

Product Guide 2018

Let's get talking



APOLLO • ARTEMIS • SUMMA • BRIO • HYDRA2 • RP1 • AoIP • FIELDBOX • H2HUB • Type R

Introduction

Calrec is a leading designer and supplier of audio broadcast mixing equipment, relied on by the world's most successful broadcasters.

Formed as a microphone manufacturer in 1964, Calrec's reputation for build quality, reliability and audio performance has made it an industry benchmark across the world.

Now, broadcasters demand even more versatility and integration from their audio equipment. In this highly progressive era, TV companies want to ensure that their systems can produce programmes increasingly efficiently and to exacting specifications.

For their audio systems to achieve this, greater consideration has to be given to networks as a whole, and how efficiently they can be controlled.

Calrec understands modern broadcast facilities, and works alongside broadcasters to keep ahead of the changing needs of the broadcast environment.

Calrec's range of broadcast mixing consoles, remote production and audio networking solutions, its understanding of AoIP and IP infrastructures, and its work with third-party integration, means Calrec is at the epicentre of changing broadcast requirements.

All Calrec products are designed, manufactured and tested at Calrec's Nutclough Mill headquarters in Hebden Bridge, West Yorkshire, England.

From customer research and product develop, through R&D, production and test departments, every element of product development is in-house. This ensures the integrity of the entire process and guarantees a quality standard unsurpassed in the broadcast console marketplace.

Over the last 50 years, Calrec has earned a reputation for innovation and holds a history of technological world firsts:



1977: Calrec supplies the world's first stereo broadcast console.

1978: Calrec launches the Soundfield microphone, the world's first single-point source microphone capable of recording sound in three-dimensions for surround-compatible playback.

1981: Calrec supplies the world's first digitally controlled assignable mixing console.

2007: Calrec launches Bluefin, an FPGA-based high-density DSP card, which permits real-time 5.1 surround mixing and processing. Bluefin is available as an upgrade to existing Calrec desks, and improves

efficiency by a phenomenal 5000%. This technology is another world first for Calrec.

2009: Calrec unveils Bluefin2, a significant step up from Calrec's pioneering work with FPGAs for real-time audio DSP processing. Bluefin2 increases DSP capacity to an unsurpassed 1020 channel processing paths.

2009: Calrec launches Hydra2, allowing the construction of complex routing networks with control software which organises all routing.

Modern broadcast infrastructures need to be adaptable and quick to respond.

We all need to talk to each other across multiple languages, and we need to support all kinds of changing workflows.

It's an exciting time to be in broadcast audio, and Calrec is right in the middle of it.

Alongside DiGiCo, SSL and Allen & Heath, Calrec is part of the Audiotonix group of British console companies.



Apollo



Surface

- 100mm faders with mechanical PFL overpress
- 12 A/B Layers, providing 24 possible assignments for each fader or control
- Colour-changing rotary knobs to indicate function
- Touch screens controlling i/o, monitoring and routing

Processing

- 1020 channel processing paths
- Up to 16 x stereo or 5.1 surround main outputs*
- Up to 48 x mono, stereo or 5.1 surround audio groups*
- 96 x multi-track Buses for IFB or recording
- 4 x track sends per path
- 48 x auxiliary Buses
- Up to 4 x Direct Outputs/Mix Minus sends per path
- Direct outputs can be pre-EQ, pre-fader or post-fader
- 3 x independent user sections with independent monitoring
- All channels and groups have 6-band parametric EQ

- All channels, groups and mains have full dynamics
- Side Chain EQ/Filters
- 256 x Inserts
- Up to 2.73s per Output from a pool of 256 channels
- Up to 2.73s per Input from a pool of 256 channels
- All paths have 2.73s delay in addition to in and out delay
- 12 fader layers, each with its own A and B paths
- 8 x AutoMixers, each controlling an unlimited number of paths
- Advanced AutoFader (AFV) functionality on all faders

Networking

- Integral 8192² router
- 16/32 Router ports
- All I/O provided over Hydra2 network via a comprehensive range of Hydra2 I/O boxes
- Cat5e or fibre connectivity

Resilience

- Highly resilient – all modules are hot-pluggable with automatic redundant PSU, DSP, Control processor, Router module, I/O Expansion module
- Independent DSP operation ensures audio continuity in the event of a PC or control reset
- Low power consumption and heat generation

