



PRO X

Live Digital Console Control Centre and Audio System
Engine with 168 Input Channels, 99 Mix Buses and 96 kHz Sample Rate

Quick Start Guide



 midas

EN

EN Important Safety Instructions

CAUTION
RISK OF ELECTRIC SHOCK!
DO NOT OPEN!

ATTENTION
RISQUE D'ÉLECTROCUTION!
NE PAS OUVRIR!

Terminals marked with this symbol carry electrical current of sufficient magnitude to constitute risk of electric shock. Use only high-quality commercially-available speaker cables with plugs pre-installed. All other installation or modification should be performed only by qualified personnel.

This symbol, wherever it appears, alerts you to the presence of uninsulated dangerous voltage inside the enclosure - voltage that may be sufficient to constitute a risk of shock.

This symbol, wherever it appears, alerts you to important operating and maintenance instructions in the accompanying literature. Please read the manual.

Caution
To reduce the risk of electric shock, do not remove the top cover (or the rear section). No user serviceable parts inside. Refer servicing to qualified personnel.

Caution
To reduce the risk of fire or electric shock, do not expose this appliance to rain and moisture. The apparatus shall not be exposed to dripping or splashing liquids and no objects filled with liquids, such as vases, shall be placed on the apparatus.

Caution
These service instructions are for use by qualified service personnel only. To reduce the risk of electric shock do not perform any servicing other than that contained in the operation instructions. Repairs have to be performed by qualified service personnel.

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.

9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.

11. Use only attachments/accessories specified by the manufacturer.

12. Use only with the 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.

13. Unplug this apparatus during lightning storms or when unused for long periods of time.

14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

15. The apparatus shall be connected to a MAINS socket outlet with a protective earthing connection.

16. Where the MAINS plug or an appliance coupler is used as the disconnect device, the disconnect device shall remain readily operable.

17. Correct disposal of this product: This symbol indicates that this product must not be disposed of with household waste, according to the WEEE Directive (2012/19/EU) and your national law. This product should be taken to a collection center licensed for the recycling of waste electrical and electronic equipment (EEE). The mishandling of this type of waste could have a possible negative impact on the environment and human health due to potentially hazardous substances that are generally associated with EEE. At the same time, your cooperation in the correct disposal of this product will contribute to the efficient use of natural resources. For more information about where you can take your waste equipment for recycling, please contact your local city office, or your household waste collection service.

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ES Instrucciones de seguridad

CAUTION
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ATTENTION
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Las terminales marcadas con este símbolo transportan corriente eléctrica de magnitud suficiente como para constituir un riesgo de descarga eléctrica. Utilice solo cables de altavoz de alta calidad con clavijas TS de 6,3 mm pre-instaladas (puede adquirirlos en comercios especializados en audio). Cualquier otra instalación o modificación debe ser realizada únicamente por un técnico cualificado.

12. Este símbolo, siempre que aparece, le advierte de la presencia de voltaje peligroso sin aislar dentro de la caja; este voltaje puede ser suficiente para constituir un riesgo de descarga.

13. Este símbolo, siempre que aparece, le advierte sobre instrucciones operativas y de mantenimiento que aparecen en la documentación adjunta. Por favor, lea el manual.

Atención
Para reducir el riesgo de descarga eléctrica, no quite la tapa (o la parte posterior). No hay piezas en el interior del equipo que puedan ser reparadas por el usuario. Si es necesario, póngase en contacto con personal cualificado.

14. Este símbolo, siempre que aparece, le advierte sobre instrucciones operativas y de mantenimiento que aparecen en la documentación adjunta. Por favor, lea el manual.

Atención
Para reducir el riesgo de incendio o descarga eléctrica, no exponga este aparato a la lluvia, humedad o alguna otra fuente que pueda salpicar o derramar algún líquido sobre el aparato. No coloque ningún tipo de recipiente para líquidos sobre el aparato.

15. Este símbolo, siempre que aparece, le advierte sobre instrucciones operativas y de mantenimiento que aparecen en la documentación adjunta. Por favor, lea el manual.

Atención
Las instrucciones de servicio deben llevarlas a cabo exclusivamente personal cualificado. Para evitar el riesgo de una descarga eléctrica, no realice reparaciones que no se encuentren descritas en el manual de operaciones. Las reparaciones deben ser realizadas exclusivamente por personal cualificado.

1. Lea las instrucciones.
2. Conserve estas instrucciones.
3. Preste atención a todas las advertencias.
4. Siga todas las instrucciones.
5. No use este aparato cerca del agua.
6. Limpie este aparato con un paño seco.
7. No bloquee las aberturas de ventilación. Instale el equipo de acuerdo con las instrucciones del fabricante.
8. No instale este equipo cerca de fuentes de calor tales como radiadores, acumuladores de calor, estufas u otros aparatos (incluyendo amplificadores) que puedan producir calor.

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EN

ES

FR Consignes de sécurité**CAUTION**

RISK OF ELECTRIC SHOCK!

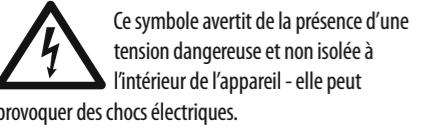
DO NOT OPEN!

ATTENTION

RISQUE D'ÉLECTROCUSSION !

NE PAS OUVRIR !

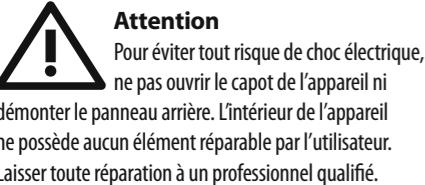
FR Les points repérés par ce symbole portent une tension électrique suffisante pour constituer un risque d'électrocution. Utilisez uniquement des câbles d'enceintes de haute qualité disponibles dans les points de vente avec les connecteurs Jack mono 6,35 mm déjà installés. Toute autre installation ou modification doit être effectuée uniquement par un personnel qualifié.



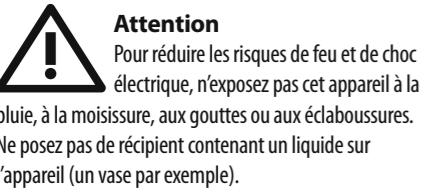
Ce symbole avertit de la présence d'une tension dangereuse et non isolée à l'intérieur de l'appareil - elle peut provoquer des chocs électriques.



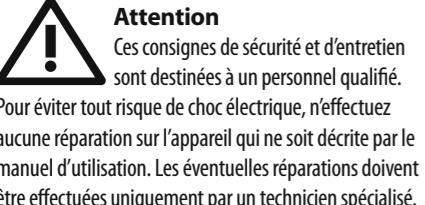
Attention
Ce symbole signale les consignes d'utilisation et d'entre ! Tien importantes dans la documentation fournie. Lisez les consignes de sécurité du manuel d'utilisation de l'appareil.



Attention
Pour éviter tout risque de choc électrique, ne pas ouvrir le capot de l'appareil ni démonter le panneau arrière. L'intérieur de l'appareil ne possède aucun élément réparable par l'utilisateur. Laisser toute réparation à un professionnel qualifié.



Attention
Pour réduire les risques de feu et de choc électrique, n'exposez pas cet appareil à la pluie, à la moisissure, aux gouttes ou aux éclaboussures. Ne posez pas de récipient contenant un liquide sur l'appareil (un vase par exemple).



Attention
Ces consignes de sécurité et d'entretien sont destinées à un personnel qualifié. Pour éviter tout risque de choc électrique, n'effectuez aucune réparation sur l'appareil qui ne soit décrite par le manuel d'utilisation. Les éventuelles réparations doivent être effectuées uniquement par un technicien spécialisé.

1. Lisez ces consignes.
2. Conservez ces consignes.

3. Respectez tous les avertissements.

4. Respectez toutes les consignes d'utilisation.

5. N'utilisez jamais l'appareil à proximité d'un liquide.

6. Nettoyez l'appareil avec un chiffon sec.

7. Veillez à ne pas empêcher la bonne ventilation de l'appareil via ses ouïes de ventilation. Respectez les consignes du fabricant concernant l'installation de l'appareil.

8. Ne placez pas l'appareil à proximité d'une source de chaleur telle qu'un chauffage, une cuisinière ou tout appareil dégageant de la chaleur (y compris un amplificateur de puissance).

9. Ne supprimez jamais la sécurité des prises bipolaires ou des prises terre. Les prises bipolaires possèdent deux contacts de largeur différente. Le plus large est le contact de sécurité. Les prises terre possèdent deux contacts plus une mise à la terre servant de sécurité. Si la prise du bloc d'alimentation ou du cordon d'alimentation fourni ne correspond pas à celles de votre installation électrique, faites appel à un électricien pour effectuer le changement de prise.

10. Installez le cordon d'alimentation de telle façon que personne ne puisse marcher dessus et qu'il soit protégé d'arêtes coupantes. Assurez-vous que le cordon d'alimentation est suffisamment protégé, notamment au niveau de sa prise électrique et de l'endroit où il est relié à l'appareil; cela est également valable pour une éventuelle rallonge électrique.

11. Utilisez exclusivement des accessoires et des appareils supplémentaires recommandés par le fabricant.

12. Utilisez exclusivement des chariots, des diables, des présentoirs, des pieds et des surfaces de travail recommandés par le fabricant ou livrés avec le produit.

Déplacez précautionneusement tout chariot ou diable chargé pour éviter d'éventuelles blessures en cas de chute.

13. Débranchez l'appareil de la tension secteur en cas d'orage ou si l'appareil reste inutilisé pendant une longue période de temps.

14. Les travaux d'entretien de l'appareil doivent être effectués uniquement par du personnel qualifié. Aucun entretien n'est nécessaire sauf si l'appareil est endommagé de quelque façon que ce soit (dommages sur le cordon d'alimentation ou la prise par exemple), si un liquide ou un objet a pénétré à l'intérieur du châssis, si l'appareil a été exposé à la pluie ou à l'humidité, s'il ne fonctionne pas correctement ou à la suite d'une chute.

15. L'appareil doit être connecté à une prise secteur dotée d'une protection par mise à la terre.

16. La prise électrique ou la prise IEC de tout appareil dénué de bouton marche/arrêt doit rester accessible en permanence.

17. Mise au rebut appropriée de ce produit: Ce symbole indique qu'en accord avec la directive DEEE (2012/19/EU) et les lois en vigueur dans votre pays, ce produit ne doit pas être jeté avec les déchets ménagers. Ce produit doit être déposé dans un point de collecte agréé pour le recyclage des déchets d'équipements électriques et électroniques (EEE). Une mauvaise manipulation de ce type de déchets pourrait avoir un impact négatif sur l'environnement et la santé à cause des substances potentiellement dangereuses généralement associées à ces équipements. En même temps, votre coopération dans la mise au rebut de ce produit contribuera à l'utilisation efficace des ressources naturelles. Pour plus d'informations sur l'endroit où vous pouvez déposer vos déchets

d'équipements pour le recyclage, veuillez contacter votre mairie ou votre centre local de collecte des déchets.

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DE Wichtige Sicherheitshinweise**CAUTION**

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**Vorsicht**

Die mit dem Symbol markierten Anschlüsse führen so viel Spannung, dass die Gefahr eines Stromschlags besteht. Verwenden Sie nur hochwertige, im Handel erhältliche Lautsprecherkabel mit vorinstallierten 6,3 mm TSSteckern. Alle anderen Installationen oder Modifikationen sollten nur von qualifiziertem Fachpersonal ausgeführt werden.

**Achtung**

Um eine Gefährdung durch Stromschlag auszuschließen, darf die Geräteabdeckung bzw. Geräterückwand nicht abgenommen werden. Im Innern des Geräts befinden sich keine vom Benutzer reparierbaren Teile. Reparaturarbeiten dürfen nur von qualifiziertem Personal ausgeführt werden.

**Achtung**

Um eine Gefährdung durch Feuer bzw. Stromschlag auszuschließen, darf dieses Gerät weder Regen oder Feuchtigkeit ausgesetzt werden noch sollten Spritzwasser oder tropfende Flüssigkeiten in das Gerät gelangen können. Stellen Sie keine mit Flüssigkeit gefüllten Gegenstände, wie z. B. Vasen, auf das Gerät.

**Achtung**

Die Service-Hinweise sind nur durch qualifiziertes Personal zu befolgen. Um eine Gefährdung durch Stromschlag zu vermeiden, führen Sie bitte keinerlei Reparaturen an dem Gerät durch, die nicht in der Bedienungsanleitung beschrieben sind. Reparaturen sind nur von qualifiziertem Fachpersonal durchzuführen.

1. Lesen Sie diese Hinweise.
2. Bewahren Sie diese Hinweise auf.
3. Beachten Sie alle Warnhinweise.
4. Befolgen Sie alle Bedienungshinweise.
5. Betreiben Sie das Gerät nicht in der Nähe von Wasser.
6. Reinigen Sie das Gerät mit einem trockenen Tuch.
7. Blockieren Sie nicht die Belüftungsschlitzte. Beachten Sie beim Einbau des Gerätes die Herstellerhinweise.
8. Stellen Sie das Gerät nicht in der Nähe von Wärmequellen auf. Solche Wärmequellen sind z. B. Heizkörper, Herde oder andere Wärme erzeugende Geräte (auch Verstärker).
9. Entfernen Sie in keinem Fall die Sicherheitsvorrichtung von Zweipol- oder geerdeten Steckern. Ein Zweipolstecker hat zwei unterschiedlich breite Steckkontakte. Ein geerdeter Stecker hat zwei Steckkontakte und einen dritten Erdungskontakt. Der breitere Steckkontakt oder der zusätzliche Erdungskontakt dient Ihrer Sicherheit. Falls das

mitgelieferte Steckerformat nicht zu Ihrer Steckdose passt, wenden Sie sich bitte an einen Elektriker, damit die Steckdose entsprechend ausgetauscht wird.

10. Verlegen Sie das Netzkabel so, dass es vor Tritten und scharfen Kanten geschützt ist und nicht beschädigt werden kann. Achten Sie bitte insbesondere im Bereich der Stecker, Verlängerungskabel und an der Stelle, an der das Netzkabel das Gerät verlässt, auf ausreichenden Schutz.

11. Das Gerät muss jederzeit mit intaktem Schutzleiter an das Stromnetz angeschlossen sein.

12. Sollte der Hauptnetzstecker oder eine Gerätesteckdose die Funktionseinheit zum Abschalten sein, muss diese immer zugänglich sein.

13. Verwenden Sie nur Zusatzgeräte/Zubehörteile, die laut Hersteller geeignet sind.

14. Verwenden Sie nur Wagen, Standvorrichtungen, Stativ, Halter oder Tische, die vom Hersteller benannt oder im Lieferumfang des Geräts enthalten sind. Falls Sie einen Wagen benutzen, seien Sie vorsichtig beim Bewegen der Wagen-Gerät-kombination, um Verletzungen durch Stolpern zu vermeiden.

15. Ziehen Sie den Netzstecker bei Gewitter oder wenn Sie das Gerät längere Zeit nicht benutzen.

16. Lassen Sie alle Wartungsarbeiten nur von qualifiziertem Service-Personal ausführen. Eine Wartung ist notwendig, wenn das Gerät in irgendeiner Weise beschädigt wurde (z. B. Beschädigung des Netzkabels oder Steckers), Gegenstände oder Flüssigkeit in das Geräteinnere gelangt sind, das Gerät Regen oder Feuchtigkeit ausgesetzt wurde, das Gerät nicht ordnungsgemäß funktioniert oder auf den Boden gefallen ist.

17. Korrekte Entsorgung dieses Produkts: Dieses Symbol weist darauf hin, dass Produkt entsprechend der WEEE Direktive (2012/19/EU) und der jeweiligen nationalen Gesetze nicht zusammen mit Ihren Haushaltsabfällen zu entsorgen. Dieses Produkt sollte bei einer autorisierten Sammelstelle für Recycling elektrischer und elektronischer Geräte (EEE) abgegeben werden. Wegen bedenklicher Substanzen, die generell mit elektrischen und elektronischen Geräten in Verbindung stehen, könnte eine unsachgemäße Behandlung dieser Abfallart eine negative Auswirkung auf Umwelt und Gesundheit haben. Gleichzeitig gewährleistet Ihr Beitrag zur richtigen Entsorgung dieses Produkts die effektive Nutzung natürlicher Ressourcen. Für weitere Informationen zur Entsorgung Ihrer Geräte bei einer Recycling-Stelle nehmen Sie bitte Kontakt zum zuständigen städtischen Büro, Entsorgungsamt oder zu Ihrem Haushaltsabfallsorger auf.

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FR**DE**

PT **Instruções de Segurança Importantes**



Aviso!
Terminais marcados com o símbolo carregam corrente elétrica de magnitude suficiente para constituir um risco de choque elétrico. Use apenas cabos de alto-falantes comercialmente disponíveis de alta qualidade com plugues TS de 1/4" pré-instalados. Todas as outras instalações e modificações devem ser efetuadas por pessoas qualificadas.

Atenção
Este símbolo, onde quer que o encontre, alerta-o para a leitura das instruções de manuseamento que acompanham o equipamento. Por favor leia o manual de instruções.

Atenção
De forma a diminuir o risco de choque elétrico, não remover a cobertura (ou a secção de trás). Não existem peças substitutíveis por parte do utilizador no seu interior. Para esse efeito recorrer a um técnico qualificado.

Atenção
Para reduzir o risco de incêndios ou choques elétricos o aparelho não deve ser exposto à chuva nem à humidade. Além disso, não deve ser sujeito a salpicos, nem devem ser colocados em cima do aparelho objectos contendo líquidos, tais como jarras.

Atenção
Estas instruções de operação devem ser utilizadas, em exclusivo, por técnicos de assistência qualificados. Para evitar choques elétricos não proceda a reparações ou intervenções, que não as indicadas nas instruções de operação, salvo se possuir as qualificações necessárias. Para evitar choques elétricos não proceda a reparações ou intervenções, que não as indicadas nas instruções de operação. Só o deverá fazer se possuir as qualificações necessárias.

- Leia estas instruções.
- Guarde estas instruções.
- Preste atenção a todos os avisos.
- Siga todas as instruções.
- Não utilize este dispositivo perto de água.
- Limpe apenas com um pano seco.
- Não obstrua as entradas de ventilação. Instale de acordo com as instruções do fabricante.
- Não instale perto de quaisquer fontes de calor tais como radiadores, bocas de ar quente, fogões de sala ou outros aparelhos (incluindo amplificadores) que produzem calor.
- Não anule o objectivo de segurança das fichas polarizadas ou do tipo de ligação à terra. Uma ficha polarizada dispõe de duas palhetas sendo uma mais larga do que a outra. Uma ficha do tipo ligação à terra dispõe

de duas palhetas e um terceiro dente de ligação à terra. A palheta larga ou o terceiro dente são fornecidos para sua segurança. Se a ficha fornecida não encaixa na sua tomada, consulte um electricista para a substituição da tomada obsoleta.

10. Proteja o cabo de alimentação de pisadelas ou apertos, especialmente nas fichas, extensões, e no local de saída da unidade. Certifique-se de que o cabo eléctrico está protegido. Verifique particularmente nas fichas, nos receptáculos e no ponto em que o cabo sai do aparelho.

11. O aparelho tem de estar sempre conectado à rede eléctrica com o condutor de protecção intacto.

12. Se utilizar uma ficha de rede principal ou uma tomada de aparelhos para desligar a unidade de funcionamento, esta deve estar sempre acessível.

13. Utilize apenas ligações/acessórios especificados pelo fabricante.

14. Utilize apenas com o carrinho, estrutura, tripé, suporte, ou mesa especificados pelo fabricante ou vendidos com o dispositivo. Quando utilizar um carrinho, tenha cuidado ao mover o conjunto carrinho/dispositivo para evitar danos provocados pela terpidação.

15. Desligue este dispositivo durante as trovoadas ou quando não for utilizado durante longos períodos de tempo.

16. Qualquer tipo de reparação deve ser sempre efectuado por pessoal qualificado. É necessária uma reparação sempre que a unidade tiver sido de alguma forma danificada, como por exemplo: no caso do cabo de alimentação ou ficha se encontrarem danificados; na eventualidade de líquido ter sido derramado ou objectos terem caído para dentro do dispositivo; no caso da unidade ter estado exposta à chuva ou à humidade; se esta não funcionar normalmente, ou se tiver caído.

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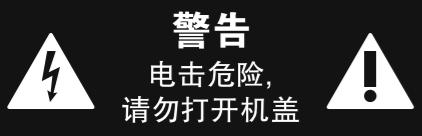
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Overview

Introduction

Welcome to the PRO X Live Audio System. The PRO X is a user-friendly, state-of-the-art, high performance digital console specifically designed for live use.

The control centre, which forms an integral part of its Live Audio System, was conceived by MIDAS to offer audio professionals high-performance audio equipment, designed to provide no-compromise sonic quality with a feature set that offers all essential facilities and functions. It represents the very best of British design and engineering combined with contemporary, efficient manufacturing methods, and will give you many years of reliable service.

So, to obtain the best results with a minimum of effort, please read this Quick Start Guide and, finally, enjoy your MIDAS PRO X Live Audio System!

