



CÂMARA MUNICIPAL DA ESTÂNCIA TURÍSTICA DE TREMOMBÉ

"CASA JOÃO DE SOUZA PEREIRA"

Rua Bom Jesus, 145, Centro - CEP 12.120-029 Tremembé / SP - Telefone: (12) 3672-3156 / CNPJ: 54.639.391/0004-20



MANIFESTAÇÃO TÉCNICA COMPLEMENTAR AO ESTUDO TÉCNICO PRELIMINAR

Eu, **Eduardo Pereira Tupinambá Júnior**, consultor técnico responsável (CNPJ nº 43.336.750/0001-41), no âmbito da contratação em referência, emito a presente manifestação técnica, destinada a complementar o **Estudo Técnico Preliminar (ETP)**, nos seguintes termos:

1. Finalidade

A presente manifestação visa registrar, de forma expressa e formal, a justificativa técnica que fundamenta a especificação da **Mesa de Som Digital QSC TouchMix-30 Pro (Item 02 do Termo de Referência)**, em atenção às alegações apresentadas em impugnação e em conformidade com os arts. 6º, XX, e 18 da Lei nº 14.133/2021.

2. Justificativa Técnica

A escolha do referido equipamento decorreu da necessidade de atender às demandas de **transparência, eficiência operacional e qualidade na comunicação institucional**, sendo este o único modelo identificado que reúne, em uma única solução compacta, o conjunto de funcionalidades indispensáveis:

- **Gravação multipista direta em HD externo**, sem dependência de computador, garantindo registro individual e inalterado de cada canal de áudio (vereadores, tribuna, presidência), imprescindível para fins de publicidade dos atos e elaboração de atas.
- **Interface de áudio digital 32x32 (DAW Interface)**, fundamental para transmissões ao vivo com qualidade profissional e flexibilidade para futuras integrações.
- **Mixer automático de microfones (Automatic Microphone Mixer)**, que assegura clareza sonora em sessões com múltiplos microfones abertos, reduzindo ruídos e microfônias.
- **Passagem de som virtual (Virtual Soundcheck)**, que possibilita a otimização de ajustes técnicos antes das sessões, com base em gravações anteriores, garantindo maior eficiência operacional.

3. Conclusão Técnica

Diante do exposto, reitero que a exigência do modelo QSC TouchMix-30 Pro não configura direcionamento, mas sim **especificação técnica necessária** para assegurar que a Câmara Municipal disponha de equipamento capaz de atender plenamente às suas demandas institucionais, de modo eficiente e transparente.

A presente manifestação passa a **integrar o Estudo Técnico Preliminar (ETP)** do Processo Administrativo nº 19/2025, servindo como termo complementar, a fim de consolidar a motivação técnica do procedimento licitatório.

Tremembé, 17 de setembro de 2025.

Eduardo Pereira Tupinambá Júnior
Responsável Técnico – CNPJ nº 43.336.750/0001-41

MANIFESTAÇÃO TÉCNICA

À: Comissão de Licitação da Câmara Municipal da Estância Turística de Tremembé

DE: Setor Técnico / Consultor Técnico Responsável

PROCESSO ADMINISTRATIVO Nº: 19/2025

PREGÃO ELETRÔNICO Nº: 002/2025

ASSUNTO: Justificativa Técnica para Especificação da Mesa de Som Digital (Item 02) em Resposta à Impugnação ao Edital.

I. INTRODUÇÃO

Em resposta à impugnação apresentada pela empresa PACK & GO IMPORTAÇÃO E SERVIÇOS LTDA EPP, que questiona a legalidade da especificação do modelo da mesa de som digital (Item 02) no edital em epígrafe, esta manifestação técnica tem o objetivo de detalhar as razões de ordem estritamente técnica que fundamentaram a escolha, demonstrando que as funcionalidades do equipamento indicado são indispensáveis e singulares para o pleno atendimento das necessidades operacionais, de transparência e de registro histórico desta Casa Legislativa.

