



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 world wide. 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 reign. 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





## TouchFlow Operation™ – Smooth, Natural Control Flow

Yamaha digital consoles have always been designed with input from leading engineers worldwide to ensure that the most efficient, intuitive operation is achieved. The highly regarded Selected Channel and Centralogic™ interfaces attest to the success of that approach. The TF series combines Yamaha know-how with new input from the field and the latest touch-screen technology to deliver an evolved experience in console operation. Smooth setup and operation, practical presets and scenes, refined design, and software applications that integrate seamlessly with the entire system: these elements comprise TouchFlow Operation, a new concept in console interfaces that offers unprecedented comfort and convenience in small consoles, for a wide range of users and applications.



**Intuitive User Interface Optimized for Touch Panel Operation**



**8 Powerful Processing / Effect Units**



**New Features for Smooth Setup and Operation**



**Applications that work Seamlessly with the Console**



**Practical Presets and Scenes - Shortcuts to Great Sound**



**Plug In & Play Dante Stage Box**



## Intuitive User Interface Optimized for Touch Panel Operation

In developing the TF series Yamaha engineers built from their existing base of acclaimed high-end mixer interfaces, adding intuitive control in an interface optimized for the type of touch panel control that has become a familiar feature in a wide range of applications. Allowing most operations to be carried out via the touch panel alone, the innovative TF series interface will quickly become second nature to a broad spectrum of users. Whether you have experience with Yamaha digital consoles, work with other digital consoles, operate analog consoles, or have never operated a mixer before, TF consoles will lead you to the desired results quickly and effortlessly through a smooth, efficient workflow. The availability of physical controls surrounding the touch panel further enhances control versatility and precision.



## Touch Operation for Intimate Control

Refined for the smoothest possible operation via touch-panel control, the TF user interface offers a smooth workflow that can be an advantage in any mixing situation. The display content has been specifically designed for easy, direct accessibility, with a layout that promotes the most natural, efficient mixing. Touch panel operation is as easy as 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.



## Traditional Overview and Selected Channel Interfaces

Like the CL series consoles, operation is based around Overview and Selected Channel windows. The overview display shows the parameters for eight channels at a time, while the Touch & Turn knob provides direct access to gain, 1-knob EQ™, 1-knob COMP™, gate threshold, effect send level, pan, and other parameters. Touch the highlighted parameter a second time to switch to the Selected Channel display when you need access to detailed parameters for finer control.





## New Features for Smooth Setup and Operation

Effective gain, compressor, and EQ setup requires a considerable degree of skill and experience. Even veteran engineers need to spend time on these important basic settings. In addition to their intuitive user interfaces, TF consoles include a number of features that contribute to faster, smoother setup of these essential parameters.



### 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 bass, tighten up a snare, and make vocals ride clearly on the mix. The 1-knob COMP can do all of this quickly and easily, without the need to juggle multiple parameters to achieve the desired effect. Originally introduced in Yamaha analog mixers, the 1-knob COMP quickly became a popular and valued feature. It has now been further refined in a digital version 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 speed and smooth operation. 1-knob EQ has been painstakingly fine-tuned by Yamaha R&D staff in cooperation with distinguished sound engineers, to ensure that you can achieve outstanding results with minimum effort in the shortest possible time. A Vocal Mode makes it easier than ever to achieve a clear, well defined vocal sound, while an Intensity Mode offers 1-knob “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 quickly achieve overall output compression or EQ that ideally matches the room and audience size. The output 1-knob EQ has a Loudness Mode in place of the Vocal Mode, effectively increasing the sound pressure level while maintaining optimum sound as you rotate the knob.

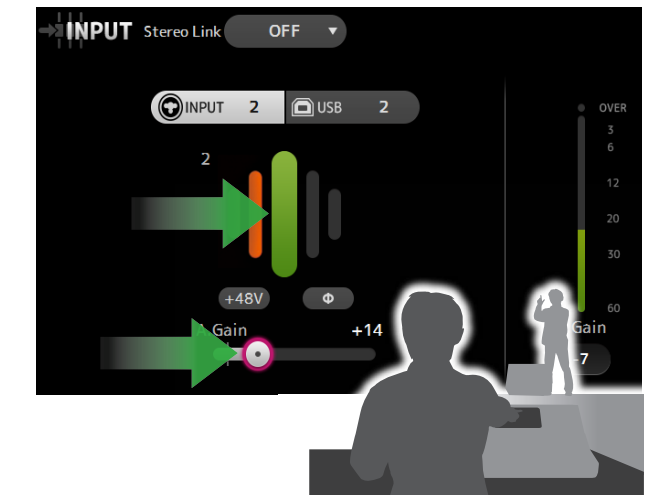
Both the 1-knob COMP and 1-knob EQ provide quick access to the full compressor and EQ displays, so you can fine tune settings as required.



1-knob COMP



1-knob EQ



GainFinder



### GainFinder™ Supports Precision Gain Setup

Gain is the first adjustment the input signal sees, and the way it is set up influences how subsequent parameters will affect the signal. Yamaha has developed a way to make fast, accurate setup of this important basic parameter easier than ever. The new GainFinder feature facilitates optimum gain setup for individual input signals so that ideal overall operation and signal quality is achieved. The user only has to set channel gain so that the central green indicator in the level meter remains lit for the longest possible time. Of course the level meters also perform their traditional function, so standard gain setup procedure can be followed if preferred.



## Applications that Work Seamlessly with the Console

Separate software applications that allow wireless mixing, personal monitor mixing, or offline setup of digital live mixing consoles have become fairly common.

The TF series goes a step further with three dedicated apps – TF Editor, TF StageMix, and MonitorMix – that feature user interfaces that seamlessly extend the console's own on any device.



### 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 other countries. App Store is a service mark of Apple Inc.

## Practical Presets and Scenes – Shortcuts to Great Sound

The familiar Yamaha scene memory that stores mix settings for instant recall when needed is included as always. There's also a range of channel presets that have been created in cooperation with leading microphone manufacturers and eminent sound engineers, providing starting points that take you a long way towards achieving great sound. The channel presets cover parameters such as HA gain, EQ, dynamics, and much more, right down to details like channel name and color. Less time needs to be spent on basic setup so that more time is available for 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.

