



Foreword

2017 was another busy year for Calrec.

In addition to even more product launches, including the ultra-compact Brio12, we have continued to work closely with broadcasters and our industry peers to develop the industry's drive towards remote production.

Now, more than ever, modern broadcast infrastructures need to be adaptable and quick to respond. We are all talking to each other across multiple languages and codecs, and we need to support changing workflows.

It's a very exciting time to be in broadcast audio, and Calrec is proud to be right at the heart of it.

In 2017 we launched a number of remote production initiatives, including hosting the inaugural Remote Production forum with SVG Europe at IBC in September.

Our white paper with Sky was well received, and we have developed strong technology relationships with Net Insight and Grass Valley to help simplify remote broadcast workflows for all our customers.

We've included the White Paper in this Yearbook, and we'll be announcing more developments later this year.

In November we also launched our smallest ever digital console, the Brio12.

Brio12 has the same powerful feature set and mix capabilities as the Brio36, but meets a demand for a broadcast mixer that can be used in very tight spaces, like small vans and compact control rooms.

At under 450mm (or 18") wide it is slim enough to fit into standard racks or be stowed out of the way when not in use. It is perfect for small-scale productions, as a sub-mixer or as a backup mixer for larger productions. Inheriting a rich feature set and powerful surround capability from its larger sibling, Brio12 removes the limitations on ambition and creativity imposed by mixers of comparable size and price-point.

And we had good news on the Brio36 too, which won the coveted Resolution Magazine Award for Best Mixing console 2017. This award is voted for by the readers of Resolution, so it's a real honour to win, especially as we also won this category last year with the RP1!

Thank you to everyone who continues to support us, and to all out technology partners who help us keep one step ahead.

Here's to 2018; more developing, more problem-solving and doing more for less!

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Cable TV Hong Kong expands Calrec portfolio

Cable TV Hong Kong, a division of iCable Communications Ltd. and Hong Kong's largest provider of cable television services, has gone live with another Calrec Audio Artemis digital audio console. The 40-fader Artemis is installed in Cable TV's News Studio 3 and is the fifth Artemis in the network's audio desk lineup.

Jolly Pro Audio, a Hong Kong-based systems integrator, pro audio specialist, and Calrec's regional distributor, has handled system installation and testing for Cable TV's entire Calrec deployment.

"As Hong Kong's most-watched pay-TV service, Cable TV is committed to building one of the world's most advanced facilities for covering sports, entertainment, and news," said Andy Leung, executive director, Jolly Pro Audio.

"After rigorous evaluation and testing, they chose the Artemis because it offers the re-

liability and usability they require to achieve that goal. The Cable TV team also reports that, of the audio networks they've worked with, the Hydra2 network is by far the most powerful, flexible, and easiest to expand after initial installation."

Cable TV offers subscribers a broad schedule of news, sports, and entertainment programming through more than 100 channels, 54 of which offer the network's own locally produced shows. Cable TV installed its first Calrec console, a 40-fader Artemis for sports programming, in June 2012. In addition to the latest installation for News Studio 3, Cable TV has also deployed a 48-fader Artemis in its main news studio, ST1, and 40-fader Artemis consoles in both its ST2 (news) and ST9 (entertainment) studios.

Central to the Cable TV Hydra2 network is a 16-port Calrec router core. Hydra2 provides extensive control of, and access to,

all of Cable TV's networked audio resources. A Waves Sound Grid interface module provides a direct connection between Hydra 2 and Cable TV's Waves Sound Grid network, giving the audio mixers full control over Waves software applications from the integrated touch display on the Artemis surface.

"We are honoured that Cable TV has become such a loyal customer, and the faith they have placed in Calrec for their entire studio operation is a great testament to the excellence of our consoles and networking solutions," said Anthony Harrison, international sales manager, Calrec Audio. "We look forward to supporting them far into the future."

"Thanks to customers like Cable TV and the outstanding support we've received from Jolly Pro Audio, Calrec is now the premier provider of audio consoles to the Hong Kong broadcast market."



Noretron Broadcast join for Finland and Estonia

Calrec has signed Noretron Broadcast as its exclusive distributor in Finland and Estonia for the full Calrec product line, including the all-new Brio — the most powerful and compact digital broadcast audio console in its class.

"The Calrec Audio brand is truly the gold standard in digital audio consoles, and Calrec is a powerful addition to our portfolio," said Timo Vilmi, owner of Noretron Broadcast.

"We're particularly excited about Brio, which will help us reach new customers who need a well-priced compact mixing console completely designed around the needs of broadcasters."

Noretron Broadcast has a 25-year track record of providing sales, systems integration,

and service to broadcasters and media organisations.

From its headquarters near Helsinki, the distributor will represent Calrec's solutions to broadcasters, system integrators, and associated organisations in both Finland and Estonia, and it will also provide local support and after-sale service.

"Noretron Broadcast provides the perfect blend of technology expertise with knowledge of the local market and its customers' unique requirements," said Mike Reddick, international sales manager at Calrec Audio. "Noretron is the perfect company to help us expand our presence in Finland and Estonia."

"Our new partnership provides our customers with a local knowledgeable source for their broadcast solutions."

"Brio will help us reach new customers who need a well-priced and compact mixing console designed around the needs of broadcasters."

Timo Vilmi, Noretron Broadcast



Further Investment for Audiotonix

Audiotonix is delighted to announce Astorg's investment into the group. Astorg is a European private equity firm with total funds under management of over €4 billion, that actively seeks to partner with market leading companies lead by entrepreneurial management teams.

James Gordon, CEO, looks forward to the opportunities this will bring to the group, commenting "We are delighted to partner with Astorg who have demonstrated an impressive understanding of our business and our core strengths. With their support we aim to capitalise on our manufacturing capabilities, strengthen our worldwide development program and enrich our product portfolio."

François de Mitry and Stéphane Epin, partners at Astorg said: "We are thrilled to invest in Audiotonix and support its fast growth trajectory. In a dynamic live sound industry, Audiotonix differentiates itself by the undisputed quality of its product, superior support to their clients, and a brilliant management team.

"This brand equity was crafted by years of pioneering research and development, and a long term vision of managers who are passionate and innovators of their business. We are extremely pleased to support James Gordon and his team to bring Audiotonix even further."

The Audiotonix brands are renowned globally for innovation, outstanding performance and reliability.

Over the last few years, and with the support of Epiris and Livingbridge, the company has become the market leader in live sound around the world with a dedicated management team, innovative products and commitment to the future of the business and customer base.

Completion of the transaction is anticipated to close in the first quarter of 2017, subject to satisfactory clearance from relevant competition and regulatory authorities.

"In a dynamic live sound industry, Audiotonix differentiates itself by the undisputed quality of its product, superior support to their clients, and a brilliant management team."

Astorg

Broadcast Hungary joins the Calrec Family

Calrec has named Broadcast Hungary as its newest distribution partner, with exclusive rights to represent the entire Calrec product family throughout Hungary.

Broadcast Hungary and Calrec will work together to expand the brand in the Hungarian broadcast community and take advantage of new opportunities opened up by Brio, Calrec's all-new compact digital broadcast audio console.

"Broadcast Hungary is the ideal partner to help us grow our market share in Hungary.

In fact, they recently did an outstanding job helping us close our first-ever sale there, even before we finalized the distributor agreement," said Mike Reddick, international sales manager for Calrec. "With almost 20 years of combined professional experience in the television production marketplace, the Broadcast Hungary team provides the perfect blend of technical expertise, local market knowledge, and local support."

Based in Budapest, Broadcast Hungary represents a full array of solutions to

broadcast, live production, and related organizations of all sizes.

"We strive to offer our customers the broadest possible portfolio of top-quality solutions," said Zoltan Szele, head of audio department, Broadcast Hungary.

"Our partnership with Calrec means we can now provide the state of the art in digital audio mixing desks, which is not only an advantage to our customers but opens the door to new business opportunities for our company."

Decibel S.A. bring Calrec to Switzerland and North Africa



Calrec has signed Decibel S.A. as its exclusive distributor in Switzerland, Algeria, Tunisia, and Libya. With an emphasis on Brio, Calrec's all-new, compact digital broadcast audio console, Decibel S.A. will represent the full line of Calrec solutions to broadcast customers throughout these territories.

"Brio is a truly groundbreaking solution that promises to be a big success throughout our service area. As in many markets around the world, our broadcast customers are always on the lookout for a full-featured and robust audio desk that is also well-priced and easy to use," said Jean-Pascal Ruch, managing director, Decibel S.A. "It's an honour to represent Brio and the other consoles from Calrec Audio, a brand that represents the highest standards in audio mixing consoles for the broadcast industry."

Based in Vevey, Switzerland, Decibel S.A. has provided professional audio solutions and products for more than 20 years. Decibel's extensive local market knowledge and multilingual staff are especially valuable in Switzerland, where the company covers five regions speaking five different languages.

"Decibel is a highly respected and well-established brand in Switzerland and North Africa, and Jean-Pascal is well-known by broadcasters in those markets," said Florent Chaouby, international sales manager, Calrec. "With his 40 years of experience and track record for audio console installations in both radio and television, he knows our market inside and out.

"The contacts and relationships that Jean-Pascal and his team have built, especially in North Africa, will help us build our presence there. With Brio, Decibel will be able to get access to this exciting new market, and as the territory develops, we can introduce our larger-scale broadcast system solutions to the region."

"Calrec Audio...represents the highest standards in audio mixing consoles for the broadcast industry."

Jean-Pascal Ruch, MD, Decibel S.A.

Calrec mixes 5.1 for 31st AJL show

Malaysian broadcaster Media Prima Berhad (MPB) trusted Calrec's compact Summa console with the 5.1 surround coverage for its live broadcast of the Anugerah Juara Lagu (AJL) concert. Held at the Putra World Trade Centre in Kuala Lumpur on Jan.22, the concert is the biggest singing contest in Malaysia.

Every year, millions of AJL viewers watch Malaysia's best singers and bands battle it out across a number of musical categories. This year marked the concert's 31st year, and Calrec's Summa mixer was chosen to mix the 5.1 surround live content.

"The Summa is one of the simplest mixers that I have ever used," said Mohd Zaidi Mohamed Taib, head of sound at MPB. "It is a true broadcast mixer that is perfect for a live broadcast and production environment. The audio quality is great, and integration is straightforward. The Summa even comes with a complete and fully redundant PSU, controller, DSP, and router in a single 4-RU chassis!"

MPB selected the Summa to create the main 5.1 surround mix for AJL, which was broadcast live to an audience in a prestigious cinema hall in Melaka, 180 kilometres south of Kuala Lumpur.

The 5.1 surround signal was levelled and encoded into Dolby E format by a Junger Audio system before being transmitted to Melaka via satellite link. At the cinema hall, the signal was decoded and processed by another Junger system and played over the hall's surround speaker system. This enabled the cinema audience to enjoy an



immersive sound experience rivalling that of the audience at the live event.

"It was an honour to be part of the AJL crew on this project," said David Chan, general manager of Calrec distributor JAA Systems Sdn Bhd. "We were delighted to be able to play a part by supplying the Calrec and Junger Audio solutions that were used in the mainstream system for the AJL 2017 show."

Calrec International Sales Manager Anthony Harrison, who was on-site during the AJL event, added, "It was a real pleasure to be able to introduce the Summa console to MPB in such a dynamic way, especially for a show as prestigious as AJL. The feedback from the engineers and operators highlights the exact design philosophy we had in mind when developing Summa."

"The Summa is one of the simplest mixers that I have ever used. It is a true broadcast mixer that is perfect for a live broadcast and production environment."

**Mohd Zaidi Mohamed Taib,
Head of Sound at MPB**



LeSports Hong Kong chooses Summa



Signalling Calrec's momentum in the fast-growing Hong Kong marketplace, LeSports Hong Kong is ready for future expansion with three new Summa digital audio consoles. A popular OTT sports video platform, LeSports Hong Kong chose the Summas for their wealth of features and extreme ease of operation.

"At LeSports Hong Kong, we are constantly striving to improve our programming and expand our multiformat content to attract new viewers," said Mr. P.K. Lee, LeSports Hong Kong. "The new Summa audio consoles are an important step in achieving these goals, because they make even the most demanding audio playout tasks very straightforward."

Sales, system installation, and testing of LeSports' new Summa deployment was handled by Jolly Pro Audio, a Hong Kong-based systems integrator and pro-audio specialist, and Calrec's regional distributor.

"We're pleased to welcome LeSports Hong Kong as a new Calrec Audio customer, and the sale represents Calrec's first multiconsole Summa installation in Hong Kong," said Andy Leung, executive director, Jolly Pro Audio. "With its ultrasimplified control surface and revolutionary touch-screen interface, Summa gives LeSports simple and intuitive control over its often complex playout workflows."

From the LeSports Hong Kong website (hk.lesports.com), sports fans are able to access and stream a wide range of U.S., European, and U.K. sports events with LeSports' exclusive local commentary and stats added to each game. Offering live streaming as well as video on demand, LeSports offers apps for iPhone® and Android smartphones and also provides a TV application developed for its own set-top boxes.

