Operating Manual
(Rev. 1.3)

Oxygen 5

Broadcast Console

AXEL TECHNOLOGY S.R.L.

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AXEL TECHNOLOGY

CONTENTS

1 INSTALLATION – MIXING CONSOLE OVERVIEW

- Read carefully the present manual and conserve it
- *Oxygen* is conceived and built in conformity with the security laws in force.
- Please use high quality wires with good electric shield and balanced links wherever possible.
- The installation has to be carried on by skilled technicians.
- The images and the graphic layout showed on this manual could be slightly different from the ones printed on the modules.
- Axel Technology is at Yr. complete disposal for every requirements and troubleshooting. Please read carefully the manual and the electric layout before contacting our technical office.
- Please verify that the (protective) earth connection is available. Inside *Oxygen* console audio ground and the protective earth are linked together.
- ATTENTION: if not otherwise specified, *Oxygen* is set at 220/230VAC. If different different voltage is available (ex. 110/115 VAC) you need to open the power supply box and set the voltage switch on the main supply circuit, located behind the VDE plug.

1.1 INPUT AND OUTPUT MODULES

Oxygen features four different input modules (STEREO, MONO, MULTI INPUT and TELCO module) and two different output modules to satisfy every requirements (SUB and MASTER module).

STEREO features two stereo inputs (Input A and Input B).
Input A is a line stereo input, while Input B (stereo) may be set through internal jumpers as line stereo or phono stereo (with built-in R.I.A.A. preamplifier).
The module provides also a REMOTE interface for external equipment Start/Stop facilities. Optoisolated connection pins assure the electrical immunity from external noise.

MONO features two input sockets. The first one is factory pre-set for microphones (but it's switchable to Line) and the other is fixed for Line sources (MONO). The Micro input sensitivity can be adjusted by turning a trimmer. 48 Volts are provided for phantom powering of condenser microphones. A comprehensive filter section provides a set of frequency responses for every requirement. The Microphone can be used also for the 'Talk Back to Studio/Ctrl Room', for phone answering and for 'Slate' announcements.

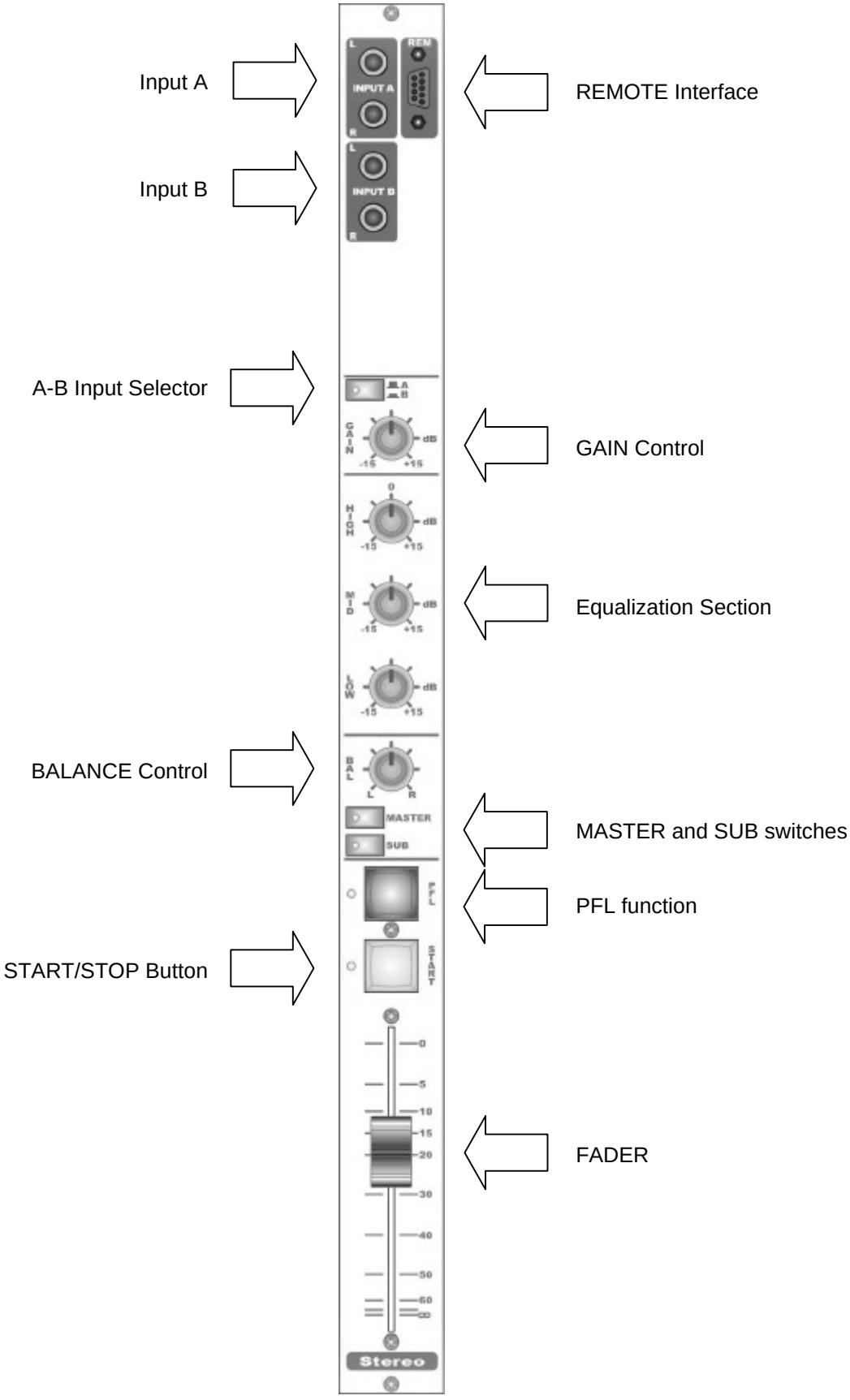
TELCO features a mono-line RECEIVE input and a mono-line SEND output as it is designed to interface an external telephone hybrid (controlled by the REMOTE interface).
Optoisolated connection pins assure the electrical immunity from external noises.

MULTI INPUT features 6 stereo input channels (Input A….F, Line level) together with an overall volume control. A REMOTE interface with optoisolated pins provides external equipment Start/Stop facilities.

SUB features 1 SUB output, 2 Rec output (assignable to the Master or Sub bus), a compressor section with Auto Fader and Limiter functions, the connections to the DJ Console by AXEL TECHNOLOGY and the connection to an auxiliary signal

MASTER features the two main outputs (master signal), outputs and controls of the STUDIO and the CONTROL ROOM sections, the power supply and VU-METER connections, the Talk Back function and the link to an external Tuner

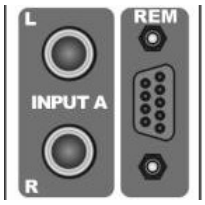
2 STEREO MODULE



2.1 INTRODUCTION

Stereo module is easily and readily configurable as line/line or line/phono depending on the user requirement. Input A is a line stereo input, while Input B (stereo) may be set through internal jumpers as line stereo or phono stereo (with built-in R.I.A.A. preamplifier). The module provides also a REMOTE interface to connect or control external equipment. Optoisolated connection pins assure the electrical immunity from external noises.

2.2 INPUT A

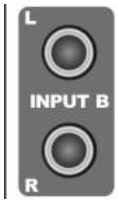


Input A (**Line** level) is electronically balanced on a female Jack (L and R) with 0 dB gain.
The plug pin-out presents standard configuration:

- Sleeve Ground
- Tip Signal
- Ring Return

We suggest to use everywhere balanced links. See Appendix A for wire connection schemes.

2.3 INPUT B



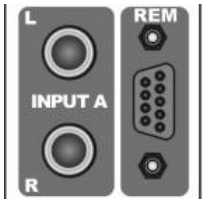
Input B can be set through internal jumpers as **LINE** input (electronically balanced on L and R Jack with 0 dB gain) or **PHONO** unbalanced input (performed by an internal R.I.A.A. preamplifier- see the last paragraph on this chapter for jumper setting).

The plug pin-out presents standard configuration:

- Sleeve Ground
- Tip Signal
- Ring Return

We suggest to use everywhere balanced links. See Appendix A for wire connection schemes.
In case of turntable, please connect the 'ground' turntable wire to the mixing console frame by means of a screwed link.

2.4 REMOTE INTERFACE



Remote interface is based on a DB 9p female connector and features:

START/STOP COMMANDS

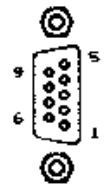
Through the interface you can provide one Start/Stop command regardless of the position of Input A/B selector.
The Start/Stop function is only enabled by the related button placed on the module and it doesn't depend on the slider position.
Two different modes of Start/Stop commands are available depending on the internal jumper settings.

1) INDIRECT mode (referred to the 'Start/Stop' jumper configuration in the scheme showed at the end of this chapter)
The Start signal is available on the 6-7 pins (optoisolated contact) and the Stop signal is available on the 1-2 pins (optoisolated contact).
You can choose, through a jumper (J16), between impulsive and permanent mode. In the first case, at every transition from the Stop to the Start state the contact remains closed for 300 msec, generating a square pulse (6 V amplitude / 300msec length).
In the second case (permanent contact), the Start contact will remain closed till the Start/Stop button is pressed again.

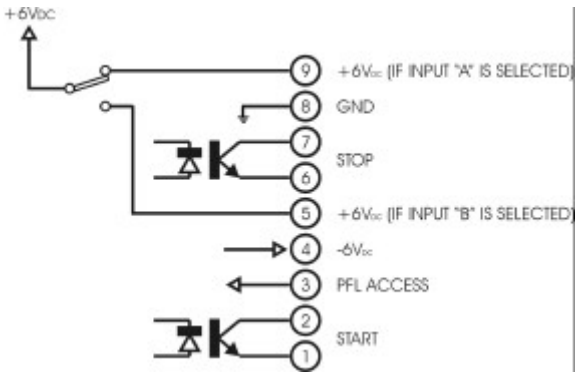
Please note that:

- the max current value provided by the Start/Stop photo transistors is 20 mA.
- Interface phototransistors are not able to directly drive any external relais. Please use them to drive an external power transistor .
- Internal phototransistor impedance is about 150 Ω.
- To group Start/Stop commands, please join pins 7 and 2 + 6 and 1

Pin-out SUB D 9P female in INDIRECT mode:



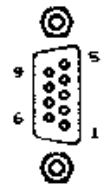
pin-out
SubD connector



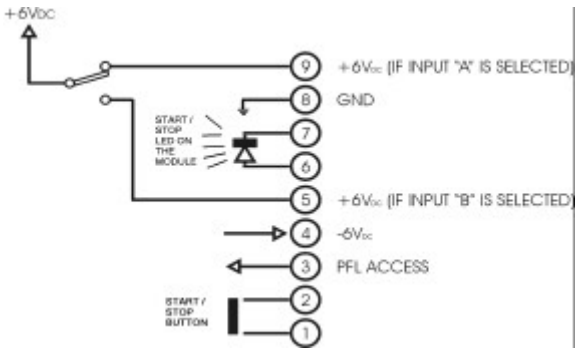
Pin 1 Emitter of the photocoupled transistor for START function
Pin 2 Collector of the photocoupled transistor for START function
Pin 3 enables the PFL function if you supply + 6 V and disables it if you supply – 6V
Pin 4 Supplies - 6V
Pin 5 Supplies + 6V when B input is selected
Pin 6 Emitter of the photocoupled transistor for STOP function
Pin 7 Collector of the photocoupled transistor for STOP function
Pin 8 GND
Pin 9 Supplies + 6V when A input is selected

2) DIRECT Mode (referred to the 'Switch/Led' jumper configuration in the scheme showed at the end of this chapter)
Through jumper setting you can directly link the electrical connections of the Start/Stop button to the Remote interface (pins 1-2).
The pins 6-7 are directly linked to the red led next to the Start/Stop button (led current is about 5 mA). This mode can be used to visualise on the module the READY state of an external equipment and is frequently when turntable are driven.

Pin-out SUB D 9P female in DIRECT mode:



pin-out
SubD connector



Pin 1 1° contact of the Start/Stop button
Pin 2 2° contact of the Start/Stop button
Pin 3 enables the PFL function if you supply + 6 V and disables it if you supply – 6V
Pin 4 Supplies - 6V
Pin 5 Supplies + 6V when B input is selected
Pin 6 Anode of Start/Stop led
Pin 7 Cathode of Start/Stop led
Pin 8 GND
Pin 9 Supplies + 6V when A input is selected

PFL ACCESS MODE (pin 3)

The PFL ACCESS mode allows the remote enabling of the pre-listening function. You just need to supply + 6V to enable the function and – 6V to disable it.

A/B INPUT SELECTION SIGNALLING

The signalling of the selected input is available on the interface (pins 5 and 9). if the pin 9 is on +6V state, the A input is selected; if the pin 5 is on +6V state, the B input is selected.

REMOTE CONNECTOR SUPPLIES THE FOLLOWING VOLTAGES:

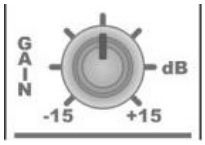
- -6 VDC (pin 4)
- GND (pin 8)

These voltages can be used to polarize the optoisolator devices. We suggest to use a 100Ω (or more) resistor in series connection with the phototransistor emitter to prevent the risk of damages to the photocoupler, due to extra-high current.

2.5 A-B INPUT SELECTOR

It selects the input A (led switched off) without the pressed button; the input B (led switched on) with the pressed button.

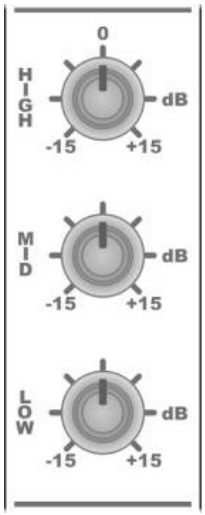
2.6 GAIN CONTROL



It sets the gain from -15dB to +15dB on the selected input (A or B).

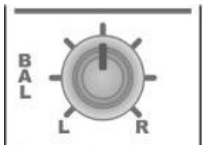
We suggest to set the gain so that the output audio signal is not distorted when the slider is on its upper point and so that the PFL level is 0 dB.

2.7 EQUALIZATION SECTION



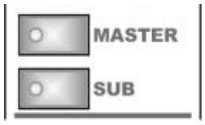
The equalisation section is based on three controls: **LOW**, **MID** ,**HIGH** operating from ±15dB.
You can get a flat frequency response when the potentiometers are in their central position (underlined by a 'click').

2.8 BALANCE CONTROL



The **BALANCE** control allows sound balancing between Left and Right output channels. In the central position the gain is 0 dB for both channels.

2.9 MASTER AND SUB SWITCHES



MASTER and **SUB** switches connect the module to the Master and/or Sub outputs.
The led inside the switches turn on according to the pressed buttons
By using the Master/Sub assignment, you could, f.i., record an interview to Yr guest in studio while another musical program is on air. To get this, please assign only to the Sub output the Mono channels involved in the recording session and to Master output the ones providing the on air program. See chapter 'SUB module' for Sub connections.

