FOX MKII

Broadcast Audio Changeover

(Rev. 3.6 ENG)

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1 INTRODUCTION

1.1 FOX VERSIONS AVAILABLE

CODE#	MODEL	COMMERCIAL DESCRIPTION
A110130000	**FOX MKII**	Digital audio changeover with 2 XLR analog inputs, 2 AES/EBU digital inputs, 1 XLR analog out, 1 AES/EBU output. DTMF Encoder and decoder, USB and Serial port, GPIN and GPOUT remote. 1u rack 19"space. Universal power supply.

1.2 OPTION AVAILABLE ON FOX

CODE#	MODEL	COMMERCIAL DESCRIPTION
A110130300	**FOX-LAN**	Ethernet port for TCI/IP and UDP/IP connection, Rs232 (Parser ASCII) only for Fox.

1.3 USE OF THIS MANUAL

This manual can be used with the Fox MKII product. Certain features may be changed without notice.

1.4 FOX – DEPLIANT AND BROCHURE

Fox

BROADCAST AUDIO CHANGEOVER

HIGHLIGHTS

1. Analogue and digital audio changeover, 4 inputs / 2 outputs
2. Broadcast digital audio DSP-based
3. 4 analog/digital inputs and 2 analog/digital outputs with SRC converter
4. Any kind of commutation managed by the D/A and A/D converter
5. Input to output switch and fade with customizable time intervention and restore
6. Features audio: Denoiser Module, AGC Stage , input delay and Tone Generator
7. Graphic LCD display and front panel button for monitor and control
8. Internal DTMF Encoder e Decoder for automation system
9. 1 Ethernet, 1 Rs232Serial port, 1 USB and GPIO Port

MAIN DESCRIPTION

Fox is a fully digital audio changeover, designed for Radio and TV broadcast marketplace.
Fox matches the most hi-end broadcast use requirements, with two analog inputs, two digital inputs, one analog output and one digital output. All the inputs can be routed to a different audio output thanks to the A/D and D/A converter, so that any kind of switch between different inputs can be managed.

Switching policies between inputs and outputs are fully user-configurable in order to suit individual requirements. Furthermore Fox plays inside the entire audio chain the delicate role of program supervisor, thanks to an integrated audio detector and the ability to generate an alarm when the nominal operating conditions are not met. When an alarm rises, a switching command via GPO is provided. Fox presents in the front side a graphic LCD display that shows the levels of analog and digital inputs and outputs and the alarms detected during the normal use.
The control software comes for free with Fox and allows the configuration of the timing and the policy of intervention/recovery of switching, displaying levels of input and output signals and configure every working parameter. It is also possible to save the data to a single device and create a database for all the Fox in operation into the chain.

The process is based on DSP audio and the audio features included are: *Denoiser*, that eliminates unwanted noise on the audio chain; the *Delay* module, a delay line applicable to a fully synchronous input in order to keep all audio sources. During the process of allignement and calibration of the audio network, a *Tone Generator* generator with variable sample frequency and amplitude is is provided with Fox and available on Analog and/or Digital outputs. Furthermore, a DTMF encoder and a DTMF decoder with customizable strings, allow the remote management of automation systems.

The Fox's rear panel is provided with XLR conneters, for balanced analog and digital AES/EBU signals. The outputs are equipped with hardware bypass. In case of fault of the equipment the main analog input is directly routed to the analog output and the main digital input is routed to the digital output.
In order to set up and use Fox, the connection to a Pc it is possible via RS232 remote serial port, USB connection and a simply logic state via GPIO port with open collector and opto couplers that are representing the operational's states of any alarms, along with command automation equipment using DTMF decoding strings. Optionally, it is possible to install an Ethernet port and use the SNMP - TCP/IP protocol, in addiction to the web server installed on board that allows to display the equipment status via a common web page.

Universal Power Supply 90-264Vac 47-63Hz that can operate in any region of the world. Fox takes up 1 rack unit standard 19 "

1.5 COMPARISON TABLE BETWEEN GENIUS D AND FOX

General Features	Genius D	Fox
Audio Features		
Audio Process	120Mhz @ 24bit DSP-Based audio process	
Input Mode	Stereo, MonoL, MonoR, MonoL+R,Swap Left/Right, Stereo Inverted Right, Stereo Inverted Left, Swap inverted Right, Swap inverted Left	
Fading mode	Fast switching, Slow fading, Normal fading, fast fading.	
Waiting time / Return time	From 1sec to 120sec / From 1sec to 31sec	
Working / Output Sequence	Off, Automatic, Manual, Manual by command Gpio	
Tone Generator	Off, Left=Right, onlyLeft, onlyRight @ 1 kHz	
Switch Command by Gpio/Serial	✓	✓
A.G.C – DeNoiser	✓	✓
DTMF Encoder / Decoder	✓	✓
Delay time – Settings	-	✓
A/Dal and Digital to Analog Converter	-	✓
Front Panel operation		
Automatic / Manual	✓	✓
LCD Panel	✓	✓
Level Input / Output	✓	✓
Input selection (Manual)	✓	✓
Audio Input and Output		
Analog Input	✓	✓
Analog Output	✓	✓
Digital Input	-	✓
Digital Output	-	✓
Remote Control		
GPIO Connector – Type	SubD 15p HD - 4x GP In opto coupled, 4x GP Out Open Collector opto isolated	
USB	1x USB – B Type EMI Filtered	
Serial	2x Rs232 EMI Filtered	
Software Remoter	✓	✓
Ethernet Port /Web Server	-	*by option*
Parser ASCII protocol	Rs232 by default	Rs232 by default. TCP/IP and UDP *by option*

1 SAFETY WARNINGS / ISTRUZIONI PER LA SICUREZZA

SAFETY WARNINGS

CONSIGNES DE SÉCURITÉ IMPORTANTES

ISTRUZIONI IMPORTANTI PER LA SICUREZZA

WICHTIGE SICHERHEITSHINWEISE

INSTRUCCIONES IMPORTANTES DE SEGURIDAD

(Rel. 2.0)

1.1 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.

2 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.
- **Power Sources.** This product must be operated from the type of power source indicated on the marking label and in the installation instructions. If you are not sure of the type of power supplied to your facility, consult your local power company. Make sure the AC main voltage corresponds to that indicated in the technical specifications. If a different voltage (ex. 110/115 VAC) is available, open the equipment closure and set the voltage switch on the main supply circuit, located behind the AC socket
- **Power Cord Protection.** Power supply cords must be routed so that they are not likely to be walked on nor pinched by items placed upon or against them. Pay particular attention to the cords at AC wall plugs and convenience receptacles, and at the point where the cord plugs into the product
- **Use only with a cart,** stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
- **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 AC wall outlet and the audio connections. This will prevent damage to the product due to lightning and power 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.

Do not change the voltage setting or replace the mains fuse without first turning the unit off and unplugging the mains cord

Make sure the AC main voltage corresponds to that indicated in the technical specifications. THIS APPARATUS MUST BE EARTHED !

To avoid risk of fire use the correct value fuse, as indicated on the label stuck on the right side of the unit.

This apparatus uses a single pole mains switch and does therefore not separate the unit completely from the mains power. To completely separate from mains power (in the event of danger) unplug mains power cord. As the MAINS plug is the disconnect device, the disconnect device shall remain readily operable.

3 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 obstruer les ouvertures de ventilatio**n. Installer en respectant les consignes du fabricant
- **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.
- **Ne pas annuler la sécurité de la fiche de terre**, la troisième branche est destinée à la sécurité. Si la fiche fournie ne s'adapte pas à la prise électrique, demander à un électricien de remplacer la prise hors normes.
- **Protéger le cordon d'alimentation** afin que personne ne marche dessus et que rien ne le pince, en particulier aux fiches, aux prises de courant et au point de sortie de l'appareil
- **Utiliser uniquement les accessoires spécifiés par le fabricant**
- **Utiliser uniquement avec un chariot**, un support ou une table spécifié par le fabricant ou vendu avec l'appareil. Si un chariot est utilisé, déplacer l'ensemble chariot–appareil avec précaution afin de ne pas le renverser, ce qui pourrait entraîner des blessures
- **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: cordon ou prise d'alimentation endommagé, 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.
- **NE PAS exposer cet appareil aux égouttures et aux éclaboussements**. Ne pas poser des objets contenant de l'eau, comme des vases, sur l'appareil

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.

Avant de modifier le commutateur de changement de tension ou replacer le fusible il faut débrancher l'appareil de la prise électrique. Pendant son usage, l'appareil doit etre branchee à la prise de terre

Utiliser le fusible principal AC avec le valeur qui est indiquée sur l'étiquette collée sur le coffret.

Assurez-vous que la tension principale AC correspond à celle indiquée dans les spécifications techniques.

L'interrupteur d'alimentation interrompt un pôle du réseau d'alimentation excepté le conducteur de terre de protection. En cas de danger, debrancher le cordon d'alimentation. Parce que la prise du réseau de alimentation est utilisée comme dispositif de déconnexion, ce dispositif doit demeuré aisément accessible

4 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 ostruire alcuna apertura per il raffreddamento**. Installare l'apparecchio seguendo le istruzioni
- **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
- **Non rimuovere il terminale di connessione a terra sul cordone di alimentazione**: esso ha lo scopo di tutelare l'incolumità dell'utilizzatore. Se la spina in dotazione non si adatta alla presa di corrente, rivolgersi ad un elettricista per far eseguire le modifiche necessarie.
- **Evitare di calpestare il cavo di alimentazione o di comprimerlo**, specialmente in corrispondenza della spina e del punto di inserzione sull'apparato.
- **Utilizzare solo dispositivi di collegamento e gli accessori specificati dal produttore.**
- **Utilizzare l'apparecchio** solo con un carrello, un sostegno, una staffa o un tavolo di tipo specificato dal produttore o venduto insieme all'apparecchio. Se si utilizza un carrello, fare attenzione negli spostamenti per evitare infortuni causati da ribaltamenti del carrello stesso.
- **Scollegare l'apparecchio dalla presa di corrente** 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, la spina o il cavo di alimentazione sono danneggiati, 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**. Non appoggiare sull'apparecchio oggetti pieni di liquidi, ad esempio vasi da fiori.

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.

Non sostituire il fusibile o cambiare la tensione di alimentazione senza aver prima scollegato il cordone di alimentazione. L'APPARATO DEVE ESSERE CONNESSO A TERRA.

Sostituire il fusibile generale con uno di identico valore, come indicato sulla etichetta applicata sul mobile dell'apparato

Assicurarsi che la tensione di rete corrisponda a quella per la quale è configurato l'apparecchio

Questo apparato utilizza un interruttore di alimentazione di tipo unipolare e l'isolamento dalla rete elettrica non è pertanto completo. Per ottenere un isolamento totale (ad esempio in caso di pericolo), scollegare il cordone di alimentazione. Inoltre, poichè la spina di alimentazione è utilizzata come dispositivo di sezionamento, essa deve restare facilmente raggiungibile

5 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
- **Die Schutzfunktion des Schukosteckers NICHT umgehen**. Bei Steckern für die USA gibt es polarisierte Stecker, bei denen ein Leiter breiter als der andere ist; US-Stecker mit Erdung verfügen über einen dritten Schutzleiter. Bei diesen Steckerausführungen dient der breitere Leiter bzw. der Schutzleiter Ihrer Sicherheit. Wenn der mitgelieferte Stecker nicht in die Steckdose passt, einen Elektriker mit dem Austauschen der veralteten Steckdose beauftragen
- **VERHINDERN, dass das Netzkabel gequetscht oder darauf getreten wird**, insbesondere im Bereich der Stecker, Netzsteckdosen und an der Austrittsstelle vom Gerät
- N**UR das vom Hersteller angegebene Zubehör** und entsprechende Zusatzgeräte verwenden.
- **NUR in Verbindung** mit einem vom Hersteller angegebenen oder mit dem Gerät verkauften Transportwagen, Stand, Stativ, Träger oder Tisch verwenden. Wenn ein Transportwagen verwendet wird, beim Verschieben der Transportwagen-Geräte- Einheit vorsichtig vorgehen, um Verletzungen durch Umkippen
- **Das Netzkabel dieses Geräts** während Gewittern oder bei längeren Stillstandszeiten aus der Steckdose ABZIEHEN.
- **Alle Reparatur- und Wartungsarbeiten** von qualifiziertem Kundendienstpersonal DURCHFÜHREN LASSEN. Kundendienst ist erforderlich, wenn das Gerät auf irgendwelche Weise beschädigt wurde, z.B. wenn das Netzkabel oder der Netzstecker beschädigt wurden, wenn Flüssigkeiten in das Gerät verschüttet wurden oder Fremdkörper hineinfielen, wenn das Gerät Regen oder Feuchtigkeit ausgesetzt war, nicht normal funktioniert oder fallen gelassen wurde.
- **Dieses Gerät vor Tropf- und Spritzwasser SCHÜTZEN**. KEINE mit Wasser gefüllten Gegenstände wie zum Beispiel Vasen auf das Gerät STELLEN.

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.

Vor Änderung der Netzspannung oder Sicherungswechsel Netzkabel trennen.
Das Gerät muss für den Betrieb geerdet werden.

Hauptsicherung nur mit einer gleichwertigen austauschen
(s. entsprechende Etikette).

Vor Einschalten Netzspannungseinstellung am Gerät überprüfen bzw. anpassen.

Inpoliger Netzschalter. In Notfälle oder für Wartungsarbeiten Netzkabel trennen. Der Netzstecker fungiert auch als Trennelement muss deshalb zugänglich bleiben

6 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 obstruya ninguna de las aberturas de ventilación.**Instálese según lo indicado en las instrucciones del fabricante
- **No instale el aparato cerca de fuentes de calor** tales como radiadores, registros de calefacción, estufas u otros aparatos (incluyendo amplificadores) que produzcan calor
- **NO anule la función de seguridad del enchufe polarizado** o con clavija de puesta a tierra. Un enchufe polarizado tiene dos patas, una más ancha que la otra. Un enchufe con puesta a tierra tiene dos patas y una tercera clavija con puesta a tierra. La pata más ancha o la tercera clavija se proporciona para su seguridad. Si el toma corriente no es del tipo apropiado para el enchufe, consulte a un electricista para que sustituya el toma corriente de estilo anticuado
- **PROTEJA el cable eléctrico** para evitar que personas lo pisen o estrujen, particularmente en sus enchufes, en los toma corrientes y en el punto en el cual sale del aparato
- **UTILICE únicamente los accesorios especificados por el fabricante**
- **UTILICESE únicamente** con un carro, pedestal, escuadra o mesa del tipo especificado por el fabricante o vendido con el aparato. Si se usa un carro, el mismo debe moverse con sumo cuidado para evitar que se vuelque con el aparato
- **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, incluyendo los daños al cordón o enchufe eléctrico, 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.

Este símbolo indica que la unidad contiene niveles de voltaje peligrosos que representan un riesgo de choques eléctricos.

Este símbolo indica que la literatura que acompaña a esta unidad contiene instrucciones importantes de funcionamiento y mantenimiento.

Antes de cambiar la alimentacion de voltaje o de cambiar el fusible, desconecte el cable de alimentacion. Para reducir el riesgo de descargas electricas, esta unidad debe ser conectada a tierra.

Remplaze el fusible con lo mismo, que corresponde a lo indicado en el panel del equipo.

Antes de encender, controlar que la linea de alimentacion de voltaje corresponda a la indicada

El interruptor de alimentación es unipolar. En el caso de peligro, desconecte el cable de alimentación. Porque la clavija de conexion a red sirve por la desconection de la unidad, la clavija debe ser ubicada en proximidad de la unidad

7 UNPACKING AND INSPECTION

Your equipment was packed carefully at the factory in a container designed to protect the unit during shipment. Nevertheless, we recommend making a careful inspection of the shipping carton and the contents for any signs of physical damage.

Damage & Claims

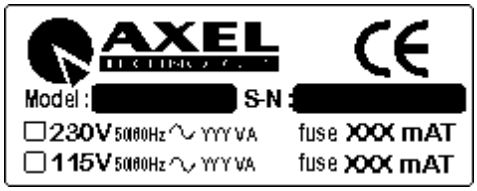
If damage is evident, do not discard the container or packing material. Contact your carrier immediately to file a claim for damages. Customarily, the carrier requires you, the consignee, to make all damage claims. It will be helpful to retain the shipping documents and the waybill number.

Save all packing materials! If You should ever have to ship the unti (e.g. for servicing), it is best to ship it in the original carton with its packing materials because both the carton and packing material have been carefully designed to protect the unit.

Under normal conditions no user maintenance or calibration are required. Internal links and preset controls may be set to configure the unit during installation. **Any service work required should be carried out by qualified service personnel only.**
We are able to offer further product support through our worldwide network of approved dealers and service agents.

To help us provide the most efficient service please would you keep a record of the unit serial number, and date and place of purchase to be quoted in any communication regarding this product.

The actual equipment Serial Number is indicated on the silver label stuck on the rear panel of the equipment closure.



Tools And Equipment Needed

Only standard technician's tools are required to install this equipment.

8 FIRST INSTALLATION RECOMMENDATIONS

8.1 POWER SUPPLY CABLE

A power supply cable of approx. 2 mt length is supplied with the device, which has a moulded IEC plug attached – this is a legal requirement.
The type of plug for the power supply depends on the country in which it is delivered.

If for any reason, you need to use this appliance with a different plug, you should use the following wiring guidelines in replacing the existing plug with the new one:

Earth	Green, or green and yellow
Neutral (N)	Blue
Live (L)	Brown

Supply cables should be laid in such a manner that one does not step or walk on them. They should not be squashed by any objects.

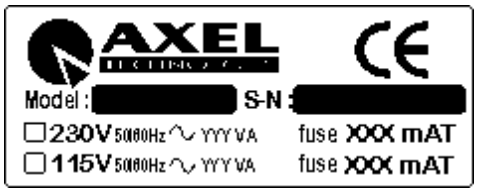
THIS EQUIPMENT MUST BE EARTHED.

The chassis is always connected to mains earth to ensure your safety: check your mains wiring and earthing before switching on.

8.2 AC MAINS VOLTAGE SETTING (230 V / 115 V)

BE SURE THAT THE UNIT IS SET TO THE CORRECT MAINS/LINE VOLTAGE FOR YOUR COUNTRY BEFORE PLUGGING IT INTO THE WALL OUTLET !

The actual Mains voltage is indicated on the label stuck on the equipment closure. Should the type of power at the operation location not be known, please contact your dealer or electricity company.



If, for some reason, the unit is to be operated at a mains input voltage which is different to that as supplied, you need to switch the voltage selector on the right side of the unit. You also need to replace the AC main fuse, according to information provided on the external label or on the Technical Specifications table at the end of this user manual.

CAUTION: TO REDUCE THE RISK OF ELECTRICAL SHOCK, ALWAYS DISCONNECT THE AC MAINS CABLE BEFORE ALTERING THE CHANGE-OVER SWITCH. NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

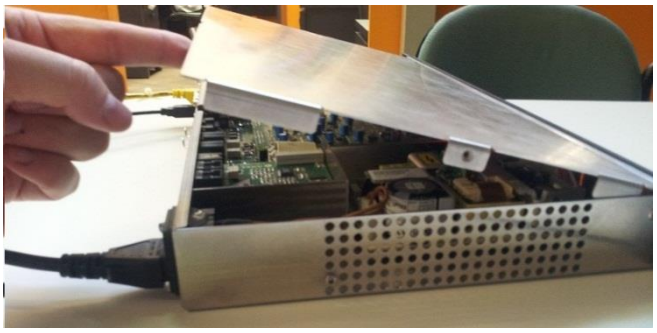
8.3 FUSE REPLACEMENT

The power supply socket has an integral fuse drawer containing the AC power fuse and a spare, both of the same value.

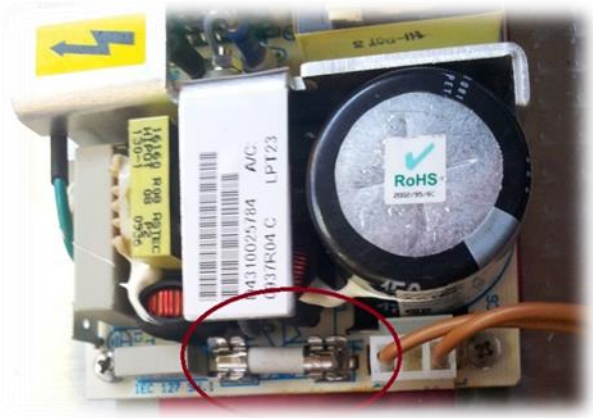
BEFORE REPLACING THE POWER FUSE, MAKE SURE YOU HAVE THE RIGHT TYPE OF FUSE FOR THE VOLTAGE TO BE PROTECTED.
USING WRONG FUSE TYPE WILL RESULT IN INSUFFICIENT PROTECTION.

Make sure that the power is switched off and the power cable is disconnected from the equipment.

a. Open the upper iron cover using a screwdriver.



b. Replace the fuse located at the internal position – Power supply Type-1



c. Replace the fuse located at the internal position – Power supply Type-2

Perform the set-up under static control conditions. Static charges are likely to completely destroy one or more of the CMOS semiconductors employed in the unit. Static damage will not be covered under warranty.

Basic damage prevention consists of minimizing generation, discharging any accumulated static charge on your body and preventing that discharge from being sent to or through any electronic component.

Uninsulated dangerous voltage are inside the enclosure, voltage that may be sufficient to constitute a risk of shock.
Always disconnect to AC Mains before removing the top cover

8.4 PROTECTION AGAINST LIGHTNING

When the upper iron cover is removed, a plastic transparent cover helps the user safety, to avoid from flashlight coming from the switching power supply. After the power cord has been disconnected some parts of the power supply remain electrically loaded for a lot of time.
Axel Technology suggest to don't touch never this parts, and it is not responsible for human flash light or electrical burns.

Should the device be put out of action due to being struck by lightning or excess voltage, disconnect it from the power supply without delay. Do not reconnect until the device has been checked. If in doubt contact the technical support service.

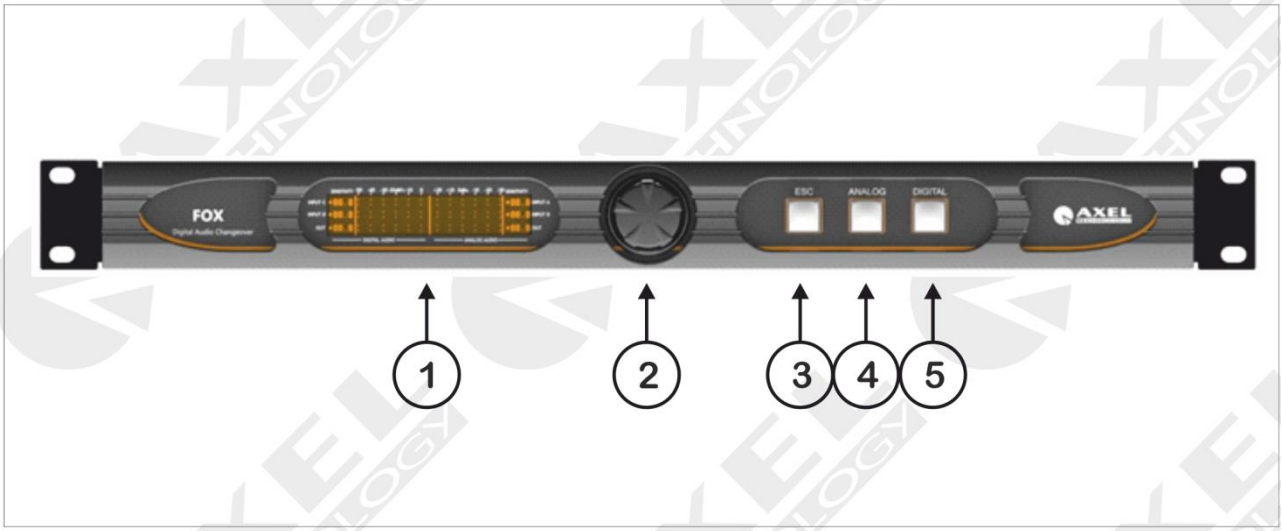
Make sure there is suitable lighting protection to protect the device.
Alternatively you should disconnect all connectors from the device during a storm or when the device is going to be unsupervised or not used for a longer period of time.
These measures will protect against damage by lightning or excess voltage.

8.5 VENTILATION

The equipment will operate as a free-standing unit without requiring any special cooling arrangement.
However, slots and openings in the product are provided for ventilation. They ensure reliable operation of the product, keeping it from overheating. These openings must not be blocked nor covered during operation.
YOU MUST LEAVE AT A MINIMUM ONE RACK UNIT OF EMPTY SPACE ABOVE THE EQUIPMENT TO ENHANCE VENTILATION AND TO GET A LONGER EQUIPMENT LIFE.