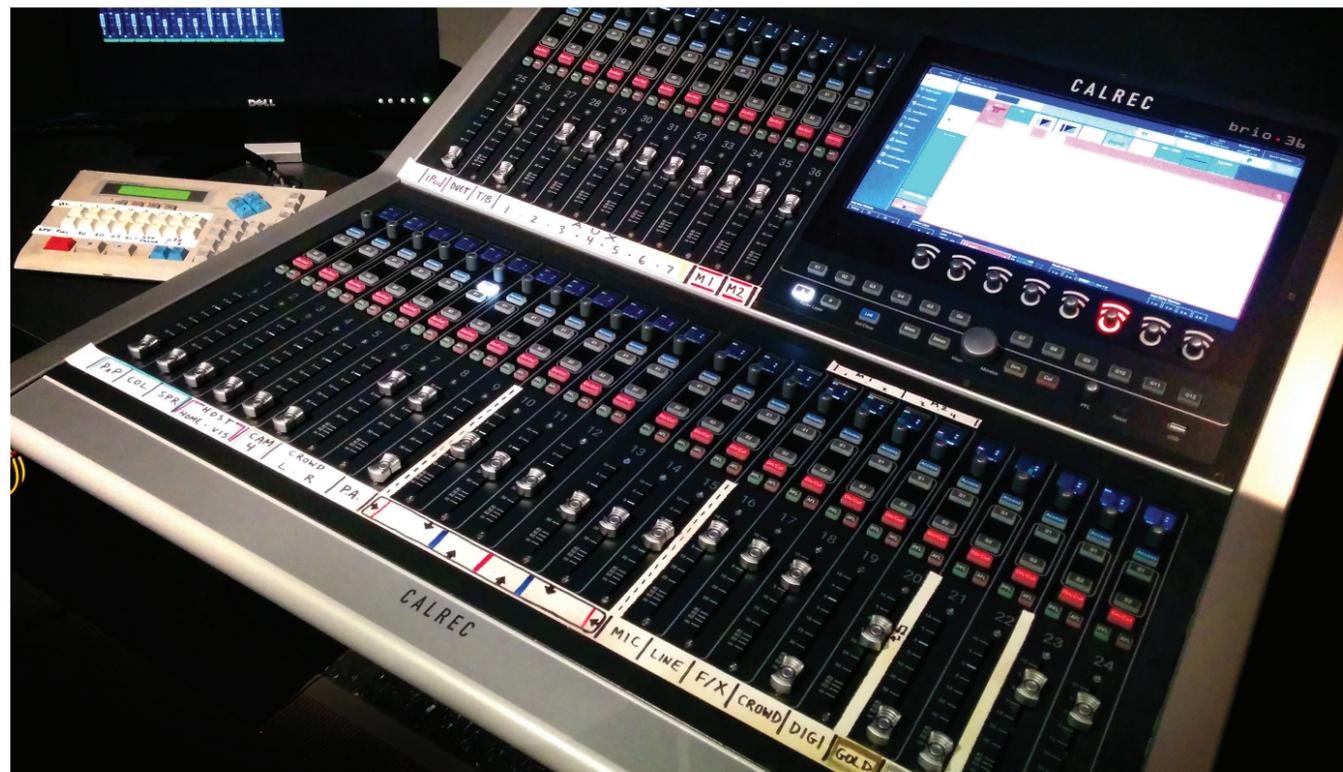
Anthony Harrison, international sales manager, Calrec Audio, said, "LeSports Hong Kong offers a valuable and welcome service by providing a diverse, professional, and high-quality lineup of online sports content to viewers. We're pleased to welcome LeSports to the Calrec family as a brand-new customer."

"The Summas make even the most demanding audio playout tasks very straightforward."

Mr. P.K. Lee, LeSports Hong Kong



Brio goes under the Dome in Toronto



When Toronto's Dome Productions needed to upgrade its main studio audio console, the choice was easy: Calrec Audio's Brio.

"We did evaluate other audio consoles, but one of the main reasons we chose the Brio was its extreme ease of use and our large installation of other Calrec desks," said Seann Harding, technical manager, engineering, Dome Productions. "Since our operators are already familiar with Calrec consoles, they were able to step right in and start using the Brio with minimal training and no rework.

"Also, we were very impressed that we were able to get up and running with test audio going through the Brio only an hour after taking it out of the box, and without needing any on-site support from Calrec."

The brand-new Brio replaces Dome Productions' 15-year-old previous desk, launching the company into a new era of power, flexibility, and usability in the broadcast of live sports events. Dome Productions went live with the Brio last September

as part of an extensive upgrade of its main Studio95 facility, located in the Rogers Centre in downtown Toronto. Installed in the studio's control room, the Brio is used in conjunction with the mobile units for "remote-at-home"-style broadcasts.

The Brio's compatibility with the other Calrec consoles gives Dome powerful new flexibility in configuring audio mixing for various productions. As productions grow in size, Dome is able to expand the studio's capabilities simply by adding more Calrec Hydra2 Fieldboxes.

"Dome Productions has been a loyal Calrec Audio customer for almost 20 years, and it's fantastic that they've decided to continue expanding their Calrec footprint with one of the first-ever deployments of our all-new Brio," said Dave Letson, Calrec's vice president of sales. "As the most powerful and compact digital broadcast audio console in its class, Brio has allowed Dome to make a significant upgrade of its studio audio capabilities without the added expense of having to train operators."

"Our operators are already familiar with Calrec consoles... they were able to step right in with minimal training and no rework.

We were very impressed that we were able to get up and running with test audio going through the Brio only an hour after taking it out of the box, and without needing any on-site support from Calrec."

**Seann Harding,
Technical Manager.**

Mediatronik appointed in the Czech Republic

Calrec has signed Mediatronik S.R.O. to distribute the full Calrec product family to broadcast customers throughout the Czech Republic. As Calrec's exclusive distributor, Mediatronik will work to build the brand and expand market share among its broad customer base — spearheaded by the all-new Brio.

"Brio offers Calrec's renowned performance and reliability in a compact package with outstanding affordability — exactly

what so many of our broadcast customers are looking for," said Luboš Nováček, owner, Mediatronik S.R.O. "The full Calrec family brings strength, power, and flexibility to our product portfolio, and we're looking forward to presenting these solutions to our clients in the Czech Republic."

Founded in 1993 by Nováček, Mediatronik offers the broadcast and pro AV industries the latest technology solutions, backed by an experienced staff. The company specializes in offering comprehensive solutions to both customers and partners.

"Mediatronik has an outstanding reputation within the Czech broadcast industry," said Mike Reddick, international sales manager for Calrec. "Through our new partnership, Mediatronik will provide the technical expertise, market knowledge, and local support we need to expand Calrec's presence in the Czech Republic."



Calrec goes full throttle with V8

Calrec Audio puts broadcasters firmly in the driving seat with its latest V8 software features, together with new Brio enhancements, at the 2017 NAB Show.

V8 introduces a number of powerful developments across the Calrec product range, including improved RP1 support, switchable 96-kHz or 48-kHz sample rates, and further integration of Calrec's AoIP interface.

"V8 is really an evolution, a progressive suite of tools that supports broadcasters into their next phase of IP development," said Dave Letson, Calrec's vice president of sales. "With remote production and AoIP rapidly becoming a reality for many, V8 allows Calrec's users to progress confidently into the next era.

This, combined with higher-resolution audio, ensures that all bases are covered going forward."

In addition, the new V8 software integrates Brio on the Hydra2 network, allowing the console's on-board resources to be available to all other networked resources.

Brio also receives some powerful new features. Users gain stereo- and 5.1-path spill leg access and independence controls.

A second compressor/limiter is also available with single- or 3-band options on all channels, groups, and mains, giving users even greater control. The expander/

gate in the dynamics section now includes a ducker, complete with a selectable sidechain source that allows the gain reduction to be keyed from audio on any other mono path on the surface.

Brio can now operate at multiple sample rates too, with options of 44.1, 48, 88.2, or 96 kHz — all without any DSP sacrifices.

Brio's processing capacity remains the same at any sample rate.

"Brio has been met by great acclaim across the globe," Letson added. "The new features and networking capability further strengthen Brio's position as the most powerful broadcast console in its class."



Cinemat Miami rolls out new truck with Summa



When Cinemat Miami's all-new, eight-camera production truck takes to the road for its first live-event booking, a Summa audio console will be on board. The Summa brings Calrec's industry-leading reliability, extensibility, and ease of use to the new truck, a significant expansion of Cinemat's rental production capabilities.

"Our new truck is the first of its size in Miami, and we had important requirements for the audio console," said Eduardo Scheuren, vice president, Cinemat Miami. "We needed a desk that was extremely easy to use and compact enough for a mobile environment, and yet could provide the functionality to cover a wide range of live sports and entertainment events."

"Not only does Calrec's Summa meet all of these criteria and more, but the Summa will be easy to expand as our business grows. Calrec has set the standard for excellence in audio mixing consoles."

Cinemat Miami is a full-service content production company with more than 20 years' experience producing original and "work for hire" programs for the general

and Hispanic markets in the U.S. and Latin America.

In addition to Cinemat's six fully equipped sound stages and 10 state-of-the-art editing suites, the new Summa-equipped truck joins three other full-HD mobile production and grip vehicles in the company's mobile fleet.

The new truck is currently supporting production of talk show programs in studio B at Cinemat's new Blue Dolphin Studios facility and will be deployed for remote client productions within the next two months.

"We welcome Cinemat as one of our newest Calrec customers in North America," said Helen Carr, Calrec's regional sales manager.

"Summa is a great choice for regional mobile broadcasting and OB providers like Cinemat because it offers world-class functionality in an affordable, compact footprint. We're glad the Summa is playing a key role in helping Cinemat expand its OB capabilities and go after larger types of productions."

"We needed a desk that was extremely easy to use and compact enough for a mobile environment, and yet could provide the functionality to cover a wide range of live sports and entertainment events."

**Eduardo Scheuren,
Vice President,
Cinemat Miami**

Calrec launches new Artemis Ray

Calrec shines a Ray on the 2017 NAB Show by launching the latest addition to its Artemis family of consoles. Artemis Ray has 456 fully featured input channels — making it more powerful than the Artemis Beam. Further, Artemis Ray can handle up to 72 faders, the same as the larger Artemis Shine model.

Via a brand-new fader/monitor panel, Artemis Ray sports a new surface layout that allows more faders in a reduced surface area.

The panel — also available on Artemis Light, Beam, and Shine models — is the same width as a standard Artemis fader panel and includes eight full-size faders to give operators even more control and a higher fader density in a smaller footprint.

This configuration saves around 200mm when compared to similar control surfaces.

"We work closely with our customers and listen to their requirements," said Dave Letson, Calrec's vice president of sales.

"In situations where space is at a premium, like in OB trucks, we understand that a high fader density is not only desirable, but essential.

"Artemis Ray provides the same functionality as previous models, but with more channels and faders in the same footprint. It's a very powerful combination."

With the new chassis and fader/monitor panel, Artemis Ray's 72-fader layout fits into a mere 2372mm (93.39 inches) of space, delivering more power than ever before in such a small footprint.

Capable of operating at multiple sample rates, at 48kHz the Artemis Ray provides up to 456 channel-processing paths, 128

programme buses, 64 IFB/track outputs, and 32 auxiliaries.

The console also features a second compressor/limiter in each channel, more than 70 minutes of assignable delay, and three independent APFL systems for multiple operator use.

As with all Calrec designs, these facilities do not share resources — which means they are all available to the user at all times.

"By making the new monitor panel available on all our existing Artemis models, we're giving our customers access to all of this increased functionality," Letson added.

"Artemis has proved a very popular and reliable workhorse all over the world, and the new Artemis Ray adds even more value."



Chapman University students learn as they mix with Brio

At Chapman University's Dodge College of Film and Media Arts, a new Calrec Brio compact audio console is serving double duty — as a key player in a busy television production schedule, and as a valued teaching aid to prepare broadcast students for real-world careers.

"When it came time to upgrade some of our aging production equipment, we had a tall order for a new audio console. Of course, price was a factor, and we needed a board that could handle the complexities of our news and narrative curriculum," says David Goedhart, Television Studio Engineer at Chapman University's Dodge College. "We also needed a console that would be simple enough for use in the classroom for basic audio monitoring.

"The Brio has far exceeded all our expectations. I can honestly say it's the best audio mixer I've ever used at this price point. It's intuitive, powerful, and full of great features. Best of all, Brio is giving our students fantastic hands-on experience with an industry-standard tool they'll be encountering in the real world of broadcasting."

A program of Chapman University, a private four-year university in Orange, California, Dodge College is renowned

for its state-of-the-art production facilities and award-winning faculty, many of whom continue to work in the film and broadcast industries. "A key part of the mission of Dodge College is to be on the cutting edge of technology and put industry-standard tools in the hands of our students," says Dan Leonard, Associate Dean and Chief Technology Officer at Chapman University's Dodge College.

Dodge College broadcast journalism students produce Chapman News, a highly rated live weekly newscast, in addition to a range of talk show and narrative programs. The newscast is broadcast on campus, and throughout Orange County and the greater Los Angeles areas, as well as streamed live on Facebook and YouTube.

Students use Brio to mix a complex set of audio feeds for the news program, including audio from six anchors, four video playback channels, and reporters filing live news segments from two separate field locations. Brio handles IFB feeds from each reporter with its own dedicated mix, as well as incoming music tracks and other audio elements.

Brio also plays a key role in classroom instruction. Particularly valuable are the DVI connections on the back of the desk, which

enable instructors to project output from the Brio touch-screen display to a large screen in the classroom.

"Many of us know Calrec from our previous broadcast careers," says Goedhart, "where we'd see big Apollo or Artemis boards on mobile trucks used for sports production. When the affordable Brio came out, we were thrilled that we could bring a Calrec into our own teaching and broadcasting environment.

"Not only is the Brio an outstanding teaching tool, but it's purpose-built for TV broadcasting. And because the Brio shares the same back end as the larger Calrec boards, our students will be able to walk right up to an Apollo, Artemis, or Summa someday, in their first professional jobs, and start mixing."

Calrec Audio US Regional Sales Manager Dave Lewty adds, "Since we've launched Brio, we've seen a large new market open up for its use in an academic setting. In addition to Dodge College's ranking as one of the top 10 film schools in the world, it's also highly regarded for its broadcast television program. Its use of Brio as part of a collaborative, hands-on learning environment is a powerful testimonial."



"I can honestly say (the Brio) is the best audio mixer I've ever used at this price point. It's intuitive, powerful, and full of great features."

**David Goedhart,
Television Studio Engineer,
Chapman University's
Dodge College.**

TVB upgrades studio operations with Artemis trio



"Calrec is a vital and trusted partner in our operation. Therefore, when it came time to modernise our facility, we had no hesitation in choosing Artemis."

**Mr. Law, Assistant Manager
of Studio Production
Department, TVB.**

Powerhouse Hong Kong broadcaster TVB has upgraded its facility with a trio of Artemis digital audio consoles, each one supporting a different production studio. The three new Artemis consoles replace legacy Calrec Alpha desks that have been in service at TVB for close to a decade.