2.10 PFL BUTTON

The pre-fader listening serves for input identification when the fader is still shut.
PFL button enables the pre-fader listening of the channel. The led shows that the function is on.
Please note that every time a new selection is called (or when the button PFL RESET on

the Master module is pressed) the previous PFL is reset (i.e. it is not possible to listen to the sum of different PFLs).

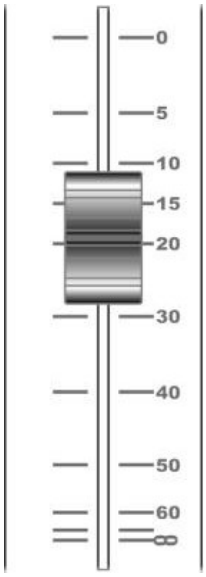
Press the **PFL RESET** key on the Master module to disable any PFL.

PFL signal is available on the Master module, in the Control Room and Studio sections, where the PFL signal has priority on the other selections. For instance, if both PFL and Master are selected in the CTRL Room listening section, headphones and loudspeakers reproduce Master signal till a PFL will be called by one or more input modules. Once the PFL terminates, the sound reproduction will switch automatically on the previous source (Master).
The PFL Right and Left channels are showed on the VU meters whenever a PFL is active.

2.11 START BUTTON

The button starts or stops external equipment (such as CD, Minidisk, turntables, etc.) connected to the module REMOTE interface (see).
The Start/Stop function doesn't depend on the slider position.
Please refer to 'Remote interface' paragraph for Start/Stop modes and interface connections.

2.12 FADER



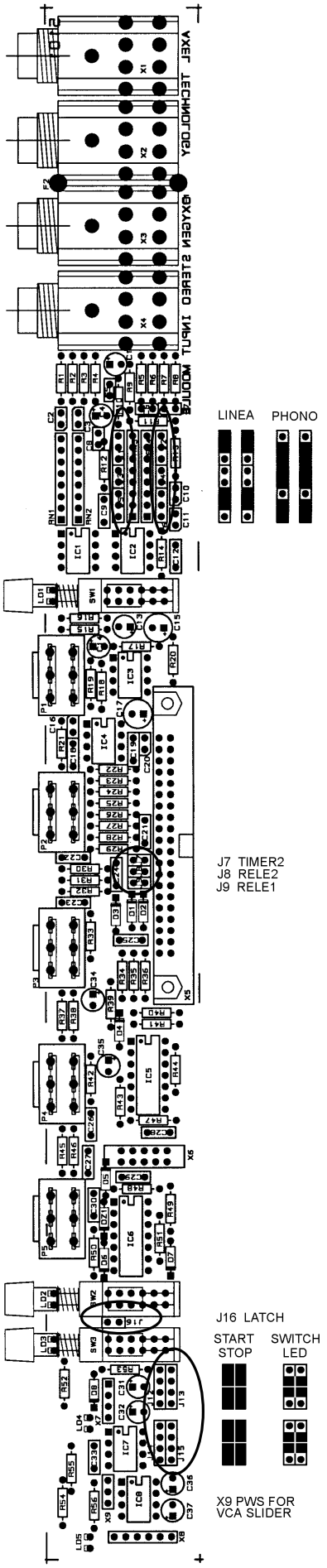
The slider is one of the most important device in the mixer. For that reason, Axel Technology uses only slider by **ALPS**, one of the best manufactures in the field.
The **N** type is provided on series. On demand, we can provide the **K** series and the **K/VCA** series too. We highly recommend these as the slider does not act directly on the audio signal but controls an high quality amplifier. That allows perfect volume control without any noise and 'skretch' even after years of usage.

2.13 MODULE CONFIGURATION

STEREO module features 16 Jumpers enabling different operation modes.
To change a jumper setting, please:

- switch off the console **(every intervention on the modules always requires the console switching off !)**
- remove the module
- disconnect the flat cable (pay attention to the two little hooks placed at the connector edges)
- alter the setting position as showed by the following table
- connect again the flat cable and lock the hooks
- insert the module into the console mainframe
- turn on the console

Please refer to the following figure and to the 'Factory preset jumper configuration' chapter at the end of this manual before altering jumper configurations.



- **Phono/line input B** setting: see **J1, J2, J3, J4, J5, J6** on figure

- **If J12, J13, J14 and J15** (placed at the bottom of the board) are in the **Start/Stop configuration** (INDIRECT mode), you can get the following functions:

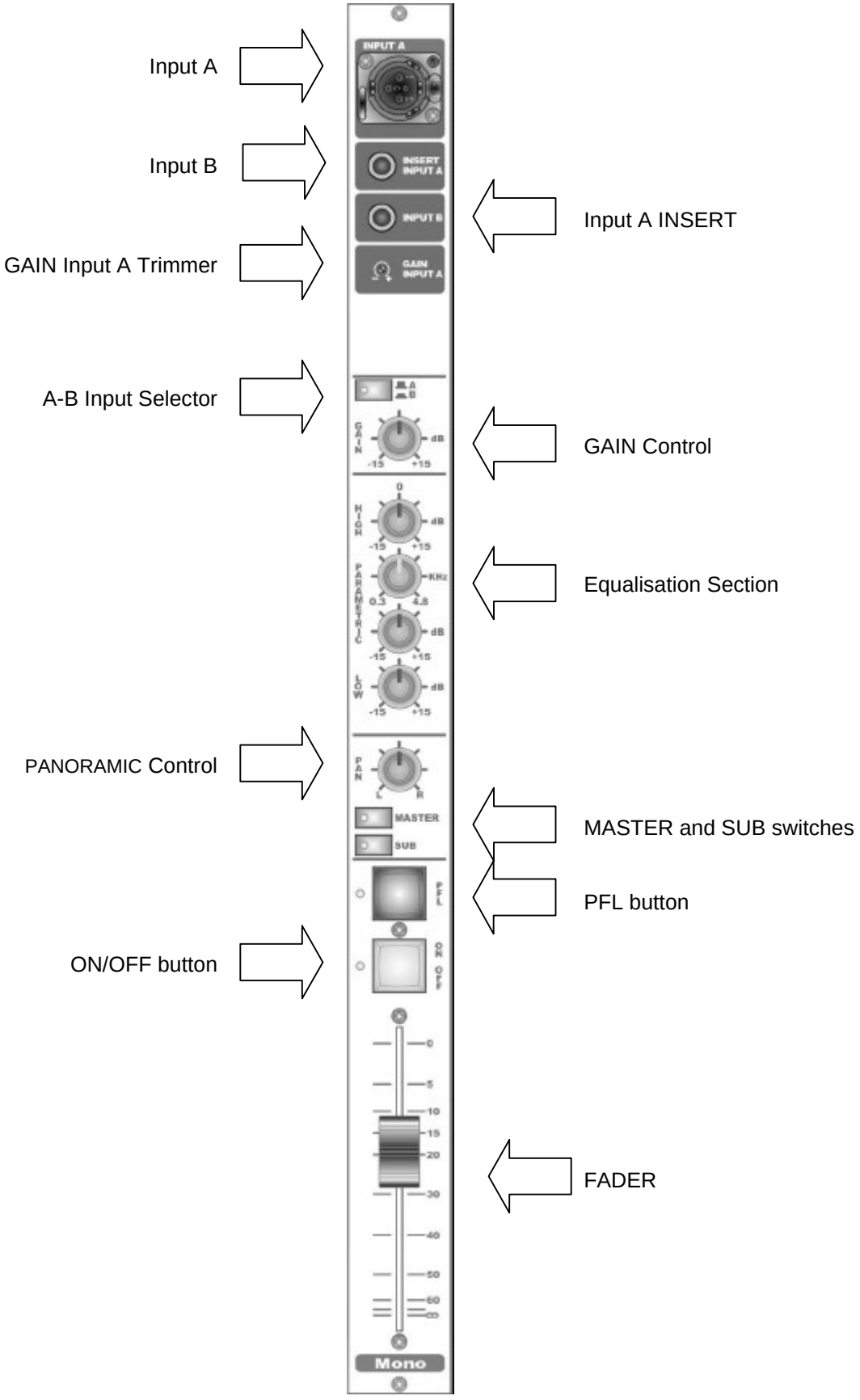
if J7 is present, the Start/Stop key starts up also the **Timer 2**
if J8 is present, the Start/Stop key starts up also the **Relais 2**
if J9 is present, the Start/Stop key starts up also the **Relais 1**

if J16 (Latch) is present, the interface features a **permanent**, optoisolated Start/Stop command

if J16 (Latch) is not present, the interface features an **impulsive**, optoisolated Start/Stop command

- **If J12, J13, J14 and J15** (placed at the bottom of the board) are in the **SWITCH LED configuration** (DIRECT mode), you can drive the led by an external tension (pin 5 – 6 of interface) and the Start/Stop button is linked to the 1 – 2 pins. In this case, the functions related to J7, J8, J9 are disabled.

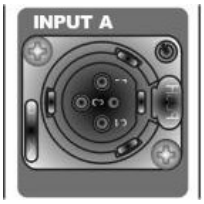
3 MONO MODULE



3.1 INTRODUCTION

The Mono module features two mono inputs (Input A and Input B). Input A is factory pre-set on microphone level but it can be also easily set on line level. Input B is set only on line level.

3.2 A INPUT



Input A is electronically balanced on female XLR.
Through jumper setting you can change the input A gain to fit the Micro level or the Line level; a fine gain adjustment only of the Micro level can be achieved through the trimmer 'Gain input A' (see GAIN INPUT A Trimmer). Operate on it if the Gain control doesn't amplify or attenuate enough the source signal.
Input A is set ex-work on -54dB level (average level of Micro signal).

The plug pin-out presents standard configuration:
- Sleeve Ground
- Tip Signal
- Ring Return

We suggest to use Input A for Micro signals and B for Line signals and to use everywhere balanced links. See Appendix A for wire connection schemes

3.3 PHANTOM POWERING

48 Volts are provided for phantom powering of condenser microphones. A module internal jumper (see module internal layout at the end of the chapter) allows to disconnect the 48 volts whenever microphones don't require external powering.
Attention: always disconnect phantom powering if not necessary and do not use asymmetrical sources on the microphones input with the phantom power ON.

3.4 B INPUT

Input B (fixed Line level) is electronically balanced on female Jack with 0 dB gain.
The plug pin-out presents standard configuration:
- Sleeve Ground
- Tip Signal
- Ring Return

We suggest to use everywhere balanced links. See Appendix A for wire connection schemes

3.5 INSERT INPUT A

The INSERT connector allows to insert external equipment (like sound / effect processors, compressors, filters, etc) between the input A buffer and the remaining stages of module audio chain.
INSERT point carries an output level of 0 dB (on 100Ω impedance) and an input level of 0 dB (on 10KΩ impedance).

The plug pin-out presents the following configuration:
- Sleeve Ground (audio common)
- Tip Signal Output
- Ring Signal Input (audio return)

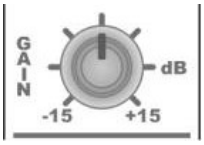
3.6 GAIN INPUT A TRIMMER

You can use the multi-turns trimmer to fit the Micro level to the input level of the pre-amplification circuit. It's highly recommended if the Gain potentiometer doesn't amplify or attenuate enough the Micro signal. Adjust the trimmer to reach the 0 dB PFL output level corresponding to the Gain control central position (read the level on the VU-Meter).
Remember that through jumper setting you can change the input A gain to fit the Micro level or the Line level (see § 0).
We suggest to use the Input A for Micro signals and the B for the Line signals.

3.7 A-B INPUT SELECTOR

It selects the input A (led switched off) without the pressed button; the input B (led switched on) with the pressed button.

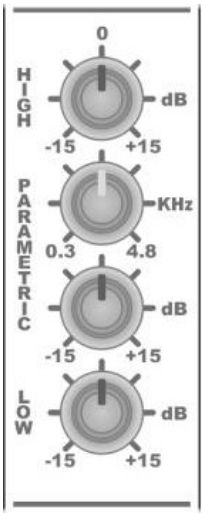
3.8 GAIN CONTROL



It sets the gain from –15dB to + 15dB on the selected input (A or B).

Set the gain so that:
- the output audio signal is not distorted when the slider is on its upper point
- the PFL level is 0 dB

3.9 EQUALIZATION SECTION



The equalisation section is based on three controls: **LOW**, **MID**, **HIGH** (ranging from ±15dB).
In particular, you can modify the Middle frequencies between 0.3 and 4.8 KHz (central position: 1 KHz).
You can get a flat frequency response when the potentiometers are in their central position (underlined by a 'click').

3.10 PANPOT CONTROL

The PAN control allows sound balancing between Left and Right output channels. In the central position the gain is 0 dB for both channels.

3.11 MASTER AND SUB SWITCHES

MASTER and **SUB** switches connect the module to the Master and/or Sub outputs.
The leds inside the switches turn on according to the pressed buttons.
By using the Master/Sub assignment, you could, f.i., record an interview to Yr guest in studio while another musical program is on air. To get this, please assign only to the Sub output the Mono channels involved in the recording session and to Master output the ones providing the on air program. See chapter 'SUB module' for Sub connections.
NOTE: **Master/Sub output are fed only if the module is in the ON state**

3.12 PFL BUTTON

It enables the pre-fader listening of the channel. The led light shows that the function is on. Please note that every time a new selection is called (or when the button PFL RESET on the Master module is pressed) the previous PFL is reset (i.e. it is not possible to listen to the sum of different PFL).
PFL function is independent from the On/Off module state.

Press the **PFL RESET** key on the Master module to disable any PFL.
PFL signal is available on the Master module, in the Control Room and Studio sections, where the PFL signal has priority on the other selections. For instance, if both PFL and Master are selected in the CTRL Room listening section, headphones and loudspeakers reproduce Master signal till a PFL will be called by one or more input modules. Once the PFL terminates, the sound reproduction will switch automatically on the previous source (Master).
The PFL Right and Left channels are showed on the VU meters whenever a PFL is active.

3.13 ON/OFF FUNCTION

The On/Off button enables/disables the main module output toward Master and/or Sub outputs (depending on the selected Master/Sub switches).
If the module is on the 'Off' state no signal is broadcast even if the slider is open.
Please note that the On/Off state doesn't involve the Talk Back communications and the phone call answering performed by the same microphones connected to the mono modules.
Through internal jumpers setting (see 'module configuration' paragraph at the end of this chapter), you can choose one of the following On/Off operation modes:

- Independent mode: On/Off button only enables/disables the module.
- Transfer mode: the opening of the slider brings the module into the ON state (the led near the key turns on) and vice versa. You can also continue to use the ON/OFF button, that will modify the module operation state (On/Off) according to the state reached by the slider. E.g. if the slider opening has brought the module into the ON state, through the key you can get back the OFF state even if the slider is still opened.
- Remote mode: The On/Off state is regardless of the slider position. You can control the On/Off function either in local mode (through related button) or in remote mode, through an external device ('**DJ Console**' by Axel Technology) linked to the SUB module. Thanks to it, the speaker (normally located in studio) is able to remotely switch the mixer module related to his microphone. Moreover, through a mixer-like slider he can fade the level of the on-air musical program (for speech interventions mixed to the songs). A Talk Back function is also provided for communications from Studio to Control Room.