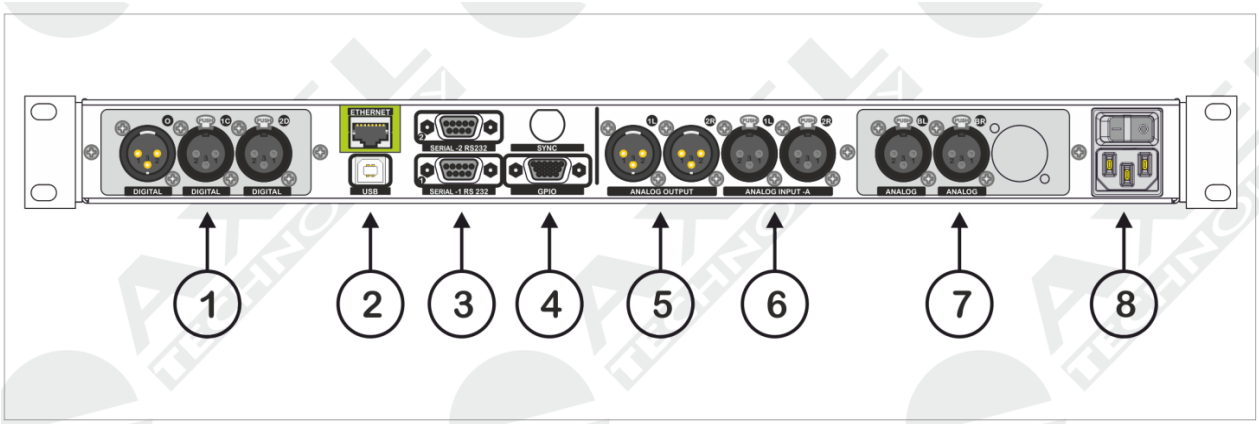
2 GENERAL DESCRIPTION OF FOX

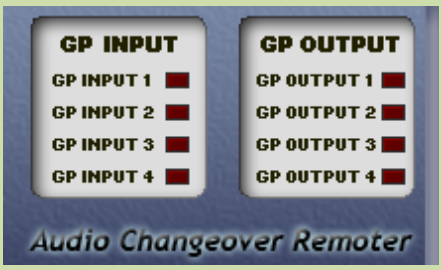
2.1 FOX FRONT PANEL



NO.	CONTROL NAME	FUNCTION
1	**LCD DISPLAY**	LCD display on two lines showing the status and operation of Fox. All the technical parameters for each menu are displayed.
2	**JOG-SHUTTLE**	JogShuttle in order to be able to access the various navigation menus and to make changes. Pressing the JogShuttle will confirm the selection. Accessing the Menu, it is possible to fully configure the machine for the operation mode on its analog output. All of these parameters can also be set by control, configuration and *Axel Audio Changeover Remoter* command software.
3	**"ESC" KEY**	Pressing this key cancels any changes made or you exit the selected menu.
4	**"ANALOG" KEY**	Clicking the ANALOG key results in access to the selection Menu of the Fox Analog output: through the sub-menu, it is possible to fully configure the machine for the operation mode on its analog output. All of these parameters can also be set by control, configuration and *Axel Audio Changeover Remoter* command software.
5	**"DIGITAL" KEY**	Clicking the DIGITAL key results in access to the selection Menu of the Fox Digital output: through the sub-menu, it is possible to fully configure the machine for the operation mode on its Digital output. All of these parameters can also be set by control, configuration and *Axel Audio Changeover Remoter* command software.

2.2 FOX REAR PANEL



NO.	CONTROL NAME	FUNCTION
1	**"DIGITAL" BLOCK**	This part is dedicated to the connections for the inputs and the digital output in AES/EBU format on XLR balanced connection. Digital input 1 is marked as 1C while input 2 is marked as 2D.
2	**"USB" PORT** **+** **ETHERNET PORT *(opt)***	This port can be used to inspect and control the device remotely via a normal PC. Before connecting this port you will need to install the appliance control software inside the packaging. Fox has an Rj45 Ethernet port mounted on board to inspect and control the device. In addition, this port can be used for control of the Web Browser and SNMP agent *(optional).*
3	**-1 RS232 SERIAL SERIAL PORT 1** **+** **-2 RS232 SERIAL SERIAL PORT 2**	Fox provides 2 serial ports for controlling the device via remote control software. The operating parameters can be changed through the ***Axel Audio Changeover Remoter*** command software, while ***Axel Audio Changeover Address Manager*** allows the values of the TCP/IP card, Target Name (or name of the device) and the access password for SNMP switching to be set. It is also possible to set the Target ID and to lock the front panel. Serial Port 1 is also used to **reprogram the firmware** and to connect to a **56K external analog modem** (via telephone line remote control). By default, the port speed is set at 38,400 bps.
4	**"GPIO" PORT** 	15 poly high density female poly interface, on SubD connector. It represents the logical state of Fox via the GPOut open collector, while it provides the command of Fox via GPIn, thanks to the photo couplers (optocouplers) installed on board. The status of Fox is also visible from the software panel in the right hand section of the software thanks to the part: **- GPInput** **- GP Output** For information on the pinout of the Opto Interface port refer to the Appendix at the end of this manual. See the specific section for the operation of each GPI and GPO in the next few pages of this manual.
5	**ANALOG OUTPUT**	Fox **ANALOG** audio output, electronically balanced, on XLR balanced stereo connector. I

6	**ANALOG INPUT-A**	Fox ANALOG audio input -A with electronically balanced XLR connection. This is the main input (A) of the analog changeover.
7	**ANALOG INPUT "B"** **ANALOG INPUT** **-BL** **-BR**	Fox ANALOG-B audio input, with XLR electronically balanced connection. This is the secondary input (B) of the analog changeover. However, it is possible to consider this input as Primary as the DSP is able to keep input -B as primary source under control. By "convention" input -A is considered to be Primary input of the analog changeover, and input -B as secondary.
8	**POWER SUPPLY LOCK**	The power supply lock is composed of a switch for powering of the appliance and a power supply plug. To change the fuse see the relevant chapter, the fuse is located within the appliance at the height of the switching power supply. The fuse is Delayed 230 Vac and 2.000 A equal to 2000 mA

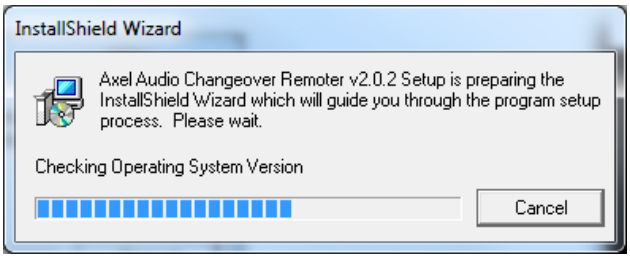
3 INSTALLATION AND USE OF THE FOX COMMAND SOFTWARE

The installation procedure of the Fox control software is described below. The program runs on all Windows platforms, including Windows Xp sp3, Windows Vista and Windows 7 32-bit and Windows 7 64-bit and Windows 8 Pro 64bit. The control software must be installed before connecting the devices to the USB port. To install the program follow the instructions below using the program file from the original CD contained in the package with the device, or the file downloaded from the Axel Technology website.

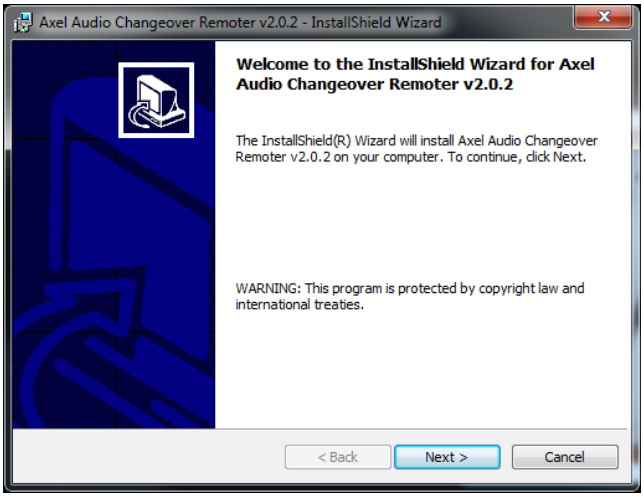
2. Installation Procedure:

1. Insert the CD into the player
2. Launch the SETUP.EXE application

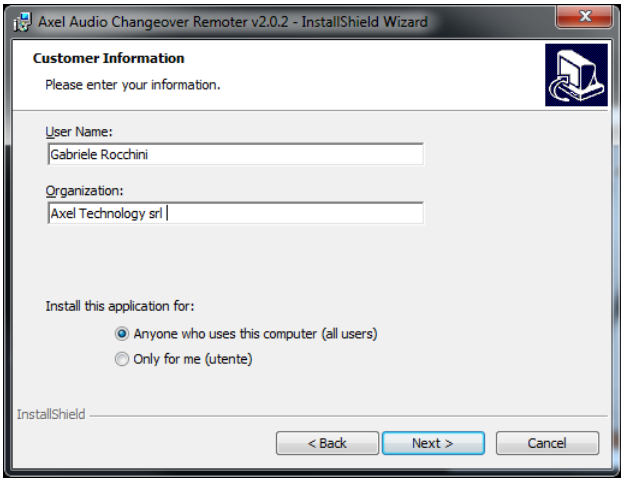
a. It is however advisable to copy the application from the CD onto the system hard drive of the Pc from which you are working, and to run execution of the same from the hard drive. Once execution has been launched, this InstallShield Wizard screen will appear



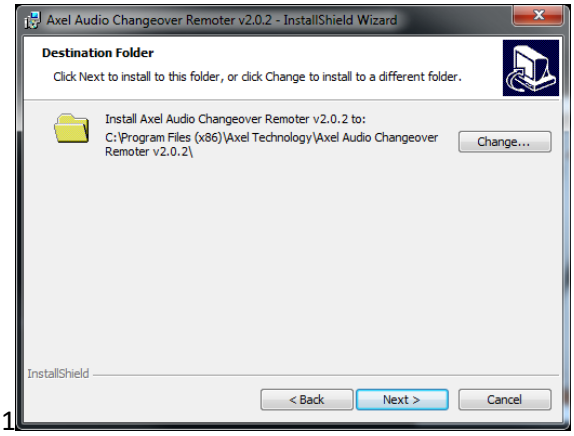
3. The following screen and press NEXT will appear on screen

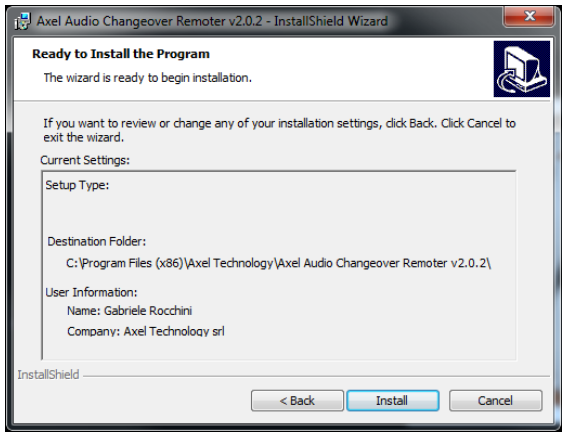


4. Fill in the information relating to the user:



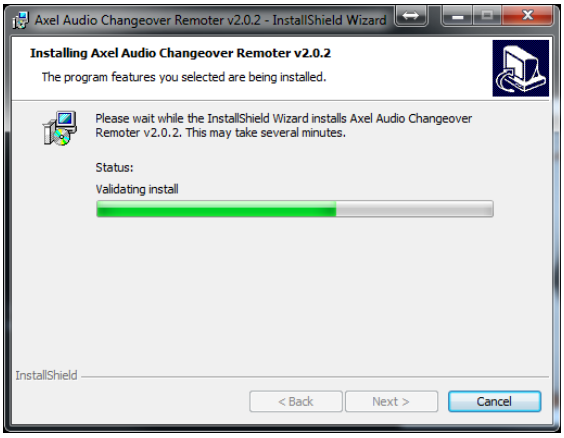
5. Select the destination folder or leave it unchanged, press NEXT and then INSTALL

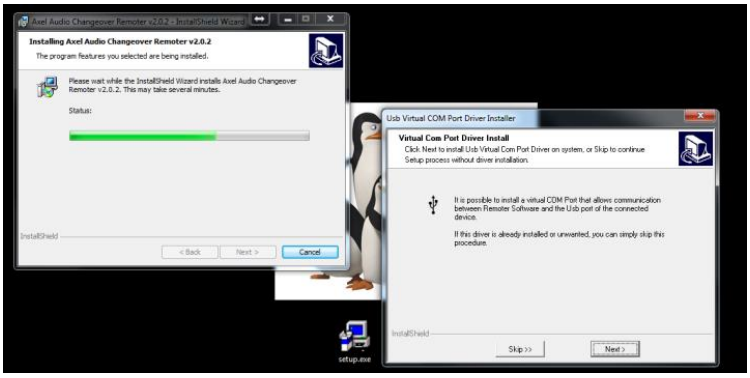




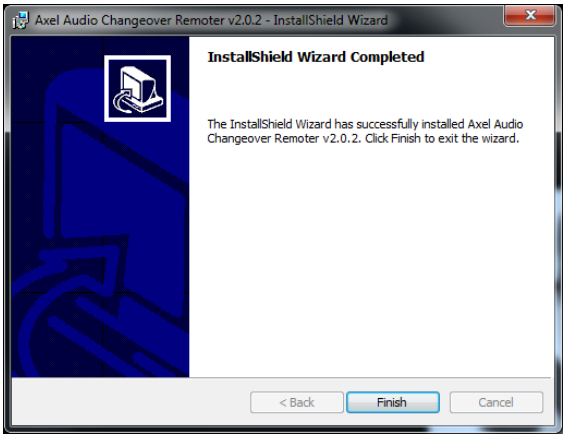
11

6. The Software will begin installation of the application on the PC; during installation you will be asked to confirm installation of the USB driver for connection to the Fox device.





7. This screen will be displayed upon completion of installation, press Finish and then two new icons will be created on the desktop:



a. *Axel Audio Changeover Remoter*
b. *Axl Audio Changeover Address Manager*

8. At this point, it will be possible to use the applications in order to be able to manage the Fox devices. The following chapters will provide explanations on the mode of connection, and the potentialities of the product.

4 USE OF THE AUDIO CHANGEOVER ADDRESS MANAGER SOFTWARE

The Audio ChangeoverAddress Manager software is an application that is used to assign a Target ID to Fox, to lock the front panel, to set a Target Name and possibly to apply an address to the TCP/IP port. To achieve this, both the Serial port of the PC and the USB port can be used. Opening the application, the screen will display the following:

The Audio Changeover Address Manager is still disconnected from the Fox device. By clicking the **CONNECT** key, the connection between PC and Fox is established. For the COM port, the default values of the port are:

38,400 BPS 8-N-1

If, alternatively, a USB port is being used, simply select the relevant port from the list assigned by the operating system (in this case VCOM Usb Port). COM5 Port has been assigned.

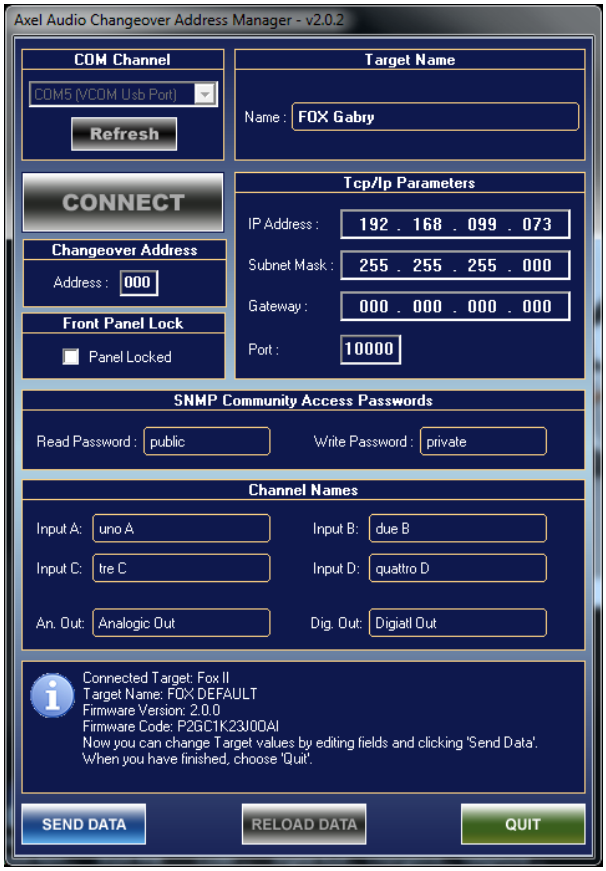
Once Fox and Audio Changeover Address Manager are connected, the settings of the Ethernet port are displayed. To change this data go to the appropriate fields and enter the port data; when completed, press the ***SEND DATE*** key to send the changes to the Fox device.

To check the actual implementation of the changes, press the ***RELOAD DATE*** *button*, which requires refreshing of the program and re-read the port values.

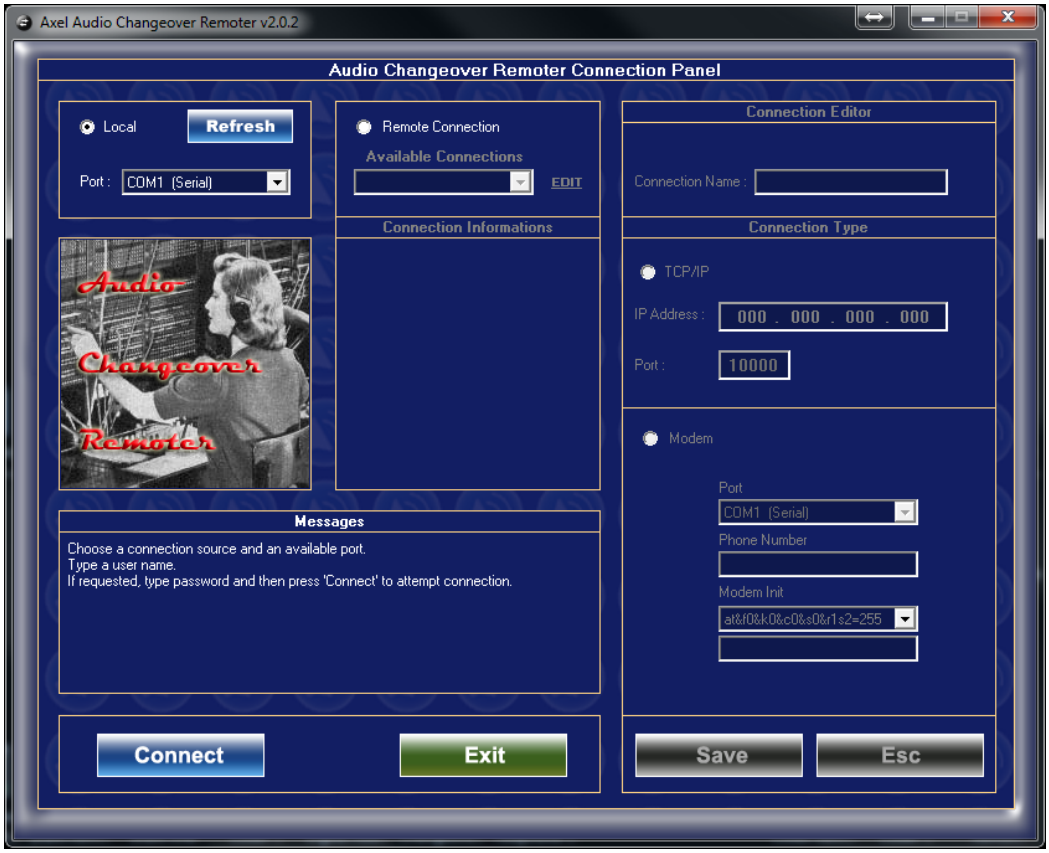
Using this application, it is possible to set the communication Read Password and Write Password via the **SNMP** protocol. The default setting is:

Read Password: **public**
Write Password: **private**

Various information relating to the device to which you are connected is visible in the lower part of the software above the control keys. Data present includes ***"Connected Target"*** that represents the device model to which you are connected, in the photo a Fox and ***the installed firmware release*** (v2.0.0). There is also the ***Firmware Code*** which uniquely represents the serial number of the firmware and hardware installed on the device. This number may be required in the event of upgrade of the device or for specific requests and customisation.



5 USE OF THE AUDIO CHANGEOVER REMOTER SOFTWARE

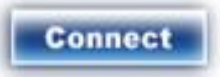


Start-up window of the Fox command software

5.1 ACCESS VIA USB AND SERIAL CONNECTION

To be able to operate within Fox, after assigning the values of the TCP/IP port via HybridAddress Manager, the AxelAudio Changeover Remoter application must be used, launching it from the relevant icon. Below the screen for the connection between Fox and PC using USB Virtual serial port.

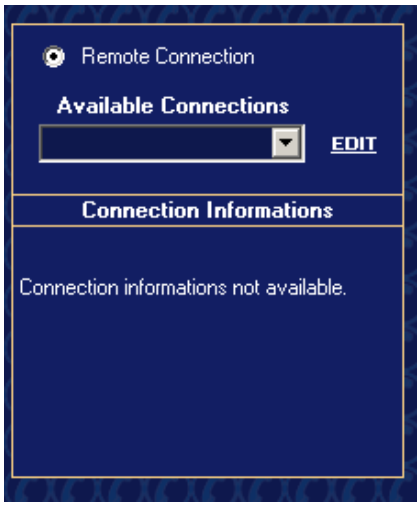
As can be seen, you are using a **COM5** USB connection port of the PC from which you are working. The USB connection and the serial connection are promptly run, once a Pin-to-pin serial cable or a A-B type USB cable, both present within the Fox package, is connected; simply click the **CONNECT** key and the panel for management of the device will open.



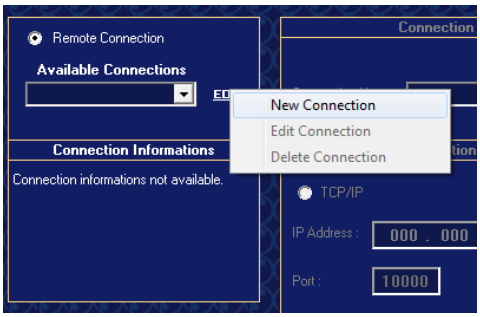
Clicking the Connect key, the Audio Changeover Remoter enters into communication with Fox and all the information in the memory of the device, the status and operation of the same will be displayed. The management panel changes format and offers all the necessary checks for installation of the apparatus. The various controls are explained in detail in the next few chapters .

5.2 ACCESS THROUGH A TCP/IP CONNECTION

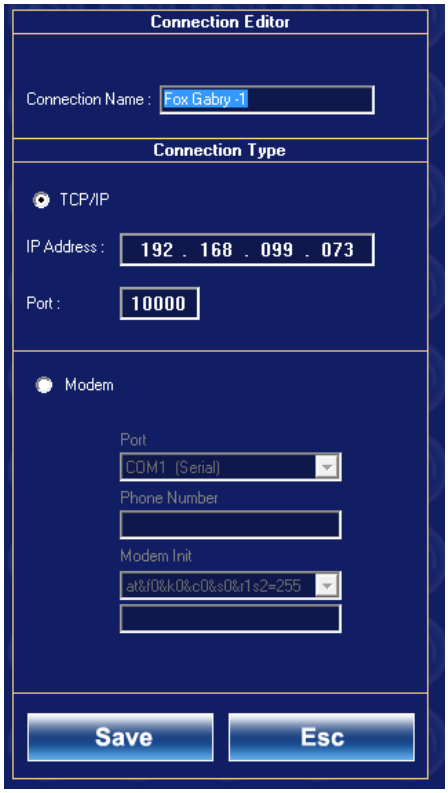
To access and manage the device via TCP/IP, simply perform these simple operations below. Unlike the serial connection, the TCP/IP connection is extremely useful when you have more than one unit to manage. In doing so from a single point, you will be able to connect with the Fox machines and manage the entire group remotely and individually.



1. Press the " *Remote Connection* " button
2. Click on the " **EDIT**" label
3. A menu with '**New Connection**' or '**Edit Connection**' or '**Delete Connection**" will appear.



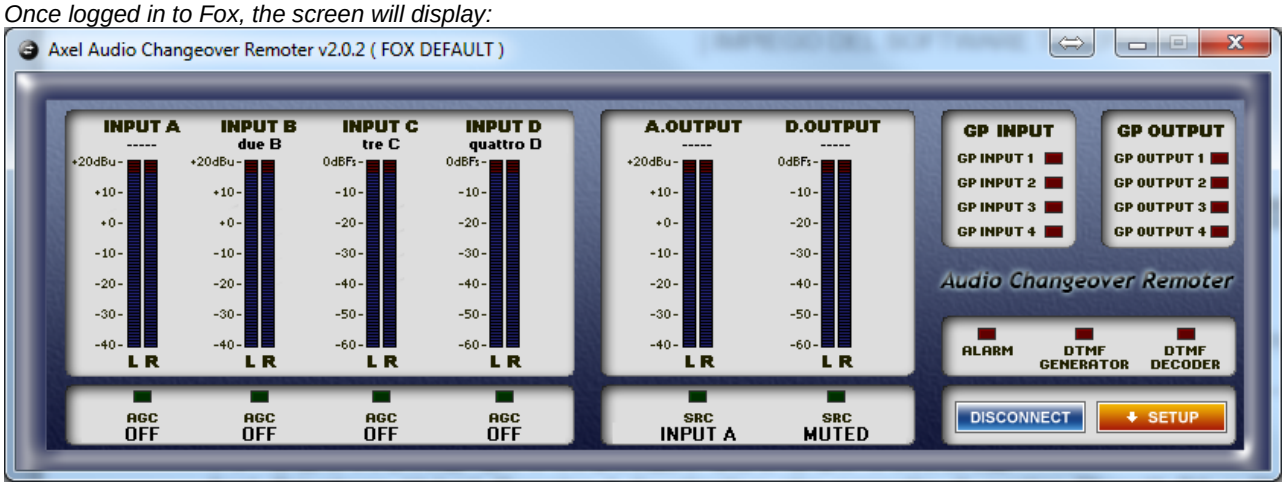
4. Select "New **Connection**" and in the window to the right the "Connection Editor" will appear clearly by which you can select whether the connection is **TCP/IP** or Modem and set the Connection Name.
5. Select a name in the Connection Name, and select TCP/IP, then in the free fields enter the IP and port (default 10000) that you wish to assign to the Fox device.
6. Press the **SAVE** key.
7. The connection saved with the relevant Connection Name will appear in the central part, and in the Connection Information part will be displayed both the type of connection (TCP/IP or Modem) and the IP address and Port.
8. At this point, to access via **TCP/IP** connection click the **CONNECT** keys.



