

BoxTel

Compact Telephone Hybrid

Operating manual

(Rev. 1.5)



Sede BOLOGNA: Via Caduti Di Sabbiano 6/F –
40011 Anzola Emilia - Bologna - Italy
Tel. +39 051 736555 - Fax. +39 051 736170

Sede BERGAMO: Via Italia 1 –
24030 Medolago (Bg) – Italy

e-mail: info@axeltechnology.com - web site: www.axeltechnology.com

This manual is for use with the following product :

Boxtel

Axel Technology SRL

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Via Caduti Di Sabbiano 6/F - 40011 Anzola Emilia - Bologna - Italy
Tel. +39 051 736555 – + 39 051 736154
Fax. +39 051 736170
e-mail: info@axeltechnology.com - web site: www.axeltechnology.com

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2 INTRODUCTION

BoxTel is a very small analog telephone hybrid, especially designed for all those applications (OB Van, news gathering, out side links, etc) where weight and dimensions are crucial.

BoxTel features an high-tech 'heart', providing high level performance. BoxTel may be easily connected to the most diffused audio consoles on the market thanks to its complete connecting features.

BoxTel is directly powered by telephone lines: no longer cares and worries about battery charge, cables and availability of the Main AC voltage....

Main features:

- Balanced audio input (jack 6.3 mm) with level control
- Balanced audio output (jack 6.3 mm) with level control.
- 2 wire interface with parallel connection to an external telephone set
- Remote and direct control of line hooking and incoming call signalling functions
- Automatic line compensation
- Internal buzzer on/off
- Powered by telephone line

This appliance is connected to telephone networks indirectly through interface (in-house telephone exchange). Direct connection to the public telephone net is under sole responsibility of the user.

3 SAFETY WARNINGS / ISTRUZIONI PER LA SICUREZZA

SAFETY WARNINGS
CONSIGNES DE SÉCURITÉ IMPORTANTES
ISTRUZIONI IMPORTANTI PER LA SICUREZZA
WICHTIGE SICHERHEITSHINWEISE
INSTRUCCIONES IMPORTANTES DE SEGURIDAD

(Rel. 1.1)

3.1 FOREWORD

For your own safety and to avoid invalidation of the warranty all text marked with these Warning Symbols should be read carefully.



Information in this manual is subject to change without notice and does not represent a commitment on the part of the vendor.

The manufacturer shall not be liable for any loss or damage whatsoever arising from the use of information or any error contained in this manual, or through any mis-operation or fault in hardware contained in the product.

It is recommended that all maintenance and service on the product should be carried out by the manufacturer or its authorised agents. The manufacturer cannot accept any liability whatsoever for any loss or damage caused by service, maintenance or repair by unauthorised personnel.

4 SAFETY WARNINGS

The installation and servicing instructions in this manual are for use by qualified personnel only.

- **Read All Instructions.** All safety and operating instructions must be read before operating the product. They also must be retained for future reference, as it contains a number of useful hints for determining the best combination of equipment settings for Yr particular application.
- **Heed All Warnings.** All warnings on the product and those listed in the operating instructions must be adhered to.
- **Heat.** This product must be situated away from any heat sources such as radiators or other products (including power amplifiers or transmitters) that produce heat.
- **Lightning.** For added protection for this product during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the telephone line. This will prevent damage to the product due to lightning and line surges
- **Installation.** Configuration and installation should only be carried out by a competent installation engineer
- **Cabling.** Using high quality wires, well protected. Make sure the cable integrity.



This symbol alerts you to the presence of dangerous voltage inside the closure – voltage which may be sufficient to constitute a risk of shock. Do not perform any servicing other than that contained in the operating instructions. Refer all servicing to qualified personnel



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.



THIS APPARATUS MUST BE EARTHED !