3.14 SUMMARY OF THE SERVICES/FUNCTIONS FEATURED BY THE MODULE

You can use the same microphones connected to the Mono modules (no matter of the On/Off state and of slider position) also for phone answering (through the Telco modules), CTRL Room to Studio / Studio to CTRL Room talk back communications (through the Master module) and for the Slate function on the Sub module:

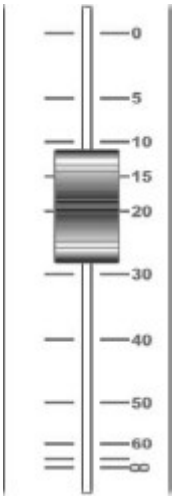
- If the jumper J10 is present, phone answering through the microphone is enabled by pressing the 'Private' button on the Telco module (see chapter 4).
- If the jumper J10 is present, Talk Back communications from Ctrl Room to Studio are achieved through the Ctrl Room microphones by pressing the 'Talk back' button on the Master module (see chapter 7)
- If the jumper J10 is present, speech announcements on the Sub outputs are achieved by pressing the 'Slate' button on the Sub module (see Sub chapter)
- If the jumper J9 is present, Talk Back communications from Studio to Ctrl Room are achieved through the Studio microphones by pressing the 'Talk back' button on the Master module (see chapter 7)

By default (factory preset), **every** mono module (excluding the last one on the right) is **set for the Studio microphones** ("Talk Back to Control Room" configuration) and the the **last one on the right** is set for the **Control Room** microphones ("Talk Back to Studio" configuration plus the other facilities here described)

Through internal jumpers setting you can also associate the On/Off state or the fader opening (depending on the On/Off mode) to the following actions (see the last paragraph on this chapter)

- Start/stop of the (optional) Timer 1 (see jumper J5)
- Cut off ('Mute') of the Control Room and/or Studio monitor loudspeakers (to avoid 'Larsen' effects- see jumper J3 and J4)
- Switching of two relays built-in in the power supply (relay 1 and 2- see jumper J6 and J7). You could use this function to light an 'On Air' lamp (as Mr. Light by AXEL TECHNOLOGY)

3.15 FADER



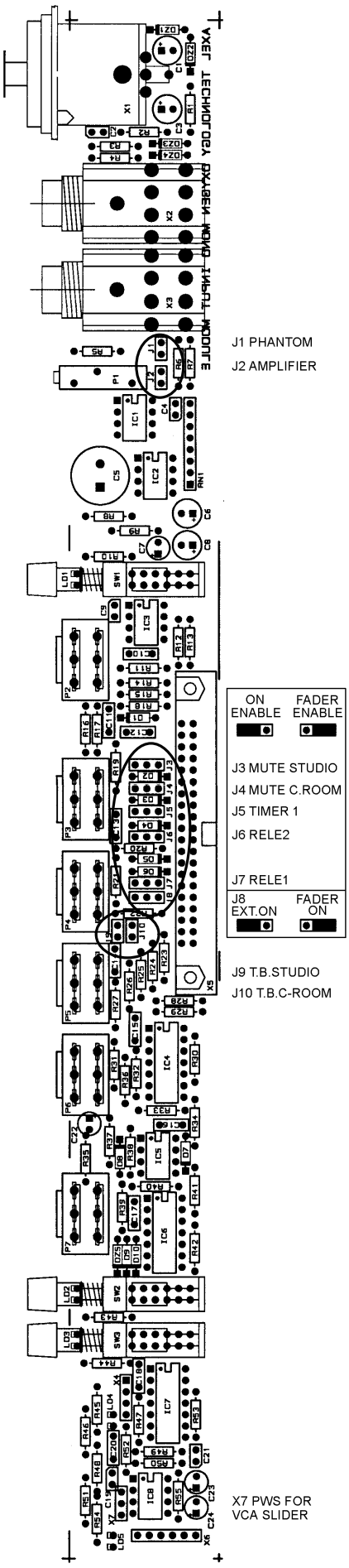
The slider is one of the most important device in the mixer. For that reason, Axel Technology uses only slider by **ALPS**, one of the best manufactures in the field.
The **N** type is provided on series. On demand, we can provide the **K** series and the **K/VCA** series too. We highly recommend these as the slider does not act directly on the audio signal but controls an high quality amplifier. That allows perfect volume control without any noise and 'skretch' even after years of usage.

3.16 MODULE CONFIGURATION

On the MONO module board you find 10 Jumpers allowing different operation modes and functions.

To change a jumper setting, please:
- switch off the console **(every intervention on the modules always requires the mixer switching off !)**
- remove the module
- disconnect the flat cable (pay attention to the two little hooks placed at the connector edges)
- alter the setting position as showed by the following table
- connect again the flat cable and lock the hooks
- insert the module into the console mainframe
- turn on the console

Please refer to the following figure and to the 'Factory preset jumper configuration' chapter at the end of this manual before altering jumper configurations.



If **J1 is present**, **Phantom** voltage is enabled on input A

- If **J2 is present**, input **A** is set for **MICRO** level (otherwise is set on Line level)

- If **J3** is on '**Fader Enable**' position, every time you open the slider (no matter of the On/Off key) the Studio monitor loudspeakers are cut off.
- If **J3** is on '**On Enable'** position, when the module is in the ON state the Studio monitor loudspeakers are cut off.

The On/Off switching mode is determined by the J8 position.
If **J3** is **not present**, no function is featured

- If **J4** is on '**Fader Enable**' position, every time you open the slider (no matter of the On/Off key) the Ctrl Room monitor loudspeakers are cut off.

If **J4** is on '**On Enable'** position, when the module is in the ON state the Studio monitor loudspeakers are cut off. The On/Off switching mode is determined by the J8 position.
If **J4** is **not present**, no function is featured

- If **J5** is on '**Fader Enable**' position, every time you open the slider (no matter of the On/Off key) the TIMER 1 starts.
- If **J5** is on '**On Enable'** position, every transition from the Off to the On state starts the TIMER 1

The On/Off switching mode is determined by the J8 position.
If **J5** is **not present**, no function is featured

- If **J6** is on '**Fader Enable**' position, every time you open the slider (no matter of the On/Off key) the RELAIS 2 switches.
- If **J6** is on '**On Enable'** position, every transition from the Off to the On state switches the RELAIS 2

The On/Off switching mode is determined by the J8 position.
If **J6** is **not present**, no function is featured

- If **J7** is on '**Fader Enable**' position, every time you open the slider (no matter of the On/Off key) the RELAIS 1 switches.
- If **J7** is on '**On Enable'** position, every transition from the Off to the On state switches the RELAIS 1

The On/Off switching mode is determined by the J8 position.
If **J7** is **not present**, no function is featured

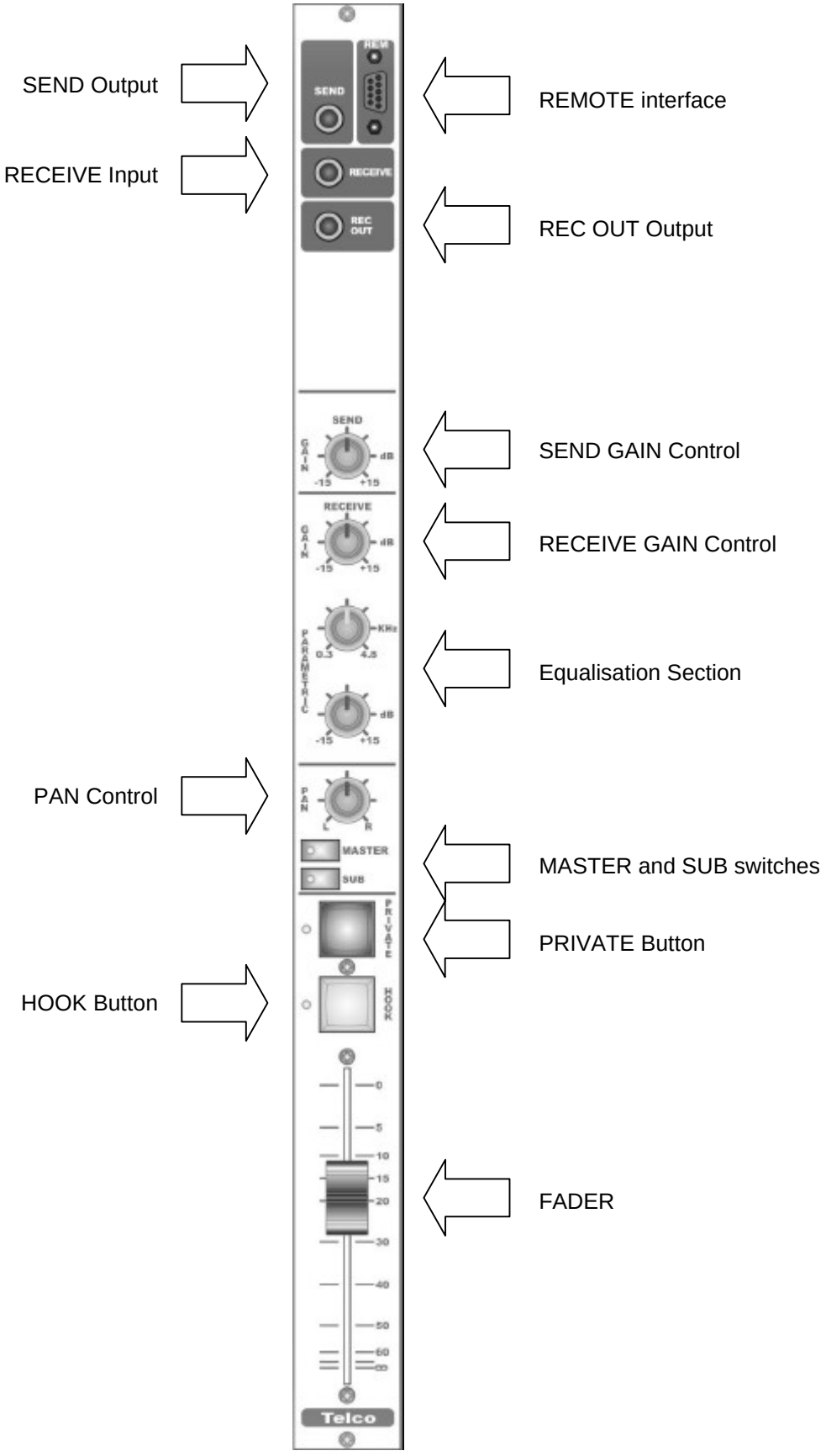
- **If J8 is not present**: the On/Off button only enables / disables the module (Independent mode)

If **J8** is on '**Fader enable'** position: the opening of the slider brings the module into the ON state and vice versa. You can also continue to use the ON/OFF button, that will modify the module operation state (On/Off) according to the state reached by the slider (Transfer mode)
If **J8** is on '**Ext On'** position: the On/Off state is regardless of the slider position. You can control the On/Off function either in local mode (through related button) or in remote mode, through an external device connected to the SUB module (Remote mode)

- If **J9 is present** the pre-fader signal is used for 'Talk Back to CTRL ROOM' function

- If **J10 is present**, the pre-fader signal is used for 'Talk Back to STUDIO' communication, for phone answering and for the Sub Slate function

4 TELCO MODULE



4.1 SEND OUTPUT

The Send output allows to send to the telephone line - through an external phone hybrid (e.g. MACROTEL7 by AXEL Technology) - the signal composed by the sum of the output signals from every module except the Telco one.
Send output (mono) is electronically balanced on female a Jack with 0 dB gain.
The pin-out presents standard configuration:

- Sleeve Ground
- Tip Signal
- Ring Return

We suggest to use balanced links. See Appendix A for wire connection schemes.

4.2 RECEIVE INPUT

The input RECEIVE allows to receive, through an external phone hybrid (e.g. MACROTEL7 by AXEL Technology) a phone signal incoming from the telephone line.
Receive input (mono) is electronically balanced on female a Jack with 0 dB gain.
The pin-out presents standard configuration:

- Sleeve Ground
- Tip Signal
- Ring Return

We suggest to use balanced links. See Appendix A for wire connection schemes.

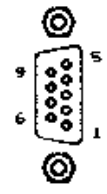
4.3 REMOTE INTERFACE

Remote interface is based on DB 9p female connector.
Module facilities and functions settings are:

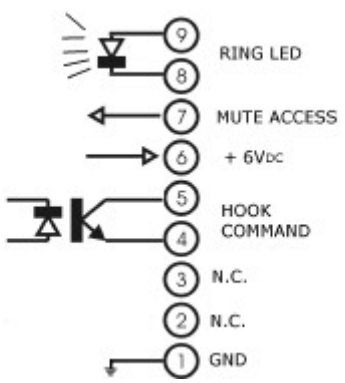
REMOTE MUTING
The Mute remote mode allows the remote Muting of the module (outputs toward Master bus). You just need to feed the pin 7 of the interface with +6V voltage.

HOOK – RING FACILITIES
Hook button contact is available on pins 4-5 (optoisolated contact). The signalling of incoming call can be brought to the 'Ring' led near the Hook button through the 8-9 pins.
On request, Axel Technology supplies a special cable to remote Macrotel telephone hybrid from the console.

Pin-out SUB D 9P female:



pin-out
SubD connector



Pin 1 GND
Pin 2 N.C.
Pin 3 N.C.
Pin 4 Emitter of the photocoupled transistor for HOOK function
Pin 5 Collector of the photocoupled transistor for HOOK function
Pin 6 supplies + 6V
Pin 7 enables the MUTE function if you supply + 6 V
Pin 8 Ring Led cathode
Pin 9 Ring Led anode

THE CONNECTOR SUPPLIES THE FOLLOWING VOLTAGES:

- + 6 VDC (pin 6)
- GND (pin 1)

These voltages can be used to polarize external optoisolator devices. We suggest to use a 100Ω (or more) resistor in series connection with the phototransistor emitter to prevent the risk of damages to the photocoupler, due to extra-high current.

4.4 REC OUT OUTPUT

Depending on the internal jumper setting, REC OUT connector (mono-balanced) provides:

- the only signal incoming from the telephone line (Receive signal)
- the only signal outgoing to the telephone line (Send signal)
- the sum of two signals.

The REC OUT signal (mono) is electronically balanced on female Jack with 0 dB gain.
The pin-out presents standard configuration:

- Sleeve Ground
- Tip Signal
- Ring Return

We suggest to use balanced links. See Appendix A for wire connection schemes

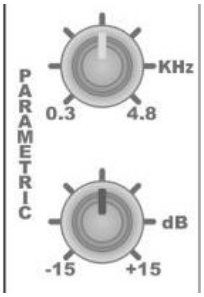
4.5 SEND GAIN CONTROL

It sets the gain from -15dB to + 15dB of the signal send to the telephone line.