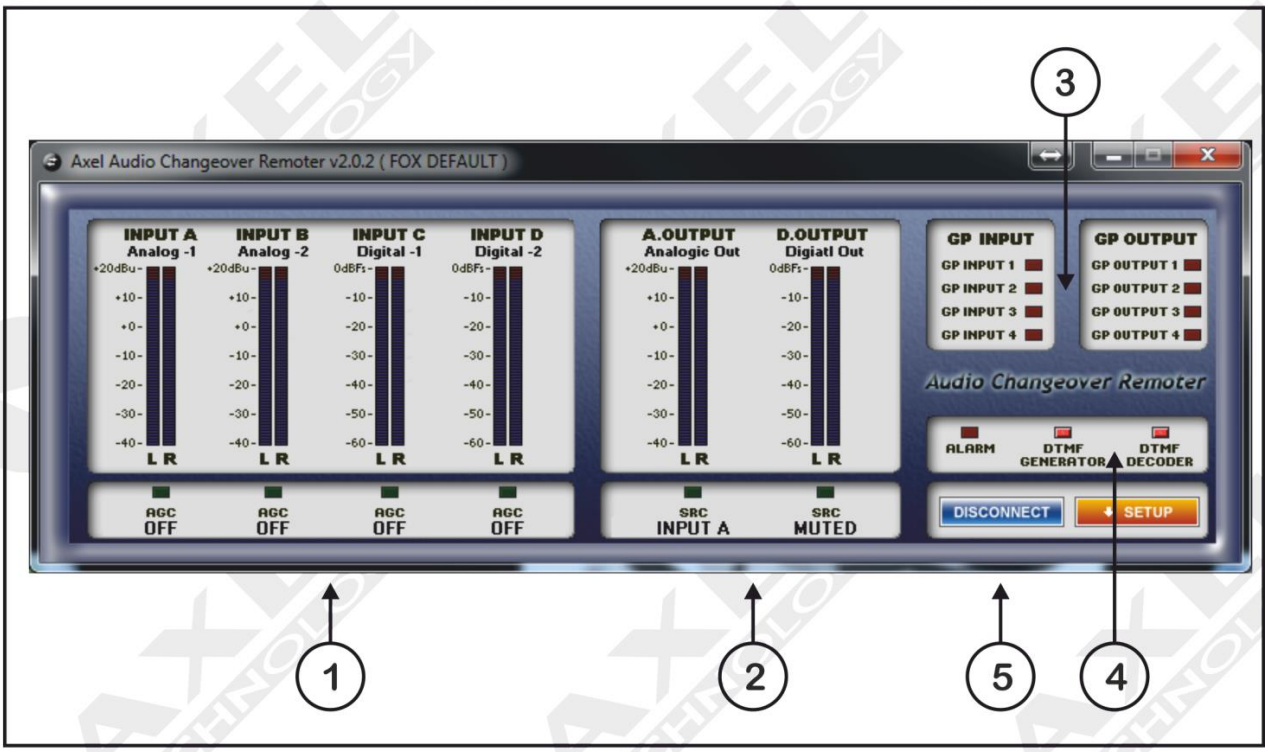
6 MANAGEMENT OF FOX VIA SOFTWARE

Axel Audio Changeover Remoter is the application that allows you to manage Fox both locally (using a serial connection or USB connection) and remotely using TCP/IP network connection and from the Web page. With regard to the monitoring functions, the front panel of the device also shows the levels of input and output and the primary functions such as input/output sources and the levels of the Analog and Digital outputs.

Once logged in to Fox, the screen will display:



7 DETAIL OF AUDIO CHANGEOVER REMOTER



7.1 DESCRIPTION OF FOX COMMAND SOFTWARE

There are essentially 5 parts to the Fox command software (Audio Changeover Remoter):

1. **Analog and Digital INPUTS** section
2. **Analog OUTPUT and Digital OUTPUT** section
3. **GP Section Inputs** and **GP Outputs** section
4. **DTMF Generator & Decoder** section
5. **Setup&Disconnect** section

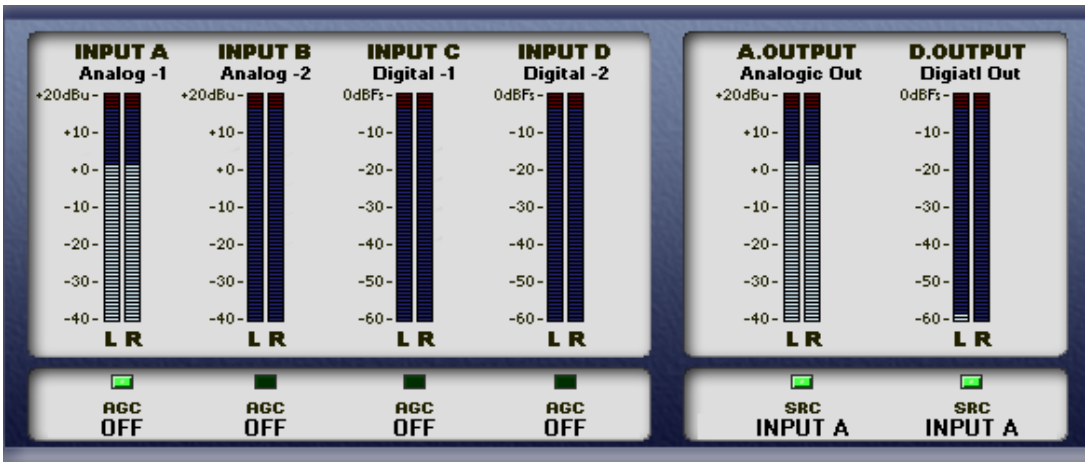
7.2 ANALOG AND DIGITAL INPUTS SECTION

The "*inputs*" section displays the input level of the four inputs of Fox and the status of the automatic gain control (AGC). Fox allows you to connect two analog inputs and two digital inputs, divided as follows:

INPUT	TYPE
Input A	**Analog A** input identified as **INPUT -A 1L 2R**
Input B	**Analog B** input identified as **INPUT -B BL BR**
Input C	**Digital C** input identified as **INPUT 1C**
Input D	**Digital D** input identified as **INPUT 2D**

7.3 ANALOG OUTPUT AND DIGITAL OUTPUT SECTION

This part displays the level of the **Analog** output **(A.OUTPUT) and Digital** output **(D.OUTPUT).** In the presence of a valid output level, the label changes into SRC INPUT x. For example, if input A is routed on the Analog output, then we will find the words SRC INPUT A and the LED changes its colour from **BLACK** to **GREEN**.

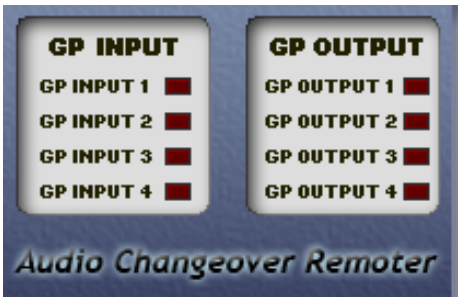


The same thing happens with the Digital output. When an input is considered "valid" this is routed, with policies of switching that can be decided, on the Digital output. The status changes from MUTED to SRC INPUTx exactly as for the analog output. If input A is routed, then we will find the words SRC INPUT A instead of MUTED and the LED changes its colour from **BLACK** to **GREEN** .

A feature of Fox is in fact the mounting on board of a powerful system of A/D and D/A converter that allows you to convert an Analog input on a digital Output and a Digital input on an Analog output. This is to ensure maximum versatility in use.

The labels placed under each input and output can be customised with names that can be defined by the user. To achieve this, simply open the Audio Changeover Address Manager and in the Channel Names section assign each input / output a mnemonic name that will indicate the destination or source of the audio signal concerned.

7.4 SECTION GP INPUTS AND GP OUTPUTS

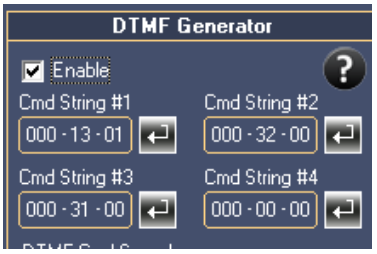


In section GPInputs and GPOutputs are visible the status of the General Purpose in Input and Output. The SubD 15poly HD female port on the back of the device allows connections with the device. See the technical appendix for connections and pinout. The purpose of this front panel is to show the status of the various GP In and GP Out. The user cannot act to change the status of the GP from this panel.

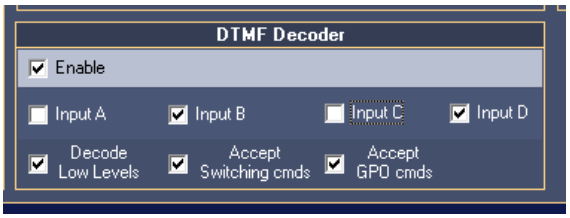
From the Fox front panel it is instead possible to see and learn the status of the GP Inputs and GP Outputs by simply clicking the ANALOG or DIGITAL key, and two lines show the status of
G-IN: 0-0-0-0
G-OUT: 0-0-0-0

7.5 DTMF GENERATOR AND DECODER SECTION

The DTMF Generator and Decoder section displays the three important Fox operating parameters: **Alarm**, **DTMF Generator** and **DTMF Decoder**.
Alarm: This alarm is displayed when the Fox working condition is alarmed; an example could be when all the switchings available are terminated, and there are no more input sources to send on an output available.



DTMF Generator: this red indication represents the capacity of Fox to generate a series of DTMF Tones, with user-customisable strings. The indication only represents the ability of Fox to be able to generate DTMF tones, and not that Fox, when the DTMF GENERATOR LED is lit, is generating DTMF tones. When the DTMF Generator is ENABLED, this indication is lit. This control can be enabled or disabled using Setup -> Settings. The subsequent chapters explain how to use in their entirety the DTMF Generator and DTMF Decoder.



DTMF Decoder: this red indication represents the capacity of Fox to recognise a series of DTMF Tones, with user-customisable strings. The indication only represents the ability of Fox to be able to decode the DTMF tones, and not that Fox, when the DTMF GENERATOR LED is lit, is decoding DTMF tones.

Essentially, when the DTMF Decoder is ENABLED this indication is lit. This control can be enabled or disabled using Setup -> Settings. The subsequent chapters explain how to use in their entirety the DTMF Generator and DTMF Decoder.

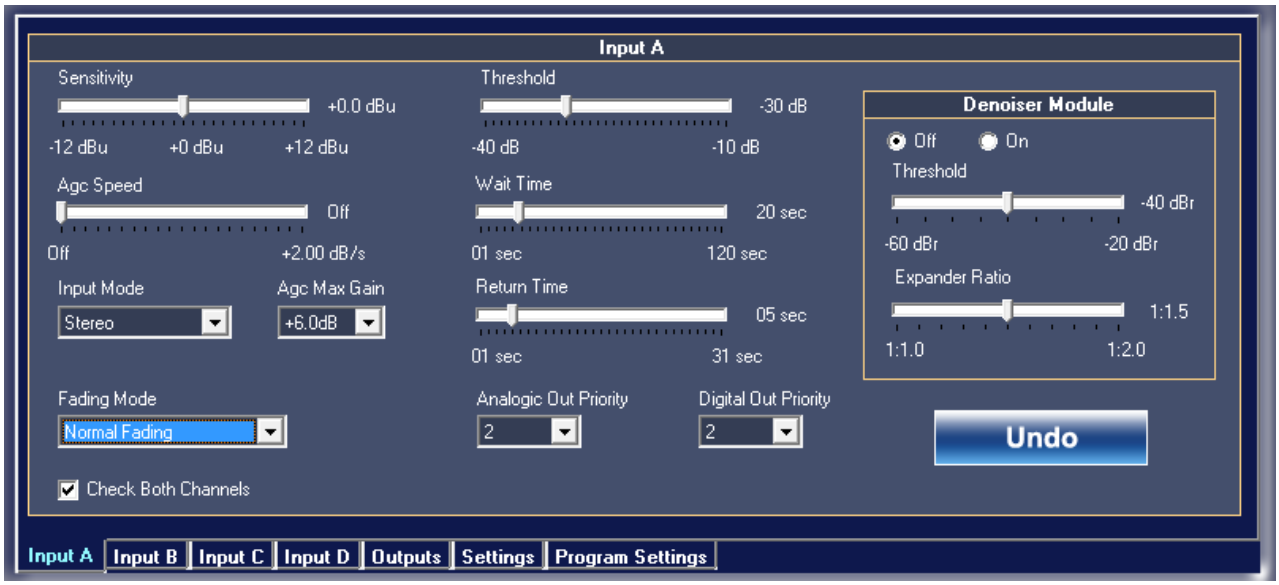
7.6 SECTION SETUP AND DISCONNECT

This part includes all the technical work parameters of Fox and the operating configurations. This setup is, in turn, divided into Tabs, each of these with specific functions:

TAB	FUNCTION AND SPECIFICATION
INPUT A	Management of the ANALOG Audio input Left + Right on XLR Balanced (IN 1-A.)
INPUT B	Management of the ANALOG Audio input Left + Right on Balanced XLR (IN 1-B)
INPUT C	Management of the DIGITAL Audio Input on Balanced XLR (IN C)
INPUT D	Management of the DIGITAL Audio Input on Balanced XLR (IN D)
OUTPUTS	Management of the DIGITAL and ANALOG Audio Output
SETTINGS	Here it is possible to configure both the DTMF Generator that Decoder, the functions of the individual General Purpose Input and Output and the Delay line to be applied to a specific input or output.
PROGRAM SETTINGS	Display and selection of the control software settings in addition to the information on the connection, firmware code, firmware version and target name.

7.6.1 Description section Input -A Input -B (Analog Inputs)

The two Analog inputs of Fox are individually configurable with the various operating parameters shown below. In addition to the usual controls of a classic audio device, there are also a number of very special features to make it a superior category device with Fading Mode, Delay and Denoiser module. For these features for both the two analog inputs there is ONLY ONE Input Tab because the two inputs are identical and a copy of each other.

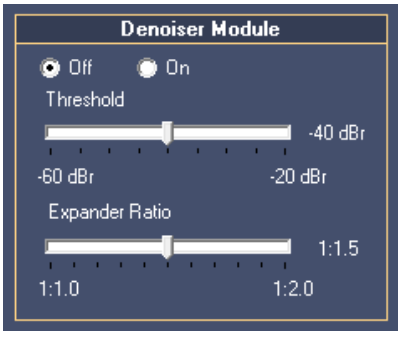


CONTROL NAME	FUNCTION
Sensitivity	Input Analog Sensitivity Adjustment. The permitted values range from -12dBu to +12dBu
AGC Speed	Adjustment of the speed of the Automatic Gain Control (AGC). The permitted values range from Off to +2.00 dB/s in steps of 0.05db /s
AGC Max Gain	It represents the maximum gain that the AGC can introduce at the input level. The permitted values range from +1.0 dB to +12.0 dB in steps of 1.0 dB
Input Mode	Represents the working mode of the input stage. Possible options include: - Stereo - Mono (Left) - Mono (Right) - Mono (Left+Right) - Swap (Left/Right) - Stereo Inv Right - Stereo Inv Left - Swap Inv Right - Swap Inv Left The Stereo-Mono classical modes of working are also completed by test functionality such as Swap and Stereo Inv, where via INV the steps of the balanced audio signal are reversed creating or eliminating a possible counterphase and where via Swap the Left from Right is reversed.
Fading Mode	Represents the Fade mode, or mode of transition between one source and another. Possible options include: - Fast Switch - Slow Fading - Normal Fading - Fast Fading Fast Switch means a sudden and rapid switch from one source to another with a net switching. Slow-Normal-Fast Fading instead represent an INITIAL fade switching, i.e. fading in opening then fading towards the new source just switched.
Check Both Channels	This checkbox is used to operate the Fox on both the Left and Right channels; if not selected, Fox only controls the LEFT+RIGHT (mono) product.
Threshold	This parameter represents the level below which to consider the audio source invalid. In practice, it is the minimum working threshold of the Changeover. The permitted values range from -40dB to - 25dB
Wait Time	Changeover waiting time that is activated by the Threshold control before switching to a different audio source. The permitted values range from 01 seconds to 120 seconds.
Return Time	Changeover waiting time before considering the primary source valid again. When the input level exceeds the <threshold>, for a time equal to or greater than <return time> then the source is considered valid again and the exchange from backup to primary is performed. It is very useful

	when the sources are defined as "dirty" and risk creating in output a continuous ping-pong between Primary and Backup. This control allows a return time from 01 seconds to 31 seconds.
Analog Out Priority	Represents the priority of the Audio source with respect to other audio sources. By introducing in sequence the various inputs with respect to the Analog Output, a switching sequence is then obtained which can be varied depending on requirements. The permitted values are 1-2-3-4 where 1 is the **FIRST** source**,** 2 the **SECOND**, 3 the **THIRD**, 4 the **FOURTH**. **OFF** represents **NON SWITCHING** with regard to that source. In each case switching takes place when the secondary sources (2-3-4) to which switching must be performed, are considered valid, namely that physically there is an input audio, above a certain level to be considered appropriate for broadcasting. Without this important control upon switching, there would be a risk of backup audio source broadcast that is worse than the primary source, while with this control inserted, the ability to perform switching to a Backup is provided, given that the backup is better than the primary source that ceased to be valid. Is it possible to send an Analog audio source toward the Digital output and then to send a Digital audio source toward the Analog output; in addition, the Input Priority Sequence is visible in the Output panel relative to the Analog Output.
Digital Out Priority	Represents the priority of the Audio source with respect to other audio sources. By inserting in sequence the various Inputs with respect to the Digital Output, a switching sequence is then obtained which can be varied depending on requirements. The permitted values are 1-2-3-4 where 1 is the **FISRT** source**,** 2 the **SECOND**, 3 the **THIRD**, 4 the **FOURTH**. **OFF** represents **NON SWITCHING** with regard to that source. In each case switching takes place when the secondary sources (2-3-4) to which switching must be performed, are considered valid, namely that physically there is an input audio , above a certain level to be considered appropriate for broadcasting. Without this important control upon switching, there would be a risk of backup audio source broadcast that is worse than the primary source, while with this control inserted, the ability to perform switching to a Backup is provided, given that the backup is better than the primary source that ceased to be valid. Is it possible to send an Analog audio source toward the Digital output and at times to send a Digital audio source towards the Analog output; in addition, the Input PrioritySequence is visible in the Output panel relative to the Digital Output.
UNDO	Pressing this key restores the default values set in production for each individual panel.

7.6.2 The Analog Input Denoiser module

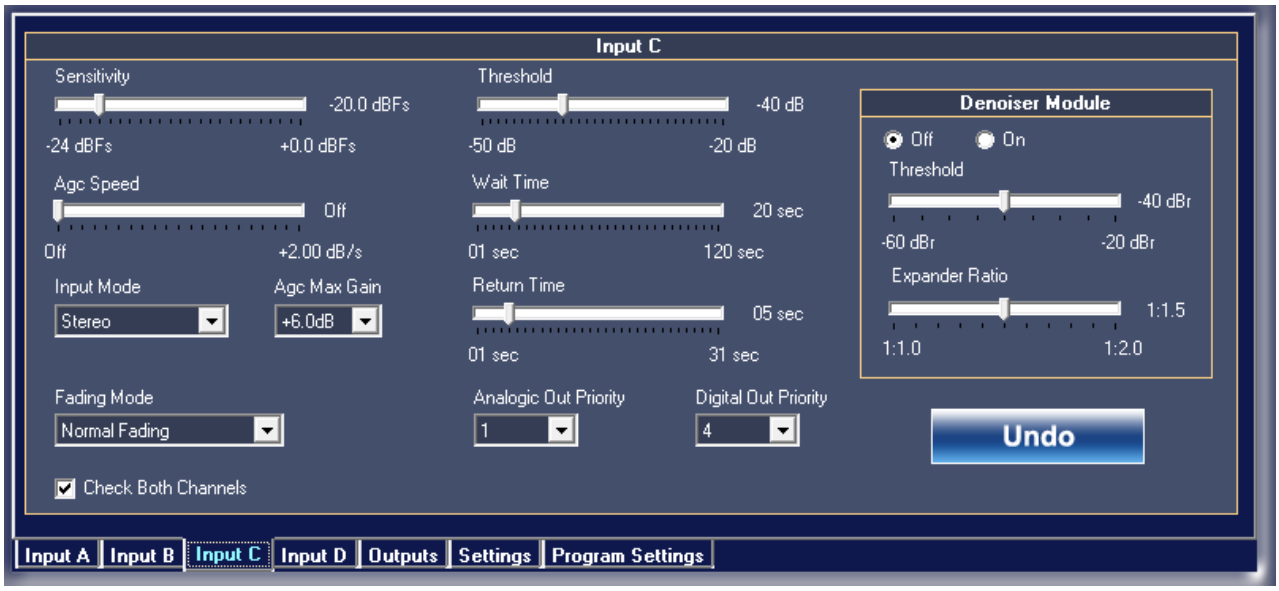
A *Denoise* is also available on the input settings screen. The Denoise is a feature that provides the option to the device to minimise the noise that may occur on an input. In so doing, if for one reason or another, there is an input defined as "dirty" and "noisy", Fox tries in every way to minimise this noise, attempting to make the input as clean as possible.



E.g.: with a large audio system where it is difficult to identify what is generating noise on an input, this effect can be applied to try to minimise it. It is of course not a "high tech" solution but undoubtedly provides great stability to the system. The controls available include: **On/Off, Threshold, Expander Ratio.**

With On/Off the Denoiser may or may not be inserted, with Threshold the level at which the Expander command must begin to increase the Dynamic is identified.

7.6.3 Description section Input -C and Input -D (Digital Inputs)



The two Analog inputs of Fox are individually configurable with the various operating parameters shown below. In addition to the usual controls of a classic audio device, there are also a number of very special features to make it a superior category device with Fading Mode, Delay and Denoiser module For these features for both the two analog inputs there is ONLY ONE Input Tab because the two inputs are identical and a copy of each other.

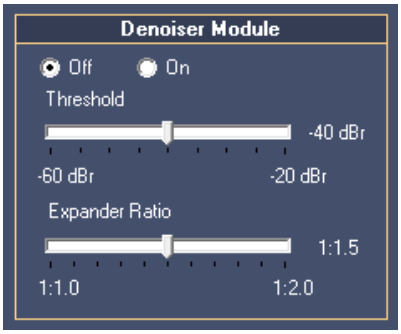
CONTROL NAME	FUNCTION
Sensitivity	Adjustment of Input Digital sensitivity The permitted values range from -24 dBFs to 0.0 dBFs
AGC Speed	Adjustment of the speed of the Automatic Gain Control (AGC). The permitted values range from Off to +2.00 dB/s in steps of 0.05db /s
AGC Max Gain	It represents the maximum gain that the AGC can introduce at the input level. The permitted values range from +1.0 dB to +12.0 dB in steps of 1.0 dB
Input Mode	Represents the working mode of the input stage. Possible options include: - **Stereo** - **Mono (Left)** - **Mono (Right)** - **Mono (Left+Right)** - **Swap (Left/Right)** - **Stereo Inv Right** - **Stereo Inv Left** - **Swap Inv Right** - **Swap Inv Left** The Stereo-Mono classical mode of working are also completed by test functionality such as Swap and Stereo Inv, where via INV, the steps of the balanced audio signal are reversed creating or eliminating a possible counterphase and where via Swap the Left from Right is reversed.
Fading Mode	Represents the Fade mode, or mode of transition between one source and another.

	Possible options include: - **Fast Switch** - **Slow Fading** - **Normal Fading** - **Fast Fading** Fast Switch means a sudden and rapid switch from one source to another with a net switching. Slow-Normal-Fast Fading instead represent an INITIAL fade switching, i.e. fading in opening then fading towards the new source just switched.
Check Both Channels	This checkbox is used to operate the Fox on both the Left and Right channels; if not selected Fox only controls the LEFT+RIGHT (mono) product.
Threshold	This parameter represents the level below which to consider the audio source invalid. In practice, it is the minimum working threshold of the Changeover. The permitted values range from -40dB to +12dB
Wait Time	Changeover waiting time that is activated by the Threshold control before switching to a different audio source. The permitted values range from 01 seconds to 120 seconds.
Return Time	Changeover waiting time before considering the primary source valid again. When the input level exceeds the <threshold>, for a time equal to or greater than <return time> then the source is considered valid again and the exchange from backup to primary is performed. It is very useful when the sources are defined as "dirty" and risk creating in output a continuous ping-pong between Primary and Backup. This control allows a return time from 01 seconds to 31 seconds.
Analog Out Priority	Represents the priority of the Audio source with respect to other audio sources. By inserting in sequence the various Inputs with respect to the Analog Output a switching sequence is then obtained which can be varied depending on requirements. The permitted values are 1-2-3-4 where 1 is the **FISRT** source**,** 2 the **SECOND**, 3 the **THIRD**, 4 the **FOURTH**. **OFF** represents **NON SWITCHING** with regard to that source. In each case switching takes place when the secondary sources (2-3-4) to which switching must be performed, are considered valid, namely that physically there is an input audio, above a certain level to be considered appropriate for broadcasting. Without this important control upon switching, there would be a risk of backup audio source broadcast that is worse than the primary source, while with this control inserted, the ability to perform switching to a Backup is provided, given that the backup is better than the primary source that ceased to be valid. Is it possible to send an Analog audio source toward the Digital output and at times to send a Digital audio source toward the Analog output; in addition, the Input Priority Sequence is visible in the Output panel relative to the Analog Output.
Digital Out Priority	Represents the priority of the Audio source with respect to other audio sources. By inserting in sequence the various Inputs with respect to the Digital Output, a switching sequence is then obtained which can be varied depending on requirements. The permitted values are 1-2-3-4 where 1 is the **FISRT** source**,** 2 the **SECOND**, 3 the **THIRD**, 4 the **FOURTH**. **OFF** represents **NON SWITCHING** with regard to that source. In each case switching takes place when the secondary sources (2-3-4) to which switching must be performed, are considered valid, namely that physically there is an input audio , above a certain level to be considered appropriate for broadcasting. Without this important control upon switching, there would be a risk of backup audio source broadcast that is worse than the primary source, while with this control inserted, the ability to perform switching to a Backup is provided, given that the backup is better than the primary source that ceased to be valid.