5 CONSIGNES DE SÉCURITÉ IMPORTANTES

- Lire ces consignes
- Conserver ces consignes
- Observer tous les avertissements
- Suivre toutes les consignes
- **Ne pas utiliser cet appareil à proximité de l'eau**
- **Ne pas installer à proximité d'une source de chaleur** telle qu'un radiateur, une bouche de chaleur, un poêle ou d'autres appareils (dont les amplificateurs) produisant de la chaleur.
- **Débrancher l'appareil** pendant les orages ou quand il ne sera pas utilisé pendant longtemps.
- **Confier toute réparation à du personnel qualifié.** Des réparations sont nécessaires si l'appareil est endommagé d'une façon quelconque, par exemple: liquide renversé ou objet tombé à l'intérieur de l'appareil, exposition de l'appareil à la pluie ou à l'humidité, appareil qui ne marche pas normalement ou que l'on a fait tomber.

	Ce symbole indique la présence d'une tension dangereuse dans l'appareil constituant un risque de choc électrique.
---	--

	Ce symbole indique que la documentation fournie avec l'appareil contient des instructions d'utilisation et d'entretien importantes.
---	--

	Pendant son usage, l'appareil doit être branché à la prise de terre
---	--

6 ISTRUZIONI IMPORTANTI PER LA SICUREZZA

- Leggere le presenti istruzioni
- Conservare queste istruzioni
- Osservare tutte le avvertenze
- Seguire scrupolosamente tutte le istruzioni
- **Non usare questo apparecchio in prossimità di acqua**
- **Non installare l'apparecchio accanto a fonti di calore** quali radiatori, aperture per l'afflusso di aria calda, forni o altri apparecchi (amplificatori inclusi) che generino calore
- **Scollegare l'apparecchio dalla presa telefonica** durante i temporali o quando inutilizzato a lungo
- **Per qualsiasi intervento**, rivolgersi a personale di assistenza qualificato. È necessario intervenire sull'apparecchio ogniqualvolta si verificano danneggiamenti di qualsiasi natura. Ad esempio, è entrato liquido nell'apparecchio o sono caduti oggetti su di esso, l'apparecchio è stato esposto alla pioggia o all'umidità, non funziona normalmente o è caduto.
- **Non esporre a sgocciolamenti o spruzzi.**



Questo simbolo indica la presenza di alta tensione all'interno dell'apparecchio, che comporta rischi di scossa elettrica.



Questo simbolo indica la presenza di istruzioni importanti per l'uso e la manutenzione nella documentazione in dotazione all'apparecchio.



L'APPARATO DEVE ESSERE CONNESSO A TERRA.

7 WICHTIGE SICHERHEITSHINWEISE

- Diese Hinweise **LESEN**
- Diese Hinweise **AUFHEBEN**
- Alle Warnhinweise **BEACHTEN**
- Alle Anweisungen **BEFOLGEN**
- Dieses Gerät **NICHT** in der Nähe von **Wasser** verwenden
- **KEINE** Lüftungsöffnungen **verdecken**. Gemäß den Anweisungen des Herstellers einbauen
- **Nicht in der Nähe von Wärmequellen**, wie Heizkörpern, Raumheizungen, Herden oder anderen Geräten (einschließlich Verstärkern) installieren, die Wärme erzeugen
- **Alle Reparatur- und Wartungsarbeiten** von qualifiziertem Kundendienstpersonal **DURCHFÜHREN LASSEN**. Kundendienst ist erforderlich, wenn das Gerät auf irgendeine Weise beschädigt wurde, z.B. wenn Flüssigkeiten in das Gerät verschüttet wurden oder Fremdkörper hineinfließen, wenn das Gerät Regen oder Feuchtigkeit ausgesetzt war, nicht normal funktioniert oder fallen gelassen wurde.
- Dieses Gerät vor Tropf- und Spritzwasser **SCHÜTZEN**.



Dieses Symbol zeigt an, dass gefährliche Spannungswerte, die ein Stromschlagrisiko darstellen, innerhalb dieses Geräts auftreten.