* from a Mains/Group pool of 128 resources

Artemis



| | Artemis Shine | Artemis Ray | Artemis Beam | Artemis Light |
|--|--|--------------------------------------|--------------------------------------|--------------------------------------|
| - Channel Processing Paths | 680 | 456 | 340 | 240 |
| - Main Outputs | Up to 16 from pool of 128 | Up to 16 from pool of 128 | Up to 16 from pool of 128 | Up to 16 from pool of 72 |
| - Groups | Up to 48 from pool of 128 | Up to 48 from pool of 128 | Up to 48 from pool of 128 | Up to 48 from pool of 72 |
| - Track Buses | Up to 64 | Up to 64 | Up to 64 | Up to 48 |
| - Aux Buses | Up to 32 | Up to 32 | Up to 32 | Up to 24 |
| - AFL Systems | 3 | 3 | 3 | 3 |
| - PFL Systems | 3 | 3 | 3 | 3 |
| - Inserts | Pool of 256 | Pool of 256 | Pool of 256 | Pool of 128 |
| - Chan/Grp Direct/ Mix Minus Outputs | Up to 4 per path from pool of 512 | Up to 4 per path from pool of 512 | Up to 4 per path from pool of 512 | Up to 4 per path from pool of 256 |
| - Input Delay | 256 legs of 2.73s | 128 legs of 2.73s | 128 legs of 2.73s | 128 legs of 2.73s |
| - Output Delay | 256 legs of 2.73s | 128 legs of 2.73s | 128 legs of 2.73s | 128 legs of 2.73s |
| - Bus Path Delay | 2.73s per path | 2.73s per path | 2.73s per path | 2.73s per path |
| - Track Sends/Chan or Grp | 4 | 4 | 4 | 4 |
| - EQ 1-4 | 4 band Para | 4 band Para | 4 band Para | 4 band Para |
| - EQ 5-6 | 2 band Para | 2 band Para | 2 band Para | 2 band Para |
| - Sidechain EQ | 2 band Para | 2 band Para | 2 band Para | 2 band Para |
| - Dynamics 1 | Comp/Lim and Exp/Gate | Comp/Lim and Exp/Gate | Comp/Lim and Exp/Gate | Comp/Lim and Exp/Gate |
| - Dynamics 2 | Comp/Lim | Comp/Lim | Comp/Lim | Comp/Lim |
| - Max Faders | 72 | 72 | 64 | 56 |
| - Layers | 12 Dual Layers | 12 Dual Layers | 12 Dual Layers | 12 Dual Layers |
| - AutoMixers, each controlling an unlimited number of paths | 8 | 8 | 8 | 8 |
| - Advanced AutoFader (AFV) functionality on all faders | | | | |
| Router Ports | 16/32 | 16/32 | 16/32 | 8 |
| Networking | Integral 8192 ² router | Integral 8192 ² router | Integral 8192 ² router | Integral 4096 ² router |
| | All I/O provided over Hydra2 network via a range of Hydra2 I/O boxes. Cat5e or fibre connectivity | | | |
| Surface | 100mm faders with mechanical PFL overpress 12 A/B Layers, providing 24 possible assignments for each fader or control Colour-changing rotary knobs to indicate function Touch screens controlling I/O, monitoring and routing | | | |



Surface

- 100mm faders with PFL overpress
- Six surface layers
- Built-in Talkback Microphone
- Stereo Headphone Output

Processing

- A pool of 180 or 128 Channel processing paths
- 4 x Main Outputs (mono, stereo or 5.1)
- 8 x Audio Sub-Groups (mono, stereo or 5.1)
- 32 x Track Outputs (mono or stereo)
- 16 x Auxiliary Outputs (mono or stereo)
- 1 x Direct Output per Channel* (Pre EQ, Pre Fader or Post Fader)
- 1 x Mix Minus Output per Channel* (can be fed from Auto Minus, Auxes, Tracks or Off Air Conference Bus)
- 1 x Auto Minus Bus
- 1 x Off Air Conference Bus
- 1 x Insert on every Channel, Group, Main and Console Monitor Output
- 152 x External Monitor and Meter Inputs
- 4 x AutoMixers, each controlling an unlimited number of paths
- Unlimited VCA groups
- 6-band parametric EQ on every Channel, Group, Main

- Dynamics processing on every Channel, Main, Group, Aux and Track (2 x Compressor/Limiter, Expander, Gate, Side Chain EQ/Filters)
- 2.73s of delay within every Channel, Group, Main, Aux and Track
- An additional pool of 128 blocks of assignable Input Delay (2.73s each)
- An additional pool of 128 blocks of assignable Output Delay (2.73s each)
- 5.1 Console Monitor Output (with dedicated small LS and PFL/RTB outputs)
- 3 x 5.1 Studio Monitor Outputs
- Advanced AutoFader (AFV) functionality on all faders