	Is it possible to send an Analog audio source toward the Digital output and at times to send a Digital audio source towards the Analog output; in addition, the Input Priority Sequence is visible in the Output panel relative to the Digital Output.
UNDO	Pressing this key restores the default values set in production for each individual panel.

7.6.4 The Digital Input Denoiser module

A *Denoise* is also available on the input settings screen. The Denoise is a feature that provides the option to the device to minimise the noise that may occur on an input. In so doing, if for one reason or another, there is an input defined as "dirty" and "noisy", Fox tries in every way to minimise this noise, attempting to make the input as clean as possible.

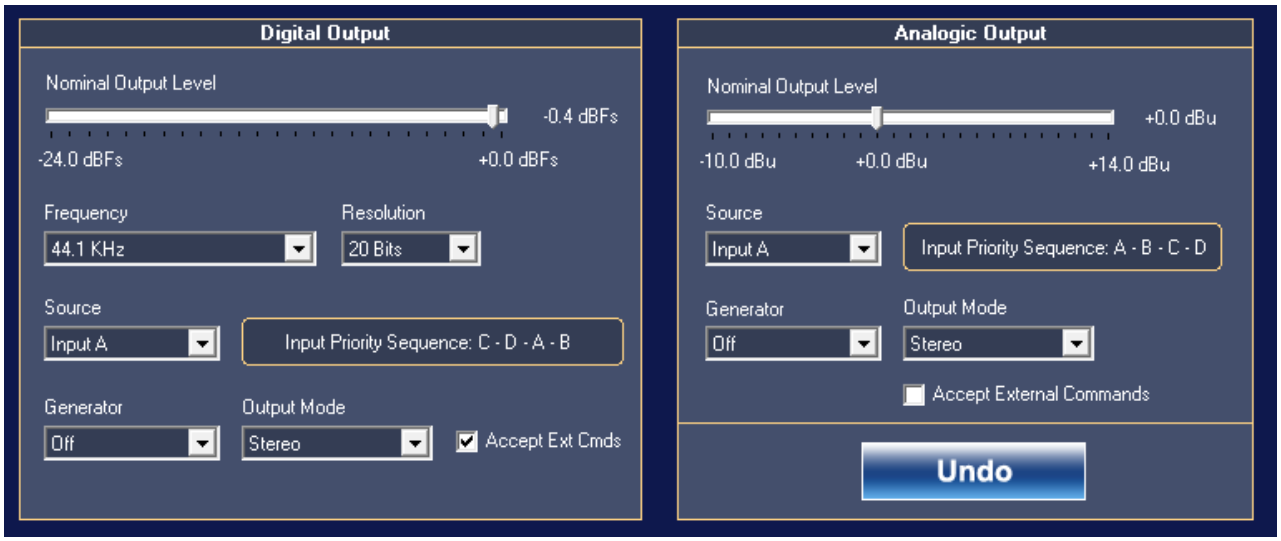


E.g.: with a large audio system where it is difficult to identify what is generating noise on an input, this effect can be applied to try to minimise it. It is of course not a "high tech" solution but undoubtedly provides great stability to the system. The controls available include: **On/Off, Threshold, Expander Ratio.**

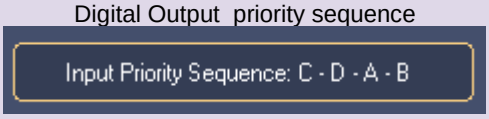
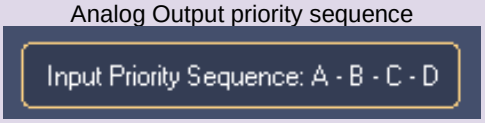
With On/Off the Denoiser may or may not be inserted, with Threshold the level at which the Expander command must begin to increase the Dynamic is identified.

7.7 OUTPUT SECTION

Once the inputs have been set and programmed, in the part dedicated to Outputs all that remains is to set a number of technical values such as the level of output and the ability to accept external commands. This software part is separated into two areas, the first is the Digital output while the second represents the Analog audio output. The table below the photograph of the Fox screen shows in detail the possible settings.

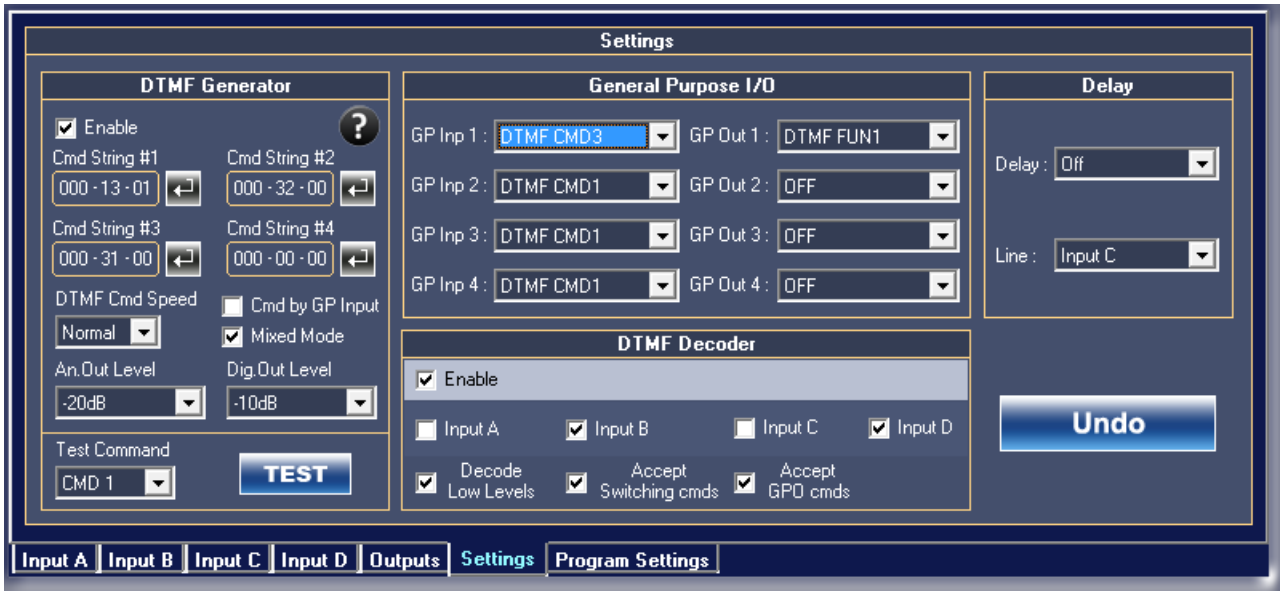


CONTROL NAME	FUNCTION
Nominal Output Level	It represents the nominal output level of the Analog and Digital signal. The permitted values range from -24.0 dBFs to 0.0dBFs for the Digital part while they range from -10.0 dBu to +14.0 dBu for the Analog part.
Frequency	Sampling frequency of the Digital signal in use. The permitted values are: - 32 kHz - 44.1 kHz - 48.0 kHz - 64.0 kHz - 88.2 kHz - 96 kHz
Resolution	Resolution value of the of the Digital signal in use. The permitted values are: - 16 bit - 20 bit - 24 bit
Source	It represents which INPUT source must be sent to the Digital or Analog output. The available values include InputA / InputB / InputC / InputD / Automatic / Off By entering the **Automatic** value, the use of the Audio Changeover between Inputs is also implicitly inserted and thus also respecting of the side Input Priority Sequence. Entering instead an Input fixed

	value, the Audio Changeover is implicitly disabled and there continues to be a single fixed source towards the Analog or Digital output. As such, to change an input with respect to an output, commands (GPIn or SNMP) can be sent to the device, assuming that the Accept ExtCmds checkbox is enabled.
Input Priority Sequence	It represents the sequence in which the Audio Changeover is set. The setting of each individual priority occurs from every single **INPUT**, this box is only to display of the order of assigned priorities. Digital Output priority sequence  Analog Output priority sequence 
Accepts ExtCmds	If flagged, it enables change of the input sources depending on receipt of external commands such as GPIn or SNMP.
Generator	If enabled, it enters a 100 Hz / 0 dBm signal on the selected output, very useful when having to calibrate or test an audio chain. Possible options include: - Off - Left and Right - Only Left - Only Right
Output Mode	Selection of the output mode, the possibilities include: - Stereo - Mono (Left) - Mono (Right) - Mono (Left + Right)
UNDO	Clicking this key restores the default values set in production for each individual panel.

7.8 SETTINGS SECTION

This section displays all the technical and working parameters related to features such as:
DTMF Generator, DTMF Decoder, General Purpose I/O and Delay. Specifically, DTMF Generator is defined as all the controls for the generation part of DTMF tones to be sent to the Analog and Digital output. DTMF Decoder instead refers to the checks for the recognition of DTMF tones received on a particular input. The General Purpose I/O section defines the procedures for operation both of the General Purpose Input and General Purpose Output. The Delay section concerns the possibility for Fox to introduce a delay line on a particular input or a given output in order to keep different sources aligned with arrivals offset against each other.



7.8.1 DTMF Generator section

The "***Cmd by GP Input***" checkbox indicates the Fox option of accepting and thus encoding DTMF commands by closure of the various GPIn. An example as shown in the photo, if it is included in the section ***General Purpose I/O*** to section ***GP Inp 1***, the ***DTMF CMD3*** section, when Input 1 goes to 1 (i.e., is activated) then on the analog and digital output the DTMF command corresponding to the ***CmdString #3*** will start. As stated, all this is subject to the "***Cmd by GP Input*** " checkbox that if enabled makes the actions described above operational.

The "***Mixed Mode***" checkbox indicates that Fox is able to mix, mix the audio DTMF commands that it was previously managing in input. In doing so, it is also possible to add the DTMF commands to the Fox audio input. Where you don't wish to add the DTMF commands to the audio from the Fox input, simply de-select this checkbox. In this case however the sound is first stopped, then the DTMF commands are sent and subsequently upon sending of the strings the audio returns in output.

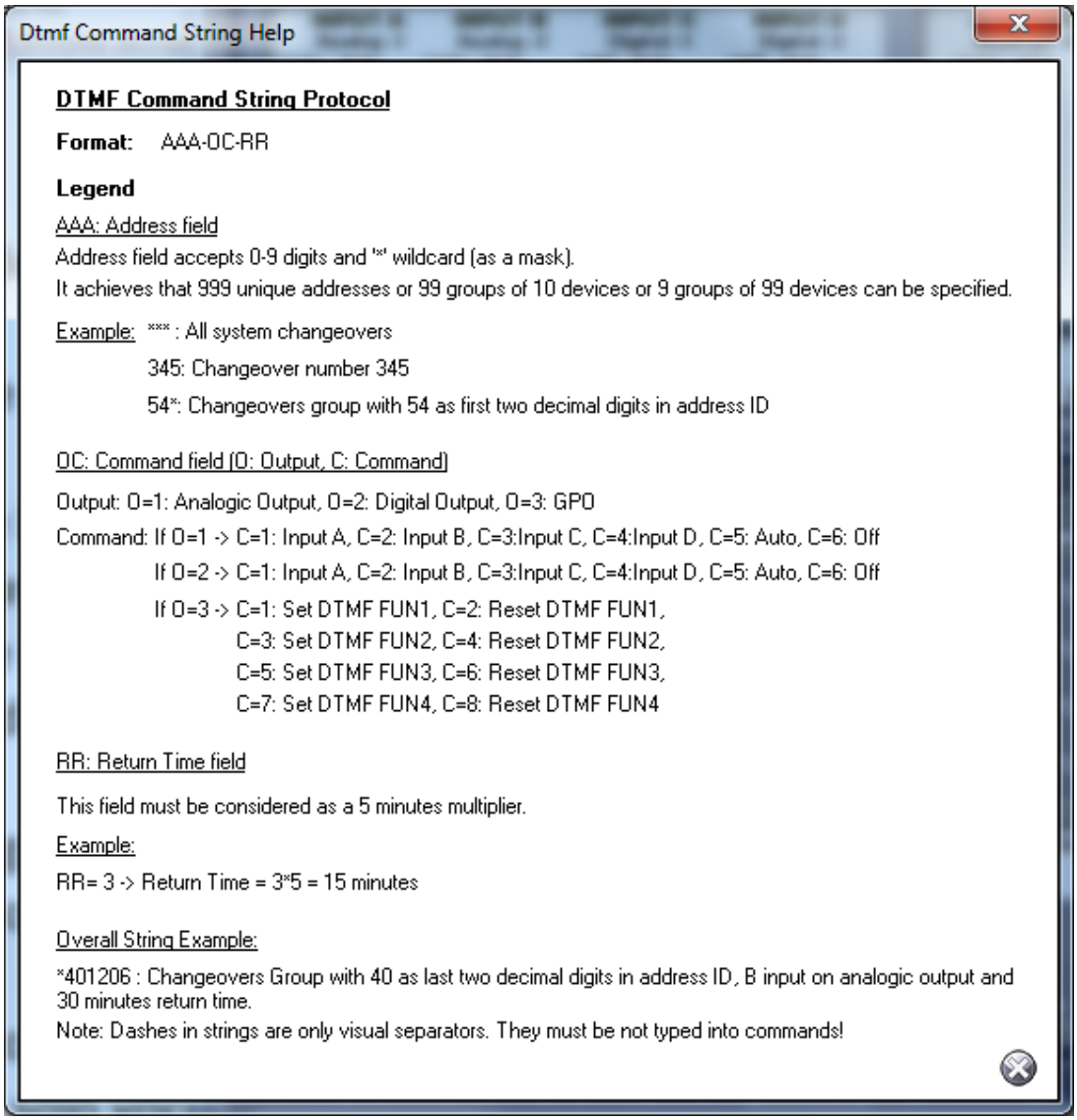
"***Analog Out Level"*** *and "****Dig.Outlevel****"* mean the level at which the DTMF tones are issued on the respective Analog and Digital audio outputs. The recommended level is -10 dB in a situation of mixed audio. The Fox machine is able to operate up to a minimum of -30 dB, but the conditions required to obtain these levels are by using the "***Speed Slow***" and activating on Fox the '***Decode Low Levels***" checkbox located in reception.

In the section " ***DTMF Speed'*** it is possible to select the speed at which the DTMF strings are transmitted. As is known: more robust operation is obtained by using the Slow commands and the DecodeLowLevels disabled.

The "***Test Command***" *section instead* serves to manually run a Test command to the Analog or Digital outputs. It is possible to select one of the four DTMF commands.

The photo below shows the protocol of the DTMF commands; to open this help press the "?" key
The string format is AAA-**O**C-RR

Where AAA is meant as the command destination that can be toward a single Fox or a group of Foxes (see CommandString Help on the next page).
OC means OUTPUT and COMMAND, the command can be sent to the Analog output (1) or to the Digital output (2) or directly to the GPO via the (3). C means the COMMANDS related to the GPO output.



Example 1:

The example above, that is the tutorial included within the command software both of Fox and of Genius D, is an example of the command * **401206** and what it means:

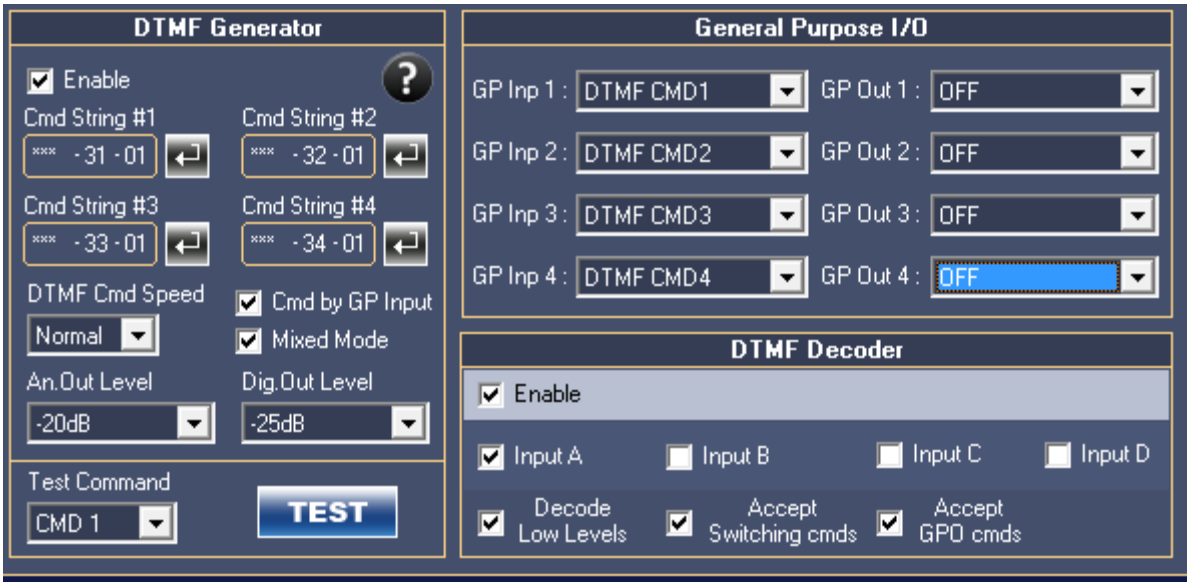
*** 40 =** Command sent to all the Foxes / Genius D whose last two digits are 40 in their Address ID.

1 = Action to be carried out on the ANALOG OUTPUT (1)

2 = command to be carried out on the variable shown above, i.e. on the analog output, thus C=2 as a result input -B is sent to the Analog output.

06 = 06 minutes multiplied by x5 stable minutes = 30 minutes, i.e. the above requested command is run for 30 minutes, at the end of which the command is terminated and the initial condition returns, which is the same as before execution of the command.

Example 2:



In the example shown above, it is instead possible to see how DTMF commands can be sent to other devices both Fox and Genius D, and to use the DTMF Encoder and Decoder to close or open GPOUTs.

CMD STRING #1
Significance of ***3101**:

***= Command sent indiscriminately to all DTMF decoders (Fox and Genius (D) entered in the network.

3 = Action to be performed on GPO (3).

1 = if the command is 3 then it is possible, by entering 1, to close the GPO1(If O=3 -> C=1: Set DTMF FUN1).

01 = 01 minutes multiplied by x5 stable minutes = 05 minutes, i.e. the above requested command is run for 05 minutes, at the end of which the command is terminated and the initial condition returns, which is the same as before execution of the command.

CMD STRING #2
Significance of ***3201**:

***= Command sent indiscriminately to all DTMF decoders (Fox and Genius (D) entered in the network.

3 = Action to be performed on GPO (3)

2 = if the command is 3, then it is possible, by entering 2, to reset the closure of the GPO1 consequently restoring it to the initial condition (If O=3 -> C=2: DTMF FUN1).

01 = 01 minutes multiplied by x5 stable minutes = 05 minutes, i.e. the above requested command is run for 05 minutes, at the end of which the command is terminated and the initial condition returns, which is the same as before execution of the command.

CMD STRING #3

Significance of ***3301**:

***= Command sent indiscriminately to all DTMF decoders (Fox and Genius (D) entered in the network

3 = Action to be performed on GPO (3)

3 = if the command is 3, then it is possible, by entering 2, to close the GPO2 (If O=3 -> C=3: Set DTMF FUN2)

01 = 01 minutes multiplied by x5 stable minutes = 05 minutes, i.e. the above requested command is run for 05 minutes, at the end of which the command is terminated and the initial condition returns, which is the same as before execution of the command.

CMD STRING #4

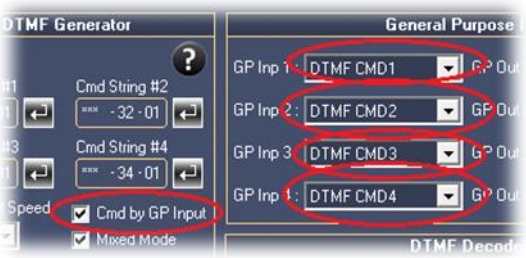
Significance of ***3401**:

***= Command sent indiscriminately to all DTMF decoders (Fox and Genius (D) entered in the network

3 = Action to be performed on GPO (3)

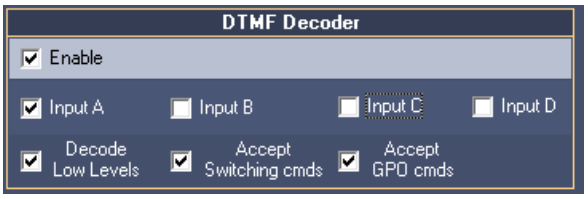
4 = If the command is 3, then it is possible, by inserting 4, to reset the closure of the GPO2 consequently restoring it to the initial condition (If O=3 -> C=4: Reset DTMF FUN2).

01 = 01 minutes multiplied by x5 stable minutes = 05 minutes, i.e. the above requested command is run for 05 minutes, at the end of which the command is terminated and the initial condition returns, which is the same as before execution of the command.



7.8.2 Section DTMF Decoder

The operating modes of the Fox DTMF Decoder are selected in the DTMF Decoder section. The '***Enable***" checkbox indicates that Fox must also be activated as DTMF Decoder. The subsection composed of INPUT A - INPUT B - INPUT C - INPUT D check boxes indicates where Fox must listen in order to be able to decode the DTMF tones. It is also possible to select all the inputs, although we recommend that you select only one input to avoid unnecessary noises or interference on the DTMF decoder.



The "***DecodeLow Level***" check box accepts and sends signals lower than -20dB to the DTMF decoder. This control must be used in conjunction with the slow command speed (DTMF Speed Slow). Activating this control increases reception sensitivity but the probability of error is also consequently increased if the DTMF tone reaches the decoder with interference or too quickly with respect to the possibility of decoding. Again with this control, it is recommended not to use it if it signals that are considered high (typically between -15dB to -10dB) are being used while these levels are recommended when the DTMF commands are sent mixed together with the input audio signal. This signal could be music, speech or of any other nature and in this case, it is advisable to work with high levels and Normal or Slow transmission speed. If instead you want to work with low levels (and therefore with the Decode Low Levels enabled), the tone must be sent WITHOUT mixed audio, or audio that is "voice only" and associate a low speed command.

The ***"Accept Switching Comands***" checkbox enables the Fox upon its receipt to perform the various controls of channel Switching, otherwise these commands are ignored.
The "***Accept GPO Comands***" checkbox enables Fox upon its receipt to perform remote GPOs, which are otherwise ignored.

7.8.3 General Purpose I/O Section

In this section are set the features of General Purpose both in Input and in Output. GP Inp means the features that must be performed by Fox upon receipt of a GPIn on port 1,2,3 or 4.