Dieses Symbol zeigt an, dass das diesem Gerät beiliegende Handbuch wichtige Betriebs- und Wartungsanweisungen enthält.





Das Gerät muss für den Betrieb geerdet werden.

8 INSTRUCCIONES IMPORTANTES DE SEGURIDAD

- **LEA** estas instrucciones
- **CONSERVE** estas instrucciones
- **PRESTE ATENCION** a todas las advertencias.
- **SIGA** todas las instrucciones
- **NO utilice** este aparato cerca del agua
- **No instale el aparato cerca de fuentes de calor** tales como radiadores, registros de calefacción, estufas u otros aparatos (incluyendo amplificadores) que produzcan calor
- **DESENCHUFE el aparato** durante las tormentas eléctricas, o si no va a ser utilizado por un lapso prolongado.
- **TODA reparación** debe ser llevada a cabo por técnicos calificados. El aparato requiere reparación si ha sufrido cualquier tipo de daño, si se derrama líquido sobre el aparato o si caen objetos en su interior, si ha sido expuesto a la lluvia o la humedad, si no funciona de modo normal, o si se ha caído.
- **NO exponga** este aparato a chorros o salpicaduras de líquidos. NO coloque objetos llenos con líquido, tales como floreros, sobre el aparato .

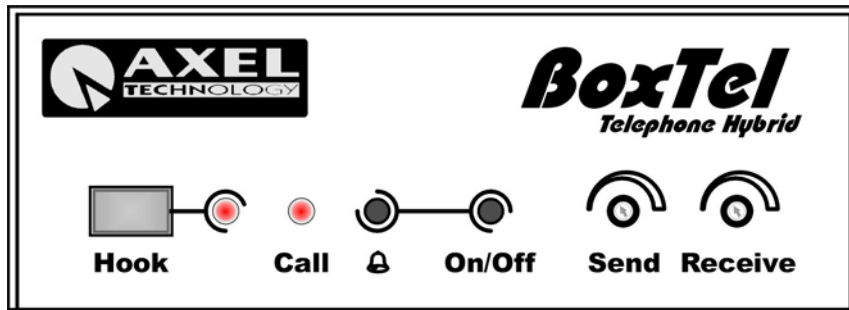
	<i>Este símbolo indica que la unidad contiene niveles de voltaje peligrosos que representan un riesgo de choques eléctricos.</i>
---	--

	<i>Este símbolo indica que la literatura que acompaña a esta unidad contiene instrucciones importantes de funcionamiento y mantenimiento.</i>
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	Para reducir el riesgo de descargas, esta unidad debe ser conectada a tierra.
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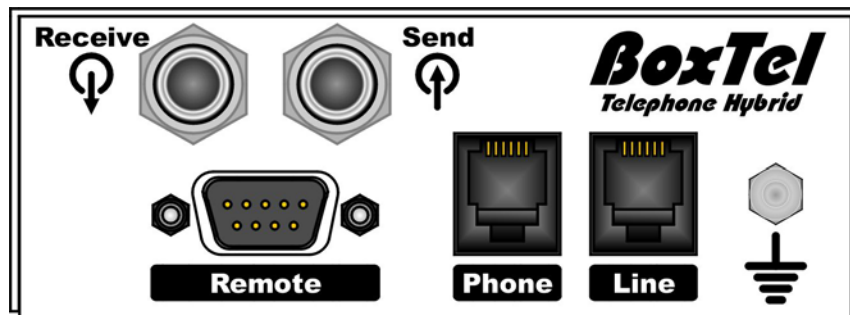
9 EQUIPMENT DESCRIPTION

9.1 FRONT PANEL



- **Send control:** it adjusts the level of audio sent to telephone caller through the 'Send' connector on the rear panel.
- **Receive control:** It controls the level of the signal incoming from telephone caller.
The 'received' signal is provided on the Receive Jack connector (rear panel).
- **HOOK button:** it allows Line hooking. This switch hooks / hangs up the hybrid from the telephone line. Hook LED switches on accordingly.
- **Call LED.** It blinks when a call (ring) is coming in and lights firmly while line is hooked. Please note: LED switches on only if phone line is connected.
- **On / Off** micro-switcher: it enables / disables ring buzzer inside the hybrid.