"Calrec is a vital and trusted partner in our operation. Therefore, when it came time to modernise our facility, we had no hesitation in choosing Artemis," said Mr. Law, studio production department, assistant manager, TVB. "The Alphas have served us long and well, and we've had nothing but outstanding support from the Calrec team.

"The Artemis consoles bring powerful new flexibility to our studio operations, with support for the latest standards and built-in capabilities for today's audio requirements, such as multiformat audio and loudness management."

In addition to its dominance in the Hong Kong terrestrial TV market, TVB is also one of the largest Chinese producers of commercial TV programs. The network took its first Artemis online last September in Studio 4, with the other two desks going into production in January for Studio 3 and Studio 22. Sales, system installation, and testing of the new consoles was handled by Jolly Pro Audio, Calrec's regional distributor in Hong Kong.

"TVB is a leader in the Hong Kong TV market, offering some of the world's most popular programming to the overseas Chinese communities as well as a broad audience in mainland China," said Anthony Harrison, international sales manager, Calrec Audio. "With the Artemis, TVB has renewed its long-standing relationship with Calrec, the latest example of our momentum among Hong Kong broadcasters."

Romania's Antena 1 signs on to Summa

Antena 1, one of Romania's top television networks, has gone live with two new Calrec Audio Summa digital mixing consoles. The Antena 1 installation marks Calrec's first Summa sale into the rapidly growing Romanian broadcast market.

"Our network is continuing to grow, and we're continually adding new channels and new content, which means the number of audio sources is also growing rapidly," said Sabin Cutas, executive director, Antena 1. "We needed a console that can keep pace with our busy and dynamic production schedule, and the Calrec Summas were the perfect choice."

"The Summa packs powerful capabilities into a compact footprint, and its ease of use saves our engineers plenty of time and effort. And, of course, the Summa delivers the superior sound quality that Calrec is known for."

Based in Bucharest, Antena 1 is one of the most-watched television channels in Romania with a popular lineup of news, sports, and entertainment programs. In addition to the flagship Antena 1 station, the broadcaster also operates Antena 3, a 24/7 news channel; Antena 4 – Euforia, a lifestyle channel; and Antena International, a 24-hour channel for Romanian expatriates living in the United States and Canada.

Michael Reddick, Calrec Audio's international sales manager for the region, commented, "We're very excited about our momentum in the Romanian marketplace. As the latest high-profile broadcaster to sign on to Calrec and the country's first Summa user, Antena 1 is committed to delivering a wide range of high-quality programming to its viewers."

In addition to Antena 1, Calrec counts Pro TV, RDS/RCS, Digisport, and Romanian National Television among its growing roster of broadcast customers in Romania.



"The Summa packs powerful capabilities into a compact footprint, and its ease of use saves our engineers plenty of time and effort. And, of course, the Summa delivers the superior sound quality that Calrec is known for."

Sabin Cutas, Executive Director, Antena 1.

Calrec Is Number One With TV2



A powerful combination of Summa and Artemis Light consoles has future-proofed two studios at TV2, one of Hungary's most popular commercial television channels. These purchases make TV2 Hungary Calrec's most prominent customer in the burgeoning Hungarian broadcast market.

"As our programming lineup continues to grow in both size and complexity, Calrec is our ideal technology partner, offering the flexible and highly robust audio mixing solutions we need to power our operation into the future," said Adam Somodi, sound engineer, TV2 Hungary. "With the Artemis and Summa desks, we're much better equipped to handle our largest productions."

"Calrec gave us a huge advantage by allowing us to test the equipment for mixing and recording in a live production situation, running in parallel with our old console, and we saw a large improvement right away."

Not only do the Artemis and Summa offer an outstanding feature set and fantastic sound — the most important factor — but they do it all at an excellent price point."

As one of Hungary's most-watched channels, TV2 offers a large variety of popular programs to viewers throughout Hungary and some areas of Romania. The 128-channel Summa and Artemis Light are both installed in TV2 Hungary's main broadcast centre in Budapest. The Summa is used in the news and morning program studio, and the Artemis Light supports production of high-visibility musical programs in TV2's largest studio.

A Calrec modular card on the Artemis Light allows seamless integration with SoundGrid's Waves series of audio plug-ins and gives engineers expanded capabilities for the music productions. This, combined with the ability to record all channels via MAD1 and replay audio, provides support for postproduction.

"Since the Artemis Light and Summa sit on the same Calrec Hydra2 network, we're able to share inputs and outputs between the two studios — a huge plus," Somodi said.

"Engineers are able to speed up the workflow and recall their own saved settings quickly and easily, on either desk. The Waves plug-ins on the Artemis give us greater capacity and more flexibility than ever before to mix many more types of musical shows."

Michael Reddick, Calrec's international sales manager, commented, "TV2's adoption of the Artemis Light and Summa consoles is a huge step forward for Calrec in an exciting new market."

"By upgrading to Calrec, TV2 is able to handle a greater volume and greater variety of programs to meet the ever-expanding demands of its viewers and boost its competitive advantage."

Brio gives NESCom students hands-on experience

Calrec's Brio is the newest piece of advanced broadcast equipment available to students at Husson University's New England School of Communications (NESCom) in Bangor, Maine. Together with NESCom's existing Summa, Brio is giving students hands-on experience with industry-standard technology — to better prepare them for real-life broadcasting careers.

"Calrec's widespread presence in the broadcasting industry virtually guarantees that our students will come across these desks once they graduate and begin their professional careers. That's why the Brio is a great choice for NESCom," said Edward Goguen, assistant professor, academic director, and audio programs coordinator at NESCom.

"With the Summa and now the Brio, we're able to give students a head start on the equipment they'll be using in their jobs after graduation.

"We appreciate Calrec's commitment to broadcast education and that they were willing to make a state-of-the-art tool like the Brio affordable. While it's good for the school and the program, the students are the real winners."

The new Brio is currently in use for NESCom studio productions, including the "NESCom Connection," a daily news and public affairs TV program produced by the school's video production and journalism students. In service since 2015, the Summa is currently used in broadcasts of live sporting and entertainment events.

"With its compact size, Brio is perfect for our studio space. Many of our students are thrilled when they hear they'll be able to learn on Calrecs because they know how pervasive the desks are in the 'real world.'"

"NESCom is giving its graduates a competitive edge, and we are glad to do our part to help prepare future professionals for successful careers," said Dave Lewty, Calrec's U.S. regional sales manager.

"Like other first-tier communications schools, NESCom understands that a well-rounded broadcasting education isn't just about concepts. It's also about giving students the practical experience and the competitive edge they'll need to land a great job once they graduate."



Summa Delivers Retail Therapy



CJ O Shopping Ltd., Korea's first home shopping network and the country's No. 1 multimedia retailer, has installed a new Summa console in its newly renovated Studio E.

The Summa joins three existing Calrec Omega consoles, which have worked flawlessly in CJ O's other studios since 2010.

"For our new studio upgrade, we needed a cost-effective console that would provide ultimate stability and ease of use while also providing top-quality output. We also wanted to go with a brand we could trust," said Mr. Cho Byeong-Uk, engineer, CJ O Shopping. "After our many years of experience with Calrec desks and the great Calrec team, we knew the Summa would be the perfect choice."

Founded in 1995, CJ O Shopping broadcasts one of Korea's most widely viewed home shopping channels in addition to a global multimedia shopping network that also includes T-commerce, internet shopping, and catalogue/e-catalogue services. Installed in CJ O Shopping's main Studio E, the new Summa offers features such as path presets that make producing the multihost TV-shopping show easier than ever before.

"Many of our engineers are younger-generation, and they're used to working with mobile devices. The Summa console GUI is perfect for them — it's so easy to use that it sometimes seems just as simple as operating a mobile device," Mr. Cho Byeong-Uk added. "For our operators, ease of use is one of the best features of the Summa."

Anthony Harrison, Calrec's international sales manager, commented, "CJ O has a long list of 'firsts' in the multimedia retail world: It is Korea's first home-shopping TV broadcast and first integrated mobile shopping app, as well as the first Korean home shopping company to enter the global marketplace. It's a privilege to have such a strong partnership with this market leader.

"CJ O has used our consoles for many years, starting with some of our legacy desks well before they installed the Omegas in 2010. They know they can count on Calrec to offer the reliability, quality, and value they need for their growing business."

Brio revs up motor sports broadcasts



Calrec's Brio console will deliver the horsepower to Lucas Oil Products' exciting lineup of live motor sports broadcasts. Lucas Oil Production Studios, the television-production arm of Lucas Oil, has chosen the Brio for a comprehensive, high-fidelity audio upgrade of its 35-foot mobile production unit.

Lucas Oil Production Studios maintains its own HD production facility and produces more than 400 hours of television annually for CBS, CBSSN, NBC, NBCSN, the Lucas Oil-owned MAVTV Motorsports Network, and LucasOilRacing TV, a 24/7, on-demand worldwide motor sports app.

"When evaluating audio mixing consoles for our truck upgrade, we had specific requirements. Since this is our smallest truck, things can get pretty cramped, so it was critical that the console have a compact footprint," said Justin Conenna, audio engineer, Lucas Oil Production Studios. "Our owner is committed to giving exposure to smaller, grass-roots racing events that appeal to a niche set of

motor-sports fans, so of course we were also on a strict budget. Besides its compact size and attractive price point, the Brio is highly flexible, modular, and easy to configure and reconfigure, and it comes with Calrec's outstanding reputation in the industry.

"I've used a lot of audio consoles in a lot of trucks, and I can tell you that there simply aren't any competing products that can match Calrec's ease of use, sound quality, and robust processing."

As one of America's leading manufacturers of automotive oil, additives, and lubricants, Lucas Oil also owns or sponsors race teams, events, and series across a broad range of motor sports, including NASCAR, IndyCar, NHRA, PPL, and USHRA events. Lucas Oil also owns and operates many high-profile racing series, including the Lucas Oil Off Road Racing Series, Lucas Oil Drag Boat Series, Lucas Oil Pro Pulling League, Lucas Oil Late Model Dirt Series, and Lucas Oil Modified Series.

The new Brio joins a Calrec Omega console that is still in heavy use in Lucas Oil Production Studios' larger, 53-foot production truck. Targeted for completion by September, the upgraded 35-foot truck will be used to cover the full range of Lucas Oil motor sports, from motorcycle racing to drag car, drag boat, and off-road racing.

"Lucas Oil's choice of Brio for this upgrade represents one of the very first smaller-truck deployments of the desk in the U.S. It's a perfect showcase for Brio's advanced capabilities and precisely the type of installation for which we designed this compact and powerful audio workhorse," said Dave Lewty, U.S. regional sales manager, Calrec Audio.

"Lucas Oil gives fans all of the thrilling action they can handle across virtually every type of motor sport, and it's exciting to know that Brio will be along for the ride."

Net Insight partners with Calrec for remote production



Net Insight, the leading provider in media transport and resource scheduling, today announces a strategic partnership with Calrec Audio to simplify the challenges broadcasters are facing in deploying remote live productions. A key aspect of the partnership will see Net Insight's Nimbra platform integrated with Calrec's RP1 Remote Production unit to provide simple connectivity, quality assured transport and precise control of audio mixes from any location.

"Most of the focus on remote production in the industry to date has been on the video side but it is audio that is much more complicated to manage."

**Fredrik Tumegård,
CEO of Net Insight**

"Most of the focus on remote production in the industry to date has been on the video side but it is audio that is much more complicated to manage," said Fredrik Tumegård, CEO of Net Insight. "Setting up different interfaces on-site is time consuming, takes greater resource and means there are many more points in the chain where faults can occur. The integration of Net Insight's Nimbra portfolio with Calrec's RP1 takes away all this pain. This is another key step to unlocking the full potential of remote production."

The two companies have worked together to optimise Calrec's Hydra2 audio and control protocols with the Nimbra platform and enable perfect connectivity on-site with no synchronisation issues. RP1 provides a variety of interface formats, including SDI and AES67, which can be transported alongside control data across the Nimbra platform.

"Remote broadcasting using RP1 and Net Insight Nimbra means fewer resources are needed on site, and controlling audio from

a remote console saves money on setup time, crew, logistics and equipment," said Dave Letson, Vice President of Sales of Calrec.

"Production can be up and running quickly thanks to the plug and play unison of just two boxes and operation does not require high-level technical expertise, and provides assured no-latency audio processing from any venue to any production base."

The integration provides immediate workflow efficiency advantages for Net Insight customers in the field and will be offered as a turnkey solution for new customers.

The versatility of the combined solution means productions can connect via analogue, AES, MADI, SDI, and the latest AoIP solutions from AES67, and SMPTE 2022 and transport remotely over IP. With all DSP processing for monitor mixes taken care of on-site, the transmission console at base can concentrate purely on the main programme mix.



Summa schools broadcast students at Chabot College

Chabot College, one of many college installs for Calrec Audio, has further improved its hands-on learning for broadcast students with a major upgrade of its Calrec Summa audio console. Chabot, an accredited community college in Hayward, California, installed the desk in its campus television studio in 2015 to give students experience with the same industry-standard equipment they will encounter in a professional broadcast environment.

"Eighteen months later, the Summa has made a huge difference in our ability to properly prepare our broadcast students for their pro careers," said Sujoy K. Sarkar, general manager of Comcast 27 Chabot TV, the campus TV station. "The students love the fact that they'll be able to go right to their first jobs with more professional experience than many of their peers from other schools. In fact, graduates from other programs often come here to do internships because our facility is so cutting-edge."

"This latest upgrade keeps the Summa at the forefront of audio-mixing technology, which means we can broaden our curriculum even further and give our students even more opportunities to gain video- and audio-production experience. And another plus of having professional, industry-standard equipment is that we're on a stronger competitive footing for renting our facilities to outside productions."

At Chabot College, the 32-fader Summa console is used by broadcast students to mix audio for the TV station's entire lineup of live and recorded programs, and for hands-on training in mass communications classes. The college works in close cooperation with KPIX, the San Francisco CBS affiliate station, which also uses a Summa in its operation and provides one of its audio engineers as a part-time consultant to help students train on the console.