These are possible for the GP In:

a. **DTMF CMD1:** Upon closure of GPIn 1 the DTMF CMD1 string present in the DTMF Generator panel is launched.

b. **DTMF CMD2:** Upon closure of GPIn 2 the DTMF CMD1 string present in the DTMF Generator panel is launched.

c. **DTMF CMD3:** Upon closure of GPIn 3 the DTMF CMD1 string present in the DTMF Generator panel is launched.

d. **DTMF CMD4:** Upon closure of GPIn 4 the DTMF CMD1 string present in the DTMF Generator panel is launched.

e. **INP A ON ANOUT: Changes** of the input with respect to the Analog audio output

f. **INP B ON ANOUT: Changes** of the input with respect to the Analog audio output

g. **INP C ON ANOUT: Changes** of the input with respect to the Analog audio output

h. **INP D ON ANOUT: Changes** of the input with respect to the Analog audio output

i. **INP A ON DIGOUT: Changes** of the input with respect to the Digital audio output

j. **INP B ON DIGOUT: Changes** of the input with respect to the Digital audio output

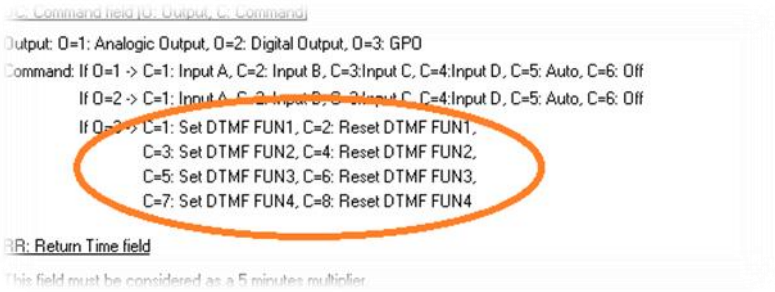
k. **INP C ON DIGOUT: Changes** of the input with respect to the Digital audio output

l. **INP D ON DIGOUT: Changes** of the input with respect to the Digital audio output

These are possible for the GP Out:

a. **ALARM:** the condition of Alarm occurs when Fox has not been able to perform the switchings set. Where a switch is not effected, Fox displays the Alarm indication on the front panel; in the control software the corresponding LED is lit and the GPO is possibly closed.

b. **DTMF FUN1:** When a DTMF string is correctly decoded, it coincides with the closing of the corresponding GPO.
c. **DTMF FUN2**: When a DTMF string is correctly decoded, it coincides with the closing of the corresponding GPO.
d. **DTMF FUN3**: When a DTMF string is correctly decoded, it coincides with the closing of the corresponding GPO.
e. **DTMF FUN4**: When a DTMF string is correctly decoded, it coincides with the closing of the corresponding GPO.



f. INPUT A ON ANOUT: This GPO goes to (1) when input -A is valid and is on the Analog output
g. INPUT B ON ANOUT: This GPO goes to (1) when input -B is valid and is on the Analog output
h. INPUT C ON ANOUT: This GPO goes to (1) when input -C is valid and is on the Analog output
i. INPUT D ON ANOUT: This GPO goes to (1) when input -D is valid and is on the Analog output

j. INPUT A ON DIGOUT: This GPO goes to (1) when input -A is valid and is on the Digital output
k. INPUT B ON ANOUT: This GPO goes to (1) when input -B is valid and is on the Digital output
l. INPUT C ON ANOUT: This GPO goes to (1) when input -C is valid and is on the Digital output
m. INPUT D ON ANOUT: This GPO goes to (1) when input -D is valid and is on the Digital output
n. SIGNAL A: Only corresponds to the Audio-Detector of input -A, this GPO goes to (1) when the source located at input -A is considered valid.
o. SIGNAL B: Only corresponds to the Audio-Detector of Input -B, this GPO goes to (1) when the source located at input -B is considered valid.
p. SIGNAL C: Only corresponds to the Audio-Detector of Input -C, this GPO goes to (1) when the source located at input -C is considered valid.
q. SIGNAL D: Only corresponds to the Audio-Detector of Input -D, this GPO goes to (1) when the source located at input -D is considered valid.

r. **SIGNAL AN OUT**: Corresponds to the Analog output, and the GPO goes to (1) when there is audio on the Analog output.
s. **SIGNAL DIG OUT**: Corresponds to the Digital output, and the GPO goes to (1) when there is audio on the Digital output.

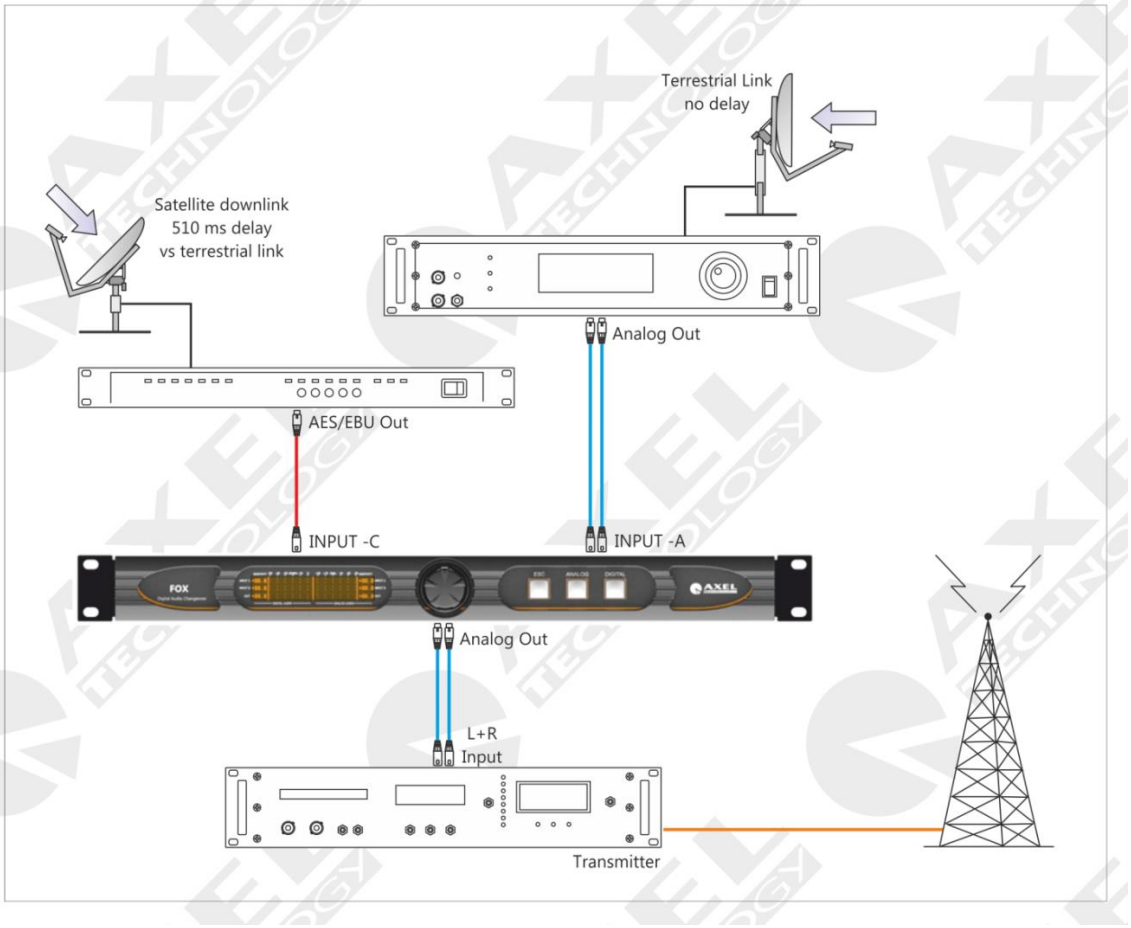
t. **OFF**: GPO Off, not able to operate
u. **ON**: GPO On, GPO continues to be enabled (1)
v. **GPIN 2 MIRROR**: Performs the step from (0) to (1) depending on what is received on GPIN (in this example the GPIN 2)

w. **DTMF FUN1 START PULSE:** This command performs a pulse of 300ms on the door GPOut (1 - 300 ms duration) whenever the corresponding DTMF signal FUNCTION -1 makes a transition from 0 to 1.
x. **DTMF FUN1 STOP PULSE:** This command performs a pulse of 300ms on port GPOut (0 - 300ms duration) whenever the consideration DTMF signal FUNCTION -1 performs a transition from 1 to 0.
y. **DTMF FUN2 START PULSE:** This command performs a pulse of 300ms on the door GPOut (1 - 300 ms duration) whenever the corresponding DTMF signal FUNCTION -2 makes a transition from 0 to 1.
z. **DTMF FUN2 STOP PULSE:** This command performs a pulse of 300ms on port GPOut (0 - 300ms duration) whenever the consideration DTMF signal FUNCTION -2 performs a transition from 1 to 0.
aa. **DTMF FUN3 START PULSE:** This command performs a pulse of 300ms on the door GPOut (1 - 300 ms duration) whenever the corresponding DTMF signal FUNCTION -3 makes a transition from 0 to 1.
bb. **DTMF FUN3 STOP PULSE:** This command performs a pulse of 300ms on port GPOut (0 - 300ms duration) whenever the consideration DTMF signal FUNCTION -3 performs a transition from 1 to 0.
cc. **DTMF FUN4 START PULSE:** This command performs a pulse of 300ms on the door GPOut (1 - 300 ms duration) whenever the corresponding DTMF signal FUNCTION -4 makes a transition from 0 to 1.
dd. **DTMF FUN4 STOP PULSE:** This command performs a pulse of 300ms on port GPOut (0 - 300ms duration) whenever the consideration DTMF signal FUNCTION -4 performs a transition from 1 to 0.

The DTMF command **FUNx START PULSE** and the DTMF command **FUNx STOP PULSE**: This is extremely important when one needs to command the remote automation systems, whether they be television or radio and/or the control and command of transmitters via remote telemetry, and one needs to have a command pulse of duration of 300ms, rather than a command stable, which then resets after "n" time as for **DTMF FUNx**

7.8.4 Delay Section

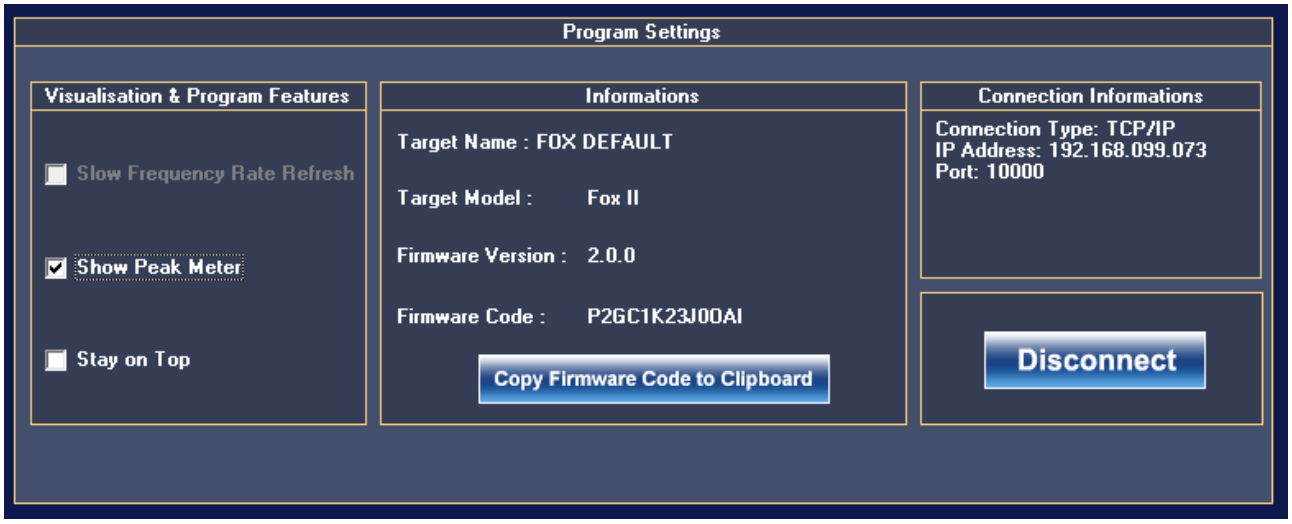
This command introduces a variable delay of 0ms to 1800ms on the **INPUT -A INPUT -B INPUT -C INPUT -D** input or on the **Analog output** or **on the Digital output** in individual steps of 1ms.
The ability to insert a delay becomes extremely important when installing Fox in a complex audio chain where you have different audio sources, and these are staggered in time with each other. In order to then synchronise them, this command is used.



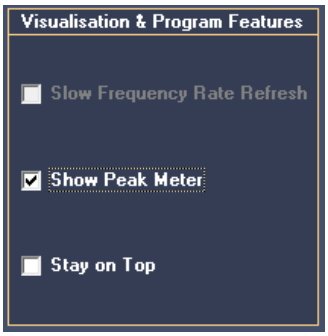
A typical use of this delay module is the ability to maintain synchronisation of two sources that arrive at the site of transmission, one of these by satellite, while the second arrives via land audio line. The satellite has, with respect to the land line, a total delay of 510ms. In order to be able to keep the two audio sources aligned, a delay equal to the incoming one on the satellite is applied to the input of the terrestrial line. In doing so - in a switching between sources via Fox -, the two audio signals will be in perfect synchronisation with one another.

7.9 PROGRAM SETTINGS SECTION

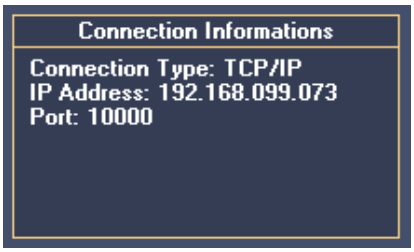
This part will explain how to see and manage all the optional features of Fox. In addition, it is possible to see a summary of the functions and the device connection data.



In this panel, it is possible to see and set a number of parameters of the FOX program. The "Show PeakMeter" checkbox represents the ability to also see the PeakMeter in displays of the indications of input and output level. The "Stay on top" checkbox represents the ability to keep the command software of Fox in the foreground.



In this Connection Information panel it is possible to see a summary of the mode of connection of the FOX device with respect to the software for management and control. Specifically to the side it is possible to see the connection mode in TCP/IP, the address and the port being used.



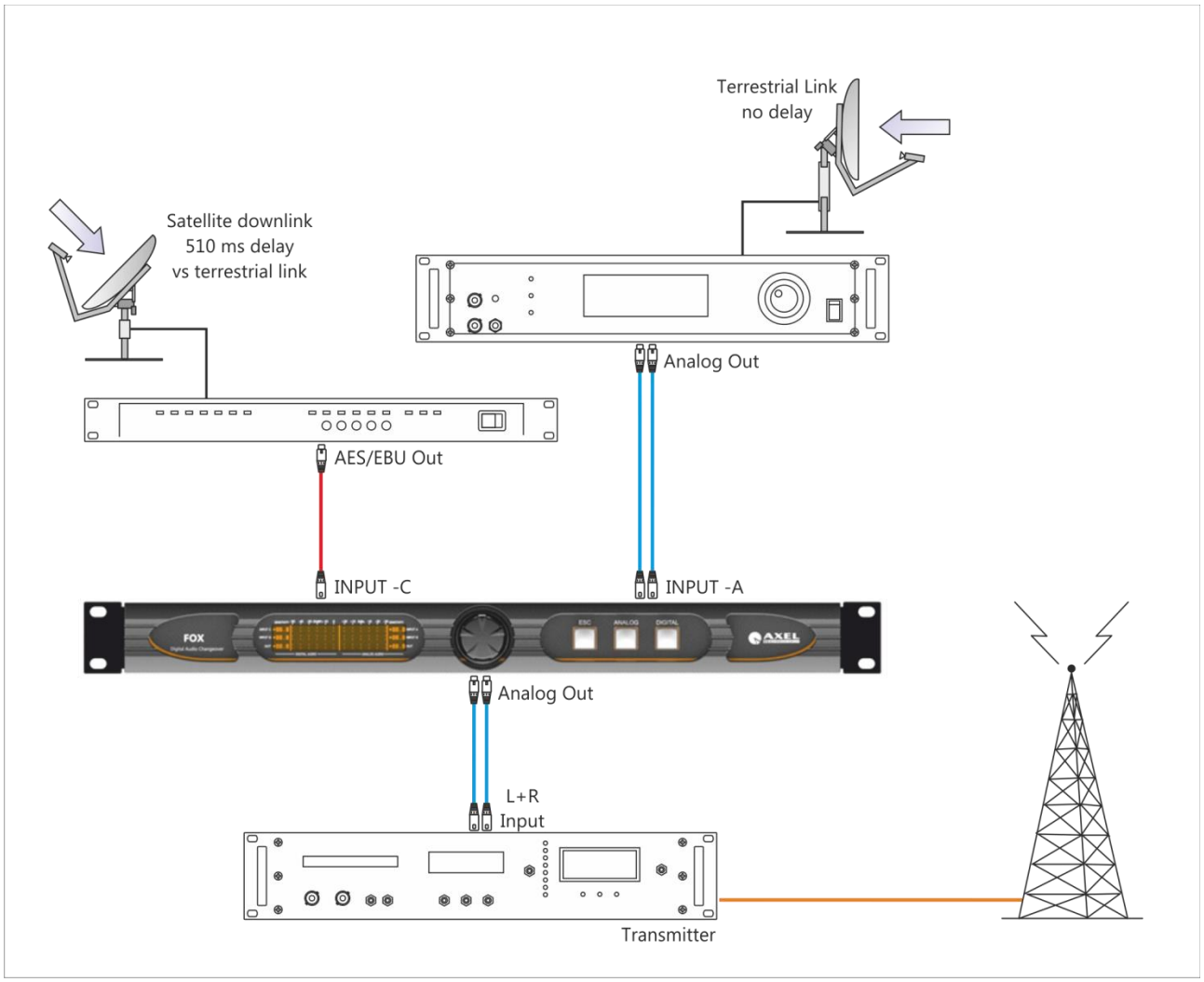
This panel provides a summary of the FOX model being used, the name of the device, the version of the Firmware installed on the device DSP and the unique Firmware code assigned to each individual device.

Panel devoted to disconnection of the device from the TCP/IP or Serial connection.

8 CONNECTION EXAMPLE - FOX MKII

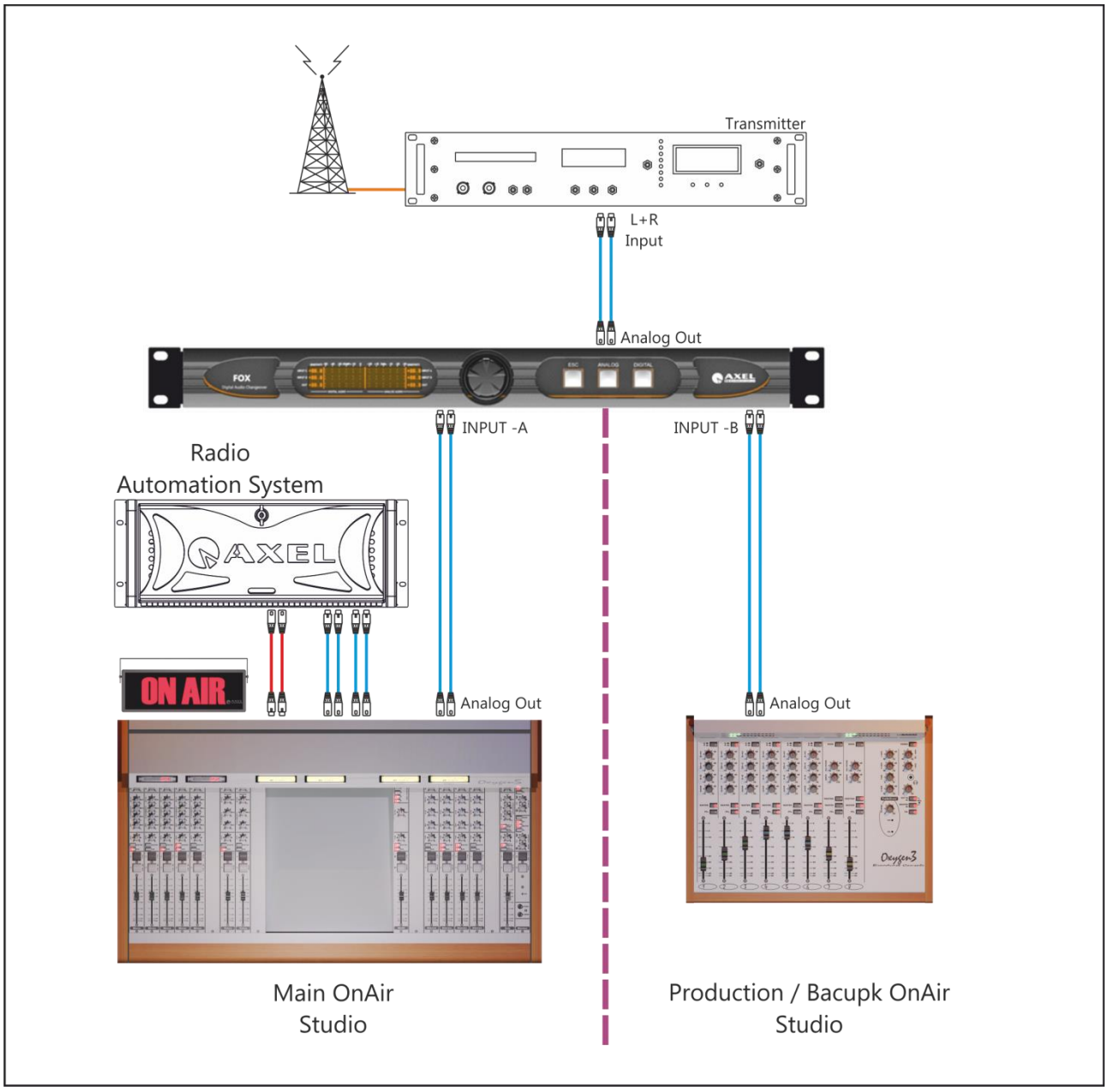
8.1 EXAMPLE 1 – FOX AS AUTOMATIC CHANGEOVER

The diagram below is explained a case of connecting a place in Fox changeover between two satellite receptions. The main satellite is connected to 'INPUT-A (Satellite-A) while the satellite backup is connected to' INPUT-B (Satellite-B) The operating mode Fox in this case must be placed in AUTO, that he might make that in case of fault of the satellite-A is performed automatically switch to the Satellite-B



8.2 EXAMPLE 2 – FOX STUDIO CHANGEOVER

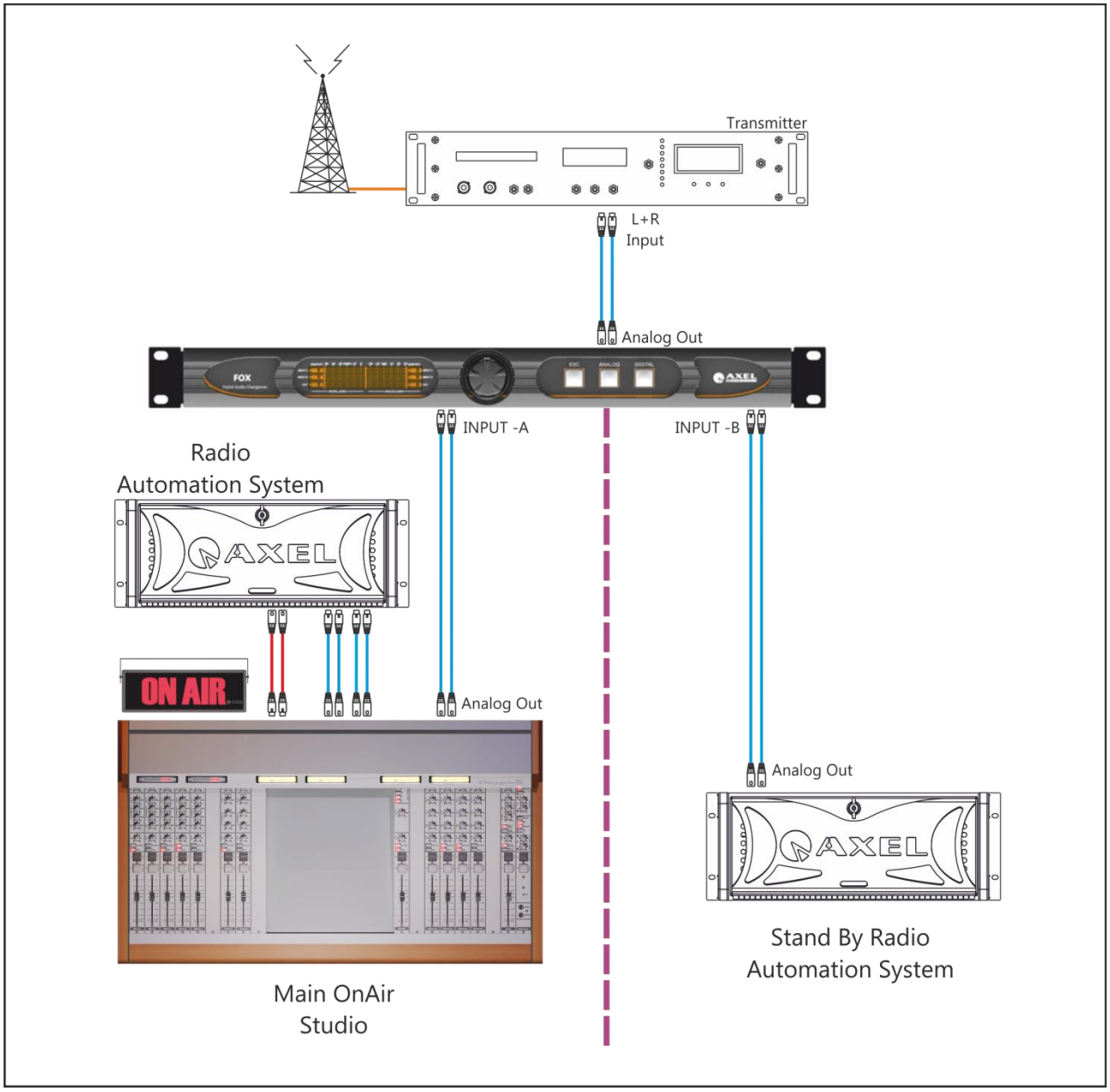
The diagram below explaines a case of connecting a place in the Fox studios shift mode: This mode is used when within an issuer needs to broadcast a study of airing (OnAir) rather than a second study (Production) in analog mode.



It should be made very carefully since, if it is left in the Fox AUTOMATIC, when the first study (Main OnAir) no longer presents audio, switching is performed on the second study (Production or Emergency OnAir) This if and only if l 'input-B of the study Production presents an audio signal VALID and above the Threeshold. E 'can also use the GPIO port to send a command through the use of a GPIN to forcibly perform the switching between the studies.