9.2 REAR PANEL



- **Receive Output (transformer balanced):** it provides the audio signal incoming from telephone caller
- **Send Input (transformer balanced):** it receives audio signal from the source (mixing console) and sends it to the telephone caller. Audio sent to caller must be a mix-minus (N-1). Mix-minus is a mix of all audio being sent to the Send Jack of the hybrid, minus the incoming caller audio.
- **Remote.** 9 pin interface for remote line hooking and external call signalling
- **LINE** RJ11 socket for telephone line connection (LINE) – see relevant Paragraph
- **PHONE** RJ11 socket for connection of a standard telephone set (f.i. for dialling). Please note that 'Phone' socket is always active (i.e. it does not depend on the 'Hook' button state).
- **Earth connection:** in order to prevent damages due to lightnings surges or overvoltages on the telephone line, connect BoxTel to earth.

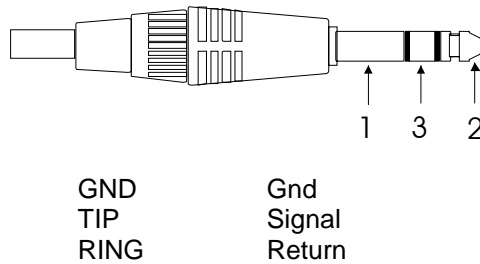
BoxTel is automatically powered by telephone line. An external Voltage (+ 6V) is required only for some applications (see parr. 10.3).

10 WIRING AND CONNECTIONS

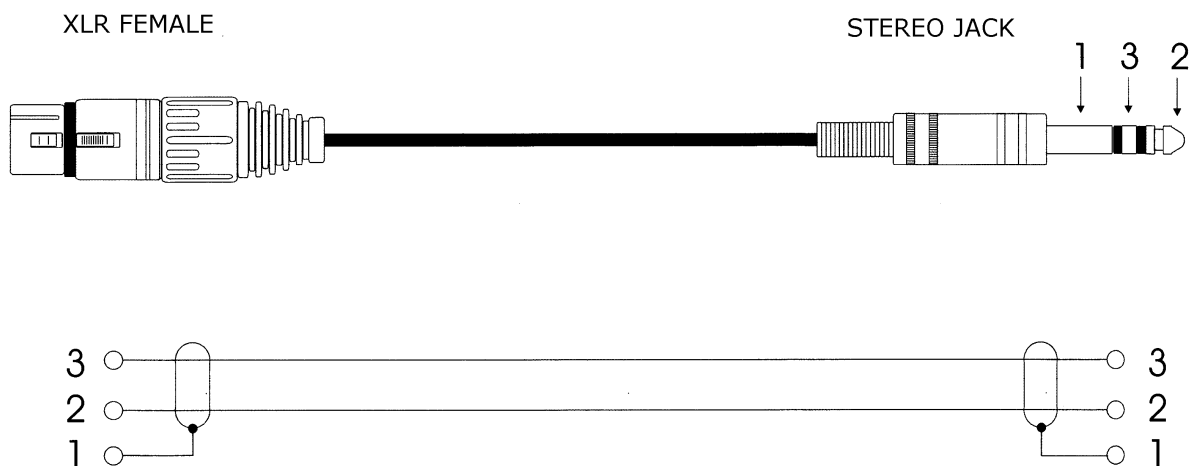
We suggest to use high quality wires, well protected, and balanced connections to avoid external EMD.