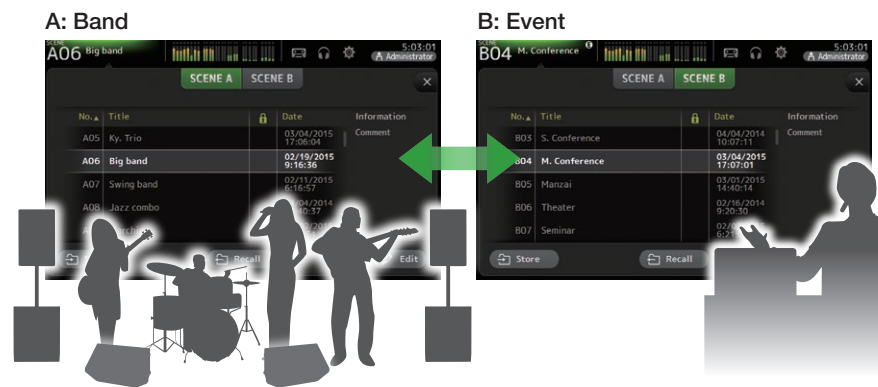
The QuickPro Presets can be searched by instrument type and recalled quickly and easily. The presets include HA gain, EQ, Comp and other settings, right down to the channel name and color. The 1-knob EQ and 1-knob COMP can be used with QuickPro Presets, providing a super streamlined way to tweak the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



### Comment from Audio-Technica Corporation Keisuke Kobayashi, CMO & CTO

“Each Audio-Technica microphone is painstakingly designed to give a truly accurate reproduction within the application it has been selected for. We strive to provide the best possible tools allowing the user to realise the expression of their work. Collaborating closely with the TF engineers on the instrument specific presets means that we can be sure our microphones deliver their best performance, while leaving the user free to focus on the creativity and character of the production.”



### 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 Engstrom, Category Director, Wired Products

“We're thrilled to be offering QuickPro presets of our most popular SM, Beta, KSM and PG Alta microphones in the new TF mixer. When you combine Shure's 90 years of microphone experience with the versatile new TF digital mixer and exceptional Yamaha speakers, these presets allow engineers at any level of experience to leverage our combined technical expertise for quick, simple and effective sound checks and performances that sound amazing. Engineers can focus on mixing great quality audio instead of chasing problems. It's an incredibly powerful solution.”



# Design for Superior Visibility and Quick Operation

The TF series hardware is packed with features that contribute to superior operability and convenience. Faders, knobs, and buttons with outstanding fit and feel work seamlessly with state-of-the-art display technology, including high-visibility channel name and color displays. The touch panel itself offers an ideal blend of comprehensive visual feedback and fast response. The physical layout of these components brings everything together in a system that offers surprisingly efficient workflow.

## Panel Layout Maximizes Workflow Efficiency

Careful analysis of the workflows favored by a large number of engineers has led to a highly efficient panel layout. Rather than simply providing a long list of advanced features, the TF consoles present meaningful features in the most logical and accessible way through an overall design that maximizes visibility and operability.

- 1 Display section:** The 7" multi-touch display, positioned and angled for optimum operability, features a high-luminance backlight that affords excellent visibility indoors or out.
- 2 USER DEFINED KNOBS section:** Frequently used parameters such as compressor threshold and EQ gain, for example, can be assigned for direct, instant access when needed.
- 3 TOUCH and TURN section:** Smooth operation with a very simple concept: touch a parameter on the screen to select, then turn the 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 FX section:** A dedicated channel offers easy effect ON/OFF switching, cue monitor ON/OFF switching, level adjustment, and effect parameter editing.
- 7 ST IN section:** In addition to allowing digital playback from an iPad or iPhone or recording/playback with a USB device, you have fingertip control of BGM playback and other audio files.
- 8 iPad connector** **9 USB connector** **10 Channel Strip section**
- 11 STEREO/MASTER section** **12 TAP key** **13 PHONES section** **14 METER section**

- 1 OMNI OUT jacks** **2 ST IN jacks** **3 INPUT jacks** **4 NETWORK connector**
- 5 USB TO HOST connector** **6 FOOT SW jack** **7 Expansion slot**



## 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.

## Channel Name and Color

A display panel located above each channel fader shows the assigned channel name or ID, the port name, and the current fader setting. Phantom power status as well as gate and comp operation can also be displayed. A color bar that shows the assigned channel color makes visual navigation a breeze, and prevents confusion when fader banks are changed or scenes are recalled.

## Faders Provide a Clear View of All Inputs

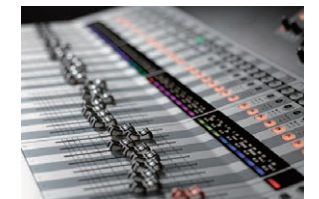
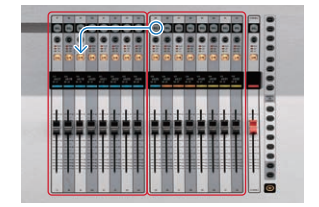
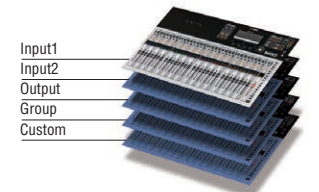
The TF5 has 33 motor faders, the TF3 has 25, and the TF1 has 17. All rear-panel inputs have individual faders so their status can be verified at a glance and they can be directly and immediately accessed for control.

## SENDS ON FADER section

The SENDS ON FADER buttons instantly bring the specified AUX or FX bus levels up on the faders for easy verification and adjustment. When a SENDS ON FADER button is engaged the MASTER fader acts as the master for the corresponding bus, so AUX levels can be checked and controlled without having to switch fader banks.

## Advanced Design Promotes Smooth, Comfortable Operation

The upper section of the panel is designed to double as a rest for an iPad, set list, score, memos, and/or other small items. The panel consists of three angled sections that give the operator maximum visibility and access.





## TF-RACK : Advanced Panel Layout for Efficient Workflow

Inheriting the core of TF consoles, the panel layout of TF-RACK provides an overall design that maximizes visibility and operability. Smooth accessibility and efficient workflow will be experienced with the compact TF-RACK.

### Front:

- 1 Display section:**  
The 7" multi-touch display, positioned and angled for optimum operability, features a high-luminance backlight that affords excellent visibility indoors or out.
- 2 USER DEFINED KNOBS section:**  
Frequently used parameters such as compressor threshold and EQ gain, for example, can be assigned for direct, instant access when needed.
- 3 TOUCH and TURN section:**  
Smooth operation with a very simple concept: touch a parameter on the screen to select, then turn the 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.

- 7 iPad connector**
- 8 USB connector**
- 9 TAP key**
- 10 CLEAR CUE key**
- 11 PHONES section**

### Rear:

- 1 OMNI OUT jacks**
- 2 ST IN jacks**
- 3 INPUT jacks**
- 4 NETWORK connector**
- 5 USB TO HOST connector**
- 6 FOOT SW jack**
- 7 Expansion slot**

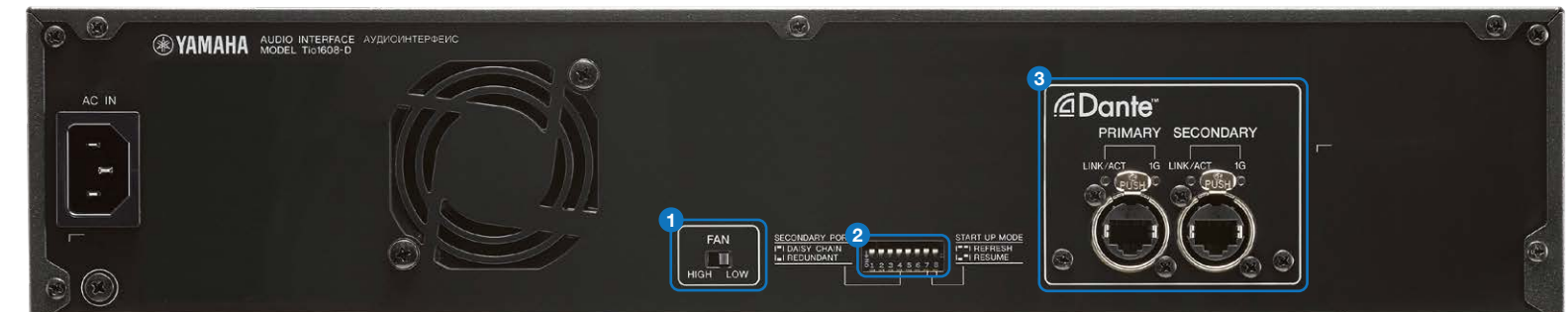


## Tio1608-D

Tio1608-D provides a Dante-equipped I/O rack solution with 16 microphone/ line inputs and 8 line outputs. It features the same recallable D-PRE™ microphone preamplifiers as the TF series, delivering an extraordinarily natural and musical sound.



Front: **1** INPUT jacks **2** OUTPUT +4dBu jacks **3** UNIT ID switch **4** QUICK CONFIG switch **5** +48V MASTER switch



Rear: **1** FAN switch **2** DIP switch **3** PRIMARY and SECONDARY Dante connectors

## A Natural Sound Foundation with Extra Creative Freedom

Faithful reproduction of the on-stage sound is the foundation, then creativity can take over.

Yamaha's unswerving approach to live sound reinforcement is alive and well in the TF series.

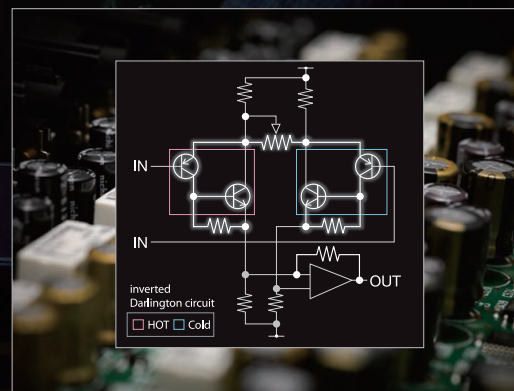
The input stage of any console has a notable effect on its sonic character.

The TF consoles feature acclaimed D-PRE™ microphone preamplifiers that not only deliver outstanding quality, but are recallable as well. Circuitry and individual components have been reassessed and redesigned where necessary to achieve extraordinarily pure, natural sound. That solid sonic foundation is backed up by an updated selection of high-performance processors and effects. Input and output channel processors such as EQ, gates, and compressors are complemented by eight processors that provide a broad spectrum of creative capabilities.

### Recallable D-PRE™ Microphone Preamplifiers

The TF series consoles feature new recallable versions of Yamaha's acclaimed D-PRE microphone preamplifier. The preamplifiers,

or head amplifiers in any console play a significant role in defining the sound of the final mix, so Yamaha engineers spared no effort in developing and refining the D-PRE design to ensure that every nuance and subtlety of the original signal is effectively captured. The circuit is based on a discrete inverted Darlington pair configuration that achieves clean, precise amplification with consistently low noise and distortion at all signal levels. While some microphone preamps are built specifically to impart a unique character of their own, the D-PRE preamplifier has been painstakingly designed with a flat, wide frequency response that retains the tone and nuance of the original sound so that the essence of the performer's art is captured intact.



### Powerful Processors and Effects

In addition to EQ and two dynamics processors on each channel, the TF consoles offer eight powerful processors for wide-ranging sonic control. The globally accessible FX 1 and 2 feature the same type of SPX processors that have become standards in recording and live sound applications, offering 17 programs ranging from reverb and delay through modulation effects such as flanger and chorus to 3-band multiband compression. The panel EDIT key opens the effect parameter display where detailed parameters such as reverb time and delay feedback can be adjusted as required.

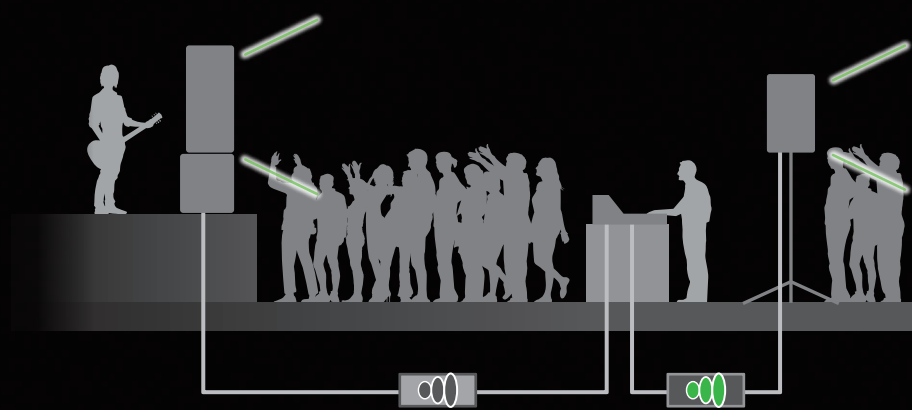
The remaining six processors are available in the AUX 9/10~19/20 master channels. All the effects are available. Multiband compression is ideal for in-ear monitor level control, delay can be used for speaker alignment, and much more. And since these AUX buses can be sent to the main stereo bus, the effects can be used to supplement the available input channel processing when FX 1 and 2 aren't quite enough.

The AUX 1~8 buses and main output channels include the same 4-band parametric EQ as provided on the input channels, plus 31-band Flex12 GEQ. Both types of EQ are invaluable for optimizing speaker response and eliminating feedback.



### Various mix to multiple speaker systems -Matrix Out Channels with Delay-

Four matrix out channels with delay parameters that are ideally suited to setting up delay compensation for live sound speaker systems at large venues, installations where separate mixes are fed to a main hall and lobby, and many other situations that require some degree of delay compensation.





**2** **A Versatile Live Recording and Playback Solution for Any Application**

Live recording capability is becoming increasingly important in live sound systems. From simple 2-track recording and playback using a USB storage device\* to all-out multitrack recording with a computer based DAW (Digital Audio Workstation), the TF series is ready to roll. TF consoles come supplied with Steinberg's Nuendo Live multi-track live recording software, allows up to 34 tracks to be recorded to a computer connected to the console via USB 2.0. MP3 and WAV files can be played back from USB storage devices, and audio from an iPhone or iPad can be played back via a direct digital connection. When playing back from a DAW, analog input or DAW input can be individually selected for each channel so that pre-recorded material can be mixed with live input for virtual sound checks or rehearsals. Of course BGM and sound effects can be played back too.

\*Please note - USB thumb drives are not supported by TF for recording purposes. Please refer to this link for compatible hard drives.



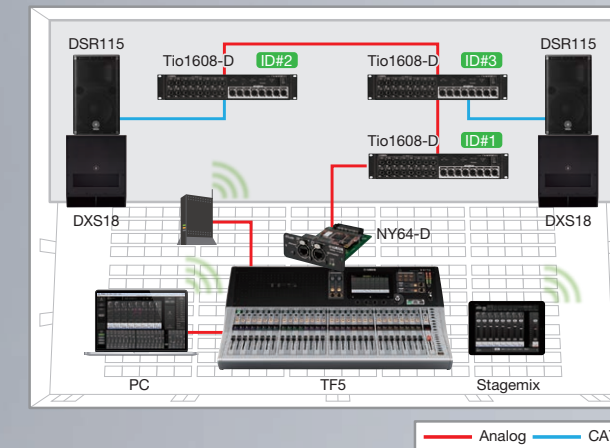
**A High-performance Stagebox Solution that's Simple to Set Up**

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.



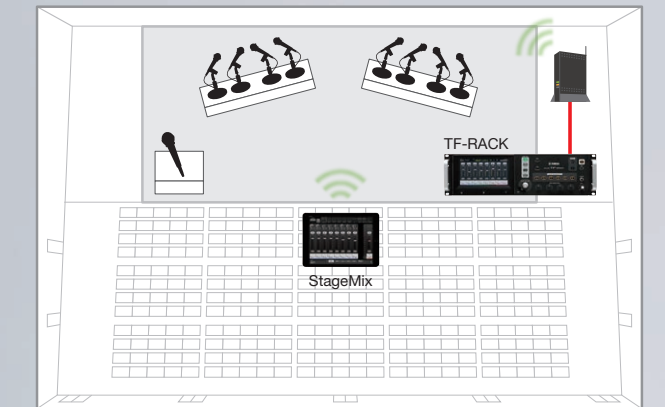
**System expansion with Tio1608-D**

Tio1608-D allows you to easily expand a TF digital mixer system up to 40ch inputs/24ch outputs. System setup uses a Plug In & Play method. Simply connect Cat5e cable, select the device IDs and the system is ready. Remote HA control is available via Cat5e. StageMix App allows wireless remote control of the console from the arena, the stage or the audience etc.



**Compact system for conference/corporate events**

The compact TF-RACK is perfect for applications that require space-saving sound systems such as conferences or corporate events. Since TF1 is a rack-mountable console it will provide you with a simple and discreet sound system. Recording of the event and playback of BGM can be easily done via USB memory. The touch screen and 1KnobEQ allow for easy control of fine adjustments such as for the EQ and feedback suppressors. StageMix wireless App gives greater freedom by allowing operators to control the console remotely during an event.



## A Groundbreaking Approach to Compact Live Sound

TF series have 32, 24, or 16 mono input channels. All models also have dual stereo inputs that allow selection between a USB source such as an iPad, iPhone, USB storage device, PC, or an analog source. The status of all of the above inputs, plus two dedicated effect return channels, can be simultaneously verified directly via the control panel.

The rear-panel analog inputs feature recallable Yamaha D-PRE microphone preamplifiers for the first time in a digital console. This allows preamp setup to be recalled from scene memory along with other console settings, providing improved support for live music and events where full-console changes need to be made on the fly. In addition to all-around performance that is ideal for installations or live sound reinforcement, the TF series consoles are lightweight and compact for unrivalled portability and space savings.

DIGITAL MIXING CONSOLE

# TF3

- 25 motor faders (24 channels + 1 master)
- 48 input mixing channels (40 mono + 2 stereo + 2 return)
- 20 AUX (8 mono + 6 stereo) + stereo + sub buses + 4 matrixes
- 8 DCA groups with Roll-out
- 24 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

# 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 + 4 matrixes
- 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)
- 20 AUX buses (8 mono + 6 stereo) + stereo + sub + 4 matrixes
- 16 analog XLR/TRS combo mic/line inputs + 2 analog RCA pin stereo line inputs
- 16 analog XLR outputs
- 1 expansion slot for NY64-D audio interface card
- 40 input mixing channels (32 mono + 2 stereo + 2 return)
- 8 DCA groups with Roll-out
- 34 x 34 digital record/playback channels via USB 2.0 + 2 x 2 via a USB storage device



DIGITAL MIXER

# TF-RACK

- 40 input mixing channels (32 mono + 2 stereo + 2 return)
- 20 AUX buses (8 mono + 6 stereo) + stereo + sub + 4 matrixes
- 8 DCA groups with Roll-out
- 16 analog XLR/TRS combo mic/line inputs + 1 analog RCA pin stereo line inputs
- 8 analog XLR outputs + 8 analog TRS 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



### I/O Rack Tio1608-D

The Tio1608-D is a Dante equipped I/O rack with 16 microphone/line inputs and 8 line outputs. The Tio1608-D preamplifiers can be remotely controlled from a TF series console. Connection from an on-stage Tio1608-D to a TF console at the mixing position only requires a CAT5e LAN cable for high-quality low-latency audio transfer. No bulky, heavy multi-cables and connector boxes are required. What's more, basic patches are pre-programmed for fast, easy setup. Up to three Tio1608-D units can be connected simultaneously, providing a high-performance, high capacity stage box system with as many as 48 inputs and 24 outputs. The network connections can be daisy-chained when Tio1608-D units are used with a TF series console, eliminating the need for network switches.



### 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.



### Rack Mount Kit RK5014

The RK5014 Rack Mount Kit can be used to mount the TF1 console in a standard 19-inch EIA equipment rack of the type commonly used in live sound, studio, and installed applications.



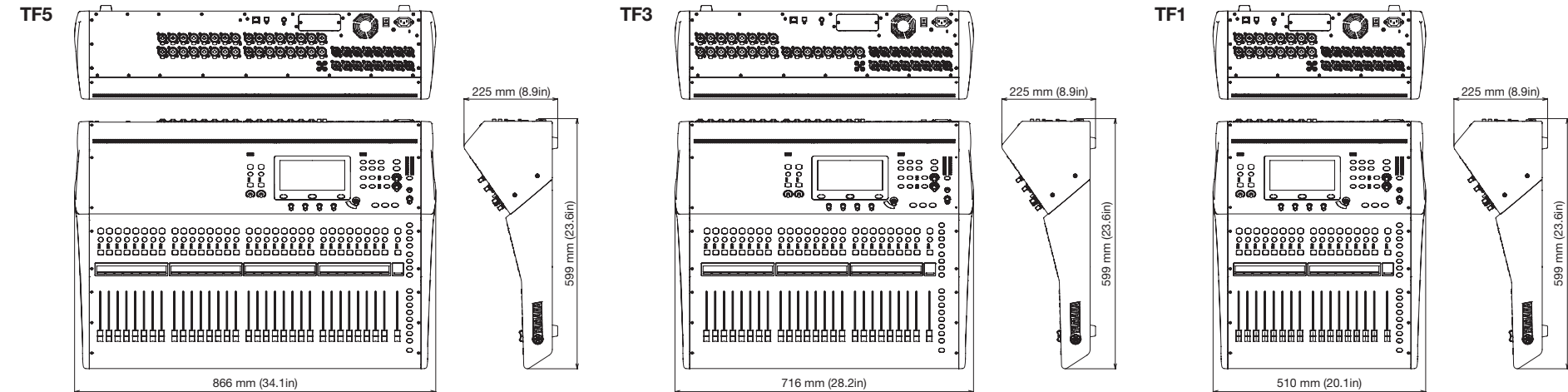
# Specifications

## TF Series General Specifications

	TF5	TF3	TF1
Fader Configuration	32 + 1 (Master)	24 + 1 (Master)	16 + 1 (Master)
Mixing Capacity	48 (40 mono + 2 stereo + 2 return)	24 + 1 (Master) Stereo + Sub	40 (32 mono + 2 stereo + 2 return)
Main Buses	Stereo + Sub		
Aux Buses	20 (8 mono + 6 stereo)		
Groups	8 DCA Groups		
I/O Connectors	32 mic/line (XLR/TRS combo) + 2 stereo line (RCA pin)	24 mic/line (XLR/TRS combo) + 2 stereo line (RCA pin)	16 mic/line (XLR/TRS combo) + 2 stereo line (RCA pin)
Signal Processors	16 (XLR) 8 Effects + 10 GEQ		
Recording	via Windows/Mac via USB Storage Device	34x34 USB Audio Interface 2-track	
Sampling Frequency	Internal Clock 48 kHz		
Signal Delays	Less than 2.6 ms, INPUT to OMNI OUT, Fs=48 kHz		
Fader	100 mm motorized, Resolution = 10-bit, +10 dB to -138 dB, ∞ dB all faders		
Frequency Response	+0.5, -1.5 dB 20 Hz-20 kHz, refer to +4 dBu output @1kHz, INPUT to OMNI OUT		
Total Harmonic Distortion <sup>*2</sup>	Less than 0.05% 20 Hz-20 kHz @+4 dBu into 600 Ω, INPUT to OMNI OUT, Input Gain=Min.		
Hum & Noise <sup>*3</sup>	-128 dBu typ., Equivalent Input Noise, Input Gain=Max., -85 dBu, Residual output noise, ST master off		
Dynamic Range	110 dB typ., DA Converter, 107 dB typ., INPUT to OMNI OUT, Input Gain=Min.		
Crosstalk@1 kHz	-100 dB <sup>*1</sup> , adjacent INPUT/OMNI OUT channels, Input Gain=Min.		
Dimensions (W x H x D)	866 mm x 225 mm x 599 mm (34.1in x 8.9in x 23.6in)	716 mm x 225 mm x 599 mm (28.2in x 8.9in x 23.6in)	510 mm x 225 mm x 599 mm (20.1in x 8.9in x 23.6in)
Net Weight	20.0 kg (44.1lb)	17.0 kg (37.5lb)	13.5 kg (29.8lb)
Power Requirements (wattage)	120 W	110 W	100 W
Power Requirements (voltage and hertz)	100-240 V 50/60 Hz		
Temperature Range	Operating temperature range: 0-40 °C Storage temperature range: -20-60 °C		
Included Accessories	Quick Guide, Power Cord, CUBASE AI download information		
Options	Rack-mount Kit RK5014 (for TF1), Expansion Card, Foot Switch (FC5)		

\*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.

# Dimensions



## TF Series Input / Output Specifications

### Analog input characteristics

Input Terminals	GAIN	Load Impedance	For Use With Nominal	Input Level			Connector	balanced / Unbalanced
				Sensitivity <sup>*1</sup>	Nominal	Max. before clip		
INPUT1-32 (TF5)	+66dB	7.5kΩ	50-600Ω Mics or 600Ω Lines	-82dBu (61.6μV)	-62dBu (0.616mV)	-42dBu (6.16mV)	Combo Jack (XLR-3-31 type <sup>*2</sup> or TRS phone <sup>*3</sup> )	Balanced
INPUT1-24 (TF3)				-10dBu (245mV)	+10dBu (2.45V)	+30dBu (24.5V)		
INPUT1-16 (TF1)				-30dBV (31.6μV)	-10dBV (316mV)	+10dBV (3.16V)		
ST IN 1,2	—	10kΩ	600Ω Lines	—	—	—	RCA 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		Connector	balanced / Unbalanced
				Nominal	Max. before clip		
OMNI OUT 1-16	75Ω	600Ω Lines	" +24dBu" position (default)	+4dBu (1.23 V)	+24dBu (12.3 V)	XLR-3-32 type <sup>*1</sup>	Balanced
PHONES <sup>*5</sup>	100Ω	40Ω Phones	—	3mW	75mW	Stereo Phone Jack (TRS) <sup>*2</sup>	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 16dB from the maximum.

### Digital input / output specifications

Terminals	Format	Data length	Audio	Connector
USB (TO HOST)	USB	24bit	34ch input / 34ch output, PCM	USB (B type)
iPad	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

# Specifications

## TF-Rack General Specifications

	TF-RACK
Fader Configuration	—
Mixing Capacity	40 (32 mono + 2 stereo + 2 return) Stereo + Sub
Main Buses	20 (8 mono + 6 stereo)
Aux Buses	8 DCA Groups
Groups	16 mic/line (XLR/TRS combo)+ 1 stereo line (RCA pin)
I/O Connectors	16 (8 XLR + 8 TRS phone)
Signal Processors	1 (for NY64-D) 8 Effects + 10 GEQ
Recording/Playback	PC/Mac (USB2.0) USB Storage Device
Recording/Playback	Recording: 2-track (USB HDD/SSD) / Playback: 2-track(USB HDD/SSD/Flash memory)
Sampling Frequency	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 faders
Frequency Response	+0.5, -1.5 dB 20 Hz-20 kHz, refer to +4 dBu output @1kHz, INPUT to OMNI OUT
Total Harmonic Distortion <sup>*2</sup>	Less than 0.05% 20 Hz-20 kHz @+4 dBu into 600 Ω, INPUT to OMNI OUT, Input Gain=Min.
Hum & Noise <sup>*3</sup>	-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.
Crosstalk@1 kHz	-100 dB <sup>*1</sup> , adjacent INPUT/OMNI OUT channels, Input Gain=Min.
Dimensions (W x H x D)	480 mm x 132 mm x 409 mm(18-7/8 in x 5 1/4 in x 16 1/8 in)
Net Weight	9.2kg (20.3 lb)
Power Requirements (wattage)	85 W
Power Requirements (voltage and hertz)	100-240 V 50/60 Hz
Temperature Range	Operating temperature range: 0-40 °C / Storage temperature range: -20-60 °C
Included Accessories	Quick Guide, Power Cord, NUENDO LIVE (DAW Software), Rubber stoppers(4)
Options	Audio Interface Card (NY-64D), Foot Switch (FC5)

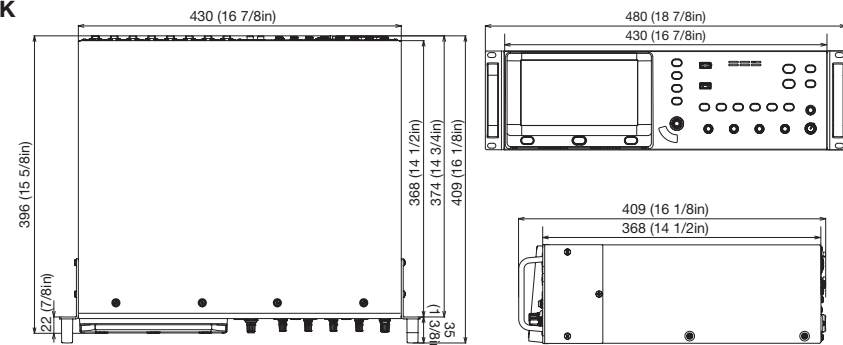
\*1 Crosstalk is measured with a -30 dB/octave filter@22 kHz. \*2 Total Harmonic Distortion is measured with a -18 dB/octave filter@80 kHz.  
\*3 Hum & Noise are measured with an A-Weight filter.

## Tio1608-D General Specifications

	Tio1608-D
Sampling frequency rate (External)	44.1kHz or 48kHz
Total harmonic distortion	Less than 0.1% +4dBu@20Hz-20kHz into 600Ω, Gain=+66dB / Less than 0.05% +4dBu@20Hz-20kHz into 600Ω, Gain=-6dB, INPUT to OUTPUT, Fs=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, Fs=44.1kHz or 48kHz
Dynamic range	108 dB, INPUT to OUTPUT, Gain=-6dB / 112 dB, DA Converter
Hum & noise level	Equivalent input noise: -128dBu, Gain=+66dB *Measured with A-weighting filter Residual output noise: -88dBu, ST master off *Measured with A-weighting filter
Crosstalk	-100dB, adjacent INPUT/OUTPUT channels, Input Gain = -6dB *Measured with a -30dB/octave filter @22kHz
Heat dissipation	100-240V, 50/60Hz, 43.5kcal/h
Power requirements	100-240V, 50/60Hz
Power consumption	50W
Dimensions (W x H x D)	480mm x 88mm x 364mm (18-7/8" x 3-4/8" x 14-3/8")
Net weight	5.7kg (12.6lbs)
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-Rack Input / Output Specifications

### Analog input characteristics

Input Terminals	GAIN	Load Impedance	For Use With Nominal	Input Level			Connector	balanced / Unbalanced
				Sensitivity <sup>*1</sup>	Nominal	Max. before clip		
INPUT1-16	+66dB	7.5kΩ	50-600Ω Mics or 600Ω Lines	-82dBu (61.6μV)	-62dBu (0.616mV)	-42dBu (6.16mV)	Combo Jack (XLR-3-31 type <sup>*2</sup> or TRS phone <sup>*3</sup> )	Balanced
ST IN 1,2				-10dBu (245mV)	+10dBu (2.45V)	+30dBu (24.5V)		
	-6dB	10kΩ	600Ω Lines	-30dBV (31.6μV)	-10dBV (316mV)	+10dBV (3.16V)	RCA 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	Output Level		Connector	balanced / Unbalanced
			Nominal	Max. before clip		
OMNI OUT 1-8	75Ω	600Ω Lines	+4dBu (1.23 V)	+24dBu (12.3 V)	XLR-3-32 type <sup>*1</sup>	Balanced
OMNI OUT 9-16			—	75mW		
PHONES <sup>*5</sup>	100Ω	40Ω Phones	3mW	75mW	Stereo Phone Jack (TRS) <sup>*2</sup>	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 16dB from the maximum. \*6 Tip: HOT, Ring: COLD, Sleeve: GND

### Digital input / output specifications

Terminals	Format	Data length	Audio	Connector
USB (TO HOST)	USB	24bit	34ch input / 34ch output, PCM	USB (B type)
iPad	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

## Tio1608-D Input / Output Specifications

### Analog input characteristics

Input Terminals	GAIN	Load Impedance	For Use With Nominal	Input Level			Connector	balanced / Unbalanced
				Sensitivity <sup>*1</sup>	Nominal	Max. before clip		
INPUT1-16	+66dB	7.5kΩ	50-600Ω Mics or 600Ω Lines	-82dBu (61.6μV)	-62dBu (0.616mV)	-42dBu (6.16mV)	Combo Jack (XLR-3-31 type <sup>*2</sup> or TRS phone <sup>*3</sup> )	Balanced
				-10dBu (245mV)	+10dBu (2.45V)	+30dBu (24.5V)		

\*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.  
\*2 1: GND, 2: HOT, 3: COLD \*3 Tip: HOT, Ring: COLD, Sleeve: GND

### Analog output characteristics

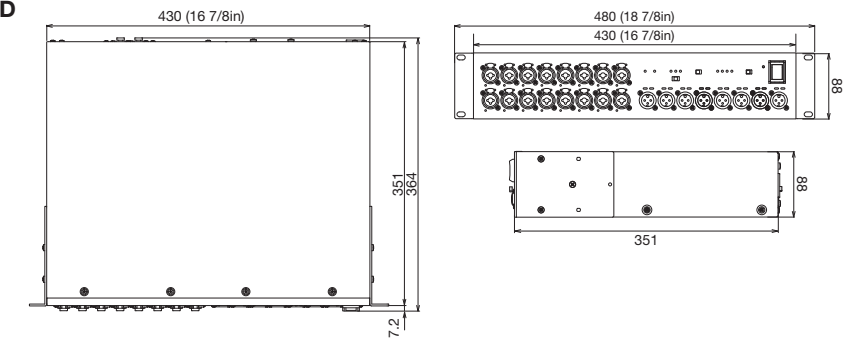
Output Terminals	Source Impedance	For Use With Nominal	Output Level		Connector	balanced / Unbalanced
			Nominal	Max. before clip		
OMNI OUT 1-8	75Ω	600Ω Lines	+4dBu (1.23 V)	+24dBu (12.3 V)	XLR-3-32 type <sup>*1</sup>	Balanced

\*1.1: GND, 2: HOT, 3: COLD

### Digital input / output specifications

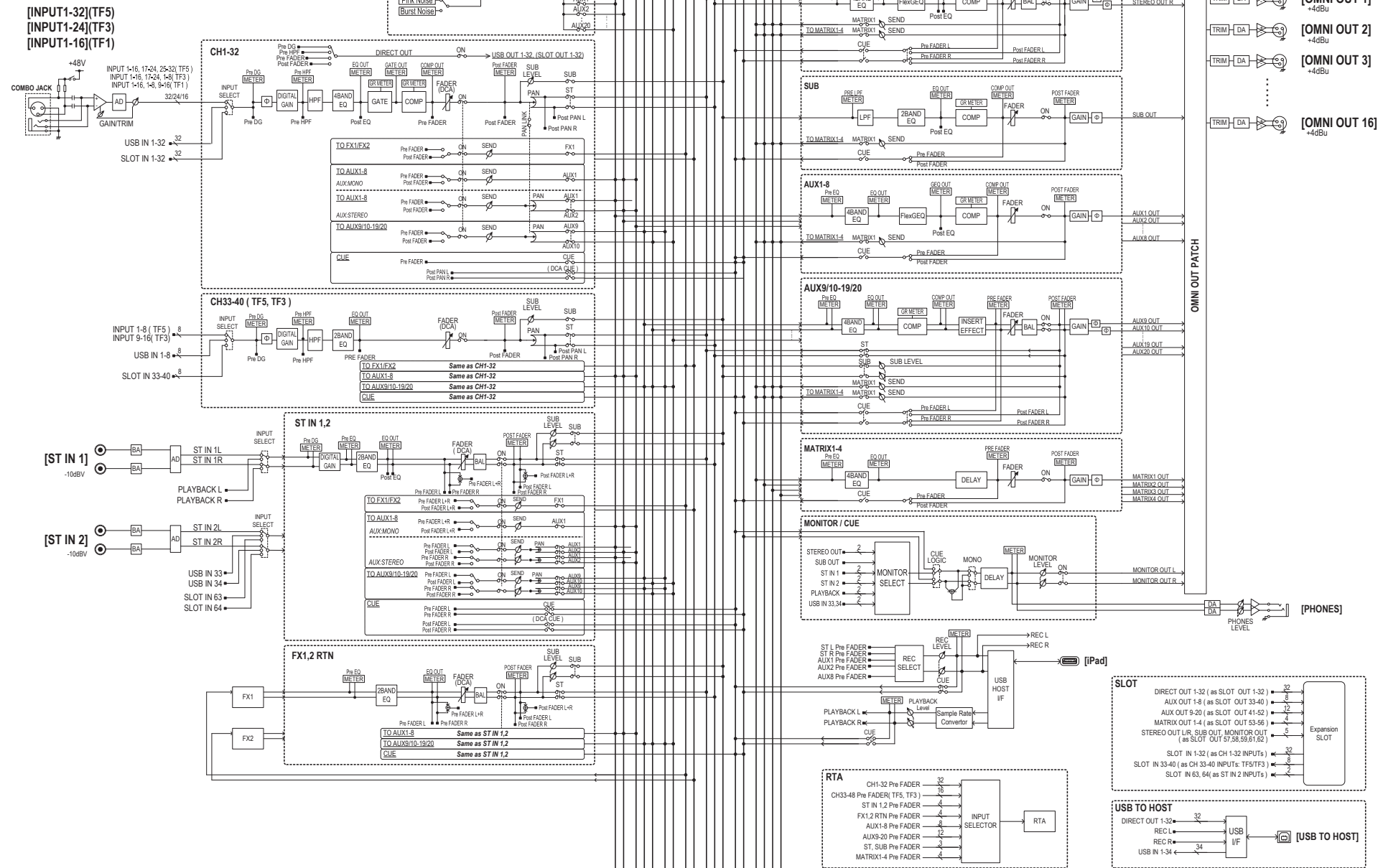
Terminals	Format	Data length	Level	Audio	Connector
Primary/Secondary	Dante	24bit or 32bit	1000Base-T	16ch (Tio1608-D to other devices) 8ch (Other devices to Tio1608-D)	etherCON Cat5e

## Tio1608-D



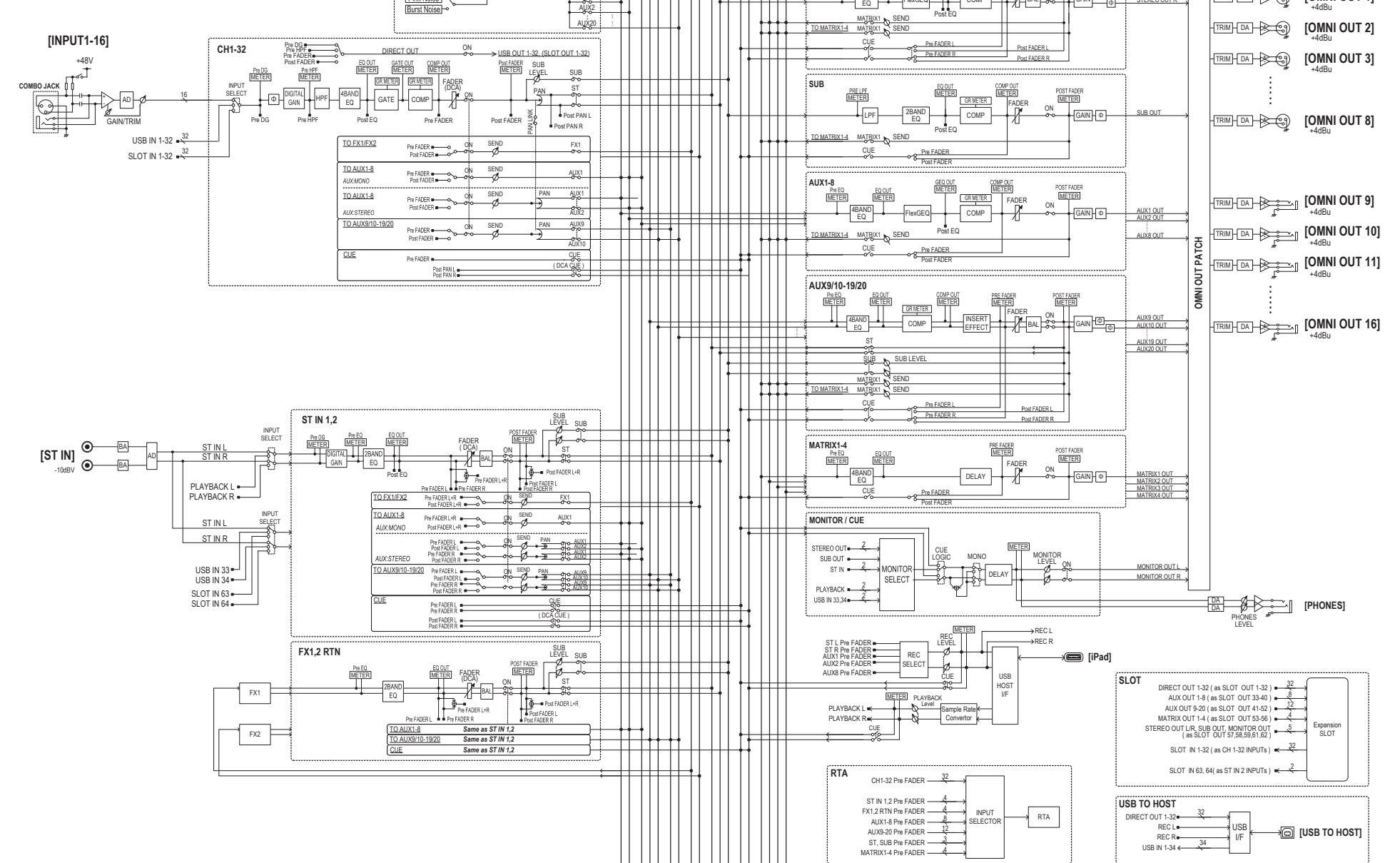
# Block Diagram

## TF Series



# Block Diagram

## TF-Rack





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