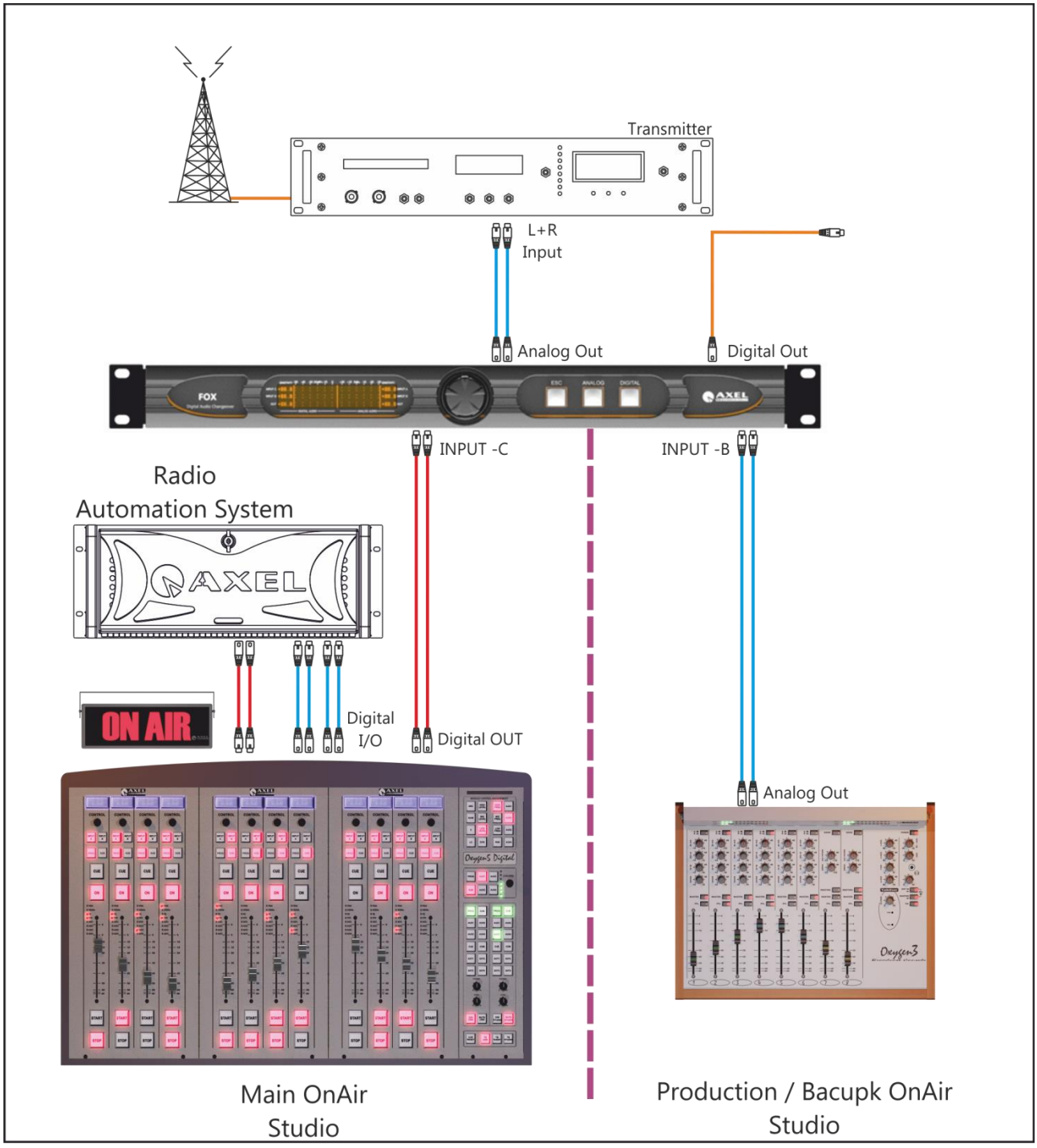
8.3 EXAMPLE 3 – FOX AS AUTOMATIC CHANGEOVER (FAULT) ANL

The diagram below is explained a case of connecting a place in Fox automatic changeover mode: This mode is used when within an issuer needs to broadcast a study of airing (OnAir) and have a reserve Stand By always ready to take the place of the main airing at a time when this has any fault or problems.



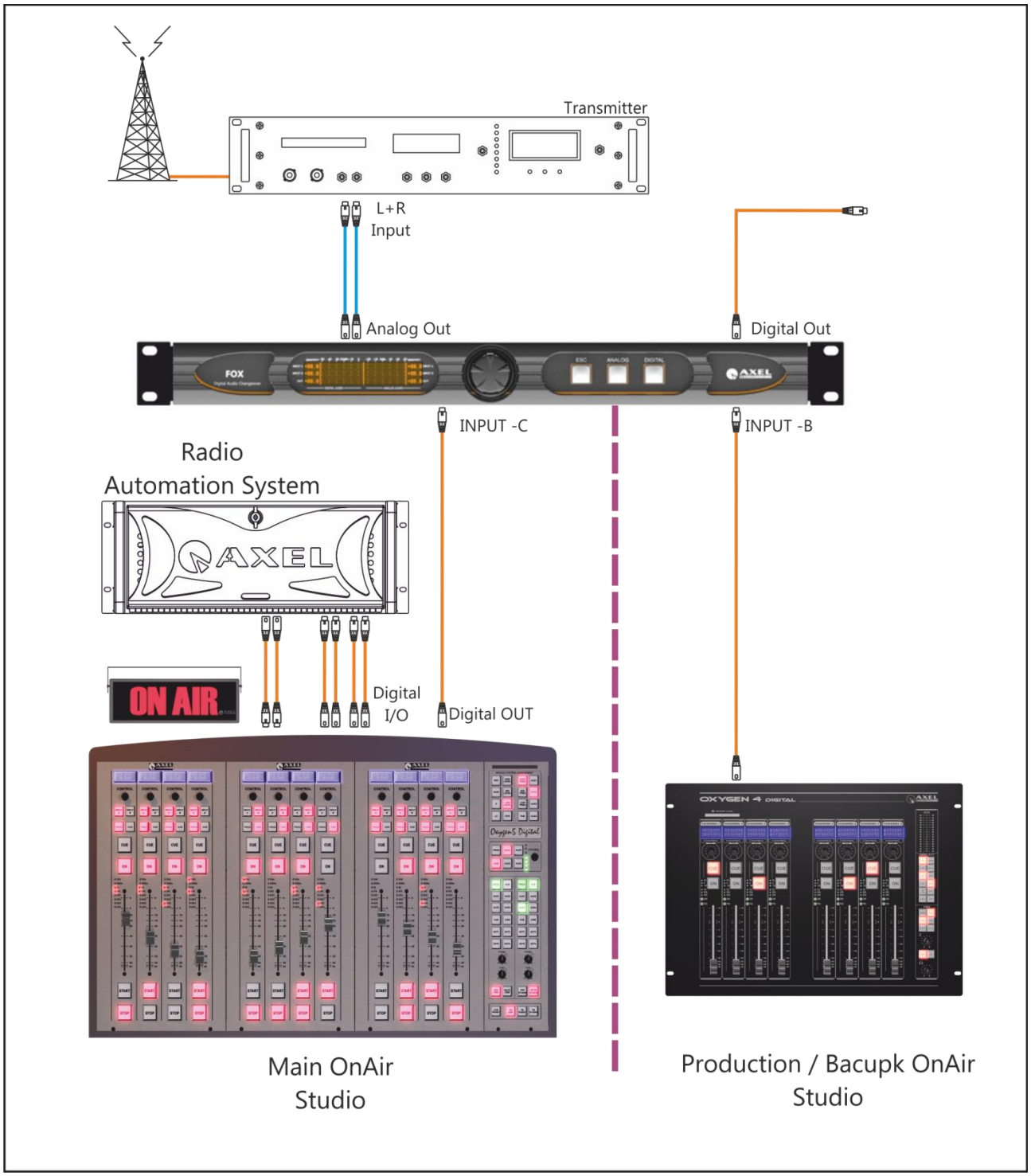
8.4 EXAMPLE 4 – FOX AS AUTOMATIC CHANGEOVER (FAULT) ANL-DGT

The diagram below is explained a case of connecting a place in Fox automatic changeover mode: This mode is used when within an issuer needs to broadcast a study of airing (OnAir) and have a reserve Stand By always ready to take the place of the main airing at a time when this has any fault or problems. Be very careful because you can swap between them type sources Analog with digital sources, and this is possible through the use of precise A/D converters and D/A



8.5 EXAMPLE 5 – FOX COME CHANGEOVER AUTOMATICO (FAULT) DGT-DGT

The diagram below is explained a case of connecting a place in Fox automatic changeover mode: This mode is used when within an issuer needs to broadcast a study of airing (OnAir) and have a reserve Stand By always ready to take the place of the main airing at a time when this has any fault or problems. Be very careful because you can swap between them type sources Analog with digital sources, and this is possible through the use of precise A/D converters and D/A

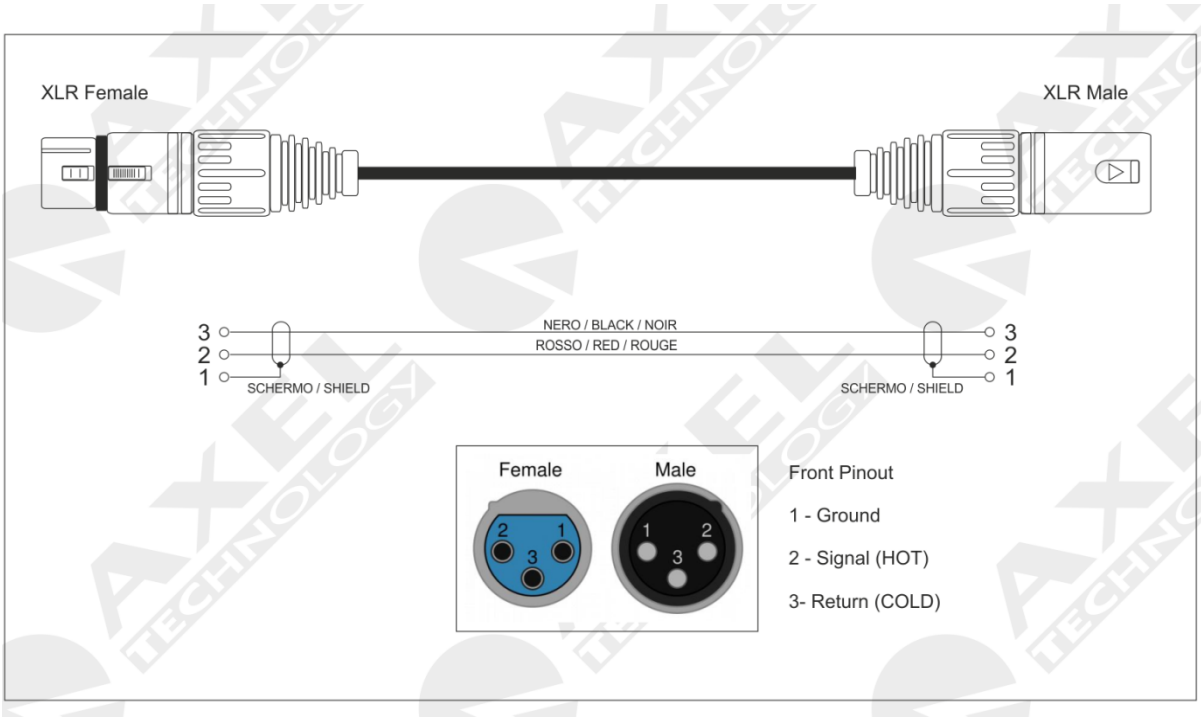


9 TECHNICAL APPENDIX

All the technical explanations and the connection pinouts to and from the Fox device are provided below. Always refer to this technical appendix for the connections and connection procedures. Should you discover inconsistencies between the documentation below and the hardware device please contact Axel Technology at the numbers and emails provided at the end of this manual. Our technical and support department will be happy to help and support to the best of our ability!

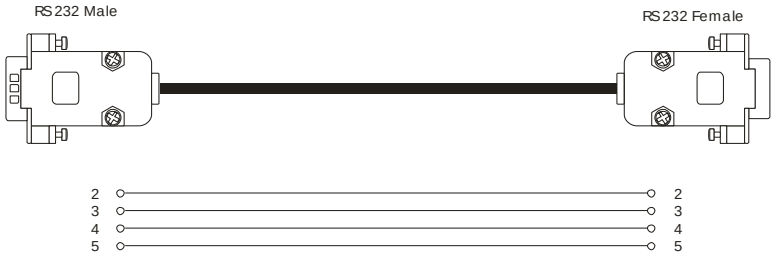
9.1 APPENDIX A - BALANCED AUDIO CONNECTION AND PINOUT

Balanced Audio connection diagram on Balanced XLR for Analog audio input and output (Left+Right) and **Input** and **Output** AES/EBU Digital Audio.



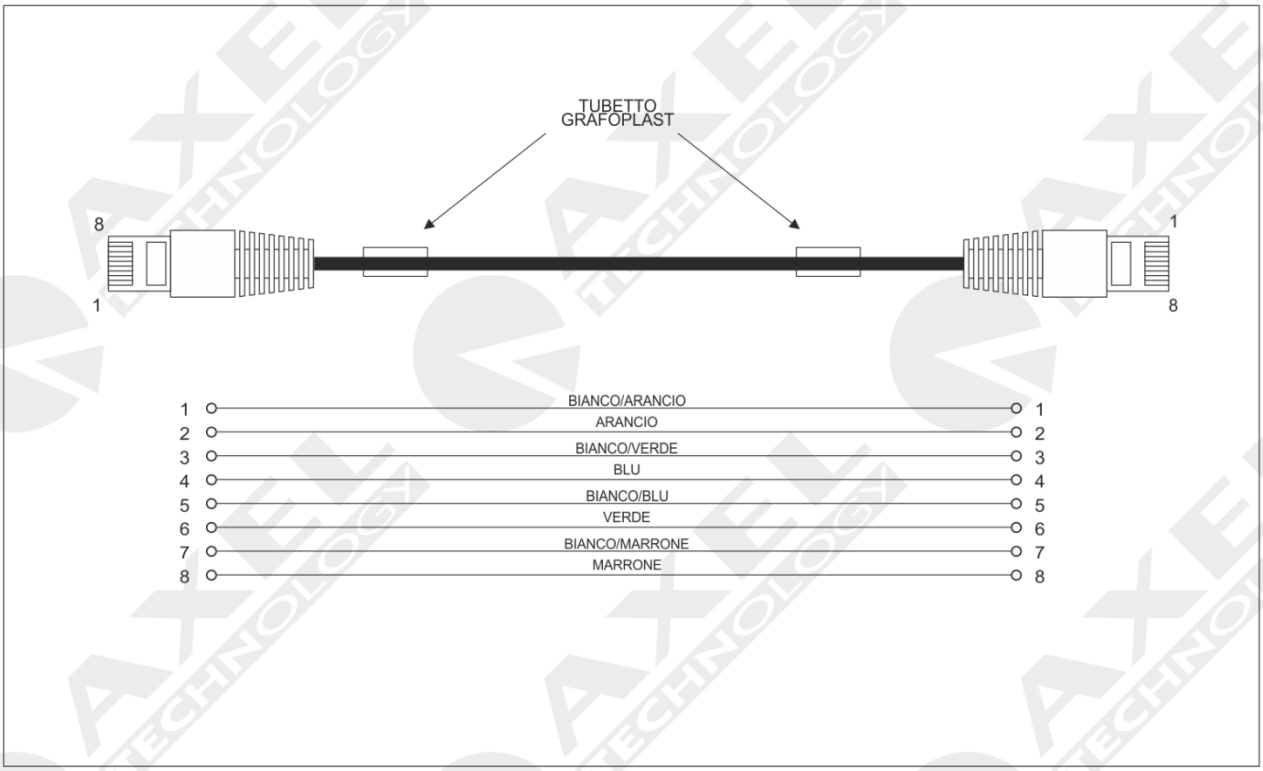
9.2 APPENDIX B - SERIAL DATA CONNECTION AND PINOUT

PORT 1		PORT 2,3,4	
2	Tx	2	Tx
3	Rx	3	Rx
4	DTR	4	/
5	GND	5	GND

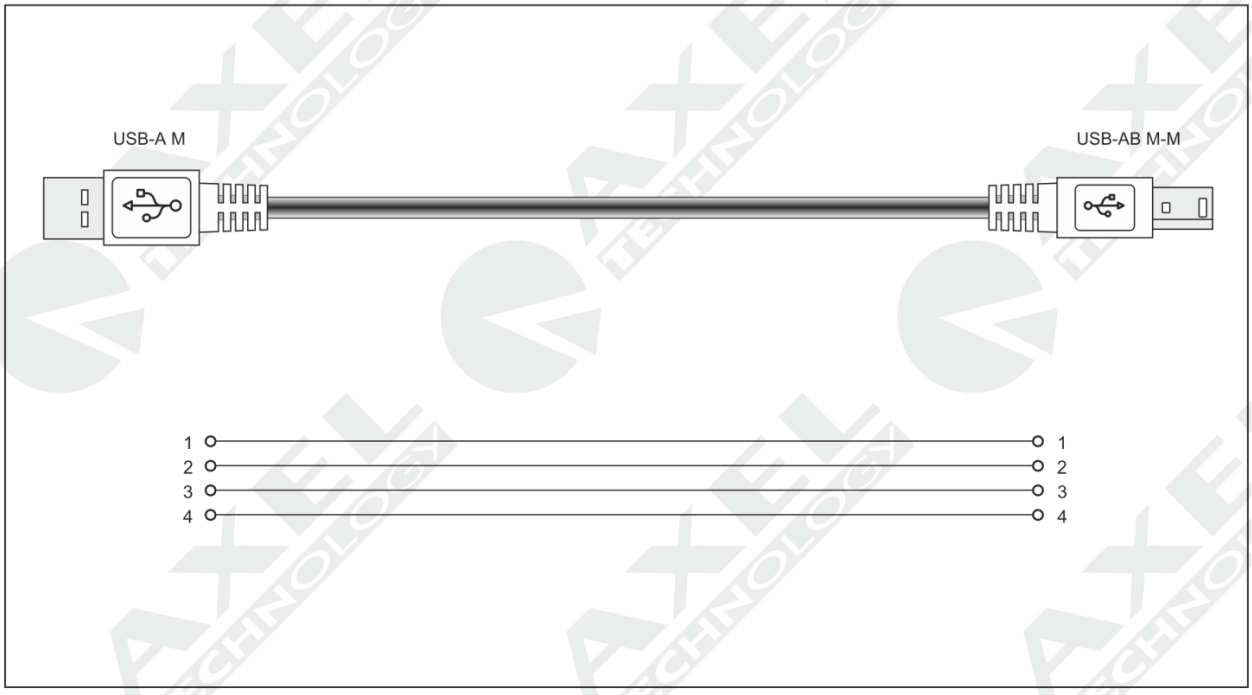


Connection to the pc requires a standard Pin-to-Pin serial cable. i.e. not CROSSED. For correct connection, the cable length should not exceed 20m. Ports 2 and 3 only take the Tx, Rx and GND for connection to the PC, while port 1 also supports the DTR (Data Terminal Ready) used for connection with a modem. The connection speed of the port must coincide with the port speed both of the Fox and of the PC serial port

9.3 APPENDIX C - ETHERNET/LAN CONNECTIONS



9.4 APPENDIX D - USB A/B CONNECTION

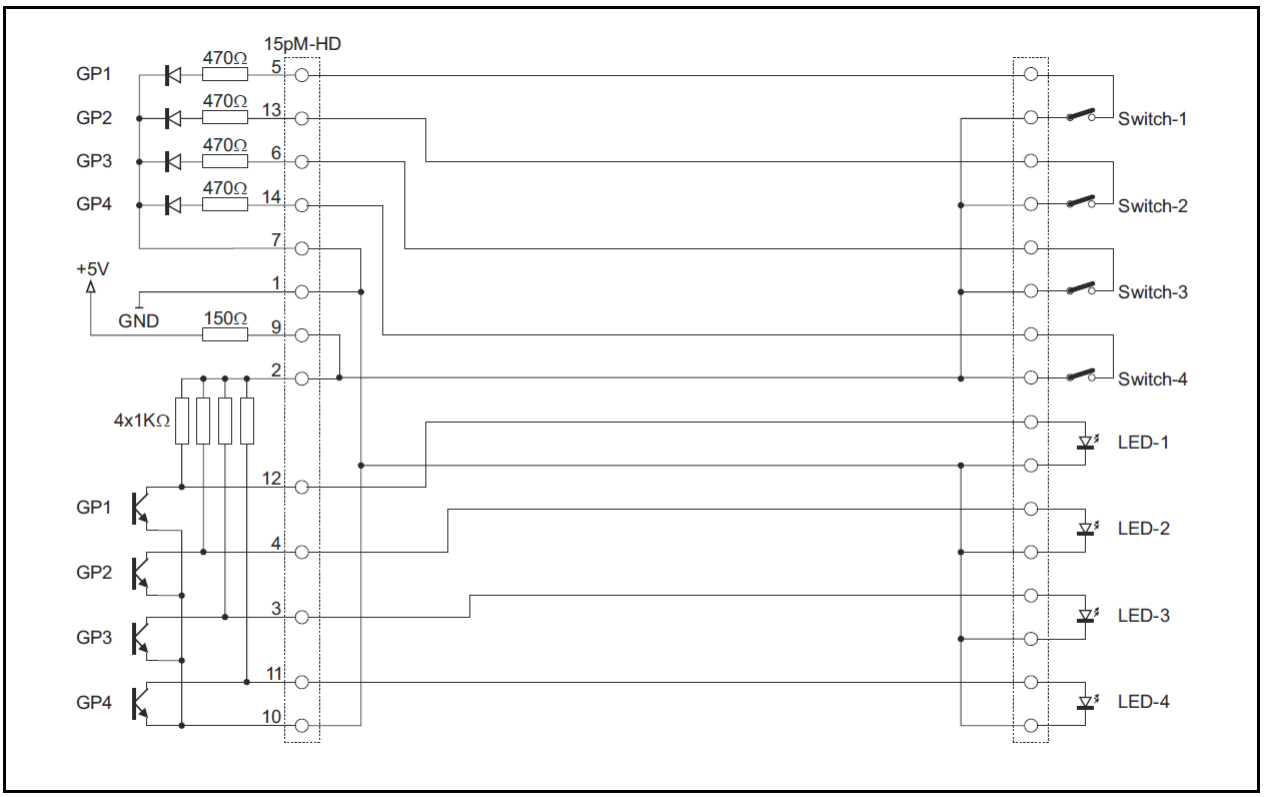


9.5 APPENDIX E – GPIO PORT

The SubD connector 15pole HD GPIO place on the rear of Fox, provides 4 inputs and 4 outputs General Purpose General Purpose binary. The inputs are polarized on Opto coupler while the outputs are open collector. They can be used to send commands all'apparto and perform certain functions. The inputs are constituted by photocouplers polarized on each input and is always inserted, inside, a protection resistor 150 ohms in series. The maximum current that can flow on each photo coupler is 20mA. The voltage supplied between pin 9 and pin 1 is +5 Vdc unregulated.

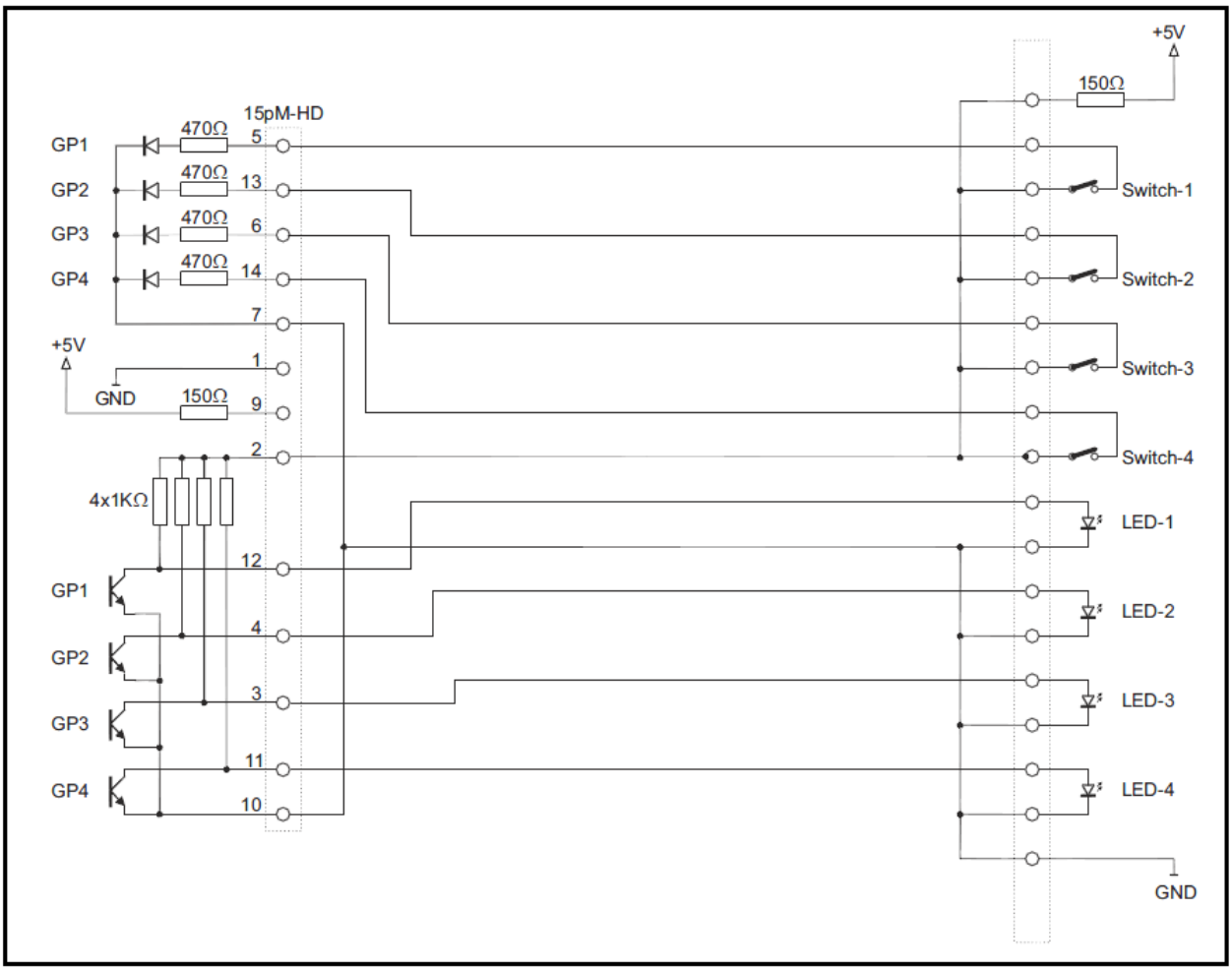
9.5.1 Connection to GPIn and GPOut via internal activation (Relay)

As shown in the diagram below, taking the tension inside the apparatus it is possible to polarize a photo coupler and implement one of the 4 GP Input available. By taking the +5 V from pin9 and applying it to the anode of a photo coupler and then connecting the katodo common (pin 7) to the mass represented by pin1, then you will implement the function. See this section on the switching mode from an external command, represented by a relay or a switch.



