

SECTOR-PRO

VER. OIR. SENTIR...

EQUIPAMIENTO TECNICO

OTRAS ZONAS DE FIBES I Y FIBES II

1.- VIDEO PROYECTORES

EPSON 12 K EB-L1505UH. (12.000 lumens)

EB-L1505UH



FICHA TÉCNICA



Potente proyector láser 3LCD WUXGA de 12.000 lúmenes que ofrece un brillo y una nitidez de imagen excepcionales, un rendimiento de larga duración y un mantenimiento reducido.

El proyector láser EB-L1505UH ofrece un potente rendimiento WUXGA de 12.000 lúmenes con colores brillantes y vivos, es perfecto para usarse en salas grandes y auditorios, y una vez instalado, no tendrás que preocuparte de nada más. Dado que su instalación se adapta a cualquier situación y no requiere un mantenimiento alto, este proyector mejorado con tecnología 4K constituye una solución perfecta para los espacios que exijan un rendimiento y una resistencia superiores.

Imágenes con precisión láser

Asegúrate de que tus presentaciones, imágenes y vídeos causan un gran impacto con la proyección vívida y nítida de este proyector láser 3LCD. Está diseñado para usarse en salas de gran tamaño, las imágenes de alta resolución WUXGA que proyecta son vivas y brillantes, incluso a plena luz del día, mientras que la tecnología de rueda de fósforo inorgánica proporciona una luz superior y resistencia al calor para ofrecer una excelente fiabilidad que dura hasta 83.000 horas¹.

Mejora 4K

Para una experiencia de visualización de un nivel superior, el proyector cuenta con mejora de 4K que confiere una nitidez y una claridad excepcionales a las imágenes, y garantiza que el texto de las presentaciones se lea a la perfección.

Colocación flexible

Gracias a una nueva gama de lentes motorizadas, que incluyen opcionalmente lentes de distancia ultracorta (UST por sus siglas en inglés), el proyector se beneficia de una auténtica flexibilidad de instalación de 360°, lo que permite su colocación casi en cualquier lugar sin que se pierda brillo ni se distorsione la imagen. El proyector también dispone de una cámara incorporada para garantizar la precisión en la calibración y la captura de imágenes con fines diagnósticos (puede desactivarse por completo para evitar el acceso remoto).

Nuevo software versátil

Todos los modelos de la serie EB-L1000 pueden aprovechar las ventajas del software Epson Professional Projector Tool gratuito a partir de diciembre de 2017. Permite configurar instalaciones de varios proyectores de inmediato, con facilidad y rapidez, así como utilizar técnicas avanzadas como la asignación de proyección y la combinación de bordes.

CARACTERÍSTICAS PRINCIPALES

- **Tecnología de fuente de luz láser**
Brillo y colores excepcionales, y una vez instalado, no tendrás que preocuparte de nada más.
- **Imágenes en alta definición (HD) con tecnología de mejora 4K**
Nitidez excepcional, claridad y detalle para conseguir imágenes claras y texto legible
- **Nuevo software versátil**
Configura varios proyectores y utiliza técnicas de proyección avanzada
- **Instalación flexible 360°**
Flexibilidad total sin distorsión ni pérdida de luminosidad
- **Mayor tranquilidad**
El producto incluye una garantía de 5 años, 20.000 horas.



ESPECIFICACIONES DEL PRODUCTO

TECNOLOGÍA

Sistema de proyección	Tecnología 3LCD
Pantalla LCD	1,03 pulgada con C2 Fine

IMAGEN

Emisión de luz en color	12.000 Lumen- 8.400 Lumen (económico) de conformidad con IDMS15.4
Emisión de luz blanca	12.000 Lumen - 8.400 Lumen (económico) de conformidad con ISO 21118:2012
Emisión de luz en color vertical	12.000 lm
Emisión de luz blanca vertical	12.000 lm
Resolución	WXGA, 1920 x 1200, 16:10
Relación de contraste	2.500.000 : 1
Native Contrast	2.000 : 1
Corrección keystone	Manual vertical: ± 45 °, Manual horizontal ± 30 °
Reproducción del color	Hasta 1.070 millones de colores

ASPECTO

Relación proyección	1,57 - 2,56:1
Zoom	Motorizado, Factor: 1 - 1,6
Lens position memory	10 positions
Tamaño de la imagen	60 pulgadas - 500 pulgadas
Distancia proyector objetivo gran angular	2 m - 17,2 m
Distancia proyector tele	3,3 m - 27,8 m
Distancia de proyección gran angular/teleobjetivo	1,99 m - 27,77 m
Lente de proyección número F	1,8 - 2,5
Distancia focal	36 mm - 57,35 mm
Foco	Motorizado

CONECTIVIDAD

Interfaces	Entrada de audio Stereo mini-jack (3x), Salida de audio Stereo mini-jack, HD-BaseT, Entrada BNC, Entrada HDMI, Entrada DVI, Salida VGA, Entrada VGA, Interfaz Ethernet (100 Base-TX/10 Base-T), RS-232C, USB 2.0 Tipo B (Sólo Servicio), HD-SDI, LAN inalámbrica b/g/n (2,4 GHz) (opcional)
Aplicación Epson iProjection	Ad-Hoc / Infraestructura

FUNCIONES AVANZADAS

Seguridad	Protección Kensington, Barra de seguridad, Bloqueo de unidad LAN inalámbrica, Seguridad de LAN inalámbrica, Protección por contraseña
Características	4K mejora, Negro profundo, Calibración automática, Logo de usuario personalizable, Interpolación de fotogramas, Cámara integrada para la calibración y la captura de imágenes, Memoria de posición de la lente
Modos de color	Cine, Dinámico, Presentación, DICOM SIM, Multi Projection, BT709

GENERAL

Consumo de energía	908 vatio, 597 vatio (económico), 0,3 vatio (Standby), On mode power consumption as defined in JBMS-84 833 vatio
Dimensiones del producto	586 x 492 x 211 mm (ancho x profundidad x altura)

OTROS

Garantía	60 meses Reparación en taller o 20.000 h Ampliación de garantía opcional disponible
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INFORMACIÓN LOGÍSTICA

Código SKU	V11H910140
Código de barras	8715946647005
País de origen	China

EB-L1505UH

INCLUYE

- Mando a distancia incl. pilas
- Guía rápida
- Cable de alimentación y señal (3 m)
- Cable VGA
- Cubierta de cable
- Manual en CD

ACCESORIOS OPCIONALES

- Air Filter - ELP AF51
V13H134A51
- 3D Polarizer - EL PPL01
V12H618A01
- Ceiling Mount - ELPMB47 Low EB-G7000/L1000
V12H802010
- Ceiling Mount - ELPMB48 High EB-G7000/L1000
V12H803010
- HDBaseT Transmitter - ELPHD01
V12H547040
- Stacking Frame - ELPMB50 - L1000 Series (Premium)
V12H003B50
- Wireless LAN Adapter - ELPAP10
V12H731P01

LENTES OPCIONALES

- Lens - ELPLL08 - Long throw - G7000/L1000 series
V12H004L08
- Lens - ELPLM10 - Mid throw 3 - G7000/L1000 series
V12H004M0A
- Lens - ELPLM11 - Mid throw 4 - G7000/L1000 series
V12H004M0B
- Lens - ELPLM15 - Mid Throw L1500/L1700 Series
V12H004M0F
- Lens - ELPLU03 - G7000 & L1000 Series ST off axis 1
V12H004U03
- Lens - ELPLU04 - G7000 & L1000 Series ST off axis 2
V12H004U04
- Lens - ELPLW05 - G7000 & L1000 Series wide zoom 1
V12H004W05
- Lens - ELPLW06 - L1500U/1505U wide zoom 2
V12H004W06
- Lens - ELPLX02 - UST Lens L1500/1700 Series
V12H004X02

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1. - Vida útil de láser de hasta 83.000 horas en modo personalizado.

EPSON®

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2. PANTALLAS DE LEDS

- **SANSUNG O PLANAR TFT 22"VIDEOWALL**
 - **INFILED P 2,4 REF; IRS 2.42**
 - **INFILED P 3,9 REF; IRQE 3.91**
 - **INFILED P 6 REF: IRQE 6,1**
 - **PLASMA PANASONIC TH – 98LQ70**
 - **ELECTRONICAS DE CONTROL NOVA 660 Y 4 K**
 - **ESCALADORES BARCO IMAGE PRO II**
-
- **SE ADJUNTAN ESPECIFICACIONES**



Planar AD22

Architectural Video Wall

The Planar® Salvador™ AD22 is a truly square 22" display tile with a trend-setting 1:1 aspect ratio. The Planar Salvador AD22 tile is part of the Planar® Mosaic® Architectural Video Wall line that includes three different size LCD display tiles that can be mounted in any position relative to each other, and individually at almost any angle.



SPECIFICATION	DETAIL
Product Name	AD22-Salvador
Planar Part Number	997-6817-00
Active Area	15.25" x 15.25" (387.4 mm x 387.4 mm)
Diagonal	21.6" (549mm)
Tiled Bezel Width	10.80mm (.43") image-to-image using recommended spacer brackets
Orientation	Any
Aspect Ratio	1:1
Brightness (Typical)	450 nits
Backlight	LED
Contrast Ratio (typ)	4000:1
Response Time (typ)	8 ms
Frame Rate	60Hz
Viewing Angle (typ)	178°
Native Resolution	960 x 960
Colors	16.7 million
Color Gamut	72% NTSC
Surface Treatment	Anti-glare
Data Inputs	DisplayPort
Line Voltage	100-240V; 50/60Hz
Power Supply Module Line Current	25 amp
Power Consumption (typ)	76.6W
External Connections	DisplayPort, USB, Power

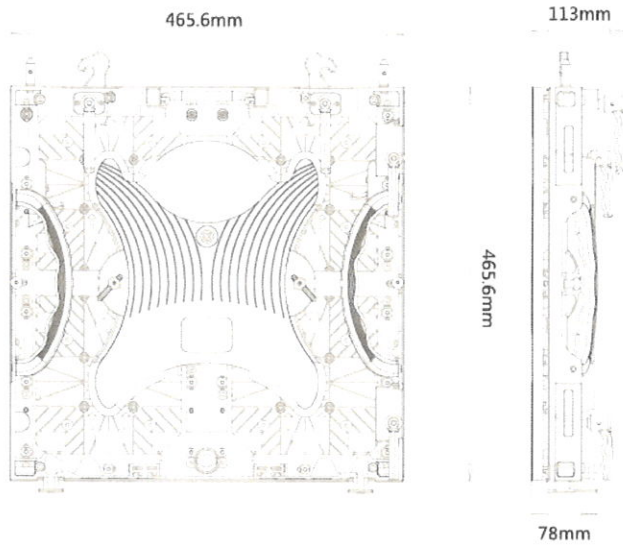
Operating Temperature	0° to +40° C
Storage and Transport Temperature	-20° to +60°C (-4° to 140°F)
Operating humidity range	20-80% RH non-condensing
Dimensions, including wall mount	15.55" x 15.55" x 3.6" (395 mm x 395 mm x 93 mm)
Weight, including mount	16.3 lbs (7.39 kg)
Recommended Usage	Up to 24/7 mission critical operation
Options / Features	Edge trim kit, cables, Mosaic Consulting Services, Installation Services, Extended Warranty to a total of 5 years.
Warranty	3 years Advance Exchange
UPC	8 10689 06592 0

For more information, please visit www.planar.com

Specifications are subject to change without notice.

Specification Report Date: 7/5/2018

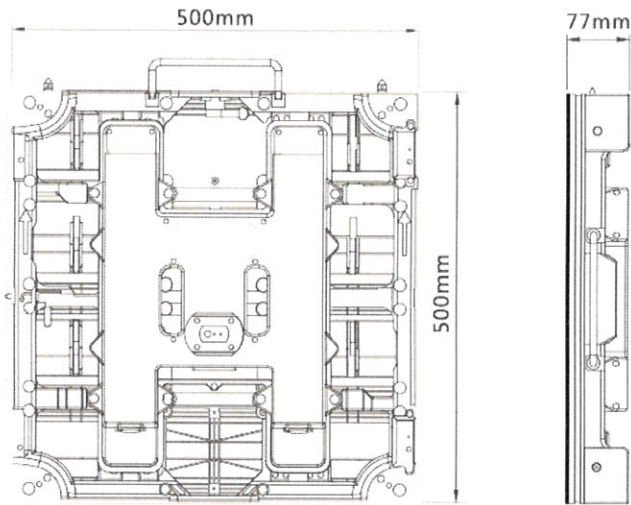
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Indoor

Model Number	IL-RSS-IRS1.81	IL-RSS-IRS2.42
Part Number	E11-D1-A01-A03-AA-AA	E11-D1-A01-A03-AA-AA
Pixel Pitch	1.81mm	2.42mm
Physical Density	302,311pixels/m ²	170,050pixels/m ²
LED Arrangement	3 IN 1 SMD	3 IN 1 SMD
Module Resolution	128x128pixels	96x96pixels
Module Dimension	232.8x232.8mm(9.17x9.17in)	232.8x232.8mm(9.17x9.17in)
Cabinet Resolution	256x256pixels	192x192pixels
Cabinet Dimension	465.6x465.6x78mm (18.33x18.33x3.07in)	465.6x465.6x78mm (18.33x18.33x3.07in)
Cabinet Weight	8.7kg(19.18lb)	8.7kg(19.18lb)
Brightness Level	800-1,000nits	800-1,000nits
Max Power Consumption	180w/panel	180w/panel
Ave Power Consumption	60w/panel	60w/panel
Viewing Angle	120°/120°	120°/120°
Operating Power Source	100-240V AC 50-60Hz	100-240V AC 50-60Hz
Operating Temperature	-10°C--+45°C	-10°C--+45°C
Refresh Rate	1,000-3,840Hz(Configurable)	1,000-3,840Hz(Configurable)
Protecting Rating	IP30	IP30
Signal Input Source	Composite, S-Video, Component, VGA, DVI, HDMI, SDI, HD SDI	Composite, S-Video, Component, VGA, DVI, HDMI, SDI, HD SDI
Max Rigging	7.44m(24.4ft) or 16panels	7.44m(24.4ft) or 16panels
Verification	RoHS, EMC, LVD, UL	RoHS, EMC, LVD, UL
Model Number	IL-RSS-IRS2.91	IL-RSS-IRS3.63
Part Number	B41-D1-A26-A03-AA-AA	B41-C1-A26-A03-AA-AA
Pixel Pitch	2.91mm	3.63mm
Physical Density	115,090pixels/m ²	75,577pixels/m ²
LED Arrangement	3 IN 1 SMD	3 IN 1 SMD
Module Resolution	80x80pixels	64x64pixels
Module Dimension	232.8x232.8mm(9.17x9.17in)	232.8x232.8mm(9.17x9.17in)
Cabinet Resolution	160x160pixels	128x128pixels
Cabinet Dimension	465.6x465.6x78mm (18.33x18.33x3.07in)	465.6x465.6x78mm (18.33x18.33x3.07in)
Cabinet Weight	8.7kg(19.18lb)	8.7kg(19.18lb)
Brightness Level	1000-1,300nits	1000-1,300nits
Max Power Consumption	85w/panel	55w/panel
Ave Power Consumption	28w/panel	28w/panel
Viewing Angle	110°/110°	110°/110°
Operating Power Source	100-240V AC 50-60Hz	100-240V AC 50-60Hz
Operating Temperature	-10°C--+45°C	-10°C--+45°C
Refresh Rate	1,000-3,840Hz(Configurable)	1,000-3,840Hz(Configurable)
Protecting Rating	IP30	IP30
Signal Input Source	Composite, S-Video, Component, VGA, DVI, HDMI, SDI, HD SDI	Composite, S-Video, Component, VGA, DVI, HDMI, SDI, HD SDI
Max Rigging	7.44m(24.4ft) or 16panels	7.44m(24.4ft) or 16panels
Verification	RoHS, EMC, LVD, UL	RoHS, EMC, LVD, UL

• The product specifications can be customized



Indoor

Part Number	IL-FISS-IRQE2 6	IL-FISS-IRQE3.91	IL-FISS-IRQE6 25
Part Number	A31-D1-A01-A08-DE-AA	C21-C1-A01-A08-DE-AA	/
Pixel Pitch	2.6mm	3.91mm	6.25mm
Physical Density	147,456pixels/m ²	65,536pixels/m ²	25,600pixels/m ²
LED Arrangement	3 IN 1 SMD	3 IN 1 SMD	3 IN 1 SMD
Module Resolution	192x45pixels	128x32pixels	50x20pixels
Module Dimension	500x125mm(19.69x4.92in)	500x125mm(19.69x4.92in)	500x125mm(19.69x4.92in)
Cabinet Resolution	192x192pixels	128x128pixels	50x50pixels
Cabinet Dimension	500x500x81mm (19.69x19.69x3.19in)	500x500x81mm (19.69x19.69x3.19in)	500x500x81mm (19.69x19.69x3.19in)
Cabinet Weight	7.5kg(16.53lb)	7.5kg(16.53lb)	7.5kg(16.53lb)
Brightness Level	1,000-1,500nits	1,200-1,800nits	1,200-1,800nits
Max Power Consumption	168w/panel	168w/panel	168w/panel
Ave Power Consumption	56w/panel	56w/panel	56w/panel
Viewing Angle	110°/110°	110°/110°	110°/110°
Operating Power Source	100-240V AC 50-60Hz	100-240V AC 50-60Hz	100-240V AC 50-60Hz
Operating Temperature	-10°C-+45°C	-10°C-+45°C	-10°C-+45°C
Refresh Rate	1,000-2,400Hz(Configurable)	1,000-2,400Hz(Configurable)	1,000-2,400Hz(Configurable)
Protecting Rating	IP30	IP30	IP30
Verification	EMC, LVD	EMC, LVD	EMC, LVD

Outdoor

Part Number	IL-FISS-ORQE3.91	IL-FISS-ORQE4.63
Part Number	/	/
Pixel Pitch	3.91mm	4.63mm
Physical Density	65,536pixels/m ²	46,656pixels/m ²
LED Arrangement	3 IN 1 SMD	3 IN 1 SMD
Module Resolution	128x32pixels	108x27pixels
Module Dimension	500x125mm(19.69x4.92in)	500x125mm(19.69x4.92in)
Cabinet Resolution	128x128pixels	108x108pixels
Cabinet Dimension	500x500x81mm (19.69x19.69x3.19in)	500x500x81mm (19.69x19.69x3.19in)
Cabinet Weight	8kg(17.64lb)	8kg(17.64lb)
Brightness Level	5,000nits	3,500-5,000nits
Max Power Consumption	168w/panel	168w/panel
Ave Power Consumption	56w/panel	56w/panel
Viewing Angle	110°/110°	110°/110°
Operating Power Source	100-240V AC 50-60Hz	100-240V AC 50-60Hz
Operating Temperature	-10°C-+45°C	-10°C-+45°C
Refresh Rate	1,000-2,400Hz(Configurable)	1,000-2,400Hz(Configurable)
Protecting Rating	IP65 Front / IP54 Rear	IP65 Front / IP54 Rear
Verification	EMC, LVD	EMC, LVD

• The product specifications can be customized

PRELIMINARY

Technical specifications are subject to change without notice.

Panasonic



TH-84LQ70 / TH-98LQ70

DURABLE AND PROFESSIONAL 4K LARGE DISPLAYS

Public information and signage

The high-resolution screen is ideal for fine text on airport displays and train timetables. Provides attractive and eye-catching multi-window displays where product details and textures are clearly shown.



Rental and staging

Great for various events. Increases excitement with beautiful images and large-screen presence.



Control rooms and broadcast studios

Fine images that used to be hard to see are clear. Camera images are sharp for better monitoring. The beautiful large screen is ideal for on-camera use, great for news and information programs.



SPECIFICATIONS (TENTATIVE)

Model no	TH-98LQ70	TH-84LQ70
DISPLAY		
Screen Size (Diagonal)	98.0-inch	84.0-inch
Panel Type	IPS / D-LED	IPS / E-LED
Aspect Ratio	16:9	
Effective Display Area (W×H)	2,159×1,215 mm (85.0"×47.9")	1,861×1,047 mm (73.3"×41.3")
Number of Pixels (H × V)	3,840 × 2,160 pixels	3,840 × 2,160 pixels
Brightness (Typ)	500 cd/m2	500 cd/m2
Contrast Ratio	1,300:1	1,400:1
Response Time	8 ms	12 ms
Viewing Angle (Horizontal/Vertical)	178°/178°	178°/178°
CONNECTION TERMINAL		
HDMI In	HDMI TYPE A Connector×2 (Up to 4K@60/60Hz)* ¹ HDMI TYPE A Connector×2 (Up to 2K@60/60Hz)* ¹	
Display Port In	DisplayPort ×1 (DP1.2a)* ¹	
DVI-D In / Audio In (L / R)	DVI-D 24-pin ×1 / Pin Jack ×1 set	
PC In / Audio In (L / R)	D-sub 15-pin ×1 (Female)* ² / Pin Jack ×1 set	
Function Slot	SLOT3.0	
CONTROL		
Serial In / Out	D-sub 9-pin×1 / ×1, RS-232C Compatible	
LAN	RJ45 ×1 100BaseTX, Compatible with PLink™ (Shared with DIGITAL LINK)	
DIGITAL LINK	RJ45 ×1 (Shared with LAN)	
AUDIO		
Audio Out	Stereo Mini Jack (M3) ×1	
Optical Out	Optical out ×1	
Built in Speaker	20W [10W + 10W]	
ELECTRICAL		
Power Requirements	110 V / 220-240 V AC, 50 / 60 Hz	
Power Consumption	T.B.D.	T.B.D.
MECHANICAL		
Dimensions (W×H×D)	2,233×1,288×122 mm (87.9"×50.7"×4.8")	1,949×1,141×99 mm (76.7"×44.9"×3.9")
Bezel Width	32.5 mm (1.3")	32.5 mm (1.3")
Weight	Approx. 140 kg (308.7 lbs.)	Approx. 100 kg (220.5 lbs.)
Protective Glass	YES	YES
ENVIRONMENTAL		
Operating Environment	Temperature:0C to 40C (32F to 104F) / Humidity: 20% to 80% (Non condensation)	
OPTIONAL ACCESSORIES		
Terminal Board	3G-SDI × 4 Terminal Board (w / active through x 4) 3G-SDI × 1 Terminal Board (w / active through x 1)	
Pedestal	TY-ST103PF9 (for 98-inch model) TY-ST85P12 (for 84-inch model)	
Wall-hanging Bracket	TY-WK103PV9 (for 98-inch model) TY-WK85PV12 (for 84-inch model)	
Ceiling-hanging Bracket	TY-CE103PS10 (for 98-inch model) TY-CE85PS12 (for 84-inch model)	
Mobile Stand	TY-ST85PB1 (for 84-inch model)	

*1 : HDCP supported, Embedded audio supported *2: RGB/YPbPr switchable

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Delicate Panasonic 4K Images Right Down to the Details

High resolution of approximately 8,290,000 pixels, which is four times the level of Full-HD, produces highly detailed images. The high-resolution screen improves visibility to raise work efficiency and enhance your image while drawing more attention from your customers.

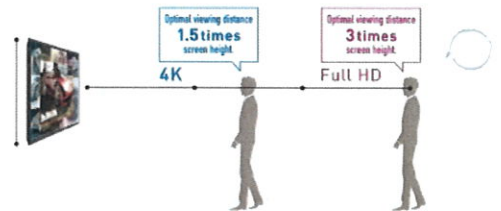
Non-4K Sources Are Also Beautifully Compensated

Adaptive Enhancement technology also displays Full-HD images and PC signals with extreme sharpness. It up-converts non-4K sources to a high level of image quality. Moving images, which were previously difficult to compensate, are also smoother and clearer.



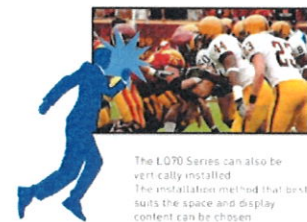
4K Resolution Is Essential for Large-Screen Viewing

As screen sizes continue to grow, grainy images become more obvious even with Full-HD quality. This calls for the excellent resolution of 4K, which is ideal for small-to-medium size meeting rooms, commercial signage, and other displays that are commonly viewed at a close distance.



Impact Resistance Allows Use in Public Spaces

The front of the display is provided with a protective glass pane, and the cabinet is aluminum for rugged durability. It can safely be used in public spaces where a lot of people pass by, such as commercial facilities, train/bus stations and airports.



The LQ70 Series can also be vertically installed. The installation method that best suits the space and display content can be chosen.

Ideal Replacements for Large-Screen Displays

The screw holes for the new 4K displays are in the same location as previous Panasonic large-screen plasma displays, enabling easy use of existing brackets and other installation items. Since the existing equipment can be used after replacement, you save space and reduce costs.

Designed for Easy Installation

Built to withstand vibration and impact, making them easy to transport and set up. Similar to conventional, large-screen plasma displays, eye bolts can be mounted in the installation screw holes for lifting by pulley or crane. This saves considerable work during set up.

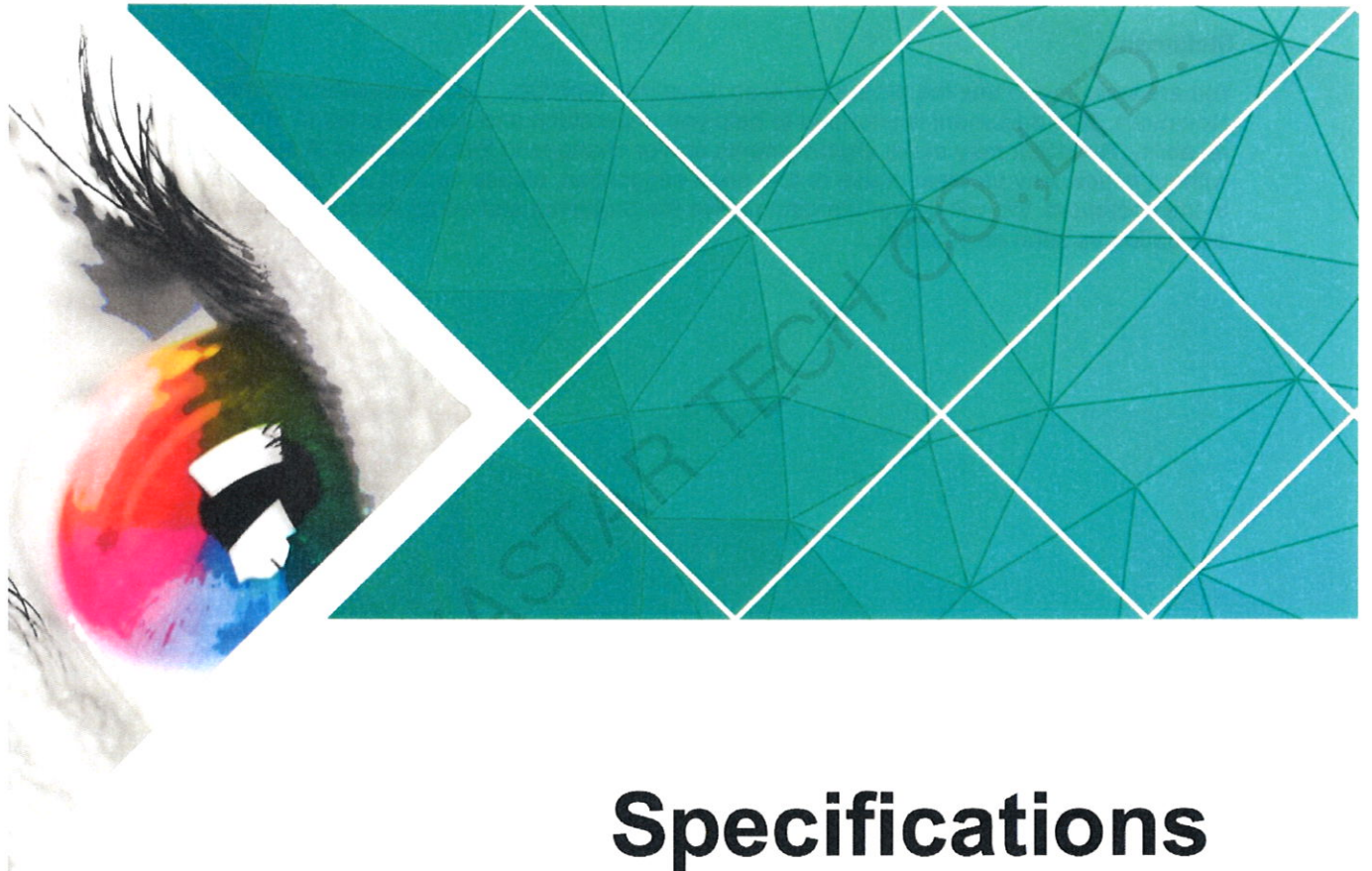
For more information about Panasonic displays, please visit: Display website - business.panasonic.co.uk/visual-system

Panasonic



MCTRL4K

Independent Controller



Specifications

Product Version: V1.0.3

Document Number: NS110100428

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Change History

Version	Release Date	Description
V1.0.3	2018-02-08	HDR function is added.
V1.0.2	2017-11-16	Web control is supported.
V1.0.1	2016-10-31	Document style is updated.
V1.0.0	2016-06-06	First release

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1 Safety

This chapter illustrates safety of the MCTRL4K independent controller to ensure the product's storage, transport, installation and use safety.

Safety instructions are applicable to all personnel who contact or use the product. First of all, pay attention to following points.

- Read through the instructions.
- Retain all instructions.
- Comply with all instructions.

1.1 Storage and Transport Safety

- Pay attention to dust and water prevention.
- Avoid long-term direct sunlight.
- Do not place the product at a position near fire and heat.
- Do not place the product in an area containing explosive materials.
- Do not place the product in a strong electromagnetic environment.
- Place the product at a stable position to prevent damage or personal injury caused by dropping.
- Save the packing box and materials which will come in handy if you ever have to store and ship the product. For maximum protection during storage and shipping, repack the product as it was originally packed at the factory.

1.2 Installation and Use Safety

- Only trained professionals may install the product.
- Plugging and unplugging operations are prohibited when the power is on.
- Ensure safe grounding of the product.
- Beware of electric shock hazards.
- Always wear a wrist band and insulating gloves.
- Do not place the product in an area having frequent or strong shake.
- Perform dust removing regularly.

- Contact NovaStar for maintenance at any time, rather than have the product disassembled and maintained by non-professionals without authorization.
- Replace faulty parts only with the spare parts supplied by NovaStar.

2 Overview

The MCTRL4K is a 4K×2K independent controller developed by NovaStar. With up to 3840x2160@60Hz loading capacity of a single unit, it can support any custom resolution within this range as required, thus meeting the on-site configuration requirements of super-long or super-large LED displays.

In Multi-card mode, the MCTRL4K can be used as two independent controllers, making the images of two input sources perfectly displayed on the screen.

What's more, the MCTRL4K supports HDR function and can work with A8s/A10s to greatly enhance the image quality of the screen, presenting more vivid and clearer images.

The MCTRL4K is mainly applied to concert control centers, live events, security monitoring, Olympic Games and various sports centers.

3 Features

- Provides complete input connectors, including 1 × DP 1.2, 2 × dual-link DVI and 1 × HDMI 2.0.
- Supports 16 × Gigabit Ethernet ports and 4 × fiber optical outputs.
- Supports 3 video bit depths: 8-bit, 10-bit and 12-bit.
- Supports both Mosaic and Multi-card modes when dual-link DVI is used.
- Supports HDR10 which can greatly enhance the image quality of the screen, presenting more vivid and clearer images.
- Supports super high resolution settings with NVIDIA graphics card.
- Adopts innovative architectural design to enable smart configuration, which can greatly shorten the stage preparation time.
- Adopts NovaStar G4 engine to realize a perfect image display with no flickering and scanning lines, but fine quality and good sense of depth.
- Supports the new generation of pixel level calibration technology of NovaStar to bring a fast and efficient calibration process.
- Implements white balance calibration and color gamut mapping to ensure colors are faithfully reproduced.
- Supports screen configuration at any time without a PC.
- Supports easy and quick manual adjustment of screen brightness.
- Supports screen configuration via Web interface.
- Supports cascading multiple controllers for uniform control.
- Supports various video formats. For details, see [Table 3-1](#).

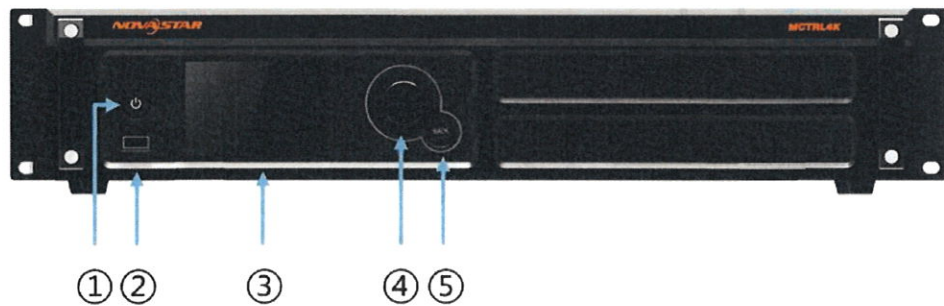
Table 3-1 Supported video formats

Format \ Resolution		3840x2160@60Hz	3840x1080@60Hz	1920x1080@60Hz
8Bit	RGB444	✓	✓	✓
	YCbCr444	✓	✓	✓
	YCbCr422	✓	✓	✓
	YCbCr420	✓	✓	✓
10Bit	RGB444	✘	✓	✓

	YCbCr444	*	✓	✓
	YCbCr422	✓	✓	✓
	YCbCr420	✓	✓	✓
12Bit	RGB444	*	✓	✓
	YCbCr444	*	✓	✓
	YCbCr422	✓	✓	✓
	YCbCr420	✓	✓	✓

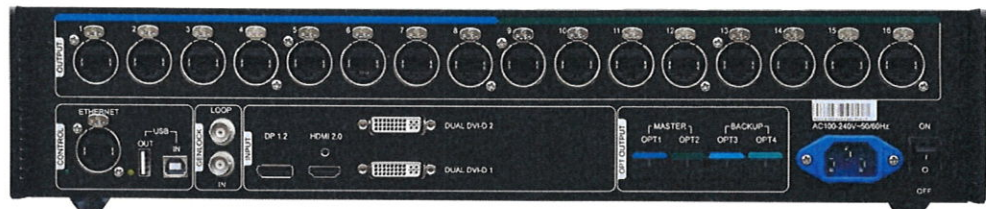
4 Appearance

Front Panel



No.	Name	Description
①	Power button	Pressing it powers on the device, while holding it down for 4–5seconds powers off the device.
②	USB	Connects a USB drive only (PC cannot be connected).
③	LCD screen	Displays the menu.
④	Knob	Pressing the knob enters a menu or confirms an option or operation, while rotating the knob selects a menu item or adjusts a parameter.
⑤	BACK	Returns to the parent menu.

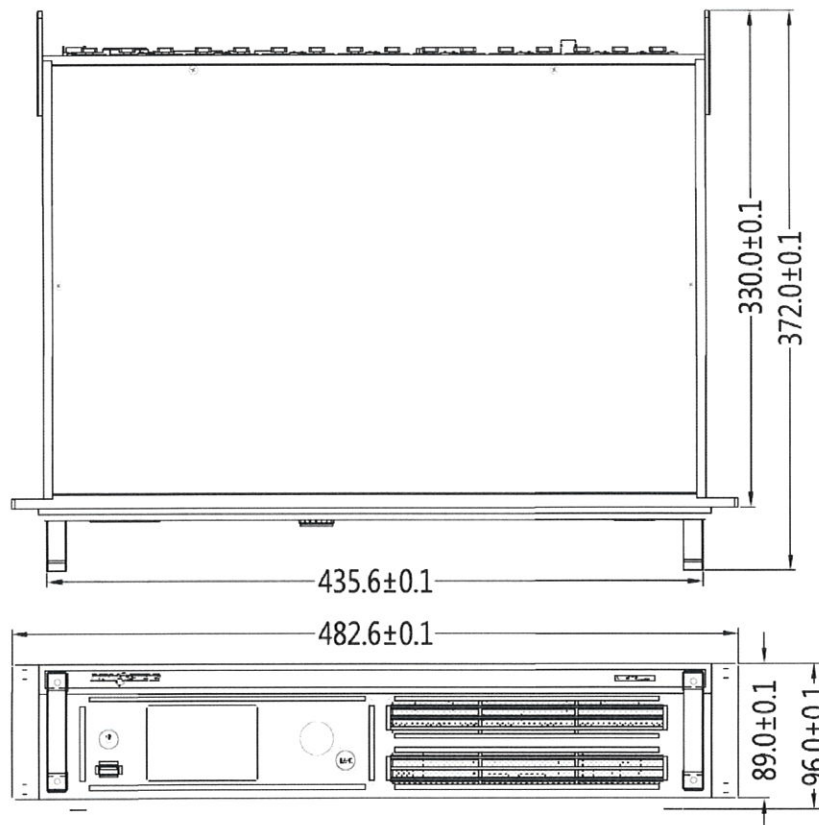
Rear Panel



Input	
DP 1.2	DP 1.2 connector
HDMI 2.0	HDMI 2.0 connector
DUAL DVI-D1 DUAL DVI-D2	Dual-link DVI connectors
Output	
1–16	16 × Neutrik (NE8FBH) Gigabit Ethernet outputs
OPT1–4	4 × Fiber optical outputs OPT1 corresponds to Ethernet ports 1–8, while OPT2 corresponds to Ethernet ports 9–16. OPT3 serves as the backup for OPT1, while OPT4 serves as the backup for OPT2.
Control	
ETHERNET	For PC connection
USB IN	Input port for cascading devices, or for PC connection
USB OUT	Output port for cascading devices
GENLOCK	
IN	GENLOCK type: Blackburst. It is the GENLOCK synchronization signal which is used to ensure synchronization between the LED screen display and external GENLOCK source.
LOOP	GENLOCK loop output
Power Connector	
AC 100-240 V–50/60 Hz	AC power input

Note: Type-A USB port is prohibited from being connected to the upper computer directly.

5 Dimensions



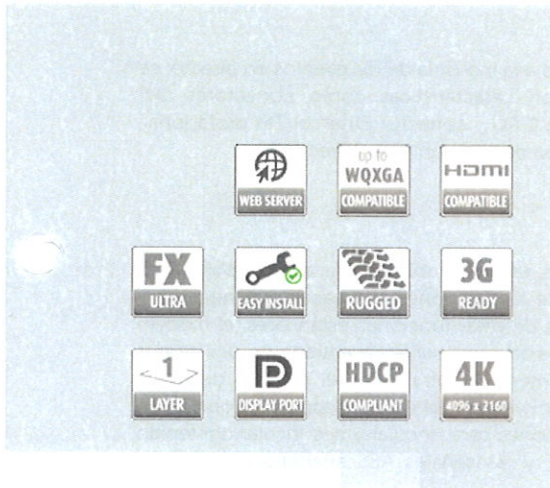
Unit: mm

6 Specifications

Input voltage	AC 100-240 V–50/60 Hz
Rated power consumption	30 W
Operating temperature	-20°C–60°C
Operating humidity	10% RH–90% RH
Dimensions	482.6 mm × 372.0 mm × 96.0 mm
Weight	4.6 kg
Certifications	<ul style="list-style-type: none"> • FCC • RoHS • UL&CUL • EAC • CB • IC • CE
Packing	<p>Each MCTRL4K unit is equipped with a suitcase, an accessory box and a large carton.</p> <p>Packing dimensions:</p> <p>Suitcase: 530 mm × 193 mm × 420 mm, white cardboard box printed with NOVASTAR, one unit in a suitcase.</p> <p>Accessory box: 405 mm × 290 mm × 48 mm, white cardboard box printed with Accessory Box.</p> <p>Accessories include 1 × power cord, 1 × Ethernet cable, 1 × USB cable, 1 × HDMI cable and 1 × DP cable.</p> <p>Carton: 550 mm × 440 mm × 210 mm, craft paper box printed with NOVASTAR.</p> <p>Packing rules: Product and accessory box (containing related cables) packed in the suitcase and the suitcase packed in the large carton.</p>

Serie ImagePRO-II

Escalador de vídeo 4K, transformador de imágenes y conmutador todo en uno



- Convierte cualquier formato de señal de entrada en cualquier formato de salida
- Gestión EDID y HDCP
- Restauración y copia de seguridad mediante USB
- Conectores DVI sustituibles en campo

ImagePRO-II es un avanzado escalador de vídeo, transformador de imágenes, conmutador y transcodificador de alto rendimiento todo en uno que convierte cualquier formato de señal de entrada a la mayoría de formatos de salida. ImagePRO-II es compatible con señales analógicas, DVI de doble enlace, HDMI, DisplayPort y 3G SDI, incluso 4K a 30p a través de DVI de enlace doble y DisplayPort. Se ofrecen salidas con bucles para las señales analógicas, DVI y de entrada SDI y genlock. Con funciones como escalado 4K, gestión HDCP y EDID, restauración y copia de seguridad USB, modos de conversión de latencia extremadamente baja, exportación/importación/captura y almacenamiento de imágenes fijas, el ImagePRO-II es el convertidor, conmutador y escalador 4K líder del sector.

Escalador Athena de próxima generación

Al incorporar la quinta generación del escalador Athena, la tecnología de procesamiento de imágenes fabricada a medida de Barco, ImagePRO-II admite resoluciones más altas, mayores frecuencias de cuadros, desentrelazado de mayor calidad con procesamiento adaptable del movimiento avanzado, adquisición de fuentes más rápida, mejor profundidad de color y compatibilidad nativa para todos los formatos informáticos más recientes. Debido a que los requisitos de formato e interfaz cambian con frecuencia, el escalador Athena se ha creado para ser adaptable y ofrecer una claridad de señal superior, al mismo tiempo que mantiene un proceso de baja latencia de solo un cuadro.

Configuración simple y control avanzado

Si decide guardar los parámetros de configuración para continuar en otro momento o necesita copiarlos en varias unidades, la funcionalidad de restauración y copia de seguridad por USB facilita y optimiza la configuración. ImagePRO-II se controla



fácilmente a través del panel frontal, un navegador o un dispositivo móvil. Gracias a que cuenta con la adquisición automática de fuentes más rápida disponible, ImagePRO-II destaca en la adquisición y bloqueo automáticos de cualquier señal de entrada. En términos de salida, ImagePRO-II también puede determinar automáticamente el formato de la pantalla conectada y optimiza su resolución de salida para igualar la resolución de la pantalla.

Probado contra golpes, aprobado para condiciones de ruta

Debido a que ImagePRO-II está destinado a la industria de los eventos en directo, se ha diseñado pensando en la ruta. Con características como conectores DVI reemplazables in situ, factor de forma de 1 RU y conector Ethercon™ profesional, ImagePRO-II responde al exigente entorno de los eventos en directo.

Cinco modelos

ImagePRO-II se ofrece en cinco modelos: estándar, doble salida, audio, doble salida y audio, y Jr. El modelo estándar ofrece las funciones avanzadas que necesita y espera encontrar en ImagePRO. Además de estas funciones estándares, el modelo de doble salida puede convertir por separado una señal de entrada en dos salidas independientes con resoluciones diferentes. Por otra parte, el modelo de doble salida también ofrece funcionalidad de conversión 3D estereoscópica. La opción de audio permite una extensa gama de opciones para vincular y desvincular contenido entre señales HDMI, DisplayPort y SDI, y las señales AES analógicas y digitales disponibles en la tarjeta de audio DB-25.

Modelos disponibles

- **R9004677: ImagePRO-II**
- **R9004683: ImagePRO-II con doble salida**
- **R9004666: ImagePRO-II con audio**
- **R9004668: ImagePRO-II con doble salida y audio**
- **R9004695: ImagePRO-II Jr**

"Las empresas de alquiler obtienen las mismas ventajas que con la generación anterior de Image Pro pero con mucha mayor flexibilidad. Los espectáculos producidos y de representación única ganan en solidez de rendimiento con un paquete fácil de usar". Jeff Gooch, Projection, Lights and Staging News Más información

"Las empresas de alquiler obtienen las mismas ventajas que con la generación anterior de Image Pro pero con mucha mayor flexibilidad. Los espectáculos producidos y de representación única ganan en solidez de rendimiento con un paquete fácil de usar".

Jeff Gooch, Projection, Lights and Staging News

Más información

En InfoComm 2014, el ImagePRO-II Jr fue galardonado con el premio 'Best video scaler' por la revista Commercial Integrator.

Entradas/salidas

- **E/S DVI/HDCP de enlace doble (admite 4K a 30p)**

- E/S HDSI de 3 Gbit
- E/S HDMI/HDCP
- E/S DisplayPort/HDCP (admite 4K a 30p)
- E/S analógica universal
- Bucle en entradas DVI, SDI y analógicas

Interfaz de usuario

- Control de panel frontal ImagePRO-3G
- Control remoto por tablet PC y navegador web
- Conjunto Encore de controladores
- Instalación y configuración de LED

Procesamiento

- Procesamiento de 12 bits
- Resolución de hasta WQXGA (2.560 x 1.600) y 4K a 30p
- Frecuencia de cuadros de hasta 120 Hz para 1.080p
- Configuración y restauración del sistema mediante USB

ESPECIFICACIONES TÉCNICAS**SERIE IMAGEPRO-II**

Live effects canvas	N/A
Entradas de vídeo	5 entradas fijas (6 con opción de doble salida) <ul style="list-style-type: none">■ 1 DVI-I de enlace doble de hasta 4K a 30p DVI■ 1 HD-15 (VGA)■ 1 HDMI 1.4 (165 Mpix./seg.), salvo ImagePRO II Jr■ 1 DisplayPort 1.1 de hasta 4K a 30p (300 Mpix./seg. máx.), salvo ImagePRO II Jr■ 1 3G SDI (2x 3G SDI con opción de salida doble)
Salidas de vídeo	6 salidas fijas (7 con opción de doble salida) <ul style="list-style-type: none">■ 1 Compuesto NTSC/PAL a través de BNC■ 1 DVI-I de enlace doble de hasta 4K a 30p DVI■ 1 HD-15 (VGA)■ 1 HDMI 1.4 (165 Mpix./seg.), salvo ImagePRO II Jr■ 1 DisplayPort 1.1 de hasta 4K a 30p (300 Mpix./seg. máx.), salvo ImagePRO II Jr■ 1 3G SDI (dos con opción de salida doble)
Genlock	Entrada de referencia analógica/bucle en conectores BNC; binivel y blackburst en SD y trinivel en HD o bloqueado en cualquier señal de entrada. S3D sincronización: conector DIN de entrada, conector DIN de salida
Salida de programa	Una salida de fuente de entrada en todos los conectores que admite la resolución de salida seleccionada. Con opción de doble salida, las conexiones de salida se pueden seleccionar para seguir el canal del escalador "A" o el canal del escalador "B".
Salidas auxiliares escaladas	N/D
Mezcladores	N/D
Almacenamiento de imágenes fijas	3
Efectos de capas	N/D
Visores múltiples	N/D
Capacidad de ampliación	Tarjeta de dos salidas y tarjeta de salida de audio disponibles.
HDCP	Compatible con HDCP
Control	Ordenador Autosense Ethernet RJ-45, 10/100 Mbps, tablet, smartphone a través de navegador web. Las funciones de control incluyen: configuración de entrada de fuente, selección de formato de salida, selección de patrón de prueba, control y selección de efectos de transición
Facilidad para el servicio	Conectores DVI reemplazables en campo
nivel de ruido	N/D
dimensiones	<ul style="list-style-type: none">■ Altura: 4,4 cm/ 1,75" 1RU■ Anchura: 48,4 cm/19,06"■ Profundidad: 47 cm/18,51"
peso	7,144 kg/15,75 lbs
potencia	Potencia de entrada: 100-240 VCA 50/60 Hz 2 A máx.
Garantía	3 años para piezas y mano de obra
Temperatura ambiente	0-40° C (32-104 F)
Humedad ambiental	0-95% sin condensación

Generado en: 28 Jun 2018

Las especificaciones técnicas pueden estar sujetas a cambios sin previo aviso. Consulte www.barco.com para obtener la información más actual.

3.- MESAS DE MEZCLAS DE AUDIO

**YAMAHA TF SERIES
MIDAS POR 2**



DIGITAL MIXING CONSOLE

TFF SERIES



Design Meets Intuition

Yamaha has always made it a mission to stay in touch with the needs of sound engineers worldwide. The outcome is evident in the success of the recent CL and QL series digital mixing consoles, and the flagship RIVAGE PM10. The key to success has always been in supporting the user's creativity. Creativity is most effective when unrestricted, and now Yamaha has created a new digital mixing console that gives the user's intuition even freer rein. TouchFlow Operation™ introduced in the TF series consoles allows the user to respond to the music and artists on stage with unprecedented speed and freedom, taking live sound reinforcement to a new level of refinement. With the TouchFlow Operation interface optimized for touch panel control, experienced engineers as well as newcomers to the field will find it easier than ever to achieve the ideal mix. Recalibratable D-PRE™ preamplifiers support sound quality that will satisfy the most discerning professional ears, while advanced live recording features and seamless operation with high-performance I/O racks give these compact digital mixers capabilities that make them outstanding choices for a wide range of applications. Experience the intuitive control and creative freedom that a truly evolved digital console can provide.

DIGITAL MIXING CONSOLE

TF SERIES



TF5



TF3



TF1



TF-RACK

YAMAHA

YAMAHA



Intuitive User Interface Optimize for Touch Panel Operation



New Features for Smooth Setup and Operation



1 knob-Comp

1 knob-EQ

GainFinder

Flow

engineers worldwide regarded Selected Channel series combines Yamaha know-how for an evolved experience, refined design, these elements comprise a precedent comfort and



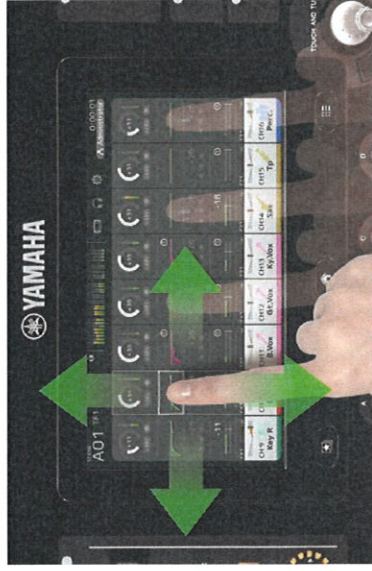
Practical Presets and Scenes - Shortcuts to Great Sound





Touch Operation for Intimate Control

Refined for the smoothest possible operation via touch-panel control, the TF user interface The display content has been specifically designed for easy, direct accessibility, with a as shaping the sound with your fingertips.



Panel Operation

Of acclaimed high-end mixer interfaces, touch-panel control has become a familiar sight. It's no longer just a digital interface, but a familiar one. It's no longer just a digital interface, but a familiar one. It's no longer just a digital interface, but a familiar one.

Touch & Turn Knob Offers Extra Control Precision

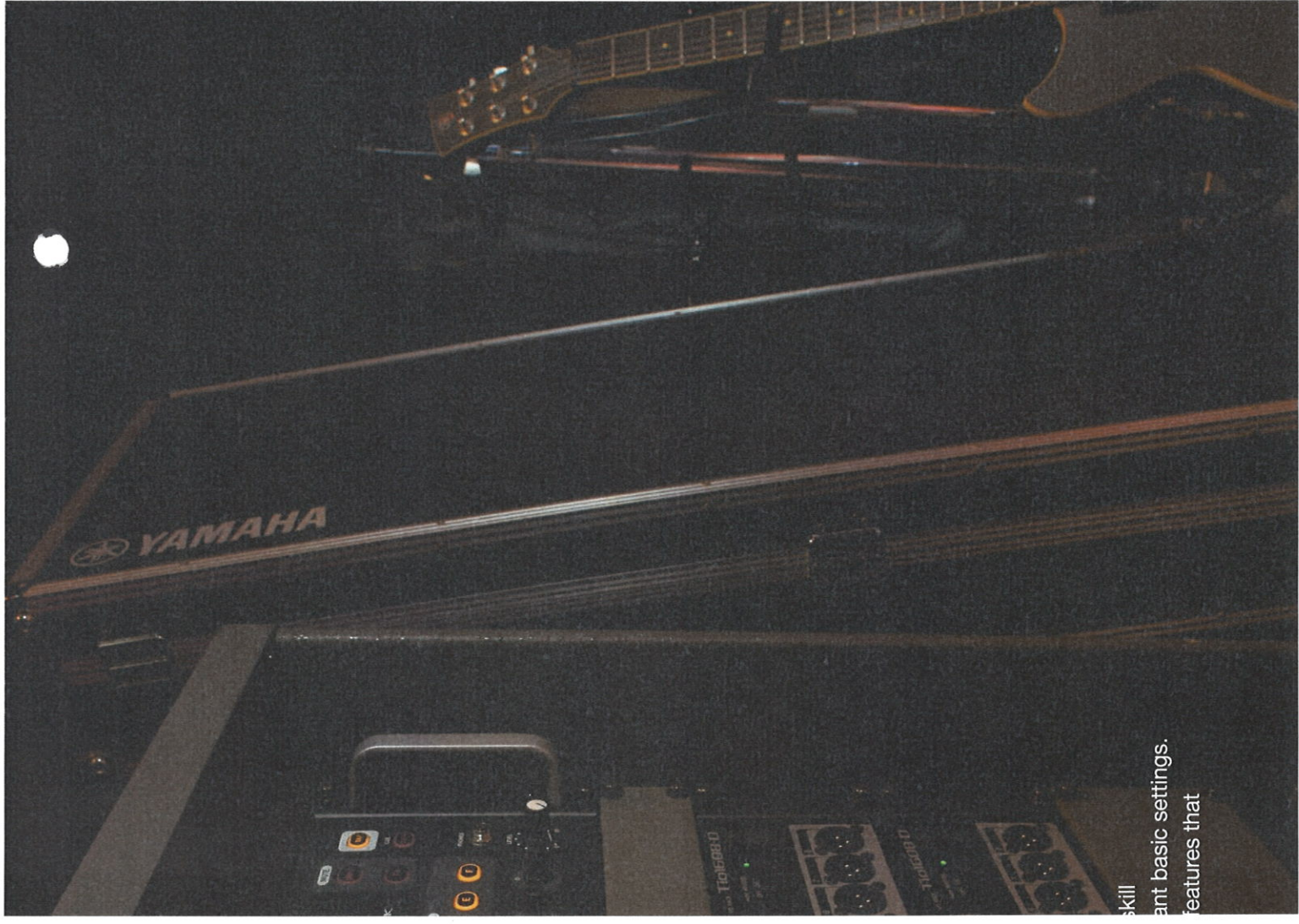
When you need extra precision for a fine EQ or other adjustment, the physical Touch & Turn knob is always available right beside the touch panel. There are also four User Defined Knobs below the panel that can be assigned to control compressor threshold, EQ gain, or other parameters you need fast, direct access to while mixing. The knobs always affect the currently selected channel.



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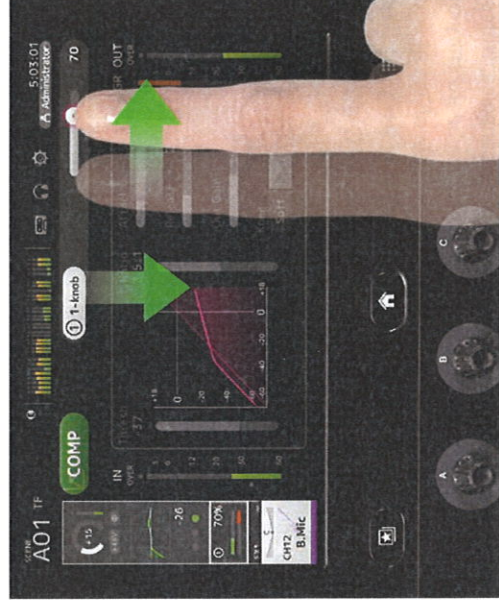
1-knob COMP™ & 1-knob EQ™: One Knob to Dial In the Ideal Sound

An experienced engineer can do a lot with a compressor: bring a guitar to life, add punch to a snare, and make vocals ride clearly on the mix. The 1-knob COMP can do easily, without the need to juggle multiple parameters to achieve the desired effect. Originally introduced by mixers, the 1-knob COMP quickly became a popular and valued feature. It has now been further refined that adds new setup ease and efficiency to the TF consoles.

The same concept has been applied in a new 1-knob EQ feature that provides notably improved operation. 1-knob EQ has been painstakingly fine-tuned by Yamaha R&D staff in cooperation with engineers, to ensure that you can achieve outstanding results with minimum effort in the shortest period. Mode makes it easier than ever to achieve a clear, well defined vocal sound, while an Intensity Mod “intensity” control over EQ curves you either select from the presets or create from scratch.

But there's more: the 1-knob COMP and 1-knob EQ are provided on the output channels too, so you can overall output compression or EQ that ideally matches the room and audience size. The output 1-knob EQ is in place of the Vocal Mode, effectively increasing the sound pressure level while maintaining the knob.

Both the 1-knob COMP and 1-knob EQ provide quick access to the full compressor and EQ display settings as required.



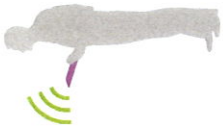
1-knob COMP

skill
ant basic settings.
features that

TF Editor Facilitates Offline Editing Plus Showtime Control



The TF Editor application for Windows and Mac computers provides a complete interface for offline editing and setup of TF consoles, with scene and preset management capabilities plus convenient keyboard entry of channel names. In addition to being able to set up the console offline at any convenient location and time, the TF Editor can be used online at the same time as the TF StageMix and MonitorMix applications. A Windows 8 PC with a multi-touch screen can use the same gestures as on the console itself. And if using Wi-Fi, a PC can function as a convenient remote-mixing device. Up to three devices running TF Editor or StageMix can be connected at the same time.



TF StageMix™ for Wireless Mixing



TF StageMix is an iPad application that provides wireless control of TF series consoles, allowing remote mixing from audience seating, in front of floor monitors, or any other listening position. It can also be used at the console as an extension of the console's own interface. The TF StageMix interface is designed for similar operation and flow to the console display, making it easier than ever to refine the mix from any location.



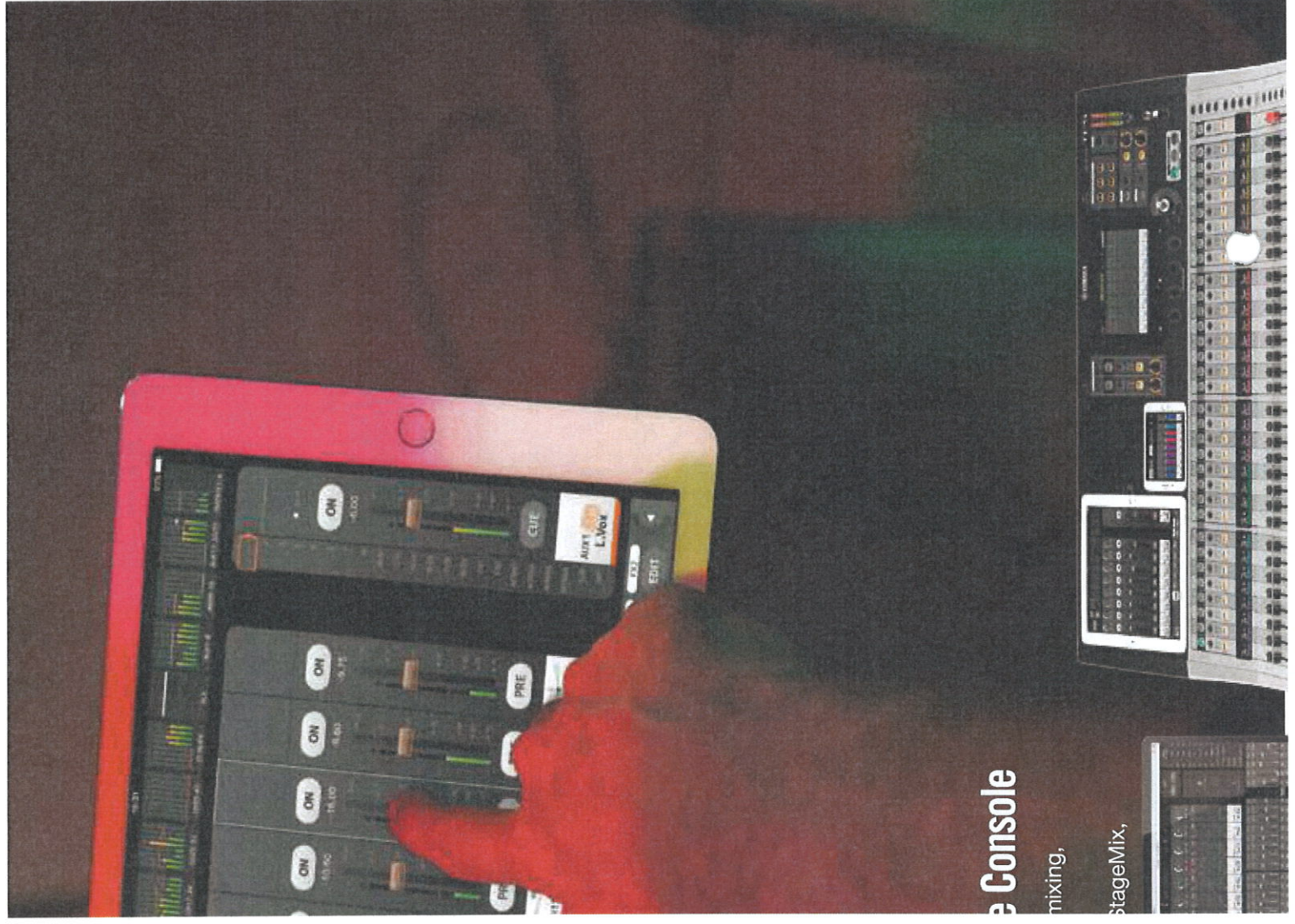
Personal Monitoring with MonitorMix



The MonitorMix application for the TF Series allows individual wireless AUX mixing from up to 10 iPhone, iPad or iPod touch devices simultaneously. Each performer can have convenient control over the AUX buses assigned to them, without having to deal with complex settings or parameters. They can also create personal Group settings for even easier adjustment: all levels on just one fader, for example. Since up to three devices running TF Editor or StageMix and up to 10 devices running MonitorMix can be connected at the same time, even large bands can have the personal control they need, reducing demands on the sound engineer.



* TF StageMix and MonitorMix can be downloaded from Apple's App Store at no charge.
* Apple, the Apple logo, iPad, iPhone, iPod touch and Mac are trademarks of Apple Inc., registered in the U.S. and App Store is a service mark of Apple Inc.



the Console
mixing,
StageMix,

Great Sound

When needed is included as always. Working with leading microphone manufacturers in a way towards achieving great sound. Much more, right down to details like channel name and color. Refining the mix and communicating with the performers.



QuickPro Presets™ Provide Instant Access to Pro Sound Setups

Working with microphone manufacturers such as Audio-Technica, Sennheiser and Shure as well as respected engineers, and evaluating a large number of microphones, musical instruments, speaker systems, and in-ear monitors, the Yamaha R&D team focused on creating a range of shortcuts to great sound that would be effective in a wide variety of live-sound situations. Armed with these practical presets even the novice engineer can get very close to the ideal sound, while experienced engineers will appreciate the significant time savings they can provide starting points for further adjustments.

The QuickPro Presets can be searched by instrument type and recalled quickly and easily. The presets include HA gain, EQ, Comp and other settings, right down to the channel name and color. The 1-knob EQ and 1-knob COMP can be used with QuickPro Presets, providing a super streamlined way to tweak the sound.

The output channel preset library includes parameter sets optimized for Yamaha powered speakers, with several variations to match different environments and room sizes. Presets are provided for in-ear monitors too. All of these can be used as is when time is tight, but they are also great starting points for manual fine tuning. Setups created from the presets or from scratch can be saved as additional presets too.

Two Scene Memory Banks

The scene memory features banks A and B, each capable of holding up to 100 scenes. That's a total of 200 scenes that can be set up and instantly recalled whenever needed.

A number of scenes are pre-programmed to give users a head start: scenes with the 1-knob COMP and 1-knob EQ controls engaged for the easiest possible operation, and scenes with the 1-knob features disabled for experienced engineers who might want to follow an established procedure. The banks are great for organizing different types of scenes: one for scenes categorized by music type, and the other by event type, for example.

Technica. Production allowing us on best action."



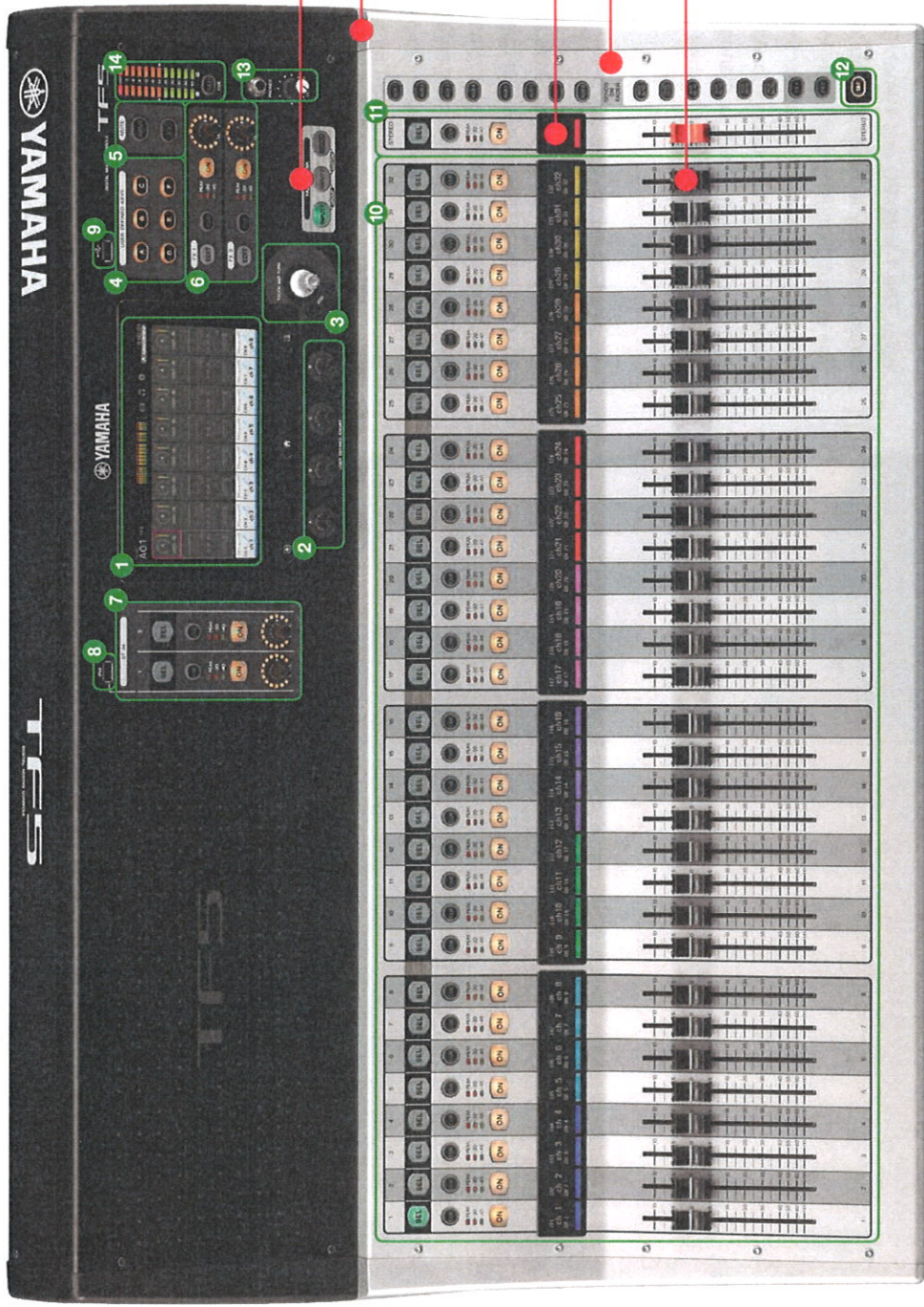
Comment from Sennheiser

Michael Polter, Product Management & Marketing, Live Performance & Music

"The presets in the Yamaha TF series digital mixers provide users with an accurate indication of how to set the EQ for a wide variety of instrument/microphone combinations. These preset functions give the sound technician a solid basis to start from. All that is needed is to adapt the EQ-ing to the specific room and the instruments."



Comment from Shure Matt En
"We're thrilled to be offering QuickPro KSM and PG Alta microphones in the experience with the versatile new TF engineers at any level of experience effective sound checks and perform audio instead of chasing problems."



Comprehensive Fader Bank se
 Two INPUT banks and one OUTPUT selected by pressing both the INPUT the levels of multiple channels to be CUSTOM fader bank where you can

DCA Roll-out Enhances Group
 When the GROUP fader bank is select as Roll-out faders. Selecting one of the belonging to that group to the Roll-out and other parameters of individual cha

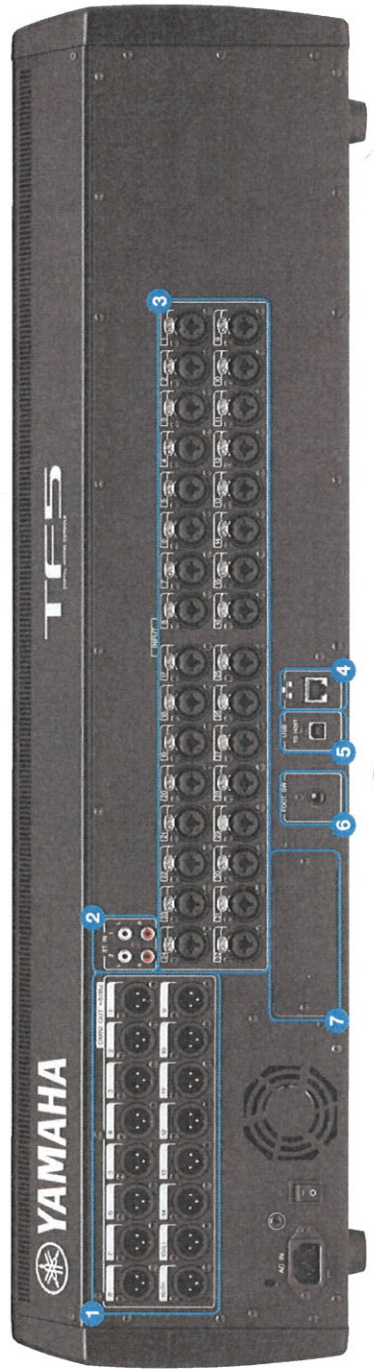
Channel Name and Color
 A display panel located above each the port name, and the current fader st operation can also be displayed. A col navigation a breeze, and prevents conti

Faders Provide a C
 The TF5 has 33 motor
 All rear-panel inputs h
 glance and they can be directly an



SENDS ON FADER section
 The SENDS ON FADER buttons in: the faders for easy verification and engaged the MASTER fader acts a can be checked and controlled witi

Advanced Design Promotes Sn
 The upper section of the panel is d memos, and/or other small items. the operator maximum visibility an



that maximizes visibility and operability.

TURN section:

Assign mixer settings that you use often to these six buttons for instant access, such as direct one-touch recall of specified scenes.

4 USER DEFINED KEYS section:

Assign mixer settings that you use often to these six buttons for instant access, such as direct one-touch recall of specified scenes.

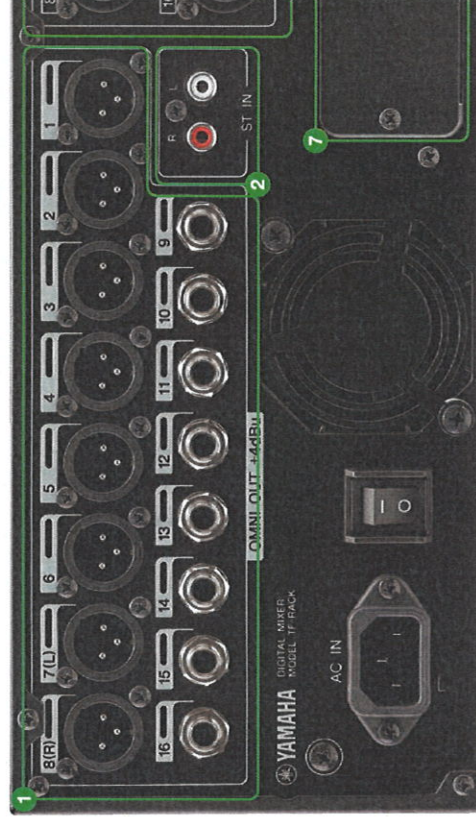
5 MUTE section:

Multiple inputs or effects can be muted with a single operation.

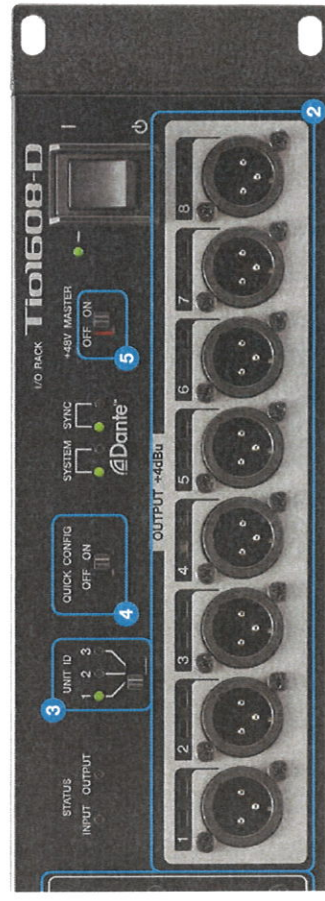
6 Comprehensive Fader Bank section:

Two INPUT banks and one OUTPUT bank are provided, and the GROUP bank can be selected by pressing both the INPUT bank buttons simultaneously. The GROUP bank allows the levels of multiple channels to be controlled from a single DCA fader. There's also a CUSTOM fader bank where you can assign any input, output, and DCA group to any fader. DCA Roll-out Enhances Group Control: When the GROUP fader bank is selected, all faders other than DCA masters 1 through 8 function as Roll-out faders. Selecting one of the DCA groups instantly "rolls out" the input channels belonging to that group to the Roll-out faders. This useful function makes it easy to adjust the level and other parameters of individual channels while using the eight DCA faders for overall mixing.

- 7 iPad connect
- 8 USB connect
- 9 TAP key
- 10 CLEAR CU
- 11 PHONES s



and 8 line outputs. It features the same recallable D-PRE™ microphone preamplifiers



QUICK CONFIG switch 5 +48V MASTER switch

TF-RACK : Rear 1 FAN switch 2 DIP switch 3 PRIMARY and SECONDARY Dante connect

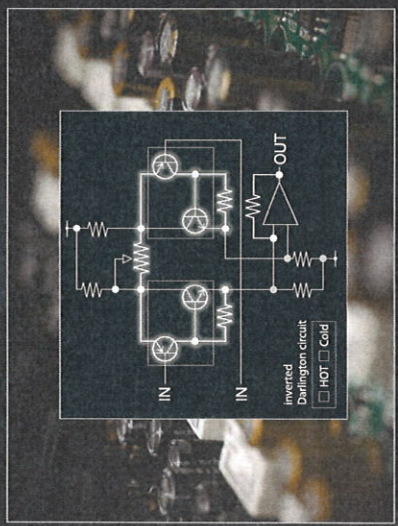
Freedom

can take over.
in the TF series.

not only deliver outstanding quality,
assessed and redesigned where necessary to
cked up by an updated selection of
ors such as EQ, gates,
id spectrum of creative capabilities.

The screenshot shows the A01 TF software interface. At the top, there's a 'Send' section with 'FX1' and 'REVERB HALL' options. Below that are 'Wet/Dry' and 'Reverb Time' sliders. The 'Initial Delay' is set to 82.4. The 'OUT' section shows '1' and '2' channels. The 'EQ' section has 'L' and 'R' buttons and a 'Recall Safe' icon. The 'OUT' section shows 'OUT Over' and 'Available Band 7'. The 'ST L Stereo' section shows '125', '160', '200', '250', and '315' frequency sliders.

Various mix to maultiple speaker systems -Ma
Four matrix out channels with delay parameters that a
large venues, installations where separate mixes are f
some degree of delay compensation.



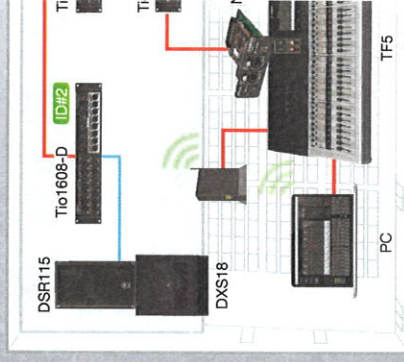
The screenshot shows the A01 TF software interface. At the top, there's a 'SEND FROM' and 'SEND TO' section. Below that are 'DELAY' and 'OMNI' buttons. The 'DELAY' is set to 10.0. The 'OMNI' buttons are labeled 'OMNI 9', 'OMNI 10', 'OMNI 11', and 'OMNI 12'. The 'OMNI' buttons are labeled 'E-STEP'. The 'OUT' section shows 'MTRX1 Matrix 1', 'MTRX2 Matrix 2', 'MTRX3 Matrix 3', and 'MTRX4 Matrix 4'. The 'OUT' section also shows '125', '160', '200', '250', and '315' frequency sliders.

A High-performance Stagebox Solution that's Simple to Set Up

The natural, musical sound that was a key element of the TF Series design policy is carried on without compromise in the Tio1608-D I/O Rack. Mechanical construction, circuit board layout, power supply, grounding, and parts selection have all been executed with meticulous attention to detail and quality, and exhaustive performance and listening tests were carried out at each stage of development. For networking the same Dante protocol implemented in higher end Yamaha digital consoles is used for precise synchronization, low latency, low jitter, and high sample accuracy. In addition to superior performance, a Tio1608-D stage box system can be set up in just three easy steps.



System expansion with Tio160
Tio1608-D allows you to easily expand your system up to 40ch inputs/24ch outputs via a Plug In & Play method. Simply connect the device IDs and the system control is available via Cat5e. Stage remote control of the console from the audience etc.



systems. From simple 2-track recording and playback using a USB storage device* to station), the TF series is ready to roll. TF consoles come supplied with tracks to be recorded to a computer connected to the console via USB 2.0. o from an iPhone or iPad can be played back via a AW input can be individually selected for each channel checks or rehearsals.



that allow selection between a USB source such as an iPad, iPhone, USB storage device, PC, channels, can be simultaneously verified directly via the control panel. for the first time in a digital console. This allows preamp setup to be recalled from scene memory where full-console changes need to be made on the fly. In addition to all-around performance eight and compact for unrivalled portability and space savings.

DIGITAL MIXING CONSOLE

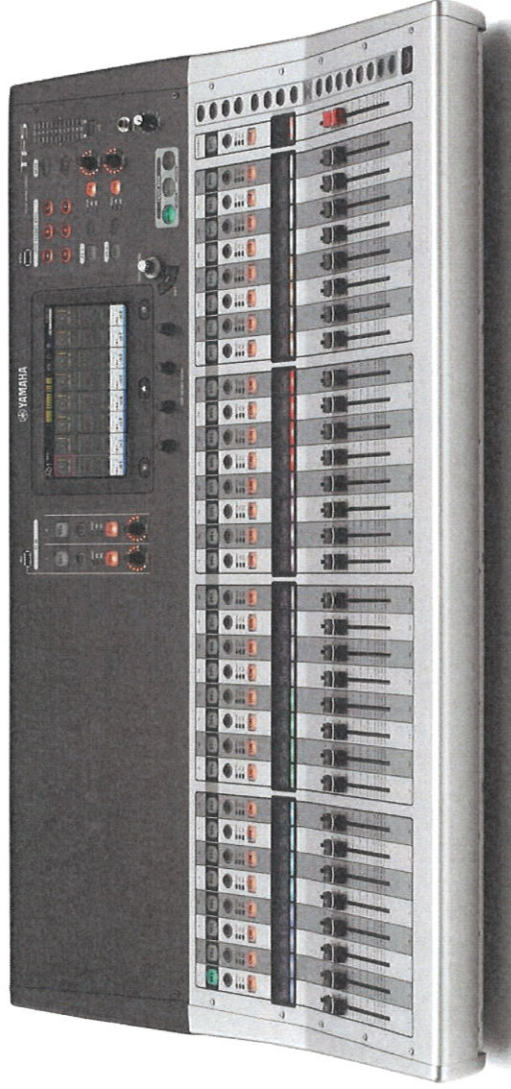
TF5

- 33 motor faders (32 channels + 1 master)
- 48 input mixing channels (40 mono + 2 stereo + 2 return)
- 20 AUX (8 mono + 6 stereo) + stereo + sub buses
- 8 DCA groups with Roll-out
- 32 analog XLR/TRS combo mic/line inputs + 2 analog RCA pin stereo line inputs
- 16 analog XLR outputs
- 34 x 34 digital record/playback channels via USB 2.0 + 2 x 2 via a USB storage device
- 1 expansion slot for NY64-D audio interface card

DIGITAL MIXING CONSOLE

TF1

- 17 motor faders (16 channels + 1 master)
- 40 input mixing channels (32 mono + 2 stereo + 2 return)
- 20 AUX buses (8 mono + 6 stereo) + stereo + sub
- 8 DCA groups with Roll-out
- 16 analog XLR/TRS combo mic/line inputs + 2 analog RCA pin stereo line inputs
- 16 analog XLR outputs
- 34 x 34 digital record/playback channels via USB 2.0 + 2 x 2 via a USB storage device
- 1 expansion slot for NY64-D audio interface card



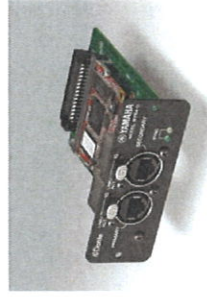
Dante™

The Tio1608-D preamplifiers 8-D to a TF console at the mixing dilly, heavy multi-cables and easy setup. Up to three Tio1608-D box system with as many as 48 bits are used with a TF series

**Audio Interface Card
NY64-D**

The NY64-D is an I/O expansion card for TF series consoles that allows transmission and reception of up to 128 channels (64 in/64 out) of uncompressed 48 kHz 24 bit digital audio data via a Dante™ audio network. Used in conjunction with the Tio1608-D I/O it becomes possible to create a versatile stage box system with up to 48 inputs and 24 outputs.

Dante™



mc
eq
stl

Specifications

TF-Rack General Specifications

TF		TF-RACK	
Input Channels	40 (32 mono + 2 stereo + 2 return)	Input Channels	40 (32 mono + 2 stereo + 2 return)
Main Buses	Stereo + Sub	Main Buses	Stereo + Sub
Aux Buses	20 (8 mono + 6 stereo)	Aux Buses	20 (8 mono + 6 stereo)
Groups	8 (OCA Groups)	Groups	8 (OCA Groups)
I/O Connectors	16 mic/line (XLR/TRS combi) + 1 stereo line (RCA pin) 16 (8 XLR + 8 TRS phone) 1 (for M64-D)	I/O Connectors	16 mic/line (XLR/TRS combi) + 1 stereo line (RCA pin) 16 (8 XLR + 8 TRS phone) 1 (for M64-D)
Expansion Slot	8 Effects + 10 GED	Expansion Slot	8 Effects + 10 GED
Signal Processors	PC/Mac (USB2.0)	Signal Processors	PC/Mac (USB2.0)
Recording/Playback	USB Storage Device	Recording/Playback	USB Storage Device
Sampling Frequency	Recording: 2-track (USB HDD/SSD) / Playback: 2-track (USB HDD/SSD)/Flash memory	Sampling Frequency	Recording: 2-track (USB HDD/SSD) / Playback: 2-track (USB HDD/SSD)/Flash memory
Internal Clock	48 kHz	Internal Clock	48 kHz
Signal Delays	Less than 2.6 ms. INPUT to OMNI OUT. Fs=48 kHz	Signal Delays	Less than 2.6 ms. INPUT to OMNI OUT. Fs=48 kHz
Fader	Resolution = 10-bit, +10 dB to -138 dB, ∞ dB all ladders	Fader	Resolution = 10-bit, +10 dB to -138 dB, ∞ dB all ladders
Frequency Response	+0.5, -1.5 dB 20 Hz-20 kHz, refer to -4 dBu output @ 1kHz, INPUT to OMNI OUT	Frequency Response	+0.5, -1.5 dB 20 Hz-20 kHz, refer to -4 dBu output @ 1kHz, INPUT to OMNI OUT
Total Harmonic Distortion*	Less than 0.05% 20 Hz-20 kHz @ +4 dBu into 600 Ω, INPUT to OMNI OUT, Input Gain=Min	Total Harmonic Distortion*	Less than 0.05% 20 Hz-20 kHz @ +4 dBu into 600 Ω, INPUT to OMNI OUT, Input Gain=Min
Hum & Noise**	-128 dBu typ. Equivalent Input Noise. Input Gain=Max, -85 dBu. Residual output noise, ST master off	Hum & Noise**	-128 dBu typ. Equivalent Input Noise. Input Gain=Max, -85 dBu. Residual output noise, ST master off
Dynamic Range	110 dB typ. DA Converter. 108 dB typ. INPUT to OMNI OUT, Input Gain=Min.	Dynamic Range	110 dB typ. DA Converter. 108 dB typ. INPUT to OMNI OUT, Input Gain=Min.
Crosstalk@1 kHz	-100 dB†, adjacent INPUT/OMNI OUT channels, Input Gain=Min.	Crosstalk@1 kHz	-100 dB†, adjacent INPUT/OMNI OUT channels, Input Gain=Min.
Dimensions (W x H x D)	480 mm x 132 mm x 409 mm (18.78 in x 5.14 in x 16.18 in)	Dimensions (W x H x D)	480 mm x 132 mm x 409 mm (18.78 in x 5.14 in x 16.18 in)
Net Weight	9.2kg (20.3 lb)	Net Weight	9.2kg (20.3 lb)
Power Requirements (voltage)	85 W	Power Requirements (voltage)	85 W
Power Requirements (watts and hertz)	100-240V (50/60) Hz	Power Requirements (watts and hertz)	100-240V (50/60) Hz
Operating Temperature Range	0-40 °C / Storage Temperature Range: -20-60 °C	Operating Temperature Range	0-40 °C / Storage Temperature Range: -20-60 °C
Temperature Range	Quick Guide, Power Cord, NUENDO LIVE (DAW Software), Rubber stoppers(4)	Temperature Range	Quick Guide, Power Cord, NUENDO LIVE (DAW Software), Rubber stoppers(4)
Included Accessories	Audio Interface Card (NY-64D), Foot Switch (FS)	Included Accessories	Audio Interface Card (NY-64D), Foot Switch (FS)
Options		Options	

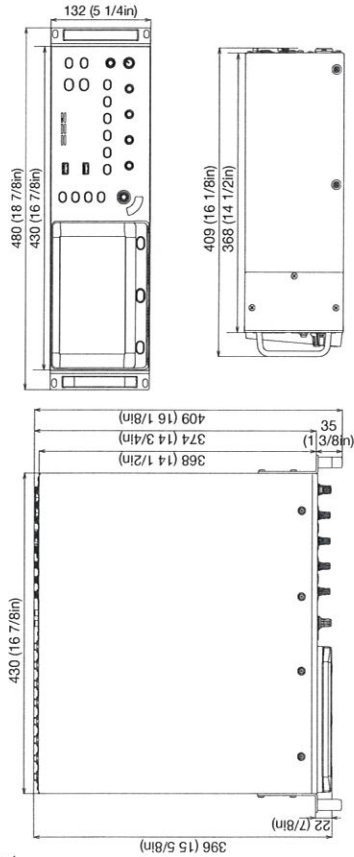
*1 Crosstalk is measured with a -30 dB/octave filter @ 22 kHz. *2 Total Harmonic Distortion is measured with a -18 dB/octave filter @ 80 kHz.
*3 Hum & Noise are measured with an A-Weight filter.

Tio1608-D General Specifications

Tic		Tio1608-D	
Sampling frequency rate (External)	44.1 kHz or 48 kHz	Sampling frequency rate (External)	44.1 kHz or 48 kHz
Total harmonic distortion	Less than 0.1% -4dBu @ 20kHz into 600Ω, Gain=+66dB / Less than 0.05% -4dBu @ 20kHz into 600Ω, Gain=-66dB, INPUT to OUTPUT, Fs=44.1 kHz, 48kHz, measured with a -18dB/octave filter @ 80kHz	Total harmonic distortion	Less than 0.1% -4dBu @ 20kHz into 600Ω, Gain=+66dB / Less than 0.05% -4dBu @ 20kHz into 600Ω, Gain=-66dB, INPUT to OUTPUT, Fs=44.1 kHz, 48kHz, measured with a -18dB/octave filter @ 80kHz
Frequency response	+0.5, -1.5dB 20Hz-20kHz, refer to the nominal output level @ 1kHz, INPUT to OUTPUT, Fs=44.1 kHz or 48 kHz	Frequency response	+0.5, -1.5dB 20Hz-20kHz, refer to the nominal output level @ 1kHz, INPUT to OUTPUT, Fs=44.1 kHz or 48 kHz
Dynamic range	108 dB, INPUT to OUTPUT, Gain=-66dB / 112 dB, DA Converter	Dynamic range	108 dB, INPUT to OUTPUT, Gain=-66dB / 112 dB, DA Converter
Hum & noise level	-128dBu, Gain=-66dB * Measured with A-weighting filter	Hum & noise level	-128dBu, Gain=-66dB * Measured with A-weighting filter
Crosstalk	-86dBu, ST master off * Measured with A-weighting filter	Crosstalk	-86dBu, ST master off * Measured with A-weighting filter
Heat dissipation	-100dB, adjacent INPUT/OUTPUT channels, Input Gain = -66dB * Measured with a -30dB/octave filter @ 22kHz	Heat dissipation	-100dB, adjacent INPUT/OUTPUT channels, Input Gain = -66dB * Measured with a -30dB/octave filter @ 22kHz
Power requirements	100-240V, 50/60Hz, 43.5kcal/h	Power requirements	100-240V, 50/60Hz
Power consumption	50W	Power consumption	50W
Dimensions (W x H x D)	480mm x 88mm x 364mm (18.7" x 3.48" x 14.38")	Dimensions (W x H x D)	480mm x 88mm x 364mm (18.7" x 3.48" x 14.38")
Net weight	5.7kg (12.6lbs)	Net weight	5.7kg (12.6lbs)
Accessories	Owner's Manual, Power Cord (2.5m), Rubber stoppers (4)	Accessories	Owner's Manual, Power Cord (2.5m), Rubber stoppers (4)
Others	Temperature Range: Operating temperature range: 0-40°C, Storage temperature range: -20-60°C	Others	Temperature Range: Operating temperature range: 0-40°C, Storage temperature range: -20-60°C

Dimensions

TF-RACK



TF Series Input / Output Specifications

Analog input characteristics

Input Terminals	Gain	Load Impedance	For Use With Nominal	Input Level		Connector	Balanced / Unbalanced
				Sensitivity*	Max. before clip		
INPUT1-32 (TF)	+66dB	7.5kΩ	50-6000 Mics or 6000 Lines	-82dBu (0.615mV)	-42dBu (6.16mV)	Combo Jack (XLR-3, 31 type *) or TRS phone (**)	Balanced
INPUT1-24 (TF)	-66dB	10kΩ	6000 Lines	-10dBu (2.45mV)	-30dBu (24.5mV)	RCA Pin Jack	Unbalanced
ST IN 1, 2	—	10kΩ	6000 Lines	-30dBV (31.6μV)	+10dBV (316mV)	RCA Pin Jack	Unbalanced

*1 Sensitivity is the lowest level that will produce an output of +4dBu (1.220V) or the nominal output level when the unit is set to maximum gain. (All faders and level controls are at maximum position).
*2 1: GND, 2: HOT, 3: COLD *3 Tip: HOT, Ring: COLD, Sleeve: GND *4 In these specifications, 0dBu = 0.775Vrms.
*5 +48V DC (phantom power) can be supplied to INPUT XLR type connectors via each individual software controlled switch.

Analog output characteristics

Output Terminals	Source Impedance	For Use With Nominal	Output Level		Connector	Balanced / Unbalanced
			Normal	Max. before clip		
OMNI OUT 1-16	750	6000 Lines	+4dBu (1.23 V)	+24dBu (12.3 V)	XLR 3-32 type **	Balanced
PHONES **	100Ω	400 Phones	3mW	75mW	Stereo Phone Jack (TRS) **	Unbalanced

*1: GND, 2: HOT, 3: COLD *2 Tip: LEFT, Ring: RIGHT, Sleeve: GND *3 In these specifications, 0dBu = 0.775Vrms. *4 All output DA converters are 24bit, 128times oversampling.
*5 The position of the level control is lowered by 16dB from the maximum.

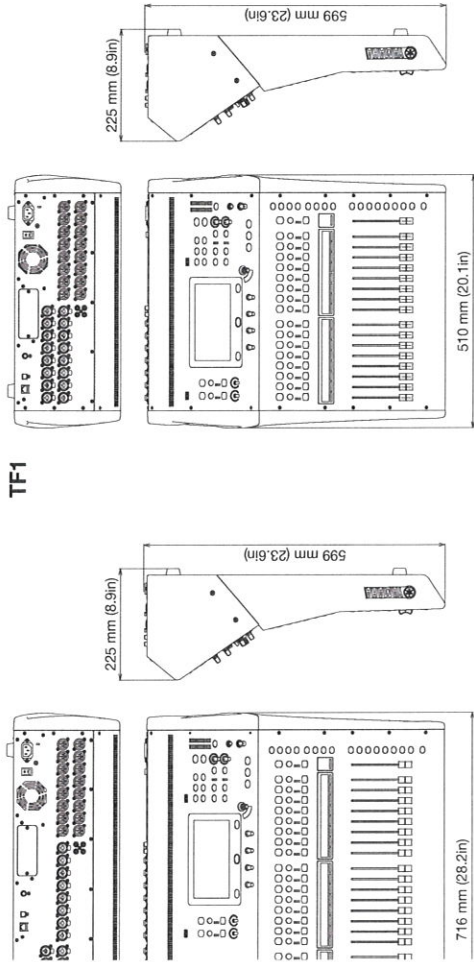
Digital input / output specifications

Terminals	Format	Data length	Audio	Connector
USB (TO HOST)	USB	24bit	34ch input / 24ch output, PCM	USB (B type)
Pad	USB	—	Playback: MP3 or WAV file data / Record: WAV file data	USB (A type)

Control I/O specifications

Terminals	Format	Level	Connector
NETWORK	IEEE802.3	10BASE-T/100Base-TX	RJ-45
FOOT SW	—	—	TS Phone

TF1





SHARING PASSION & PERFORMANCE

YAMAHA CORPORATION

P.O.BOX1, Hamamatsu Japan

www.yamahaproaudio.com

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PRO2
LIVE AUDIO SYSTEM



PRO2
LIVE AUDIO SYSTEM **FC**

 **MIDAS**





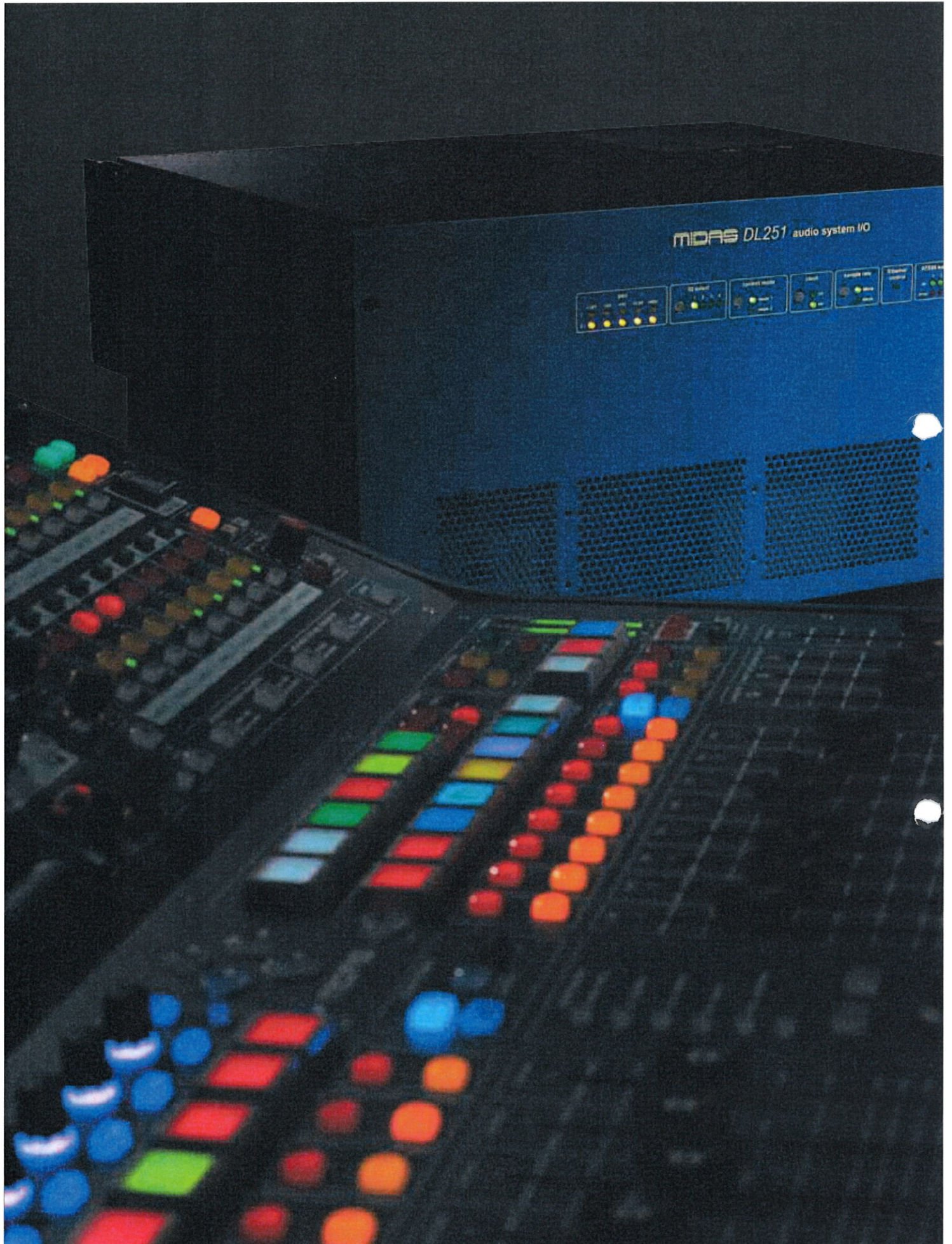
Introducing the PRO2 and PRO2C

Think of an audio mixing system which offers unprecedented levels of control integration in terms of speed and ease of workflow. Think of an audio mixing system which has the most intuitive, operator-driven user-interface yet imagined, yet costs no more than an ordinary console. Think of an audio mixing system which has all of this, and sounds like a Midas. Think of the Midas PRO2 - Radical thinking - It's simple!

The Midas PRO2 and PRO2C may be the smallest and least expensive Midas digital consoles so far, however, they represent a quantum leap forward in both technology and in concept for the art of audio mixing.

PRO2 can be operated in a number of different ways, depending upon the experience, ability and willingness of the operator to adopt new ideas. In "normal" mode, PRO2 behaves in a manner similar to many other digital consoles. Engineers who are new to Midas digital can relax, enjoy the PRO2's sample-synchronous audio quality, and operate the console from well within their comfort zone. As an operator becomes increasingly familiar with the console, they can activate the advanced navigation features which enable access to undreamt of levels of ease and speed of workflow on an audio console. Digital or Analogue!

PRO2 is also available in minimum-footprint compact form, PRO2C. PRO2C is essentially the same mixer, the only difference being the physical size of the user interface. The PRO2C features all of the facilities of its larger sibling, yet this 64 channel mixer is no larger than many 24 channel analogue consoles.



Mixer

In addition to the 56 primary input channels, PRO2 features 8 aux returns, all of which feature 4-band parametric EQ and insert points. These 8 aux returns can be used as returns for the PRO2's internal FX processors, or as additional mic channels, if enough mic inputs are available on the network I/O hardware.

A total of 64 input channels have routing to 27 mix buses. These buses comprise 16 user-configurable aux buses, which can be mixes, subgroups or mix minus groups, and the 8 matrix buses. The Matrix buses source from inputs, as well as groups, and so can be used as additional auxes (monitor mix and FX sends). All buses can be linked as stereo pairs (except the MONO bus). All audio paths can be routed to multiple destinations and the console format can be reconfigured live on a scene-by-scene basis.

Hardware

The Console is a typical robust Midas steel frame, which employs engineering principles similar to those employed on established products such as PRO6 and XL8. The frame is fitted with two removable power supplies, only one of which is required for full operation. The power supplies are auto-voltage sensing, auto-switchover, fitted with locking AC connectors, and are hot-swappable.

The standard DL251 remote stagebox included with each PRO2 system has 48 Midas mic/line inputs, 16 analogue XLR outputs and features dual power supplies as standard. The DL251 can be located up to 100 metres (330 feet) cable distance from the console. You can choose from a range of optional I/O including the DL431 Mic Splitter so you can tailor the I/O hardware to your chosen application.

Overview

- 56 mic/line inputs with Midas mic preamps
- 64 simultaneous input processing channels
- 32 analogue outputs (including 2 stereo local monitor outputs)
- 3 AES3 outputs
- 2 AES3 inputs
- 27 sample-synchronous, phase-coherent mix buses
- 6 multi-channel FX engines
- Up to 28 Klark Teknik DN370 31-band Graphic EQs
- Full-colour 15" daylight-viewable display screen
- 8 VCA (Variable Control Association) groups
- 6 POPulation groups
- 192 MCA (Mix Control Association) groups
- 96kHz 40-bit floating-point processing throughout
- 48 in 16 out 100m dual Cat-5E AES50 digital snake included

Connectivity

The fixed-format, integrated audio I/O on the rear of the surface features the following connections:

- 8 x analogue mic/line inputs with Midas mic pre's (XLR)
- 8 x analogue outputs (XLR)
- 2 x AES3 inputs
- 3 x AES3 outputs (XLR)
- 6 x AES50 ports (RJ45)
- Local monitor A L&R and Local monitor B L&R (XLR)
- Left, Right and Mono master outputs (XLR)
- Talk output (XLR)
- Talk Mic input (XLR)

Additional non-audio rear panel connections are:

- MIDI in, out and through
- AES3 clock in and out (XLRM & XLRF)
- Wordclock in and out (2 x BNC)
- Video (black burst) sync in (BNC)
- DVI video output from console screen (DVI)
- Ethernet control port (Ethercon RJ45)
- USB port (USB A)

I/O Options

- DL252 16in / 48 out fixed configuration I/O
- DL351 Up to 64 in / 64 out configurable I/O (8 card slots)
- DL451 Up to 24 in / 24 out configurable I/O (3 card slots)
- DL431 24 in 5 way split: fixed configuration I/O

Klark Teknik Accessories

- Klark Teknik DN9331 Rapide remote Graphic EQ fader controller
- Klark Teknik DN9696 high resolution audio recorder
- Klark Teknik DN9650 digital audio format convertor

PRO2

LIVE AUDIO SYSTEM

The PRO2 features 16 input faders, which can easily be increased to 24 by using the EXTEND button to deploy 8 more input channels on what are by default the VCA faders. An operator used to "layers" of faders can programme the POPulation groups to mimic this way of operation, so navigating between 3 layers of 24 input faders to access the PRO2's 64 input channels.

Remote Control App





PRO2_{FC}

LIVE AUDIO SYSTEM

PRO2C has the same feature set as the PRO2 but has 8 input faders that can be increased to 16 by using the EXTEND button.

Daylight Viewable Display Screen

Assignable Controls

Fader EXTEND Button

Screen Access Buttons

100mm Motorised Faders

8 Mic/Line Inputs

8 Line Outputs

8 Master and Local Outputs

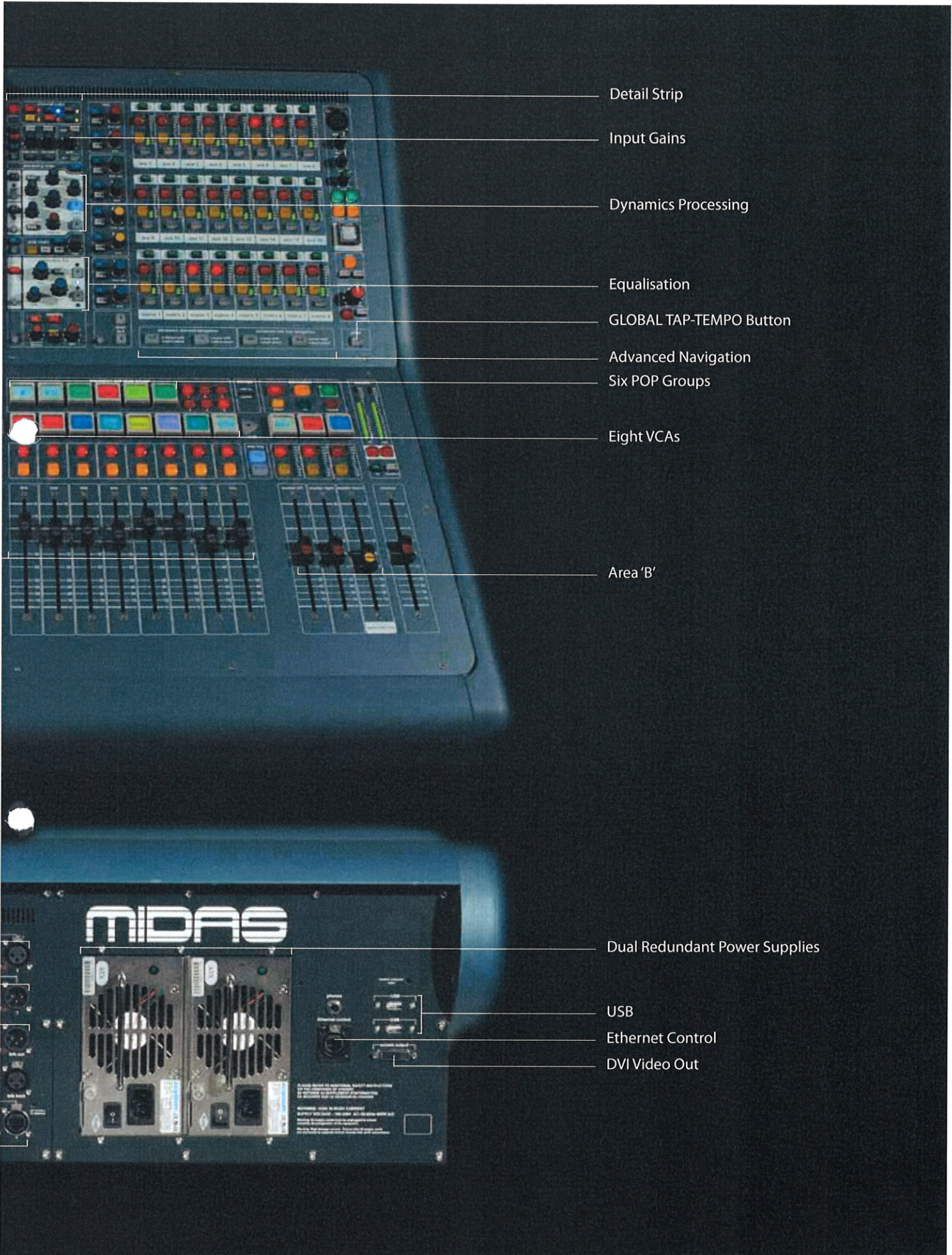
2 AES3 Inputs and 3 AES3 Outputs

MIDI

Multiple Clocking Options

6 AES 50 Ports





Detail Strip

Input Gains

Dynamics Processing

Equalisation

GLOBAL TAP-TEMPO Button

Advanced Navigation

Six POP Groups

Eight VCAs

Area 'B'


Dual Redundant Power Supplies

USB

Ethernet Control

DVI Video Out





Navigating the Channels

The concept of "paging" or "layering" is eliminated. Instead the operator is invited to create groups of mixes or musically related channels, which are structured around the process of mixing the show. This is preferable to locating target channels from arbitrary "layers" or "pages" which have no logical delineation and often start and end at inconvenient points (i.e. half-way through a logical sequence of inputs).

There are three types of groupings available on PRO2. VCA (Variable Control Associations) MCA (Mix Control Associations) and POPulation groups. These groups are identified using colour coding and high-visibility labelling and further supported by the full-colour daylight-visible TFT screen. Selecting a VCA or POP group will bring all of the members of that group to the designated area of the control surface, populating from the VCA area outwards. If the group has more members than visible input channels, the group can be viewed either by scrolling the input faders, or pressing the EXTEND button. This will populate the VCA fader area with the additional input channels.

Advanced Navigation Modes

The PRO2 features three modes of channel navigation. These options make it possible for an engineer to easily and efficiently mix a large number of inputs on a very compact control surface, and makes the PRO2 Midas' most dynamic user-interface to date. The Advanced navigation modes are accessed using the four large illuminated advanced navigation hardware buttons.

When the FLIP button is engaged, selecting an output will flip the input faders to become the input channel send levels to the selected output.

When the GEQ NAVIGATION button is engaged, selecting an output which has a GEQ assigned, will present the GEQ on the VCA faders. Scrolling the VCA faders left and right will provide access to all 31 GEQ faders. If FADER FLIP is also engaged, the input channel faders will become the contributions to the selected mix. If HIDE UNASSIGNED CHANNELS is selected, the operator will only be presented with input channels which are sending to that mix.

When the FX NAVIGATION button is engaged, selecting an output which is patched to an internal FX processor will deploy that FX processor on the screen and map the ASSIGNABLE CONTROLS to it. If FADER FLIP is also engaged, the input channel faders will become the contributions to the FX processor. If HIDE UNASSIGNED CHANNELS is selected, the operator will only be presented with input channels which are sending to that FX processor.

If the MCA button is engaged, when an output (mix) is selected, the MCA faders for that output are deployed on the VCA fader bank.

MCA groups (Mix Control Association groups), operate similar to VCA groups, but are specific to the selected mix. When the PRO2 is in Advanced navigation mode, and MCA navigation is engaged, the MCA faders control

the contributions of their members only to the currently selected bus. This is a unique and powerful mixing tool, which puts the PRO2 in a class of its own for innovation and usability. PRO2 has the ability to make working with the console as simple as requirements dictate, or as deep and complex as a user desires. To introduce the concept, think of multilayered 3-D VCAs, or a mixing console with 200 linked VCA groups! Both are valid starting points.

Hide/show unassigned channels when flipped. When in this mode, and the FLIP button is engaged, selecting an output flips the input faders to become the input channel send levels to the selected output. The console will only populate with the input channels which are assigned to the selected output.

Automation


One of the most critical requirements for Theatre applications is the power and flexibility of console automation. The Midas PRO2 has taken into consideration these very specific requirements, and features the same automation software as the XL8, which is itself no stranger to Broadway!

The PRO2's automation system can store and recall up to 1000 snap shot scenes. These contain the audio parameter values for every control on the console as well as the network routing, configuration of the FX rack, and the format of the mixer itself, all of which is scene-specific.

Hardware automation "safe" buttons are provided to enable the operator to quickly isolate selected processing areas from recall should this be required during a performance. In addition to these, the store and recall of scenes can be "scoped" such that only the areas that the operator wants to store or recall are affected (all other controls remaining in their current state).

Channel settings can be edited in advance of recall (across all scenes) from the SHOW EDITOR screen, and scenes can be re-ordered, inserted and deleted, simply and quickly without overwriting their designation. Scenes can be recalled instantaneously, with no discernible drop in audio, or via complex crossfade options, including programmable surround-sound panning events.





Assignable Controls

Between the screen and the fader bank are the 8 assignable rotaries and buttons. These controls are scrolled using the vertical arrow keys, and address the function of all primary rotary and switch functions on the channels populating this area of the console. The assignable controls adopt colour cues depending upon their function. The ALT button selects the alternative function (if one is available) for each area. Assignable rotaries can be used for input gain, compressor and gate threshold, aux send levels, pan.