Networking

- Integral 4096x4096 router
- 8 redundant router connections for networking consoles and connecting I/O boxes
- All I/O provided over Hydra2 network via a wide range of I/O formats
- Cat5e or fibre connectivity

Resilience

- Highly resilient. PSU, DSP, Control Processor and Router Modules are hot-swappable and have automatic redundancy
- Independent DSP operation ensures audio continuity in the event of a surface reset
- Low power consumption and heat generation

* from a pool of 188 mono resources shared between direct outputs and mix minus outputs.



Surface

- 12 or 36 x dual layer faders - 100mm, motorised, with PFL overpress
- Compact footprint:
 - Brio 36 only 892mm wide x 892mm deep x 270mm high.
 - Brio 12 only 484mm wide x 892mm deep x 270mm high
- 1 x user assignable rotary control per strip
- 2 x user assignable buttons per strip

Processing

- Freely configurable on the fly, operates at 44.1, 48, 88.2 and 96kHz:
- 64 legs assignable as mono, stereo, or 5.1 Input Channels*
- 36 legs assignable as mono, stereo or 5.1 mains or groups (maximum of 4 mains and 8 groups)
- 24 legs assignable as mono or stereo Auxes
- 64 legs assignable as Insert sends and returns*
- 64 legs assignable as Direct, or Mix-Minus Outputs*
- Automatic Mix-Minus
- Off-Air Conference for Mix-Minus

*48 legs on Brio 12

** Brio 36 only

Dynamics

- Every Input Channel and Group path:
- Expander/Gate/Ducker, with key input and sidechain EQ
 - Compressor with key input and sidechain EQ
 - Multiband Compressor
- Every Aux:
- Expander/Gate
 - Compressor
- Every Main:
- Single Band Compressor
 - Multiband Compressor
- 2 x Automixers available to all mono Input Channels and Groups

EQ

- 6 band EQ available on every Input Channel, Group, Aux and Main path:
- 4 band full PEQ
 - 2 band LF/HF filters, 12 or 24dB/octave
 - Delay available on every path
 - Additional 64 legs assignable as output delay*
 - 64 legs assignable as input delay of up to 5s*

Monitoring/Metering

- 3 x Monitor outputs
- Surround capable metering within each strip
- Configurable meter screen output (DVI)
- Loudness meters

Multiple Sample Rates

- Functions at 48, 96, 44.1 or 88.2kHz
- All DSP facilities are available at all sample rates

Remote/Automated Control

- Remote/Automated Control
- 8 x GPI + 8 x GPO built in**
- AutoFaders for Audio Follows Video style control
- CSCP mixer control protocol interfaces with a variety of video switchers and production automation systems
- SW-P-08 'Pro-Bel' router control protocol
- EMBER

I/O

- 24 x Mic/Line inputs**
- 16 x Analogue outputs**
- 8 x AES3 digital inputs**
- 8 x AES3 digital outputs**
- 3 x Expansion slots to increase standard built in I/O, or to provide interface to other formats, including SDI, MADI, Dante etc.
- Optional Hydra2 Module allows for further I/O to be connected, and to network audio with other consoles

Hydra2

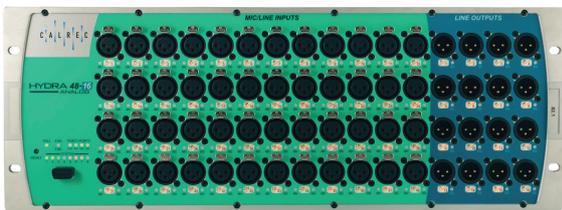
Fixed Format I/O



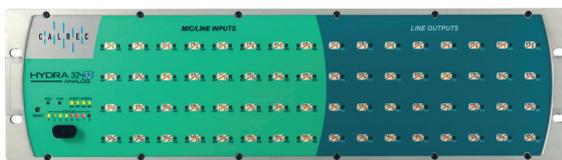
AD5782
Analogue Mic/Line 12 In/4 Out - XLR