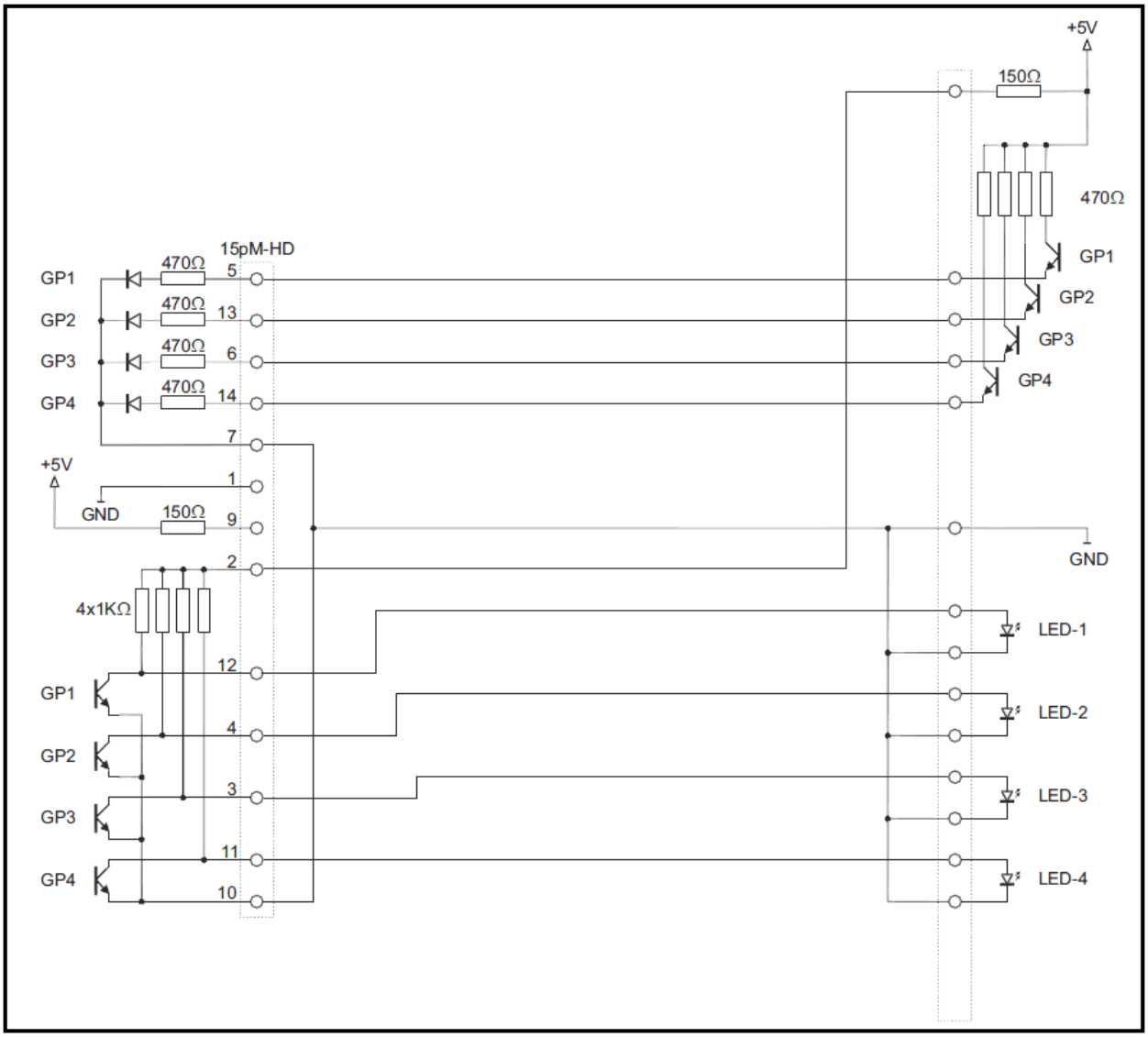
9.5.2 Connection to GPIn and GPOut via external activation (TTL)

As shown in the diagram below, taking the voltage externally apparatus it is possible to polarize a photo coupler and implement one of the 4 GP Input available. Note: in this case the masses of the TTL signals generators are common.

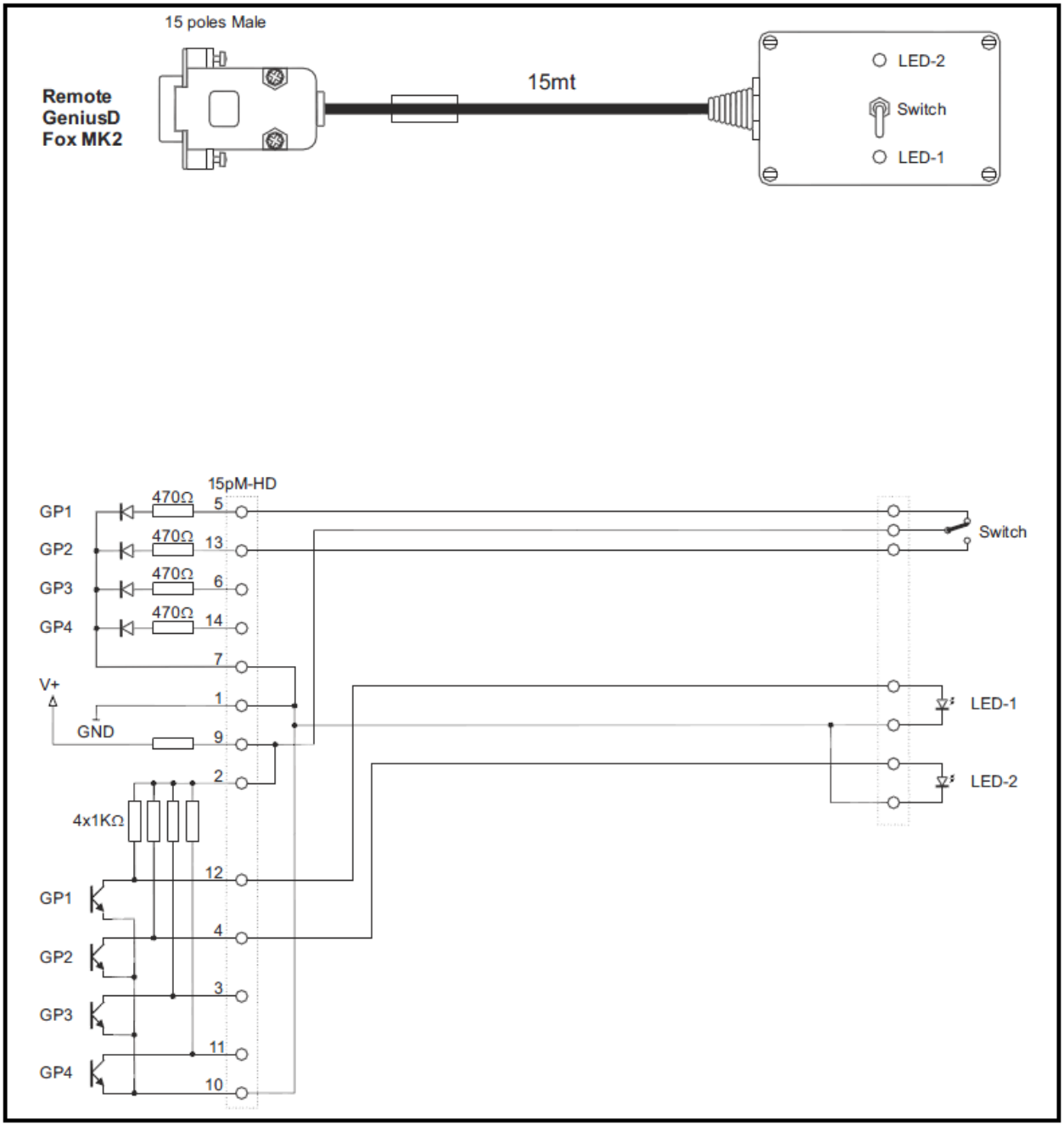


9.5.3 Connection to GPIn and GPOut via external activation -2 (TTL)

As shown in the diagram below, taking the voltage externally apparatus it is possible to polarize a photo coupler and implement one of the 4 GP Input available. Note: in this case the masses of the TTL signals generators are common.



9.5.4 Operative Example



10 APPENDIX F - FIRMWARE UPGRADE PROCEDURE

Fox leaves the manufacturer with the latest firmware installed just prior to shipment. Once purchased, the firmware can be updated with the latest version. available The Firmware Upgrade can be run in the Windows working environment . Supported operating systems include: Windows Xp Sp3, Windows Vista and Windows 7 Ultimate 32/64 Bit. Ensure you have installed Microsoft .net 4 on the operating system. Where this is not the case, visit the site www.microsoft.com for installation.

In order to upgrade the processor, please follow this procedure:

After the initialisation of the device (firmware upgrade), all the settings and adjustments of the user may be deleted and/or overwritten by the new settings of the manufacturer! Please save the current configuration in a document external to the device before proceeding with the firmware update.

During the firmware update, do not forget to install the new version of the software associated with remote control of the PC. There is a direct correspondence between the firmware and software versions. For example, version 3.0 of the Pc software requires firmware version 3.0 installed on the unit and vice versa. More precisely, the first two digits must match, as far as possible, the sub-versions (identified by the third digit) not related to the firmware/software compatibility.

As a general rule, the software version X. Y. Z is performed with the X. Y. K firmware version.

10.1 PREPARATION OF THE UNIT FOR UPGRADE

To correctly run the upgrade of a Fox device, a Rs232 type Serial COM port must be used. If the port is native on the motherboard of the pc from which you are working you do not need to set the port characteristics, while if you are using USB-to-Serial adapters, in some cases you may need to set certain port data such as speed and stop bit. The software upgrader works with port values:

38,400bps, 8-N-1

Below are these step-by-step instructions to proceed correctly to the upgrade:

a. Close all applications open on the PC.

b. Navigate to the FwUpgrades folder

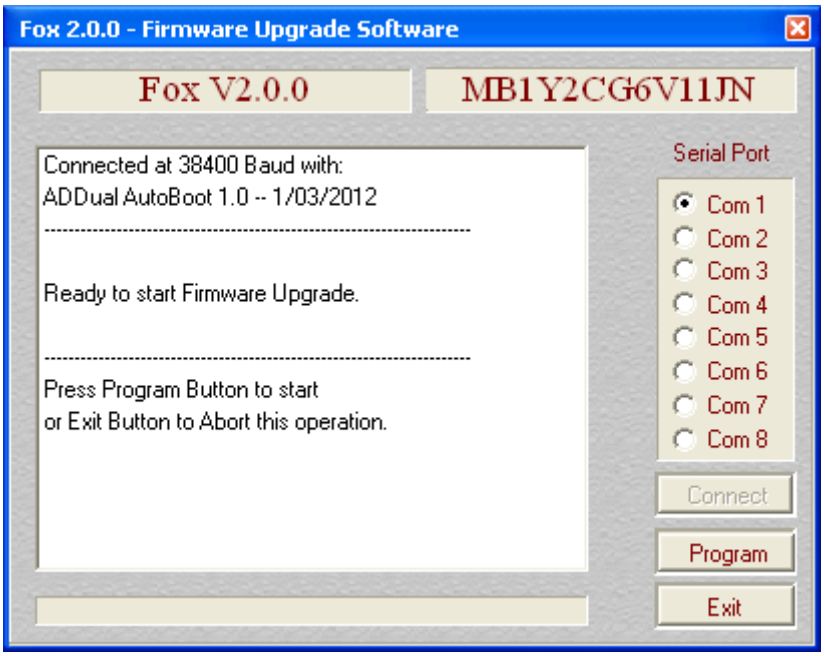
c. Click twice on the file associated with the upgrade to be performed

d. Launch the program _Upgrader_V2xx.EXE

e. **Fox_Upgrader_V201.exe**

NB: *to check the current version of Fox owned, access the Firmware Version page from the system information menu.*

f. Select the **serial port of the PC** on the screen
g. **Turn off** the Fox device
h. **Turn on** the Fox device and **3 seconds after power on click the CONNECT key**
i. **Once the software is connected** with the Fox device, the following screen will appear. At the same time, the frontal display of the device **remains completely empty**, not showing any indication.



j. Once the Fox is connected to the software click the **PROGRAM** key.
k. Upgrade of the Firmware will commence. When completed, click **EXIT** and switch Fox off and on.
l. Do not stop and do not turn off or close the upgrade software, since this operation could affect operation of the device.

11 APPENDIX G – MIB DESCRIPTION AND ASCII PARSER

11.1 MIB DESCRIPTION HANDLED BY FOX SNMP AGENT AND ASCII COMMANDS

11.1.1 SNMP default configurations:

snmp version:	1.0
default read community	public
defaul write community	private
default snmp agent port	161

11.1.2 ASCII default configurations:

TCP/IP port:	15000
UDP port:	15001

generalSettings	.1.3.6.1.4.1.27295.4.1.1

OID	Type	Access	Description
1.0	Octet string	R	All General Settings: see appendix for OID structure data.
2.0	Octet string	R	Target Name: FOX name.
3.0	Integer	R	Target Type: FOX type code.
4.0	Octet string	R	Target Version: FOX firmware code version.
5.0	Octet string	R	Target Firmware Code: FOX firmware code number.
6.0	Octet string	R	LAN Firmware Code: LAN interface firmware code version.
7.0	Octet string	R	IP Address: LAN Interface IP Address.
8.0	Octet string	R	Subnet Mask Address: LAN Interface Subnet Mask Address.
9.0	Octet string	R	Gateway Address: LAN Interface Gateway Address.
10.0	Integer	R	TCP IP Port: TCP IP Port number.
11.0	Integer	R/W	Keys Lock: Block or unblock front panel keys: 0: Unlocked 1: Locked

input-A	.1.3.6.1.4.1.27295.4.1.2.1

input-B	.1.3.6.1.4.1.27295.4.1.2.2

input-C	.1.3.6.1.4.1.27295.4.1.2.3

input-D	.1.3.6.1.4.1.27295.4.1.2.4

OID	Type	Access	Description
1.0	Octet string	R/W	All input Settings: see appendix A for OID structure data.
2.0	Integer	R/W	Sensitivity: 0: -12.0 dBu 1: -11.9 bBu .... 240: +12.0 dBu

3.0	Integer	R/W	AGC Mode: 0: OFF 1: +0.05 dB/s 2: +0.10 dB/s ... 40: +2.00 dB/s
4.0	Integer	R/W	Input mode: 0: Stereo 1: Mono (Left) 2: Mono (Right) 3: Mono (Left + Right) 4: Swap Left/Right 5: Stereo Inverse Right 6: Stereo Inverse Left 7: Swap Inverse Right 8: Swap Inverse Left
5.0	Integer	R/W	Threshold: 0: -40 dB 1: -39 dB ... 30: -10 dB
6.0	Integer	R/W	Wait Time: 0: 1 sec ... 119: 120 sec
7.0	Integer	R/W	Return Time: 0: 1 sec 30: 31 sec
8.0	Integer	R/W	Fading Mode: 0: Fast switch 1: Slow fading 2: Normal fading 3: Fast fading
9.0	Integer	R/W	Denoiser: 0: OFF 1: ON
10.0	Integer	R/W	Denoiser Threshold: 0: -60 dBr 1: -55 dBr ... 8: -20 dBr
11.0	Integer	R/W	Expander Ratio: 0: 1:1.0 1: 1:1.1 ... 10: 1:2.0
12.0	Integer	R/W	Delay: 0: 0 ms 1: 2 ms ... 252: 504 ms
13.0	Integer	R/W	Analog Priority: 0: 1 1: 2 2: 3 3: 4 4: OFF
14.0	Integer	R/W	Digital Priority: 0: 1 1: 2 2: 3

			3: 4 4: OFF
15.0	Integer	R/W	Check Stereo: 0: OFF 1: ON
16.0	Integer	R/W	AGC Max Gain: 0: +1.0 dB 1: +2.0 dB .... 11: +12.0 dB

output-Analog	**.1.3.6.1.4.1.27295.4.1.3.1**

OID	Type	Access	Description
1.0	Octet string	R/W	All output-Analog Settings: see appendix for OID structure data.
2.0	Integer	R/W	Output Level: 0: -10.0 dBu 1: -9.9 dBu .... 240: +14.0 dBu
3.0	Integer	R/W	Output Mode: 0: Stereo 1: Mono (Left) 2: Mono (Right) 3: Mono (Left + Right)
4.0	Integer	R/W	Output Generator: 0: OFF 1: Left and Right 2: Left Only 3: Right Only
5.0	Integer	R/W	Output Source: 0: Input A - Manual 1: Input B - Manual 2: Input C - Manual 3: Input D - Manual 4: Automatic 5: OFF
6.0	Integer	R/W	Accept External Command: 0: OFF 1: ON

output-Digital	**.1.3.6.1.4.1.27295.4.1.3.2**

OID	Type	Access	Description
1.0	Octet string	R/W	All output-Digital Settings: see appendix for OID structure data.
2.0	Integer	R/W	Output Level: 0: -24.0 dBFS 1: -23.9 dBFS

			... 240: +0.0 dBFS
3.0	Integer	R/W	Output Mode: 0: Stereo 1: Mono (Left) 2: Mono (Right) 3: Mono (Left + Right)
4.0	Integer	R/W	Output Rate: 0: 32 kHz 1: 44.1 kHz 2: 48 kHz 3: 64 kHz 4: 88.2 kHz 5: 96 kHz 6: External Sync 7: Auto 32 kHz 8: Auto 44.1 kHz 9: Auto 48 kHz 10: Auto 64 kHz 11: Auto 88.2 kHz 12: Auto 96 kHz
5.0	Integer	R/W	Output Resolution: 0: 16 bit 1: 20 bit 2: 24 bit
6.0	Integer	R/W	Output Generator: 0: OFF 1: Left and Right 2: Left Only 3: Right Only
7.0	Integer	R/W	Accept External Command: 0: OFF 1: ON
8.0	Integer	R/W	Output Source: 0: Input A - Manual 1: Input B - Manual 2: Input C - Manual 3: Input D - Manual 4: Automatic 5: OFF

dynamicData	**.1.3.6.1.4.1.27295.4.1.4**

OID	Type	Access	Description
1.0	Octet string	R	All Dynamic Data: see appendix A for OID structure data.
2.0	Integer	R	Input A: Left Input Level: from 0 (-40.0dBu) to 240 (+20.0dBu) step 0.25dBu
3.0	Integer	R	Input A: Right Input Level: from 0 (-40.0dBu) to 240 (+20.0dBu) step 0.25dBu
4.0	Integer	R	Input B: Left Input Level: from 0 (-40.0dBu) to 240 (+20.0dBu) step 0.25dBu
5.0	Integer	R	Input B: Right Input Level: from 0 (-40.0dBu) to 240 (+20.0dBu) step 0.25dBu

6.0	Integer	R	Input C: Left Input Level: from 0 (-60.0dBFS) to 240 (+0.0dBFS) step 0.25dBFS
7.0	Integer	R	Input C: Right Input Level: from 0 (-60.0dBFS) to 240 (+0.0dBFS) step 0.25dBFS
8.0	Integer	R	Input D: Left Input Level: from 0 (-60.0dBFS) to 240 (+0.0dBFS) step 0.25dBFS
9.0	Integer	R	Input D: Right Input Level: from 0 (-60.0dBFS) to 240 (+0.0dBFS) step 0.25dBFS
10.0	Integer	R	Analogic Output: Left Level: from 0 (-40.0dBu) to 240 (+20.0dBu) step 0.25dBu
11.0	Integer	R	Analogic Output: Right Level: from 0 (-40.0dBu) to 240 (+20.0dBu) step 0.25dBu
12.0	Integer	R	Digital Output: Left Level: from 0 (-60.0dBFS) to 240 (+0.0dBFS) step 0.25dBFS
13.0	Integer	R	Digital Output: Right Level: from 0 (-60.0dBFS) to 240 (+0.0dBFS) step 0.25dBFS
14.0	Integer	R	External Input Commands: bit 0: Analogic Output – Input A cmd bit 1: Analogic Output – Input B cmd bit 2: Analogic Output – Input C cmd bit 3: Analogic Output – Input C cmd bit 4: Digital Output – Input A cmd bit 5: Digital Output – Input B cmd bit 6: Digital Output – Input C cmd bit 7: Digital Output – Input D cmd
15.0	Integer	R	External Input Sources: bit 0: Analogic Output – Input A src bit 1: Analogic Output – Input B src bit 2: Analogic Output – Input C src bit 3: Analogic Output – Input C src bit 4: Digital Output – Input A src bit 5: Digital Output – Input B src bit 6: Digital Output – Input C src bit 7: Digital Output – Input D src
16.0	Integer	R	Analogic Out and Digital Out - Input Selected: bit 0: Signal Alarm bit 1 to bit 3: 0: Analogic Out – Muted 1: Analogic Out – Input A 2: Analogic Out – Input B 3: Analogic Out – Input C 4: Analogic Out – Input D 5: Analogic Out – Tone Reference bit 4 to bit 6: 0: Digital Out – Muted 1: Digital Out – Input A 2: Digital Out – Input B 3: Digital Out – Input C 4: Digital Out – Input D 5: Digital Out – Tone Reference
17.0	Integer	R	Input A – AGC: 0: -12.0 dB 1: -11.9 dB ... 253: +13.3 dB 254: GATED 255: OFF
18.0	Integer	R	Input B – AGC: 0: -12.0 dB 1: -11.9 dB

			... 253: +13.3 dB 254: GATED 255: OFF
19.0	Integer	R	Input C – AGC: 0: -12.0 dB 1: -11.9 dB ... 253: +13.3 dB 254: GATED 255: OFF
20.0	Integer	R	Input D – AGC: 0: -12.0 dB 1: -11.9 dB ... 253: +13.3 dB 254: GATED 255: OFF
21.0	Integer	R	Input Presence: bit 0: Input A bit 1: Input B bit 2: Input C bit 3: Input D bit 4: Analog Output bit 5: Digital Output
22.0	Octet string	R	Target Name

status	**.1.3.6.1.4.1.27295.4.1.5**

OID	Type	Access	Description
1.0	Octet string	R	All status structure
2.0	Integer	R/W	Dtmf Generetor Enable: 0: OFF 1: ON
3.0	Integer	R/W	Dtmf Command Speed
4.0	Integer	R/W	Dtmf command by GPI: 0: OFF 1: ON
5.0	Integer	R/W	Dtmf Decoder:
6.0	Integer	R/W	Dtmf Analogic Level
7.0	Integer	R/W	Dtmf Digital Level
8.0	Integer	R/W	Dtmf Mix Mode: 0: OFF 1: ON
9.0	Octet string	R/W	String slot #1
10.0	Octet string	R/W	String slot #2
11.0	Octet string	R/W	String slot #3
12.0	Octet string	R/W	String slot #4
13.0	Integer	R/W	Delay Line

14.0	Integer	R/W	GPI 1 Source
15.0	Integer	R/W	GPI 2 Source
16.0	Integer	R/W	GPI 3 Source
17.0	Integer	R/W	GPI 4 Source
18.0	Integer	R/W	GPO 1 Source
19.0	Integer	R/W	GPO 2 Source
20.0	Integer	R/W	GPO 3 Source
21.0	Integer	R/W	GPO 4 Source
22.0	Octet string	R/W	Channel name input A
23.0	Octet string	R/W	Channel name input B
24.0	Octet string	R/W	Channel name input C
25.0	Octet string	R/W	Channel name input D
26.0	Octet string	R/W	Channel name Analogic output
27.0	Octet string	R/W	Channel name Digital output
28.0	Integer	R/W	Line Delay
29.0	Integer	R/W	Test Command

12 APPENDIX H - ASCII COMMANDS FOR FOX

12.1 OVERVIEW

ASCII commands are simple strings start with a keyword, a comma, and parameters. Every strings could be sent through TCP/IP[1] connection (port 15000 by default) or UDP datagram (port 15001 by default).

After each command, FOX will answer with "COMMAND OK" if command was acknowledged, or "SYNTAX ERROR" otherwise.