4.6 RECEIVE GAIN CONTROL

It sets the gain from -15dB to + 15dB of the signal received from the telephone line.

4.7 EQUALIZATION SECTION



The equalisation section is based on the **MID** control operating from ± 15dB.
In particular, you can vary the operation frequencies of Mid control between 0.3 and 4.8 KHz (central position: 1 KHz).
You can get a flat frequency response when the potentiometers are in their central position (underlined by a 'click').

4.8 PANORAMIC CONTROL

The PAN control allows sound balancing between Left and Right output channels. In the central position the gain is 0 dB for both channels.

4.9 MASTER AND SUB SWITCHES

MASTER and **SUB** switches connect the module to the Master and/or Sub outputs.
The led inside the switches turn on according to the pressed buttons.
By using the Master/Sub assignment, you could, f.i., record a telephonic interview to Yr guest while another musical program is on air. To get this, please assign only to the Sub output the Mono channels involved in the recording session and to Master output the ones providing the on air program. See chapter 'SUB module' for Sub connections.

Note that:

- If the SUB button is pressed, the signal send to the telephone line (available on the Send module output) will be the sum of the signals coming from every module linked to the SUB bus except the Telco one.
- If the MASTER button is pressed, the signal send to the telephone line (available on the Send module output) will be the sum of the signals coming from every module linked to the MASTER bus except the Telco one.
- Do not press SUB selection if the Sub module is not present.

The led inside the switches turn on according to the pressed buttons.

ATTENTION ! Once the Master/Sub assignments are set and the slider is open, the Master / Sub outputs are always fed by the signal coming from the telephone line (even if the module is in PRIVATE state - see next paragraph).

4.10 PRIVATE BUTTON

The PRIVATE button allows to get into 'private', bidirectional communication with the phone user.

- You can listen to the phone user as a normal PFL, available on the Master module / Control Room and Studio sections (see Master module chapter). The PFL Right and Left channels are showed on the VU meters as long as the PFL is active.

- You can speak to the phone user by using:

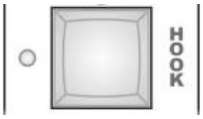
  1) the microphone built-in in the Master monitor (if it's enabled – see Jumper J1 in the chapter 'Master Module')
  2) one or more external microphone (usually placed in the Control Room). Please note that the related Mono modules have to be set on 'Talk Back to Studio' configuration. See also Factory Pre-set on the last pages.

In both cases the microphones are always active: every time you press the 'Private' button, you get into communication with the phone user.

ATTENTION ! Once the Master / Sub assignments are set and the slider is open, the Master / Sub outputs are always fed by the signal coming from the telephone line (even if the module is in the PRIVATE state !)

The phone user can listen to the overall mixing console output (rather than to the single microphones here above indicated) only if the Private button is disabled.

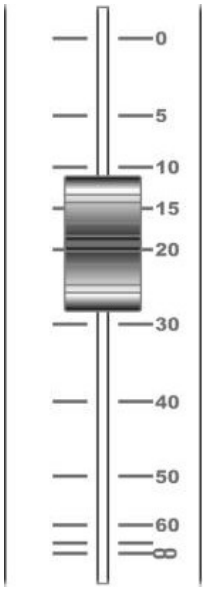
4.11 HOOK BUTTON



If the telephone hybrid features the required functions (for this purpose, we suggest to use MACROTEL7 by AXEL Technology) and it's correctly linked to the remote interface, you can:

- receive the signalling of an incoming call (ring): the Hook led blinks.
- 'hook' the telephone line by pressing the Hook button: the led lights firmly

4.12 FADER



The slider is one of the most important device in the mixer. For that reason**,** Axel Technology uses only slider by **ALPS**, one of the best manufactures in the field.
The **N** type is provided on series. On demand, we can provide the **K** series and the **K/VCA** series too. We highly recommend these as the slider does not act directly on the audio signal but controls an high quality amplifier (Voltage Controlled Amplifier). That allows perfect volume control without any noise and 'skretch' even after years of usage.

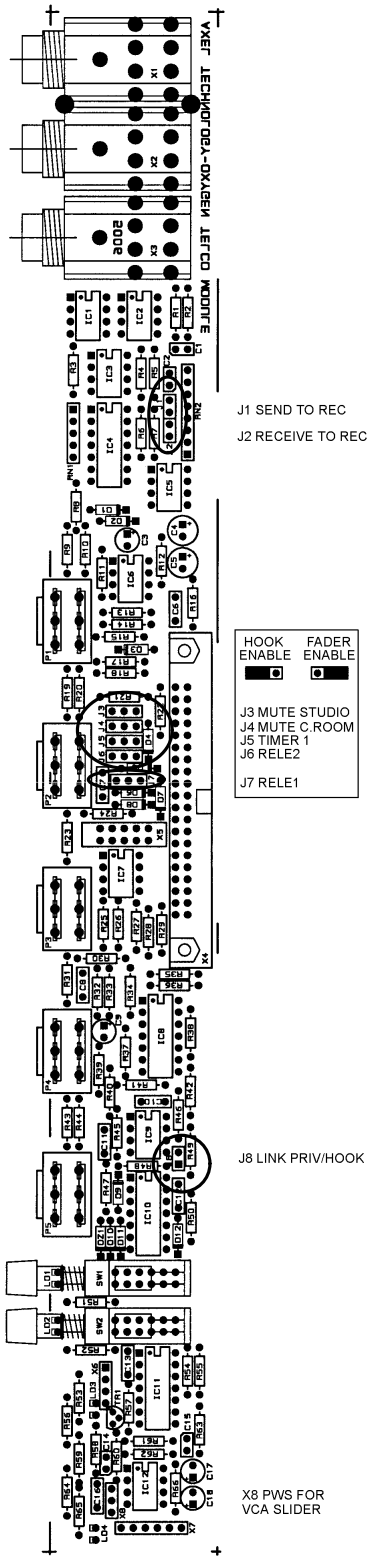
4.13 MODULE CONFIGURATION

On the TELCO module board you find 8 Jumpers allowing different operation modes and functions.

To change a jumper setting, please:

- switch off the console **(every intervention on the modules always requires the mixer switching off !)**
- remove the module
- disconnect the flat cable (pay attention to the two little hooks placed at the connector edges)
- alter the setting position as showed by the following table
- connect again the flat cable and lock the hooks
- insert the module into the console mainframe
- turn on the console

Please refer to the following figure and to the 'Factory preset jumper configuration' chapter at the end of this manual before altering jumper configurations.



J1 enables the recording of Send signal through the Rec Out socket.
J2 enables the recording of Receive signal through the Rec Out socket.
If **J1,J2** are both present, Rec Out output provides the sum of Send/Receive signals.

If **J3** is on '**Fader Enable**' position, whenever you open the slider the Studio monitor loudspeakers are cut off.
If **J3** is on '**Hook Enable'** position, whenever you press the Hook button the Studio monitor loudspeakers are cut off.
If **J3** is **not present**, no function is featured.

If **J4** is on '**Fader Enable**' position, whenever you open the slider the Ctrl Room monitor loudspeakers are cut off.
If **J4** is on '**Hook Enable'** position, whenever you press the Hook button the Ctrl Room monitor loudspeakers are cut off.
If **J4** is **not present**, no function is Featured.

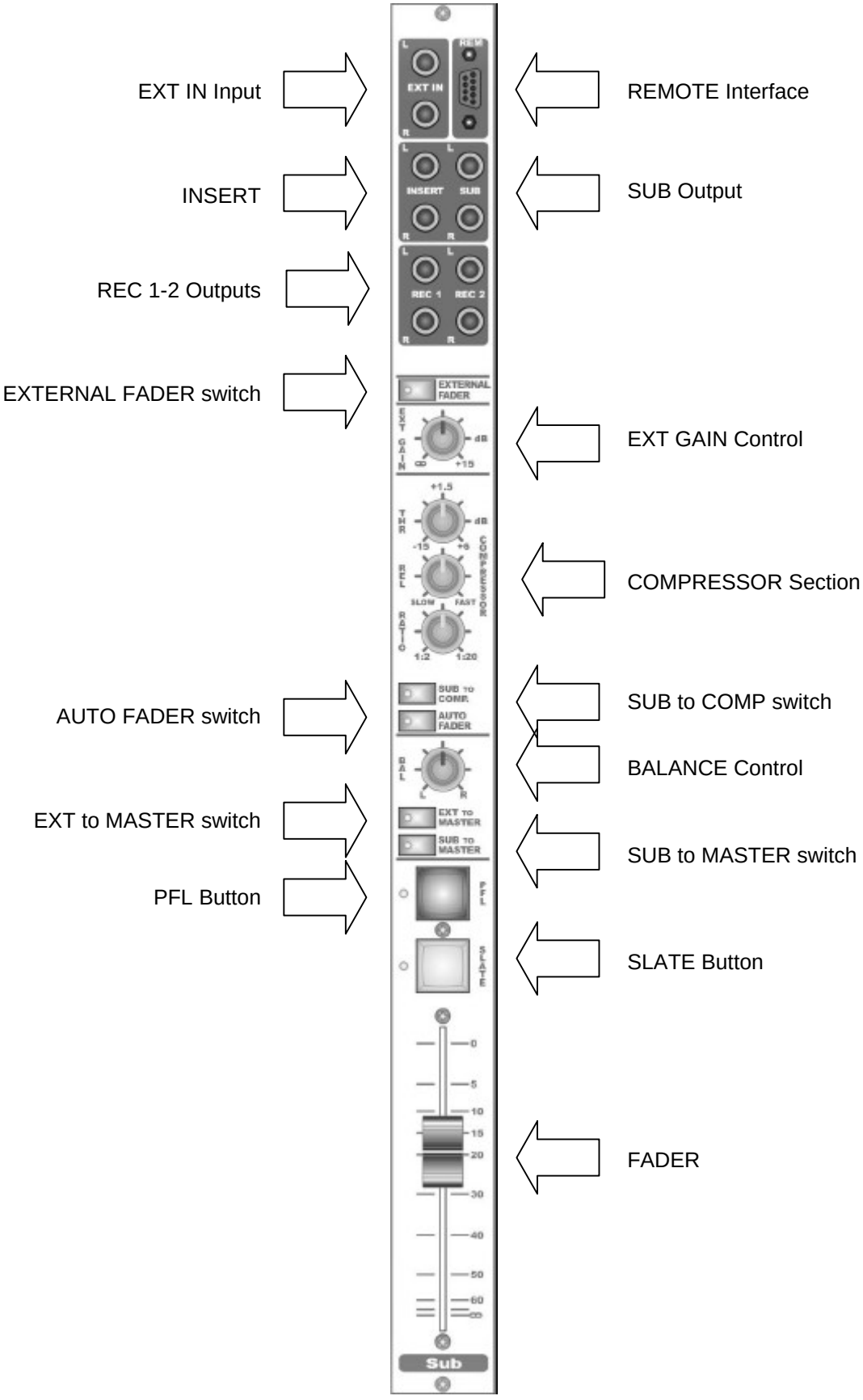
If **J5** is on '**Fader Enable**' position, whenever you open the slider the TIMER 1 starts.
If **J5** is on '**Hook Enable'** position, whenever you press the Hook button the TIMER 1 starts.
If **J5** is **not present**, no function is featured.

If **J6** is on '**Fader Enable**' position, every time you open the slider the RELAY 2 switches.
If **J6** is on '**Hook Enable'** position, whenever you press the Hook button the RELAY 2 switches.
If **J6** is **not present**, no function is featured.

If **J7** is on '**Fader Enable**' position, every time you open the slider the RELAY 1 switches.
If **J7** is on '**Hook Enable'** position, whenever you press the Hook button the RELAIS 1 switches
If **J7** is **not present**, no function is featured.

If **J8** is **present**, whenever you press the Hook button the module get into Private state too and vice-versa.
If **J8** is **not present**, Hook and Private state are got independently.

5 SUB MODULE


EXT IN Input
REMOTE Interface
INSERT
SUB Output
REC 1-2 Outputs
EXTERNAL FADER switch
EXT GAIN Control
COMPRESSOR Section
AUTO FADER switch
SUB to COMP switch
BALANCE Control
EXT to MASTER switch
SUB to MASTER switch
PFL Button
SLATE Button
FADER
EXT IN
INSERT
SUB
REC 1
REC 2
EXTERNAL FADER
SUB TO COMP.
AUTO FADER
EXT TO MASTER
SUB TO MASTER
Sub

5.1 SUB OUTPUT

The Sub output (mono) is electronically balanced on female Jack with 0 dB gain.
This output provides the sum of the output signals from the modules (Mono, Telco, Stereo, Multi input) where the 'SUB' selection is active.
The pin-out presents standard configuration:

- Sleeve Ground
- Tip Signal
- Ring Return

We suggest to use balanced links. See Appendix A for wire connection schemes

5.2 INSERT

The INSERT sockets allow to insert an external stereo equipment (like sound/effect processors) between the audio chain inside and the SUB output buffer. When no connector is inserted, an internal switch provides to short-circuit input and output pins.
Output impedance is 100Ω and input impedance is 10KΩ.
Output and input signal are on the standard level of 0 dB.
The pin-out presents standard configuration:

- Sleeve Ground
- Tip Signal Output
- Ring Signal Input

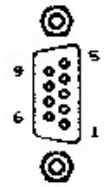
5.3 REMOTE INTERFACE

REMOTE interface is based on a SUB DB 9P female connector.
The SUB interface is especially designed for the connection to, AXEL Technology **DJ Console** equipment, that allows:

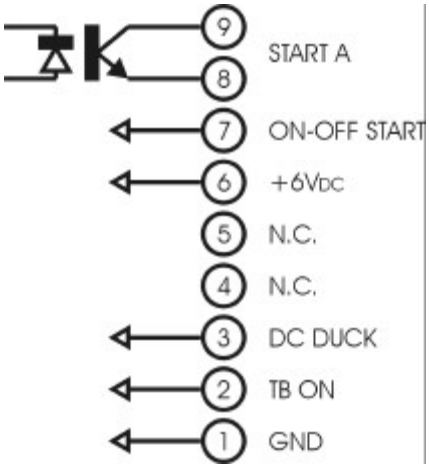
- The On/Off remote control – through a button placed on the DJ Console panel - of the Mono modules (if properly set).
- The remote enabling of the Talk Back from Studio to Control Room.

The level fading - through high quality slider - of the comprehensive output signal coming out from the Sub module (which can be assigned to the Master module by pressing the 'Sub to Master' button on the Sub module). Thanks to it, the speaker (normally located in studio) is able to remotely switch the mixer module related to his microphone. Moreover, through a mixer-like slider he can fade the level of the on-air musical program (for speech interventions mixed to the songs). A Talk Back function is also provided for communications from Studio to Control Room.