10.1 AUDIO INPUT (SEND)

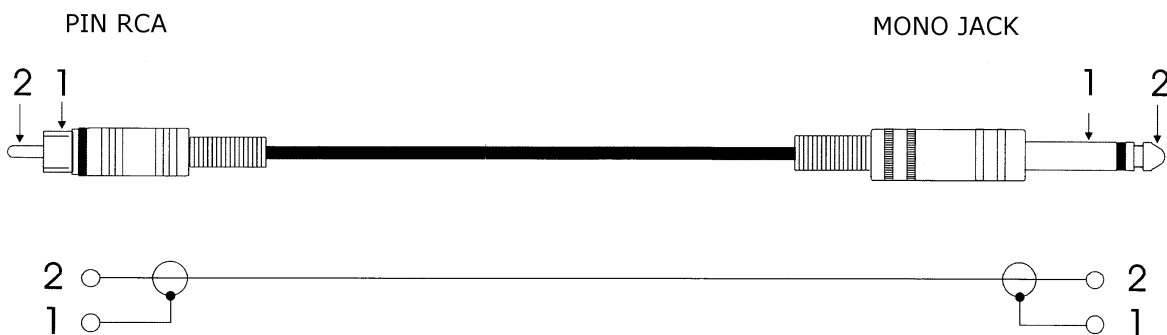
The equipment features a line input (transformer balanced) on female Jack connector. Input impedance is set to 4 KOhm. Connector pinout is as following:



Example of **balanced** connection (XLR - Jack)

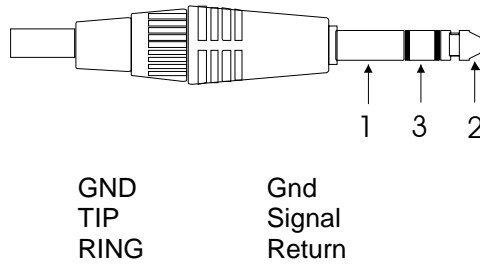


Example of **unbalanced** connection (PIN RCA - Jack), where cold pole (RING) is connected to the ground (GND).