Area B

To further enhance an already dynamic and flexible user-interface, PRO2 features an AREA B. By default, these are the Left, Right and Mono master faders. However, as these faders are seldom used once the show is running, any of the VCA or POPulation groups can be deployed here as an alternative to the primary fader area. This allows the operator to "stick" high-priority channels onto this area of the surface for instant access.

Display Screen

The high-resolution screen remains visible even in direct sunlight. In this aspect, the PRO2's visual support is exceptional, as most conventional consoles become difficult, or impossible to operate in high ambient lighting.

Visual feedback for the entire system is provided by the screen. Pressing the HOME key (just to the left of the assignable controls) instantly displays the console overview screen, which keeps all vital information (all metering, all fader positions, mutes and solos,) in view at all times.

Detail Panel Area

The detail panel is a vertically oriented channel strip, with an almost identical layout to the PRO3,6 and 9. The controls are configured in a logical, signal-path sequence and are easily identified by their relative positions. Both analogue users and digital adopters will find no difficulty using the large multi-colour LCD channel select buttons for navigating the console.

Input Gains

The PRO2 boasts two input gains per channel. First is the remote analogue gain for that wonderful Midas mic amp, the second is a digital gain. Set the analogue gain for the desired amount (if any) of that famous Midas "warmth", then use the digital gain to trim to your preferred gain structure.

Equalisation

Midas digital EQ features fully interpolated controls, which re-create the original phase-shift as experienced when working on the worlds' best-loved analogue consoles. Each input channel has 4-band parametric EQ, with a choice of four different filter types for both the high and low filters. These powerful EQ options enable the user to employ EQ filters which emulate the sound of historic Midas consoles, or, freed of the limitations

of analogue circuitry, choose advanced digital filter types.

Dynamics Processing

The dynamics processing on the PRO2's input channels is identical to the Midas XL8. Each input channel features a frequency-conscious gate and a choice from four different compressor algorithms. Further creative expression is available, as these compressor options feature variable knee, internal and external sidechain filtering, and colouration artefact options.

Output (bus) compression offers a choice of five different options. These compression algorithms are designed to provide the engineer with a broad pallet of options for maximum creative potential, right down to the visual display on the screen changing to support the different styles. More dynamics processing options are available in the PRO2's FX rack, including multiband compression and dynamic equalisation.

FX

The PRO2'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 on a send-and-return basis.

Delay FX can be individually configured to synchronise to the PRO2's GLOBAL TAP-TEMPO hardware button. This makes on-the-fly changes to delay effects children's play.

Even more FX options are under development for future firmware releases.

Surround Sound

In addition to normal stereo and SIS operation, the PRO2 can operate in one of three surround sound modes:

- Quad Four-channel L-R front plus L-R rear
- LCRS Four-channel L-C-R plus single rear channel
- 5.1 Six-channel L-C-R plus Sub plus L-R rear

All three surround modes feature divergence control to tailor the depth of the surround panning. Dynamic surround panning can be implemented using the PRO2's trackball, or the USB pointing device of your choice.

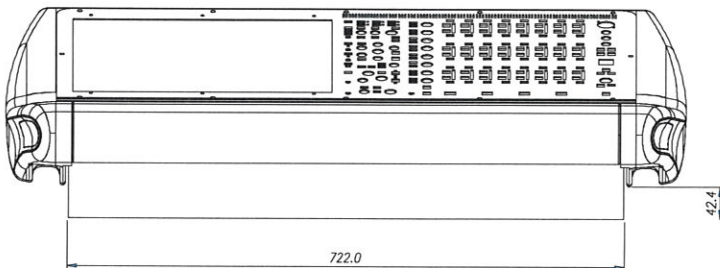
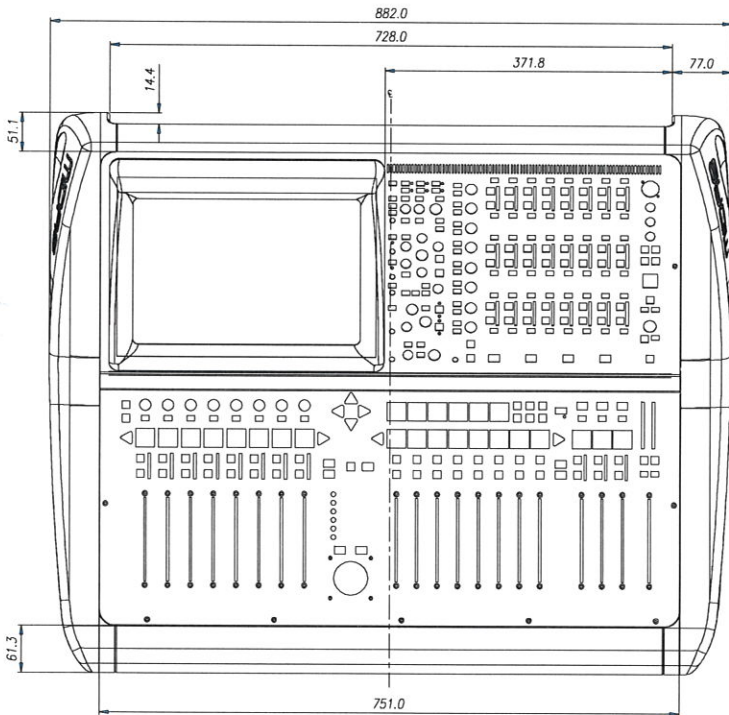
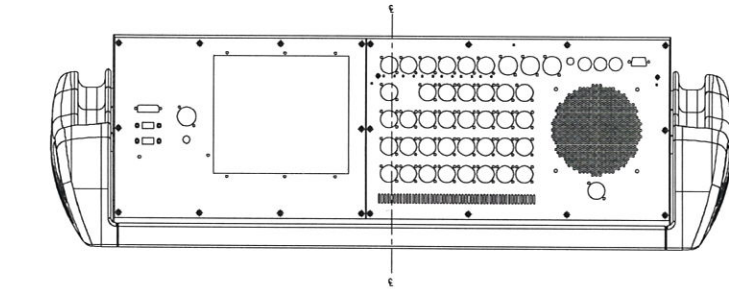
Remote Control

Remote control of the PRO2 can be achieved using an iPad and wireless access point. Install the PRO2 remote app on the iPad and connect the WAP to the PRO2's Ethernet control port, having configured the wireless link.

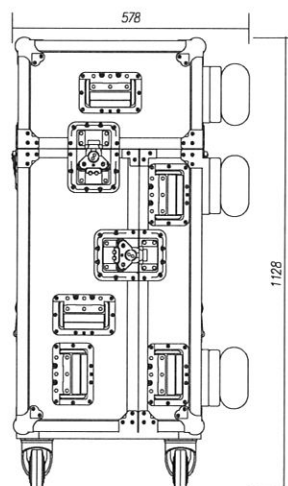
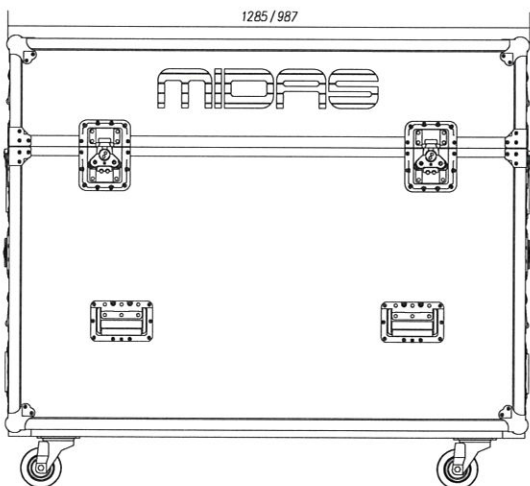
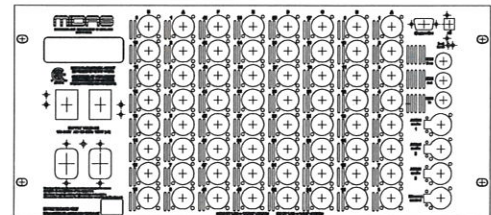
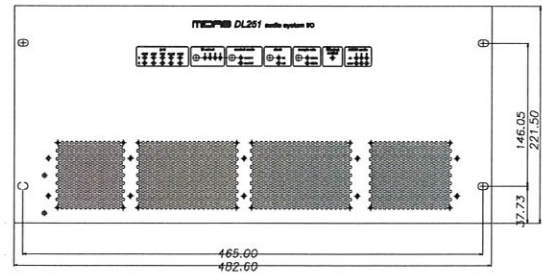


Dimension Overview

PRO2C:
 Width 882mm (347.2")
 Depth 730.3mm (287.5")
 Height 247.9mm (108.2")
 Weight 37kg (81.57lbs)



DL251



Please note: all measurements are in millimetres. Flight case and DL251 not to scale.

Architect's and Engineer's Specification

The PRO2 and PRO2C standard package comprises of:-

27 Bus Console (plus 4 solo),
64 main inputs (or 56 input and 8 aux return)
56 XLR mic/line inputs,
24 XLR line outputs,
2 AES/EBU inputs
2 AES/EBU outputs
1 Console in flight case (TP version only)
4 interconnecting (N=1) rack Cat5-E copper cables

The system shall comprise of robust steel, 19" rack mountable, modular units that can be interconnected via N+1 or dual redundant cables to provide a scalable audio signal network with signal processing and mixing capability. A central control surface shall be provided consisting of multiple modules housed in a robust steel chassis that can be located well away from the rest of the system and connected by dual redundant multi-channel digital fibre or copper "snake".

The entire system shall be fault tolerant such that no single interconnecting cable fault can stop the system operating to its full capacity. All external interfacing, internal processing and system controls shall be modular such that loss of power to any single module only affects that module allowing the remainder of the system to operate normally. The operational status of all the system modules and interconnections shall be continuously monitored and reported at the control surface.

The system shall be configurable to meet all of its I/O, processing and control surface requirements within an easily portable solution that is fast to set up and only requires the interconnection of two digital audio cables (three for redundancy) and power to make it operational.

The system shall be expandable and capable of sourcing inputs and driving outputs from multiple locations so that for example all inputs can source their signal from a hard disk recorder for sound checking but switch over to microphone feeds for the main live show event.

The system shall be capable of mixing 56 primary input channels and 8 auxiliary input channels simultaneously to 24 main bus output channels, with equalisation every channel and dynamic processing on all outputs and primary input channels. 6 effects processors shall be included that can be inserted into any channel path with the ability to add additional external insert points to any of the channels, as desired.

Primary Input Channel Functions:-

Input Channel Hi Pass selectable
10Hz to 400Hz swept slope
12dB/Oct or 24dB/Oct

Input Channel Lo Pass selectable
2kHz to 20kHz swept slope
6dB/Oct or 12dB/Oct

Input Channel Treble
Parametric Operation
Frequency 1kHz to 25kHz swept
Gain +16dB to -16dB
BW 0.1 Oct to 3 Oct

Shelf Operation
Frequency 1kHz to 25kHz swept
Gain +16dB to -16dB
Soft, Classic or Bright (minimum harmonic disruption) curves

Input Channel Hi Mid
Parametric Operation
Frequency 320Hz to 8kHz swept
Gain +16dB to -16dB
BW 0.1 Oct to 3 Oct

Input Channel Lo Mid
Parametric Operation
Frequency 80Hz to 2kHz swept
Gain +16dB to -16dB
BW 0.1 Oct to 3 Oct

Input Channel Bass
Parametric Operation
Frequency 16Hz to 400Hz swept
Gain +16dB to -16dB
BW 0.1 Oct to 3 Oct

Shelf Operation
Frequency 16Hz to 400Hz swept
Gain +16dB to -16dB
Warm, Classic or Deep (minimum harmonic disruption) curves

Input Channel Compressor
Peak, Linear, RMS,
Vintage modes
Thresh -50dBu to +20dBu
Attack 200uS to 20mS
Release 50mS to 3 Sec
Ratio 25:1 to 1:1
Knee 4dB, 12dB or 40dB
Gain 0dB to +24dB

Side chain source
selectable + filter
Frequency 50Hz to 15kHz swept
Bandwidth 1/3, 1 or 2 Oct

Input Channel Gate
Peak mode
Thresh -50dBu to +20dBu
Attack 10uS to 20mS
Hold 5mS to 2 Sec
Release 2mS to 2 Sec
Range 100dB to 0dB
Side chain source
selectable + filter
Frequency 50Hz to 15kHz swept
Bandwidth 1/3, 1 or 2 Oct

Auxiliary Return Channel Functions:-

Aux Return Treble
Parametric Operation
Frequency 1kHz to 25kHz swept
Gain +16dB to -16dB
BW 0.1 Oct to 3 Oct

Shelf Operation
Frequency 1kHz to 25kHz swept
Gain +16dB to -16dB
Soft, Classic or Bright (minimum harmonic disruption) curves

Aux Return Hi Mid
Parametric Operation
Frequency 320Hz to 8kHz swept
Gain +16dB to -16dB
BW 0.1 Oct to 3 Oct

Aux Return Lo Mid
Parametric Operation
Frequency 80Hz to 2kHz swept
Gain +16dB to -16dB
BW 0.1 Oct to 3 Oct

Aux Return Bass
Parametric Operation
Frequency 16Hz to 400Hz swept
Gain +16dB to -16dB
BW 0.1 Oct to 3 Oct

Shelf Operation
Frequency 16Hz to 400Hz swept
Gain +16dB to -16dB
Warm, Classic or Deep (minimum harmonic disruption) curves

Output Channel Functions:-

Output Channel Band 6
Parametric Operation
Frequency 16Hz to 25kHz swept
Gain +16dB to -16dB
BW 0.1 Oct to 3 Oct

Lo Pass Operation
Frequency 16Hz to 25kHz swept
Slope 6dB/Oct or 12dB/Oct

Shelf Operation
Frequency 16Hz to 25kHz swept
Gain +16dB to -16dB
Mode soft curve

Output Channel bands 3,4,5
Parametric Operation
Frequency 16Hz to 25kHz swept
Gain +16dB to -16dB
BW 0.1 Oct to 3 Oct

Output Channel Band 2
Parametric Operation
Frequency 16Hz to 25kHz swept
Gain +16dB to -16dB
BW 0.1 Oct to 3 Oct

Hi Pass Operation
Frequency 16Hz to 25kHz swept
Slope 24dB/Oct

Output Channel Band 1
Parametric Operation
Frequency 16Hz to 25kHz swept
Gain +16dB to -16dB.
BW 0.1 Oct to 3 Oct

Hi Pass Operation.

Frequency 16Hz to 25kHz swept
Slope 6dB/Oct or 12dB/Oct.

Shelf Operation

Frequency 16Hz to 25kHz swept
Gain +16dB to -16dB
Mode soft curve

Output Channel GEQ

8 available in place of PEQ
(above)
31 Bands.

1/3 Oct. Proportional Q
Lo Pass Frequency 2kHz to
20kHz swept
Slope 6dB/Oct or 12dB/Oct
Hi Pass Frequency 20Hz to
500Hz swept
Slope 6dB/Oct or 12dB/Oct

Output Channel Dynamic

Pk, Linear, RMS, Vintage and
Shimmer modes
Thresh -50dBu to +20dBu
Attack 200uS to 20mS
Release 50mS to 3 Sec
Ratio 25:1 to 1:1
Knee 4dB, 12dB or 40dB
Gain 0dB to +24dB

Side chain source
selectable + filter
Frequency 50Hz to 15kHz swept
Bandwidth 1/3, 1 or 2 Oct

Effects Channel Functions:-

Multi Channel Effects 6 available
configurable as
Modulated delay effects
Complex delay, reverbs
Advanced dynamics

Primary Input / Output Unit:-

The primary input/output unit shall be a 5U rack box with dual-redundant universal mains power supplies and connections and that interfaces 48 bi-directional system signals to external analogue equipment using the balanced 3-pin XLR format: N+1 bi-directional digital AES50 protocol system connections shall be provided on XLR Ethernet connectors.

MIDI inputs and output shall be provided.

Control of gain and all preamplifier functions on the balanced XLR mic / line inputs shall be available remotely from the system control surface.



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