The upgrade to version 7.0 of the Summa software makes more efficient use of the college's TriCaster 8000 video-production



system and gives students greater control over audio content, since the audio comes into the Summa first and then is passed to the TriCaster. Also, version 7.0's IoS control features mean that the mass communications instructor will be able to operate and control the Summa using an iPad. Expanded audio-over-IP capabilities make for another valuable improvement, since the college is considering using Dante for moving uncompressed audio over a standard Ethernet network.

"Chabot College's ongoing investment in advanced broadcast technologies — including the Summa — shows that the school understands the tremendous importance of giving students relevant hands-on experience," said Dave Lewty, U.S. regional sales manager, Calrec Audio. "Thanks to this commitment, Chabot College has become an outstanding role model for top media companies that are investing in higher education to address the industry's acute shortage of qualified engineers."

College installations for Calrec in the U.S. include Chapman University, University of Missouri, New England School of Communications (NESCom), and WPSU, a PBS station out of Penn State's campus.

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Sujoy K. Sarkar, general manager of Comcast 27 Chabot TV

Calrec lands knockout blow for F&F

Calrec Audio's Artemis Beam is providing top-quality sound on board F&F Productions' all-new 4K HDR production truck, GTX-18. The truck rolled into Anaheim, California, last week for its first show, a UHD broadcast of the UFC fight between Jon Jones and Daniel Cormier for AT&T Entertainment/DirecTV viewers.

"Calrec's reputation in live broadcasting is huge, and the audio quality is second to none," said Bill McKechny, vice president, engineering, F&F Productions. "We're big fans; in fact, our first Calrec was an analog console we installed in our GTX-15 unit. Even then, we knew we could take the desks anywhere and there wouldn't be much of a learning curve for the operators. And all along, Calrec has been advancing the technology to keep pace with the industry."

"There's a reason why so many Artemis boards are installed on trucks throughout the country; Artemis' smaller, more

accessible footprint makes it perfect for a mobile install, and production crews are automatically comfortable with the desk. Most freelance engineers automatically know Calrec and can just arrive and start setting up the show, and the ones that don't can come up to speed really quickly."

The 64-fader Artemis Beam on board GTX-18 uses Calrec's exclusive Bluefin2 FPGA technology, with 13 Calrec Hydra2 I/O devices and eight MADI I/O units providing seamless fiber-based signal transport. One I/O box is deployed in a booth kit that can be set up anywhere on location to deliver audio feeds from announcers. Other I/O units are part of stage boxes for use in live entertainment venues.

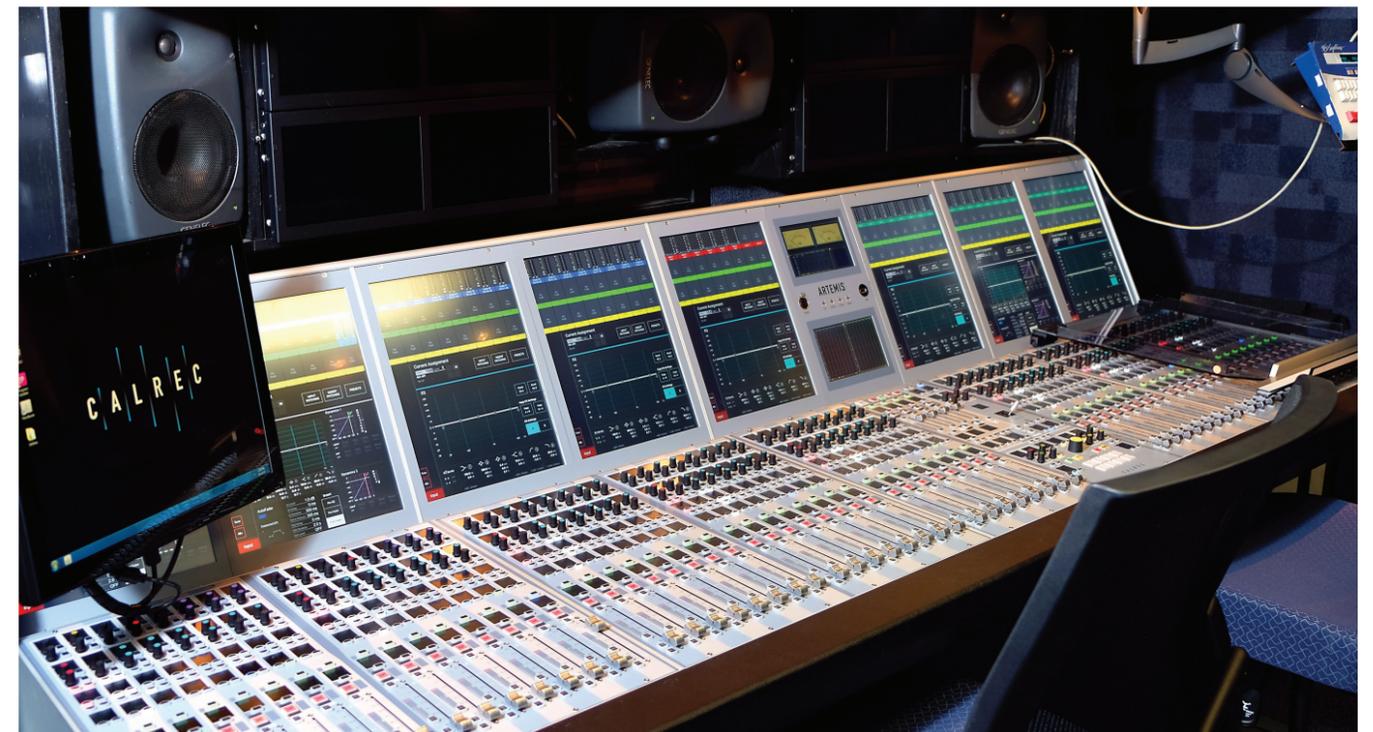
"With the Hydra2 box in the booth kit, the audio engineer in the truck can use the Artemis to store all of the settings and mix the sound from the booth, just as if the announcers were sitting in the truck. We have the flexibility we need to put the

announce booth anywhere in the venue that makes sense," McKechny explained.

Following the UFC fight in Anaheim, GTX-18 headed cross-country to Charlotte, North Carolina, for CBS/DirecTV's UHD coverage of the PGA Championship at the Quail Hollow Club Aug. 7-13. After that, the truck will go to Miami for Telemundo's live broadcast of the "Premios Tu Mundo" ("Your World Awards").

"F&F Productions has really outdone itself with GTX-18. It's a real showcase of the latest in 4K and UHD technologies, and it's already been proclaimed the most capable 4K/HDR unit on the road by respected engineering teams from major broadcast networks," said Helen Carr, regional sales manager at Calrec.

"GTX-18 is the perfect setting for Artemis, which is field-proven as the most powerful, versatile, and easy-to-use console for mobile productions."



Going the Distance: Remote Production White Paper

With remote production fast becoming more prevalent as many broadcasters look to it as a means of generating a wider range of high-quality content, Calrec produced this white paper following research and development work with Sky TV.

The paper identifies issues with regard to audio production and offers a practical and cost effective solution.

An illustrative case study is included to give context to the discussion points and demonstrates the application of the solution.

“Remote, or at home production, will no doubt increase over the next five years as technology evolves to allow production teams to work from the same facility week in week out, especially on longer form multi day events.”

Gordon Roxburgh, Technical Manager, Sky Sports

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.

Many of these events might be of restricted interest, and may be broadcast to a narrow audience demographic. They may be regional news events which require a lot of content generation in a short space of time. They may require temporary infrastructures which need to be highly portable.

Remote production technology provides a realistic alternative for these events – the production of high quality content with fewer resources.

The barriers to effective remote broadcasting are speed (or latency), control and infrastructure.

1. Speed; the single biggest issue. Broadcast audio workflows rely on effective monitor mixes with no latency. This can be difficult to achieve when your studio is hundreds or even thousands of miles away.

To avoid the audio making a long distance round-trip, on-site remote production equipment should have local DSP to generate monitor mixes and IFBs with no

latency. An operator in a remote studio needs direct control over channel functions such as mic gains, aux send/monitor mix levels and fader levels from the remote console control surface.

There also needs to be a convenient method for managing the DSP and bus configuration on-site. It must be simple for on-site engineers to set-up IFB routing and remote monitor mix levels at the venue, especially considering that many remote production broadcasts will not utilise as many staff. These considerations guarantee that venue infrastructure, routing and monitor feeds are functional prior to transmission. Local DSP also means there is no latency for commentary or talent monitoring.

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

2. Control; operators need real-time control over mic gains, fader levels and monitor mix levels.

Effective remote production requires a simple method to control the parameters of the remote production unit from a control room located many miles away, giving the operator control over channels, busses and other parameters from the studio control surface.

In other words, the operator sits behind a console that he is already familiar with and assigns remote channel paths to local faders, just like any other channel.

This functionality should include channel path fader levels and cuts, aux send levels and ons, aux master levels and cuts, VCA linking via the studio console, as well as control over EQ, dynamics and direct outputs.

The operator needs to independently mix all the remote site IFBs and aux buses in addition to the local transmission mix on the studio console.

For full scalability, there should be the ability to link multiple remote production units to the same studio-based console. This is useful for shows with multiple events happening simultaneously.

3. Infrastructure; or, which transport to use to move signals around. Multiple synced signals need to be moved in real time, and often down the same physical infrastructure. Audio, data and video all need to be considered, as well as multiple control protocols.

Infrastructures need to be versatile to connect via a range of transports, allowing the broadcaster to use a preferred

transport method. This minimises initial expenditure and gives confidence in using an established transport mechanism. The studio console mixing the transmission can in turn assign these signals where required on the desk, so workflows are the same as any other broadcast. Working in this way means the learning curve is shallow and transitioning to a remote production workflow causes minimal disruption.

As our industry develops, these transports need to develop too. The flexibility to incorporate changing AoIP and IP protocols like Dante and AES67, is essential. A remote production unit should be flexible enough to deal with any transport.

RP1

To address these issues Calrec has created the RP1. A 2U single box solution, 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.

In addition, RP1 allows broadcasters to create low-cost on-site Hydra2 networks for all audio routing requirements. It provides connectivity to any Calrec Hydra2 I/O box providing ways to adapt

to the requirements of any situation. Such connectivity also gives broadcasters access to Hydra2's inherent management features, such as port protection, alias files, and access rights.

Fundamentally, it enables broadcasters to cover a greater number of specialised events, such as regional or college sports and smaller entertainment events, at significantly reduced costs, making it possible to develop an increasingly wide range of content.



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Going the Distance: Remote Production White Paper

RP1 trial testing was carried out during the ATP tennis finals. Connectivity was between the O2 Arena in North Greenwich, London, and Sky Studios at Osterley, London in November 2016. The trial was set up in parallel to the ATP Tennis live broadcast.

The RP1 unit was located in a technical bay at the O2. 16 microphones from around the court, umpire chair and commentator positions were connected to the RP1 via MADI.

The RP1 took in the MADI data from a DirectOut M.1k2 MADI router, which was sent to one of four aux IFB outputs and then sent back out of the RP1 unit via MADI.

The MADI inputs were embedded into SDI streams before being passed through an SDI-Codec unit and fed into a Cisco switch and sent via IP over 20 miles of fibre on a managed network with a latency of no more than 40ms.

The signals were received at Sky Studios where the audio was de-embedded and remotely mixed on a Calrec Artemis console in Sky Studio 8.

The main purpose of this trial was not to show that audio could be passed over IP to another site, but to prove that the microphone channel inputs to the RP1, and the IFB Auxiliary outputs from the RP1 at the O2, could be controlled over long distances in real time over the same IP connection via the Cisco Catalyst 2960 switch. Control was tested both directly from the Host console surface and from a GUI running on a browser in a variety of locations to the LAN1 port on the rear of the RP1. The first connectivity test was the control of the RP1 via a web browser.



Umpire Chair Mics:- 2 rear Mics, 2 courtside Mics and the umpire Mic

Once RP1 is up and running it allows several web clients to connect into it using a Calrec application called 'Calrec Assist.'

Two instances of Calrec Assist were setup; one at the O2 and the other next to the console in Osterley. The functions of the RP1 were setup and controlled from both positions to prove that parallel control could be achieved.

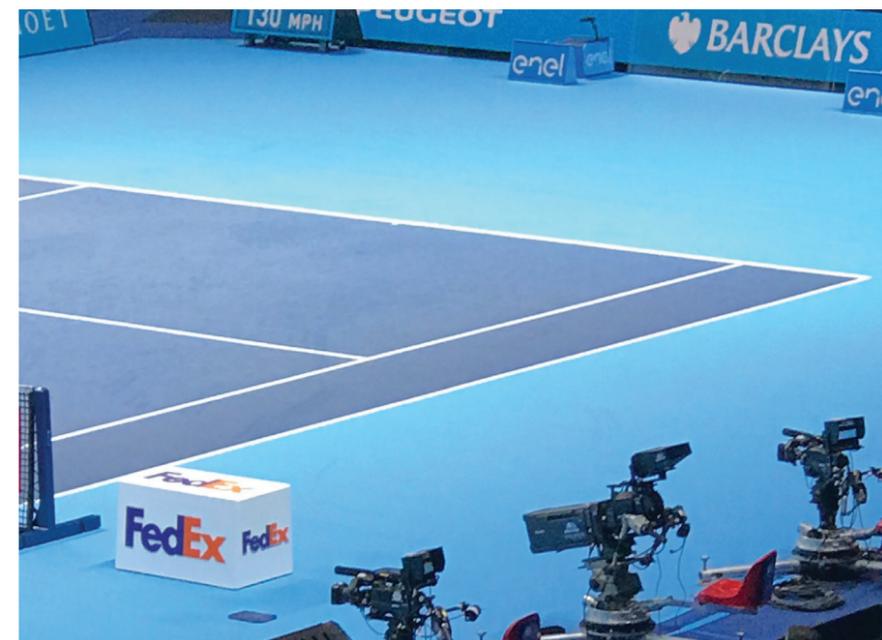
Each instance of Calrec Assist can fully control any of the channels and auxiliaries whilst other instances of Calrec Assist were simultaneously controlling other path parameters.

The second method of controlling the RP1 unit was achieved by mapping the RP1 channels and auxiliaries on to the Artemis Light control surface of the Host console back at Sky Studio 8, next door to the transmission console.

In a live scenario the remote channels and transmission channels would be mixed on the Artemis, thus allowing the operator to control both the transmission mix and the remote production mix from the same surface.

Apart from clearly identifying which channels and auxiliaries were coming from the remote site, the operator could control these 'remote' paths in the same way as its 'local' paths.

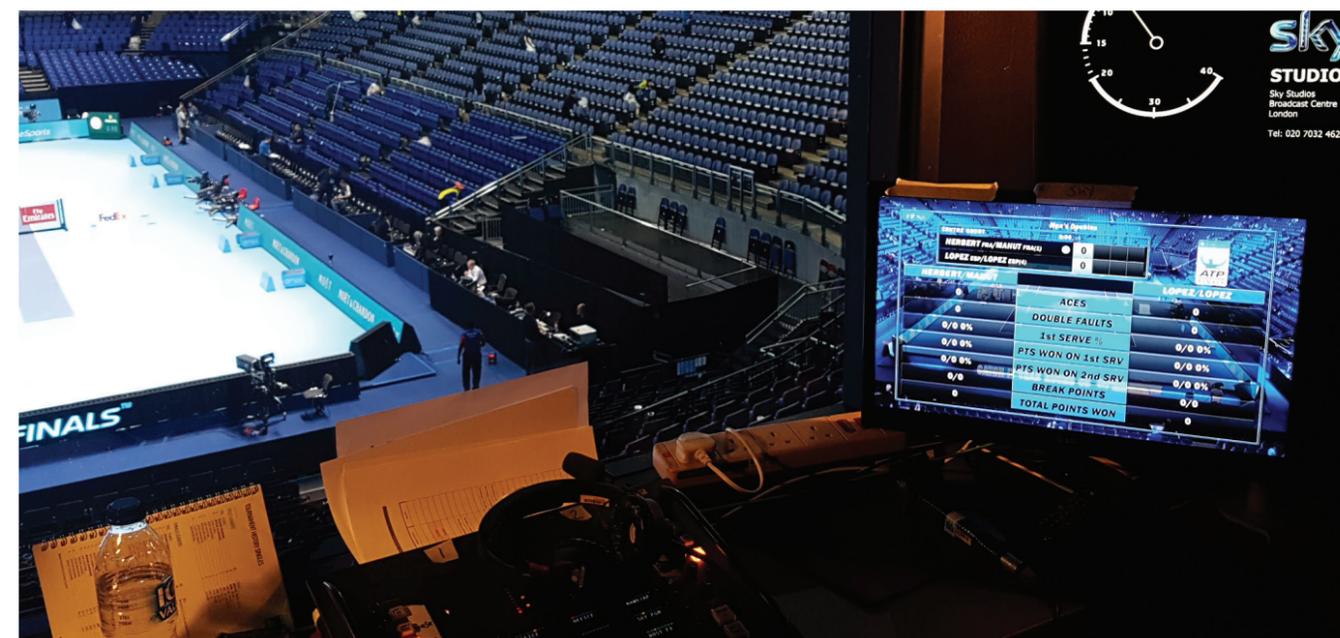
The test showed that control was achieved from both the host surface and various instances of Calrec Assist. While lag was recorded, this was insignificant and had no effect on production.



Camera Mics for either side of the net and Mics at ends of the court

Calrec Assist allows the user to access and control all the functions of the RP1 unit including:

- Show creation
- Loading and saving shows
- Saving and loading memories within shows
- Configuring the virtual fader bed for mono, stereo and surround input sources
- Configuring IFBs for commentator output feeds
- Patching various I/O units to channels and buses
- Applying mic gain, phantom power, trim, balance etc. to channel inputs
- Controlling fader levels and Cut Aux Sends and Direct Outputs
- Having the ability to monitor and meter inputs and outputs
- Routing channels to various buses as required



Commentator Position Mic & Headphones

Going the Distance: Remote Production White Paper

1. The RP1 Remote Production Unit receives the mic inputs from various locations around the venue and commentary positions. It outputs to stereo IFB monitor headphones via Hydra2 I/O boxes at the remote site.

RP1 is a 32-channel mixer with channels that can be configured as mono, stereo or 5.1. Any channel can route to any of 12 aux buses, which can be used to create local monitor mixes.

Routing capabilities are very flexible thanks to a built-in 768 x 768 matrix router. This router means that RP1 has maximum physical output capacity of 704 signals using modular slots and Hydra2 port on the rear of the unit.

Depending on the transport infrastructure it is possible to have all 704 signals transported from the venue (say, on multiple MAD1 streams), and patch additional mics from the venue without touching the channels (i.e. a direct input to output patch). One need only add sources to channels for IFB controls, which can be set up through Calrec Assist.

This router provides a flexible way to manage signals. Let's say you need three separate outputs for monitoring, two separate mono sources locally (e.g. channel and aux) and the ability to send one monitor out on an embedded path.

You can send the RP1 monitor output (and PFL) back to the studio console and configure an external input to listen to the monitor output (or the PFL) of the RP1. You could also bring some inputs and buses back to the studio console using any transportation method. You can patch as many of the buses or inputs sources as you want.

There are no limitations on the type of I/O box connected to a H2Hub network – I/O boxes can be any of Calrec's range of fixed format, modular or Fieldbox I/O – but the H2Hub has an upstream connection limitation to a Calrec Router of 512 bi-directional channels, so the total I/O connected must not exceed 512 signals.

2. RP1 can contain SDI Embedder & De-embedder modules.

With no built-in audio codec, customers can use any existing backhaul technology, which saves time and money, and provides the confidence of using familiar transports. Calrec's modular card slots allow the user to send audio over long distances.

RP1 can connect via analogue, AES, MADI, SDI, as well as emerging IP solutions such as AES67 and Dante. The card slots in the rear of the RP1 enable even more efficient connectivity; embedder cards can be directly plugged in the back of the RP1, and a de-embedder card can be plugged directly in the modular I/O at the studio console.

3. Remote audio was sent to Host console using SDI over video codecs, J2K+AoIP.

RP1 can embed audio into existing video transport mechanisms, and using an established video transport to embed the audio ensures that there are no synchronisation issues. This integrates seamlessly into established workflows that the broadcaster is already using, such as J2K for an SDI source. RP1 works within the parameters of existing broadcast infrastructures.

4. Studio programme audio feeds can be returned to the remote site using SDI over video codecs, J2K+AoIP.

At the studio console, all the remote I/O resources appear like any other local I/O box, so workflows are the same as any other broadcast. For confidence and cues, video signals can be sent from the studio to the venue on the same transport. This would normally be a feed of the programme output to give a visual reference for onsite talent.

5. Hydra 2 True Control data is passed between the RP1 and the Host console, or Calrec Assist via IP ports.

The transport layer is UDP and TCP with a network layer of IPv4. Although latency depends on how far the data must travel, Calrec control data needs nothing more than a standard QoS setting. Including network switch delays, RP1 aims to achieve a maximum round trip message time of no more than 400-500ms.

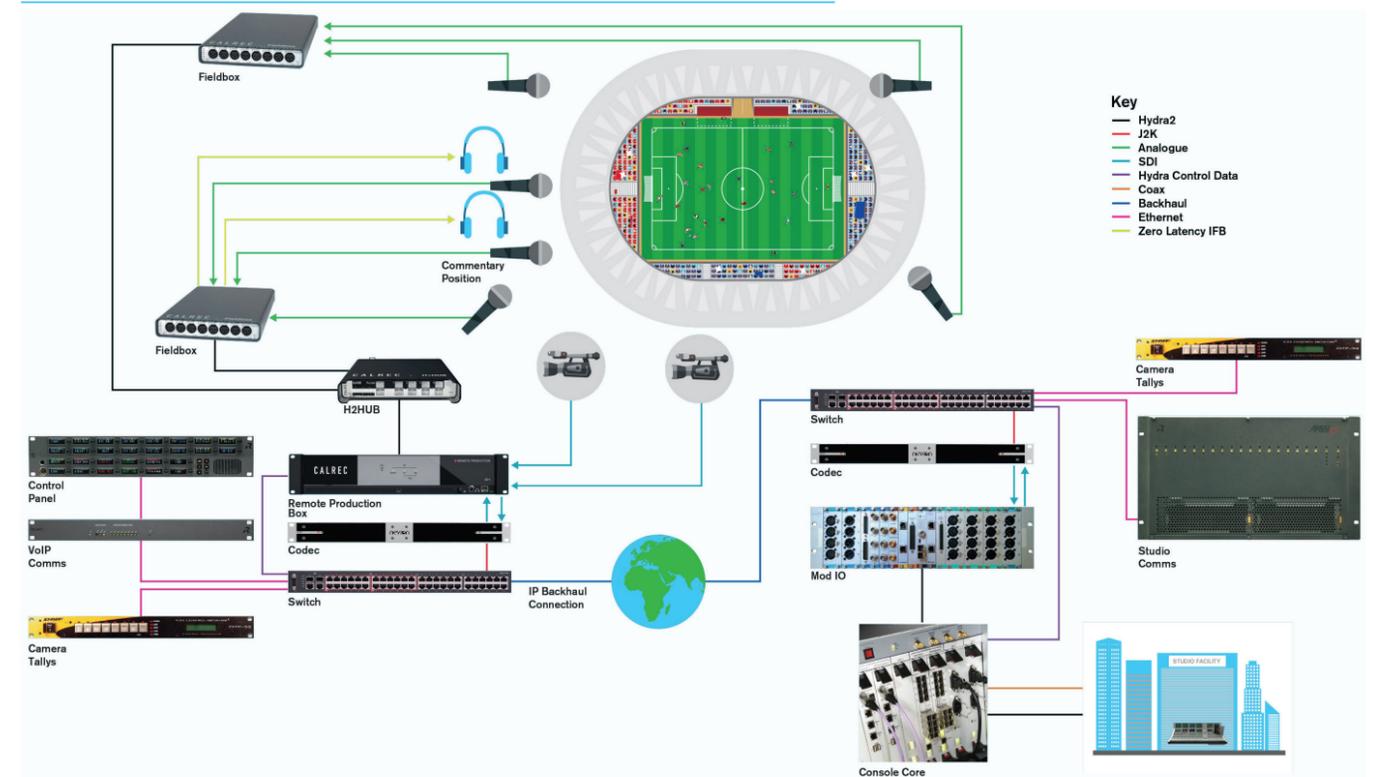
RP1 uses UDP ports at both the remote site and the venue, and additional TCP connections at the venue.

UDP ports are used for monitoring device connectivity and status; TCP connection is used for the control protocol once connected, and for Calrec Assist.

6. Control of remote faders, including mic inputs, is managed from the Host console by use of control faders acting on remote production channels.

Calrec's RP1 uses a system called True Control, which includes channel path fader levels and cuts, as well as aux send levels and ons, and aux master levels and cuts. Future development will include VCA linking via the studio console, and control over EQ, dynamics and direct outputs via Calrec Assist.

TYPICAL SPORTS VENUE SHOWING SETUP WITH RP1 TO IP SERVICE



True Control allows an operator to independently mix all the remote site IFBs and aux buses in addition to the local transmission mix on the studio console. In fact, Calrec's True Control provides the ability to link five independent RP1 units to the same studio-based console.

7. Control of remote auxiliaries allow creation and adjustment of IFB monitor feeds on the remote site (with no round-trip IP delay). These are managed from the Host console by use of control auxes acting on remote production buses.

There are 12 x aux buses on the RP1 for creating local monitor mixes and IFBs for latency free mixing at the venue.

Channel and input controls such as mic gains and 48V phantom power can be set from the Host console or via Calrec Assist if console connection is offline.

IFB/Aux outputs to the talent can be mixed and monitored locally at the venue, but there may be times when the audio operator at the studio console needs access to these mixes.

RP1 aux signals can be sent back to the studio and routed into the studio console as external inputs. This way an audio operator can make a clear distinction between monitoring an RP1 external aux output and an aux output local to the studio.

Going the Distance: Remote Production White Paper

SUMMARY

“Remote, or at-home production, will no doubt increase over the next five years as technology evolves to allow production teams to work from the same facility week in, week out, especially on longer-form multi-day events. We are not going to see every major soccer or cricket match being remotely produced in the short term, but key areas such as the remote production of the presentation of events will increase.

“The RP1 allows us to re-invent the audio workflows for remote working, allowing critical functionality to be remotely controlled from the main studio complex. With its built-in Hydra2 network, it allows the RP1 to be the core of the OB audio facility, and not just an add-on ‘blackbox’.

“The key hurdles are no longer technical, we can tick all of those boxes now; the critical steps to a remote production being a success is to work with the production teams and all the key stakeholders at the planning stage to ensure we are all going in the same direction.

“‘Flight Rules’ have to be defined to ensure that everyone understands how the programme being made differs to a traditional Outside Broadcast. As the event evolves these flight rules evolve too and the programme gets better and better.

“On events that are a longer distance away, where latency becomes an issue for simple conversations, its also critical to work with the on-screen

talent to give them appreciation of the challenges.

“Ultimately by being efficient and working differently we can create a better product. Allowing presentations to break out from a studio environment to the actual event will always be far more engaging for our viewers.

“The production crew working back at base likely have access to far more resources than in an OB truck; for example a producer before a show can be working in a high end edit before arriving in the gallery to make the live programme.”

Gordon Roxburgh, Technical Manager, Sky Sports

RP1 Benefits

- Studio Operator has full control of remote resources.
- Redundancy of power, audio and control as standard.
- Specialised OB equipment and full audio team not needed for smaller events.
- Small 2U Footprint with a wide variety of I/O options.
- Cost effective and easy to set up/configure.
- Multiple RP1 units can be connected to Host Console.
- Real time control of latency-free commentary mixes.
- Can be controlled standalone using a web browser from any IP connected location.



Summa boosts Grand Prix coverage



A Calrec Summa console is turbo-charging audio coverage aboard UM 21, a brand-new 4K OB vehicle by Spanish production company VAV Compañía de Producciones.

Dorna Sports is the official rights holder for the FIM World Championship Grand Prix of motorcycle road racing. The company is using UM 21 for its HD coverage of the FIM CEV Moto2 European championships series currently underway in Europe.

“We faced some significant challenges designing UM 21 — not only in meeting Dorna Sports’ specific requirements but also the technical complexities of covering a racing circuit like the FIM CEV,” said Israel Perez, chief technology officer of VAV. “From the beginning, we knew the Summa desk would be up to the task, and it has not disappointed.

“In addition to built-in 4K capabilities, the Summa delivers the high quality and power our broadcast clients need to

cover the world’s highest-profile sports events. Summa features that are especially valuable for motorcycle race coverage include its auto-fader functionality and its large number of faders and layers, with dual inputs for every channel.

“Furthermore, the powerful Summa control surface enables engineers to create different combinations of mono, stereo, 5.1, and master channels. Summa’s integrated 4K x 4K router brings future-proofing to UM 21, as well as its support of a wide range of audio interfaces including Hydra2, Dante, and MADI.”

Designed and integrated by Uvetech, VAV’s engineering company, UM 21 is specifically targeted to 4K sports productions.

Calrec distributor COEL Audio Solutions sourced the 36+8-fader Summa, which offers a wealth of advanced functionality for mid- to high-end sports broadcasts.

Further to Dorna Sports’ current FIM CEV coverage, the UM 21 truck was also used by Atresmedia for its 4K broadcast of the 2017 Champions League football between Real Madrid and Juventus in June, as well as other marquee football and handball matches.

“VAV’s Summa is the second one we’ve sold into the Spanish market, and it’s rapidly becoming the audio desk of choice for mid- to high-spec OB trucks. The Summa was a perfect match to VAV’s and Dorna Sports’ exacting requirements,” said Guillermo Alberdi, product manager, COEL Audio Solutions.

“Companies like Calrec, with its second-to-none reputation for audio-mixing excellence, are opening up a new market across Europe for advanced 4K sports productions.”



MidcoSN modernises with Calrec Brio and RP1

Calrec has signed Midco Sports Network (MidcoSN) as its first North American customer for the all-new RP1 remote audio production system. Working in tandem with a brand-new Brio audio console, this configuration will bring the cost savings and efficiencies of Centralized Production (CP) to MidcoSN, a regional broadcaster covering high school and college sports across the Midwest.

A division of triple-play provider Midco, MidcoSN offers live and local sports and award-winning original programming to Midco cable subscribers in North Dakota, South Dakota, Minnesota, and soon into Lawrence, Kansas.

“Like many sports broadcasters, we’re moving to the ‘centralized production’ model to reduce our costs and expand our scope of coverage,” said Craig DeWit, production technology manager, MidcoSN.

“We have an extra advantage since our parent company is an internet service provider and we can utilize the Midco IP fiber network.

“This equipment will enable us to centralize key audio production tasks at our main studio. Our skilled A1 engineers can mix the shows from the studio rather than having to travel to the venues, and with those cost savings we’ll be able to cover a greater number of sports events throughout our region.”

MidcoSN worked with Calrec and its local reseller, AVI Systems, to install the RP1 and Brio system for a go-live date at the end of July — just in time for the fall football season.

Installed in the network’s brand-new Ford Transit 350 van, Lewis, the RP1 box will provide on-scene DSP for generating

monitor mixes and IFBs with no latency.

Rather than having to deploy a second truck to each venue, some of which are at least a 9-hour drive from the main MidcoSN studio in Sioux Falls, South Dakota, the network is sending all raw camera and audio feeds back to the studio over its IP-based fiber backbone.

“We did extensive research among audio technology providers, and the Brio-RP1 combination came out on top. Not only did Brio come in at a great price point, but it packs all the audio-mixing functionality we need in a small footprint,” DeWit added. “RP1 offers exciting potential for us to move to the centralized production model.”

The new Brio-RP1 deployment is the initial, proof-of-concept phase in MidcoSN’s longer-term strategy to expand its remote production operation, with plans to add



““This equipment will enable us to centralize key audio production tasks at our main studio. Our skilled A1 engineers can mix the shows from the studio rather than having to travel to the venues, and with those cost savings we’ll be able to cover a greater number of sports events throughout our region.”

Craig DeWit,
production technology
manager, MidcoSN

JBD S.A. to distribute Calrec in Poland

JBD S.A. has signed up as the exclusive distributor throughout Poland for the full Calrec Audio console family. Brio will be its primary focus.

“Calrec Audio is renowned for setting the highest standards for broadcast audio-mixing technology. Brio and the other Calrec desks are powerful additions to our portfolio,” said Konrad Przygucki, managing director, JBD S.A.

“We know we’ll have great success with Brio because it’s exactly the type of solution many of our customers are looking for — a well-priced, compact, and easy-to-use desk that provides full and robust functionality.”

Founded in 1991, JBD S.A. was one of Poland’s first providers of professional video and audio equipment.



“Calrec Audio is renowned for setting the highest standards for broadcast audio mixing technology.”

Konrad Przygucki, managing director, JBD S.A.



Nutclough Mill, Calrec’s home in Hebden Bridge, Calderdale.

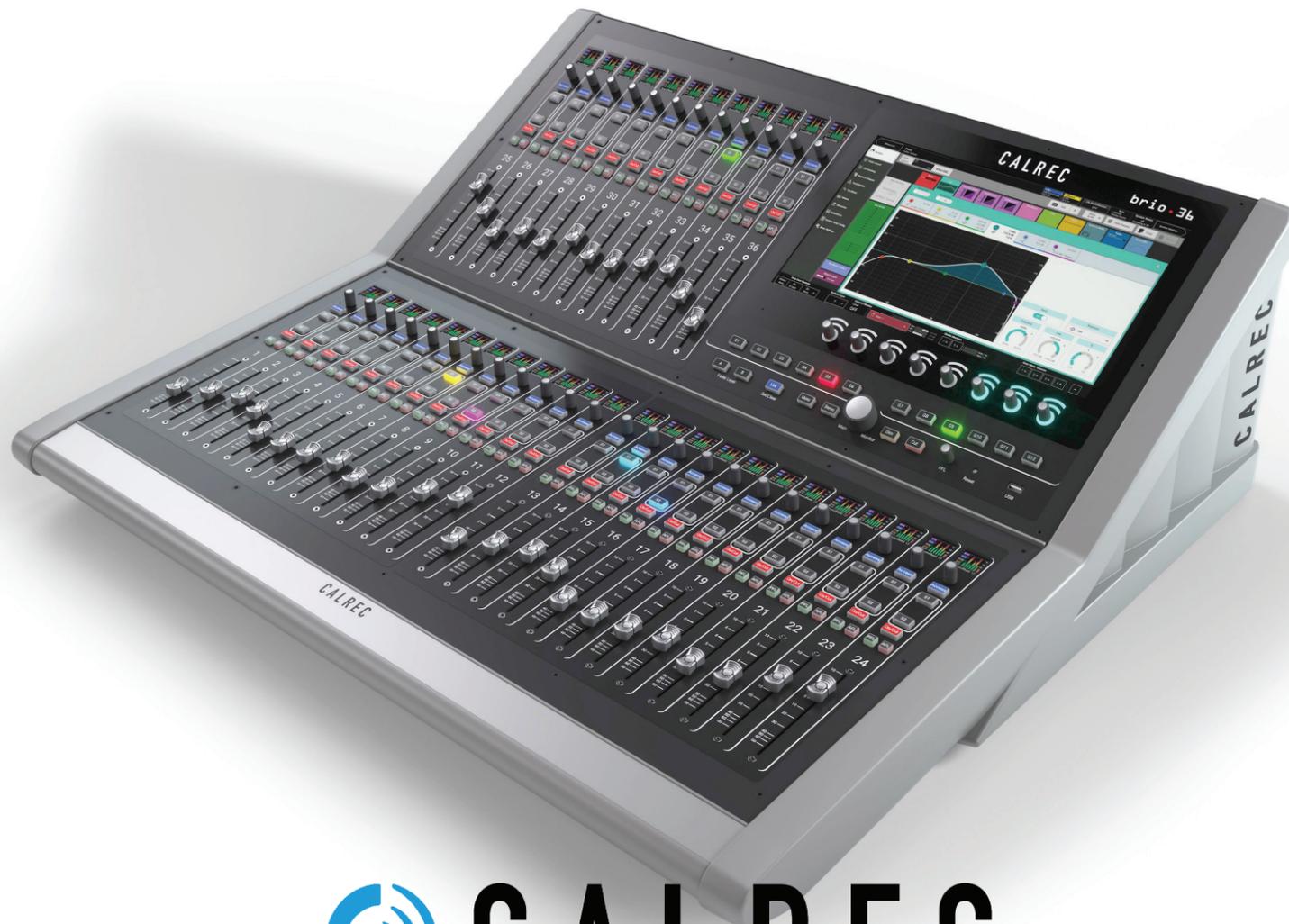


BRIO: DESIGNED AND MANUFACTURED IN THE UK. 100% BROADCAST, 100% CALREC.

Calrec's reputation for build quality, reliability and audio performance has made it an industry standard around the world.

Brio is the most compact and affordable digital console in its class, packed with pure broadcast features as standard; broad IP functionality, MADI connectivity, comprehensive monitoring, automixers, loudness metering, full 5.1 capability, extensive IFB resources and built-in I/O.

calrec.com



Italy's Cinevideo doubles up with Artemis



Cinevideo, one of Italy's foremost broadcast service providers and rental houses, has installed two Calrec Artemis Light consoles on Dolphin 7.0, its all-new, flagship 4K OB vehicle. Supplied by Calrec distributor and systems integrator Broadcast Solutions, the two consoles are connected via Hydra2 to provide maximum flexibility, redundancy, and modularity for live productions.

"We had several key requirements for the audio-mixing component of Dolphin 7.0. We needed to optimise space as much as possible, so naturally the size of the desk was critical," said Roberto Buonomo, technical manager, Cinevideo. "Also, we wanted the highest possible I/O density with built-in redundancy to handle high-pressure live production workflows.

"Calrec and Broadcast Solutions understood our needs perfectly and proposed an outstanding solution with the dual Artemis Lights. Not only do these desks offer a lot of control in a smaller

footprint, but their modular I/O boxes can be easily swapped out during a production. Since Calrec is the 'go-to' choice for most OB truck companies and is already standard equipment on a huge percentage of OB trucks throughout Europe and the U.S., we knew we were making the right choice."

Dolphin 7.0 is a 24-camera, fully 4K-capable vehicle with the ability to support full 12G workflows. The truck's two Artemis Lights provide Cinevideo clients with two separate fader surfaces (the 56-fader desk provides the main audio feed, with the 24-fader console supplying secondary audio) and two separate audio router cores, guaranteeing full redundancy for a single production or two simultaneous productions.

The two router cores share all audio connections via Calrec's Hydra2 network, and the two fader surfaces can be joined to create one huge console for large-scale productions.

"One great thing about the Artemis design is that the fader surface is modular; you can reconfigure panels quickly and simply with no loss of functionality," added Buonomo.

"Linking the two consoles not only gives us exceptional flexibility and scalability but also provides the kind of redundancy that no other audio desk can match."

"Cinevideo's Dolphin 7.0 is a real showcase of cutting-edge OB technologies, and it's aptly named — since dolphins are renowned for their advanced communication abilities over great distances," said Florent Chaouby, international sales manager, Calrec Audio.

"Dolphin 7.0 is ushering in a new era in communication and production, with an ingenious, fully featured Artemis solution from Broadcast Solutions. Calrec are honoured to be playing such a key role in this partnership."

Brio drives the green for U.S. Open

CP Communications, a full-service broadcast equipment rental and production company, is relying on a quartet of Brio consoles to deliver high-quality live sound for Fox Sports' marquee coverage of pro golf, baseball, and football.

CP Communications first deployed the new Brios for the U.S. Open, where they worked in concert with several other desks on a Hydra2 network to help overcome the complex logistical challenges of audio mixing from the sprawling Erin Hills golf course in Erin, Wisconsin.

"Capturing and broadcasting golf is challenging on so many levels. You have to cover all 18 holes simultaneously at tee boxes, greens, and fairways. Then add in scores of players to cover — at the U.S. Open, there were 156 — and you can see what an enormous task this was," said Kurt Heitmann, senior vice president of sales and marketing, CP Communications.

"One of the reasons we chose the Brios is their ability to talk to each other and other Calrec desks on a production. For the Open, Fox Sports was already using Calrecs in its trucks, and putting the Brios on the course gave us instant connectivity with those other desks via Hydra2.

"The Brios may be compact, but they pack some powerful and flexible functionality. For instance, we were able to use each Brio in a split formation that let us mix the action on two holes at the same time. That setup helped us make sure we didn't miss any aspect of play."

At the Erin Hills course, CP Communications deployed the Brios to work in concert with EVS servers for tape replay. The new desks were networked with two other Brios, two Artemis consoles, and a Summa and Apollo installed in Fox Sports' hired production trucks.

In the split operation, each Brio console gave the engineer a left and right router for covering any two combinations of live holes, greens, tees, or taped holes. Each desk had access to more than 3,000 inputs that delivered the mixed audio over a single, 64-channel MADI stream. Each Brio also handled monitoring for both left side/left speaker and right side/right speaker. Multicam audio/video synchronization was easily managed thanks to Brio's ability to provide two inputs on each channel, with independent delay times.

Following the U.S. Open, CP Communications used combinations of the

Brios to provide tape-release submixes for the U.S. Women's Open, the U.S. Senior Open, and the U.S. Junior, Girls', and Women's Amateur Championship tournaments. With one of the Brios still in use for golf, the other three are now being prepped for Fox Sports' pro baseball and football coverage.

In addition to the Calrec desks, CP Communications also has a very large installation of audio consoles from DiGiCo, Calrec's sister company, including 17 DiGiCo S21 desks that are able to communicate seamlessly with the Brios over MADI connections. The Brios also provide an ideal complement to the company's fleet of six RF trucks, all of which are equipped with DiGiCo SD-10B 32-channel audio consoles.

"You just can't beat Brio's form factor for a wide-ranging outdoor event like a golf tournament. It fits our rental business model really well, since we ship audio-mixing consoles out in our flight packs rather than installing them in trucks," Heitmann said. "Calrec is the undisputed leader in this field, so we were excited when they came out with the Brio — it meant we could finally bring Calrec desks into our repertoire."



"The Brios may be compact, but they pack some powerful and flexible functionality."

**Kurt Heitmann,
senior vice president of
sales and marketing,
CP Communications**

Artemis Lights up new OB van for Gama Studio



Calrec Audio is continuing its momentum in the European broadcast market with a sale in Croatia — an Artemis Light console for Gama Studio's brand-new OB van. The Artemis Light brings powerful levels of flexibility and digital signal processing capabilities to the new truck, which will greatly expand Gama Studio's ability to broadcast live sports and entertainment events of all types and sizes.

"We wanted only the highest-quality systems for our new van, and Calrec has a tremendous reputation for top-of-its-class audio consoles," said Davor Omerza, sound engineer, Gama Studio. "There are so many selling points for the Artemis Light: the integrated audio router, all-optical connections to stage boxes, redundancy,

and support for many audio formats including AES/EBU, Dante, and MADI. Calrec and Artemis made our choice an easy one."

Gama Studio is known for broad range of bespoke production capabilities on a wide variety of live televised events, including the past four seasons of Kontinental Hockey League, two seasons of Euroleague basketball, and this year's UEFA European Championship football tournament and FIBA Basketball World Cup. The new 40-fader Artemis Light anchors audio mixing aboard Gama Studio's new double-expanding, 16-camera HD OB truck, already billed as one of the most advanced in the Croatian broadcast market. As Gama Studio's largest truck, the new van will

enable the company to expand its marquee sports coverage to events such as the Pannonian Challenge, an extreme BMX bike/skate event, as well as new types of productions such as the reality program "Stars Under Hypnosis."

"For more than 30 years, Gama Studio has served as Croatia's foremost provider of live production equipment and solutions," said Mike Reddick, international sales manager for Calrec Audio. "By choosing Artemis for its new truck, Gama Studio is bringing on one of the industry's most popular and reliable audio workhorses. It's a pleasure to be teaming up with Gama Studio as we continue our inroads into the rapidly growing eastern European marketplace."

Brio puts the 'boomer' in SoonerVision



A Brio console has joined the broadcast team at SoonerVision, the in-house video production arm of the University of Oklahoma (OU) Department of Intercollegiate Athletics. Together with a Calrec Artemis that serves as SoonerVision's main live production audio mixer, the Brio is used to produce thousands of hours of sports content every year.

From its production centre on the OU campus, SoonerVision produces award-winning content for Sooner Sports TV, the university's multiplatform network covering 12 varsity sports, including football, men's and women's basketball, baseball, and gymnastics. The Artemis console provides the audio mix for up to 130 live broadcast feeds every year for a variety of FOX Sports outlets, including FOX Sports Oklahoma, FOX Sports Southwest, and FOX College Sports. The new Brio desk is installed in SoonerVision's Studio B for a broad lineup of original programming and studio productions, including coaches' shows, weekly magazine shows, and press conferences.

"Until we brought in the Artemis a few years ago, audio was the missing link in our move to all-digital operations over fibre,"

said Brandon Meier, assistant athletic director for broadcast operations, OU Department of Intercollegiate Athletics. "By replacing our old analogue mixer, the Artemis really sealed the deal with our broadcast partners, who expect the level of technology you'd find in the most advanced broadcast truck.

"And now, the Brio takes us even further down the road as a state-of-the-art digital operation. It delivers everything we love about the Artemis — the robust faders, the ease of use, the outstanding ergonomics of the screen layout — in a compact and cost-effective package that's perfect for the types of shows we produce in our smaller studio."

SoonerVision's production facility receives signals over a fibre network from eight sports venues across the OU campus.

Hydra2 I/O devices at each venue provide seamless transport of audio signals to a central router, and then to the Brio or the Artemis.

Meier added, "With the Artemis and Brio talking to the Hydra2 field boxes and processing audio signals over a few fibre s, rather than thousands of copper wires, our

operation has been simplified immensely. The Calrec desks are allowing us to do things we never dreamed of before; for instance, we can put 16 different audio sources behind a single camera feed to supply separate submixes, like submixes for radio shows that include English and Spanish tracks.

"Also, because we're giving broadcast students hands-on experience with these products, we're helping equip them for high-level jobs once they graduate. Solutions like Calrec's Artemis and Brio have helped us build a collegiate broadcast operation that rivals anything in the professional world."

"The University of Oklahoma is home to one of the most storied athletics programs in the U.S., so it's fitting that the OU athletic department would have a world-class video and television operation," said Calrec Audio's U.S. regional sales manager, Dave Lewty.

"SoonerVision's use of the Artemis and Brio is a great example of how the two desks can complement each other to provide maximum flexibility, reliability, and seamless fibre-based signal exchange in a complex production environment."

Russian broadcaster NTV sees the light with Artemis

Russian broadcaster NTV has added a fourth Artemis Light digital audio console to its studio facilities in the Television Technical Center Ostankino (TTC) in Moscow. The 48-fader Artemis will upgrade TTC's Studio 18 to support popular programs such as "Today," "Emergency," and "The End of the Day With Irada Zeynalova" that has recently been commissioned for broadcast by NTV.

"For our ongoing studio upgrade program, Calrec is always at the top of our list for audio mixing," said Vladimir Baryshnikov, chief audio specialist, NTV.

"With the other Artemis consoles already in our operation, we're well-acquainted with the console's superior sound quality and reliability. And with Artemis, we're able to put the technical capabilities in place to support an expanding program lineup and attract new commissions.

"Plus, the Artemis Light's compact size and networking capabilities really raise it above the competition. Our sound engineers love Artemis, and since they're already so familiar with it, they can walk right on to new productions and start mixing — and its user-friendly interface means new operators are able to get up to speed quickly on the desk."

In addition to the newest Artemis Light, NTV has three others in its studio operation. Last year, the broadcaster installed a 48-fader console in its TTC Studio 12 facility for production of a range



of news and current affairs programs, and Artemis consoles are also installed in the TTC's Studio 11 and NTV's Gorky studio complex. As with NTV's previous Calrec installations, Russian systems integrator OKNO-TV provided design, integration, and installation services for the new Artemis Light.

NTV is also using Artemis Lights in its OB operations. In 2014, as part of its transition to digital broadcasting, NTV installed an Artemis Light with two stage boxes in NTV Mobile, an innovative Moscow-based flexible studio for live production.

NTV's Artemis Light deployments bring the total number of Calrec Audio consoles within the TTC to more than 32. As the largest television studio facility and broadcast production company in Russia, the TTC is linked by cable, radio relay, and satellite with practically all television centers in Russia and also facilitates the exchange of television programs over the Intervention and Eurovision networks. As with the NTV Artemis Lights, all of the TTC's Calrec desks are connected by fiber via Calrec's Hydra2 plug-and-play audio routing system, which supports AES, analogue, and MADI interfaces.

"Our sound engineers love Artemis...its user-friendly interface means new operators are able to get up to speed quickly on the desk."

Vladimir Baryshnikov, chief audio specialist, NTV

Brio is the bridge to remote production for Proshow

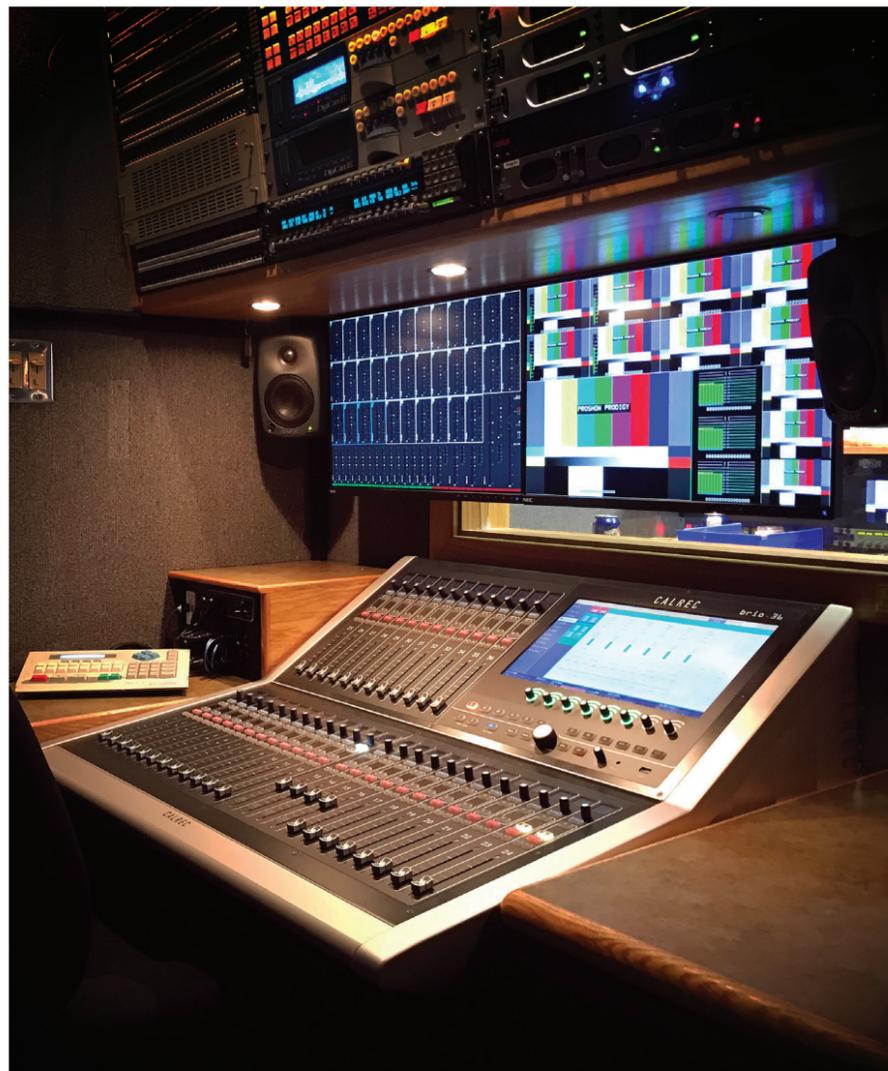
Proshow Broadcast, a leading broadcast and media production company based in Vancouver, British Columbia, has upgraded its hard-working Prodigy HD truck with a Brio console. In a compact and cost-effective package, the Brio brings new levels of broadcast-grade functionality to Prodigy's coverage for major sports broadcast clients including the Pac-12 Network.

"The term 'revolutionary' might be overused in our industry, but the Brio is revolutionary in many ways. There really is nothing else like it for the price point — a truly compact console that doesn't make any compromises on broadcast feature set," said Tim Lewis, president, Proshow Broadcast. "When we heard Calrec would be launching the Brio, we knew it would be perfect for our Prodigy upgrade, especially after we sent three highly respected A1s to the Calrec booth at the NAB Show to take a look at it. All of them said it would be a significant improvement over our old desk.

"We've had a Calrec Omega on our largest truck for five years, so of course we're well familiar with the quality and performance of the Calrec product. Calrec is known as the gold standard for audio in mobile broadcasting, and for good reason — the desks are designed from the ground up for broadcasting, and their flexibility and sound output are outstanding. Calrec desks are so prevalent in the mobile broadcasting world that A1s that are new to our trucks can start right away using the Omega or the Brio without a learning curve."

As the oldest truck in Proshow's fleet and one of the most versatile, Prodigy is used to cover a wide range of Pac-12 Network events, including college football, volleyball, and basketball, as well as other major sports broadcasts. The Brio made its debut in early September for Prodigy's coverage of Canada West football, live from Calgary's McMahon Stadium.

The Brio is much better equipped for traditional mobile broadcasting than the desk it replaced; in fact, Proshow was able to obtain full broadcast functionality for



large productions without resorting to a bigger and more expensive audio console. Brio delivers even more flexibility through 64 inputs and outputs supporting multiple audio-over-IP networks including Dante and AES67, which enables the console to operate as a router and patching system.

Lewis added, "One of the things we love about the Brio is its exceptionally clean design, including the fader layout. When designing a compact audio console, manufacturers usually take the approach of 'dumbing down' the functionality. But

with Brio, Calrec has taken a full-featured broadcast console and scaled it down, rather than dumbing it down.

"Brio has 36 faders and provides the same signal processing capabilities as full-sized desks from other brands. That's more than enough for most shows, and the fader density is also the same as the larger boards. It really matters on a busy show, when faders that are too small or too close together might make the desk difficult to operate. I've personally A1'd a couple of shows with the Brio recently, and I love it."

Rob Lewis appointed to represent Calrec in U.S.

Group One has announced the appointment of Rob Lewis as regional sales manager for the Calrec Audio line of digital audio consoles. Based in San Francisco, Lewis will report directly to Group One President Jack Kelly and will manage all Calrec sales in the southeastern U.S., in addition to assisting the entire Calrec team with the overall business.

"We are thrilled that Rob is joining Group One," said Kelly. "With years of experience in the sales and support of broadcast audio consoles, Rob further strengthens our U.S.-based Calrec team with his strong technical background and deep market knowledge."

"As we continue to build our presence in the U.S. market, Group One is a powerful ally — and the partnership just got even stronger with Rob's addition to the team," said Dave Letson, vice president of sales, Calrec Audio. "With more than 24 years of experience in the professional audio industry, including plenty of time in sales, support, and hands-on work with audio consoles, Rob knows our market inside and out. He'll bring an ideal mix of international sales, product marketing, and technical know-how to our U.S.-based sales operation."

Just prior to joining Group One, Lewis served six years as director of U.S. territory sales for Harman International — Studer. There, he rebuilt the U.S. sales and technical support team. Prior to that position, Lewis served as business development and sales contractor for Salzbrenner Stageteq Mediagroup — Stageteq, USA, and co-founded iConfiDent, a web-based platform for dental professionals.

He also put in nine years at Euphonix, serving first as product marketing manager and then international sales director, Pacific Rim.



"It's a real pleasure to be representing Calrec Audio. Calrec desks are the gold standard for audio, and their reputation for outstanding sound quality, flexibility, and performance makes them an easy sell," Lewis said.