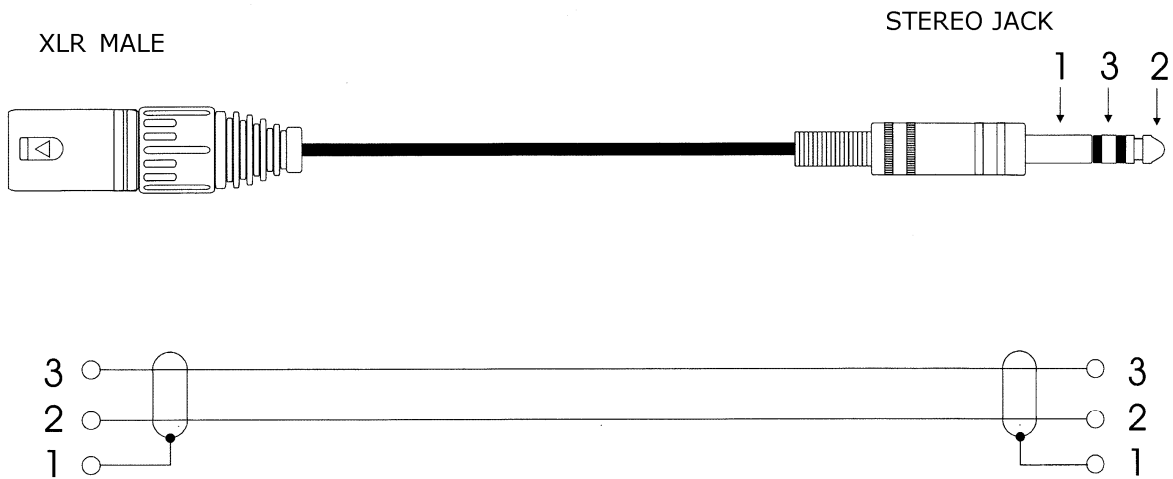


10.2 AUDIO OUTPUT (RECEIVE)

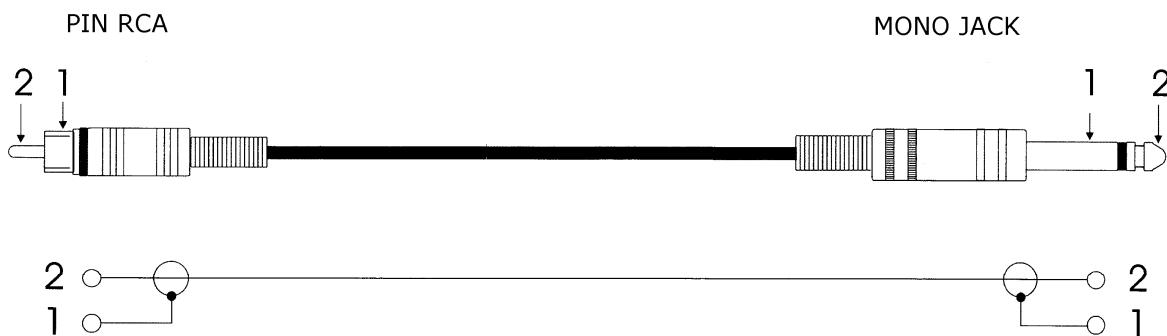
The equipment features outputs transformer balanced on Jack connector. Connector pinout is as following



Example of **balanced** connection (XLR - Jack)



Example of **unbalanced** connection (PIN RCA - Jack), where cold pole (RING) is connected to the ground (GND).



10.3 THE REMOTE INTERFACE

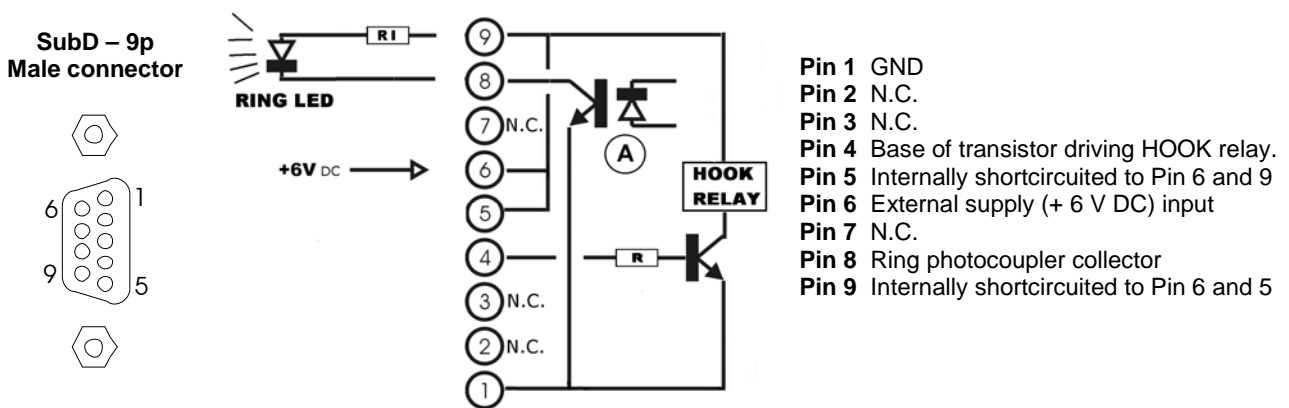
BoxTel remote interface is based on a 9 pin SubD male interface and allows:

- Remote hooking of telephone line
- Incoming call signalling.