AD5781
Analogue Mic/Line 24 In/8 Out - XLR



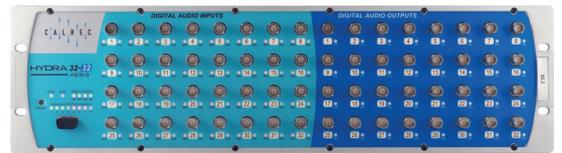
AD5780
Analogue Mic/Line 48 In/16 Out - XLR



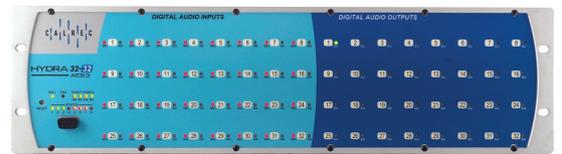
AE5743, AE5991, AE5992
Analogue Mic/Line 32 In/32 Out- EDAC



JB5606
Digital AES3 16 In/16 Out - BNC



JB5783
Digital AES3 32 In/32 Out - BNC



JB5962
Digital AES3 Rear Mount 32 In/32 Out - BNC



JM5736, JM5831, JM5890
Dual MADi

Analogue I/O



AD5840
4 x Mic/Line In (XLR)



AD5870
2 x Mic/Line In with
Splits (XLR)



AD6057
8 x Analogue Mic/Line
Level Inputs (D-Type)



AD5858
8 x Analogue Line Level
Inputs (D-Type)



DA5839
8 x Analogue Line Out
(D-Type)



AD5867
4 x Line Out (XLR)

Digital I/O



JX5869
4 x Digital AES Input
(XLR)



JB5860
4 x Digital AES Input
(BNC)



JX5868
4 x Digital AES Output
(XLR)



JB5837
4 x Digital AES Output
(BNC)



JD5842
8 In, 8 Out Digital AES
(D-Type)



JM6199
1 x Madi In/Out -
AES10 (BNC/SFP)

SDI, GPIO, AoIP



VI5872
2 x SDI Embedder
(BNC)



VO5841
2 x SDI De-Embedder
(BNC)



WY5858
GPIO, 8 In/8 Full
Changeover Out
(D-Type)



WY5859
GPIO, 8 In/16 Out
(D-Type)



BI6192
Dante with Network
Redundancy (RJ45)



BI6218
Waves Soundgrid
(RJ45)

Br.10*



- 4 x Mic/Line inputs
- 16 x Analogue outputs
- 8 x AES3 digital inputs
- 8 x AES3 digital outputs
- 3 x Expansion slots to increase standard built in I/O, or to provide interface to other formats, including SDI, MADI, Dante etc.
- Optional Hydra2 module allows for further I/O to be connected, and to network audio with other consoles

AoIP



- Hydra2 AoIP interface carrying up to 512 channels using AES67/Ravenna across dual modules
- Primary and secondary 1GB IP connections
- Primary and secondary Hydra2 connections
- Supports hitless switching

Fieldbox and H2Hub



- 8 x Mic/Line inputs
- 8 x Line outputs
- Compact 220mm x 384mm, 1u high
- AC and DC input power
- Internal card slot allows for upgrade to AoIP networking



- Portable hub or switch point for a Hydra2 network
- Connect up to 4 external connections, which may be I/O boxes or other Hubs
- Potential to daisy-chain up to 3 x H2Hubs
- Primary and Secondary SFP slots for redundancy

* only available for Brio and Summa consoles

Remote Production (RP1)



Remote production gives broadcasters the ability to capture a wider range of live events, such as regional sports, news or music festivals, and mix them in a remote facility hundreds or thousands of miles away.

RP1 is a broadcast mixing system in a 2U rackmount box, containing Calrec's award-winning Bluefin2 processing.

Calrec's RP1 provides local DSP to enable the generation of monitor mixes and IFBs with no latency. It gives an operator in a remote studio direct control over channel functions such as mic gains, aux send/monitor mix levels and fader levels.

It also provides a mechanism to embed audio into existing backhaul technologies, such as SDI or SMPTE 2022.

All DSP and bus configuration can be carried out on-site using Assist, Calrec's web-based configuration tool. Assist makes it simple for on-site engineers to set-up all IFB routing and remote monitor mix levels at the venue.

