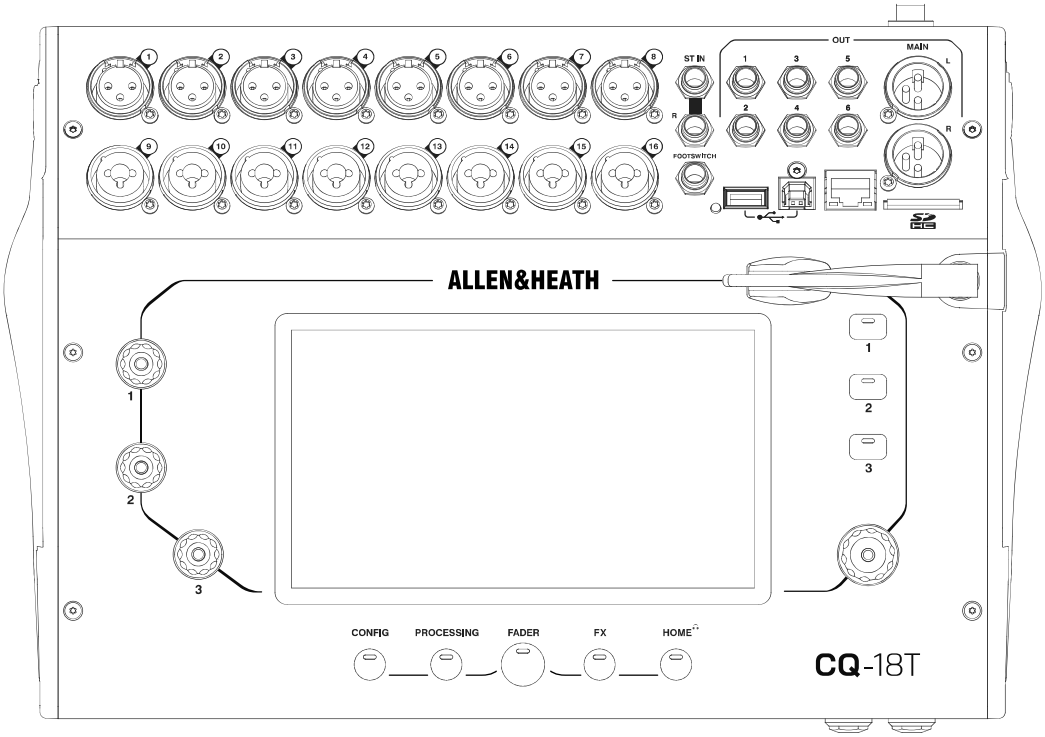
CQ-18T

Technical Datasheet

The CQ-18T is an ultra-compact digital audio mixer designed to be operated locally using its touchscreen and physical controls, remotely using its built-in WiFi or through connection to a wired or wireless network.



Features

- 19x Inputs to Mix
  (16x Mono/Linkable, 3x Stereo)
- Stereo MainLR Output
- 6x Aux Outputs
  (Linkable up to 3x Stereo)
- 8x XLR Mic/Line Input Sockets
- 8x XLR/Jack 'Combi' Mic/Line Input Sockets
- Stereo Line Input (2x TRS)
- 2x XLR Output Sockets (MainLR)
- 6x TRS Output Sockets
- 2x Stereo Headphone Outputs
- Dedicated Stereo USB Input to Mix
- Dedicated Stereo Bluetooth Input to Mix
- 96kHz Input/Output Processing
- 4x Multi-FX Engines
- Built-In Dual Band WiFi (CQ as Host)
- RJ45 Network Socket (CQ as Client)
- USB-A For Stereo Audio Record/Playback and Data
- USB-B For Multichannel Audio Record/Playback (24x22)
- SD Card Slot for Multichannel Audio Record/Playback (24x22)
- 7" Capacitive Touchscreen with 5x Screen Keys and Associated Rotary Encoder
- 3x Configurable SoftRotaries
- 3x Configurable SoftKeys
- Configurable Single/Dual Footswitch Connection
- 4x Mute Groups
- 4x DCAs
- Rack Mountable (Optional Kit Available)
- 12V DC Power Inlet with switch, External Worldwide PSU supplied
- Control Via Free Apps – Windows/MacOS/iOS/Android

A&E Specification

The mixer shall be a compact digital mixer with 96kHz processing, 16 mono input channels and 3 stereo channels mixing to LR and 6 aux outputs.

Local analogue inputs shall use balanced XLR sockets and a minimum of 8 combi (TRS/XLR) sockets and connect to fully recallable digitally controlled preamplifiers. These shall be able to provide industry standard 48V phantom power.

Local analogue outputs shall be provided on XLR sockets or balanced TRS ¼ inch jack sockets with a nominal line output of +4dBu and a maximum output of +22dBu.

All input and output processing, routing options and system configuration shall be accessed and adjusted via a 7-inch colour touchscreen and associated dedicated rotary control.

3 user-assignable keys with variable colour LED illumination shall be provided for quick access to functions including Input/Mix mutes, tap tempo, scene controls.

3 user-assignable rotary controls with variable colour LED illumination shall be provided for quick access to functions including Input/Mix levels, compressor/gate threshold, FX sends. An option to automatically map the rotary controls to functions on screen shall also be provided.

A footswitch connection shall be provided to allow assignable control from an optional single or dual footswitch.

All input channels shall contain the following processing as a minimum: Polarity, High Pass Filter, Gate, Parametric EQ, Compressor, Pan. All output mix channels shall contain the following processing: selectable Graphic / Parametric EQ, Compressor, Delay.

Channel processing shall also include simplified, source-optimised channel presets to speed up setup and improve for inexperienced operators.

The mixer shall be capable of automatically detecting input level and adjusting preamp gain across multiple channels, as well as monitoring input level during use and reducing preamp gain to prevent clipping.

A feedback detector shall be provided to analyse one, multiple or all mixes, identify problem frequencies and apply notch filters appropriately to suppress feedback during setup or live performance.

4 effect engines shall be provided with a library of factory preset FX. The FX engines shall be individually configurable as send/return or inserted into input or output channels.

An Automatic Mic Mixer shall be provided for automatic and dynamic adjustment of input levels across all mono input channels for spoken word applications.

There shall be a USB Type-A connector on the surface for stereo recording/playback direct to USB drives, data-transfer, archiving, and firmware updates.

There shall be a USB-B connection following the USB 2.0 standard for stereo or multi-channel, bi-directional audio streaming between the mixer and a computer.

There shall be an SDHC card slot for multitrack recording/playback at either 48kHz or 96kHz.

The mixer shall provide an Ethernet port for Cat5 cable connection to a wireless router / access point, existing network or directly to a device for control of mixer parameters. A Wi-Fi access point with replaceable antenna shall be integrated in the mixer and offer dual band, auto channel selection for wireless control of the mixer.

Control software shall be provided for tablet, phone, and computer control. In addition to a full control app for the mixer, a mobile app for personal monitoring shall be available and compatible with iOS and Android phones.

The mixer shall be capable of Bluetooth connectivity with simple pairing to third party devices for high quality stereo playback of music to a dedicated stereo channel.

The mixer shall provide the facility to save scenes of the settings of the mixing system and these scenes shall be nameable. The mixer shall also periodically record all current settings and return the mixer to that state after reboot following a power-cycle.

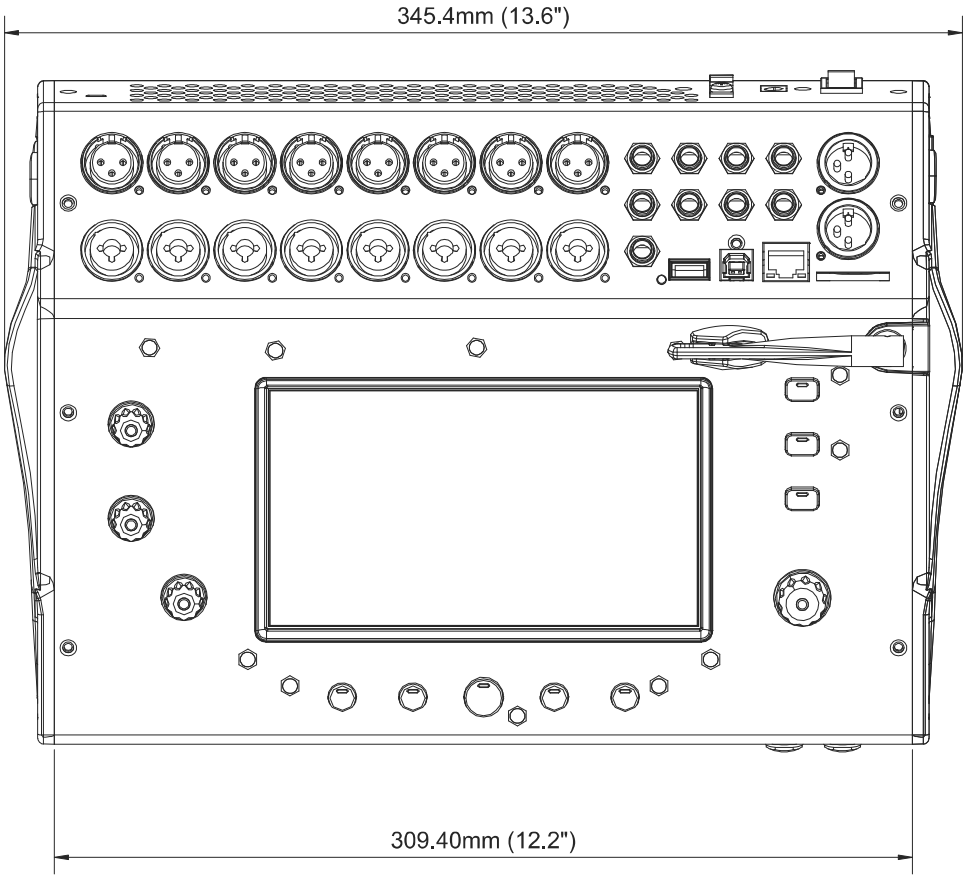
The mixer shall have a 12V DC power inlet with a switch and shall be supplied with an external worldwide PSU.

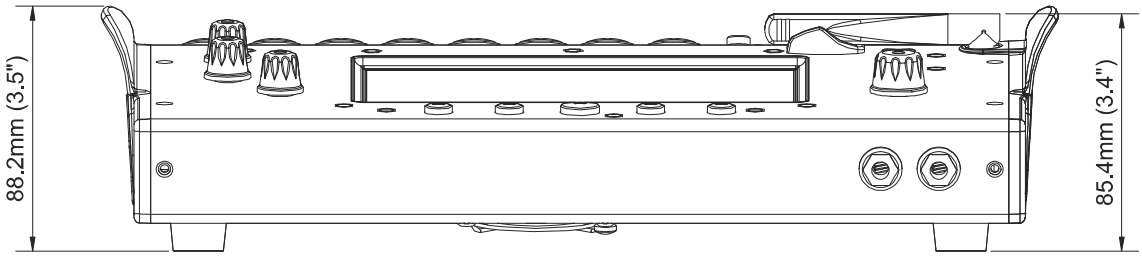
Recommended operating temperature for the mixer shall be 5 to 40 degrees Celsius.

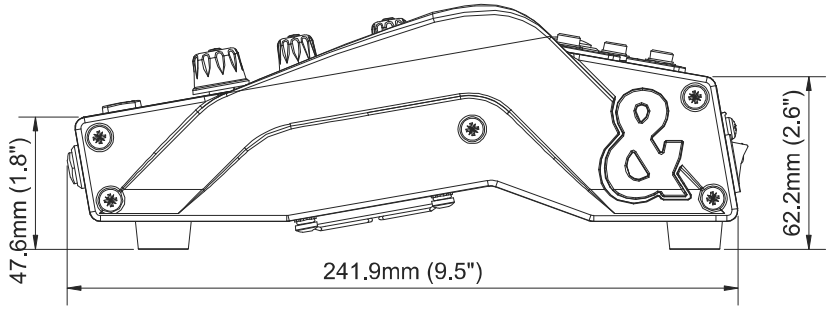
An optional kit for mounting the mixer in a standard 19” rack shall be made available.

The mixer shall be the Allen & Heath CQ-18T.

Dimensions


345.4mm (13.6")
309.40mm (12.2")


88.2mm (3.5")
85.4mm (3.4")


47.6mm (1.8")
62.2mm (2.6")
241.9mm (9.5")

Technical specs

Inputs

Mic/Line Inputs	Balanced XLR, Balanced XLR/TRS Combi, fully recallable preamp
Phantom Power	+48V (+3V / -2V)
Input Sensitivity	-60 to +0dBu
Line Inputs (Combi Sockets)	-20dB Pad (Fixed)
Analogue Gain	0dB to +60dB, 1dB steps
Maximum Input Level	+17dBu (XLR), +30dBu (TRS)
Input Impedance	>1.5kΩ (XLR), >10kΩ (TRS)
THD+N, Unity gain 0dB	0.002% -92dBu (20Hz-20kHz, USB soundcard, @0dBu 1kHz)
THD+N, Mid gain +30dB	0.004% -88dBu (20Hz-20kHz, USB soundcard, @-30dBu 1kHz)
Stereo Line Input	
Stereo Line Input Connection	Balanced, 1/4" TRS Jack, Normalled (Left/Mono)
Input Sensitivity	Nominal +4dBu
Trim	+/-24dB
Maximum Input Level	+21dBu
Input Impedance	>10kΩ

Outputs

Main LR Outputs	Balanced, XLR
Outputs 1-6	Balanced, 1/4" TRS Jack
Output Impedance	<75Ω
Nominal Output	+4dBu = 0dB meter reading
Maximum Output Level	+22dBu
Residual Output Noise	-88dBu (muted, 20Hz-20kHz)

System

System	Measured balanced XLR in to XLR out, 0dB gain, 0dBu input
Dynamic Range	110 dB
Frequency Response	+0/-0.5dB 20Hz to 20kHz
Headroom	+18dB
Internal operating Level	0dBu
THD+N, Mic routed to Main L/R Out	+10dBu input, 0dB system gain, 0.003%, -92dB (Relative, 20-20kHz)
dBFS Alignment	+18dBu = 0dBFS (+22dBu at XLR output)
Meter Calibration	0dB meter = -18dBFS (+4dBu at XLR output)
Sampling Rate	96kHz
Bit Depth	Custom bit depth, up to 96-bit
Latency	<0.7mS, Local Mic Input to Main L/R, with all processing in or out
Operating Temperature Range	0° C to 40° C (32° F to 104° F)
Power	12V DC, 5A (100-240V AC, 50/60Hz input PSU supplied), 35W max

Record/Playback

USB-A	
Stereo Record	48/96 kHz, 24-bit WAV format. Patchable from Outputs, ST in, or FX Units
Stereo Playback	44.1/48/96 kHz, 16/24 bit, Mono/Stereo WAV files
USB-B	USB 2.0, Core Audio compliant, ASIO/WDM for Windows, 48/96 kHz, 24-bit
Send / Return	24 channels / 22 channels
SD Card	SDHC, 32 GB, UHS-I, Class 10 for maximum channels, 48/96 kHz, 24-bit
Multitrack Record	16 channels @ 96kHz or 24 channels @ 48kHz
Multitrack Playback	16 channels @ 96kHz or 22 channels @ 48kHz

Connectivity

Wi-Fi Access Point	802.11 a/b/g/n/ac (dual band, auto channel)
Bluetooth	4.1 (high quality stereo playback)

Weights and Dimensions

	Width x Depth x Height
As Used	346 x 242 x 89 mm (13.6" x 9.5" 3.5"), 3 kg (6.6 lbs)
Packed in shipping box	430 x 310 x 200 mm (16.9" x 12.2" x 7.9"), 3.8 kg (8.4 lbs)

Processing specs

Input Processing

Channels	16 mono (stereo linkable), 3 stereo (ST, USB, Bluetooth)
Source	Analogue or Digital (USB/SD) with automatic override (SD>USB)
HPF	20Hz to 2kHz
Gate	Self-keyed
Threshold	-72dB to +18dB
Depth	0dB to 60dB
Attack	50μs to 300ms
Hold	10ms to 5s
Release	10ms to 1s
Insert Point	Internal FX Unit
PEQ	4-band fully parametric, with RTA option
LF/HF Type	Shelf, Bell or HPF/LPF
Frequency	20Hz to 20kHz
Width	1.5 to 1/9 Octave
Gain	+/-15dB
Compressor	Self-keyed, RMS/Peak
Knee control	Hard/Soft
Threshold	-46dB to +18dB
Ratio	1:1 to Inf:1
Attack	30μs to 300ms
Release	50ms to 2s
Gain	0dB to +18dB

Output Processing

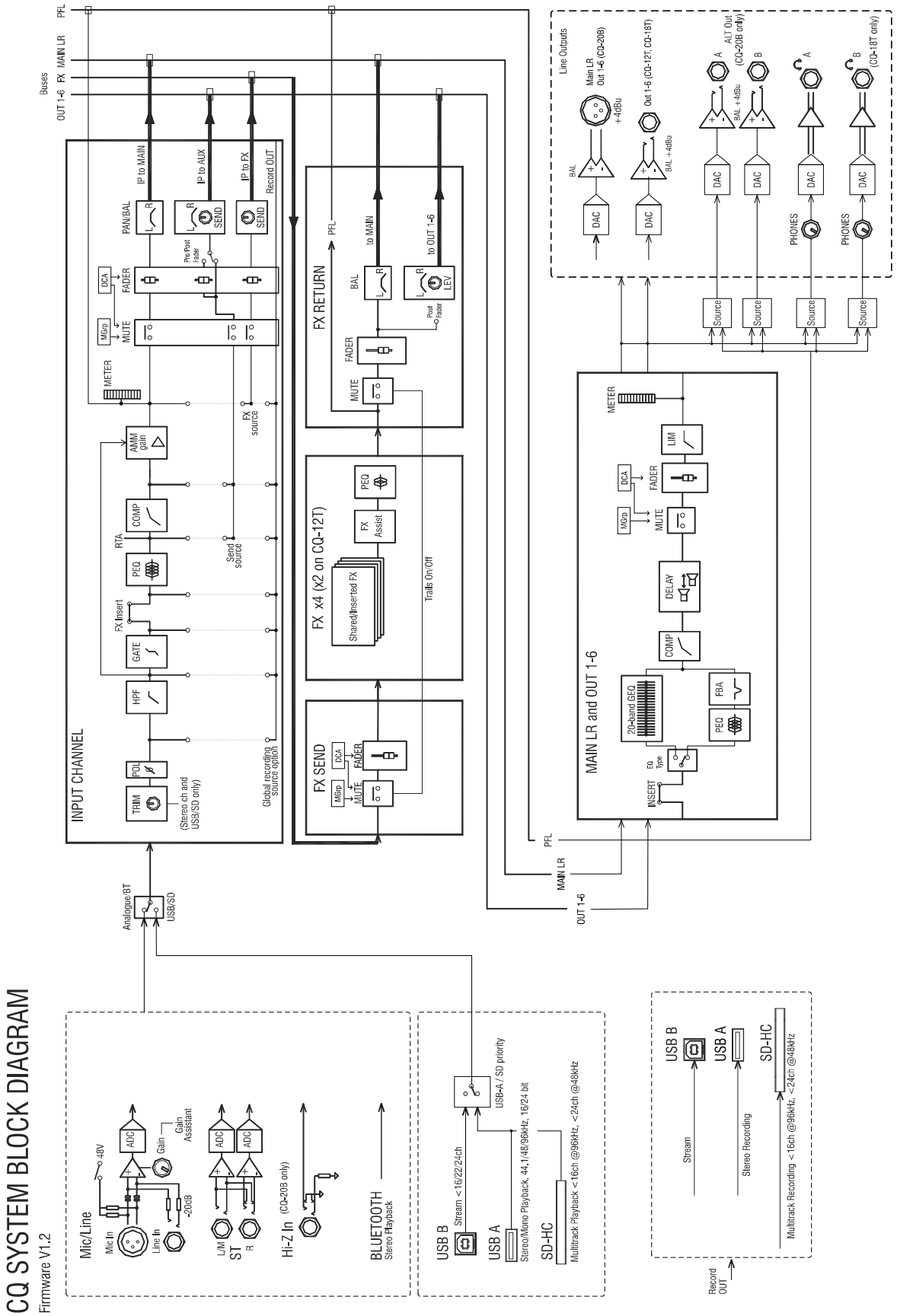
GEQ	20-band 1/2 oct, 31Hz-16kHz, +/-12dB Gain, with RTA option
PEQ	As Input PEQ
Feedback Assistant	Automatic feedback suppression
Filters	16 total, maximum 12 Fixed, maximum 16 Live
Filter Cut	0dB to 18dB
Automatic Filter Width	18 to 116 Q
Manual Filter Width	6 to 640 Q
Live Recovery (+0.5dB)	Off to 1s
Compressor	As Input Compressor
Limiter	Fast/Slow
Threshold	-24dB to +18dB
Delay	Up to 682ms

FX Units

Number of FX Units	4
Types	Easy Verb, Echo Verb, Space Verb, Echo, Tap Delay, Stereo Delay, Beat Delay, Double Tracker, Chorus, Flanger, Phaser
Dedicated Stereo FX channels	Fader, Pan, Mute, Sends to LR/Outputs/FX

AMM

Channels	16 (Mono only)
Type	D-Classic Gain Sharing
Priority	-15dB to +15dB per channel


CQ SYSTEM BLOCK DIAGRAM
Firmware V1.2
Mic/Line
48V
Mic In
Line In
ADC
Gain
Gain Assistant
-20dB
L/M
ST
R
Hi-Z In (CQ-20B only)
BLUETOOTH
Stereo Playback
Analogue /BT
USB/SD
USB B
Stream <16/22/24ch
USB A
Stereo/Mono Playback, 44.1/48/96kHz, 16/24 bit
USB-A / SD priority
SD-HC
Multitrack Playback <16ch @96kHz, <24ch @48kHz
Record OUT
Stream
Stereo Recording
Multitrack Recording <16ch @96kHz, <24ch @48kHz
Buses
OUT 1-6
FX
MAIN LR
PFL
INPUT CHANNEL
TRIM
48V
(Stereo ch and USB/SD only)
Global recording source option
HPF
GATE
FX Insert
RTA
PEQ
COMP
AM/M gain
Send source
FX source
METER
MGrp
MUTE
DCA
FADER
PAN/BAL
IP to MAIN
IP to AUX
IP to FX
Record OUT
Pre/Post Fader
SEND
FX SEND
FX RETURN
BAL
to MAIN
to OUT 1-6
LEV
Post Fader
FX x4 (X2 on CQ-12T)
Shared/Inserted FX
FX Assist
Trails On/Off
MAIN LR and OUT 1-6
INSERT
EQ Type
31-band GEQ
FBA
DELAY
LIM
Source
Line Outputs
Main LR Out 1-6 (CQ-20B)
+4dBu
Out 1-6 (CQ-12T, CQ-18T)
BAL +4dBu
DAC
ALT Out (CQ-20B only)
PHONES
(CQ-18T only)