Pin-out SUB D 9P female:



pin-out
SubD connector



Pin 1 GND
Pin 2 Enables the Talk Back function if you supplies + 6 V
Pin 3 DC DUCK: by feeding a 0 ÷ 6 V tension you can control the Sub VCA
Pin 4 N.C.
Pin 5 N.C.
Pin 6 supplies + 6V
Pin 7 switchs the Mono modules into the ON state if you supply + 6 V
Pin 8 Emitter of the photocoupled transistor for ON state signalling
Pin 9 Collector of the photocoupled transistor for ON state signalling

THE CONNECTOR SUPPLIES THE FOLLOWING VOLTAGES:

- + 6 VDC (pin 6)
- GND (pin 1)

These voltages can be used to polarize external optoisolator devices. We suggest to use a 100Ω (or more) resistor in series connection with the phototransistor emitter to prevent the risk of damages to the photocoupler, due to extra-high current.

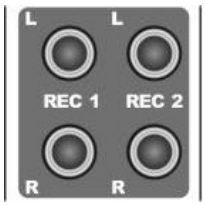
5.4 EXTERNAL IN INPUT

You can link to the EXT IN an external (line level) signal. This signal, faded by the Ext Gain control, can be sent to the Master module output (add to the other output signals) or listened by pressing the related selections in the Control Room / Studio section.
The two input (mono) connectors are electronically balanced on female Jack with 0 dB gain. The pin-out presents standard configuration:

- Sleeve Ground
- Tip Signal
- Ring Return

We suggest to use balanced links. See Appendix A for wire connection schemes

5.5 REC OUT OUTPUT



REC OUT sockets provide (also separately) the Sub signal or the Master signal (depending on the internal jumper configuration).
Each output connectors is electronically balanced on female Jack with 0 dB gain.
The pin-out presents standard configuration:

- Sleeve Ground
- Tip Signal
- Ring Return

We suggest to use balanced links. See Appendix A for wire connection schemes

5.6 EXTERNAL FADER SWITCH

The EXTERNAL FADER switch enables the control of Sub fading function by an external slider. For this purpose is optionally available the **DJ Console** equipment, that allows:

- The On/Off Mono modules remote control (if modules are properly set).

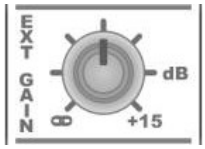
- The remote enabling of the Talk Back from Studio to Control Room.
- The level fading of the comprehensive output signal coming out from the Sub module (which can be assigned to the Master module by pressing the 'Sub to Master' button on the Sub module).

In this way the speaker located in the Studio room can remotely control the enabling of his microphone and the Talk Back communications towards the Control Room. Moreover, he's able to fade the sound level of the musical program in case of speech interventions. A Talk Back function is also provided for communications from Studio to Control Room.

To connect DJ Console to Sub module, please do follow these step:

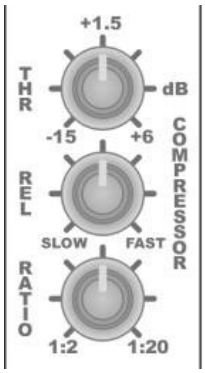
- Select the Master output on the Mono module connected to the DJ microphone
- Select the Sub output of the Stereo modules processing the musical program to fade
- Set the Jumper J8 in the Mono module in the B position (in order to allow the remote control of the On/Off function by an external device – see Mono module chapter)
- Link the DJ Console to the SUB Remote interface
- Select the EXT FADER button on the SUB module
- Make sure the jumper J1 is not present on the Master module (so you can exclude the internal microphone)
- Select the SUB to MASTER button on the SUB module

5.7 EXT GAIN CONTROL



The EXT GAIN potentiometer sets the gain of the EXTERNAL IN auxiliary signal. This signal can be sent either to the Master module output (mixed to the other output signals) or listened by pressing the related selections in the Control Room / Studio sections (if the EXT to MASTER switch is pressed).
No further control acts on the EXTERNAL source level.

5.8 COMPRESSOR SECTION



The SUB module features an high quality Compressor section, allowing AUTO FADER function, it means that you can automatically fade the level of music signals (from Stereo module) depending on the level of a microphone signal (Voice Over function).

The section is based on three controls referred to the working parameters of compressor:

- THR (THRESHOLD) sets the threshold intervention level of compressor.
- REL (RELEASE) sets the release time of compressor: the higher is the value (max 10), the longer is the time needed to come back to the former audio level).
- RATIO sets the ratio of the compression: the higher is the value (max 1:20), the lower will be the audio compressed level.

A blue led near the Ratio knob shows the compressor operation: higher is the led brightness, higher is the compression level.
Please note that the compressor section acts also as Limiter if applied to the to the Sub output (SUB to COMP selection).
The signal processing is always controlled by the THR, RELEASE, RATIO potentiometers.

5.9 SUB TO COMP SWITCH

The SUB switch allows to apply the Limiter function to the Sub output signal.
For this purpose, you have to:

- Assign the outgoing audio signals from input modules towards Sub module
- Make sure that the sum of this signal is present on the Sub output
- Enable the SUB to COMP selection
- Verify that the output signal is limited every time its level exceeds the set threshold and that the fading level and release time are controlled by Ratio and Rel knobs.

5.10 AUTO FADER SWITCH

AUTO FADER switch enables the automatic level adjustment of a signal (available on the input of the Sub module) depending on the level modulation of another signal (available on the input of the Master module).

E.g. if you want to automatically fade the level of one music signals (coming from a Stereo module) depending on the level of a microphone signal (Voice Over function), you have to:

- Assign the Sub output in the Stereo module, whose signal will be compressed
- Make sure that this signal is present on the Sub output
- Assign the Master output in the Mono (micro) module
- Select AUTO FADER and SUB to MASTER on the SUB module
- Make sure that the sum of music and speech signals is present on the Master output
- And that the music level is depending on the voice level

In particular, you can verify that the musical signal is limited every time the voice level exceeds the set threshold, that the fading level is controlled by Ratio knob and that the release time is controlled by Rel knob.

5.11 BAL CONTROL

The BAL control allows sound balancing between Left and Right output channels. In the central position the gain is 0 dB for both channels.

5.12 EXT TO MASTER SWITCH

It enables the addressing of the EXT IN signal (see Sub module) towards the MASTER module.

5.13 SUB TO MASTER SWITCH

It enables the addressing of the Sub output signal towards the MASTER module (it will be added to the signals incoming from the other modules).

5.14 PFL BUTTON

The pre-fader listening serves for input identification when the fader is still shut.
PFL enables the pre-fader listening of the channel. The led shows that the function is on.
Please note that every time a new selection is called the previous PFL is reset (i.e. it is not possible to listen to the sum of different PFLs).

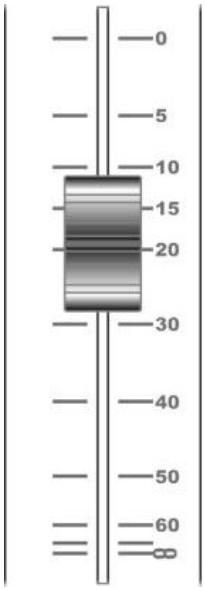
The **PFL RESET** key on the Master module resets any time every selected PFL.
PFL signal is available on the Master module, in the Control Room and Studio sections.
Note: if PFL and another source (tuner, ext, etc.) are selected in these sections and a PFL is called, it will have priority on the other selections. E.g.: if PFL and Master are selected in the CTRL Room section, headphones and loudspeakers reproduce Master signal till a PFL will be called by one or more input modules. Once the PFL terminates, the sound reproduction will scwitch automaticallyon the previous selected source (master).
The PFL Right and Left channels are showed on the VU meters whenever a PFL is active

5.15 SLATE BUTTON

Through the SLATE button you can send to the Sub output the signal coming from the microphone built-in in the Master module or from one of the microphones linked to the Mono modules (if you set properly the Master e Mono modules).

This function can be especially useful when you need to add 'voice announcements' at the beginning of the recorded programs (signal provided by the Sub output, eventually repeated by the two Rec Out sockets).

5.16 FADER



The slider is one of the most important device in the mixer. For that reason**,** Axel Technology uses only slider by **ALPS**, one of the best manufactures in the field.
The **N** type is provided on series. On demand, we can provide the **K** series and the **K/VCA** series too. We highly recommend these as the slider does not act directly on the audio signal but controls an high quality amplifier (Voltage Controlled Amplifier). That allows perfect volume control without any noise and 'skretch' even after years of usage.

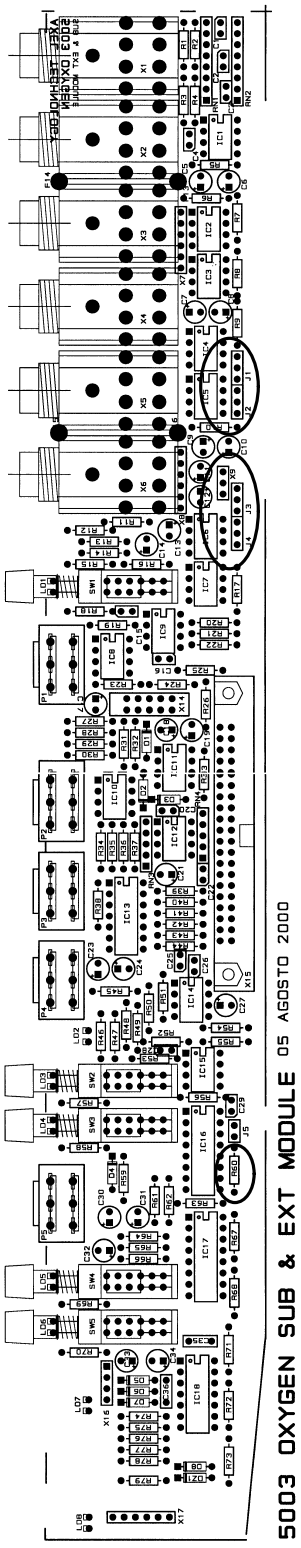
5.17 MODULE CONFIGURATION

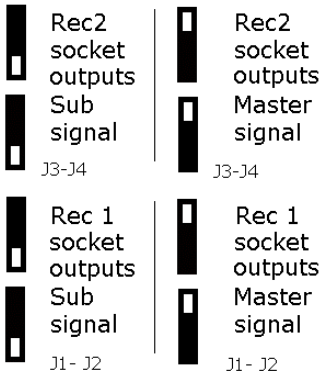
On the TELCO module board you find 8 Jumpers allowing different operation modes and functions.

To change a jumper setting, please:
- switch off the console **(every intervention on the modules always requires the mixer switching off !)**
- remove the module
- disconnect the flat cable (pay attention to the two little hooks placed at the connector edges)
- alter the setting position as showed by the following table
- connect again the flat cable and lock the hooks
- insert the module into the console mainframe
- turn on the console

Please refer to the following figure and to the 'Factory preset jumper configuration' chapter at the end of this manual before altering jumper configurations.

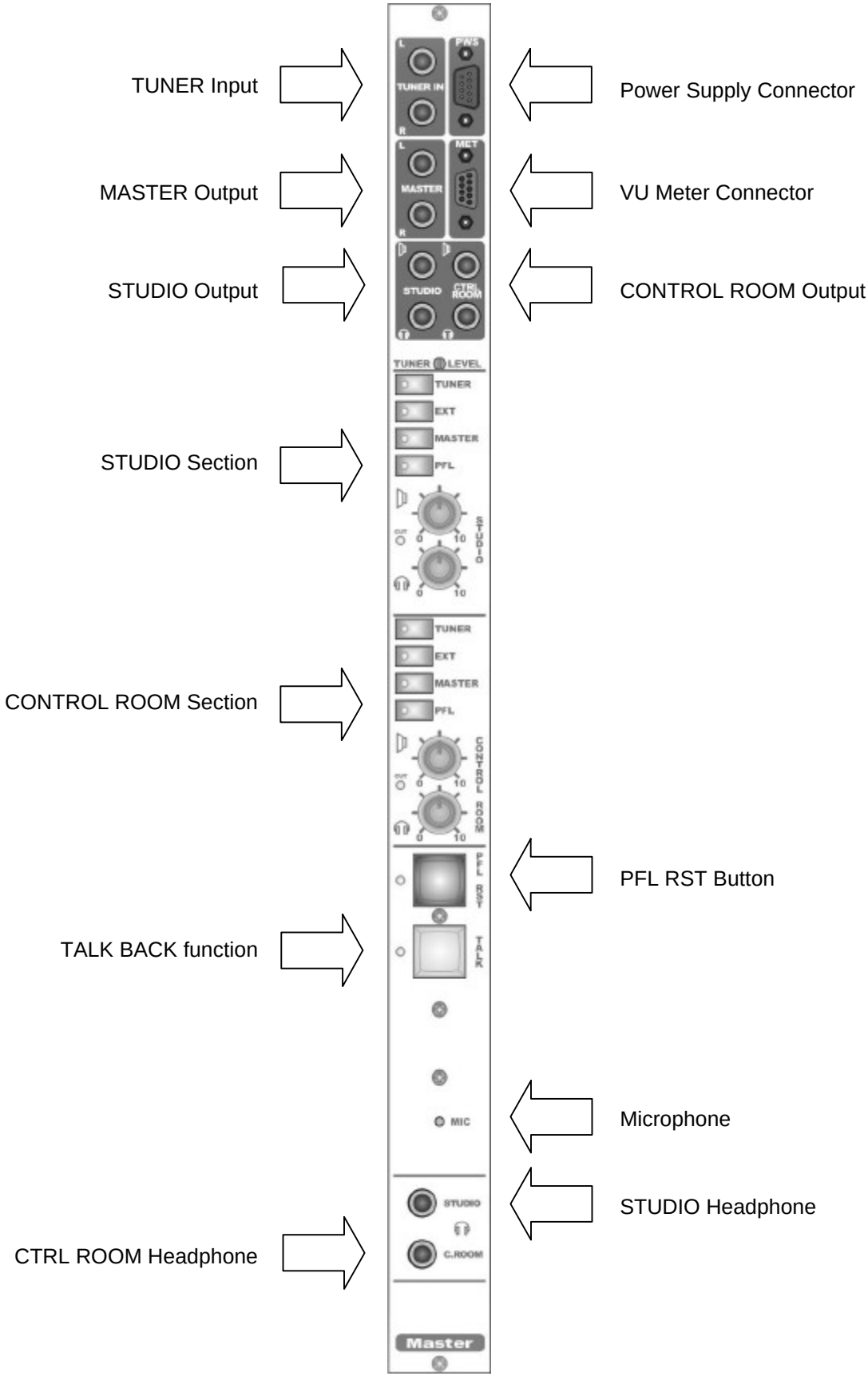
5.18 MODULE CONFIGURATION





If J5 is present, the PFL signal turns to an AFL (After Fader Listen) signal

6 MASTER MODULE



6.1 MASTER OUTPUT

The two output sockets are electronically balanced on female stereo Jack with 0 dB gain.
The pin-out presents standard configuration:

- Sleeve Ground
- Tip Signal
- Ring Return

We suggest to use balanced links.