12.2 COMMANDS

Digital Output Source

keyword:	DIGOUTSRC
Parameters:	<source>

source: INPUT_A, INPUT_B, INPUT_C, INPUT_D, AUTO, OFF

example 1: DIGOUTSRC, INPUT_A
example 2: DIGOUTSRC, AUTO

Analogic Output Source

keyword:	ANOUTSRC
Parameters:	<source>

source: INPUT_A, INPUT_B, INPUT_C, INPUT_D, AUTO, OFF

example 1: ANOUTSRC, INPUT_C
example 2: ANOUTSRC, AUTO

[1] TCP/IP connection will be open and, after each command response, will be closed.

DTMF Commands

keyword:	DTMFCMD
Parameters:	<slot>, <dtmf string> [,<NOW>]

Slot: 1 for #1
2 for #2
3 for #3
4 for #4

dtmf string: string parameter of 7chars without dash.

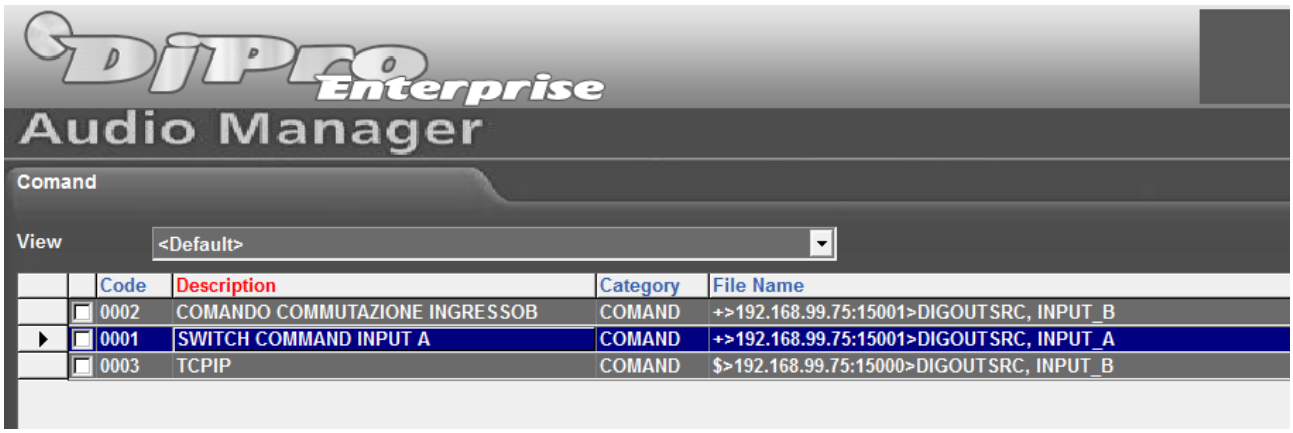
This command send dtmf string to a specific slot.
If command must be executed immediately, you need to add 'NOW' at the end of the command.

Example 1:
Send command to slot #1:
DTMFCMD, 1, 1002233

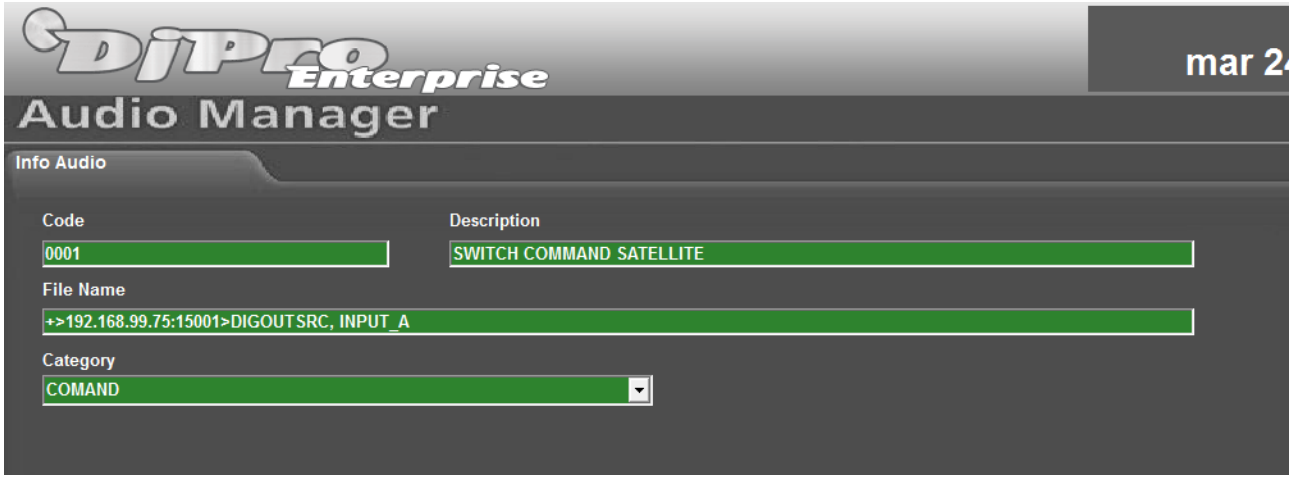
Example 2:
Send command to slot #2 and execute command immediately:
DTMFCMD, 2, 1001244, NOW

13 APPENDIX I – INTERFACE DJPRO TO A FOX MKII

It is possible to interface Djpro Classic and Enterprise Djpro to an apparatus Fox MKII performing certain switching by entering the switch event in the normal programming of the playlist daily. The command should be a TCP/IP or UDP/IP



First program in **AUDIO MANAGER** and then in the folder **COMAND** one of the following commands by entering the description of the switch that needs to be done, writing a memory trace (ie: Switching Command INGRESSO_B or SATELLITE SWITCHING) while in the FILENAME field, enter the command you want to launch into the apparatus Fox who must perform switching. An example below:



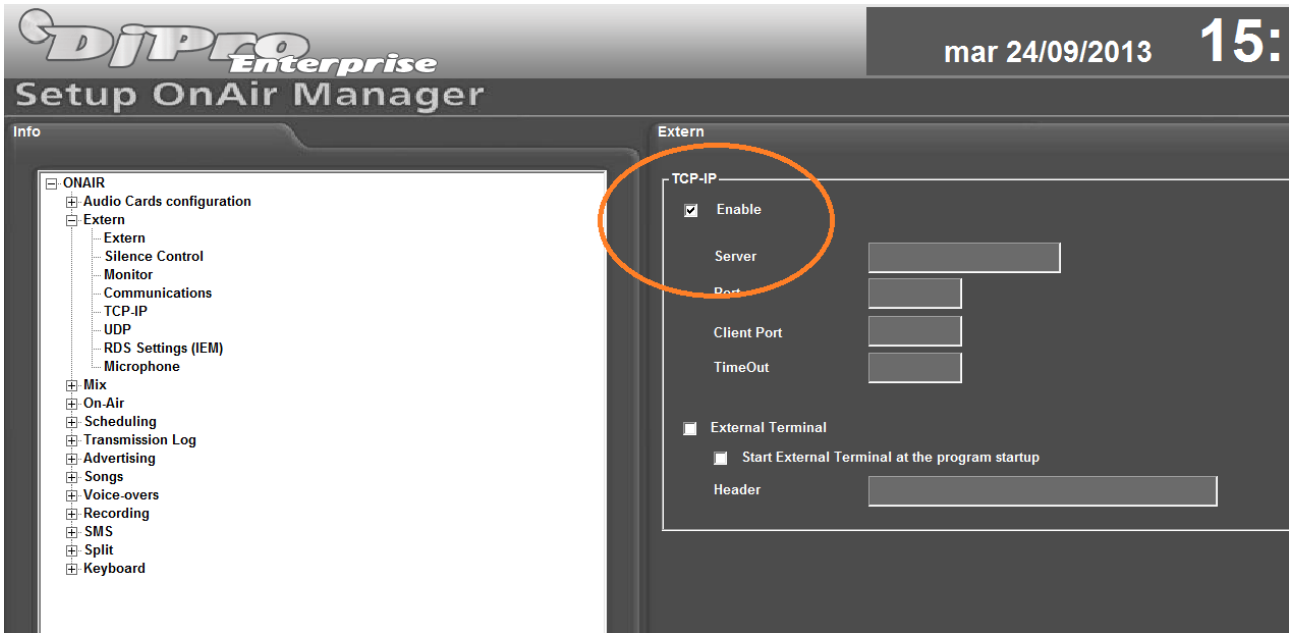
The syntax at this point, following the descriptions of the parser ascii shows always within this manual are as follows:

UDP/IP COMMAND FROM RADIO AUTOMATION DJPRO TO FOX via ETHERNET LAN			
OUTPUT	*SWITCH EXECUTION*	*COMMAND*	*NOTE*
DIGITAL OUT	INPUT A to DIGITAL OUT	+>IP:15001>DIGOUTSRC, INPUT_A	
DIGITAL OUT	INPUT B to DIGITAL OUT	+>IP:15001>DIGOUTSRC, INPUT_B	
DIGITAL OUT	INPUT C to DIGITAL OUT	+>IP:15001>DIGOUTSRC, INPUT_C	
DIGITAL OUT	INPUT D to DIGITAL OUT	+>IP:15001>DIGOUTSRC, INPUT_D	
DIGITAL OUT	INPUT AUTO to DIGITAL OUT	+>IP:15001>DIGOUTSRC, AUTO	Auto changeover
DIGITAL OUT	INPUT OFF to DIGITAL OUT	+>IP:15001>DIGOUTSRC, OFF	
ANALOG OUT	INPUT A to ANALOG OUT	+>IP:15001>ANOUTSRC, INPUT_A	
ANALOG OUT	INPUT B to ANALOG OUT	+>IP:15001>ANOUTSRC, INPUT_B	
ANALOG OUT	INPUT C to ANALOG OUT	+>IP:15001>ANOUTSRC, INPUT_C	
ANALOG OUT	INPUT D to ANALOG OUT	+>IP:15001>ANOUTSRC, INPUT_D	
ANALOG OUT	INPUT AUTO to ANALOG OUT	+>IP:15001>ANOUTSRC, AUTO	Auto changeover
ANALOG OUT	INPUT OFF to ANALOG OUT	+>IP:15001>ANOUTSRC, OFF	
IP = FOX IP ie: 192.168.99.75			

TCP/IP COMMAND FROM RADIO AUTOMATION DJPRO TO FOX via ETHERNET LAN			
OUTPUT	*SWITCH EXECUTION*	*COMMAND*	*NOTE*
DIGITAL OUT	INPUT A to DIGITAL OUT	$>IP:15000>DIGOUTSRC, INPUT_A	
DIGITAL OUT	INPUT B to DIGITAL OUT	$>IP:15000>DIGOUTSRC, INPUT_B	
DIGITAL OUT	INPUT C to DIGITAL OUT	$>IP:15000>DIGOUTSRC, INPUT_C	
DIGITAL OUT	INPUT D to DIGITAL OUT	$>IP:15000>DIGOUTSRC, INPUT_D	
DIGITAL OUT	INPUT AUTO to DIGITAL OUT	$>IP:15000>DIGOUTSRC, AUTO	Auto changeover
DIGITAL OUT	INPUT OFF to DIGITAL OUT	$>IP:15000>DIGOUTSRC, OFF	
ANALOG OUT	INPUT A to ANALOG OUT	$>IP:15000>ANOUTSRC, INPUT_A	
ANALOG OUT	INPUT B to ANALOG OUT	$>IP:15000>ANOUTSRC, INPUT_B	
ANALOG OUT	INPUT C to ANALOG OUT	$>IP:15000>ANOUTSRC, INPUT_C	
ANALOG OUT	INPUT D to ANALOG OUT	$>IP:15000>ANOUTSRC, INPUT_D	
ANALOG OUT	INPUT AUTO to ANALOG OUT	$>IP:15000>ANOUTSRC, AUTO	Auto changeover
ANALOG OUT	INPUT OFF to ANALOG OUT	$>IP:15000>ANOUTSRC, OFF	
IP = FOX IP ie: 192.168.99.75			

Important Note:
With regard to the configurations DJPro CLASSIC and DJPro ENTERPRISE, in the case of the controls are used UDP does not require any additional configurations in DJJ.INI which you are performing DIRETTA.EXE or DEONAIR.EXE.

In case you want to use the TCP / IP commands instead it is necessary to enable in the DJJ.INI that is performing DIRETTA.EXE or DEONAIR.EXE the command TCP/IP. Just run the Enable flag leaving the other fields unchanged



14 APPENDIX L - DATA STRUCTURES

GeneralSettings

```
/*********************************/
typedef struct SNMP_GENERAL_TAG {

  BYTE      TargetName[25];
  WORD      TargetType;
  BYTE      fox_fw_code[14];
  BYTE      serialCode[14];
  BYTE      rab_fw_ver[30];
  BYTE      ip_address[16];
  BYTE      ip_netmask[16];
  BYTE      ip_gateway[16];
  WORD      tcp_port;
  WORD      LockKeys;

} SNMP_GENERAL;
/************************************/
```

Inputs data structure

```
/*********************************/
typedef struct TARGET_INPUT_TAG {

  BYTE      Sensitivity;
  BYTE      Agc_Mode;
  BYTE      Input_Mode;
  BYTE      Threshold;
  BYTE      Wait_Time;
  BYTE      Return_Time;
  BYTE      Fading_Mode;
  BYTE      Denoiser_OnOff;
  BYTE      Denoiser_Threshold;
  BYTE      Expander_Ratio;
  BYTE      Delay;
  BYTE      A_Priority;
  BYTE      D_Priority;
  BYTE      CheckStereo;
  BYTE      AgcMaxGain;

} TARGET_INPUT;
/************************************/
```

Analogic Output

```
/*********************************/
typedef struct SNMP_ANOUT_TAG
{

  BYTE      An_Out_Level;
  BYTE      An_Out_Mode;
  BYTE      An_Out_Generator;
  BYTE      An_Out_Source;
  BYTE      An_External_Cmd;

} SNMP_ANOUT;
/************************************/
```

Digital Output

```
/************************************/
typedef struct SNMP_DIGOUT_TAG
{

  BYTE      Dig_Out_Level;
  BYTE      Dig_Out_Mode;
  BYTE      Dig_Out_Rate;
  BYTE      Dig_Out_Resolution;
  BYTE      Dig_Out_Generator;
  BYTE      Dig_External_Cmd;
  BYTE      Dig_Out_Source;

} SNMP_DIGOUT;
/************************************/
```

DynamicData

```
/************************************/
typedef struct DYN_DATA_TAG
{

  BYTE      A_Left_Input;
  BYTE      A_Right_Input;
  BYTE      B_Left_Input;
  BYTE      B_Right_Input;
  BYTE      C_Left_Input;
  BYTE      C_Right Input;
  BYTE      D_Left Input;
  BYTE      D_Right Input;
  BYTE      Out_Left An;
  BYTE      Out_Right An;
  BYTE      Out_Left Dig;
  BYTE      Out_Right Dig;
  BYTE      Input_Bits;
  BYTE      Out_Bits;
  BYTE      OutSources;
  BYTE      Agc_Input_A;
  BYTE      Agc_Input_B;
  BYTE      Agc_Input_C;
  BYTE      Agc_Input_D;
  BYTE      Inputs Presence;
  BYTE      name[25];

} DYN_DATA;
/************************************/
```

15 TECHNICAL SPECIFICATION FOX

GENERAL	VALUE
Dimension	434x351x44mm (1 rack unit)
AC Rate	230Vac / 110Vac 50 Hz / 60 Hz 30VA
Type of power supply	Switching power supply
Processing architecture	Fully digital, based on DSP 24bit/100Mhz. Signal processing is performed by phase linear filter
Weight	≈ 5 Kg
Operating Temperature	-5°C / +50°C
ANALOG INPUT MODULE	
A/D Conversion	24bit Sigma-Delta Conversion (Crystal CS4272)
Connectors:	XLR, female - Electronically balanced
AD Clipping Point	+20.0dBu
Operative Nominal Level:	From –12.0dBu to +12.0dBu (0.1dBu Step)
Line Impedance	10 kΩ (Electronically balanced selectable) EMI–suppressed
Distortion:	less than 0.01% TDH+NOISE (0.0dBu 1Khz)
AD Dynamic Range:	108 dB RMS (110 dB A weighted)
Input Modes:	Stereo, Mono (Left), Mono (Right), Mono (Left+Right), Swap (Left/Right), Stereo Inv Right, Stereo Inv Left, Swap Inv Right, Swap Inv Left
DIGITAL INPUT MODULE	
Connectors:	XLR, female – Electronically balanced
Format	AES3/EBU
Sample rates	32 kHz / 44.1 kHz / 48 kHz / 64 kHz / 88.2 kHz / 96 kHz with src and jitter correction
Operative Nominal level:	From 0.0 dBFs to -24dBFs (0.1 dBu step)
Dynamic Range:	125 dB (Typ), 122 dB (Min)
Distortion	less than 0.01% TDH+NOISE (0.0dBu 1Khz)
Input Modes:	Stereo, Mono (Left), Mono (Right), Mono (Left+Right), Swap (Left/Right), Stereo Inv Right, Stereo Inv Left, Swap Inv Right, Swap Inv Left.
ANALOG OUTPUT MODULE	
D/A Conversion	24bit Sigma-Delta Conversion (Crystal CS4272)
Connectors	XLR, male - Electronically balanced
Output Level	-12.0dBu to +14.0dBu (0.1dBu Step) – Max (+19dBu)
Impedance Source	10 Ω
Load Impendance	600 Ω or greater
Distorsion	Less than 0.01% TDH+NOISE (0.0dBu @ 1Khz)
DIGITAL OUTPUT MODULE	
Connectors:	XLR, Male – Electronically balanced
Format	AES3/EBU
Sample rates	32 kHz / 44.1 kHz / 48 kHz / 64 kHz / 88.2 kHz / 96 kHz with src and jitter correction
Resolution	16 bit – 20 bit – 24 bit
Operative Nominal level:	From 0.0 dBFs to -24dBFs (0.1 dBu step)
Dynamic Range:	125 dB (Typ), 122 dB (Min)
Distortion	less than 0.01% TDH+NOISE (0.0dBu 1Khz)
Input Modes:	Stereo, Mono (Left), Mono (Right), Mono (Left+Right)
REMOTE INTERFACE	
Digital Inputs GPIn	4x GP In optocoupled
Digital Outputs GPOut	4x GP Out Open Collector optoisolated
Serial Interface	2x RS-232 Serial protocol ports EMI filtered
USB	1x Universal Serial Bus port – B type EMI filtered
Ethernet Port and Parser ASCII protocol	Ethernet port by option, over RJ45 connector with web server interface.

16 WEEE Directive – RAEE information

In line with EU Directive 2012/19/UE for waste electrical and electronic equipment (WEEE), this electrical product must not be disposed of as unsorted municipal waste. Please dispose of this product by returning it to the point of sale or to your local municipal collection point for recycling.

In Übereinstimmung mit der Richtlinie 2012/19/UE des Europäischen Parlaments und des Rates über Elektro- und Elektronik-Altgeräte (WEEE) darf dieses Elektrogerät nicht im normalen Hausmüll oder dem Gelben Sack entsorgt werden. Wenn Sie dieses Produkt entsorgen möchten, bringen Sie es bitte zur Verkaufsstelle zurück oder zum Recycling-Sammelpunkt Ihrer Gemeinde.

Conformément à la Directive 2012/19/UE sur les déchets d'équipements électriques et électroniques (DEEE), ce produit électrique ne doit en aucun cas être mis au rebut sous forme de déchet municipal non trié. Veuillez vous débarrasser de ce produit en le renvoyant à son point de vente ou au point de ramassage local dans votre municipalité, à des fins de recyclage.

In navolging van richtlijn 2012/19/UE van het Europees Parlement en de Raad betreffende afgedankte elektrische en elektronische apparatuur (AEEA) mag dit elektrische product niet als ongescheiden huisvuil worden weggedaan. Breng dit product terug naar de plaats van aankoop of naar het gemeentelijke afvalinzamelingspunt voor recycling.

In ottemperanza alla Direttiva UE 2012/19/UE sui rifiuti di apparecchiature elettriche ed elettroniche (RAEE), questo prodotto elettrico non deve essere smaltito come rifiuto municipale misto. Si prega di smaltire il prodotto riportandolo al punto vendita o al punto di raccolta municipale locale per un opportuno riciclaggio.

De conformidad con la Directiva 2012/19/UE de la UE sobre residuos de aparatos eléctricos y electrónicos (RAEE), este producto eléctrico no puede desecharse con el resto de residuos no clasificados. Deshágase de este producto devolviéndolo al punto de venta o a un punto de recogida municipal para su reciclaje.

I henhold til EU-direktiv 2012/19/UE om affald af elektrisk og elektronisk udstyr (WEEE) må dette udstyr ikke bortskaffes som usorteret husholdningsaffald. Bortskaf dette produkt ved at returnere det til salgsstedet eller til det lokale indsamlingssted, så det kan genbruges.

I linje med EU-direktiv 2012/19/UE om avfall som utgörs av eller innehåller elektriska eller elektroniska produkter (WEEE) får denna elektriska produkt inte bortskaffas som osorterat kommunalt avfall. Bortskaffa den i stället genom att lämna in den på försäljningsstället eller din lokala återvinningsstation.

EU:n sähkö- ja elektroniikkalaiteromudirektiivin (2012/19/UE) mukaisesti tätä elektroniikkalaitetta ei saa laittaa lajittelemattoman yhdyskuntajätteen sekaan. Hävitä laite palauttamalla se ostopaikkaan tai viemällä se elektroniikkaromun keräyspisteeseen.

De acordo com a Directiva Europeia 2012/19/UE sobre resíduos sólidos de equipamento eléctrico e electrónico (WEEE), este produto eléctrico não pode ser deitado fora juntamente com o lixo municipal indiferenciado. Por favor, no final da vida útil deste produto, devolva-o ao estabelecimento de aquisição, ou entregueo no local de recolha apropriado para reciclagem designado pelo seu município.

V souladu se smrnicí EU . 2012/19/UE o odpadních elektrických a elektronických zaYízeních (OEEZ) se tento elektrický výrobek nesmí likvidovat jako netYídný komunální odpad. PYi likvidaci tento výrobek vrat'te prodejci nebo ho odevzdejte k recyklaci do komunálního sbrného zaYízení.

Vastavalt EL direktiivile 2012/19/UE, mis käsitleb elektri- ja elektroonikaseadmete jäätmeid (WEEE), ei või antud toodet visata majapidamisjäätmete hulka. Palun tagastage antud toode taaskasutamise eesmärgil müügipunkti või kohaliku piirkonna jäätmekogumise punkti.

V súlade so smernicou 2012/19/UE o odpade z elekrických a elektronických zariadení (OEEZ) sa toto elektrické zariadenie nesmie odstranovat' ako netriedený komunálny odpad. Výrobok odstránte jeho vrátením v mieste nákupu alebo odovzdaním v miestnom zbernom zariadení na recyklovanie.

17 WARRANTY

The manufacturer offers a one-year warranty ex-factory. Do not open the device. Possible breakage of the warranty seals invalidates the same. The manufacturer will not be liable for damages of any kind arising from, or in relation to, improper use of the product.

CE Declaration of Conformity

The undersigned Giuseppe Vaccari	
As legal representative of the company Axel Technology Srl	
based in: Via Caduti di Sabbiuno, 6/F – 40011 – Anzola Emilia (BO)	
VAT number: IT01735031203	
declares	
that the product: **Digital Audio Switch. 2 balanced stereo analog inputs on XLR and 2 AES/EBU digital inputs on XLR. 1 balanced analog stereo output on XLR, 1 AES/EBU digital output on XLR. DTMF Encoder and Decoder, USB and Serial Port, GPIN and GPOUT. 1u Rack 19''. Universal power supply 230/115Vac.**	
Model and/or code: **FOX MK II**	
Date of manufacture: see label on the product	Serial number: see label on the product
It was built in compliance with the following directives and standards:	

- Directive 2014/35/EU known as the "Low Voltage Directive"
- Directive 2014/30/EU known as the "Electromagnetic Compatibility Directive"
- Directive 2011/65/EC known as “RoHS”
- Commission Delegated Directive (EU) 2015/863 of 31 March 2015 amending Annex II of Directive 2011/65/EU
- Directive 2012/19/EU known as “WEEE”
- Directive 2001/95/EC known as "General product safety"
- UNI EN ISO 7010:2021 Title: Graphic signs - Colors and safety signs - Registered safety signs
- EN 62368-1:2018 - relating to electrical safety for computer equipment and audio/video products
- IEC 62311:2019 - Evaluation of electronic and electrical equipment with regard to restrictions on human exposure to electromagnetic fields (0 Hz – 300 GHz)
- EN 55032:2015+A1:2020 - Electromagnetic compatibility of multimedia equipment. Issue requirements
- EN 55103-2:2010 Product family standard for audio, video, audio-visual and entertainment lighting control apparatus for professional use - Part 2: Immunity.
- EN 60065:2019 Audio, video and similar electronic equipment Safety requirements.
- EN 61000-6-1:2016 – EMC – Immunity for residential, commercial and light industry environments.
- EN 61000-6-3:2020 – EMC – Emission for residential, commercial and light industry environments.
- EN 60950-1:2014 – Safety of ITE (Information Technology Equipment)
- EN 55024:2017 Information technology equipment - Immunity characteristics Limits and methods of measurement.
- EN IEC 63000:2018 New harmonized standard to demonstrate RoHS compliance
- EN 55032:2015+A11:2020 Electromagnetic compatibility of multimedia equipment - Emission requirements
- EN 55035:2017 - Electromagnetic compatibility of multimedia equipment - Immunity requirements

And it is therefore compliant with current directives and regulations.	
This declaration of conformity is issued under the sole responsibility of the manufacturer.	
Date: 15/6/2023 Place: **ANZOLA DELL’EMILIA (BO) - ITALY**	Signature: