

# **SECTOR-PRO**

VER. OIR. SENTIR...

**EQUIPAMIENTO TECNICO**

**AUDITORIO ATALICA Y SALAS GRANDES**



## **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 horas<sup>1</sup>.

### 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.



**EPSON**  
EXCEED YOUR VISION

## ESPECIFICACIONES DEL PRODUCTO

### TECNOLOGÍA

|                       |                           |
|-----------------------|---------------------------|
| Sistema de proyección | Tecnología 3LCD           |
| Pantalla LCD          | 1,03 pulgadas 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: $\pm 45^\circ$ , Manual horizontal $\pm 30^\circ$       |
| 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 vatios, 597 vatios (económico), 0,3 vatios (Standby), On mode power consumption as defined in JBMS-84 833 vatios |
| 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<br>Ampliación de garantía opcional disponible |
|----------|--|

## INFORMACIÓN LOGÍSTICA

|                  |               |
|------------------|---------------|
| Código SKU       | V11H910140    |
| Código de barras | 8715946647005 |
| País de origen   | China         |

Epson Ibérica, S A U  
Tel : 93 582 15 00  
Tel : 902 49 59 69 (Preventa)  
Fax: 93 582 15 55  
www.epson.es

Central: Sant Cugat  
Cami de Ca n'Ameller, 22  
Edificio 2  
08195 Sant Cugat del Vallès (Barcelona)

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## 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 - ELPAF51  
V13H134A51
- 3D Polarizer - ELPLP01  
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

### LENTE 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

1 - Vida útil de láser de hasta 83 000 horas en modo personalizado.

**EPSON**®

## **2. MONITORES DE VIDEO**

- **SANSUNG PLASMAS KV6300FLAT SMART 4K VHD TV 40"**





**SANSUNG**  
**J6300F Flat Smart Full HD TV**



PLASMAS 40", 43", 55" y 60"



### **3. MESA DE MEZCLAS SONIDO**

- **YAMAHA TF**
- **MIDAS M 32**





DIGITAL MIXING CONSOLE

# TF SERIES



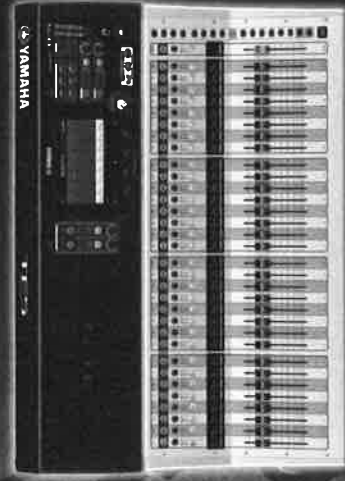
## Design Meets Intuition

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 S 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.

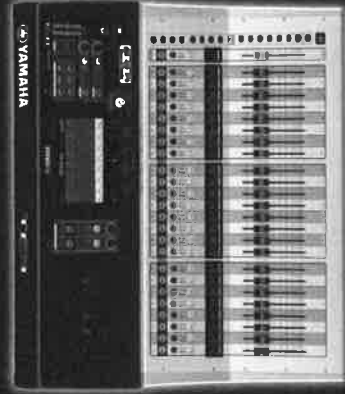
With the TouchFlow Operation interface optimized for touch panel control, experienced engineers as well as newcomers to the field will find it easier than ever to achieve the ideal mix. Recallable D-PRE™ preamplifiers support sound quality that will satisfy the most discerning professional ears, while 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



# Flow

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



Intuitive User Interface Optimize  
 for Touch Panel Operation



New Features for Smooth  
 Setup and Operation



1 knob-Comp

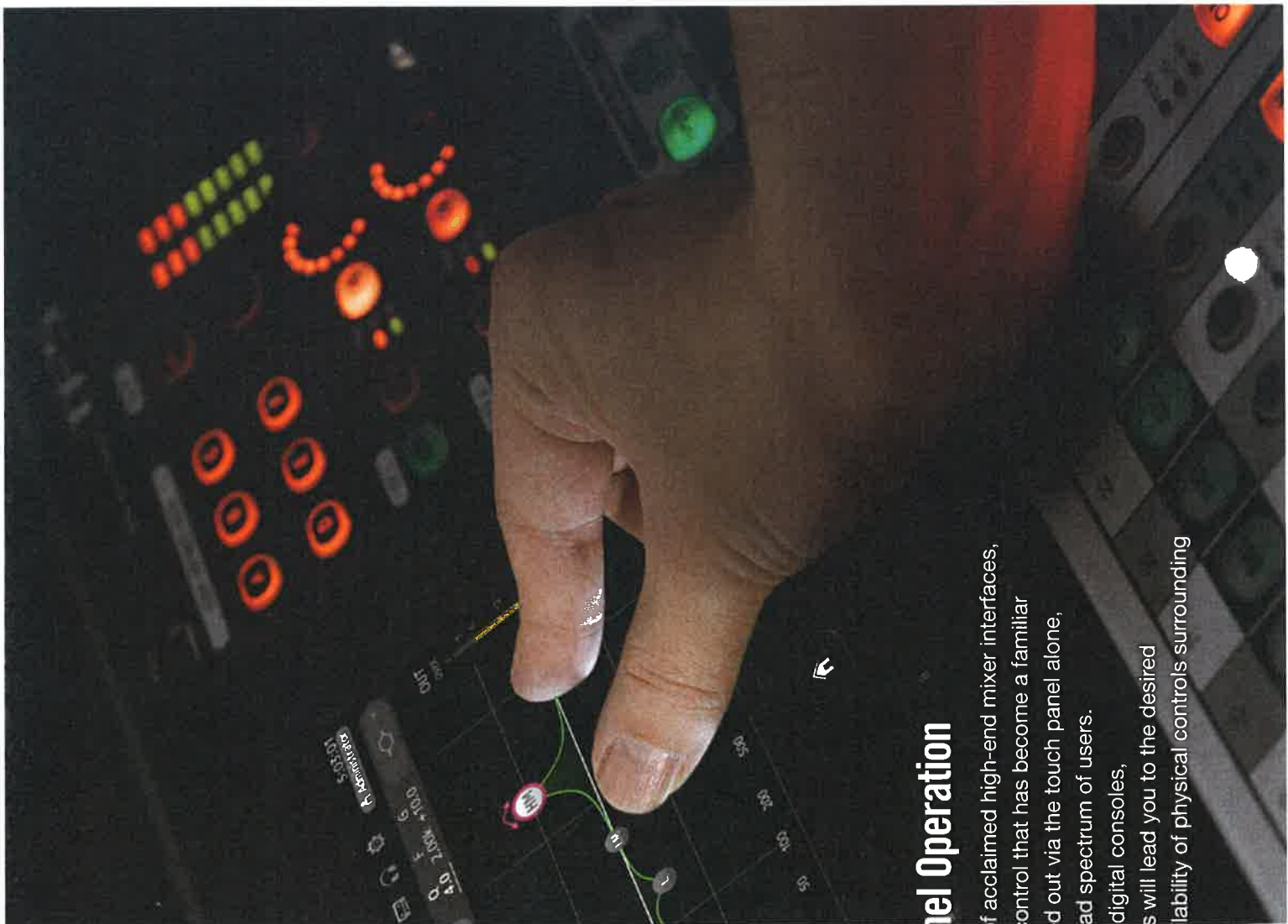
1 knob-EQ

GainFinder



Practical Presets and Scenes  
 - Shortcuts to Great Sound





## Panel Operation

Of acclaimed high-end mixer interfaces, touch control that has become a familiar part of the digital mixer's control panel alone, and the spectrum of users. digital consoles, touch will lead you to the desired flexibility of physical controls surrounding



## Touch Operation for Intimate Control

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



## 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.



Tr:  
Lik  
wli  
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to



Ove



## 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 this 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 to add 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 speed of operation. 1-knob EQ has been painstakingly fine-tuned by Yamaha R&D staff in cooperation with console engineers, to ensure that you can achieve outstanding results with minimum effort in the shortest possible time. Mode makes it easier than ever to achieve a clear, well defined vocal sound, while an Intensity Mode provides “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 control overall output compression or EQ that ideally matches the room and audience size. The output 1-knob EQ is available in place of the Vocal Mode, effectively increasing the sound pressure level while maintaining the room and audience size.

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



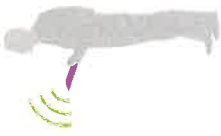
skill  
ant basic settings.  
features that

## TF Editor Facilitates Offline Editing Plus Showtime Control

TF EDITOR

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

StageMix

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.