About This Guide

This is the Quick Start Guide for the PRO X Live Audio System. Its purpose is to quickly familiarise the user with the control centre, show how to set up the system and then show how to carry out some basic operations on the control centre in order to produce some audio. This guide is structured such that it may also provide a useful introductory guide for training purposes.

This document is aimed at professionals, such as front of house (FOH) and monitor (MON) engineers, who will be using this equipment in a live performance environment. It is assumed that the reader has prior experience of using professional audio equipment and has, most likely, undergone training on this system.

This guide has been designed specifically so that mix engineers and system technicians can go straight to the areas applicable to them, that is, **Operation and Connecting And Setting Up The System**. The rest of the guide is intended for general readership.

For full details of the PRO X Live Audio System, refer to the PRO X Live Audio System Owner's Manual, which can be found on our website at midasconsoles.com.

NOTE: The content of this guide does not supersede any information supplied with any other item of this PRO Series Live Audio System.

PRO X Host Software Version

Our team of software engineers is constantly working to ensure that you get the most from the PRO X Live Audio System host software, so please ensure that you have the latest version installed on your PRO X by visiting the downloads page on midasconsoles.com

Warranty & Registration

MIDAS has total confidence in the quality and reliability of this product. To back this up, this product comes with the standard MIDAS three year warranty.

Please take the time to register your product by completing and returning the registration card or by registering on our website at midasconsoles.com.

Service & Support

The PRO Series Live Audio Systems are very hi-tech pieces of equipment. We provide superb levels of support and service to give users confidence in MIDAS digital products.

The PRO X Live Audio System

Introducing The PRO X

With their exemplary audio performance and road-proven rugged and reliable construction, the MIDAS PRO Series has become the gold standard in concert touring and installed live sound. Employing technologies developed from the class-leading and visionary flagship MIDAS XL8 console, and offering the same outstanding sample-synchronised and phase-coherent audio performance, interpolated control functions and intuitive navigation, the PRO3, PRO6 and PRO9 Live Audio Systems have become the industry's go-to choice for live sound reinforcement consoles.

Now the PRO Series family moves up a gear with the PRO X Live Audio System and the industry-changing NEUTRON Audio System Engine. Featuring 168 simultaneous input channels and 99 time-aligned and phase-coherent buses with no trade-offs in channel or bus counts.

True and consistent 96 kHz sampling frequency and 40 bit floating point processing provide exemplary quality audio processing, and the oversampled and interpolated digital signal processing algorithms, combined with the fully interpolated and touch sensitive user controls, result in the smooth continuous response and immediacy of working on an analogue console. Parameter adjustment becomes fast and easy, the continuous phase shift of a swept frequency control is heard without the quantisation effects of the discrete steps found in other digital consoles.

The PRO X features the rugged and road-proven KLARK TEKNIK HyperMAC and SuperMAC (AES50-compliant) networking technologies with their ultra-low and deterministic latencies and robust error correction.

Its powerful audio networking offers up to 288 inputs and 294 outputs at the 96 kHz sample frequency. For enhanced reliability, both the PRO X Live Audio System and the NEUTRON Audio System Engine feature a HyperMAC router with 192 bidirectional channels over dual-redundant copper or optical fibre snake connections.

The PRO X Live Audio System features dual 15" full colour daylight-viewable TFT displays for use in all environments, both inside and outdoors.

The 10 VCA (variable control association) and eight POPulation groups, combined with the advanced navigation offered by the output-centric centre section, allows the simultaneous display of 24 mono or stereo mix buses.

All of this provides an unparalleled mix experience.

Overview

The PRO X is a very powerful and flexible audio processing system that provides a complete solution for any audio mixing and signal distribution application in a live sound environment. Operation of the control surface is intuitive, unique and easy. Its layout is based on familiar analogue lines to retain that 'analogue' feel. To manage the numerous channels, the control centre utilises VCA/POP groups and colours, and additionally there are various navigational controls that aid quick channel/bus access and selection. A daylight-viewable GUI at the top of the control surface assists operation and provides extra functionality.

The live audio system is tolerant of many types of hardware or software failure. To achieve this the system employs dual redundancy, where a key component has an identical redundant spare that is ready to take over should it fail. Other failure scenarios are managed by the N+1 principle, where redundant components form an acceptable fraction of the system.

The KLARK TEKNIK DN9696 Recorder can be used with the live audio system for live multi-track recording and 'virtual' sound check.

Applications

The PRO Series are the work horse mid- to high-end MIDAS Digital Console Systems, akin to the industry standard Heritage 3000. Although the PRO Series are designed for the traditional touring live sound environment, they are also ideal for medium-sized theatres, small houses of worship installations, and broadcast. So, being a truly multi-functional console in the MIDAS tradition, the PRO Series are suitable for many applications, such as:

- Live sound touring MON or FOH duties
- Live sound small theatre MON or FOH duties
- Live sound house of worship MON or FOH duties
- Live sound broadcast mixer with basic 5.1 surround capabilities and monitoring.

PRO X - The Next Generation

PRO Series Console

If you are already familiar with the PRO Series consoles, then you are already well on your way to mastering the PRO X. With a few exceptions outlined here, the functionality of the PRO X is almost identical to its PRO Series predecessors. Because of its improved functionality and increased processing power it was necessary to make the following changes to the well-established format:

NEUTRON

The powerhouse at the centre of the PRO X system is the new NEUTRON Audio System Engine. NEUTRON is the result of a three-year research and development programme that has seen MIDAS engineers push beyond the envelope with their expertise and knowledge.

Its cutting-edge, latest generation DSPs and high-performance FPGA, couple with MIMD (Multiple Instruction, Multiple Data) architecture delivers more than 100 gigaflops of real-time audio processing performance. This means that NEUTRON has the potential to provide more than 800 audio paths. Your system remains absolutely future proof. It delivers impeccable MIDAS sonic performance and functionality.

But it's not just about raw, number-crunching power and high channel counts, NEUTRON is also about finesse. Adding I/O boxes with the best converters and custom processing algorithms that draw upon over 40 years of listening experience at the top of the industry, NEUTRON takes the audio quality of those channels to another level.

All MIDAS digital console systems have a comprehensive and automatic latency management system and NEUTRON is no exception. This system manages all internal routing and processing latency and also includes compensation for external analogue inserts. All audio samples are synchronised before summing, resulting in absolute phase coherency at the outputs and completely avoiding the 'comb filtering' effects of less carefully designed systems that result in specific frequencies cancelling out completely.

Channel Count

With 168 inputs, 96 buses and three master channels, on the PRO X what you see is what you get. There's no 'smoke and mirror' DSP sharing, the PRO X provides a full input channel count and full bus count at 96 kHz at any time.

Mix Bay Output Fast Zone

The PRO X control surface features an entirely new output section that makes handling the potentially huge number of buses a breeze. A page of 24 of the possible 96 bus masters is displayed across three rows of eight, each position easily identified by the same kind of select switch as the channel bay.

The digital write-on name and RGB backlight colour means 'can't miss' selection. Pressing 'to faders' on any row drops the master fader for those buses onto the mix bay.

All of the buses can be scrolled through, in pages of 24, and when an output is added to a POP group, it will unfold to the dedicated output section, making it even easier to organise your workflow.

Channel & Bus Navigation Zone

At the heart of MIDAS console navigation are the VCA and POPulation groups, which provide primary access to multiple channels (typically grouped into related clusters by mix engineers). To access all the channels belonging to any of the VCA or POP groups, merely press the select switch and those channels unfold to the control surface.

If you think of the VCA faders as if they were each containers for all the channels they control then finding channels becomes a natural and easy task. This method is further expanded through the provision of user customised POP (POPulation) groups, which can contain any combination of channels that you want to access instantly, at the press of a switch.

Additional Effects

The PROX can simultaneously process up to 24 simultaneous internal multi-channel effects and NEUTRON's 40 bit floating-point audio processing hosts a wide choice of virtual FX devices, which range from dual-mono delay units, stereo modulation and many diverse reverb FX, multiband compression, dynamic EQ and multichannel dual-function dynamics processing.

All FX processors are custom-designed to function within the MIDAS automatic latency compensation system. This ensures a phase-coherent sample-accurate mix regardless of whether the FX devices are used as channel inserts or as a send-and-return.

Delay FX can be individually configured to synchronise to the PRO X's Global Tap-Tempo hardware button, making on-the-fly changes to tempo-based effect parameters child's play. Up to 36 1/3 octave KLARK TEKNIK DN370 Graphic Equalisers (GEQs) are provided, which can be patched into any output.

About The Control Centre

Overview Of The Control Centre

The control centre has a combined control surface and GUI that provide an array of easy-to-use controls for the precise manipulation of audio.

The control centre is of modular construction and is built on a robust MIDAS steel frame chassis similar to those used for established MIDAS analogue products. The frame houses three full size bays with a smaller one on the right. All of the bays are controlled from a single processor and, collectively, provide the primary mixing needs of the engineer.

All associated power supplies, computer motherboards, memory and graphics cards are housed within the control centre, which also contains a digital audio router box that supports local FOH (insert) I/O connectors on the rear panel. Substantial forced air-cooling is provided by a bulkhead and large (but slow moving) internal fans. These produce very low noise, suitable for seated areas, theatres and concert sound, and can even be turned off under the user preferences menu.

Externally, the control centre has three main areas: control surface, GUI and rear panel. The control surface is populated with instantly recognisable controls that are logically distributed in major sections. The GUI, which comprises two screens at the top of the centre bays, enhances operation by providing visual representations of the control surface and also gives you extra functionality. The rear panel provides all of the control centre and network connectivity, and houses the mains power sockets and isolator switch.

Being of modular design, the overall form and shape of the control centre is similar to MIDAS's flagship XL8. The control surface is split into bays, each one containing a flat fader tray and shallow raked control area. The centre bays also have a third area that houses a steep-raked display screen.



- ① Input bay (12-channel)
- ② Mix bay
- ③ Master bay
- ④ Input bay (4-channel)

Multiple hardware fault types are tolerated by the control centre without loss of audio control due to the dual redundancy and N+1 methods incorporated in the system. This is further helped by the modular nature of the bays and GUI independence. Either of the GUI screens can be used to operate the whole control centre, even if none of the control surface hardware is working. The unit offers the facility of universal input, N+1 redundant power supplies with three latching mains connectors.

Bay And GUI Layout

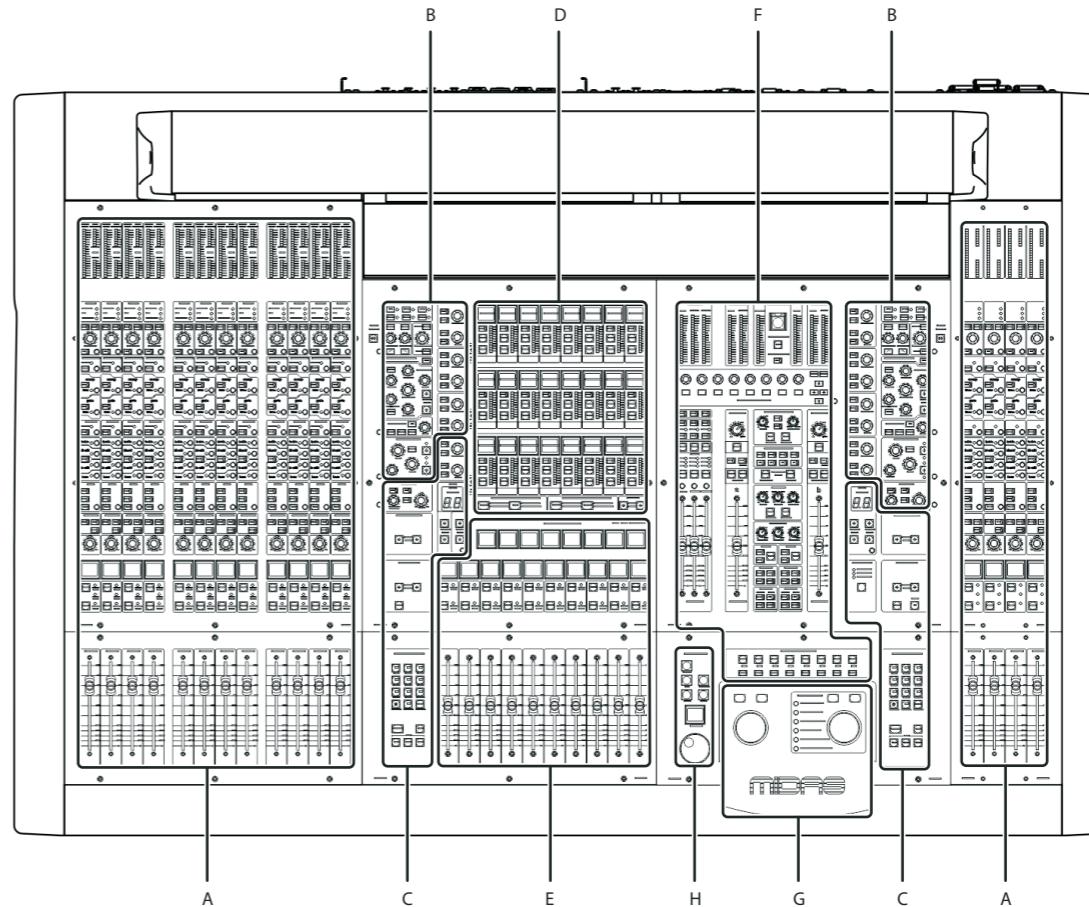
The control centre has four discrete bays that house the following control surface controls:

- **Input bays (12-channel and 4-channel)** — two input bays provide fast access to input faders and important signal processing controls
- **Mix bay** — provides access to outputs and groups, a detailed processing controller (all channels) and navigational controls
- **Master bay** — provides access to the master output mixes, monitor (A and B) faders, automation, comms control, assignable effects control, and another set of detailed processing and navigational controls.

Two GUI display screens at the top of the central bays provide extensive screen support (standard configuration) and extra functionality for the channels and buses. For example, when mixing or processing. They also facilitate the use of the GUI menu, which gives you access to the many powerful features of the control centre, such as patching, effects, GEFQs, diagnostics etc.

Control Surface

The control surface is divided into areas whose function is, largely, dependent on bay location. Each bay has assorted control elements with local feedback and/or support from the two centrally located GUI display screens. The screens can be controlled remotely via external VGA connections, and third party systems can also be viewed/controlled via an integrated KVM switch on the rear panel.



A — input fast zone: 16 input fast strips across the 12-channel and 4-channel input bays provide the operator's 'must have now' controls.

B — channel strip and mixes: processing areas, such as the D-zone (dynamic), E-zone (EQ) and mix controls, provide a more comprehensive control by allowing detailed adjustments to a single channel's audio parameters.

C — channel and bus navigation zone: sections for channel and bus navigation and selection. For details, see **Navigation**.

D — output fast zone: the new output-centric centre section, allows the simultaneous display of 24 mono or stereo mix buses, and advanced navigation buttons.

E — VCA and POP groups: VCA faders and POP group sections.

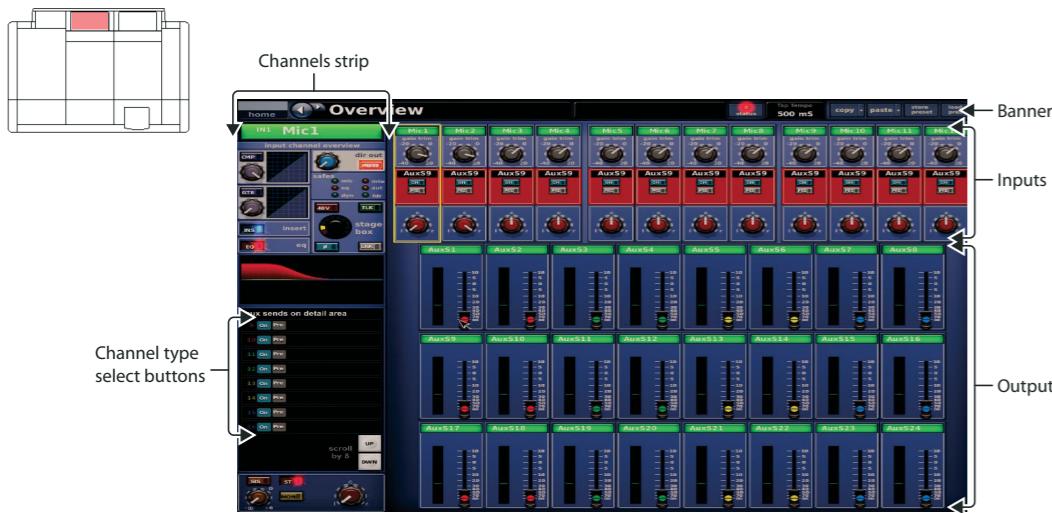
F — miscellaneous: master channel strips, A and B signal path monitoring, communications, I-zone, surround monitoring and mute groups.

G — primary navigation zone: trackballs for mix and master bay GUI screen control, and a screen access panel (between trackballs) for direct access to GUI menu options.

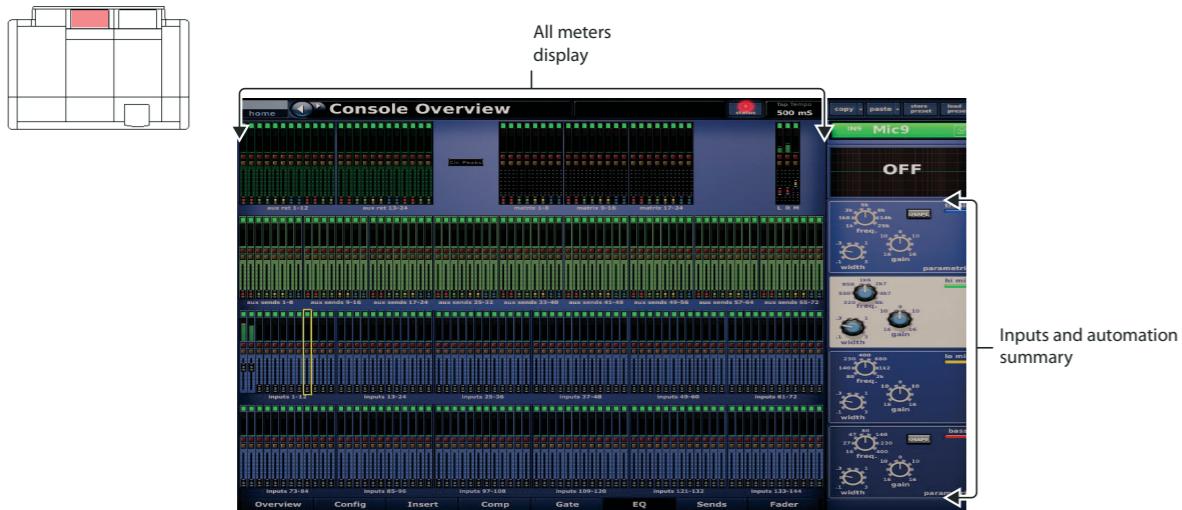
H — automation: scene store/recall and system edit.

During show time the screen functions that require fast access are controlled by control knobs, pushbutton switches, faders, etc. More complex functions that do not require this fast access are controlled by the trackballs and navigational keys. A keyboard integral to the flight case is used for text entry via the master bay GUI screen. An external USB keyboard can be used to operate the mix bay GUI screen.

The choice of controls provided by each bay type are prioritised by access time importance. Fast zone areas, which contain fast strips, give instant access to specific functions across the bay, and channel strips give greater control of the selected fast strip.



Above: Typical **Overview** screen (default of the mix bay GUI screen)



Above: Typical **Meters** screen with no show loaded (default of the master bay GUI screen)

GUI

The GUI comprises two screens that provide a pictorial representation of the control surface layout so that its displays are easy to follow at a glance. Not only does it reflect what is happening on the control surface, but it also provides extra functionality via a GUI menu. This menu provides access to all the screens that you will require to set up, configure, manage and operate the entire control centre, all from a single drop-down list of easy to follow options.

Each GUI screen has its own default display, although either is selectable via the GUI main menu. The **Overview** screen displays 12 inputs and 24 outputs, which are selected on the surface. The **Console Overview** screen shows the meters; both screens have a banner at the top, which is constantly displayed, and a channel strip down the outermost side.

The channel strips have a similar function to the ones on the control surface, but provide extra functionality. Each displays an overview of the associated selected channel, which is divided into specific sections that provide access to processing areas.

Front And Rear Panel Connections

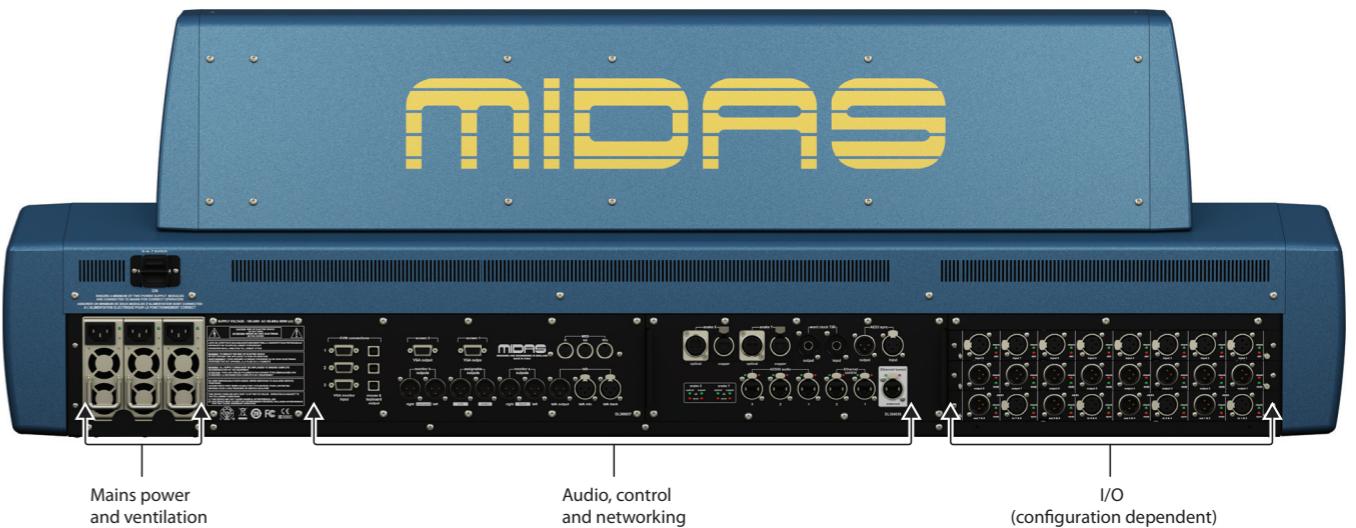
The control centre has connector panels on both the front and rear, and also to the left of the mix bay GUI screen.

The connector panel to the left of the GUI has an XLR socket and two USB sockets for connecting a talk mic and USB devices, respectively. For example, you can connect a USB memory stick for show file backup and transfer, or a USB keyboard for text editing on the GUI. The top USB socket is associated with the mix bay and the bottom one with the master bay.

There are two panels at either end of the front of the control centre, under the armrests. Each has a keyboard and phones socket. The left and right keyboard sockets operate the mix and master bay GUI screens, respectively. The phones socket in the left panel is for the monitor A section and the other one is for monitor B.

A connector panel on the rear of the control centre has three main sections (see below). On the left are three mains power inlet and ventilation assemblies, with a DC power switch above. The mid-section contains connections for the audio, network, communications, intercoms, synchronisation, external remote devices and peripheral devices. The section on the right is the user-configurable modular I/O section.

The modular I/O section can house up to three of any of the following I/O modules in any combination: DL441 analogue input (mic) module; DL442 analogue output module; DL443 analogue Jack I/O module; DL444 8 analogue mic in and 8 analogue line out module and DL452 AES/EBU input and output module. This gives a maximum of 24 inputs and 24 outputs, if the appropriate cards are fitted.



Above: Rear view of the Control Centre.

Basic Principles

Before You Start

This chapter is intended to familiarise you with the control centre by showing you how to carry out some basic operations in order to get some audio out of it.

NOTE: As the operation of both input bays is principally the same, this chapter will generally only show the operation of the 12-channel input bay. However, any differences in operation between the 4-channel and 12-channel input bays will be shown.

Please don't forget that, although this system is a complex, high-tech piece of equipment, it is very easy to use.

Principles Of Operation

Control centre operation is based on the concept of colours and groups rather than 'layering' or 'paging', which is the case with most digital consoles on the market today.

With so many channels available it is far easier to remember them by their user-configured individual/group colour and name rather than their channel number.

The control surface is populated with instantly recognisable controls that are logically distributed in major sections, so that all the controls you need to access most of the time are always on the control surface, while the remainder are only one action away. You can display all I/O meters, both on the control surface and the GUI, to give instant monitoring feedback.

Operating Modes

You can change certain aspects of control centre operation by assigning different tasks to certain areas of the control surface. This section will explain the different ways in which the control surface can operate.

Normal mode

During normal operation the 12-channel input bay is operated from the mix bay controls and GUI screen, while the controls and GUI screen in the master bay operate the 4-channel input bay. Both input bays operate in unison and are, in effect, area A.

NOTE: The 12-channel input bay will always be area A, no matter which operating mode you are using.

Using the 4-channel input bay as area B

You can assign the 4-channel input bay as area B, thus making both the input bays independent from each other. This facilitates two-man operation (see **Two-Man Operation**).

Controlling the mix buses in flip mode

Flip provides a more global approach to mix bus level control. Normally, you can only use the level control knobs in the channel strips to adjust the signal level of the aux/matrix mix buses going to the aux/matrix channels. However, by using flip you have the option of controlling them from either the pan control knobs or the faders in the input fast strips.

In flip mode the left/right arrow buttons in the upper channel select section scroll across the input fast strips.

>> To configure the control centre for pan or fader flip

- At the GUI, choose **home > Preferences > General**.
- Depending on which option you require, click the option button of one of the following in the Fader flip section. When an option is selected, it will contain a red circle:
 - "Flip to Faders"
 - "Flip to Pans".

>> To flip mixes to input pan/fader control

With an output selected on the control surface, press FLIP. The button will illuminate to show you are in 'flip' mode. The currently selected mix bus in the input fast strips will change to Aux1 and, on the GUI, the background colour of the pans and faders will change accordingly.

Also, the LCD select buttons in the input fast strips will display the current bus mode, for example, "MONO AUX".

Hints And Tips

- Check what is hidden** - On the control centre, unlike on an analogue control surface, some of the settings and parameters will be hidden from view. At various times during a mix we recommend that you select and view unused parameters to make sure there are no hidden surprises, for example, a reverb send left from a previous mix
- Check the Meters screen** - It is a good idea to frequently monitor the Meters screen (default display of the master bay GUI), which provides at a glance an overview of the control centre's status and operation. It shows all the meters and the status condition of faders and some switches, such as solos and mutes. However, some things will still remain hidden.

Saving Your Work

We recommend that you save your work regularly while carrying out the procedures included in this guide. Not only is this good practise during normal operation, but in this instance it may save you from losing some set-ups that could prove useful later on. To do this, create a new show (see **To Open The Automation Screen**), and then continue reading through the remainder of this section, following the instructions carefully. Save your work at convenient points (see **To Create A New Scene Using The Current Settings** and **To Save A Show Or Create A New One From The Current Settings**).

Saving a show versus storing a scene

It is important to understand the differences between saving a show and storing a scene.

- Storing a scene saves the current settings of the system to the show file. Scene data is never updated unless you manually store a scene. The show file remains unsaved in RAM.

Although the state of the control centre is copied every five seconds, it is not stored in a scene. Instead, it is placed in the NVRAM (non-volatile random access memory) of the control centre's memory, which is a type of RAM that doesn't lose its data when the power goes off. If the control centre loses power accidentally, these settings are loaded so that audio parameters are identical, thus avoiding audio level jumps. When power is lost, the showfile loaded (if any) will not subsequently be restored, and any unsaved changes to it will be lost.

- Saving a show copies the show file onto the internal solid-state disk of the control centre. This provides you with a 'permanent' copy, provided you shut down the system properly as detailed in the following section.

Shutting down the control centre properly

When switching off the control centre, we recommend that you use the shutdown option of the GUI menu (see **To Switch Off The Control Centre**).

By using shutdown, the cached copy of the show data, which is maintained by the system, is automatically stored. Shutdown then uses the current showfile, NVRAM data and cache files to restore the control centre to exactly the same state as at power down; even to the point of loading the unsaved show and placing you at the correct scene, with non-stored scene data at the control surface.

If you don't use the Shutdown option the audio parameters are still restored, but the show and show status (saved/unsaved) cannot be restored automatically. You must manually reload the show, and any unsaved changes will be lost.

Working With The Control Centre

Although many controls on the control centre are similar to their equivalent analogue-type counterparts, some have been specifically designed for the PRO Series, particularly those for navigation and GUI operation. As you will probably have had experience on analogue consoles, you will already be familiar with most of the PRO X controls and their operation. Therefore, this chapter only deals with the GUI controls that may be new to you.

The navigational controls, such as quick access buttons and scroll buttons, are described in **Navigation**, and the ones specifically for automation can be found in **Managing The Scenes**.

About Channel Operation

During normal operation the task of controlling the input (12 channels), aux, return, aux sends and matrix channels is allocated to the two bays on the left. The two bays on the right control the input (4-channel) and master channels.

This task allocation applies similarly to the GUI screens. However, you can control any channel from either GUI screen. This is done by navigating the channel to the GUI channel strip via the GUI menu; control is also then available via the local channel strip on the control surface.

About GUI Operation

This section explains the basic procedures you can perform at the GUI screens. In general, you will control and operate the GUI by combining the operations described here.

Each trackball controls the movement of a pointer on its respective GUI screen. The left trackball operates the mix bay GUI screen and the right one operates the GUI screen in the master bay. Each trackball has two buttons, which have similar functionality to the buttons on a PC/laptop mouse. The left button is used in click and drag operations, while the right button is generally used for editing and finer control operations.

Operating The GUI Screen Controls

This section shows you how to operate GUI screen elements, such as buttons, control knobs, drop-down lists and sliders.



>> To switch a GUI button on/off

Click the button. If it has a status indicator, this will illuminate/extinguish to show that it is on/off, respectively.

>> To adjust a GUI control knob or fader

Use a drag operation. Move the pointer up/down/left/right for adjustment.

>> To select an option from a drop-down list

Click the drop-down arrow. The drop-down list will unfold to display some or all of its contents, depending on how many items it contains.

Do one of the following:

Click the option you require

If necessary, scroll the list (see "To scroll a drop-down list" below) to display the option, and then click it.

>> To scroll a drop-down list

With the drop-down list displayed, do one of the following:

Drag the scroll box

Click the scroll bar. The scroll box will 'jump' in the direction of the click to another position in the scroll bar

Click an up/down scroll arrow. The scroll box will 'jump' in the direction of the scroll arrow to another scroll bar position. Clicking a scroll arrow when the scroll box is adjacent to it has no effect.

Using The GUI Menu

You can open the GUI menu at either GUI screen, or you can go directly a GUI menu screen by using a screen access button.

Throughout this guide, menu/submenu option selection sequences are shown in the following format (for example, for choosing the general preferences screen):

home > Preferences > General

>> To open the GUI menu

Click **home**.



Right arrow shows that the option has a submenu

>> To select a GUI menu option

Click the menu option, for example, **Monitors**. The background of the menu option will change to blue when it is ready for selection.

>> To open the submenu of a GUI menu option

Move the pointer over the arrow to the right of the desired menu option. The submenu will open automatically to the right of the arrow.

>> To open a GUI menu screen using a screen access button

In the primary navigation zone, press a screen access button to open the first screen (printed to the right of the button). Press it again to open the second screen.



These two examples show you how to use the screen access buttons to open the Automation screen (single press) and the Graphic EQs screen (two presses). These buttons take you directly to the screen you want.

>> To enter/edit text via the keyboard

At the GUI, click in the text box to place an insertion point in it. The pointer will change to an I-beam shape.

Using the keyboard, type in the new text. If the text box already contains some text, you can delete this first or edit it, which can be done via the keyboard or by using the cut, copy and paste options after right-clicking.

Press **ENTER** on the keyboard to exit the text box (or click on an empty area of the GUI screen). The pointer's shape will change back to an arrow.

Text Editing

A keyboard is used to type in text on the GUI, for example, to configure input and output channel names. Editable text on the GUI is contained in text boxes, which generally consist of a single line of limited length. Although all text editing can be done using the normal keyboard functions, the GUI can be used to assist you, for example, by highlighting portions of text (using drag).

Navigation**An Introduction To Navigation**

The control centre provides you with unique navigational controls to quickly and easily access the items, such as channels, buses, groups and processing areas, that you will require for mixing.

Navigation is an important feature of the control centre. One of the advantages digital consoles have over analogue ones is that their channel count is not limited by the control surface hardware. However, this means that only a certain amount of channels can be at the control surface at any time, while the others are 'hidden'. So, navigation is required to access these hidden channels whenever you need them.

NOTE: The way the control centre is set to operate may alter the function of some of the navigational controls. For more information, see **Operating Modes**.

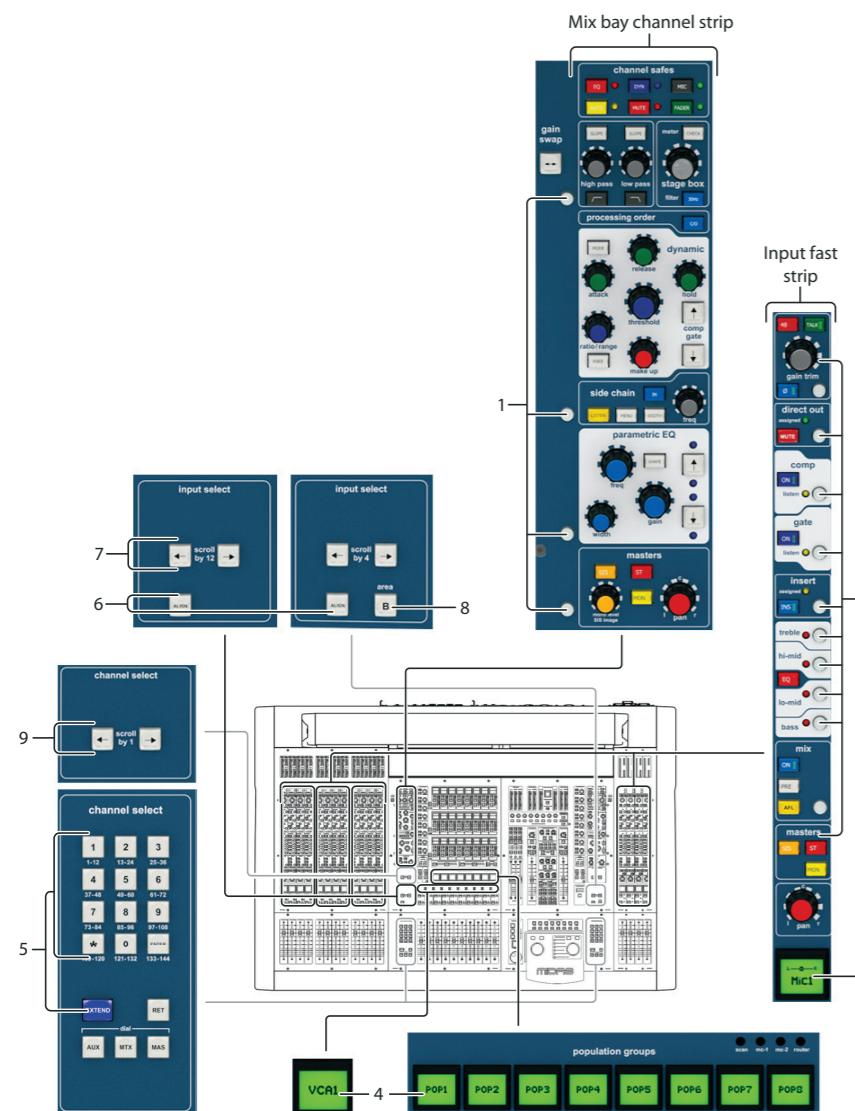
Navigation is primarily via the control surface, although the GUI may provide an alternative and also has some unique navigational features of its own.

Navigating The Input Channels

The input channels are grouped into 'banks', with each bank containing four consecutively numbered channels.

During normal operation, four banks of input channels populate the input bays, and these are displayed across the control surface in ascending order from left to right.

Input channel navigation controls on the PRO X.



Item	Element(s)	Description
1	Quick access button — channel strip	Quickly selects the local processing area of the selected channel or channel pair, but doesn't affect channel selection. Illuminates (blue) when active.
2	Quick access button — input fast strip	Quickly selects the local input channel and assigns the local processing area to the mix bay channel strip. Illuminates (blue) when active.
3	LCD select button — input fast strip	Selects the local input channel. Has a backlit LCD display (with user-configurable backlight colour), which shows channel name etc. When selected, the display changes to a 'negative' image.
4	LCD select button — VCA/POP group	Selects the VCA/POP group, unfolding the group members to the control surface. Has a backlit LCD display (with user-configurable backlight colour), which shows group name. When selected, the display changes to a 'negative' image. This button is also used for setting up the group (see To Assign Channels to a VCA/POP Group).
5	Channel select keys and button	The INPUT button in the channel type section is used with the number keys in the lower channel select section to select a specific channel number, assigning it to the control surface (see Fault Finding A Problem Channel).
6	ALIGN button	Navigates the currently selected input channel to the local input bay (see To Navigate The Selected Input Channel Back To The Control Surface).
7	scroll by 4 / 12 buttons	These left and right scroll buttons scroll through the input channels 12 channels at a time on the left 12-channel bay, and 4 at a time on the right 4-channel bay
8	B button	Assigns the 4-channel input bay as area B, which then operates with the master bay channel strip.
9	scroll by 1 buttons	These left and right scroll buttons scroll through the channels one at a time. Channel selection follows the scrolling.

>> To assign an input channel to the control surface

Do one of the following:

- **Scroll buttons** - Scroll the desired input channel to the control surface using the **scroll by 1 / 12 buttons** in the **input select** section.
- **VCA/POP group buttons** - If the desired input channel is in a group, press its VCA/POP group LCD select button.

You can use the GUI menu to select any VCA/POP group you want via the **home > Control Groups > VCA Groups** option.

>> To select an input channel

With the desired input channel currently assigned to the input fast strips on the control surface, do one of the following:

- **LCD select button** - Press the LCD select button in the desired input fast strip. This will assign the input channel to the local channel strip and its **input channel overview** to the GUI channel strip
- **Quick access button** - Press any quick access button in the desired input fast strip. This will assign the input channel to the local channel strip and its local processing area to the GUI channel strip.

You can use the **scroll by 1** buttons in the upper **channel select** section to scroll channel by channel to go to the input channel you want. You can scroll all of the input channels using this method and the desired input channel doesn't have to be assigned to the control surface initially. Channel selection follows the scrolling.

You can use the GUI menu to select any input channel you want via the **home > Input Channels** option.

>> To navigate the selected input channel back to the control surface

If you have navigated the currently selected input channel away from the control surface, you can bring it back by pressing **ALIGN**.

>> To select a processing area

You may want a specific processing area of an input channel assigned to the local channel strip, for example, to carry out processing or for copying its parameters to another input channel.

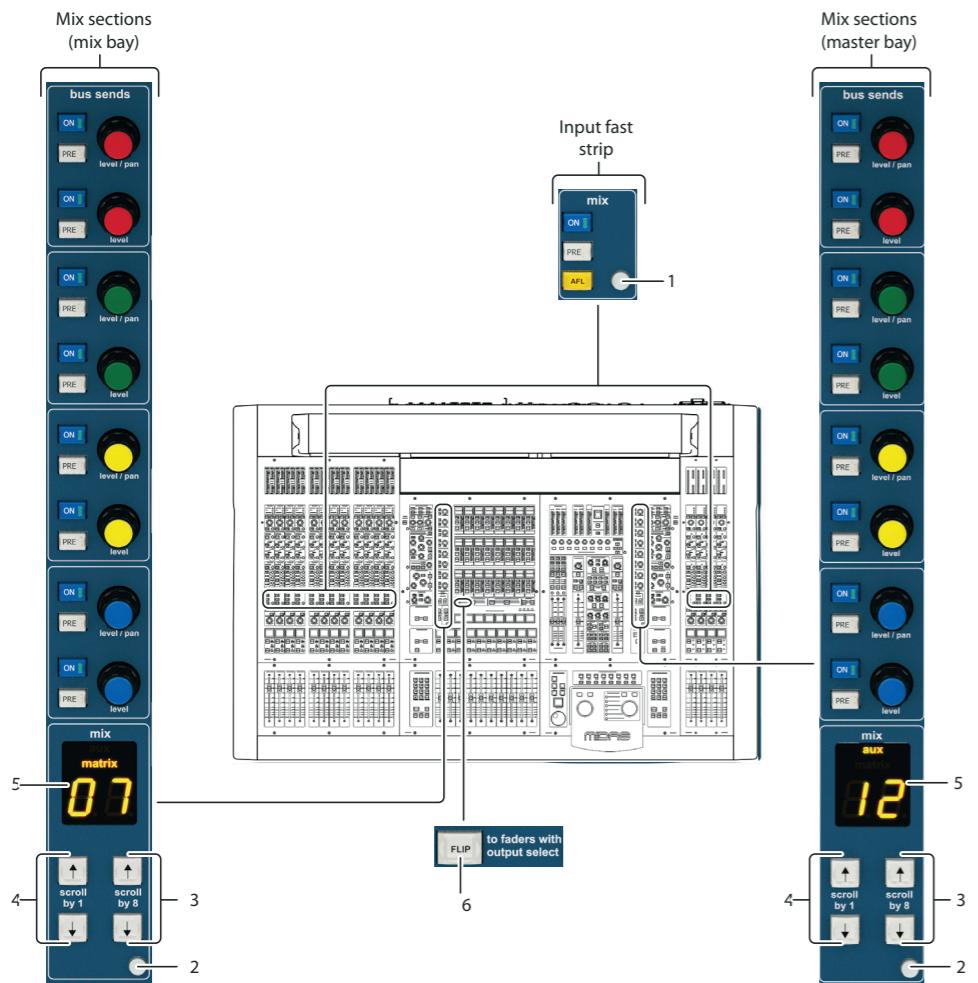
Do one of the following:

- **Quick access button (channel strip)** - If the input channel you want is currently selected at the control surface, press the quick access button local to the desired processing area in the channel strip
- **Quick access button (input fast strip)** - If the input channel you want is currently at the control surface, but is unselected, press the quick access button local to the desired processing area in its input fast strip.

You can select a processing area via the **input channel overview** in the GUI channel strip by clicking within a non-control area of the desired section.

Navigating The Mix Buses

The input channels each have aux and matrix mix buses.



>> To navigate a mix bus to the control surface

Do one of the following:

- Scroll to the desired mix bus using the **scroll by 1** buttons in the **mix** section. Mix bus selection follows the scrolling
- Scroll the desired bank of mix buses to the control surface using the **scroll by 8** buttons in the **mix** section
- Select the desired mix bus in the **Output Bay** and press **Align**.

>> To select a mix bus

Do one of the following:

- **Scroll buttons** - Scroll to the desired mix bus using the **scroll by 1** buttons in the **mix** section. Mix bus selection follows the scrolling
- **Touch sensitive control knobs** - With the desired mix bus assigned to the **mix** section on the control surface, touch/operate its control knob.

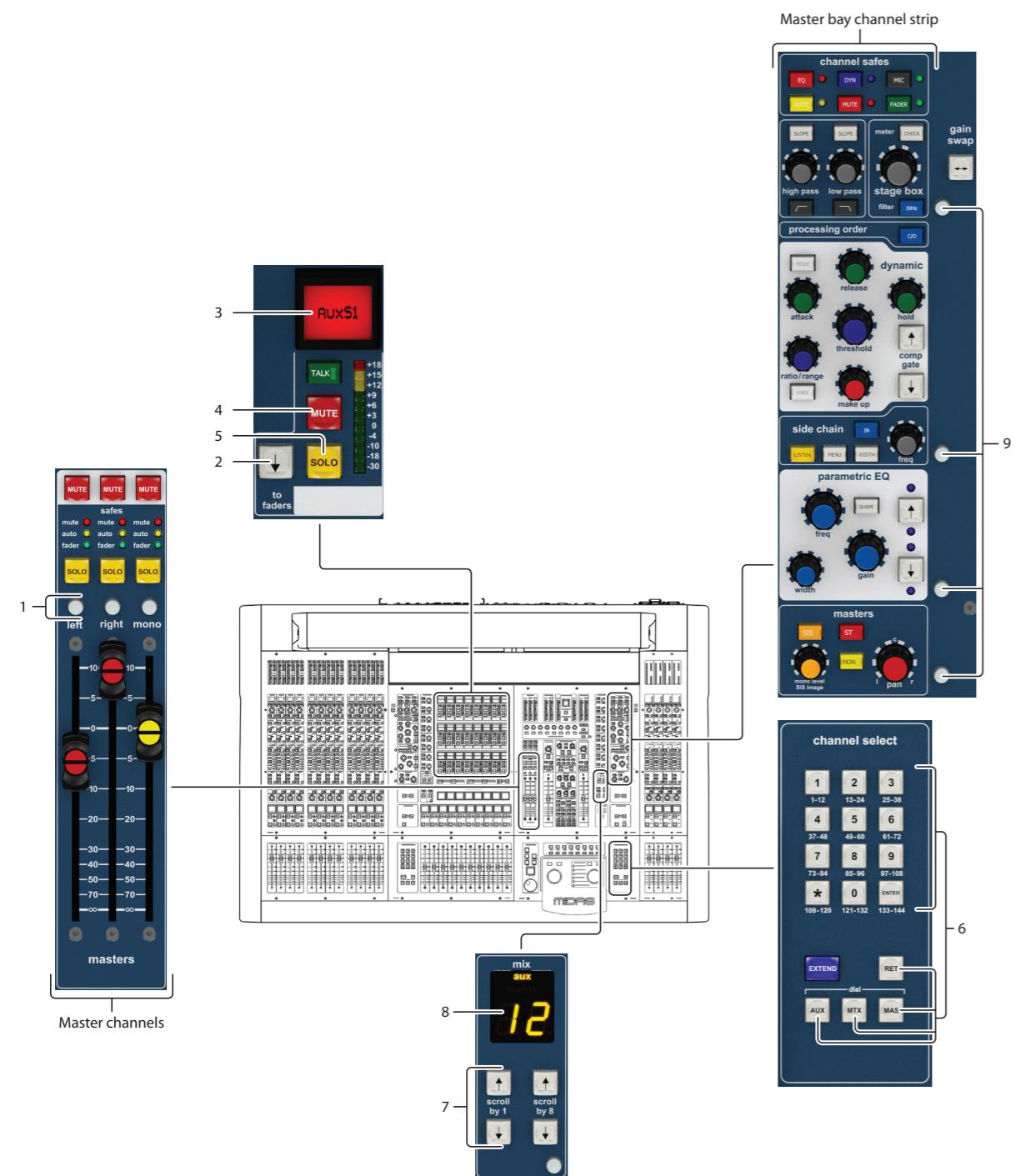
>> To navigate the mix bus processing area to the channel strip

Press the quick access button in the **mix** section of the desired input fast strip. This does not affect the current population of the output fast zone.

You can select an aux bus or matrix bus processing area on the GUI by clicking on the title of the desired bank of mix buses in the **input channel overview** of the GUI channel strip (see **Typical Sends Sections Of The Mixes In The Gui Channel Strip**).

Navigating The Output Channels

The output channels comprise auxes, matrices and masters.



Item	Element(s)	Description
1	Quick access button — master channels	Quickly selects the local master channel. Illuminates (blue) when active.
2	To Faders	Moves the currently-selected group to the faders below.
3	LCD select button	Selects the channel. Has a backlit LCD display (with user-configurable backlight colour), which shows group name.
4	Mute button	Mutes the selected channel.
5	Solo button	Silos the selected channel.
6	Channel selection keys and buttons	The buttons in the channel type section (except the INPUT button) are used with the number keys in the channel select (lower) section to select a specific output channel number, assigning it to the control surface (see Fault Finding A Problem Channel).
7	scroll by 1 buttons	These left and right scroll buttons scroll through the channels one at a time. Channel selection follows the scrolling.
8	scroll by 24 buttons	These left and right scroll buttons scroll through the channels 24 at a time. Channel selection follows the scrolling.
9	Quick access button — channel strip	Quickly selects the local processing area of the selected channel or channel pair, but doesn't affect channel selection. Illuminates (blue) when active.

>> To assign output channels to the control surface

Do one of the following:

- **Channel type buttons** - On the **PRO X** the Channel Type buttons have been replaced with 24 Out LCDs which are assignable in the usual manner: press and hold, and then select the channels you wish to assign.
- **Scroll buttons** - Scroll the desired output channel to the control surface using the **scroll by 1** buttons in the **channel select** (upper) section.

To select the desired output group, scroll through the input fast zone with the **Scroll by 24** buttons.

>> To select a processing area

You may want a specific processing area of an output channel assigned to the local channel strip, for example, to carry out processing or for copying its parameters to another output channel. To do this, provided the output channel is currently selected at the control surface, press the quick access button local to the desired channel strip's processing area to select it.

You can select a processing area via the GUI by clicking on a non-control area within the desired section of the 'overview' display (aux send, aux return, matrix or master) in the GUI channel strip.

Navigation Via The GUI

The GUI has unique navigational tools by which to return to a channel 'overview' display from one of its processing areas in the GUI channel strip, and also to browse through the GUI screen display history.

>> To navigate back to a channel's overview display from one of its processing areas in the GUI channel strip

Click the return arrow in the channel header.

>> To find a GUI screen that you recently opened

Use the back/forward browser buttons to do one of the following:

To return to the GUI screen you have just opened, click the back button

To open one of the GUI screens you have recently visited, click the back/forward buttons. The back button will take you back through your browser history, while the forward button goes the opposite way.

The back/forward buttons are similar to those on standard browsers used on any PC.

Fault Finding A Problem Channel

If you know the number of the channel that has a problem, you can quickly navigate it to the control surface by typing in its channel type and number via the lower **channel select** (lower) and **channel type** sections.

>> To select a channel using its number

1. In the **channel type** section, press the button of the desired type. For example, if the channel is an input, press **INPUT**.
2. In the **channel select** (lower) section, type in the channel's number. For example, press **4** and then **7** for channel 47.
3. Press **ENTER**.

Configuring The Inputs And Outputs

Similarly to the VCA/POP groups, you can change the name and colour of each of the inputs and outputs. This is done via the GUI at their respective sheet screens. For configuration details, see **Configuring VCA/POP Groups**.

>> To open the Input/Output Sheet screen

Do one of the following:

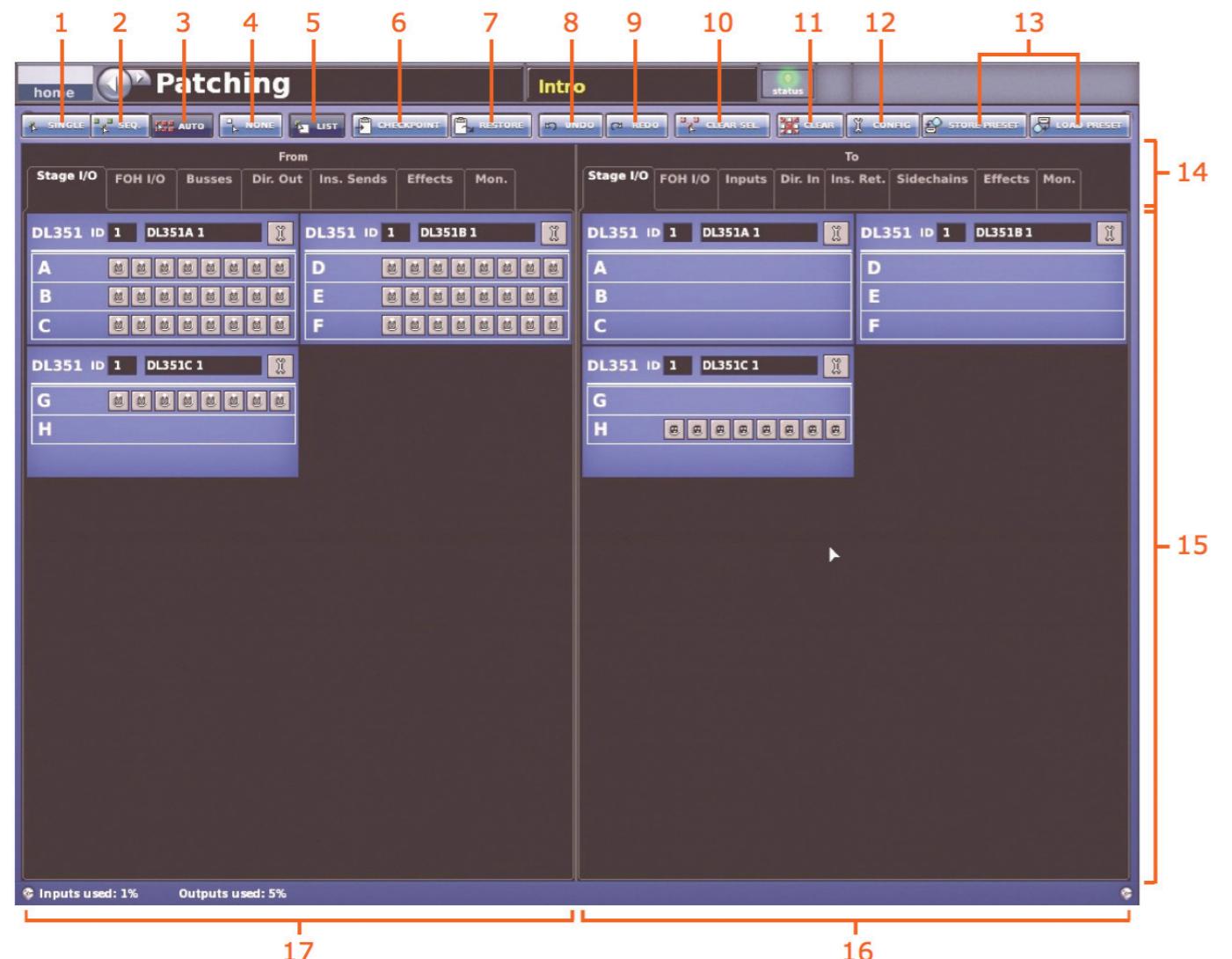
- At the GUI, choose **home > Input Channels > Input Sheet** to open the **Input Sheet** screen, or choose **home > Mix & Outputs > Output Sheet** to open the **Output Sheet** screen
- In the primary navigation zone, press the **inputs/outputs** screen access button to open the **Input Sheet** screen. To open the **Output Sheet** screen, press it again.

Patching

EN

Introduction

Patching is a GUI-only feature that lets you carry out all system routing requirements. The GUI main menu has a **Patching** option that takes you to the **Patching** screen, which contains all of the available patching connectors in the system. This screen provides an easy-to-use interface, where you can select your source and destination patching options, facilitated by a panel of function buttons. Additionally, the **Patching** screen lets you set up the units (devices). For example, you can adjust the analogue gain, select +48 V phantom voltage etc., of the line I/O units connected in the system.



Item	Element(s)	Description
1	SINGLE button	Lets you patch a single source to a single destination or multiple destinations. See Single Patching (SINGLE) .
2	SEQ. button	Lets you select multiple sources and patch them one by one. See Sequence Patching (SEQ.) .
3	AUTO button	Lets you select a block of sources and patch them all automatically, simply by selecting a single destination. Any existing patches within the destination range will be replaced by the new ones.
4	NONE button	Clears all currently selected patch connectors from all tabs in the From and To sections.
5	LIST button	Changes the tooltip type from standard to list when carrying out a sequence patching operating via the SEQ. button.
6	CHECKPOINT button	Sets a patching store point, or snapshot, that contains the patching status at that instant. Each time CHECKPOINT is clicked the previous checkpoint is overwritten.
7	RESTORE button	Reverts patching status to the last checkpoint or, if no checkpoints have been created, it will revert patching status to the power up condition. All patching done in the intervening period will be lost.
8	UNDO button	Undoes the latest single patch, even if it was part of a multiple patching operation. Repeated clicks will undo the preceding patching operations, going back to the last checkpoint, or power up if no checkpoints have been created.

Item	Element(s)	Description
9	REDO button	Redoes an undo. This can be repeated for each undo in the previous undo operation.
10	CLEAR SEL. button	Clears all current selections and their patches. Important: Unlike the NONE button, which merely removes the current selections (highlighted in yellow), CLEAR SEL. goes a step further by removing the patch as well. This will stop any audio that may have been going through the patched signal.
11	CLEAR button	Clears all patching. Important: Exercise great caution when using this function. Observe the warning that appears after clicking this button.
12	CONFIG button	Opens the AES50 Device Configuration window, from where you can set up the I/O tabs in the Patching screen (see Typical AES50 Device Configuration window).
13	STORE PRESET and LOAD PRESET buttons	These are user library (preset) function buttons. See User Library (Presets) .
14	Title section	Section titles and tab names.
15	Patching area	Contains all of the patch connectors on tabs.
16	To section	Houses the tabs that contain all of the patch connector destinations.
17	From section	Houses the tabs that contain all of the patch connector sources.

>> To access the Patching screen

Do one of the following:

- At the GUI, choose **home > Patching**
- Press the **patching/metering** button in the primary navigation zone
- At the GUI, click a **src** (source) or **dest** (destination) button. The **Patching** screen will open at the appropriate tab/configuration window.

About The Patching Procedure

Although patching can be thought of as routing/rerouting the control centre's incoming, internal and outgoing signals, in the context of the **Patching** screen, patching also encompasses the setting up and configuration of the stage and FOH rack I/O devices. The patching procedure is initially carried out after system installation and comprises:

- **Device configuration** - Configure the devices by adjusting their parameters (see below)
- **Setting up the I/O rack devices** - Set up the system devices, such as line I/O, DN9696 and generic AES50, in the I/O tabs in the **From** and **To** sections of the **Patching** screen (see **Setting Up The I/O Rack Devices**)
- **Patching** - Carry out all of the required routing, for example, mics to input channels (see **How To Patch**)
- **Snake selection** - Configure the control centre according to the type of 'snake' you are using for the X and Y networks (see **Configuring The Snake Type**). **This is important, as the control centre will not work unless the snake type is correctly configured.**

Configuring The Snake Type

Important:

The snakes must be correctly configured before operating the control centre, as it will not pass audio or control data if the snakes are not configured correctly.

You can connect the Neutron DSP Engine to the control centre with either copper or fibre-optic snakes. The control centre needs to be configured with this information before operation can begin.

>> To configure the control centre with the snake type information

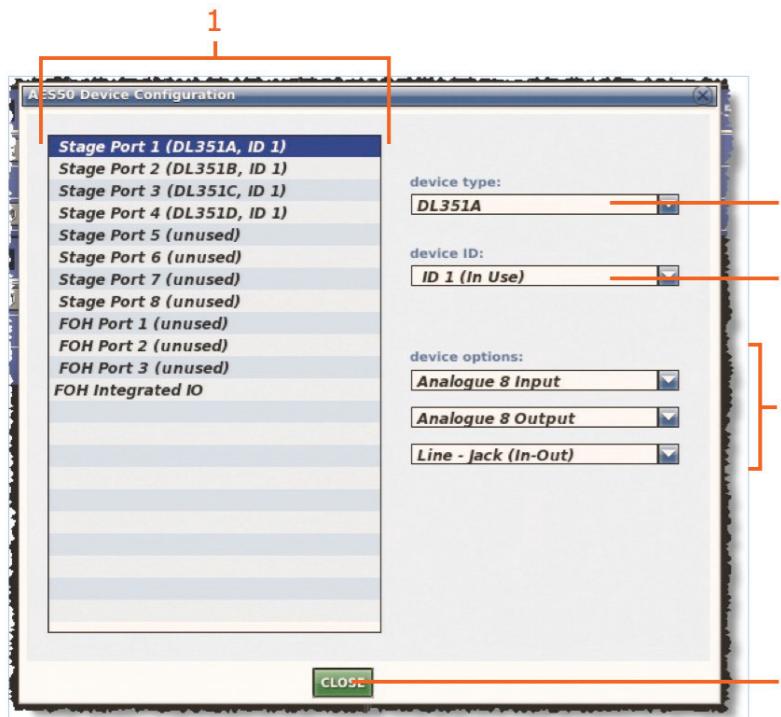
1. At the GUI, choose **home > Preferences > General**.
2. Under the **Stage Link X** heading, click the **Fibre** or **Copper** option, according to whichever is fitted to the X network. A selected option will contain a red circle.

Do the same for the Y network, under the Stage **Link Y** heading..

Setting Up The I/O Rack Devices

You can add, remove and set up the devices, such as line I/Os, mic splitters, DN9696s etc., that are in the Stage I/O and FOH I/O racks. This is done via the **AES50 Device Configuration** window. Here, you can set up the device ID and also the type of cards (modules) fitted to the physical unit. The options are context-sensitive, so some may be blank, depending on the type of device.

To cater for the dual redundant ports of the Mic Splitter and Modular I/O (X and Y connections) there are several options in the **device type**: drop-down list, for example **DL431 Cable Red**, **DL155 Cable Red**, etc. Initially, the device is allocated to a port (as for any device), then a second port is allocated to the redundant connection, but with the same device ID (see below for details).



Item	Description
1	List of Stage and FOH ports, showing current device assignments.
2	device type drop-down list, contains a list of the available devices to choose from.
3	device ID drop-down list, contains a full list of IDs for the selected device type. Those already in use will be prefixed with the text "(In use)".
4	device options drop-down list(s), from which you can select the card that is actually fitted in the physical unit. The positions of the drop-down lists are relative to the card positions in the physical unit.
5	CLOSE button, closes the AES50 Device Configuration window.

>> To add a device or change its set up

1. Click **CONFIG** to open the **AES50 Device Configuration** window.
2. Click the port to which you want to allocate the device. For example, "FOH Port 3 (unused)". The text in the **device type:** field will change accordingly. (A port that has no device allocated to it will have the text "(unused)" after its name.)
3. In the **device type:** drop-down list, click the type of device. For example, "DL351A".
4. In the **device ID:** drop-down list, click the ID you want for the device. For example, "ID6".
5. In the **device options:** drop-down list, click the type of card fitted physical unit. For example, "Analogue 8 Input". If there is more than one **device options:** drop-down list, repeat for the remaining ones, making sure they match the actual cards fitted (DL351 & DL451 only).
6. Click **CLOSE**.

Configuring The Devices

You have the option to configure the devices from the **Patching** screen. Parameters, such as gain and +48 V phantom voltage, can be adjusted or switched on/off, respectively, via a device-specific configuration window.

These configuration settings can be independent of channel data, as (until patched) they only control the physical unit. If a device is subsequently patched to one or more channels, the channel(s) control the device, and vice-versa.

3. Select the card/channel you want to configure/change, from the drop-down list at the upper-right corner of the configuration window. For example, the "Analogue In Card".
4. In a channel, configure the parameters. For example, in channel "In1", adjust the gain and switch the +48V phantom voltage on.
5. Repeat step 4 for the other channels in the card.
6. Repeat step 3 to step 5 for the other cards.
7. If necessary, configure other I/O devices by repeating step 2 to step 6.
8. Click **CLOSE**.

How To Patch

Patching, basically, involves selecting the source patching connectors in the **From** section of the **Patching** screen and then selecting their destination(s) in the **To** section. You can select patches singly, or in multiples by using the sequence and automatic operations.

>> To open a tab in the From or To sections

Click the tab title. For example, click **Ins. Sends** to open the insert sends tab.

>> To select a single patch connector

Click the patch connector. The effects of clicking a patch connector are shown in the following table.

Clicking	Does this in the From section	Does this in the To section
	Selects the patch connector.	 Will do one of the following (provided a source patch connector(s) has been selected in the From section): <ul style="list-style-type: none"> • Selects the patch connector during a single patching operation.
		<ul style="list-style-type: none"> • Patches the patch connector during either a sequence or an automatic patching operation.
		Otherwise, this has no effect.
	Deselects the patch connector, which then reverts to its previous state (patched or unpatched).	 Removes the patch.
	Selects the patch connector and all the ones it is patched to in the To section.	 Removes the patch.

NOTE: To quickly check the destinations of a source patch connector, click it. This will select it and all of its destinations. A green triangle will appear under the name of any tab in the To section that contains a destination(s).

The device configuration area also allows control of audio parameters when the device is used as a direct connection to another device. For example, FOH to stage via a digital snake, instead of through the DSP. In this case the settings are also saved in the show file and can be automated, even though the signals are not routed through the control centre DSP.

Device configuration procedure

Although the procedure for configuring the devices is similar, their parameters are dependent on device type. The procedure for configuring the devices of a similar type involves:

- Opening the configuration window of the device
- Selecting one of the device's cards/channel ranges and configuring the available parameters
- Repeating for the other cards/channel ranges of the device
- Repeating for the other devices
- Closing the device's configuration window.

>> To open the configuration window of a device

Click the device's spanner button.

>> To set up/change the configuration of an I/O device

1. Open the configuration window of the I/O device you want to configure.
2. Select the I/O device from the drop-down list at the top of the configuration window.

Single Patching (SINGLE)

The **SINGLE** function button lets you patch a single source to a single destination or multiple destinations.

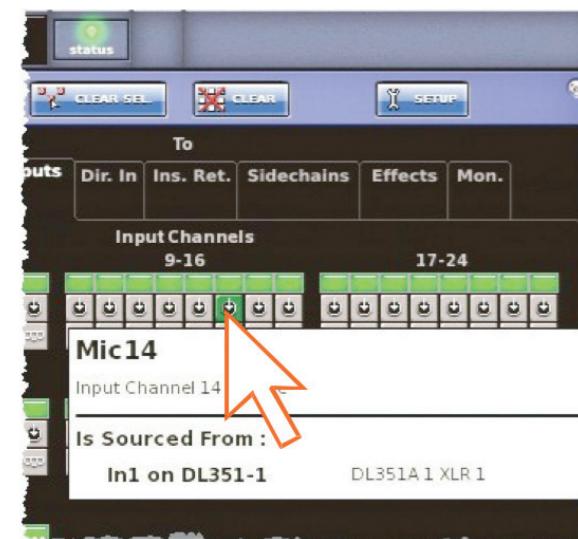
>> To patch a single source to a single destination

The following example shows you how to patch an output from a mic splitter to an input channel.

1. Click **SINGLE**.
2. Select the source patch connector. For example, in the **Stage I/O** tab of the **From** section, click the first patch connector (XLR1) of card A of the DL351 Modular I/O. Its background will change to yellow and a green triangle will appear under the tab title (as shown right).



3. Select the destination patch connector. For example, in the **Inputs** tab of the **To** section, click the patch connector for input channel 14 (Mic14). It will now be patched to the source. If the new patch is carrying a signal, this audio may be heard, depending on the settings of the control centre.



NOTE: You can also carry out single patching operations using the **CLEAR SEL** and **AUTO** functions.

>> To patch a single source to multiple destinations

Patch the desired source patch connector to one of its destinations, as detailed in [To Patch A Single Source To A Single Destination](#).

In the **To** section, select the other destinations.

Sequence patching (SEQ.)

If you need to do a number of patches, and each has only a single destination, you can use the sequence function. All of the source patch connectors are selected in the **From** section before being patched, one by one, in the **To** section. This saves you having to go back to the **From** section at the start of each patch.

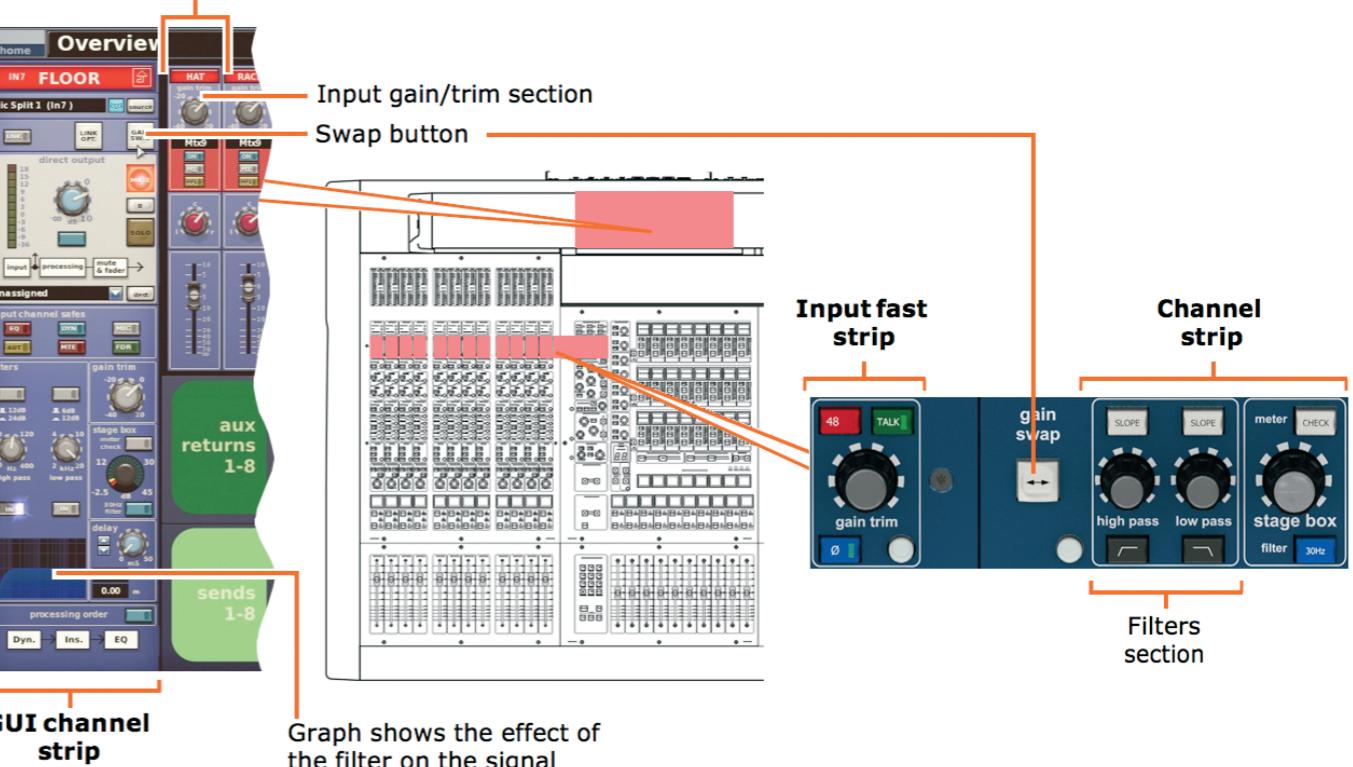
To assist you in sequence patching, you can change the tooltip to the list type (see the **LIST** function button in the **Patching Screen** diagram).

Basic Operation

This section is intended to familiarise you with the control centre by showing you how to carry out some basic operations in order to get some audio out of it.

NOTE: As the operation of both input bays is principally the same, this chapter will generally only show the operation of the 12-channel input bay. However, any differences in operation between the 4-channel and 12-channel input bays will be highlighted.

GUI input fast strip



NOTE: The gain trim and stage box control knobs on the control surface will adjust whatever has been ‘swapped’ to their respective strips and not necessarily what their names suggest. The stage box control knob (channel strip) always controls the alternative ‘swap’ to the ones shown in the input fast strips on the GUI screen.

>> To set the stage box gain/console gain

1. In the **gain trim** section of an input fast strip, press the quick access button (see [Gain and filter sections of the input strips](#)). This selects the input channel and assigns its configuration processing area to GUI channel strip, which contains the **GAIN SWAP** button.
2. Press the left-right arrow gain swap button (or click **GAIN SWAP**) to swap the **gain trim** and **stage box** sections over.
3. Adjust the **gain trim** control knob to the required level to suit the MIDAS pre-amp characteristic. A suitable level could be one that only just illuminates the yellow LEDs. Do this for each required channel. Drive the mic amps for that ‘MIDAS colouration’; feel free to overdrive if you want.
4. After you have achieved the required gain state, press the left-right arrow gain swap button (or click **GAIN SWAP**) to swap the gains back to their default state.
5. Adjust the **gain trim** control knob to (this time) adjust the console digital trim (+20 dB to -40 dB continuous trim) for your preferred gain structure.

Setting A Mic Amplifier's Input Gain

The control centre has two input gains per channel, one is the remote gain for the analogue mic pre (stage box gain) and the other is the digital trim (console gain). In its default state, the stage box gain is in the channel strip and the console gain is in each input fast strip. However, you can swap these sections over (by pressing the gain swap button) to give you a more global control of the stage box gain.

6. Set analogue remotes for initial set-up, then adjust digital trim for showtime.

Setting The High And Low Pass Filters

Select high and low pass filters. The high and low pass filters can be switched on/off and, when on, each has two settings. The filters are replicated on the GUI, which also shows the value of the filter in operation.

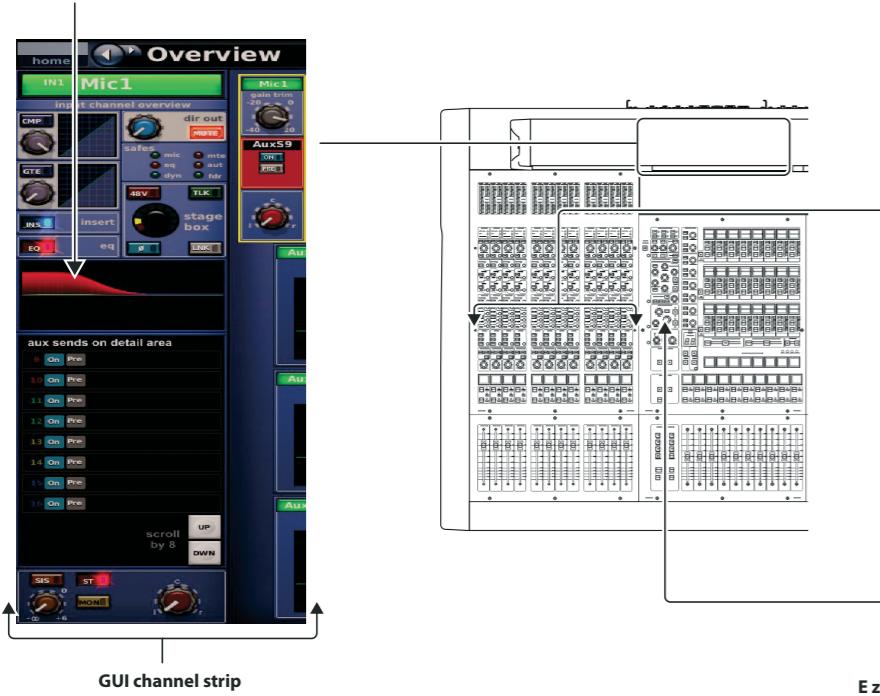
>> To set both high and low pass filters in

1. In the **gain trim** section of an input fast strip (see the [Gain And Filter Sections Of The Input Strips](#) diagram), press the quick access button. This selects the input channel and assigns its configuration processing area to the GUI channel strip, which contains the **filters** section.
2. In the filters section of the input channel strip, press the filter select button (**high pass** or **low pass**) to switch the filter in.
3. If necessary, press the filter's **SLOPE** button to set its slope (dB); its status is shown on the GUI. For the high pass filter, in = 24 dB and out = 12 dB, and for the low pass filter, in = 12 dB and out = 6 dB.
4. Adjust the **high pass/low pass** control knob to set the filter frequency (Hz). The ranges are 10 Hz to 400 Hz for the high pass filter and 2 kHz to 40 kHz for the low pass filter.

Input Equalisation (E Zone)

Use EQ to equalise the input signal via the treble, hi-mid, lo-mid and bass filters, which are situated in the input channel strip's E zone. Treble and bass each have a parametric filter option and three specific shelving modes. Visual feedback for EQ is via GUI only.

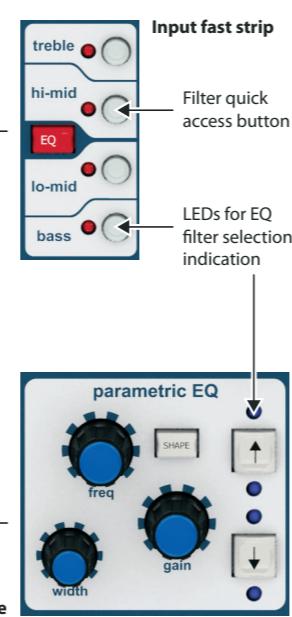
Graph shows the effects of EQ



>> To EQ the input signal

- In an input fast strip, press the quick access button of the desired EQ filter (**treble**, **hi-mid**, **lo-mid** or **bass**). This will select the channel and open the EQ filter's processing area in the GUI's channel strip. Alternatively, you can navigate to it using the bass and treble up and down arrow buttons in the E-zone (shown above).
- In the input fast strip, press **EQ** to switch the EQ in. The **EQ** button's LED will illuminate when its EQ is switched in.
- In the E zone, adjust the **freq**, **width** and **gain** control knobs to apply EQ as desired.
- Audition the different filters, including the 'minimum harmonic disruption' types, by scrolling through them using the **SHAPE** button.

NOTE: The minimum harmonic disruption filters are bright and deep, which are available for treble and bass, respectively. These filters use psychoacoustic phenomena to generate steep slopes that sound natural.

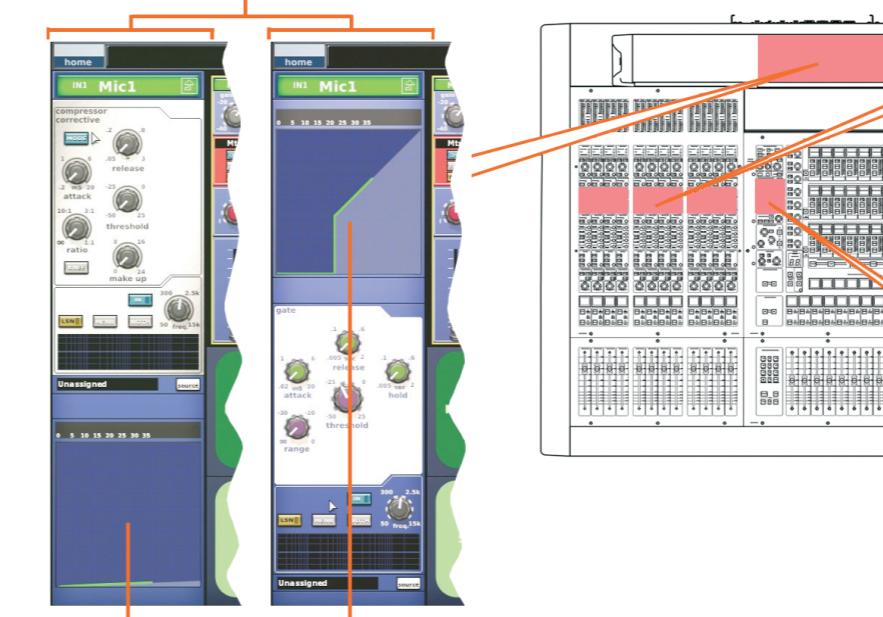


Input Dynamics Processing (D Zone)

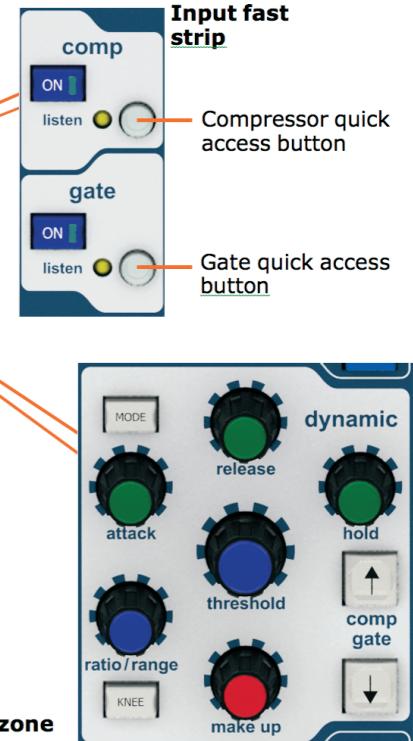
Set up compressor and gate dynamics processors using the controls in the input channel strip's D zone.

There are four compressors available, corrective, adaptive, creative and vintage, each with the option of hard knee, medium knee and soft knee.

GUI channel strip



Graphs show the effects of compression/gating



>> To set up a compressor/limiter

- In an input fast strip, press the compressor quick access button in the **comp** section. This will select the channel and assign its compressor processing area to the GUI channel strip.
- In the **comp** section, press **ON** to switch the compressor in.
- In the D zone, operate the **attack**, **ratio/range** (ratio), **release**, **threshold** and **make up** controls to apply processing. You could also set up a limiter by using a high threshold and a steep ratio (greater than 5:1). The **hold** control knob has no affect as it is only used for the gate.
- Press **KNEE** to audition the different algorithms.
- Press **MODE** to try different compressor types (**corrective**, **adaptive**, **creative**, **shimmer** and **vintage**).

>> To set up a gate

- In an input fast strip, press the gate quick access button in the **gate** section. This will select the channel and assign its gate processing area to the GUI channel strip.
- In the **gate** section, press **ON** to switch the gate in.
- In the D zone, operate the **attack**, **ratio/range** (range), **release**, **threshold** and **hold** controls to apply processing. The **make up** control knob has no affect as it is only used for the compressor.
- There is also a **MODE** function to select either **Gate**, **Transient Gate** or **Ducker** modes.

Output Processing

The outputs have a six-band PEQ with shelving modes on bands 1, 2 and 6. They also have the option of using a GEQ, which is accessed via the **GEQ** button in their EQ processing areas.

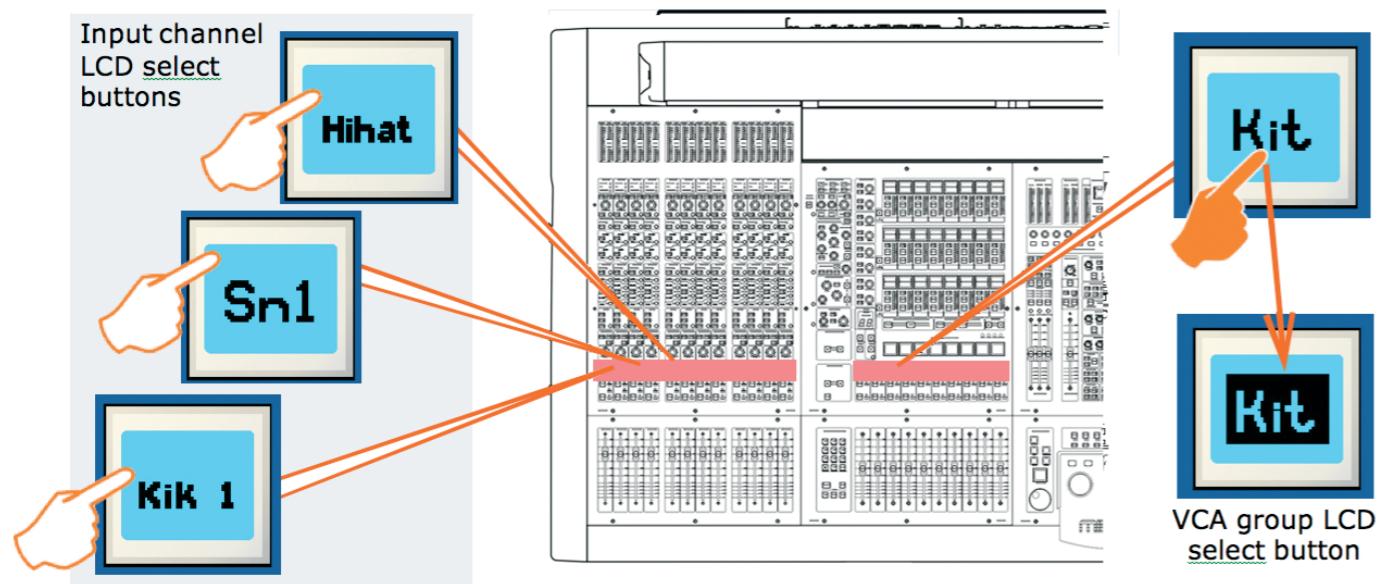
Using VCA/POP Groups

VCA/POP groups (bottom of the mix bay) allow simultaneous control over a number of channels. This provides a quick method of bringing particular channels to the control surface and saves you having to remember their name/number. You can choose channel group associations and also configure the colour and legend of each group's LCD select button to make them instantly recognisable. The LCD select button for each group is used for both group member assignment and group recall.

Any group can have any channels (input/output) assigned to them, although in normal practise is more likely that they will only have one or the other.

VCA groups include fader, solo and mute control. However, POP groups — which have no audio function — are limited to unfolding channels (on area A or B). POP groups let you create a group of related instruments that you need on the control surface for some function.

>> To assign channels to a VCA/POP group



1. Press and hold down the LCD select button of the desired group (VCA or POP). For example, "Kit" in the VCAs (as shown above). The group's LCD select button will start flashing when you are in group member selection mode and the inputs will jump to program mode.
2. While still holding down the LCD select button, do one of the following:
 - To assign an input channel to the group, press the LCD select button of the desired input channel. Repeat for any other input channels you want in the group. For example, "Kik 1", "Sn1", "Hihat" and "Tom" (shown above). If necessary, scroll to a new bank of input channels
 - To assign an output channel to the group, press the LCD Select button of the desired output channel. Repeat for any other output channels you want in the group. If necessary, navigate the desired output channels to the control surface. The LCD Select button of any output channels that are at the control surface and are group members will illuminate. Individual output select buttons will flash if their bank contains a member of the current group.
3. Release the group LCD select button. The group now contains the channel members you have just assigned and the group will be selected.
4. To exit the group, quickly press the group LCD select button.

Configuring VCA/POP groups

The default name and associated colour of a group, which appear on its LCD select button and on the GUI, can be configured to suit your own preference. You can also globally change the colour of the group members to match the group colour.

Configuration is carried out at the **Group Sheet** screen.

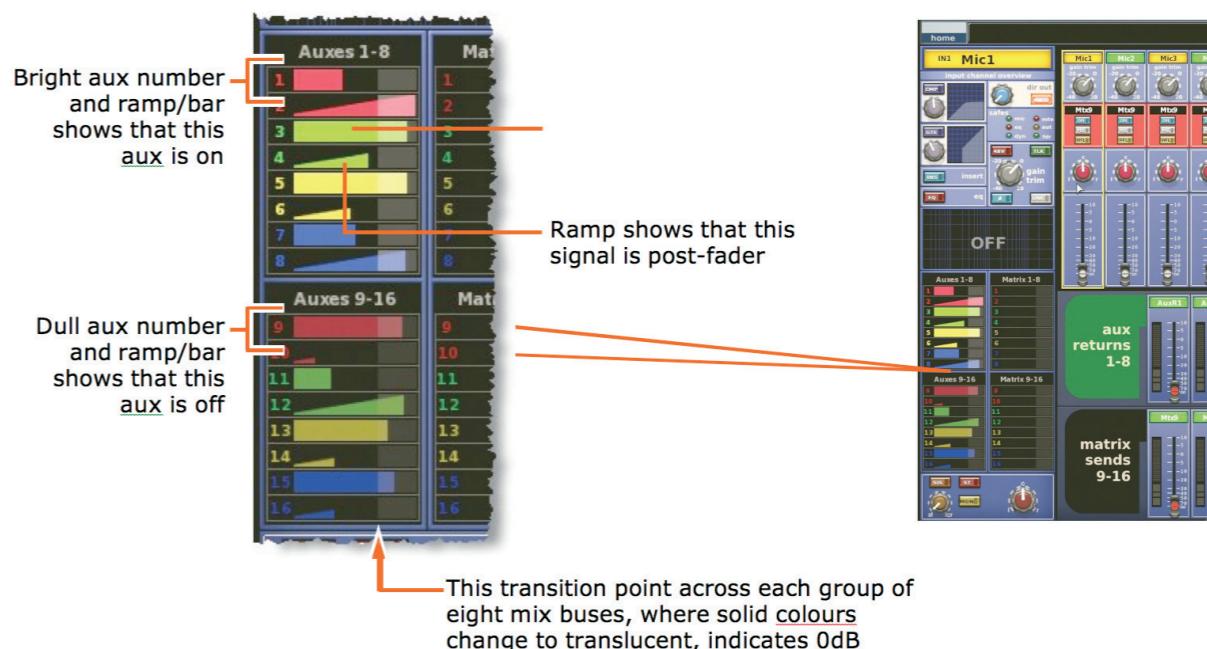
NOTE: Clicking the control knob icon will take you to the **VCA Groups** screen (a submenu of the **Control Groups** option), which provides group management control.

>> To access the Group Sheet screen

Do one of the following:

- At the GUI, choose **home > Control Groups > Group Sheet**
- In the primary navigation zone, press the **vca/assignable controls** screen access button.

>> To select the mix bus mode



>> To set up the name of a VCA/POP group

Do one of the following:

- **Choose from a list of pre-configured names** by clicking the pencil icon of the group. In the drop-down list, click the name of your choice, for example, "E Gtr". Scroll the list, if required
- **Type in a new name** by clicking within the name field of the group. The pointer will change to a white flashing l-shaped cursor, which will appear at the end of the name field. Type in the new name via the keyboard (maximum six characters).

>> To set up the colour of a VCA/POP group

1. Click the palette icon of the group.
2. In the palette, click your chosen colour.

>> To set up the colour of a VCA/POP group and all of its members

Click the fill icon of the group. The colour of all group members will now match that of the group.

Setting Up A Mix

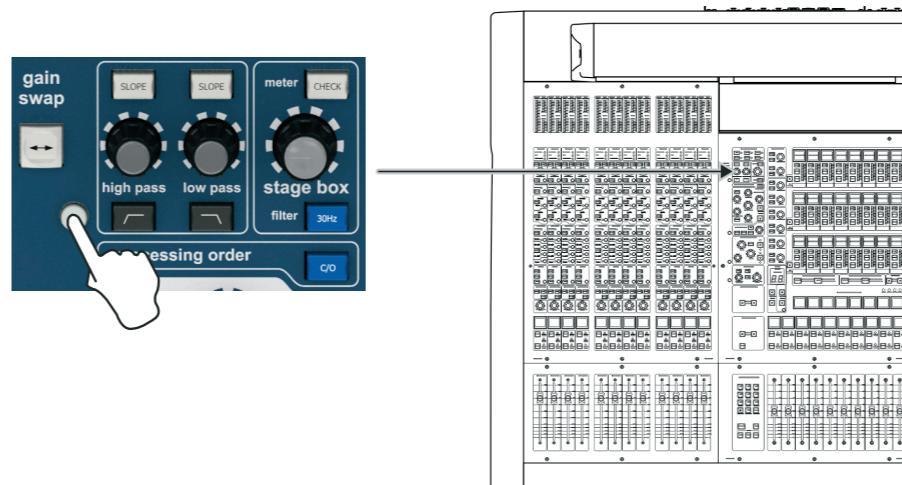
The control centre has 96 configurable mix buses (72 auxes and 24 matrices); the auxes can be set to mixes, subgroups or mix minus. All of the mixes can also be set up as stereo pairs or mono. 24 matrix outputs can also be accessed directly from input channels via level controls, which gives the control centre the ability to provide 32 discrete mixes, plus left, right and mono. The **mix** sections (input fast strips) and the **mix** and **sends** sections (mix and master bays) provide mix control and navigation, while the bus mode selection is via GUI only.

Similarly to the inputs and groups, identification of mixes is by colour coding.

The overview displays in the GUI channel strip (see below) show the status of the mixes, which are colour coordinated to match those in the sends section of the control surface.

1. Select the mix bus (see **To Select A Mix Bus**).

2. Press the quick access button (adjacent to the filters section) to assign the mix overview to the channel strip. For example, the **aux send overview** for AuxS1.



3. Click a non-control area within one of the sections (for example, dir in) to open the configuration processing area in the GUI channel strip.

4. Click **MODE** repeatedly to scroll through the mix modes (**mix**, **group** and **mix minus**) to select the one you want. Group mode is fader only with no pre-fader, and in mix minus mode all buses are initially routed — you have to turn a bus routing switch on to take it out of the mix. Stereo mix mode — with mix selected and **LINK** button on — is only accessed from the odd numbered output channel of the linked pair. In stereo mix mode the top control knob becomes pan adjust and the bottom one adjusts level. When creating a stereo mix, you can use either the odd or even output to link the two channels, but the mode of the odd channel is used on both.

>> To set up a mono aux mix

1. Making sure that the mix bus is not linked, select **mix** (see **To Select The Mix Bus Mode**).

2. Select the input channel (see **To Select An Input Channel**).
3. At the GUI, click within the appropriate sends section (aux or matrices) in the overview display to open its processing area.
4. In the **mix** (upper) section, do the following:
 - Press **PRE** to select pre-fader (on) or post-fader (off).
 - Press **ON** to route the aux mix from input to aux output
 - Adjust the level control knob to change the signal level.

You have the option to adjust them using the pan/fader controls in the input fast zone (12-channel input bay); this is known as "flip" mode. (You can also adjust them in the GUI channel strip — overview or processing area — using drag.)

Mix bus routing

You can route an aux or matrix (or even master output) to an effect or output. This is a GUI-only operation, which is done via the GUI channel strip or Patching screen (see Patching).

>> To route an aux or matrix to an effect or output

Do one of the following:

- In the processing area of the channel strip, click the required mix bus destination from the drop-down list. For details of how to open the processing area, refer to To Select The Mix Bus Mode
- In the processing area of the channel strip, click dest. This will open the Patching screen and the appropriate tab. For details of how to open the processing area, refer to To Select The Mix Bus Mode
- Open the Patching screen and route the aux/matrix from there. For information on patching, see Patching.

Linking

You can link two mixes together. Pairs can only be created from adjacent mix buses of the same colour. To link a pair of mix buses, click the **LINK** button of either of the mix buses (odd or even) you want to link (see To Select The Mix Bus Mode).

The linked parameters default to the user-configurable global default link settings, which are set via the GUI menu (choose **home > Preferences > Linking**). However, you can override these default link settings for the pair via the **Stereo Linking Options** window, which is opened by pressing the **LINK OPT.** button (to the right of the **LINK** button).

Using Fader Flip

For information on using fader flip, see Controlling The Mix Buses In Flip Mode.

NOTE: When using fader flip to control the aux bus levels, always use the GUI to check the level. This is because the fader level markings have a maximum of +10 dB, whereas the aux bus levels only go up to +6 dB.

Setting up the effects rack

The GUI's **Effects** screen contains a virtual 24-unit rack. You can have a maximum of 24 effects units in the rack, the number being dependent on configuration (via the **Effects and GEQs** section of the **Preferences** screen).

Each unit can contain any combination of the effects listed in the Change Device Type window.

The **assignable controls** panel is common to all effects, and lets you control effect parameters via the equivalent panel on the control surface (master bay).

>> To choose an effect

1. At the GUI, choose **home > Rack Units > Effects**. Alternatively, press the **effects/graphics** screen access button in the primary navigation zone.
2. Click within your chosen rack position. This will be the position of the new effect.
3. In the effect window, click **CHANGE DEVICE TYPE**.
4. In the **Change Device Type** window, click your chosen device type.
5. Click **OK**.
6. Change the parameters of the new effect device as necessary. For example, adjust control knobs, press buttons etc. You can even change the effect's name by editing its name field (upper-left corner of effect window).

7. Click **CLOSE** to close the effect window. The new effect will appear in the effects rack. You can now patch the new effect, which will be on the **Effects** tabs of both the **From** and **To** sections of the **Patching** screen. For information on how to patch, see Patching.

Simple Routing To Master Stereo Outputs

The following shows you how to obtain audio. Before proceeding with this operation, make sure nothing is muted and master faders are up.

>> To obtain audio

Do one of the following:

- Press the **ST** (stereo) button of an input fast strip
- Press the **ST** (stereo) button of a channel strip.

Scene And Show Management (Automation)

Automation lets you manage show files and the scenes within the shows. This can all be done via the **Automation** screen (a GUI menu option).

>> To open the Automation screen

Do one of the following:

- At the GUI, choose **home > Automation > Automation**
- In the primary navigation zone, press the **automation/filing** screen access button.

Managing the shows

The four buttons (**NEW**, **LOAD**, **SAVE** and **SAVE AS**) towards the top of **Automation** screen let you create a new show, load an existing show, update the current show or create a new show using the current settings.

Important:

We recommend that you save your show settings regularly (see Saving A Show Versus Storing A Scene). The control centre will indicate that there are show settings to be saved by changing the background colour of the **SAVE** button to red.

>> To create a new show

1. Click **NEW**.
2. In the **Enter new show name:** window, type your chosen name for the new show.
3. Click **OK**. You can now create and manage the scenes for your new show. (Clicking **CANCEL** instead of **OK** will close the **Enter new show name:** window without creating a new show.)

>> To save a show or create a new one from the current settings

Do one of the following:

- To update the current show with the latest settings, click **SAVE**
- To create a new show using the current show settings, click **SAVE AS**. Then, in the **Save File** window, type in the name of the new show. Click **OK** to save the new show and close the window. (Clicking **Cancel** will close the window without saving the new show.)

>> To load a show

1. Click **LOAD**.
2. In the Load File window, click the show file you want to load (shown right). The file name will appear in the **Load this file:** name field. The **Load File** window will contain a list of all the shows currently loaded. If the one you want is not there, load it from a USB memory stick (see **To Load (Import) A Show File From A USB Memory Stick**).
3. Click **OK** to start loading the file and close the window. The show file name will appear in the show file name field (next to the **SAVE AS** button) when it has finished loading.

Managing the scenes

An automation section in the master bay supports the **Automation** screen by providing a number of controls for scene navigation and management. A jogwheel and a **next** LCD button are unique automation controls, while the **store**, **ok**, **cancel**, **last** and **now** buttons are replicated on the **Automation** screen.

The four coloured, backlit buttons are context-sensitive and illuminate only when they are available. Typically, three scenes in the cue list (**Automation** screen) will be highlighted to match the button colours (red, yellow or green) to show which scene each button will act upon.

The jogwheel quickly scrolls through the individual scenes in either direction. You can even go to the empty scenes towards the end of the cue list and then wrap to the beginning. Operation of the jogwheel does not affect scene selection.

The **next** LCD button displays information on the scene to which you have just scrolled.

Additional function buttons on the **Automation** screen allow you to copy scenes and also to choose what is stored within each scene (store and recall scope buttons).

NOTE: The eye icon in the **Automation** screen (just under the **ADD MIDI** button) opens a **Show** window, which contains a list of filter options.

>> To navigate the scenes using the jogwheel

Rotate the jogwheel in a clockwise or anti-clockwise direction to scroll through the scenes one by one.

When using the jogwheel the **next** LCD button will illuminate yellow and will track the scene currently highlighted in yellow in the cue list. In this case, pressing this button will only have an affect if a non-empty scene is currently highlighted.

>> To recall a scene

Important:

When recalling a new scene, make sure monitor output levels are low, as the new scene's settings may produce higher audio output levels than the one it is replacing. Also, recalling a scene clears any unsaved adjustments made to the previous scene.

Do one of the following:

- Press **last** to change scene selection to the one currently highlighted in red in the cue list, which was the last selected scene
- Press **now** to change scene selection to the one currently highlighted in yellow in the cue list
- Press **next** (LCD button) to change scene selection to the one currently highlighted in green in the cue list, which is the scene immediately following the 'now' scene. However, if you have used the jogwheel the effect will be different.

>> To create a new scene using the current settings

1. Click **STORE SCENE**.
2. In the **Store Scene** window, type in the scene name.
3. In the **Notes** panel, type in any scene notes.
4. Do one of the following:
 - Click "Insert before scene" to put the new scene in between the one currently highlighted in yellow and the scene immediately before it
 - Click "Store to empty scene" to put the new scene in the one currently highlighted in yellow, provided it is empty
 - Click "Store to next scene" to put the new scene in the next one, provided it is empty
 - Click "Overwrite scene" to overwrite the scene currently highlighted in yellow. An **OK** button will appear at the bottom of the window, to the left of the **Cancel** button. The options in the **Store Scene** window are context-sensitive, so some may be greyed-out to show that they are unavailable.
5. Click **OK**. This will store the scene, saving any changes you have made, and close the window. (Clicking **CANCEL** will close the window, ignoring any changes.)

Additional control — managing events

You can use the MIDI or GPIO functions of the control centre to control the parameters of an external device (outgoing), and conversely you can use an external device to control the control centre (incoming). Also, by using the unique 'internal' event option, you can trigger events from within the showfile itself. All this is done by creating events in scenes/point scenes.

You can have any number and types of events in any scene/point scene, and event parameters are set up and edited in an **Edit Event** window. Similarly to scenes/point scenes, you can skip events during rehearsals.

To aid event management, a menu opens when you right-click a scene/point scene or event. The menu options allow you to create, edit and copy events. Click an option to select it.

>> To create an event

Select the scene in which you want to create the event, and then do one of the following:

- Click the **ADD GPIO**, **ADD INTERNAL** or **ADD MIDI** button as necessary
- From the 'right-click' menu, choose **Add > Midi Event**, **Add > Internal Event** or **Add > GPIO Event** as necessary.

>> To edit an event

1. Open the **Edit Event** window by doing one of the following:
 - Right-click the event you want to edit and then choose **Edit** from the right-click menu
 - Select the event you want to edit and then click **EDIT**.
2. In the **Edit Event** window, choose your options as necessary. For example, you can use a program change to trigger the event.
3. Click **CLOSE** to close the **Edit Event** window.

>> To copy and paste an event

- Right-click the event you want to copy, and then choose **Copy** from the menu.
- Select the scene in which you want to paste the copied event. Or, if the scene already contains an event(s), select the event after which you want to paste the copied event.
- Right-click to open the menu, and then choose **Paste**.

Show editor

The **Show Editor** screen lets you very easily copy and paste settings through scenes.

The panel at the far left of the **Show Editor** screen shows the sources, such as channels, GEQs and effects, from which you can copy the settings. The **Sections** panel in the centre of the screen contains source sections that you can copy to the scene(s). At the far right of the screen is the **Scenelist** panel, which is a cue list of the current show.

>> To open the Show Editor screen

Do one of the following:

- From the GUI menu, choose **home > Automation > Show Editor**
- At the **Automation screen**, click **SHOW EDITOR**.

>> To copy and paste sections to a scene(s)

- In the **Show Editor** screen, click the sources that contain the sections you want to copy to a scene(s). These are in the far left panel of the screen. You can choose any combination of inputs, aux returns, aux sends, matrices, GEQs, effects and masters.
- In the **Sections** panel, click the boxes of the sections that you want to copy. Ticked options will be copied.
- In the **Scenelist** panel, click the scene(s) in which you want to paste the sections. You can use the buttons at the bottom of the list to help you, as follows:
 - Click ALL** to select all of the scenes in the list
 - Click NONE** to deselect all selected scenes.
 - Click PASTE TO SCENES**.

Saving Your Show Files To A USB Memory Stick

When you are satisfied that your show file is how you want it, we recommend that you save it to a removable storage device (USB memory stick). This provides a valuable back up should the show file stored in the internal memory of the control centre be lost, for example, due to inadvertent deletion.

You can also load show files onto the control centre from the same storage device.

>> To save (export) a show file to a USB memory stick

- If necessary, close and save the show file you want to export; you can't export a show file that is open.
- Insert the USB memory stick into the active USB socket, which is the one with the **active** LED. For example, **USB key 2**.
- Do one of the following:
 - At the GUI, choose **home > Files**
 - In the primary navigation zone, press the **automation/filing** screen access button twice.

- You may see an "Analysing..." message in the **Removable Storage** panel, which means that the MIDAS folder on the USB memory stick is being read. Wait for the message to clear. Then, in the **Control Surface** panel, click the show file you want to copy.
- Click **EXPORT**.

- In the **Are You Sure you Want To Export?** message window, click **OK**. The file will start copying to the USB memory stick.

- When your show file appears in the **Removable Storage** panel, it has finished copying to the USB memory stick. Remove the USB memory stick.

>> To load (import) a show file from a USB memory stick

The procedure is similar to the export procedure, as detailed in **To Save (Export) A Show File To A USB Memory Stick**, but select the file to be imported to the control centre from the **Removable Storage** panel and then click **IMPORT**.

Using Copy And Paste

The **copy** and **paste** buttons (upper-right corner of GUI) let you copy the parameters of one/all of a single channel's processing area(s) — such as the EQ, compressor, gate etc. — and paste them to one/all of the channels of a similar type.

>> To copy a processing area to a channel/all channels

- If necessary, navigate the channel's processing area to the channel strip (see **To Select A Processing Area**).
- Click **copy**.
- Do one of the following:
 - To copy the processing area to another channel, select the channel and then click **paste**. (As the copied parameters are still stored, you can paste to as many channels as you want)
 - To copy the processing area to all other channels, right-click **paste** to open its menu, then choose **Paste To All**.

>> To copy all parameters to a channel/all channels

- If necessary, select the channel from which you want to copy all of the processing areas.
- Right-click **copy** to open its menu, and then choose **Copy All**.
- Do one of the following:
 - To copy the parameters to another channel, select the desired channel and then click **paste**
 - To copy the processing area to all other channels, right-click **paste** to open its menu, then choose **Paste To All**.

Copy and paste rules and restrictions

- You can only copy and paste similar functions. For example, you can't copy the input EQ from one channel to the output EQ of another, as they are different
- You can only copy and paste across similar channel types. For example, you cannot copy from an aux and paste to a matrix
- Copying and pasting across inputs is restricted to the input bays only
- Channel names are not copied
- Compressor and gate side chain listen cannot be copied.

User Library (Presets)

The control centre has a user library where you can store settings, such as for the EQ or the whole channel. For example, you may wish to store the EQ settings of a singer who may be called upon to perform during a future show. You can then easily recall these EQ settings to the appropriate channel, when required.

The settings are stored as presets, which are saved in a library. The library files are managed via a **Preset Manager** screen on the GUI. Here, you can create new libraries, load existing libraries, save the current library or give it a new name. You can also delete presets from the library.

Before you can save/load a preset, you need to create a new preset library or open an existing one. To create a new one, open the **Preset Manager** screen (choose **home > Preset Manager**) and click **New**. Then, after typing in the details in the **Enter new Library name** window, click **OK**.

>> To save a preset to the user library

- Make sure that the settings you want to save are assigned to the channel strip, then click **store preset**. If the channel's overview is displayed, all of its settings will be saved in the preset. Otherwise, just the settings of the displayed processing area will be saved.

- In the **Save Preset** window (shown right), type in your chosen preset name (**Preset Name**), your name (**Preset Author**) and any note (**Notes**) as necessary.

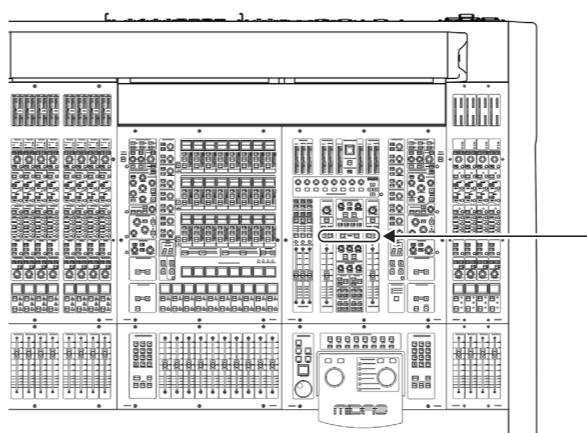
- Click **OK**.

>> To load a preset

- Make sure that the channel section in which you want to load the settings of the preset is assigned to the channel strip, then click **load preset**.
- In the **Load Preset** window, click the desired preset.
- Click **OK**.

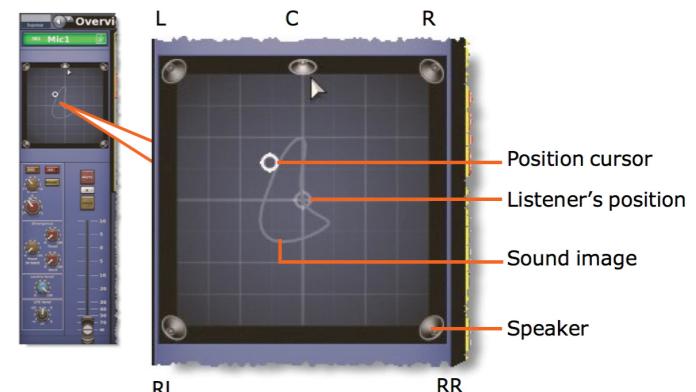
>> To select the surround panning mode

- At a GUI screen, choose **home > Preferences > General** to open the **Preferences** screen.



Surround Panning

In addition to stereo, the control centre has three surround panning modes: quad; left, centre, right and surround (LCRS); and 5.1 surround.



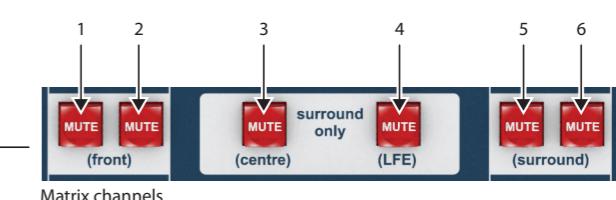
To help you visualise the surround panning envelope, the masters processing area of the GUI channel strip has a spatial diagram (shown right) that updates in real time when you operate the panning controls.

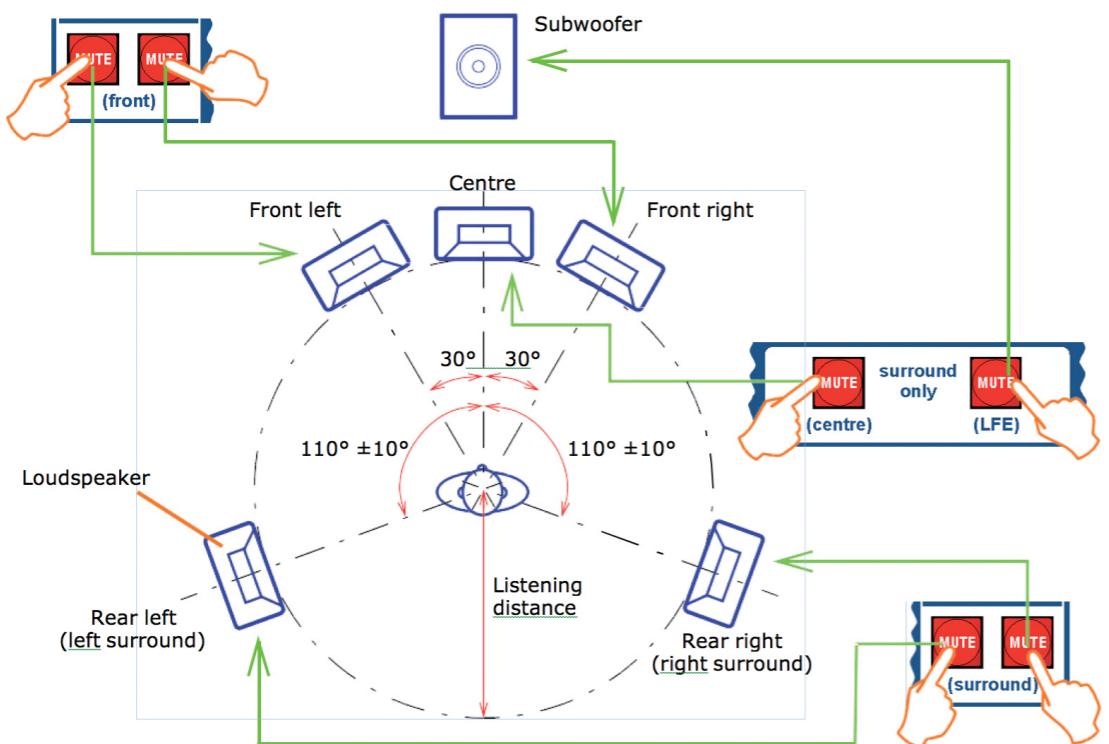
The surround panning modes are operated via a surround monitoring system, which uses matrix channels 1 to 6 as the surround bus channels. The channels are muted via six **MUTE** buttons in the master bay. Control centre monitor output connections are via the **surround**, **sub**, **centre** and **front** XLRs on the rear panel.

The 5.1 panning mode uses all six channels, while quad mode uses four (left and right on both the front and surround). Although the LCRS mode uses five channels (front left and right, centre and surround left and right), both surround channels are the same. (In an LCRS surround panning arrangement, you can have a single surround speaker positioned directly behind the listener.)

In surround mode, the **SIS** button routes the channel to the surround buses in much the same way that the **ST** button routes to the master buses.

The diagram below shows the location of the surround **MUTE** buttons and their matrix channel allocation, and shows the allocation of the surround **MUTE** buttons per loudspeaker and the recommended 1.5.1 surround system configuration.





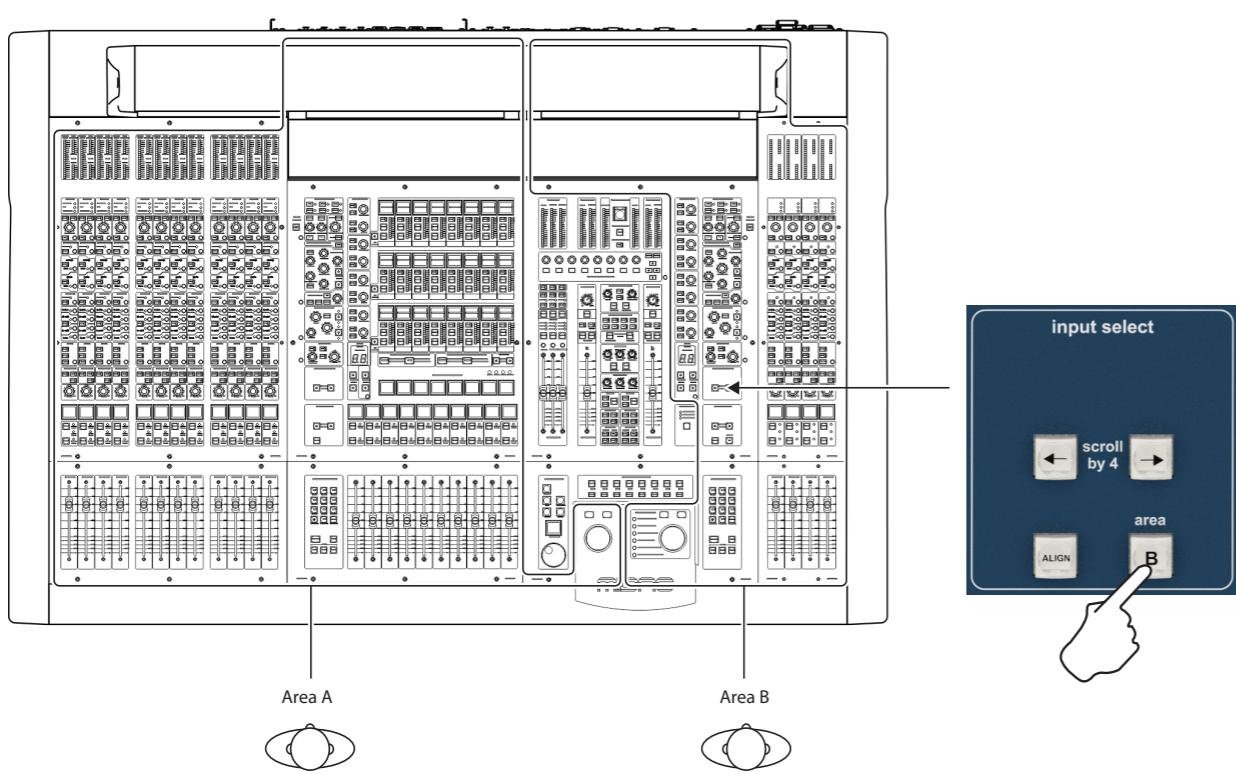
2. In the **Surround Mode** section, select the desired surround mode.

Two-Man Operation

The control centre can be operated by two people simultaneously. In this mode of operation the 4-channel input bay is designated as area B, and operates independently of the 12-channel input bay, which is always area A. (You can have the same channel selected simultaneously in both bays.)

NOTE: This feature can also be used by a single operator if they require somewhere to store important channels. In this case, area B can be used in the same way a 'channel 25' would be used on an analogue console.

The diagram above shows the areas designated as A and B during two-man operation and also shows the location of the area B button. All other parts of the control surface are common to both areas.



VCA/POP groups can be pre-selected to populate area A or B, and a single group of inputs can have members in both areas of the control surface. An operator can then recall them to their own area to work on.

NOTE: When operating in area B, remember to select the B option, where appropriate, particularly in the monitor section. Also note that solo B (also for talkback) is totally independent of area B, which is used for navigation only.

>> To set up the control centre for two-man operation

In the input select section of the master bay, press B (see above).

External AES50 Synchronisation

If you want to connect AES50 audio between two MIDAS digital consoles the slave console must be set to external AES50 synchronisation, irrespective of the synchronisation source of the master console.

Console 1 Sync Setting	Console 2 Sync Setting			
	Master	Word Clock	AES3	External AES50 from Console 1
Master	Not Valid	Not Valid	Not Valid	Valid Connection
Word Clock	Not Valid	Not Valid	Not Valid	Valid Connection
AES3	Not Valid	Not Valid	Not Valid	Valid Connection
External AES50 from Console 2	Valid Connection	Valid Connection	Valid Connection	Not Valid

A valid connection can be a tie line between the stage routers or any I/O unit with internal click, or a mic split which is receiving sync on the opposite port.

Security (Locking Mode)

If you need to leave the control centre unattended, but you want to preserve its current state of operation, you can lock it via the GUI menu. This will prevent unauthorised adjustment of its settings. When locked the GUI displays the 'splash' screens (shown during the start up sequence) and none of the controls on the control surface will function; the control centre will be totally locked out.

>> To lock the control centre

At the GUI, choose **home > Lock**.

>> To unlock the control centre

At the GUI, click **UNLOCK**. This button is in the lower-left corner of both GUI screens. For security, this button has been designed to blend in with the background to disguise it. When unlocked, the control centre will revert to the state it was in the last time it was locked.

Setting Up The System

Unpacking The Equipment

After carefully unpacking the equipment, save all packing materials, as they will prove useful should it become necessary to transport the equipment later.

Inspect the equipment carefully for any sign of damage incurred during transportation. It has undergone stringent quality control inspection and tests prior to packing and was in perfect condition when it left the factory. However, if the equipment shows any signs of damage, notify the transportation company without delay. Only you, the consignee, may institute a claim against the carrier for damage during transportation.

Making Up A Rack

In the standard supply, the rack supplied with your system is fully fitted with the Neutron DSP Engine unit and the I/O unit(s) appropriate for your system.

Wiring Instructions

Powering the system

The following details the recommended power up and power down procedures for the system.

NOTE: If you are in any doubt as to how to switch the rack units on/off, refer to their operator manuals.

>> To power up the system

Important Note:

DO NOT switch on the speaker sub-system until after the start-up of the system has been completed.

After all system interconnections have been made (see **Wiring Instructions**), start up the system by doing the following:

1. Make sure that all of the system equipment is switched off, such as the control centre, speaker sub-system, Neutron DSP Engine unit and I/O unit(s).
2. Switch on the control centre (see **To Switch On The Control Centre**).
3. In the master bay of the control centre, move all of the monitor and master channel faders to the minimum position and mute all of the master channel.
4. Power up the other system equipment, such as the Neutron DSP Engine unit and I/O unit(s). This can be done in any order you like.
5. After the **status** indicator at the top of each GUI screen has changed to green, switch on the speaker sub-system.
6. Switch on the audio source and start playing the audio.
7. On the control centre, check that the audio inputs are routed to the master channels. Then, unmute the master channels and gradually increase their faders while listening to the sound levels from the speakers.

If there is no sound at all coming from the speakers when the faders are at maximum, move the faders to below the 0dB level and check if the audio is muted somewhere along the input paths and also check that the individual speakers are switched on. If there is still no sound from the speakers, see **No Audio**.

>> To power down the system

Important Note:

BEFORE switching off any of the system components, don't forget to mute the audio from the speakers and switch off the speaker sub-system.

1. Mute the audio from the speakers and switch off the speaker sub-system.
2. Switch off the I/O unit(s).
3. Switch off the Neutron DSP Engine unit.
4. Switch off the control centre (see **To Switch Off The Control Centre**).

Switching The Control Centre On/Off

Carry out the following to switch the control centre on or off in a safe manner, observing all **WARNINGS** and **Cautions**.

>> To switch on the control centre



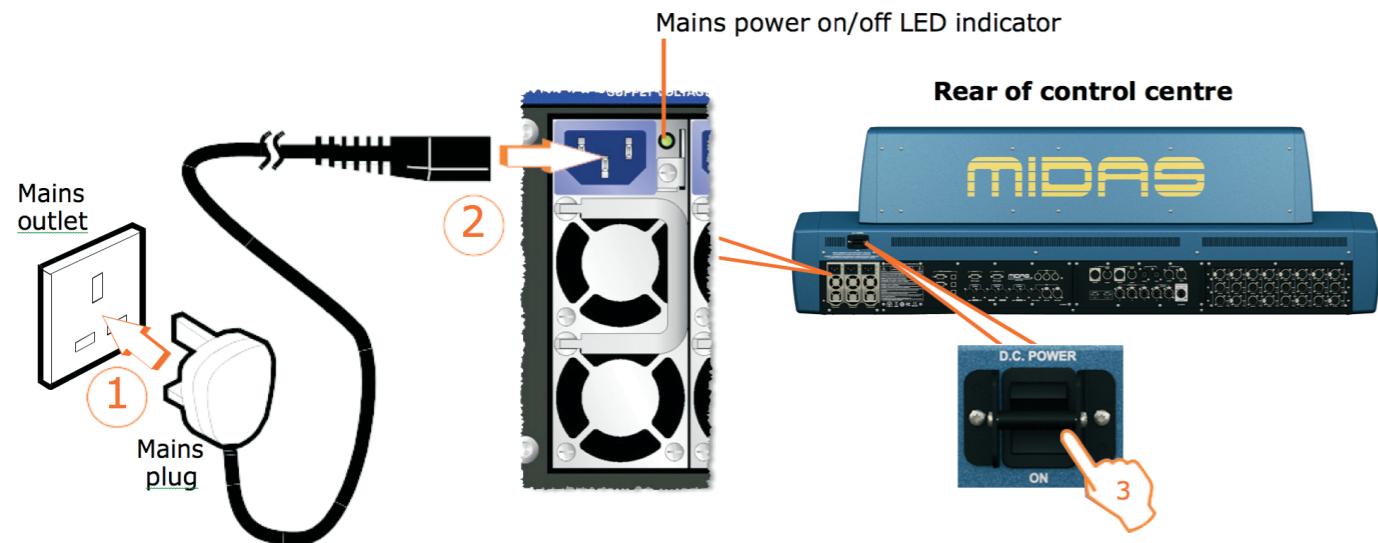
Caution (1)!

A minimum of two power supply modules must be supplying power to the control centre for correct operation.



Caution (2)!

Before switching on, check that all monitor loudspeaker power amplifiers are turned off or muted.



>> To switch off the control centre

1. Make sure you have saved any shows, scenes or settings you require (see **Saving Your Show Files To A USB Memory Stick**).
2. At the GUI, choose **home > Preferences > Shutdown System**.
3. At the **Shutdown ENTIRE system?** prompt, click **OK**.
4. After the shutdown sequence has finished, switch off the D.C. POWER switch (rear of control centre).
5. Disconnect the mains cables from the rear of the control centre.

Setting Up The ID Of The Unit(s)

After connecting up your system, you may need to set up the ID of the unit(s) in the rack, such as the Neutron DSP Engine, as each unit must have its own unique ID number.

NOTE: The I/O unit doesn't have to be connected in the system for you to set up its ID, as the procedure can be carried out offline.

After connecting up the audio cables, carry out the following:

1. Plug the three mains cables into the mains power outlets.
2. Observing **Caution (1)!** above, plug the connectors (see **Wiring Instructions**) of the mains cables into the mains sockets on the rear of the control centre. (The green LED next to each mains socket will illuminate if its mains supply is on.)
3. Observing **Caution (2)!** above, apply power to the control centre by switching the D.C. POWER switch on. The control centre will boot up and, when the default GUI screens are displayed, it is ready for use.

Appendix A: Troubleshooting

No Audio

If you have set up your system and followed all of the instructions for obtaining audio, but you are not hearing anything through the speakers, check the following:

- Make sure the appropriate **ST** buttons in the input fast strips are on
- Make sure the appropriate **ST** buttons in the **source a/b** panels (monitors section of the master bay) are on
- Make sure nothing is muted
- Make sure no faders are set to minimum
- Check that the VCA/group master faders are at unity gain
- Use solo at selected points in the signal path to try and pinpoint where the signal is being lost
- Check for correct signal routing by making sure channel sources/destinations are correctly assigned.

If you still don't have any audio, contact MIDAS Technical Support.

Diagnostics

You can view the **Diagnostics** screen to get an overview of the current health and status of the system. The **Diagnostics** screen shows real-time connectivity of the system, the health of connected nodes and whether a device is configured or not.

The **status** LED at the top of the screen, which is constantly displayed while the control centre is switched on, is linked to the status of individual items on the **Diagnostics** screen. You can click on it to see what is causing the error.



Item	Element(s)	Description
1	CONFIG button	Opens the AES50 Device Configuration window.
2	Column titles	The columns house the following: Unconfigured contains any units that have not been configured during the patching procedure; Configured contains configured units; Link shows the router/unit connection; Stage Router/FOH Router contains the appropriate router and any associated rack units; and HyperMAC shows the router/router connections.

>> To set up the ID of a unit

Although the programming menu of each type of I/O unit may look slightly different, the procedure for setting up its ID is basically very similar. For full instructions on how to set up the ID of each particular I/O unit, refer to its operator manual.

1. If necessary, switch on the I/O unit.
2. Press **MENU** and hold for approximately two seconds to enter the main menu.
3. If necessary, use the down arrow button to navigate to the set ID option.
4. Press **SELECT** to enter the set ID option.
5. If necessary, use the down arrow button to navigate to the desired ID number.
6. Press **SELECT** to select the ID number.
7. Press **MENU** repeatedly to exit the main menu. (The unit will automatically exit programming mode after 20 seconds of inactivity, that is, if none of the programming buttons are pressed within that time.)

The colour of each device, together with its link (if applicable), indicates its current status, as shown in the following table.

State	Description	Unit Status	Link Status	Connection of Active Link
	Both the unit and link are green	Good	Good	Good
	Unit is green and the link is red	Good	Bad	Not known
	Unit is red and the link is green	Malfunction	Good	Not known
	Both the unit and link are red	Not known	Bad	Bad

There is also an amber condition, which means that the item(s) is in error, but the error does not affect the audio.

Viewing the status of the master controllers is particularly important, especially when you wish to swap the active master controller (see **Swapping The Active Master Controller**), as it shows you which master controller is currently controlling the network.

Swapping The Active Network

In the highly unlikely event that the active network (X or Y) develops a malfunction, you can swap over to the standby network, making this the active one.

NOTE: The swap function does not swap control data, as this non-audio data finds its own way through the network. This allows the router to swap to the inactive link, even if the active link is broken or removed.

>> To check the health of the active network

At the GUI, open the **Diagnostics** screen by choosing **home > Diagnostics**, and then check the status of the active HyperMAC link. If it is green the link is good, but if it is red there is a problem and you should swap to the standby HyperMAC link.

Swapping The Active Master Controller

Although it is highly unlikely that the active master controller (MC) will develop a malfunction, should it ever happen you will need to activate the standby MC.

>> To swap the active master controller

1. At the GUI, choose **home > Files**.
2. Click **FILE SYNC**.
3. In the **Master Controller File Synchronisation** window, click the **MAKE ACTIVE** button of the standby MC. This will become the active one.

Appendix B: Technical Specifications

System Specifications	
Sampling Frequency	96 kHz
Latency Delay	< 2 mS Input to Master (no compensation)
Dynamic Range	106 dB 22 Hz – 22 kHz (no pre-emphasis)
Maximum Voltage Gain	80 dB Inputs to Sub Groups and Masters 86 dB Inputs to Aux and Matrix
Crosstalk @ 1 kHz	-100 dB physically adjacent input channels
Crosstalk @ 10 kHz	-90 dB physically adjacent input channel
Fader/Pan cut off @ 1 kHz	-100 dB
Fader/Pan cut off @ 10 kHz	-100 dB
Power Requirements	100-240 V a.c. ±10% 50-60 Hz
Operating Temperature Range	+5 to +45 degrees C
Storage Temperature Range	-20 to +60 degrees C

Audio Performance Specifications

Frequency Response				
Input	Output	Gain	20 Hz	20 kHz
Surface I/O	Surface I/O	0 dB	0 dB to -1.0 dB	0 dB to -1.0 dB
Surface I/O	Surface I/O	40 dB	0 dB to -1.0 dB	0 dB to -1.0 dB
Gain Error at 1 kHz				
Input	Output	Gain	Max.	Min.
Surface I/O	251 I/O Box	0 dB	+1.0 dB	-1.0 dB
Surface I/O	251 I/O Box	40 dB	+1.0 dB	-1.0 dB
Input CMRR (Typical)				
Input	Output	Gain	100 Hz	1 kHz
Surface I/O	Surface I/O	0 dB	60 dB	60 dB
Surface I/O	Surface I/O	40 dB	90 dB	90 dB
Distortion at 0 dBu				
Input	Output	Gain	1 kHz	10 kHz
Surface I/O	Surface I/O	0 dB	0.01%	0.01%
Surface I/O	Surface I/O	40 dB	0.03%	0.03%
Distortion at +20 dBu				
Input	Output	Gain	1 kHz	10 kHz
Surface I/O	Surface I/O	0 dB	0.01%	0.01%
Surface I/O	Surface I/O	40 dB	0.03%	0.03%
Mixing Noise (all bus types) 22-22 kHz Unweighted				
No. of Inputs	Gain	Fader Pos	Pan	Output Noise
12	0 dB	- infin	central	-91 dBu
12	0 dB	0 dB	central	-78 dBu
24	0 dB	- infin	central	-91 dBu
24	0 dB	0 dB	central	-78 dBu
Mixing Noise (all bus types) 22-22 kHz Unweighted				
48	0 dB	- infin	central	-91 dBu
48	0 dB	0 dB	central	-78 dBu
Signal Path Noise 22-22 kHz Unweighted (inputs 150 R terminated)				
Input	Output	Gain	Output Noise	EIN
Surface I/O	Surface I/O	0 dB	-85 dBu	-85 dBu
Surface I/O	Surface I/O	45 dB	-81 dBu	-126 dBu
Dynamic Range 22-22 kHz Unweighted				
Input	Output	Gain	Max Output	Dynamic Range
Surface I/O	Surface I/O	0 dB	+21 dBu	106 dB
Surface I/O	Surface I/O	45 dB	+21 dBu	102 dB

System Inputs and Outputs	
Control Surface Input Connector	3 pin XLR balanced
AD Converter	24 bit, 96 kHz and 128 X oversampling
Control Surface Analogue Outputs Connector	3 pin XLR balanced
DA Converter	24 bit, 96 kHz and 128 X oversampling
MIDI Connector	In, Out and Thru on 5 pin DIN

Control Surface Digital System Inputs and Outputs	
System Connector	3 X AES50 (24 channels of bidirectional digital audio) on EtherCON XLR
Word Clock IN Connector	BNC
Word Clock OUT Connector	BNC
AES3 Sync IN Connector	3 pin XLR
AES3 Sync OUT Connector	3 pin XLR

Control Surface Analogue Audio System Inputs	
Connector	3 pin XLR balanced
AD Converter	24 bit, 96 kHz and 128 times over sampling
Talkback Connector	3 pin XLR balanced line
Talk Connector	3 pin XLR balanced mic with 48 V phantom

Control Surface Analogue Audio System Outputs	
Connector	3 pin XLR balanced
DA Converter	24 bit, 96 kHz and 128 times over sampling
Monitor Connector	3 pin XLR balanced line
Talk Connector	3 in XLR balanced line
Headphone Connector	1/4 inch Jack (stereo)

Control Surface Digital Audio System Inputs and Outputs	
Input Connector	AES3 (two channels of digital audio) on 3-pin XLR
Sample Rates	Accepts any frequency 32 kHz – 96 kHz
Bypass	Sample rate converter can be bypassed
Output Connector	AES3 (two channels of digital audio) on 3-pin XLR
Sample Rate	48 K, 96 K or auto tracking to Inputs
Bypass	Sample rate converter can be bypassed

Control Surface Digital Audio System Inputs and Outputs	
Word length	16, 20 or 24 bit

Control Surface Control Data System Inputs and Outputs	
System Connector	EtherCON XLR

Control Surface Misc Inputs and Outputs	
Monitor Output Connector	3 row 15 pin D TYPE – analogue VGA
USB Host Connection	USB 2.0 full speed (12.0 Mbs) 5 V, 1 A max load

Input & Output Characteristics

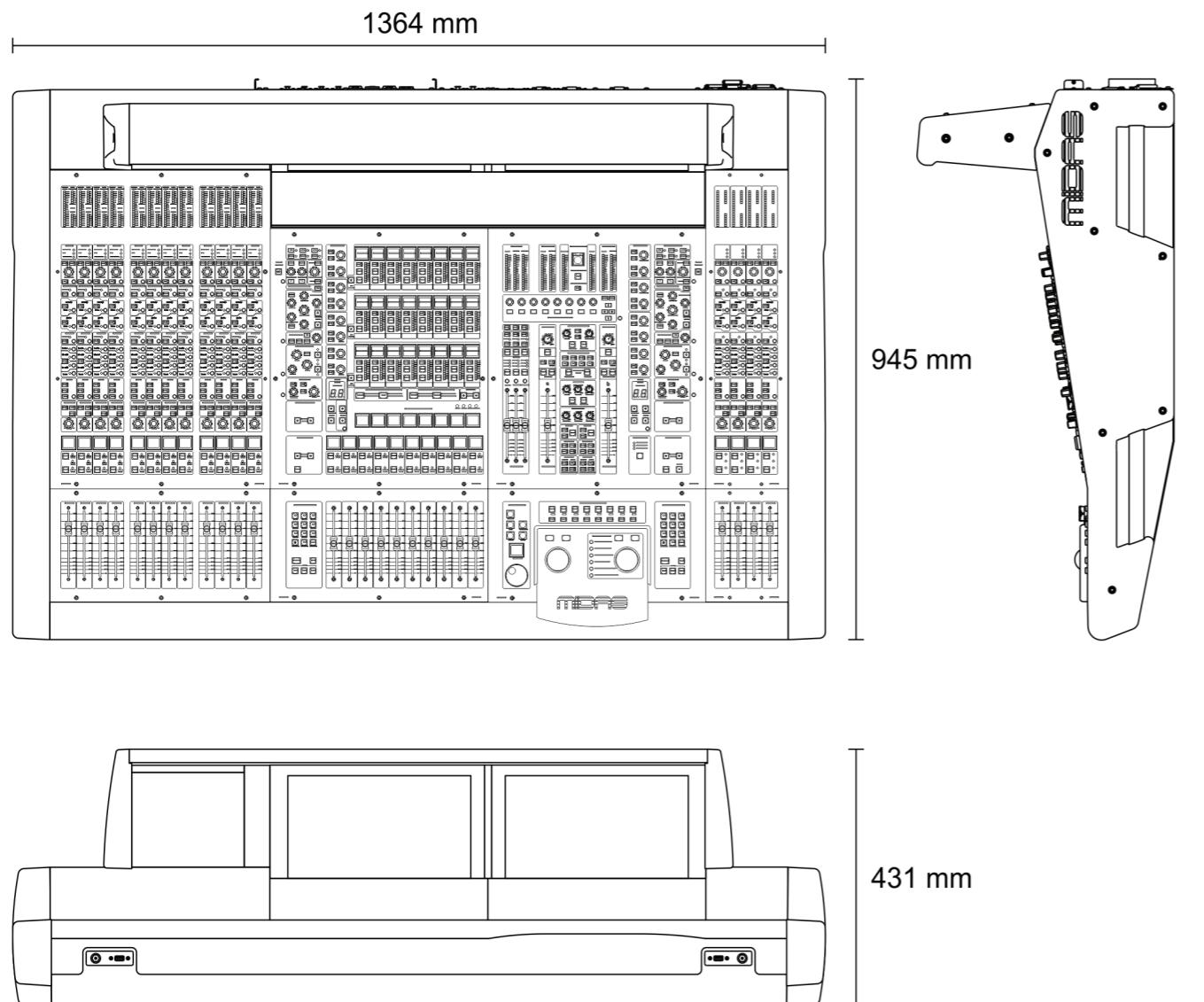
Analogue Input Characteristics				
Input Type	Load Z	Gain	Max Level	Connector
Surface I/O	10 K	-22.5 dB to +65 dB	+21 dBu	XLR
Talk Mic	600 R	+15 dB to +60 dB	+6 dBu	XLR
Monitor	10 K	0 dB	+21 dBu	XLR

Analogue Output Characteristics				
Output Type	Source Z	Gain	Max Level	Connector
Surface I/O	50 R	0 dB	+21 dBu	XLR
Talk	50 R	0 dB	+23 dBu	XLR
Monitor	50 R	0 dB	+23 dBu	XLR
Headphones	10 R	+10 dB	+21 dBu	1/4 inch jack

Digital I/O Characteristics					
Type	Channels	Data Length	I/O	Description Notes	Connector
AES3	2	24 bit	input	conforms to AES3 -2003	XLR
AES3	2	24 bit	output	conforms to AES3 -2003	XLR
AES50	24	24 bit	bi directional	conforms to AES50 -2006	EtherCON XLR

Misc Digital Characteristics			
Type	I/O	Description Notes	Connector
Word Clock	IN	Accepts TTL level, 96 kHz square wave; impedance 75 Ohms	BNC
Word Clock	OUT	Provides a TTL level, 96 kHz square wave	BNC
AES Sync	IN	Accepts a digital audio signal conforming to AES3 -2003 at 96 kHz	XLR
AES Sync	OUT	Provides a grade II reference signal conforming to AES3 – 2003 at 96 kHz	XLR

Appendix C: Dimensions



PRO X is built around a road rugged frame:

Width 1364 mm x Depth 945 mm x Height 431 mm (53.7" x 37.2" x 17.0")

Weight: 97 kg (213.4 lbs)*

*Weights are approximate and out of flight case. Packing may vary by territory

Other important information

EN Important information

1. Register online. Please register your new MUSIC Group equipment right after you purchase it by visiting midasconsoles.com. Registering your purchase using our simple online form helps us to process your repair claims more quickly and efficiently. Also, read the terms and conditions of our warranty, if applicable.

2. Malfunction. Should your MUSIC Group Authorised Reseller not be located in your vicinity, you may contact the MUSIC Group Authorised Fulfiller for your country listed under "Support" at midasconsoles.com. Should your country not be listed, please check if your problem can be dealt with by our "Online Support" which may also be found under "Support" at midasconsoles.com. Alternatively, please submit an online warranty claim at midasconsoles.com BEFORE returning the product.

3. Power Connections. Before plugging the unit into a power socket, please make sure you are using the correct mains voltage for your particular model. Faulty fuses must be replaced with fuses of the same type and rating without exception.

ES Aspectos importantes

1. Registro online. Le recomendamos que registre su nuevo aparato MUSIC Group justo después de su compra accediendo a la página web midasconsoles.com. El registro de su compra a través de nuestro sencillo sistema online nos ayudará a resolver cualquier incidencia que se presente a la mayor brevedad posible. Además, aproveche para leer los términos y condiciones de nuestra garantía, si es aplicable en su caso.

2. Averías. En el caso de que no exista un distribuidor MUSIC Group en las inmediaciones, puede ponerse en contacto con el distribuidor MUSIC Group de su país, que encontrará dentro del apartado "Support" de nuestra página web midasconsoles.com. En caso de que su país no aparezca en ese listado, acceda a la sección "Online Support" (que también encontrará dentro del apartado "Support" de nuestra página web) y compruebe si su problema aparece descrito y solucionado allí. De forma alternativa, envíenos a través de la página web una solicitud online de soporte en periodo de garantía ANTES de devolvernos el aparato.

3. Conexiones de corriente. Antes de enchufar este aparato a una salida de corriente, asegúrese de que dicha salida sea del voltaje adecuado para su modelo concreto. En caso de que deba sustituir un fusible quemado, deberá hacerlo por otro de idénticas especificaciones, sin excepción.

FR Informations importantes

1. Enregistrez-vous en ligne. Prenez le temps d'enregistrer votre produit MUSIC Group aussi vite que possible sur le site Internet midasconsoles.com. Le fait d'enregistrer le produit en ligne nous permet de gérer les réparations plus rapidement et plus efficacement. Prenez également le temps de lire les termes et conditions de notre garantie.

2. Dysfonctionnement. Si vous n'avez pas de revendeur MUSIC Group près de chez vous, contactez le distributeur MUSIC Group de votre pays : consultez la liste des distributeurs de votre pays dans la page "Support" de notre site Internet midasconsoles.com. Si votre pays n'est pas dans la liste, essayez de résoudre votre problème avec notre "aide en ligne" que vous trouverez également dans la section "Support" du site midasconsoles.com. Vous pouvez également nous faire parvenir directement votre demande de réparation sous garantie par Internet sur le site midasconsoles.com AVANT de nous renvoyer le produit.

3. Raccordement au secteur. Avant de relier cet équipement au secteur, assurez-vous que la tension secteur de votre région soit compatible avec l'appareil. Veillez à remplacer les fusibles uniquement par des modèles exactement de même taille et de même valeur électrique — sans aucune exception.

DE Weitere wichtige Informationen

1. Online registrieren. Bitte registrieren Sie Ihr neues MUSIC Group-Gerät direkt nach dem Kauf auf der Website midasconsoles.com. Wenn Sie Ihren Kauf mit unserem einfachen online Formular registrieren, können wir Ihre Reparaturansprüche schneller und effizienter bearbeiten. Lesen Sie bitte auch unsere Garantiebedingungen, falls zutreffend.

2. Funktionsfehler. Sollte sich kein MUSIC Group Händler in Ihrer Nähe befinden, können Sie den MUSIC Group Vertrieb Ihres Landes kontaktieren, der auf midasconsoles.com unter „Support“ aufgeführt ist. Sollte Ihr Land nicht aufgelistet sein, prüfen Sie bitte, ob Ihr Problem von unserem „Online Support“ gelöst werden kann, den Sie ebenfalls auf midasconsoles.com unter „Support“ finden. Alternativ reichen Sie bitte Ihren Garantieanspruch online auf midasconsoles.com ein, BEVOR Sie das Produkt zurücksenden.

3. Stromanschluss. Bevor Sie das Gerät an eine Netzsteckdose anschließen, prüfen Sie bitte, ob Sie die korrekte Netzspannung für Ihr spezielles Modell verwenden. Fehlerhafte Sicherungen müssen ausnahmslos durch Sicherungen des gleichen Typs und Nennwerts ersetzt werden.

PT Outras Informações Importantes

1. Registre-se online. Por favor, registre seu novo equipamento MUSIC Group logo após a compra visitando o site midasconsoles.com Registrar sua compra usando nosso simples formulário online nos ajuda a processar seus pedidos de reparos com maior rapidez e eficiência. Além disso, leia nossos termos e condições de garantia, caso seja necessário.

2. Funcionamento Defeituoso. Caso seu fornecedor MUSIC Group não esteja localizado nas proximidades, você pode contatar um distribuidor MUSIC Group para o seu país listado abaixo de "Suporte" em midasconsoles.com. Se seu país não estiver na lista, favor checar se seu problema pode ser resolvido com o nosso "Suporte Online" que também pode ser achado abaixo de "Suporte" em midasconsoles.com. Alternativamente, favor enviar uma solicitação de garantia online em midasconsoles.com ANTES da devolução do produto.

3. Ligaçãoes. Antes de ligar a unidade à tomada, assegure-se de que está a utilizar a voltagem correcta para o modelo em questão. Os fusíveis com defeito terão de ser substituídos, sem qualquer excepção, por fusíveis do mesmo tipo e corrente nominal.

JP その他の重要な情報

1. ヒューズの格納部 / 電圧の選択: ユニットをパワーソケットに接続する前に、各モデルに対応した正しい主電源を使用していることを確認してください。ユニットによっては、230Vと120Vの2つの違うポジションを切り替えて使う、ヒューズの格納部を備えているものがあります。正しくない値のヒューズは、絶対に適切な値のヒューズに交換されている必要があります。

2. 故障: MUSIC Group ディーラーがお客様のお近くにないときは、midasconsoles.com の "Support" 内に列記されている、お客様の国の MUSIC Group ディストリビューターにコンタクトすることができます。お客様の国がリストがない場合は、同じ midasconsoles.com の "Support" 内にある "Online Support" でお客様の問題が処理できないか、チェックしてみてください。あるいは、商品を返送する前に、midasconsoles.com で、オンラインの保証請求を要請してください。

3. 電源接続: 電源ソケットに電源コードを接続する前に、本製品に適切な電圧を使用していることをご確認ください。不具合が発生したヒューズは必ず電圧および電流、種類が同じヒューズに交換する必要があります。

Other important information

CN 其他的重要信息

1. 在线注册。请购买 MUSIC Group 产品后立即在 midasconsoles.com 网站注册。网页上有简单的在线注册表格。这有助于我们更快更有效率地处理您维修等事宜。请阅读保修的相关条款及条件。

2. 无法正常工作。若您的 MUSIC Group 产品无法正常工作, 我们会为您尽快修复。请联系您购买产品的销售商。若你所在地区没有 MUSIC Group 销售商, 请联系 midasconsoles.com 网站的“WHERE TO BUY”一栏下的所列出的子公司或经销商。

3. 电源连接。将本设备连接电源前, 请确保使用的电压正确。保险丝需要更换时, 必须使用相同型号及定额的保险丝。

CN

FEDERAL COMMUNICATIONS COMMISSION COMPLIANCE INFORMATION



Responsible Party Name: **MUSIC Group Research UK Limited**

Address: **Klark Industrial Park,
Walter Nash Road,
Kidderminster. Worcestershire.
DY11 7HJ. England.**

Phone Number: **+44 1562 741515**

PRO X

complies with the FCC rules as mentioned in the following paragraph:

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Important information:

Changes or modifications to the equipment not expressly approved by MUSIC Group can void the user's authority to use the equipment.

midasconsoles.com

