688

12-Input Field Production Mixer with 16-Track Recorder and MixAssist™

The 688 is a production sound engineer's dream come true - a portable audio powerhouse that incorporates multi-channel mixer, auto-mixer, recorder plus optional integrated powering and wireless system. By consolidating these functions, cabling requirements are significantly decreased, de-cluttering the sound mixer's bag, increasing reliability and improving ease of use. The 688 takes the finest aspects of the acclaimed 633, 664, and 788T and creatively combines them with new technology into an unrivalled production audio tool.

Inputs and Outputs The 688 has six high-bandwidth mic/line inputs on XLR connectors, each complete with phantom power, high-pass filter, analog input limiter and variable pan. Six additional line-level inputs on TA3 connectors offer flexibility for more complex productions.

Routing Flexibility All inputs are assignable, pre- or post-fade to its eight output buses, left/right plus Aux 1-6. The 688 can send its main left/right mix to three cameras simultaneously via transformer-balanced XLR and Hirose outputs.

MixAssist™ The 688's powerful digital processing engine delivers 12-channel auto-mixing capability using the most sophisticated algorithm on the market

Left Panel

Right Panel

today. MixAssist automatically attenuates the level of inputs that are not active and helps maintain consistent background sound levels regardless of the number of open microphones. Comb filtering and phasing artifacts are also reduced when multiple mics pick up the same sound source by intelligently attenuating redundant mics.

Recording The 688 offers 16-track, polyphonic or monophonic broadcast WAV file recording to SD and CompactFlash cards. All common sampling rates are supported, including 192 kHz on up to six tracks. The memory cards can be set independently, recording either identical material for real-time backup, or combinations of WAV and MP3 files.

PowerSafe™ The 688 incorporates exclusive PowerSafe circuitry with smart sensing of available power sources, front panel warning indication of power loss, and an integrated 10-second power reserve that will, in the event of an inadvertent power loss, allow the 688 to safely stop recording, properly end all file operations, and then automatically shut down.

QuickBoot Power on and start recording in less than two seconds. You never have to wait on sound.

Timecode and Metadata The 688 features a world renowned Ambient™ timecode generator and reader supporting all common rates and modes. A helpful timecode compare utility shows the difference between internal and external timecode. The 688 also generates sound reports and supports extensive metadata, via the front panel or attached USB keyboard.

KEY FEATURES

- 12 analog inputs: Six mic/line preamps plus six line inputs all with front-panel faders & PFLs

- 16-track recording to SD & CompactFlash cards; Timecode-stamped WAV & MP3 files

- MixAssist 12-input auto-mixer

- Optional Accessories: SL-6 power distribution & 6-ch SuperSlot™ wireless receiver system; CL-6 input controller with LED metering & transport controls

- Eight output buses: L/R mix plus Aux 1-6; transformer-balanced XLR & Hirose outs for freedom from ground loops

- Two AES42/AES3 inputs, eight AES3 outputs

- Direct menu control of SuperSlot-compatible wireless (with SL-6)

- PowerSafe protects files from power loss

- 2-second power on-to-recording

- Flexible digital mixing and routing

- Supports all sample rates up to 192kHz

- Adjustable input & output delay

- Three camera returns & dedicated COM return

- Internal & external slate mic inputs

- Ambient TC generator and reader and internal TC backup battery

- Easy to navigate interface, 1000-nit LCD visible in all light conditions, configurable metering

- USB Keyboard for metadata entry

- User-configurable headphone presets

- Light-weight, durable carbon-fiber chassis

- Powered by AA-battery (x5), external DC or NP1 via SL-6

POWER SAFE™   MIXASSIST™

688

12-Input Field Production Mixer with 16-Track Recorder and MixAssist™

CL-12

Ideal for live mixing of multiple channels of audio, the CL-12 Linear Fader Controller is an optional accessory that significantly expands the mixing capabilities of the 688. The CL-12 offers smooth-gliding 100 mm linear faders and sunlight-viewable, 22-segment LED metering with limiter activity. It provides 3-band parametric equalizer, shortcut access to SL-6 SuperSlot wireless receiver data, and MixAssist™ auto-mix monitoring. It also has numerous dedicated back-lit buttons for quick access to key functionalities, such as metadata entry, transport controls, arming, routing, and much more.

SL-6

This optional power distribution and six channel wireless receiver system simplifies interconnection between the 688 and slot-in receivers. With the SL-6, the 688 acquires digital audio plus fully integrated control of SuperSlot compatible receivers. The SL-6 also provides USB charging port, two 12 V isolated outputs, and two non-isolated direct battery outputs for powering additional devices.

SUPER⬡SLOT™

CL-6

This optional input controller attaches to the bottom of the 688 and adds six full-sized tactile fader control of channels 7-12, sunlight-viewable LED metering and big, back-lit record and stop controls. When the CL-6 is attached to a 688, the 688's mini-faders, originally assigned as faders for 7-12, switch to trim controls.

SPECIFICATIONS

Frequency Response
10 Hz to 40 kHz ± 0.5 dB, -3dB @ 65 kHz (192 kHz sample rate, re 1 kHz)

THD + Noise
0.09% max (1 kHz, 22 Hz–22 kHz BW, fader at 0, 0 dBu output)

Equivalent Input Noise
-126 dBu (-128 dBV) maximum. (22 Hz - 22 kHz bandwidth, flat filter, trim control fully up)

Inputs
XLR Mic: Active-balanced for use with ≤600 ohm mics, 4k ohm actual; 12V or 48V phantom power, 10 mA max
XLR AES: AES3 or AES42 (10 V power), SRC
XLR Line: active-balanced for use with ≤2k ohm outputs, 10k ohm actual
TA3 Line: active-balanced for use with ≤2k ohm outputs, 10k ohm actual
RTN A,B,C (3.5 mm/10-pin): unbalanced stereo for use with ≤2k ohm outputs, 6.5k ohm actual
Slate Mic (TA3): 6.5k ohms

Input Clipping Level
0 dBu minimum

Maximum Input Level
XLR Mic: 0 dBu (0.78 Vrms)
XLR Line: +40 dBu (80 Vrms)
RTN A, B, C (3.5 mm/10-pin): +24 dBu (12.4 Vrms)

High-Pass Filters
Adjustable 80 Hz to 240 Hz, 18 dB/oct (up to 96 kHz)
Fixed 50 Hz, 6 dB/oct (192 kHz)

Input Limiters
Pre-fade (Inputs 1-6): +16 dBu threshold fixed, soft knee/ hard knee, 20:1 ratio, 1 mS attack, 500 mS release
Post-fade (Inputs 1-12): Adjustable threshold +4 dBu to +18 dBu, 20:1 ratio, 1 mS attack, 500 mS release

Input Delay
Adjustable 0-30 mS for each input in 0.1 mS steps

Maximum Gain
Mic-In to L/R/X1/X2/X3/X4 (Line): 91 dB
Mic-In to X5/X6 (Line): 88 dB
Mic-In to L/R/X1/X2/X3/X4 (-10): 77 dB
Mic-In to X5/X6 (-10): 74 dB
Mic-In to L/R/X1/X2/X3/X4 (Mic): 51 dB
Mic-In to X5/X6 (Mic): 48 dB

Headphone Max. Gain
63 dB (Line 1-6 input)
44 dB (Line 7-12 input)
103 dB (Mic input)

Outputs
Line (XLR and 10-pin): transformer-balanced, 120 ohms
-10 (XLR and 10-pin): transformer-balanced, 3.2k ohm
Mic (XLR and 10-pin): transformer-balanced, 150 ohms
TA3 (X1-X4) Mic/Line/-10: active-balanced, 240/3.2k/120 ohms
TA3 (X5/X6) -10: unbalanced, 100 ohms
Tape Out (3.5 mm): unbalanced, stereo, 1.8k ohms
Headphones (3.5 mm and 1/4"): unbalanced, stereo, 60 ohms

Line Output Clipping Level (1% THD)
20 dBu minimum with 10k load

Maximum Output Level
Line: +20 dBu (7.8 Vrms)
-10: +6 dBu (1.5 V rms)
Mic: -20 dBu (0.078 Vrms)
Tape Out: +6 dBu (1.5 Vrms)

Output Limiters
L/R and X1/X2, adjustable threshold +4 dBu to +18 dBu, soft knee/hard knee, 20:1 ratio, 1 mS attack, 500 mS release.

Output Delay
Adjustable 0-417 mS (0-12.5 frames @ 30fps) for each output in 1 mS steps

Recording Tracks
16 tracks (12 inputs, 4 output buses L/R, Aux 1/2) Broadcast WAV monophonic and polyphonic file format, MP3 with timecode metadata

A/D
24-bit, 114 dB, A-weighted dynamic range typical
Sampling rates 44.1 kHz, 47.952 kHz, 48 kHz, 48.048 kHz, 88.2 kHz, 96 kHz, 192 kHz

Digital Outputs
AES3 transformer-balanced, in pairs; 1-2 (XLR-L), 3-4 (XLR-R), 5-6, (Hirose 10-pin RTN A), 7-8, (Hirose 10-pin RTN C)
110 ohm, 2 V p-p, AES and S/PDIF compatible

Recording Storage Type
SD, SDHC, SDXC Card, CompactFlash (CF)
FAT32 formatted (<32GB), exFAT for (>32GB), on-board memory card formatting

Timecode and Sync
Modes Supported: off, Rec Run, Free Run, 24h Run, External
Frame Rates: 23.976, 24, 25, 29.97DF, 29.97ND, 30DF, 30ND
Sample/Timecode Accuracy: Ambient generator, ± 0.2 ppm (0.5 frames per 24 hours)
Timecode Input: 20k ohm impedance, 0.3 V - 3.0 V p-p (–17 dBu - +3 dBu)
Timecode Output: 1k ohm impedance, 3.0V p-p (+12 dBu)
Wordclock In/Out: square wave; 10k/75 ohm, 1-5V p-p input; 75 ohm, 5V p-p output, at SR
Wordclock Termination: 75 ohm, Off

Power
External: 10-18 V on locking 4-pin Hirose connector, pin-4 = (+), pin-1 = (-).
Internal: accepts 5 AA-sized (LR6) batteries, nominal (NiMH rechargeable compatible)
PowerSafe: 10 second power reserve

Idle Current Draw
680 mA @ 12V (8.16W) - inputs 1-6 powered on, CF and SD media inserted

Environmental
Operating: -20°C to 60°C, 0 to 90% relative humidity (non-condensing)
Storage: -40°C to 85°C

Dimensions (H x W x D)
5.3 cm x 32 cm x 19.8 cm;
(2.1 in x 12.6 in x 7.8 in)

Weight
4 lbs. 14 oz. (unpackaged, without batteries)
2.21 kg (unpackaged, without batteries)

SOUND⬡DEVICES®