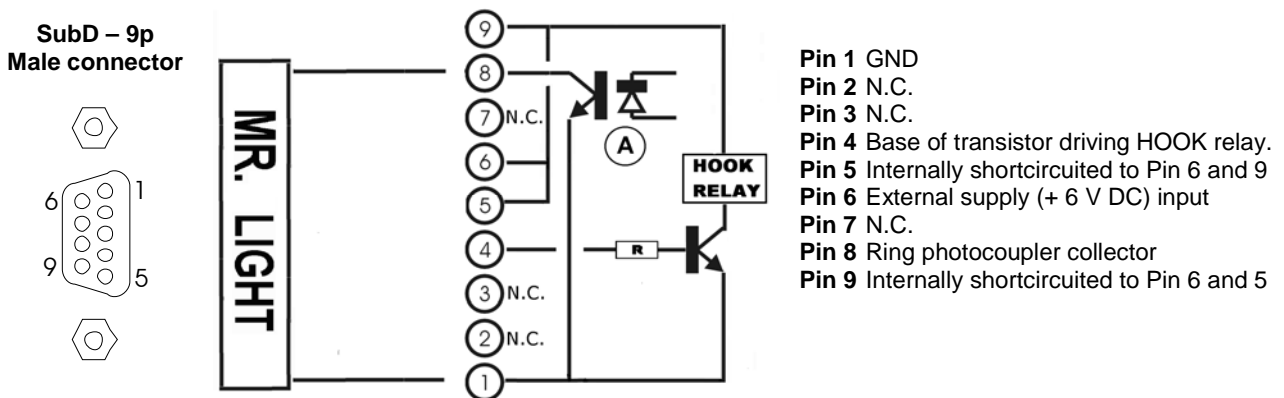
The interface has been especially designed for simple connection to Oxygen 5 and Oxygen 7 consoles.

INCOMING CALL SIGNALLING

A photocoupler inside BoxTel (pin 8 = collector and pin 1 = emitter - see 'A' in the picture below) provides a low-resistance closure (150 Ohm) every time phone line rings. Max current allowed: 10 mA.



An external LED (Ring LED in the picture here-above) must be connected to pins 9 and 8 through a 470 Ohm resistor (see R1). Pin 6 must be fed with + 6 V DC voltage.

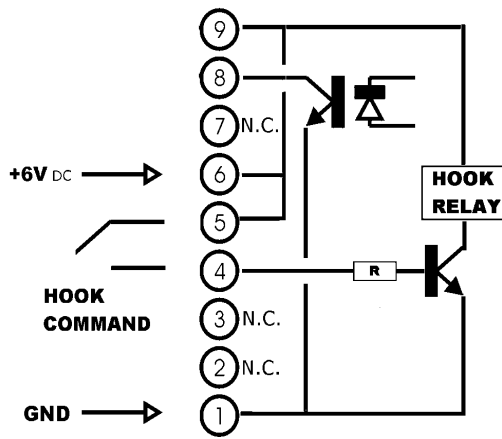
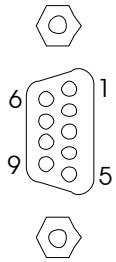


Internal Photocoupler ('A') can directly drive an external Lamp (like **Mr. Light** by Axel Technology). In this case, pin 8 of BoxTel interface must be connected to the central pin of Mr. Light connector.

LINE HOOKING

Pins 5 and 4 allows remote line hooking command (provided through either a photocoupler or a clean contact closure). An external powering is required for this aim. Please feed Pin 6 with + 6 V DC.

SubD – 9p
Male connector



- Pin 1 GND
- Pin 2 N.C.
- Pin 3 N.C.
- Pin 4 Base of transistor driving HOOK relay.
- Pin 5 Internally shortcircuited to Pin 6 and 9
- Pin 6 External supply (+ 6 V DC) input
- Pin 7 N.C.
- Pin 8 Ring photocoupler collector
- Pin 9 Internally shortcircuited to Pin 6 and 5

10.4 INTERFACES TO OXYGEN 5 AND OXYGEN 7 MIXING CONSOLES

BoxTel remote interface has been designed for **direct connection** to Telco modules of **OXYGEN 5** and **OXYGEN 7** mixing consoles by **Axel Technology**.

A regular, not crossed **Pin – to – Pin 9 pole cable** featuring **standard RS232** connectors is required (9 pin serial connection computer type).



