module. The **Oscillator Direct Output** is always active when the oscillator is switched on. The **Oscillator Switched Output** is controlled by an additional switch in the TBO module.

Talkback Control

This connector is used for the control inputs and outputs of the optional TBO talkbak module. If this module is not installed, these outputs are not active.

The control inputs are isolated by optocouplers. Diode bridges and resistor in the input circuit make possible to use any voltage between approx. 9 volts and 30 volts of any polarity. If only 5 volt control signals are available, it is possible to change the resistors on the pcb.

A 24 volts output for the supply of external relays and lamps is available on this connector. The power output is protected by a self-resetting fuse. The maximum output current is 200 mA.

Do not connect the 'Relais-Ground' on this connector to other grounds of the studio to maintain a clean grounding system. Use the 24 V output only for floating, ground-free circuits.

External Listen Mic Ctrl In

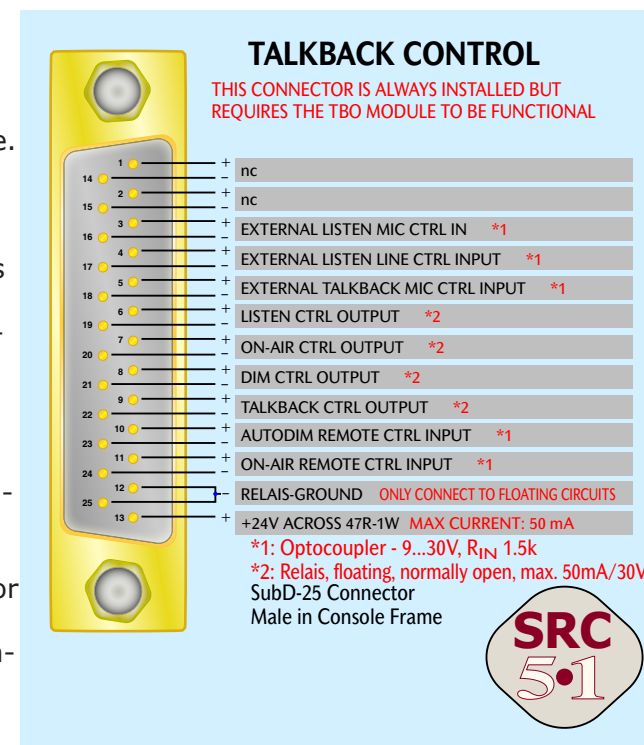
This optocoupler input activates the external listen mic input. Alternatively, the external listen mic can be activated by a switch on the face plates of the TBO module.

External Listen Line Ctrl Input

This optocoupler input activates the external listen line input. Alternatively, the external listen line input can be activated by a switch on the face plates of the TBO module. If the autoselect trigger circuit is active or not, is determined by jumpers.

External Talkback Mic Ctrl Input

This optocoupler input activates the external talkback mic input. Alternatively, the external talkback mic can be activated by a switch on the face plates of the TBO module.



The following inputs and outputs can be extensively configured by jumper settings to meet special requirements. If you need any special control functions, please let us know. These inputs and outputs default to the following functions:

Listen Ctrl Output

Floating relay contact, closed if listen is active

On-Air Ctrl Output

Floating relay contact, normally not used, free for custom functions.

Dim Ctrl Output

Floating relay contact, closed if the Autodim bus is active

Talkback Ctrl Output

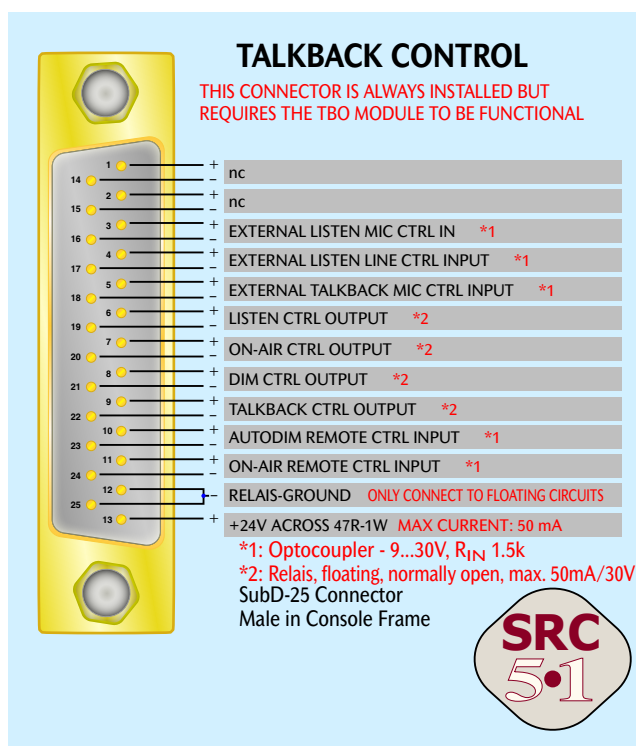
Floating relay contact, closed if talkback is active

Autodim Remote Ctrl Input

Optocoupler input; activates the console's autodim control bus. This bus can be used to dim the control room speakers, and dim or cut the studio speakers. The particular configuration takes place by jumpers on the corresponding modules. The standard setting dims the control speakers from this bus, that is also fed by the talkback system.

On-Air Remote Control Input

This optocoupler input is normally not used and free for custom functions.



User Switch

There are 4 additional switches in the optional TBO talkback module that can be used for additional functions.

Of course, this connector is only in use if the TBO module is installed.

In the standard version, switch 1 and 2 are non-latching versions, and switch 3 and 4 are latching version. Feel free to tell us with the order any other configuration; however, later changes from latching to non-latching or vice versa are not possible.

Each switch has a ,normally open` and a ,normally closed` contact and a lamp socket. The contacts can be used with any dc voltage up to 30 volts and up to a current of 50 mA. If not specified otherwise, 28 volts lamps, 40 mA will be installed.

The contacts and the lamp connections are floating.

Feel free to tell us which color the caps should have and if and how we should engrave the caps.