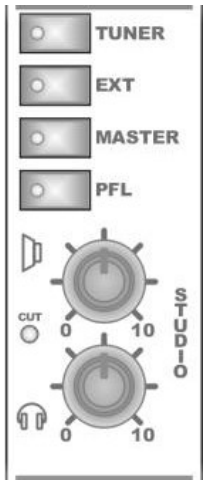
6.2 TUNER IN

The **TUNER IN** input is set to Line level, electronically balanced on two female Jack. TUNER IN allow to connect to the mixer an external radio receiver to monitor the broadcast signal.
You can adjust the Tuner IN level in the range ±6 dB through the special trimmer.
The pin-out presents standard configuration:

- Sleeve Ground
- Tip Signal
- Ring Return

We suggest to use balanced links. See appenix A fo connection schemes.

6.3 STUDIO SECTION



The STUDIO section allows the listening (on the studio loudspeakers and headphones) of the source selected by the four buttons TUNER, EXT, MASTER and PFL.
If you press simultaneously two or more selections (e.g. Tuner and Master), you can listen to the sum of the selected sources.
We remember that the EXT signal comes from the Sub module and that the Tuner level can be regulated through the related trimmer.

The two potentiometers of Studio section allow the independent level controls of the studio headphones and of the studio loudspeakers.
In particular, the Studio headphones signal has separate output : the stereo jack placed either in the top or in the bottom of the module. These output are preamplified (so you can more than one headphone at the same time).
Loudspeaker stereo output is on +15 dB level.

The CUT led switches on every time audio reproduction on the Studio loudspeakers is cut off. This 'mute' function is useful in order to avoid 'Larsen effect' when Studio microphones are on.
We remember that this function is settable by the Mono modules.

Regarding PFl selection, when:

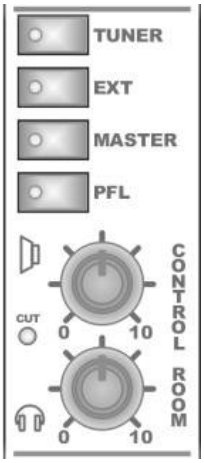
- PFL button and one or more of TUNER, EXT, MASTER buttons are selected at the same time
- PFL listening is called by a module

the listening referred to the TUNER, EXT, MASTER sources is interrupted and the PFL signal only is reproduced. It means: if the PFL button in the Studio section is pressed, the PFL signal has the priority over other sources that could be selected at the same time.

In particular,
The pin-out of Loudspeakers and headphones presents standard configuration:

- Sleeve Ground
- Tip Right
- Ring Left

6.4 CONTROL ROOM SECTION



The CTRL ROOM section allows the listening (on the studio loudspeakers and headphones) of the source selected by the four buttons TUNER, EXT, MASTER and PFL.
If you press simultaneously two or more selections (e.g. Tuner and Master), you can listen to the sum of the selected sources.
We remember that the EXT signal comes from the Sub module and that the Tuner level can be regulated through the related trimmer.

The two potentiometers persent in the section allow the independent level controls of the headphones and of the loudspeakers.
In particular, the Ctrl Room headphones signal has separate output : the stereo jack placed either in the top or in the bottom of the module. These output are preamplified (so you can more than one headphone at the same time).
Loudspeaker stereo output is on +15 dB level.

The CUT led switches on every time audio reproduction on the Ctrl Room loudspeakers is cut off. This 'mute' function is useful in order to avoid 'Larsen effect' when Ctrl room microphones are on.
We remember that this function is settable by the Mono modules.

Regarding PFl selection, when:

- PFL button and one or more of TUNER, EXT, MASTER buttons are selected at the same time
- PFL listening is called by a module

the listening referred to the TUNER, EXT, MASTER sources is interrupted and the PFL signal only is reproduced. It means: if the PFL button in the section is pressed, the PFL signal has the priority over other sources that could be selected at the same time.

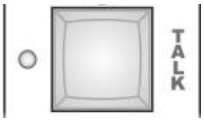
In particular,
The pin-out of Loudspeakers and headphones presents standard configuration:

- Sleeve Ground
- Tip Right
- Ring Left

6.5 PFL RST BUTTON

The PFL RST button disables every active module pre-listening and resets the pre-listening system. By pressing this button, the related led will be switched on till you call a new PFL. Remember that you can disable an active PFL listening either by pressing PFL RESET on the Master module or by calling a new PFL selection on the other modules.

6.6 TALK BACK FUNCTION



The Master module features a 'Talk Back' button allowing different 'private' (not broadcast) communications:

From CTRL Room to Studio: the related signal is available on the studio loudspeakers and on the studio headphones. You can use either the master built-in microphone (placed near the headphones plugs) or a microphone connected to a Mono module (properly set):

- to use the Master built-in microphone, please insert a jumper in the J1 position on the master board. The same master built-in microphone can be used also for answering to the phone calls through the Telco module (see 'Private' Telco function).

- to use an external microphone (e.g. the 'on air' microphone), please insert the J10 jumper (T.B. to STUDIO) in the related Mono module (please refer to the Mono module chapter). The jumper J1 on the Master board must not be present.

From Studio to CTRL Room: the related signal is available on the Ctrl Room loudspeakers and headphones. The Studio to Control Room communications are get through one or more microphones connected to the Mono modules (where the J9 jumper 'T.B. to Ctrl Room' is present).

Note: if no PFL are called (but the PFL button on the Ctrl Room section is select), every time you press the Talk button the Master, Sub or Tuner selection are replaced by the Talk signal. If one or more PFL are active, every time you press the Talk button, the Talk signal is mixed with the PFL signal.

A Talk Back function from Studio to Control Room is also available through the **DJ Console**' by Axel Technology.. Thanks to this equipment (connected to the SUB module) the speaker (normally located in the studio) is able to remotely switch the mixer module related to his microphone. Moreover, through a mixer-like slider he can fade the level of the on-air musical program (for speech interventions mixed to the songs).

6.7 METER CONNECTOR

The MET connector transfers the supply voltages and the signals feeding the VU-METER and the (optional) TIMERs.
The connector type is SubD- 9 female. Please make sure do not swap Met connector and Remote connectors.

6.8 POWER SUPPLY CONNECTOR

The PWS connector transfers the supply voltages to the MIXER. The connector (SubD- 9 male type) transfers also the signals related to the Relais 1 - 2 (included in the power supply box).
Please make sure that the power supply is switched off before to power the console and that the AC voltage corresponds to that indicated on the rear of power supply (110 or 220 Vac). If the voltage is different, please set the right voltage on the power supply.

The mixer supply voltages are:

- + 48 V phantom voltage
- + 18V analogue section positive voltage
- - 18V analogue section negative voltage
- + 6 V digital section positive voltage
- -6 V digital section negative voltage

6.9 MODULE CONFIGURATION

On the MASTER module board you find 1 Jumper allowing different operation modes and functions.

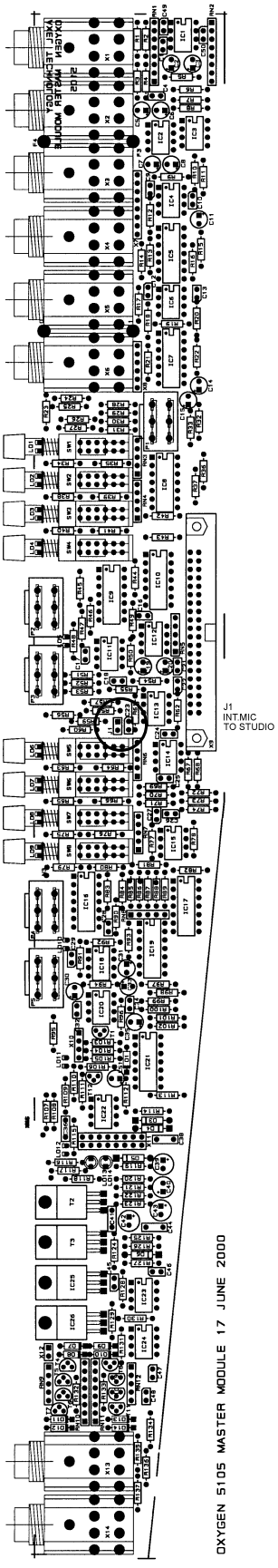
6.10 MODULE CONFIGURATION

On the TELCO module board you find 8 Jumpers allowing different operation modes and functions.

To change a jumper setting, please:

- switch off the console **(every intervention on the modules always requires the mixer switching off !)**
- remove the module
- disconnect the flat cable (pay attention to the two little hooks placed at the connector edges)
- alter the setting position as showed by the following table
- connect again the flat cable and lock the hooks
- insert the module into the console mainframe
- turn on the console

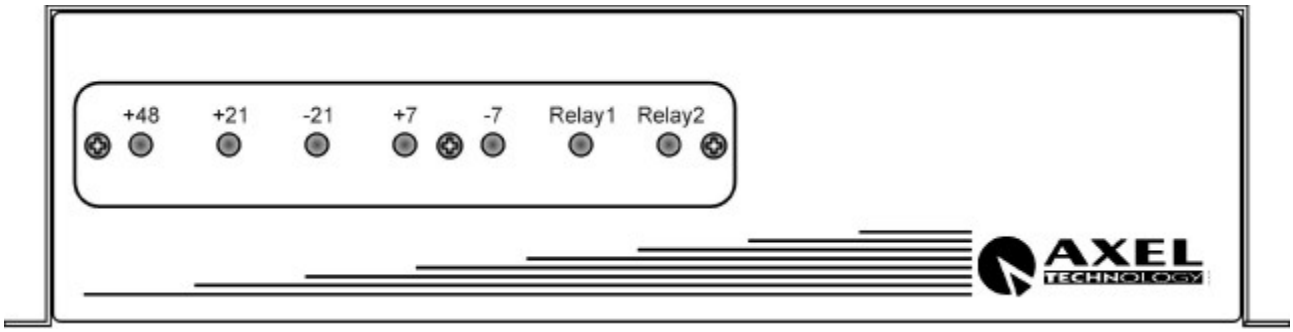
Please refer to the following figure and to the 'Factory preset jumper configuration' chapter at the end of this manual before altering jumper configurations.



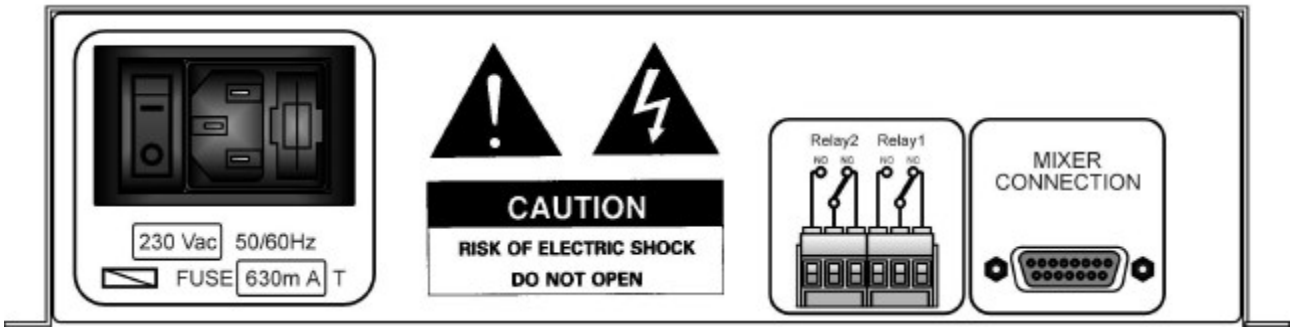
If J1 is present, the Master internal microphone is enabled for 'Talk Back to Studio' function

7 POWER SUPPLY

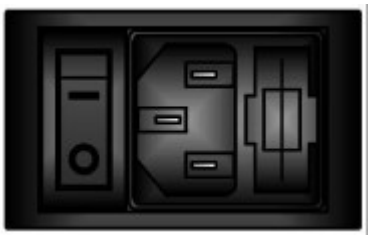
FRONTAL VIEW



REAR VIEW



7.1 AC VOLTAGE (110-220 VAC)



Attention! Before starting the power supply, please check that the line supply voltage corresponds to that indicated in the rear of power supply.

Power supply is ex-work set for 220 VAC (if not otherwise required).

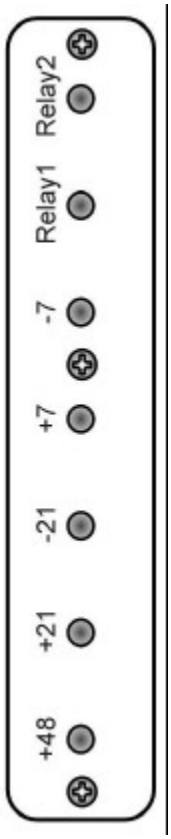
To change the supply voltage:

- disconnect every cable
- open the power supply cover
- select the required voltage (110 o 220VAC) through the internal switch close to the line socket
- close up the power supply cover through all the screws
- replace the two 1 A T (slow blow 220 Vac) with two 2 A T (slow blow 110 Vac)
- connect the line cord only
- switch on the power supply
- verify that every led on the front panel switch on (except relais 1 and 2)
- switch off the power supply
- connect the mixer to the power supply
- switch on the power supply
- verify the correct console operation

7.2 CONNECTION BETWEEN CONSOLE AND POWER SUPPLY

Attention! Before starting the power supply, please check that the line supply voltage corresponds to that indicated in the rear of power supply.
The power cable features a SubD- 9 female connector (to link to the console) and a SubD-15 male connector (to link to the power supply). The cable transfers also the signals related to the Relais 1 - 2 (included in the power supply box).

7.3 SUPPLY VOLTAGES AND TROUBLESHOOTING



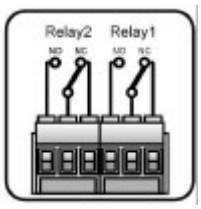
The mixer supply voltages are:
- + 48 V phantom voltage
- + 18V analogue section positive voltage
- - 18V analogue section negative voltage
- + 6 V digital section positive voltage
- -6 V digital section negative voltage

The correct operation of power supply is showed by the lighting 5 led (specific voltages) on the front panel. If the console doesn't work properly, please check the power connection cable.
If the neon lamp placed inside the main switch is off (and therefore every led on the power supply panel is off), please check the Main Fuse next to the line cord socket (1A T - 220 VAC / 2 A T, 110 VAC).

If one or more led on the panel of power supply are switched off (and therefore console doesn't work properly) please execute the following steps:
- disconnect the console from the power supply
- switch on the power supply
- verify that every led on the front panel switches on (except relais 1 and 2)

After that, if one or more led are still switched off:
- open the power supply cover
- verify the integrity of the 3 fuses placed on the power board and replace the burned ones
- close up the cover through all the screws
- connect the line cord only
- switch on the power supply again and verify that every led on the front panel switches on (except relais 1 and 2). Note: if the problem is still present, please contact Axel Technology technical office
- switch off the power supply
- connect the mixer to the power supply
- switch on the power supply
- verify the correct console operation

7.4 RELAIS



The power supply features two built-in relais enabling by the mixer input modules.
The max electric load supported is 10 A, 220 V.
You can use the relais to drive the studio light indicator Mr.LIGHT by AXEL TECHNOLOGY, showing that one or more microphones are 'on air'.
The relais feature either Normally Open or Normally Closed contacts.

8 VU METER

8.1 MIXER CONNECTION

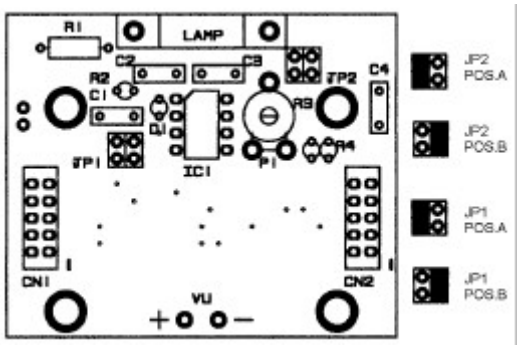
The MET connector placed on Master module transfers the supply voltages and the signals feeding the VU-METER and the (optional) TIMERs.
The connector type is SubD- 9 female. Please make sure the Met connector is on site.

8.2 VU-METER OPERATION

The two VU-Meter on the mixer cover show the Right and Left channel output level till a PFL is called by a module. In this case, the VU-Meter will show the PFL signal.

Every Vu Meter includes also a peak meter with red led placed behind the '+' symbol on the dB scale.
The led blinks every time a signal peak reaches the 0 dB level (the factory pre-set meter setting is based on a 1 KHz sinusoidal, static signal so that the led switches on when the indicator exceed 0 dB level).
Please note that, due to its mechanical inertial, the Vu Meter mechanical pointers show only the medium signal value (a few dB lower that the related peak value).

Mechanical Vu meter levels are not adjustable.



Every Vu Meter board (placed behind the instrument, under the console cover) presents two jumper settings:

- The first (JP1) allows to assign the Vu Meter to the Right (Pos B) or to the Left (Pos A) channel.

- The second (JP2) allows to use the peak meter (red led) in the adjustable mode or fixed mode (factory pre-set peak level)
  JP2 on Pos A: you can modify the peak level through the P1 trimmer
  JP2 on Pos B: peak level factory pre-set on 0 dB and not adjustable

9 **TIMER** (optional)

By request, up to two Timer modules are available to be installed on the mixer cover. The Timer feature the time count up showing minutes, seconds and tenth of seconds if time duration does not exceed 1 hour and hours, minutes and seconds if time duration exceeds 1 hour.
In particular, you can associate the two timers to the opening of the slider on Mono modules and to the Start/Stop function of the Stereo modules.

Through internal jumper setting two operation modes are available:

- reset + count start at every slider opening
- manual count start/stop regardless of the slider position and of the On/Off state of Mono modules

10 TECHNICAL SPECIFICATIONS

STEREO MODULE

INPUT A	Stereo Line	El. Bal.	Jack	-15 ÷ +15 dB
INPUT B	Stereo Line (jumper select)	El. Bal.	Jack	-15 ÷ +15 dB
	Stereo Phono (jumper select)	Unbal.	Jack	-15 ÷ +15 dB RIAA

MONO MODULE

INPUT A	Mono Micro (gain adj. -40÷-80 dB)	El. Bal.	XLR	-15 ÷ +15 dB
INSERT A	Mono Line	Unbal.	Jack	0 dB
INPUT B	Mono Line	El. Bal.	Jack	-15 ÷ +15 dB

TELCO MODULE

SEND	Mono Line	El. Bal.	Jack	-15 ÷ +15 dB
RECEIVE	Mono Line	El. Bal.	Jack	-15 ÷ +15 dB
REC OUT	Mono Line	El. Bal.	Jack	0 dB

SUB MODULE

EXT IN	Stereo Line	El. Bal.	Jack	-∞ ÷ +15 dB
SUB Output	Stereo Line	El. Bal.	Jack	0 dB
INSERT	Stereo Line	Unbal.	Jack	0 dB
REC1 – REC2	Stereo Line	El. Bal.	Jack	0 dB

MASTER MODULE

TUNER IN	Stereo Line	El. Bal.	Jack	-15 ÷ +15 dB
MASTER Output	Stereo Line	El. Bal.	Jack	0 dB
STUDIO Output	Spk - Stereo Line	Unbal.	Jack	-∞ ÷ +15 dB
	Phones - Stereo Line	Unbal.	Jack	0 ÷ +44 Vpp Amplified
CTRL ROOM Output	Spk - Stereo Line	Unbal.	Jack	-∞÷+15 dB
	Phones - Stereo Line	Unbal.	Jack	0 ÷ +44 Vpp Amplified

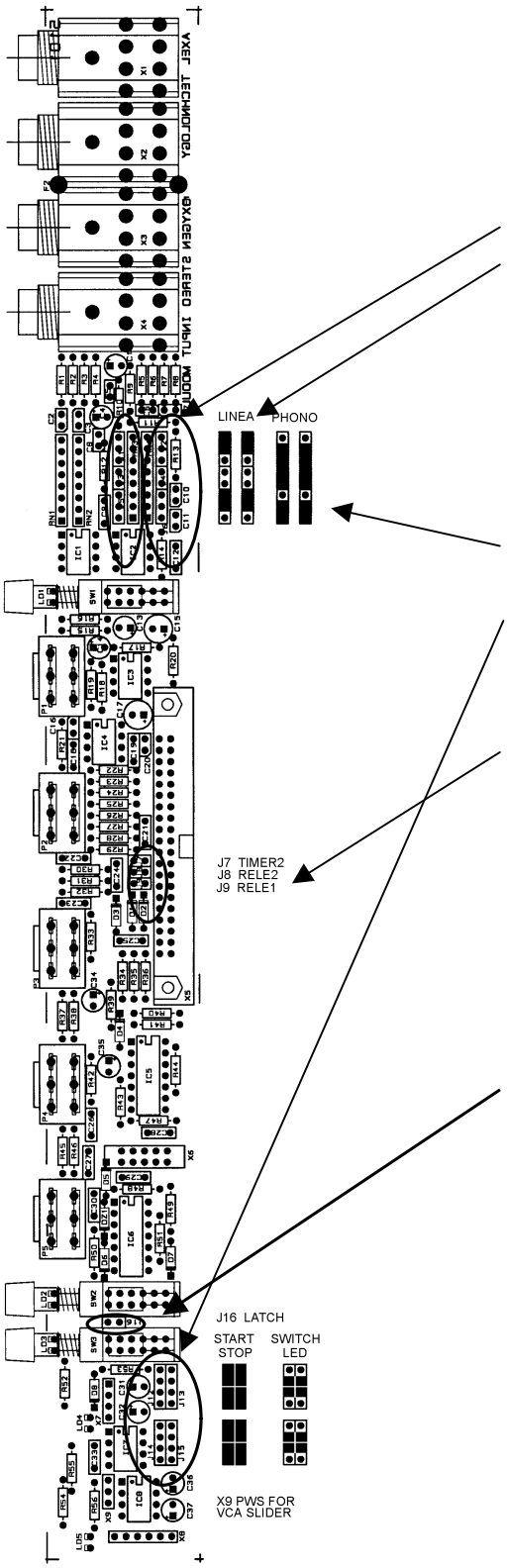
GENERAL FEATURES

HEIGHT	220 mm
DEPTH	595 mm
WIDTH	745 mm (frame 18) - 1050 mm (frame 26)
WEIGHT	depending on the number of installed modules

11 FACTORY PRESET MODULE CONFIGURATIONS

- The following images show the factory pre-set, standard jumper setting. Please refer to these images and to the relates chapters before altering jumper position. Please note: **every intervention on the modules always requires the mixer switching off !**

11.1 STEREO MODULE – FACTORY PRESET JUMPER CONFIGURATION



If the customer's choice is:

- **LINE** for **Input A** and **LINE** for **Input B**:

jumpers **J1, J2, J3, J4, J5, J6** are on **LINE** configuration

jumpers **J12, J13, J14, J 15** are on **START/STOP** configuration

- **LINE** for **Input A** and **PHONO** for **Input B**:

jumpers **J1, J2, J3, J4, J5, J6** are on **PHONO** configuration

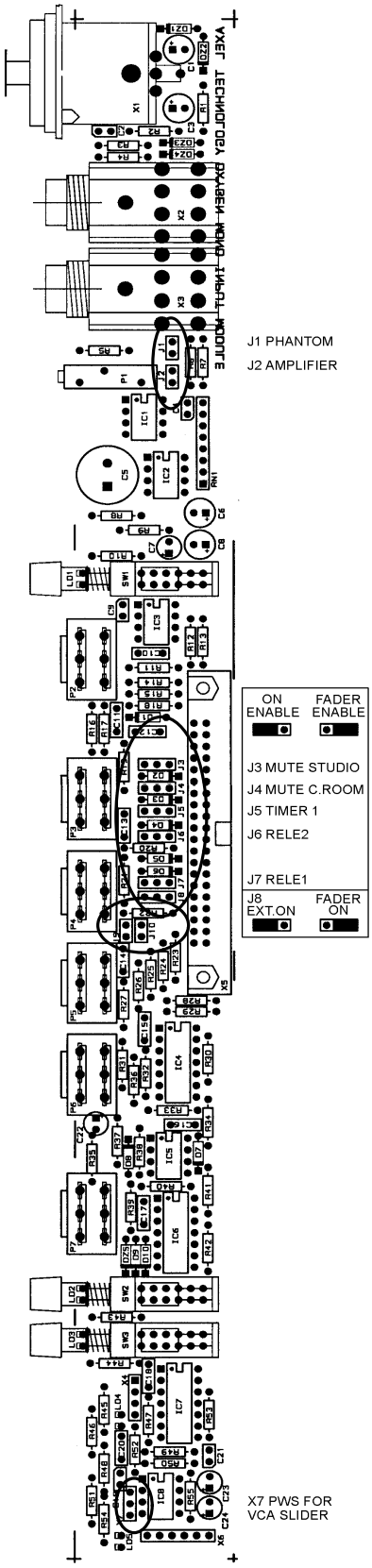
jumpers **J12, J13, J14, J 15** are on **SWITCH/LED** configuration ******

Jumpers **J7, J8, J9** are Not Present

Jumper **J16** is Present.

** Record players need usually a "direct (clean) contact" start command

11.2 MONO MODULE – FACTORY PRESET JUMPER CONFIGURATION



J1 not present
J2 present (Micro input Level)

Module setting for STUDIO microphones.

By default, **every** mono module (excluding the last one on the right) is **factory preset for the Studio microphones** ("**Talk Back to Control Room**" configuration) so **we suggest to connect** them to the microphones placed in the **STUDIO**.

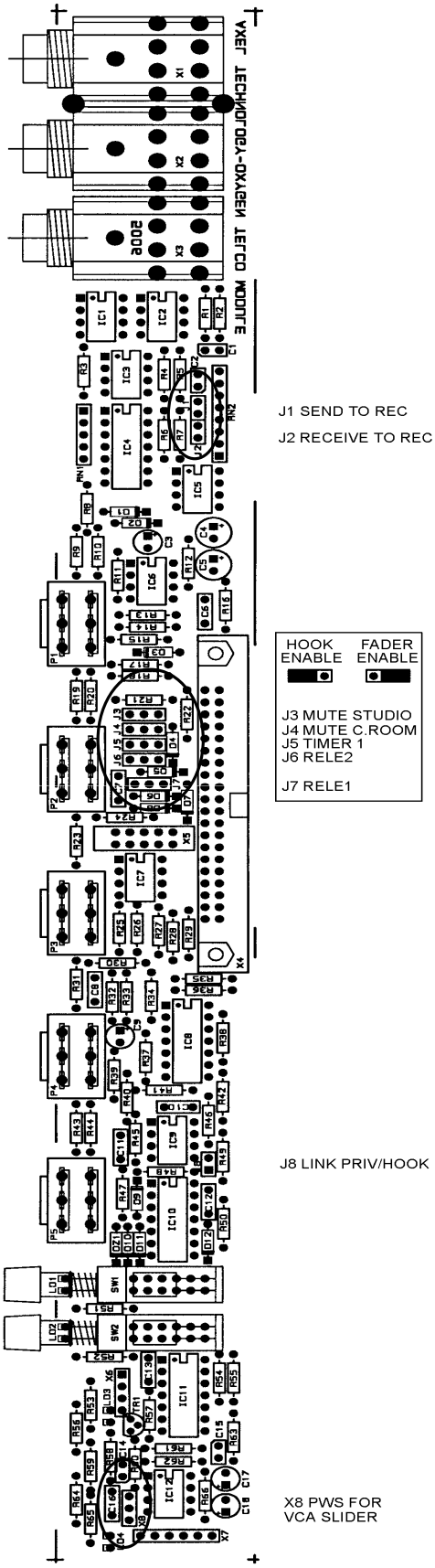
J3 on 'Fader Enable' position
J4 not present
J5 not present
J6 on 'Fader Enable' position (for the remote turn on of the Studio 'on air' lamp)
J7 not present
J8 on *Fader On* position
J9 present
J10 not present

Module setting for CTRL ROOM microphones.

By default, the last module on the right is **factory preset for the Control Room microphones** ("**Talk Back to Studio**" configuration) so **we suggest to connect** it to the microphones placed in the **Control Room**.