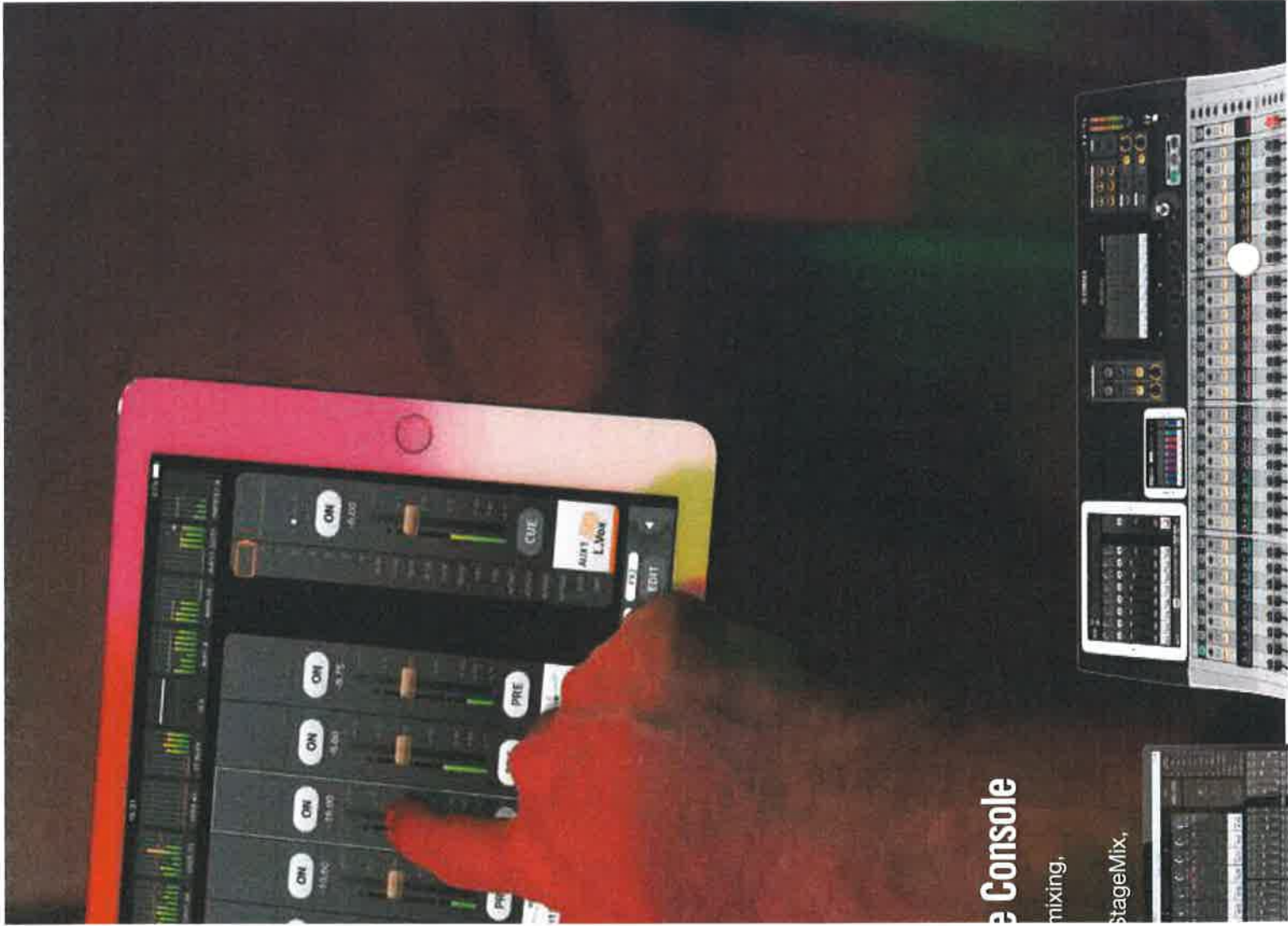
## Personal Monitoring with MonitorMix

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.



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

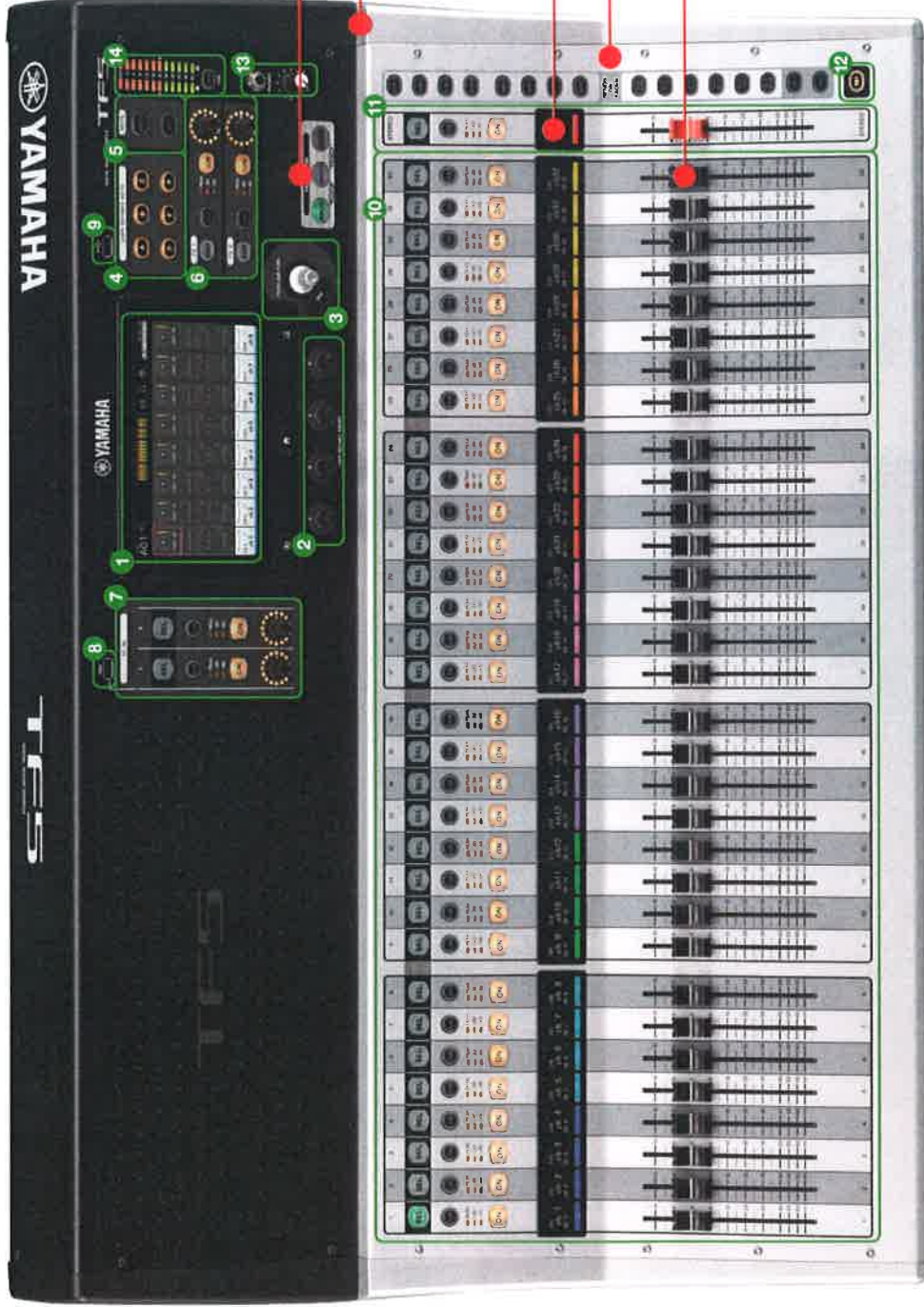
Michael Polten, Product Management & Marketing, Live Performance & Music

"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 Ennis "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 ch the port name, and the current fader se operation can also be displayed. A colt navigation a breeze, and prevents cont