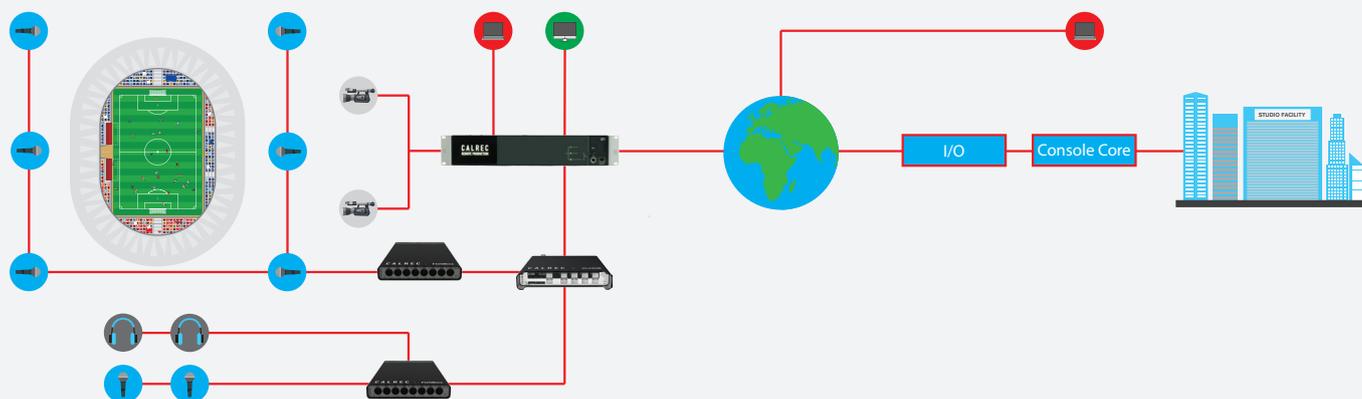
This enables venue infrastructure, routing and monitor feeds to be tested prior to transmission. Local DSP processing also means there is no latency for commentary or talent monitoring.

With all DSP processing for monitor mixes taken care of on-site, the studio transmission console is able to concentrate purely on the main programme mix.

RP1 can embed all the transmission audio into existing video transport mechanisms, and in doing so ensures that there are no synchronisation issues. Its modular I/O backbone accepts any of Calrec's I/O cards.

This versatility means RP1 can connect via a range of transports. The studio console mixing the transmission is able to assign these signals where required on the desk, so workflows are exactly the same as any other broadcast.

- 4 x Mic/Line inputs
- 16 x Analogue outputs
- 8 x AES3 digital inputs
- 8 x AES3 digital outputs
- 3 x Expansion slots to increase standard built in I/O, or to provide interface to other formats, including SDI, MADI, Dante etc.
- Optional Hydra2 Module allows for further I/O to be connected, and to network audio with other consoles



TYPE R

Type R is a new modular, expandable, IP-based radio system from Calrec Audio, which utilises standard networking technology and combines it with soft panels that can be tailored to operator needs.

Type R's physical control system consists of just three slimline panels: a fader panel, a large soft panel and a small soft panel. Each is compatible with COTS hardware and powered over ethernet to keep cabling to a minimum.

Type R has a simple 2U core at its heart with integrated I/O resources to get you up and running immediately. A single core can power up to three independent mixing environments, with no sharing of DSP resources.

Whether used as independent studio consoles, microphone processors or utility mixing, the ability to use multiple mixing engines combined with the flexibility of the AES67 compatible network provide all the power you will ever need.

The touch-screen soft panels are designed around simple and colourful control elements and can easily be customised as multi-function panels.

Soft Panels can be utilised in either landscape or portrait formats, and used to provide adaptable and specific functionality for talent, while ensuring overall control is maintained by the station technical team.

This functionality can be quickly changed from show-to-show using simple memory loads, and can be tailored to fit the needs of the talent.

Fader panels are small, sleek and simple, with six faders and immediate access to essential controls. Fader panels can be added or removed as simply as plugging or unplugging an ethernet cable, creating a radio infrastructure which is easily expandable, and making upgrades a breeze.

Broadcast-specific control is clear and concise across the system. Bussing, including the creation of mix-minus feeds, is quick to assign, while EQ and dynamics control is clear and fast. It is a pure radio platform designed for a fast-paced modern environment.

And as you would expect from Calrec, Type R is a resilient console system designed for reliable professional use, with all the requisite power, function and scalability to keep you on air for many years to come.

Type R is a thoroughly modern and customer-focused radio broadcast system which adapts to a station's needs as its requirements evolve, and provides simple customisation across established networks, open control protocols and surface personalisation.

With a native IP Backbone, Type R provides an infrastructure for future expansion. It guarantees stations are not only able to keep pace with changing demands, but provides the facility to ignite their audiences with new and innovative programming.



Type R provides simple customisation across established networks, open control protocols and surface personalisation.