10.5 TELEPHONE LINE CONNECTION

BoxTel hybrid operate on analog telephone lines.



MAKE SURE this appliance is connected to POTS / PSTN, analogue lines



DO NOT CONNECT this appliance to digital Telephone lines



DO NOT CONNECT this appliance to ADSL telephone lines, even if filtered.

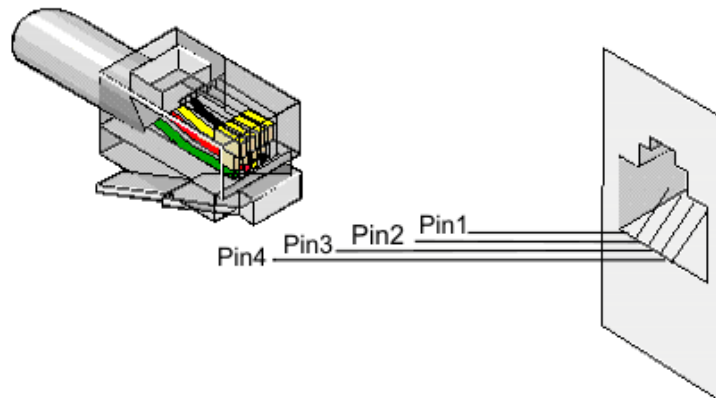


In order to avoid any Hum and for EMC reasons, this unit must be earthed via earthing screws on the rear panel.



This appliance is connected to telephone networks indirectly through interface (in-house telephone exchange / PABX). Direct connection to the public telephone net is under sole responsibility of the user.

RJ11 socket will accept 4 conductor modular plugs, but only the **2 central pins (number 2 and 3)** are typically used:



CONNECTOR PIN-OUT	
Pin	Description
1	n.c.
2	Tel line
3	Tel line
4	n.c.

This unit allows the connection on parallel of a standard telephone set (for dialling services). Please note that 'Phone' socket is always active (i.e. it doesn't depend on the 'Hook' button state) and it has the same Pin-Out as the LINE socket.



The telephone hybrid interface is powered by the same power flowing also into the external telephone set. In the event You will experience some lack in the audio performance or in the telephone hybrid operation (no Ring, no Hook, etc), try to disconnect the Telephone Set itself.



Should the device be put out of action due to being struck by lightning or excess voltage, **disconnect it from the telephone line without delay**. Do not reconnect until the device has been checked. If in doubt contact the technical support service.
 Make sure there is suitable lightning protection to protect the device.
 Alternatively you should disconnect all connectors from the device during a storm or when the device is going to be unsupervised or not used for a longer period of time. These measures will protect against damage by lightning or excess voltage.

11 TECHNICAL SPECIFICATIONS

AUDIO PROGRAM IN / OUT	
Connectors	Jack stereo 6.3 mm,.
Input impedance	4 KOhm (transformer bal)
Output level *	-inf to + 7 dBm
Output impedance	2 KOhm (transformer bal)
Noise on Receive output	less than - 80 dBm (DIN noise)
Send / Receive separation	less than 20 dB**

GENERAL DATA	
Power Supply	Powered by telephone line
Dimension	44 x 106 x 114mm
Weight	430 g

LINE INTERFACE	
Connector	RJ11
Nominal input level	- 6 dBm
Nominal output level	- 6 dBm
Compensation mode	electronic
Impedance	600 Ohm

REMOTE INTERFACE	
Ext signaling for incoming call	optocoupled
Remote line hooking	relay closure, ext. powered

* *nominal line level : - 6 dBm*

** *it can vary depending on characteristics of telephone line*

All measurements are intended at 1 kHz.

12 WARRANTY

The manufacturer offers a 1-year ex works warranty.

Do not open the equipment. The warranty shall be voided if any of the warranty seals are broken.

The manufacturer shall not be liable for damage of any kind deriving from or in relation to incorrect use of the product.