**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 ins the faders for easy verification and engaged the MASTER fader acts a can be checked and controlled wit

**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.

**3 and TURN section:**  
 eration with a very simple  
 uch a parameter on the  
 elect,  
 ie knob to adjust.

**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.



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



**1 QUICK CONFIG switch** **2 UNIT ID** **3 SYSTEM SYNC** **4 +48V MASTER** **5 Dante** **6 OUTPUT**

**1 FAN switch** **2 DIP switch** **3 PRIMARY and SECONDARY Dante conn** **4 AC IN** **5 DIGITAL INPUTS** **6 MULTI-OUT** **7 ST. IN**

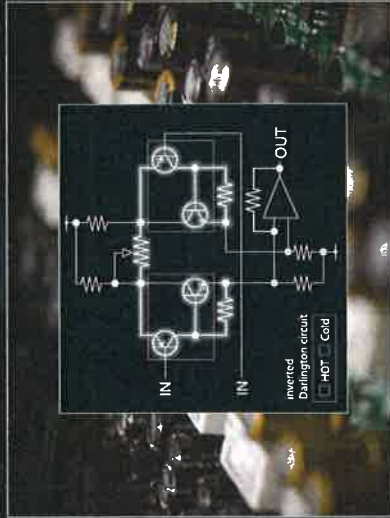
# Freedom

can take over.  
in the TF series.

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



**Various mix to multiple speaker systems - Matrix**  
Four matrix out channels with delay parameters that allow for large venues, installations where separate mixes are required for a specific degree of delay compensation.

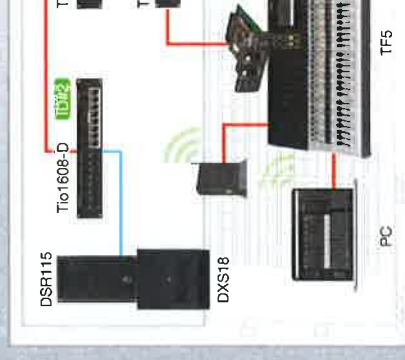


# A High-performance Stagebox Solution that's Simple to Set Up

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 a 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.



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. From an iPhone or iPad can be played back via a DAW 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

- 17 motor faders (16 channels + 1 master)
- 20 AUX buses (8 mono + 6 stereo) + stereo + sub
- 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

DIGITAL MIXING CONSOLE

# TF1



cuts. The Tio1608-D preamplifiers 8-D to a TF console at the mixing ilky, heavy multi-cables and asy setup. Up to three Tio1608-D box system with as many as 48 its 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.



mc  
eq  
stt



# Specifications

## TF-Rack General Specifications

| TF                                     | TF-RACK   |
|--|---|
| Fader Configuration                    | Input Channels<br>Main Buses<br>Aux Buses<br>Groups<br>Inputs<br>Outputs<br>Expansion Slot                                |
| Mixing Capacity                        | 40 (32 mono + 2 stereo + 2 return)<br>Stereo + Sub<br>20 (8 mono + 8 stereo)<br>8 DCA Groups                              |
| I/O Connectors                         | 16 mic/line (XLR/TRS combo) + 1 stereo line (RCA pin)<br>16 (8 XLR + 8 TRS phone)<br>1 (for IPEL-D)<br>8 Effects + 10 GEO |
| Signal Processors                      | PC/Axax (USB2.0)<br>Recording/Playback<br>USB Storage Device<br>Internal Clock  |
| Sampling Frequency                     | Recording: 2-spkr (USB HD/SSD) / Playback: 2-spkr(USB HD/SSD) / 4-spkr (RAM)  |
| Signal Delays                          | Less than 2.6 ms, INPUT to OUTPUT, F=48 kHz<br>Resolution = 10-bit, +10 dB to -138 dB, >>> db all filters                 |
| Frequency Response                     | -0.5, -1.5 dB 20 Hz-20 kHz, refer to +4 dBu output @1kHz, INPUT to OUTPUT   |
| Total Harmonic Distortion*             | Less than 0.05% 20 Hz-20 kHz @ -4 dBu, into 600 Ω, INPUT to OUTPUT, Input Gain=Min.                                       |
| Hum & Noise*                           | -128 dbu typ., Equivalent Input Noise, Input Gain=Max., -65 dbu, Residual output noise, ST master of Dynamic Range        |
| Dynamic Range                          | 110 dB typ., DA Converter, 100 dB typ., INPUT to OUTPUT, Input Gain=Min.  |
| Crosstalk@1 kHz                        | -100 dB†, adjacent INPUT/OUTPUT channels, Input Gain=Min.   |
| Dimensions (W x H x D)                 | 488 mm x 132 mm x 405 mm (19.78 in x 5.14 in x 16.10 in)  |
| Net Weight                             | 9.2 kg (20.3 lb)<br>SS W  |
| Power Requirements (wattage)           | 100-240 V, 50/60 Hz   |
| Power Requirements (voltage and hertz) | Operating temperature range: 0-40 °C / Storage temperature range: -20-60 °C   |
| Temperature Range                      | Quick Guide, Power Cord, MUEBHO LIVE (DM Software), Rubber stopper(s)   |
| Included Accessories                   | Audio Interface Case (M-640), Foot Switch (FS)  |
| Options                                |   |

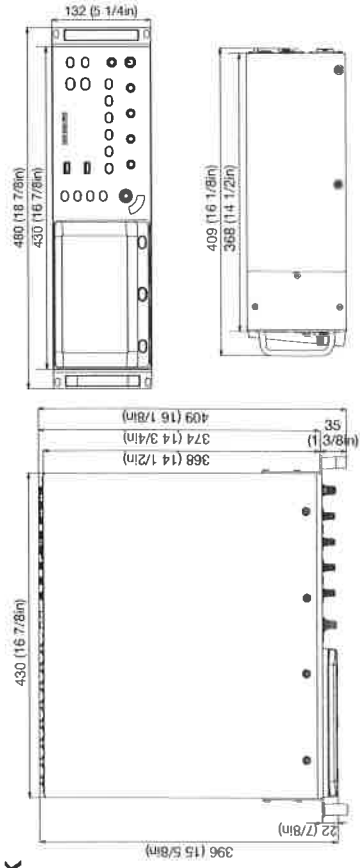
\*1 Crosstalk is measured with a -30 dB/octave filter@22 kHz. \*2 Total Harmonic Distortion is measured with a -18 dB/octave filter@60 kHz.  
† Hum & Noise are measured with an A-Weight filter.

## Tio 1608-D General Specifications

| TF                                 | Tio 1608-D   |
|------------------------------------|--|
| Sampling frequency rate (External) | 44.1 kHz or 48 kHz   |
| Total harmonic distortion          | Less than 0.1%, +4dBu@20Hz-20kHz, Gain=-66dB / Less than 0.05%, +4dBu@20Hz-20kHz into 600Ω, Gain=-64B, INPUT to OUTPUT, F=44.1kHz, 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, F=44.1kHz or 48kHz   |
| Dynamic range                      | 100 dB, INPUT to OUTPUT, Gain=-64B / 112 dB, DA Converter  |
| Hum & noise level                  | -128dbu, S/N, Gain=-66dB *Measured with A-weighting filter<br>-86dbu, ST master of *Measured with A-weighting filter   |
| Crosstalk                          | -100dB, adjacent INPUT/OUTPUT channels, Input Gain = -64B *Measured with a -30dB/octave filter @22kHz  |
| Heat dissipation                   | 100-240V, 50/60Hz, 0.3kcal/h†  |
| Power requirements                 | 5W   |
| Power consumption                  | 5.7W (12.6W)   |
| Dimensions (W x H x D)             | 488mm x 88mm x 361mm (19.78" x 3.48" x 14.38")   |
| Net weight                         | 0.7kg (1.5lb)  |
| 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  |

## Dimensions

### TF-RACK



## TF Series Input / Output Specifications

### Analog input characteristics

| Input Terminals | GAIN  | Load Impedance | For Use With Nominal       | Sensitivity**   | Input Level / Nominal | Max. before clip | Connector                                      | balanced / Unbalanced |
|-----------------|-------|----------------|----------------------------|-----------------|-----------------------|------------------|--|-----------------------|
| INPUT1-32 (TRS) | -66dB | 7.5kΩ          | 50-6000 Mics or 600Ω Lines | -82dBu (61.6μV) | -62dBu (0.815mV)      | -42dBu (6.16mV)  | Combo Jack (XLR-3-pin type ** or TRS phone **) | Balanced              |
| INPUT1-24 (TRS) | -66dB | 7.5kΩ          | 5000 Lines                 | -100dBu (245mV) | +100dBu (2.45V)       | +30dBu (24.5V)   | TRCA Pin Jack                                  | Unbalanced            |
| ST (In 1, 2)    | -     | 10kΩ           | 5000 Lines                 | -30dBV (31.6μV) | -100dBu (3.16mV)      | +100dBu (3.16V)  | TRCA Pin Jack                                  | Unbalanced            |

\*1 Sensitivity is the lowest level that will produce an output of +4dBu (1.23V) 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 | Gain SW | Output Level / Nominal | Max. before clip | Connector                | balanced / Unbalanced |
|------------------|------------------|----------------------|---------|------------------------|------------------|--------------------------|-----------------------|
| OUTPUT 1-16      | 750              | 6000 Lines           | 24dBu   | +4dBu (1.23 V)         | -24dBu (12.3 V)  | XLR-3-pin type **        | Balanced              |
| PHONES *         | 1000             | 400 Phones           | 75mW    | 3mW                    | 75mW             | Stem Phone Jack (TRS) ** | Unbalanced            |

\*1 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 15dB from the maximum.

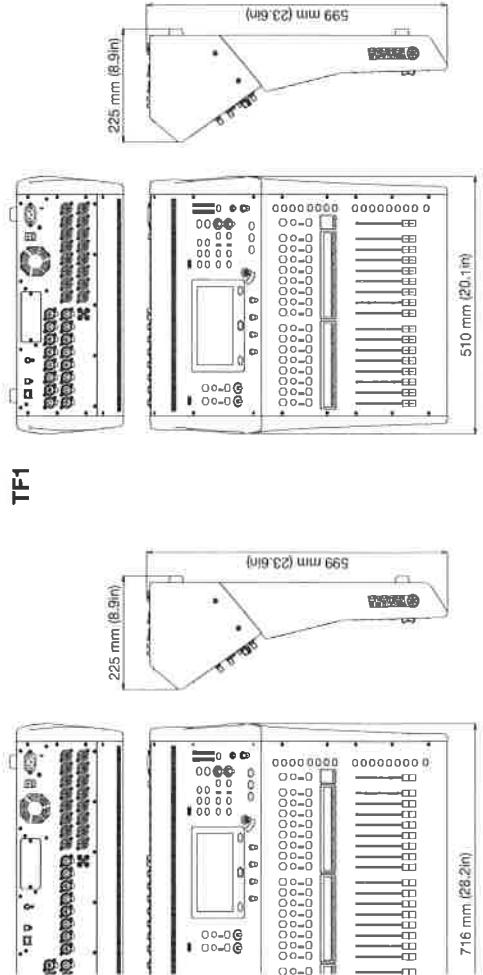
### Digital input / output specifications

| Terminals     | Format | Data length | Audio   | Connector    |
|---------------|--------|-------------|---|--------------|
| USB (TD HOST) | USB    | 24-bit      | 32ch input / 32ch output, PCM                         | USB (B type) |
| Foot SW       | USB    | —           | Playback, MP3 or WAV file data / Record WAV file data | USB (A type) |

### Control I/O specifications

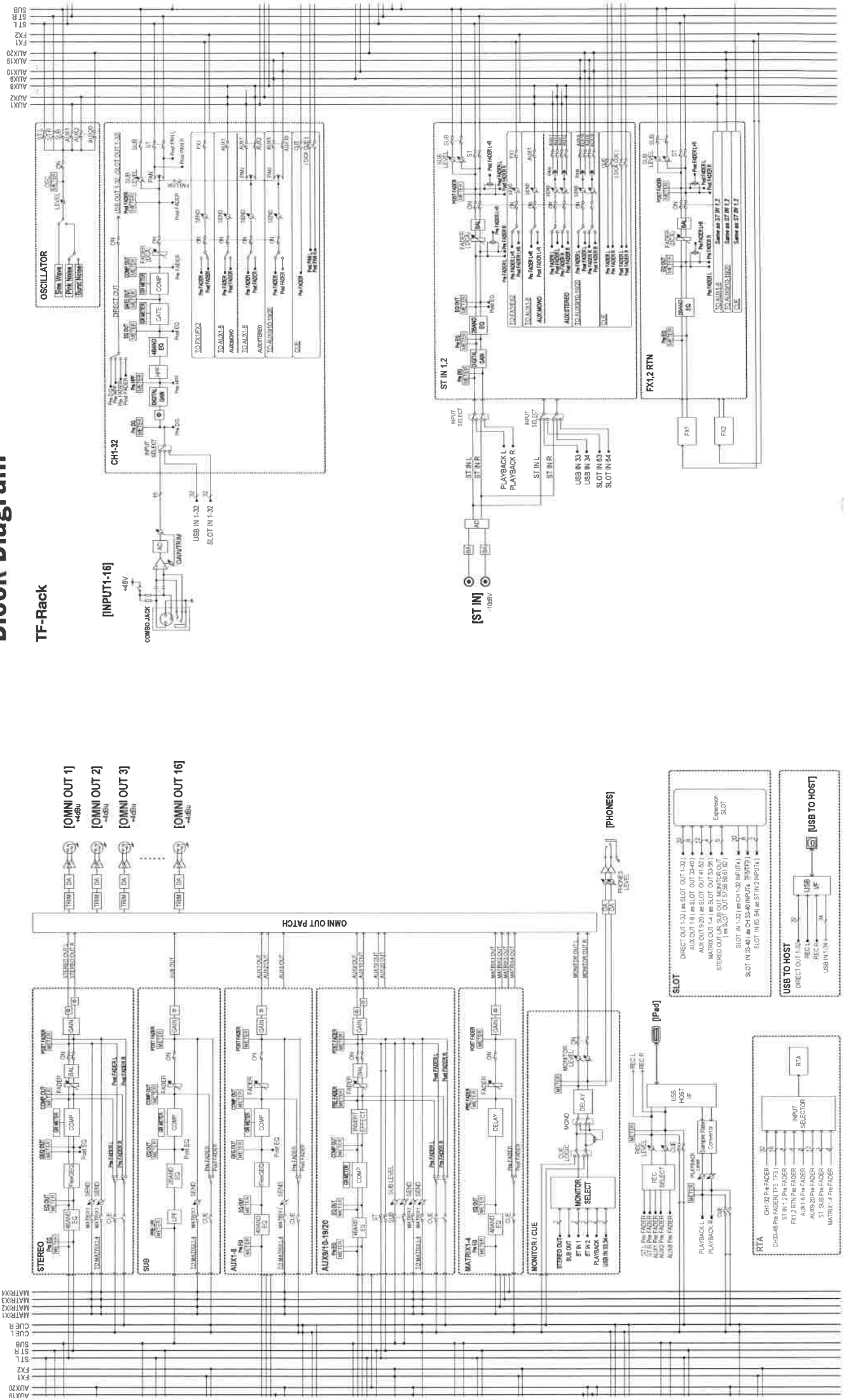
| Terminals | Format    | Level               | Connector |
|-----------|-----------|---------------------|-----------|
| NETWORK   | IEEE802.3 | 10BASE-T/100Base-TX | RJ-45     |
| FOOT SW   | —         | —                   | TS Phone  |

## TF1



# Block Diagram

## TF-Rack



AUX1  
AUX2  
AUX3  
AUX4  
AUX5  
AUX6  
AUX7  
AUX8  
AUX9  
AUX10  
AUX11  
AUX12  
AUX13  
AUX14  
AUX15  
AUX16  
AUX17  
AUX18  
AUX19  
AUX20  
AUX21  
AUX22  
AUX23  
AUX24  
AUX25  
AUX26  
AUX27  
AUX28  
AUX29  
AUX30  
AUX31  
AUX32

ST  
FX1  
FX2  
AUX20  
AUX19  
AUX18  
AUX17  
AUX16  
AUX15  
AUX14  
AUX13  
AUX12  
AUX11  
AUX10  
AUX9  
AUX8  
AUX7  
AUX6  
AUX5  
AUX4  
AUX3  
AUX2  
AUX1



# M32 DIGITAL CONSOLE

Digital Console for Live and Studio with 40 Input Channels,  
32 MIDAS Microphone Preamplifiers and 25 Mix Buses

User Manual





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## EN Important Safety Instructions



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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## LIMITED WARRANTY

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## Precautions

**Before installing, setting up or operating this equipment make sure you have read and fully understand all of this section and the 'IMPORTANT SAFETY INSTRUCTIONS' at the front of this manual.**

This equipment is supplied by a mains voltage that can cause electric shock injury!

The following must be observed in order to maintain safety and electromagnetic compatibility (EMC) performance.

### Safety warnings

Signal 0V is connected internally to the chassis.

To completely isolate this equipment from the AC mains, while observing full safety precautions (see 'Power' on page xiii), switch off the isolator switch (above the mains power sockets on rear of control centre) and then switch off the mains at the three mains outlets. Unplug the three mains leads from the rear of the control centre. For details of how to remove Volex locking type plug, see 'Power' below.

To avoid electrical shock do not remove covers.

### General precautions

In the event of ground loop problems, disconnect the signal screen at one end of the connecting cables. Note that this can only be done when the equipment is used within a balanced system.

Do not remove, hide or deface any warnings or cautions.

### Power

The system power supplies contain LETHAL VOLTAGES greatly in excess of the mains voltage and its rails can produce extremely large currents that could burn out equipment and wiring if shorted.

The internal power supplies are of the switch mode type that automatically sense the incoming mains voltage and will work where the nominal voltage is in the range 100 VAC to 240 VAC.

Each mains inlet is to be sourced from its own separate wall-mounted mains outlet socket.

Otherwise, their mains sources must be suitably distributed so as to meet local safety regulations.

A Volex locking type plug is fitted on each supplied mains cable, which plugs into a mains IEC connector on the unit. When fitted properly the Volex plug locks into place, preventing it from working loose, or being inadvertently knocked loose or pulled out. To fit a Volex plug, insert it into the mains IEC connector and push it in until it locks in place. Then, check to make sure it is locked in place. To remove it, release its locking device and then pull it out. When fitting or removing a Volex plug, always hold the plug itself and never use the cable, as this may damage it.

During operation, a minimum of two of its three mains inlets must be connected and supplying power.

When removing the equipment's electric plugs from the outlets, always hold the plug itself and not the cable. Pulling out the plug by the cable can damage it.

Never insert or remove an electric plug with wet hands.

*Do not* connect/disconnect a mains power connector to/from the M32 Control Centre while power is being applied to it. Switch the power off first.

Before switching the M32 Control Centre on or off, make sure that all monitor loudspeaker power amplifiers are turned off or muted.

### Handling the equipment

Completely isolate the equipment electrically and disconnect all cables from the equipment before moving it.

When lifting or moving the equipment, always take its size and weight into consideration. Use suitable lifting equipment or transporting gear, or sufficient additional personnel.

Do not insert your fingers or hands in any gaps or openings on the equipment, for example, vents.

Do not press or rub on the sensitive surface of the GUI screens.

If the glass of the GUI screen is broken, liquid crystals shouldn't leak through the break due to the surface tension of the thin layer and the type of construction of the LCD panel. However, in the unlikely event that you do make contact with this substance, wash it out with soap.

### Installation

Before installing the equipment:

Make sure the equipment is correctly connected to the protective earth conductor of the mains voltage supply of the system installation through the mains leads

Power to the equipment must be via a fused spur(s)

Power plugs must be inserted in socket outlets provided with protective earth contacts. The electrical supply at the socket outlets must provide appropriate over-current protection

Both the mains supply and the quality of earthing must be adequate for the equipment

Before connecting up the equipment, check that the mains power supply voltage rating corresponds with the local mains power supply. The rating of the mains power supply voltage is printed on the equipment.

### Location

Ideally a cool area is preferred, away from power distribution equipment or other potential sources of interference.

Do not install the equipment in places of poor ventilation.

Do not install this equipment in a location subjected to excessive heat, dust or mechanical vibration. Allow for adequate ventilation around the equipment, making sure that its fans and vents are not obstructed. Whenever possible, keep the equipment out of direct sunlight.

Do not place the equipment in an unstable condition where it might accidentally fall over.

Make sure that the mains voltage and fuse rating information of the equipment will be visible after installation.

**Ensure that all underside vents are left clear during operation.**

## Audio connections

To ensure the correct and reliable operation of your equipment, only high quality, balanced, screened, twisted pair audio cable should be used.

XLR connector shells should be of metal construction so that they provide a screen when connected to the control centre and, where appropriate, they should have Pin 1 connected to the cable screen.



### Electrostatic discharge (ESD) precautions

Observe full electrostatic discharge (ESD) — also known as ‘anti-static’ — precautions when carrying out procedures in this manual that are accompanied by the ESD Susceptibility Symbol (shown above). This caution symbol shows you that ESD damage may be caused to items unless proper ESD precautions are taken, which include the following practices:

- Keep the work area free from plastic, vinyl or styrofoam
- Wear an anti-static wrist strap
- Discharge personal static before handling devices
- Ground the work surface
- Avoid touching ESD-sensitive devices.

### Radio frequency interference—Class A device

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.

## Electric fields

### Caution:

**In accordance with Part 15 of the FCC Rules & Regulations, “... changes or modifications not expressly approved by the party responsible for compliance could void the user’s authority to operate the equipment.”**

Should this product be used in an electromagnetic field that is amplitude modulated by an audio frequency signal (20 Hz to 20 kHz), the signal to noise ratio may be degraded. Degradation of up to 60 dB at a frequency corresponding to the modulation signal may be experienced under extreme conditions (3 V/m, 90% modulation).

## Safety equipment

Never remove, for example, covers, housings or any other safety guards. Do not operate the equipment or any of its parts if safety guards are ineffective or their effectiveness has been reduced.

## Optional equipment

Unless advised otherwise, optional equipment must only be installed by service personnel and in accordance with the appropriate assembly and usage regulations.

## Special accessories

To comply with part 15 of the FCC Rules, any special accessories (that is, items that cannot be readily obtained from multiple retail outlets) supplied with this equipment must be used with this equipment; do not use any alternatives as they may not fulfil the RF requirement.

# Introduction

Welcome to the M32 Digital Console User manual! After years of intense development, we are proud to offer a mixer that combines tremendous power and flexibility with a very user-friendly layout and intuitive workflow that allows you to get up and running right away.

The M32 combines a control surface with streamlined workflow, extensive I/O and signal processing into a compact desktop form factor. Employing award-winning MIDAS PRO Series microphone preamplifiers and the custom-designed MIDAS PRO motorised faders that are rated for one million cycles, along with a daylight-viewable TFT screen, the control surface is designed to allow immediate access to critical functions with total and automatic recall of settings. Extensive onboard I/O includes 40 A/D and 24 D/A Cirrus Logic converters, 96 bi-directional channels over SuperMAC AES50, stereo AES/EBU out, 16 channels of Ultraset personal monitoring and 32 x 32 channels of recording over USB.

Abundant analogue connectivity is provided by 32 MIDAS PRO Series digitally-controllable microphone preamps, six line-level auxiliary inputs and outputs, 16 XLR outputs, stereo monitoring outs on XLR/TRS and dual phones outputs. Each of the 32 microphone inputs can accept balanced or unbalanced mic- or line-level signals, and include switchable phantom power, 72 dB gain range and maximum +23 dBu level before clip. A separate external microphone input and the internal talkback mic allow communication to various destinations.

Dual AES50 Ethernet jacks that employ KLARK TEKNIK SuperMAC technology contribute 96 x 96 signals to the total count of 168 x 168 accessible sources and destinations. Motorised faders, recallable mic preamps, programmable routing and the ability to save and recall entire scenes make set or programme changes quick and simple. A top panel USB connector enables system data to be stored, or a board mix to be recorded directly to external flash or hard drives.

The Input section is home to 16 high-resolution 100 mm motorised faders, providing control over channels 1-16, 17-32, Aux inputs/USB playback/FX returns. A separate section of eight motorised faders controls DCA groups 1-8, bus masters 1-8 and 9-16, as well as matrices 1-6. The channel editing section provides tangible controls for instant access to the selected channel’s gain, dynamics, EQ and other functions. A custom-assignable section allows certain control functions to be mapped directly to a set of dedicated rotary controls and buttons.

A main seven inch-wide, high-contrast colour display provides information for editing pertinent parameters of the active function or effect. Relevant parameters are quickly recalled to the display for editing via ‘VIEW’ buttons in each subsection. Each channel also features a small, customisable LCD screen for track name, number, colour and source graphic.

A virtual FX rack offers eight true-stereo (16 mono) multi-effects processors, with over 60 effects models that eliminate the need for any additional outboard gear. Four high-quality effects such as delay, chorus and reverb can run concurrently with eight channels of 31-band graphic equalisation.

Transmit up to 32 channels of audio to and from a computer using the KLARK TEKNIK DN32 USB audio interface.

The M32 integrates seamlessly with other M32 consoles, the MIDAS DL16 digital stagebox and the Behringer P-16 personal monitoring system for a complete live, studio and installed sound solution.

Control the mixer from a distance with the free iPad application, or with editing and remote control software connected via Ethernet. The M32’s ease of use, intuitive workflow, diverse feature set and integration with other equipment make it an ideal centrepiece for installed and production sound in any setting.

Continue through this User Manual to learn all about the functionality that this powerful mixer has to offer. We also recommend that you check [midasconsoles.com](http://midasconsoles.com) to make sure you have the latest firmware installed, as we release frequent updates.



# 1. Control Surface

## 1.1 Channel Strip - Input Channels



### 1 REM - DAW Remote Button

Press this button to enable remote control of your Digital Audio Workstation software using the Group/Bus fader section controls. This section can emulate HUI or Mackie Control Universal communication with your DAW.

### Layer Select Buttons

#### 2 INPUTS 1-16 / INPUTS 17-32

Pressing one of these buttons selects either the channel 1-16 layer, or the channel 17-32 layer.

#### 3 AUX IN / USB

Press to select the Aux In / USB Recorder and FX 1-4 Returns layer.

#### 4 BUS MAST

Press to bring up all the 16 Bus Master channels.

### Individual Channel Strip Controls

Each of the above layers operates in a similar way by use of the following controls:

#### 5 SEL Button

Press to select an input or bus (depending on which layer is active) and allow it to be edited by the Channel Strip and Main Display.

#### 6 Channel Meter

This displays the signal level of the input or bus, depending on which layer is active. The COMP and GATE LEDs light to indicate that compression and/or noise gate are active.

#### 7 SOLO Button

Press to send the channel to the solo bus.

#### 8 Scribble Strip

Information such as channel number, input source and a graphic icon are displayed here.

#### 9 MUTE Button

Press to mute the channel.

#### 10 Fader

Use the MIDAS PRO Motor Fader to adjust the channel output volume. In Sends on Faders mode channel faders represent the send level from channels to the currently selected output bus (see next page).