Processing

- 3 x independent mixing environments on one single Core
- Multiple sample rates; operates at 44.1, 48 and 96kHz. All DSP facilities available at all sample rates.
- Between 18 and 60 input channels per console
- Up to 3 x (mono, stereo or 5.1) main outputs
- Up to 8 x (mono, stereo or 5.1) a groups
- Up to 16 (mono or stereo) aux outputs
- De-esser on all channels
- Expander/gate/ducker a with sidechain EQ on all channels and groups
- Automixer on every mono channel and group
- Compressor/Limiter on all direct outputs & mix minus outputs
- 1 x assignable direct output per channel/group
- 1 x assignable mix minus output per channel/group
- 1 x insert sends & return per channel/group/aux/main (mono, stereo or 5.1)
- Dedicated monitor inserts available to console LS, studio 1 LS and misc LS
- 2 x stereo mix minus buses
- 1 x off-air stereo conference bus
- 48 x external monitor/meter inputs
- Unlimited VCA groups
- 4 band full Parametric EQ + LF & HF filters with 12 or 24dB/octave slopes on every channel, group, aux and main
- 5.4s Input Delay per Channel from a pool of 48 delay blocks
- 5.4s Path Delay for every path from a pool of 48 delay blocks
- 5.4s Output Delay per Output including Direct Outputs from a pool of 48 delay blocks

Surface and Hardware

- Full size 100mm faders
- Up to 48 physical faders on one surface
- External Talkback microphone
- 2 x stereo headphone outputs (1/4" TRS jack) I/O boxes
- Integral 512² router
- AoIP connectivity, including redundant connectivity for all I/O boxes
- Up to 256 audio channels per AoIP port

I/O

- 2U Core provides 4 x AES input ports, 4 x AES output ports, 8 x channels of analogue mic/line input with 48v phantom power indication, 8 x channels of analogue line level output, 12 x GPI, 12 x GPO ports and 2 x stereo headphone outputs, with optional redundant AoIP boards
- 1U Combination I/O unit with the same I/O mix as the Core
- 1U Analogue I/O unit which provides 16 x channels of analogue mic/line input with 48v phantom power indication, 16 x channels of analogue line level output, 6 x GPI and 6 x GPO ports
- 1U Digital AES I/O unit which provides 8 x AES input ports with SRC indication, 8 x AES output ports, 6 x GPI and 6 x GPO ports



Fader panel



Large soft panel (LSP)



Small soft panel (SSP)



Quick Comparison

| | Apollo | Artemis Shine | Artemis Ray | Artemis Beam | Artemis Light | Summa | Brio36 | Brio12 |
|--------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|
| Physical Faders | Up to 160 (single or dual) | Up to 72 | Up to 72 | Up to 64 | Up to 56 | 12+8, 24+8 or 36+8 | 36 | 12 |
| Input Channels | 1020 | 680 | 456 | 340 | 240 | 180 or 128 | 64 | 48 |
| Main Output Buses | Up to 16 from pool of 128 legs | Up to 16 from pool of 128 legs | Up to 16 from pool of 128 legs | Up to 16 from pool of 128 legs | Up to 16 from pool of 72 legs | 4 x 5.1/ stereo/mono | Up to 4 from pool of 36 legs | Up to 4 from pool of 36 legs |
| Group Buses | Up to 48 from pool of 128 legs | Up to 48 from pool of 128 legs | Up to 48 from pool of 128 legs | Up to 48 from pool of 128 legs | Up to 48 from pool of 128 legs | 8 x 5.1/ stereo/mono | Up to 8 from pool of 36 legs | Up to 8 from pool of 36 legs |
| Track/IFB Output Buses | Up to 96 from pool of 96 legs | Up to 64 from pool of 64 legs | Up to 64 from pool of 64 legs | Up to 64 from pool of 64 legs | Up to 48 from pool of 48 legs | 32 x stereo/ mono | N/A | N/A |
| Track/IFB Sends per Path | 4 | 4 | 4 | 4 | 4 | 1 | N/A | N/A |
| Aux Output Buses | Up to 48 from pool of 48 mono legs | Up to 32 from pool of 32 mono legs | Up to 32 from pool of 32 mono legs | Up to 32 from pool of 32 mono legs | Up to 24 from pool of 24 mono legs | 16 x stereo/ mono | Up to 24 from pool of 24 mono legs | Up to 24 from pool of 24 mono legs |
| EQ | 6 full bands of parametric EQ/filters |

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