II. DA NECESSIDADE TÉCNICA E OPERACIONAL DA ADMINISTRAÇÃO

A contratação de um novo sistema de som não visa apenas à melhoria da qualidade de áudio, mas à modernização de processos essenciais, que incluem:

Transparência e Registro Fiel: Garantir a gravação individual e inalterada de todas as fontes de áudio durante as sessões (vereadores, tribuna, presidência) para fins de arquivo público e produção de atas fidedignas.

Eficiência Operacional: Otimizar o trabalho da equipe técnica, permitindo a gestão de eventos complexos (sessões, audiências públicas, palestras) com agilidade e redução de falhas.

Qualidade na Comunicação: Assegurar a máxima inteligibilidade do som no plenário e nas transmissões ao vivo, cumprindo o dever de publicidade dos atos.

III. ANÁLISE TÉCNICA – FUNCIONALIDADES INDISPENSÁVEIS DA MESA DE SOM QSC TOUCHMIX-30 PRO

A escolha pelo modelo QSC TouchMix-30 Pro não se deu por preferência de marca, mas por ser o único equipamento identificado na fase de planejamento que reúne, em uma única solução compacta, o conjunto de funcionalidades indispensáveis para atender às

necessidades supracitadas. A ausência de qualquer uma das características abaixo comprometeria o objetivo da contratação.

Gravação Multipista Direta em HD Externo (Sem Computador):

Análise Técnica: O equipamento permite a gravação simultânea de todos os 32 canais de áudio, de forma individual, diretamente em um disco rígido conectado via USB.

Justificativa da Indispensabilidade: Esta é a funcionalidade mais crítica para a Câmara. A gravação em múltiplos canais é a única forma de garantir um registro de áudio fiel e individualizado de cada vereador, da presidência e da tribuna. Uma gravação estéreo comum (disponível em mesas mais simples) mistura todas as vozes, tornando impossível a transcrição precisa ou a verificação de falas em caso de questionamentos. A gravação direta em HD, sem depender de um computador, elimina um ponto crítico de falha, tornando o sistema de registro muito mais robusto e confiável.

Interface de Áudio Digital 32x32 (DAW Interface):

Análise Técnica: A mesa funciona como uma interface de áudio de 32 canais de entrada e 32 de saída para computadores com softwares de produção (DAWs).

Justificativa da Indispensabilidade: Essa característica é essencial para as transmissões ao vivo das sessões. Ela permite enviar todos os microfones, de forma separada e com alta qualidade, para o software de streaming, garantindo que o público online receba um áudio claro e profissional. Além disso, oferece flexibilidade para futuras integrações com sistemas de vídeo e legendagem.

Mixer Automático de Microfone (Automatic Microphone Mixer):

Análise Técnica: O equipamento possui uma função de mixagem automática para até 24 microfones, que gerencia de forma inteligente os níveis de microfones abertos.

Justificativa da Indispensabilidade: Durante uma sessão plenária, múltiplos microfones ficam abertos simultaneamente. Sem essa função, o som ambiente captado por microfones não utilizados gera ruído e aumenta o risco de microfonia. O mixer automático resolve esse problema, melhorando drasticamente a clareza do áudio e otimizando o trabalho da equipe técnica, que pode se concentrar em outros aspectos da transmissão em vez de gerenciar dezenas de canais manualmente.

Passagem de Som Virtual (Virtual Soundcheck):

Análise Técnica: A capacidade de reproduzir os canais gravados em uma sessão anterior permite que os técnicos ajustem e mixem o som sem a presença dos músicos ou palestrantes.

Justificativa da Indispensabilidade: Esta função representa um ganho de eficiência operacional imenso. Permite que a equipe técnica prepare o som do plenário com antecedência, utilizando uma gravação de sessão anterior, otimizando o tempo e garantindo que tudo esteja pronto antes do início dos trabalhos legislativos, sem a necessidade de longos e disruptivos testes de som.

IV. CONCLUSÃO TÉCNICA

Conforme demonstrado, a exigência do modelo QSC TouchMix-30 Pro não configura direcionamento, mas sim uma especificação técnica precisa e vinculada a necessidades funcionais concretas e indispensáveis para esta Casa Legislativa.

A combinação de gravação multipista autônoma (para transparência), interface de áudio de alta capacidade (para transmissões), mixagem automática (para clareza e eficiência) e passagem de som virtual (para otimização), em um único equipamento, foi o fator determinante. Na fase de elaboração do Estudo Técnico Preliminar, não foi identificado no mercado outro produto que entregasse a totalidade dessas funcionalidades de forma integrada.

A aquisição de um equipamento que não possua qualquer uma dessas características resultaria em uma solução incompleta, que não atenderia plenamente aos requisitos de transparência, eficiência e qualidade que motivaram a presente licitação.

Sendo assim, do ponto de vista estritamente técnico, a especificação se justifica e é essencial para o atingimento do interesse público.

À consideração superior.

Tremembé, 17 de setembro de 2025.



Eduardo Pereira Tupinambá Júnior

Responsável Técnico



TouchMix™ Series

Digital Mixers

Features

- Mega console performance in a compact form factor
- Capacitive touch screen graphical user interface combined with hardware controls for fast and intuitive operation
 - Multi-touch screen on TouchMix-30 Pro
- Over 135 Live Sound Channel Presets for a wide range of sources and instruments.
- Anti-Feedback; Room Tuning; Gain and Effects Wizards
- Real Time Analyzer (RTA)
 - 2x RTA on TouchMix-30 Pro
- Automatic Microphone Mixer*
 - Gain sharing, 24 channels, 2 auto mixers
- Comprehensive, on-board Info System guides and assists users.
- 4-Band full Parametric EQ, variable High- and Low-Pass Filters on all input channels.
- Gate, Compressor and Delay on all input channels.
- All outputs feature 1/3 Octave Graphic Equalization and 6-band Parametric EQ plus Limiters, Delay and 8 Notch Filters.
 - 12 Notch Filters on TouchMix-30 Pro
- Eight DCA groups; Eight Mute groups
- Eight Sub-Groups with 6-band full Parametric EQ, variable High- and Low-Pass Filters and Limiter; may be linked for stereo*
- On-board settings for popular QSC loudspeakers including K and K.2 Series
- Four professional quality Stereo DSP Processors plus a Pitch Corrector (Six processors on TouchMix-30 Pro)
- Touch-and-Route Patch Matrix for easy "multing" of inputs to mixer channels*
- Copy and Paste function easily duplicates mixes, channels, EQ, dynamics and more
- 14/10/4 aux busses may be paired for stereo; direct drive of wired in-ear monitors (IEM)
- Records and plays back multi-track wave files (32/22/14 tracks) using external hard drive; capable of recording all input channels plus a user-selected stereo output pair
- Interfaces with most DAW software running on Mac® and Windows® computers*
- MP3 USB playback
- Remote control via mobile devices over Wi-Fi
- External control using 3rd party control surfaces with motorized faders*
- Rack-mountable with optional Accessory Kit

*TouchMix-30 Pro only



TouchMix-8



TouchMix-30 Pro



TouchMix-16

BEYOND MIXING

TouchMix™ is quite simply the most powerful small-format digital mixer series ever created. From the highly compact TouchMix-8 to the flagship TouchMix-30 Pro, the TouchMix Series uniquely offers the features, capabilities and sound quality of the world's most esteemed large format consoles in a refined and portable package that's small enough to be carry-on luggage. Perfect for musicians, bands, AV production professionals and small performance venues, TouchMix also goes "Beyond Mixing" by also offering Wizards, Presets and other beneficial tools that help both seasoned audio professionals and novices alike get great results quickly and easily.

Professional in Every Way

Compact in size but enormously powerful and capable, TouchMix represents a new paradigm for small-format digital mixers:

Audio quality.

The most important aspect of any mixer is audio quality and in this regard, TouchMix leads the pack among all small mixers. With professional-grade, class-A microphone preamps, top-quality converters and meticulous attention to design detail throughout the entire signal path, the TouchMix Series delivers pristine audio quality that rivals mixers multiple times its cost.

Results matter.

The TouchMix design team set out from the start to create a mixer with an intuitive workflow and straightforward navigation that is understandable for the less experienced user and fast for the professional — all without sacrificing any "big console" features or capabilities. As a result, the mixer is extremely easy to learn and operate. Many TouchMix functions such as EQ, compressors, gates and limiters offer a choice of Advanced Mode operation with total control over all parameters or Simple Mode that presents only the most essential controls.

Big mixer. Small package

A TouchMix digital mixer is one of the most advanced and capable audio processing devices ever created. Its capabilities rival many of the world's largest and most prestigious large-format consoles but with the added benefit of being highly portable and right-sized for the majority of today's portable sound reinforcement applications. Its small channel count also makes it affordable to a vast array of users who would otherwise never have imagined having such advanced capabilities for their own use.

Wireless when you want it. Hardware when you don't.

The TouchMix Control app for iOS and Android devices provides a portable, wireless interface to the mixer and offers additional control surfaces for the system operator. Individual users can be granted full access or limited to a selected set of controls such as a single monitor mix.

In instances where Wi-Fi control is either not reliable or not desired, the elegant touch-and-turn interface of TouchMix allows for tactile control over fader and mixer parameters while also providing a reliable fixed hardware connection to vital mixer functions.



TouchMix Control App for iOS® and Android™ devices

Professional Results Made Easy

Achieving a quality mix under varying conditions can be a challenging task for even the most seasoned audio professionals. Understanding this, the TouchMix design team put their decades of live sound experience into creating a mixer that delivers great results quickly and easily, whatever the situation. From setting up the most basic instrument or vocal channel to optimizing dynamics and processing to tackling complex monitor routing, TouchMix makes it all fast and easy for professionals and novices alike.



Simple Mode

For less experienced users, Simple Mode is available on EQ, gates, compressors, limiters and effects.

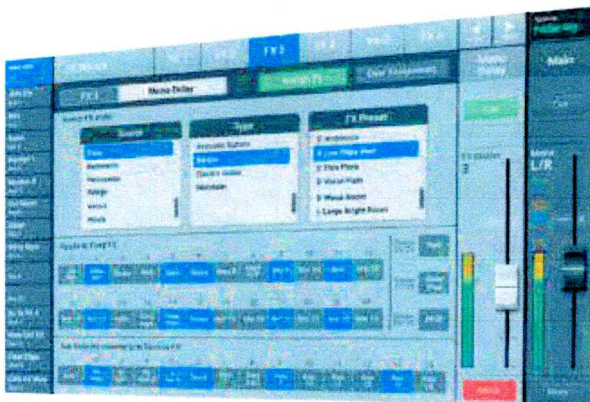
Advanced Mode

For more experienced users, Advanced Mode offers complete access and control to the mixer's suite of dynamics and processing functions.



Channel Presets

Developed in real-world settings by live sound engineers with decades of experience, the extensive Channel Preset Library offers remarkably accurate and infinitely useable settings for the most commonly used instruments and mics. Used as-is or as a starting point, Channel Presets help users of all levels achieve a great mix quickly and easily.



Live sound. Studio grade.

With class-A microphone preamps and pristine audio quality throughout the signal chain, TouchMix delivers quality results both live and in the studio.

Studio-Grade Effects Processors

TouchMix onboard effects rival the world's most sophisticated (and expensive) outboard processors. The TouchMix-30 Pro has six high-quality effects processors while the TouchMix-8 and -16 each have four. All effects processors can be utilized simultaneously without giving up channels or Auxes. You can choose from two types of reverb, chorus, pitch change, mono or stereo delay. There's even an Effects Wizard that helps you choose the right effect and apply it where you need it.

Live Multi-Track Recording/Playback

TouchMix can record all inputs plus a Main or Aux Stereo mix directly to an external USB hard drive without a computer. On playback, tracks can be mixed down or combined with live inputs as live performance tracks. The free TouchMix DAW utility assists with importing tracks into PC or Mac® DAW (Digital Audio Workstation) software as well as exporting DAW tracks for playback on TouchMix.

DAW Interface

The TouchMix-30 Pro provides a 32 x 32 DAW interface for macOS® and Windows® DAW applications.



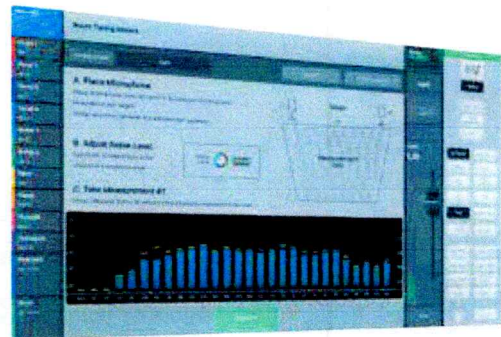
Powerful “Big Console” Features

Don't be fooled by its size. TouchMix is one of the most capable mixing products ever created.



Real-Time Analyzer

The TouchMix-30 Pro includes two real-time analyzers (RTA). One RTA may be displayed along with the equalizer of any currently selected input or output channel. A second, independent RTA may be assigned to display the audio signal of any output, the Cue buss or the Talkback microphone input. TouchMix-8/16 models include a single RTA.



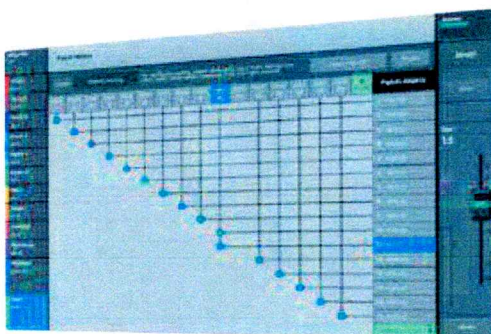
Room Tuning Wizard

The TouchMix-30 Pro Room Tuning Wizard assists the user in adjusting EQ and fine-tuning a loudspeaker system to an acoustical space.



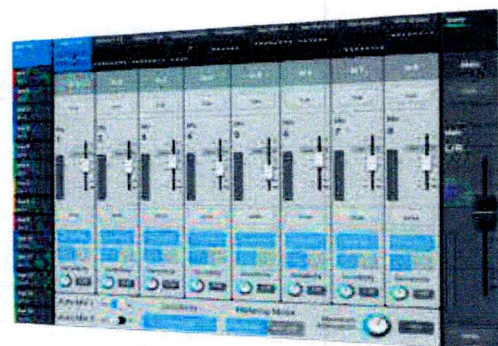
Anti-Feedback Wizard

The TouchMix Anti- Feedback Wizard automates the process of “ringing out” the system while also offering full manual control and override during performances.



Touch-and-Route Patch Matrix

The Patch Matrix (TouchMix-30 Pro only) provides easy “multing” and rearrangement of inputs to mixer channels, helping to simplify complex routing schemes.



Automatic Microphone Mixer

The TouchMix-30 Pro Automatic Microphone Mixer reduces feedback and extraneous noise when mixing conferences, panels and other events with multiple talkers. It is a gain sharing design available on all 24 Mic/Line input channels (requires firmware version 1.3 or higher).



TouchMix-30 Pro

The flagship of the TouchMix Series, TouchMix-30 Pro is perfect for production professionals, musicians and bands as well as live performance venues. Its 32 mixing channels (24 Mic/Line, 6 Line, Stereo USB) and 16 outputs offer tremendous signal routing flexibility for a wide range of applications.



TouchMix-16

The TouchMix-16 offers a full suite of professional, results-oriented features and incredible sound quality. Its 22 mixing channels (16 mic/line / 2 stereo line / stereo USB inputs) make it the perfect choice for those who don't need the higher channel count of the flagship TouchMix-30 Pro.



Included carry-case and Wi-Fi dongle



TouchMix-8

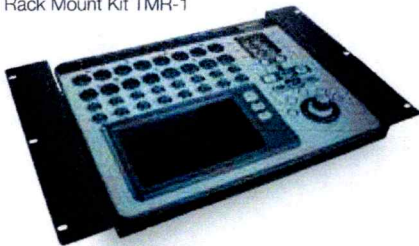
Designed for low channel count applications, the TouchMix-8 (14 mixing channels — 8 mic/line / 2 stereo line / stereo USB inputs) offers the incredible power and sound quality of its larger siblings in our smallest form factor mixer. A perfect choice for solo and small combo performers, AV professionals or as a drum/keyboard sub-mixer, the TouchMix-8 offers amazing performance, flexibility and value.



Included carry-case and Wi-Fi dongle

TouchMix Accessories

TouchMix-8/16
Rack Mount Kit TMR-1



TouchMix-30 Pro Tablet
Support Stand TS-1
(tablet not included)

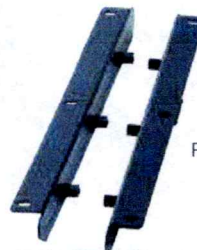


TouchMix-30 Pro Tote

TouchMix-30 Pro
Dust Cover



TouchMix-30 Pro
Rack Mount Kit TMR-2



Specifications

TouchMix-30 Pro

Display	10" (254 mm) diagonal, 1024 x 600 pixel, color TFT, capacitive multi-touch sensing
Inputs	
Total	32
Mic/Line	24 (20 XLR, 4 XLR combo)
Line	6 (balanced, 1/4" TRS + top panel 1/8" (3.5 mm) stereo)
Stereo USB	Stereo USB / MP3 playback
Talkback	1 (XLR, 48 V)
Input Channel Processing	
EQ	4-band Parametric EQ with Hi/Low Shelving option, Variable 24 dB/octave HPF and LPF
Dynamics	Gate, Compressor
Delay	Delay (100 msec max)
Automatic Microphone Mixer	Gain sharing, 24 channels, 2 auto mixers (requires firmware version 1.3 or higher)
Outputs	
Total	16
Main L/R	2 (XLR line-level)
Aux	14 (XLR, line-level)
In Ear Monitor (Stereo)	2 (TRS, 16 ohm min. impedance, from Auxes 11/12 and 13/14)
Cue	2 (Stereo, TRS, line or headphone, 16 ohm min. impedance)
Monitor L/R	2 (Stereo, XLR)
Output Channel Processing	
EQ	1/3 octave Graphic EQ (Main L/R, Auxes 1-6), 6-band Parametric EQ, Variable High- and Low-Pass Filters
Anti-Feedback Filters	12-band Anti-Feedback Filters
Dynamics	Compressor / Limiter
Delay	100 msec
Recording / Playback¹	
Multi-Track	32 x 32 tracks direct to hard drive
DAW	32 x 32 tracks (Mac OS® and Windows®)
MP3	Stereo USB / MP3 playback
Groups	
DCA	8 (with Mutes)
Mute	8
Sub Groups	8 (with 6-band Parametric EQ, HPF and LPF, Limiter)
Cue	Selectable. AFL, PFL, Solo in Place
Effects	6 simultaneous, professional effects engines including Reverb, Echo, Delay, Chorus, Pitch Shift
1 Pitch Correct (assignable to any mono input channel)	1 Pitch Correct (assignable to any mono input channel)
Real Time Analyzer (RTA)	2 (1/3 octave, assignable to channels or user selectable source)
Preset Memory	99 User Scenes, 120 Factory Presets, 99 User Presets
Digital Connections	2 USB A connectors, 1 USB B connector, 1 RJ-45 port (connection for Wi-Fi router)
External Control²	TouchMix-30 Control App for iOS®/Android™ (via Wi-Fi). Third party control surfaces (via mixer or iOS® tablet) ³
Wi-Fi³	Requires external ethernet Wi-Fi router (recommended) or USB Wi-Fi adaptor ³ (not included)
Dimensions (HWD)	
Shipping	12 in X 23.7 in X 19.5 in (30.5 cm X 60.3 cm X 49.5 cm)
Mixer only	7.5 in X 16.9 in X 18.1 in (19 cm X 42.9 cm X 46 cm)
Weight	
Shipping	25.2 lb (11.4 kg)
Mixer only	17.5 lb (7.9 kg)
Power Requirements	85 W, 100-240 VAC, 50-60 Hz
Sampling Frequency	Selectable 44.1 kHz or 48 kHz
Internal Processing	32-bit floating point
THD	<0.005%, +4 dBu; 20 Hz-20 kHz, unity gain, any input to any output
Frequency Response	20 Hz-20 kHz +/-0.5 dB, any input to any output
Dynamic Range	105 dB
Equivalent Input Noise	-126 dBu
Residual Output Noise	-86 dBu
Crosstalk	-80 dB
S/N Ratio	-94 dB
Gain (Mic Inputs)	75 dB (60 dB analog, 15 dB digital)
Maximum Input Level	+16 dB (XLR mic/line inputs), +26 dB (TRS mic/line inputs), +24 dBu (TRS line inputs), 0 dBv (top panel 1/8" stereo input)
Maximum Output Level	+22 dBu (all line-level outputs)
Phantom Power	48 V, mic and talkback inputs, individually switchable
Included Accessories	Power cable
Optional Accessories	TouchMix-30 Pro Cover (Dust cover) TouchMix-30 Pro Tote (Soft, padded tote) TMR-2 (Rack mount kit) TS-1 (Tablet support stand)
Regulatory Approvals	UL, CE, FCC (Class B), RoHS

¹ A list of drives that have been validated by QSC may be found at qsc.com. The hard drive market is continuously changing. There are many drives QSC has not validated that are compatible with TouchMix multi-track recording. Always test external drives for compatibility before using. Minimum requirement is USB 3.0 SSD (recommended) or minimum 7800 RPM hard drive, FAT32 format.

² The TouchMix Personal Monitor App requires iOS 8 or higher.

³ Requires TouchMix firmware v2.0 or higher

TouchMix-16

TouchMix-8

7" (178 mm) diagonal color TFT, capacitive touch sensing

7" (178 mm) diagonal color TFT, capacitive touch sensing

22

14

16 (12 XLR, 4 XLR combo)

8 (4 XLR, 4 XLR combo)

2 Stereo, 1/4" TRS

2 Stereo, 1/4" TRS

Stereo USB / MP3 playback

Stereo USB / MP3 playback

1 (XLR)

N/A

4-band Parametric EQ with Hi/Low Shelving option, Variable 24 db/octave HPF and LPF

4-band Parametric EQ with Hi/Low Shelving option, Variable 24 db/octave HPF and LPF

Gate, Compressor

Gate, Compressor

Delay (100 msec max)

Delay (100 msec max)

12

6

2 (XLR line-level)

2 (XLR line-level)

6 (XLR, line-level) + 2 (TRS, stereo In-Ear Monitor or mono balanced line-level)

4 (XLR, line-level)

2 (TRS, 16 ohm min. impedance, from Auxes 7/8 and 9/10)

1 (TRS, 16 ohm min. impedance, from Auxes 3/4)

1 (Stereo, TRS, line or headphone, 16 ohm min. impedance)

1 (Stereo, TRS, line or headphone, 16 ohm min. impedance)

1 (Stereo TRS, line or headphone, 16 ohm min. impedance)

N/A

1/3 octave Graphic EQ (Main L/R, Auxes 1-6), 6-band Parametric EQ, Variable HPF and LPF

1/3 octave Graphic EQ, 6-band Parametric EQ, Variable HPF and LPF

8-band Anti-Feedback Filters

8-band Anti-Feedback Filters

Limiter

Limiter

100 msec

100 msec

22 x 22 tracks direct to hard drive

14 x 14 tracks direct to hard drive

N/A

N/A

Stereo USB / MP3 playback

Stereo USB / MP3 playback

8 (with Mutes)

8 (with Mutes)

8

8

N/A

N/A

Selectable. AFL, PFL

Selectable. AFL, PFL

4 simultaneous, professional effects engines including Reverb, Echo, Delay, Chorus, Pitch Shift

4 simultaneous, professional effects engines including Reverb, Echo, Delay, Chorus, Pitch Shift

1 Pitch Correct (assignable to any mono input channel)

1 Pitch Correct (assignable to any mono input channel)

1 (1/3 octave. Assignable to channels or user selectable source)

1 (1/3 octave. Assignable to channels or user selectable source)

99 User Scenes, 120 Factory Presets, 99 User Presets

99 User Scenes, 120 Factory Presets, 99 User Presets

2 USB A connectors

2 USB A connectors

TouchMix-8/16 Control App for iOS® and Android™ devices controls all mixer functions via Wi-Fi

TouchMix-8/16 Control App for iOS® and Android devices controls all mixer functions via Wi-Fi

USB Wi-Fi adaptor (included) or external Wi-Fi router (requires USB to ethernet adaptor)

USB Wi-Fi adaptor (included) or external Wi-Fi router (requires USB to ethernet adaptor)

4.75 in x 24.5 in x 15 in (12 cm x 62 cm x 38.1 cm)

4.5 in x 20 in x 16.5 in (11.4 cm x 50.8 cm x 42 cm)

2.3 in x 14.2 in x 11.5 in (5.8 cm x 36 cm x 29.1 cm)

2.2 in x 13.1 in x 9.6 in (5.6 cm x 33.3 cm x 24.5 cm)

11 lb (4.9 kg)

10.7 lbs (4.9 kg)

5.9 lb (2.98 kg)

4.3 lb (1.95 kg)

42W, 100-240 VAC, 50-60 Hz

42W, 100-240 VAC, 50-60 Hz

Selectable 44.1 kHz or 48 kHz

Selectable 44.1 kHz or 48 kHz

32-bit floating point

32-bit floating point

<0.005%, +4 dBu; 20 Hz-20 kHz, unity gain, any input to any output

<0.005%, +4 dBu; 20 Hz-20 kHz, unity gain, any input to any output

20 Hz-20 kHz +/-0.5 dB, any input to any output

20 Hz-20 kHz +/-0.5 dB, any input to any output

105 dB

105 dB

-126 dBu

-126 dBu

-86 dBu

-86 dBu

-80 dB

-80 dB

-94 dB

-94 dB

75 dB (60 dB analog, 15 dB digital)

75 dB (60 dB analog, 15 dB digital)

+16 dBu (Mic/Line inputs, XLR), +26 dBu (Mic/Line inputs, TRS), +22 dBu (Stereo inputs)

+16 dBu (Mic/Line inputs, XLR), +26 dBu (Mic/Line inputs, TRS), +22 dBu (Stereo inputs)

+22 dBu (all line-level outputs)

+22 dBu (all line-level outputs)

48 V, all mic inputs, individually switchable

48 V, all mic inputs, individually switchable

USB Wi-Fi adapter, soft carrying case, power supply

USB Wi-Fi adapter, soft carrying case, power supply

TMR-1 (Rack kit)

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NRTL-Approved, CE, FCC (Class B), RoHS

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+1.800.854.4079 | +1.714.754.6175 | #beyondmixing | www.qsc.com

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