J3 not present
J4 on 'Fader Enable' position
J5 not present
J6 not present
J7 on 'Fader Enable' position (for the remote turn on of the Ctrl Room 'on air' lamp)
J8 on *Fader On* position
J9 not present
J10 present

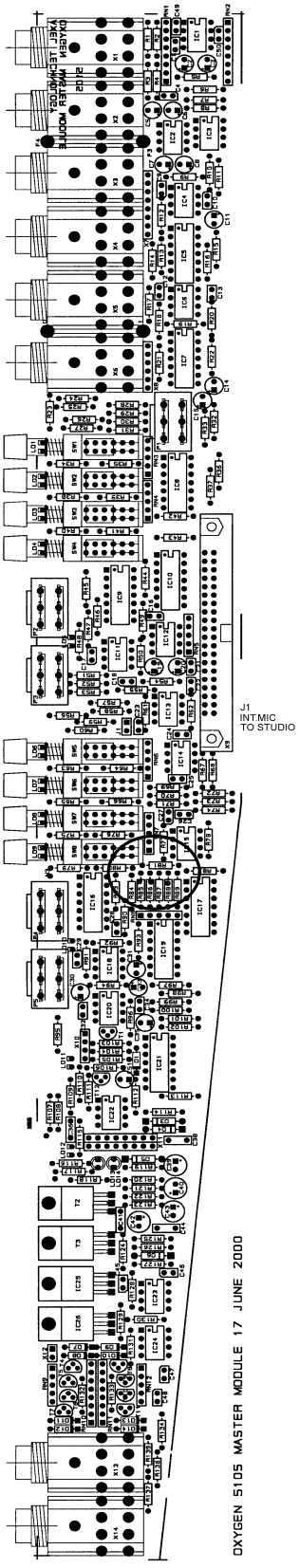
11.3 TELCO MODULE – FACTORY PRESET JUMPER CONFIGURATION



J1 is present
J2 is present

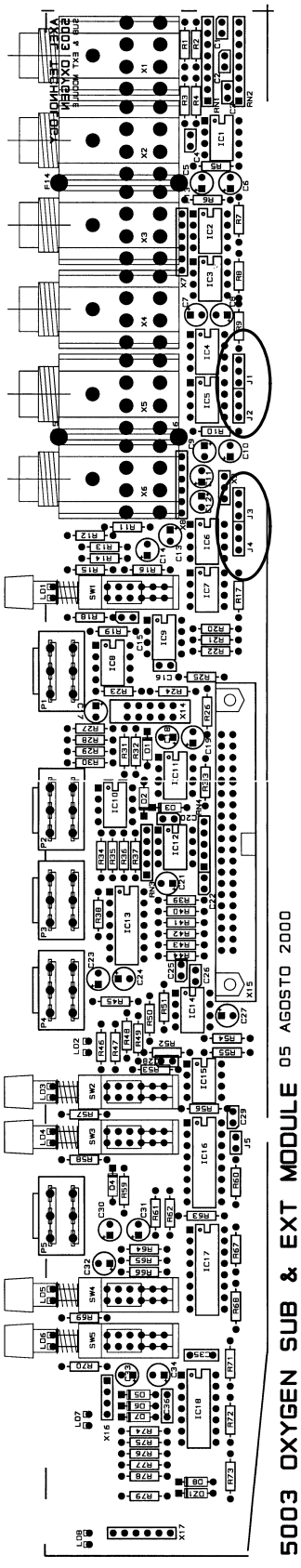
J8 is present

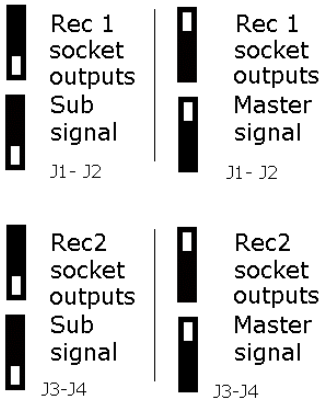
11.4 MASTER MODULE – FACTORY PRESET JUMPER CONFIGURATION



J1 Not Present

11.5 SUB MODULE – FACTORY PRESET JUMPER CONFIGURATION





Rec1 and Rec2 set as Master output

12 WARRANTY

AXEL TECHNOLOGY S.R.L warrants products against defects in material and workmanship for a period of **one year** from the date of original purchase for use, and agrees to repair or, at our option, replace any defective item without charge for either parts or labour. This warranty is valid for the original purchaser only. This warranty does not cover damage resulting from accident, misuse or abuse, lack of reasonable care, the affixing of any attachment not provided with the product, loss of parts or inadequate repairs. AXEL engineers are constantly working to improve the quality of our products. Specifications are, therefore, subject to change without notice.
Do not open the equipment without being previously authorised by AXEL TECHNOLOGY; in case of seal breaking the warranty will expire.

13 APPENDIX A – CONNECTION SCHEMES

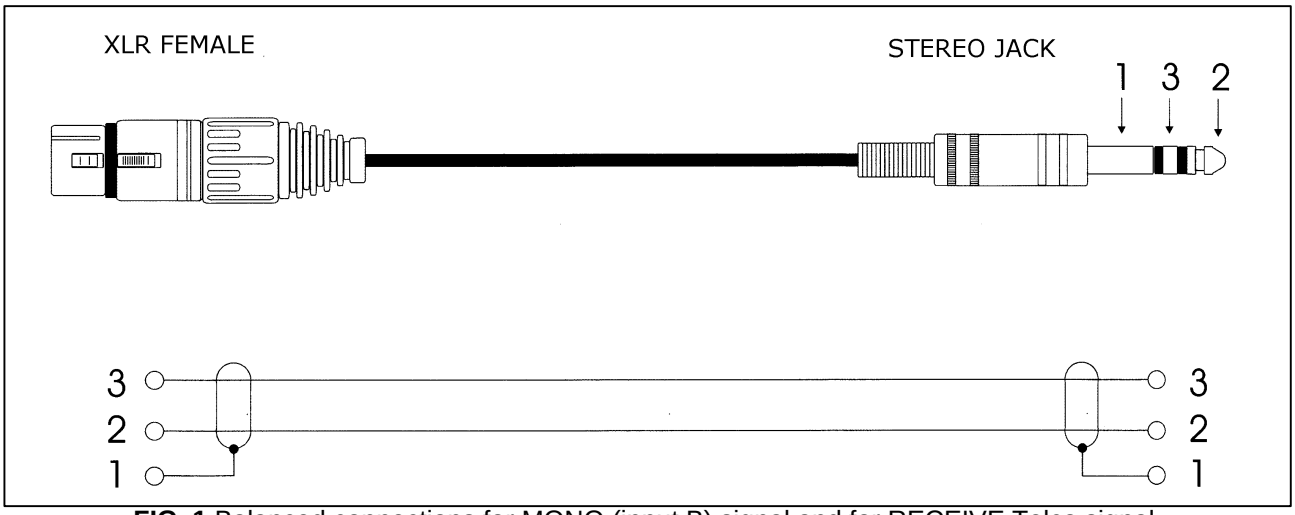


FIG. 1 Balanced connections for MONO (input B) signal and for RECEIVE Telco signal.

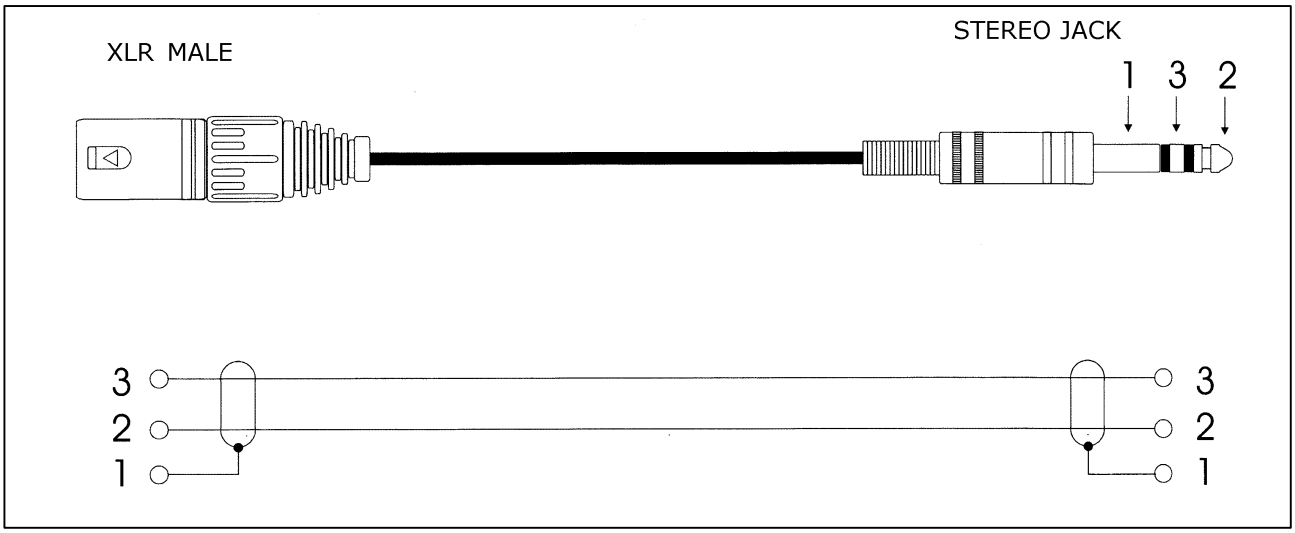


FIG. 2 Balanced connection for SEND signal / MASTER and SUB signals,
REC1 – REC2 signals, REC OUT Telco signal.

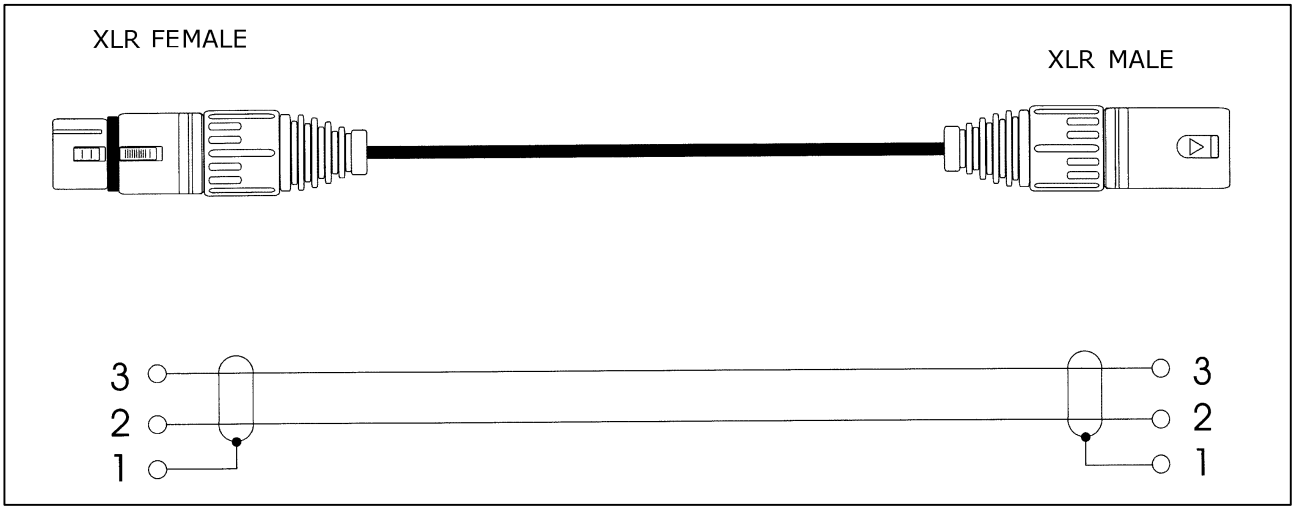


FIG. 3 Balanced microphone connection

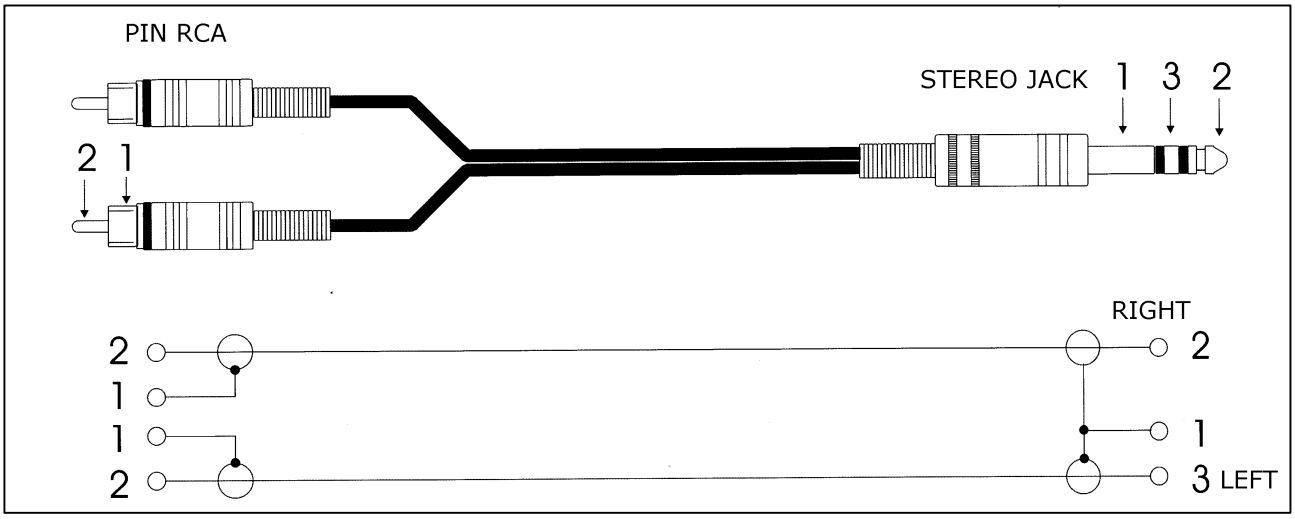


FIG. 4 Unbalanced connections for STUDIO / CTRL ROOM monitor loudspeakers

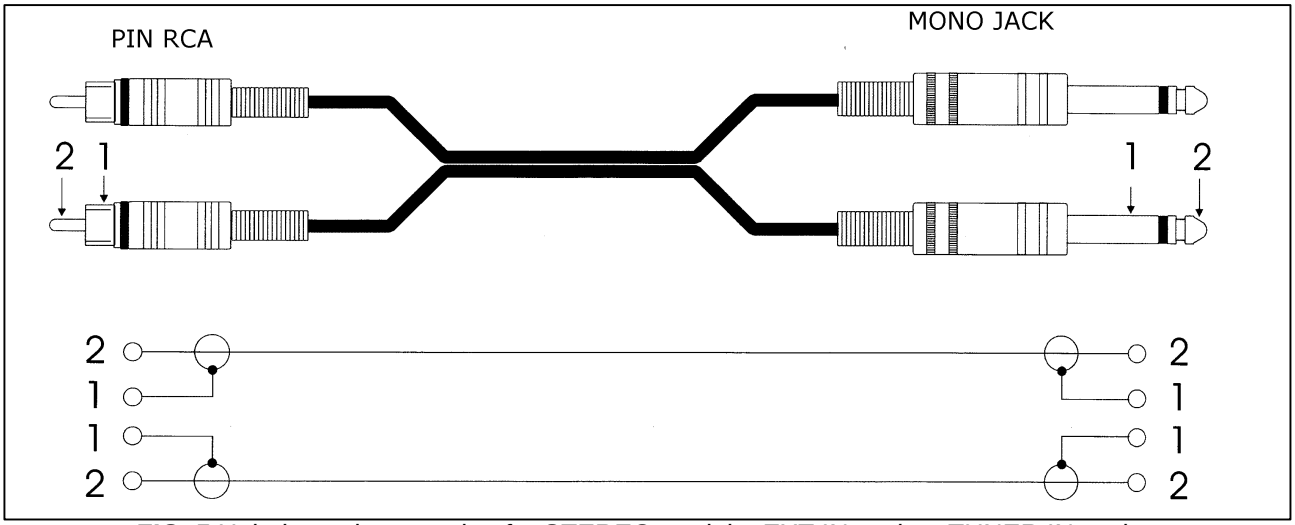


FIG. 5 Unbalanced connection for STEREO module, EXT IN socket, TUNER IN socket