"There's tremendous potential for Calrec in the U.S., and I'm looking forward to working

with the team to build a sales and support presence that reflects the high standards of both Group One and Calrec Audio."

As a freelance audio engineer early in his career, Lewis was nominated for a Grammy award and recorded/mixed more than 30 albums and CDs. He holds a bachelor of arts degree from Loyola University.

Brio 12 makes its debut at Inter BEE 2017

Calrec announced the international debut of Brio12, a compact, 12-fader audio mixer, at Inter BEE 2017. Brio12 has the same powerful feature set and mix capabilities as its larger sibling, Brio36, which has seen unrivalled success in the region.

Brio12 meets the demand for a broadcast mixer that can be used in very tight spaces like small vans and compact control rooms, and at under 450mm or 18" wide it is slim enough to fit into standard racks or be stowed out of the way when not in use.

"Brio12 is perfect for small-scale productions, or as a sub-mixer or backup mixer for larger productions," said Peter Walker, Calrec's product manager for Brio.

"Inheriting a rich feature set and powerful surround capability from its larger sibling, Brio12 removes the limitations on ambition and creativity imposed by mixers of comparable size and price-point."

With 12 physical dual-layer faders for mixing live sources during broadcast, Brio12 provides extra virtual faders via its user-friendly UI.

With 48 input channels and the same buss count as the popular Brio36, the console has plenty of capacity for submixes and VCA slaves. These capabilities also make it ideal for automated production environments, allowing for maximum control over every fader.

"Brio12 can be installed where there is a requirement to integrate audio control with the vision switcher," adds Walker. "This makes Brio12 a very powerful and compact mixing tool in lean production environments."

"Plus, Brio12 can be quickly added to an existing Hydra2 network and utilise I/O via a range of Hydra2 modules through its integral I/O expansion slots."

Mr. Kozuma, head of broadcast sales at Hibino Intersound Corporation, Calrec's Japanese distribution partner, added,

"We see great opportunities for Brio12 throughout Japan and the rest of the world. It is a great honour to exclusively unveil the console to the global marketplace, and we look forward to introducing it to our customers at the show."



Calrec Artemis Lights the way at Northwestern



An Artemis Light console and Hydra2 network are powering a state-of-the-art video production facility at Northwestern University in Qatar (NU-Q). The Artemis Light brings robust audio processing capabilities to the fully automated operation, the first of its kind completely dedicated to broadcast education.

NU-Q wanted to create a teaching environment based on the latest technologies and workflows for the benefit of its students. Its broadcast studios are sound stages that can also double as recording studios, so they had to be built to very high specs.

The Artemis desk and the Hydra2 network devices give students the best possible learning experience on equipment they're most likely to encounter in their future broadcasting careers.

The NU-Q facility features six studio spaces, four control rooms, more than 25 postproduction suites, and two computer editing labs. The recently completed newsroom is the first in Qatar — even among commercial broadcast facilities — to be fully automated, with robotic systems that enable a single operator to run an entire show.

The Artemis, together with a Grass Valley switcher and a ChyronHego graphics system, is controlled by a Grass Valley Ignite automated production solution. This tight integration means operators can access the full audio capabilities of the Artemis and run the desk seamlessly from the fader wings on the Ignite automation panel.

The Hydra2 system provides the audio networking infrastructure for the NU-Q

facility and integrates virtually every key system. Hydra2 links the studios with the 7.1 mixing suites, connecting mixing consoles via MADI interfaces.

The Evertz MAGNUM control system is also connected over Hydra2 and routes audio signals from the Artemis. And for monitoring and control, the Artemis transmits data from SNMP traps via Hydra2 to an Evertz VistaLINK system.

The Hydra2 system enables full and seamless integration of multiple vendors' solutions — a critical requirement for NU-Q — and it delivers the flexibility for any control room to control any studio or multiple studios.

NU-Q can locate Hydra2 I/O boxes wherever they're needed to reduce cabling between studios.

Four new Calrec Brios take wing in VER flypacks



VER, a global provider of production equipment and solutions, has added four brand-new Calrec Audio Brio compact desks to its operation. The Calrec Brios raise VER's Calrec inventory to 13 consoles that are shipped in rental flypacks to broadcasters and production companies for coverage of a variety of live sports and entertainment events.

"Over several years, we've built a great relationship with Calrec. We know we can count on the desks for the highest reliability, best sound quality, and most robust feature set, with outstanding support from the Calrec team," said Steve Cormier, VER's director of broadcast audio and communications.

"Our customers are also a large driver for us to continue investing in Calrec. These desks are standard in remote broadcasting, and the majority of mixers are familiar and comfortable with Calrec.

"With the new Brios giving us greater versatility in both size and price point, we can serve broader markets with the same Calrec quality; for instance, reality TV productions often require a smaller-format console. Plus, being able to operate the Brios on the same Hydra2 network as the other Calrecs gives us, and our users, maximum flexibility."

Based in Glendale, California, VER is a leading global supplier of equipment and technical expertise for television, cinema, live music, sports, and corporate production. Equipped with Hydra2, MADI, and Dante interfaces, the four Brios join VER's Calrec stable of two Artemis 64-fader desks, four Artemis consoles with 40 faders, two 32-fader Artemis desks, a Summa 36+8, and two Calrec router cores.

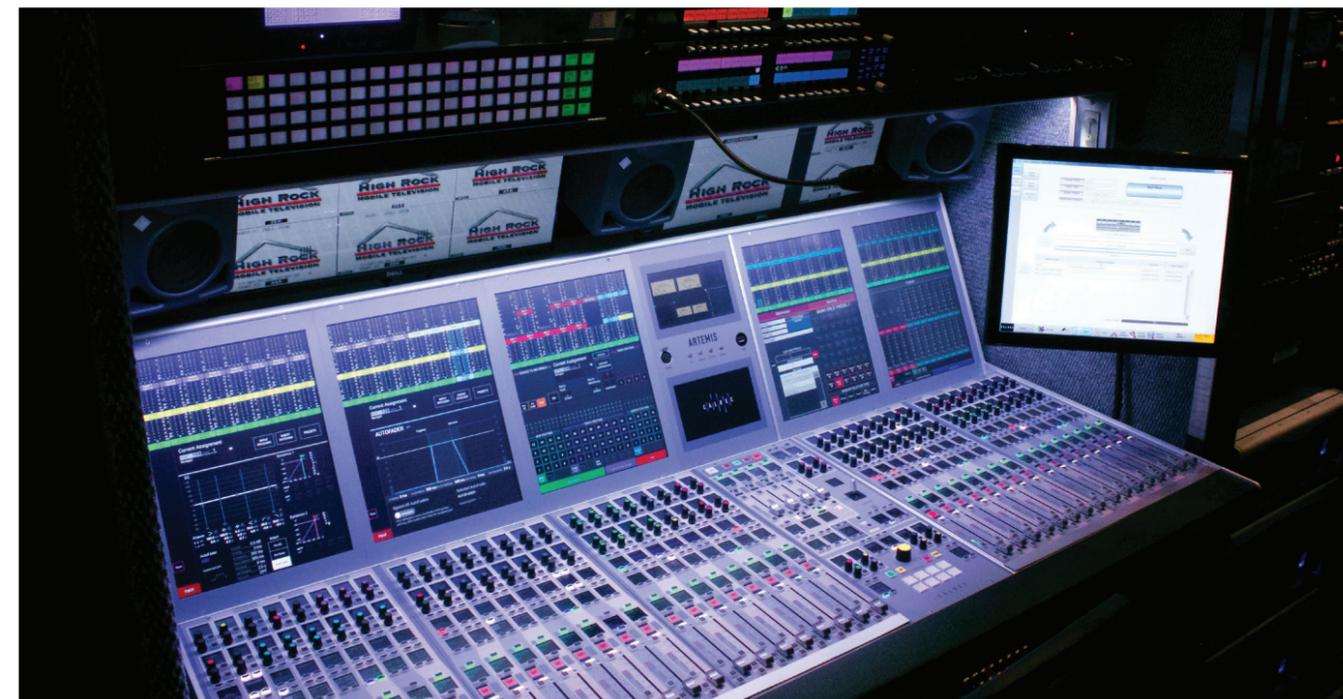
The consoles are shipped in flypacks to create remote control rooms for live coverage of a wide range of golf, basketball, and football events as well

as live entertainment broadcasts. A Brio console can serve as the primary audio desk in small flypacks, and they can also provide submix or small control on large flypacks. Most recently, a VER client used a Brio as part of a fully outfitted flypack for its coverage of the Electronic Music Awards.

"With a 35-year history and offices around the world, VER supports more than 100 productions each day," said Dave Lewty, regional sales manager, Calrec Audio. "And with its strategy to offer remote flypacks for every size of production, VER is a real innovator — especially as the broadcast industry becomes more and more competitive and companies are looking to do everything they can to reduce production costs.

"Understandably, VER sets the bar very high for the technology and equipment brands it represents, so its large investment in Calrec consoles is a huge vote of confidence in our technology and service."

Calrec Artemis on a roll with High Rock



A Calrec Audio Artemis Light is the audio mixing engine aboard High Rock Mobile Television's first-ever production truck, High Rock 1. The 40-foot, dual-expando vehicle is designed to offer big-truck production capabilities in a smaller footprint, with Artemis providing superior sound quality, reliability, and seamless networking via Hydra2. Bennett Engineering sourced the Artemis and provided installation and integration for all systems in High Rock 1, which was manufactured by Gerling and Associates.

"Although we'd never worked with Calrec before, their reputation in the industry precedes them. We spoke to a range of audio engineers and we got a broad consensus that the Artemis was the best choice for High Rock 1," said Jim Carr, president, High Rock Mobile Television. "Also, we wanted to adopt equipment that everyone — freelancers included — would be familiar with. Calrec desks are really widespread in the mobile broadcasting world, so the Artemis fit the bill.

"So far, the Artemis has more than lived up to our expectations. We have received outstanding support from the Calrec team, and practically any A1 is able to come right on the truck and start using the desk immediately without a learning curve. The ability to save a baseline default setting really reduces the time needed to set up a show, and the different engineers appreciate the ability to save their own profiles. Plus, the console's smaller size makes it ideal in a truck environment where space is at a premium."

High Rock 1 can cover productions up to 12 cameras, designed for all levels of production and with similar specs to a traditional 53-foot production truck. Since the truck's launch in September, the 40 fader Artemis has been used on several high-profile sporting events including horseracing, track and field, and entertainment events.

Carr added, "We tend to cover events that aren't pre-cabled for fibre, or that require transmitting signals over long distances. That's where the Hydra2 system is really valuable — it gives us instant connectivity over fibre with other mobile units on an especially large show, or for getting audio feeds from field locations such as the winner's circle after a horse race or the infield area of a track event."

"High Rock Mobile Television already has an outstanding reputation for live sports production and counts several major TV networks among its clients. And now, with the launch of High Rock 1, they've taken a consensus and are evolving and growing their business model," said Dave Letson, vice president of sales, Calrec Audio. "High Rock 1 is exactly the type of environment for which we designed the Artemis, and we're excited about our new partnership with the company."

Apollo



Surface

- 100mm faders with mechanical PFL overpress
- 12 A/B Layers, providing 24 possible assignments for each fader
- 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 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 delay per Output from a pool of 256 channels
- Up to 2.73s delay per Input from a pool of 256 channels
- All paths have 2.73s delay in addition to in and out delay
- 8 x AutoMixers, each controlling an unlimited number of paths
- Advanced AutoFader (AFV) functionality

Networking

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

Router Ports

16/32

16/32

16/32

8

Networking

Integral 8192² router
All I/O provided over Hydra2 network via a range of Hydra2 I/O boxes.

Integral 8192² router
All I/O provided over Hydra2 network via a range of Hydra2 I/O boxes.

Integral 8192² router
All I/O provided over Hydra2 network via a range of Hydra2 I/O boxes.

Integral 4096² router
All I/O provided over Hydra2 network via a range of Hydra2 I/O boxes.

Surface

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

Summa



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 available to all mono Input Channels and Groups
- 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

Networking

- Integral 4096² 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.

Brio



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

- 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

- Freely configurable on the fly, operates at 44.1, 48, 88.2 and 96kHz
- All DSP facilities are available at all sample rates

Remote/Automated Control

- Remote/Automated Control
- 8 x GPI + 8 x GPO built in**
- Advanced AutoFader (AFV) functionality
- 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**
- 8 x GPIO**
- 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

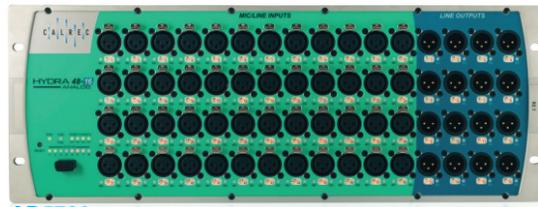
Fixed Format I/O



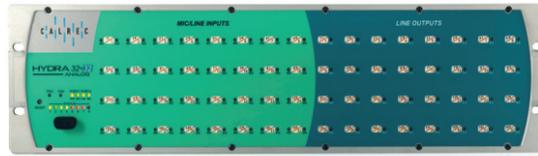
AD5782
Analogue Mic/Line 12 In/4 Out - XLR



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



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



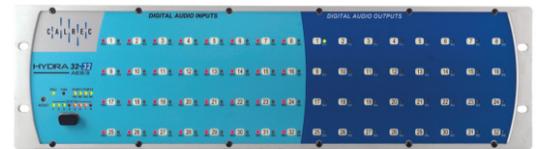
AE5743, AE5991, AE5992
Analogue Mic/Line 32 In/32 Out- EDAC



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

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)

Analogue I/O



AD5840
4 x Mic/Line In (XLR)



AL5870
2 x Mic/Line In with Splits (XLR)



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



AD5838
8 x Analogue Line Level Inputs (D-Type)



DA5839
8 x Analogue Line Out (D-Type)



DA5867
4 x Line Out (XLR)



AD6365
4 x Transformer Mic/Line In (XLR)

Br.10*



- 24 x Mic/Line inputs
- 16 x Analogue outputs
- 8 x AES3 digital inputs
- 8 x AES3 digital outputs

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

RP1 – Remote Production



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.

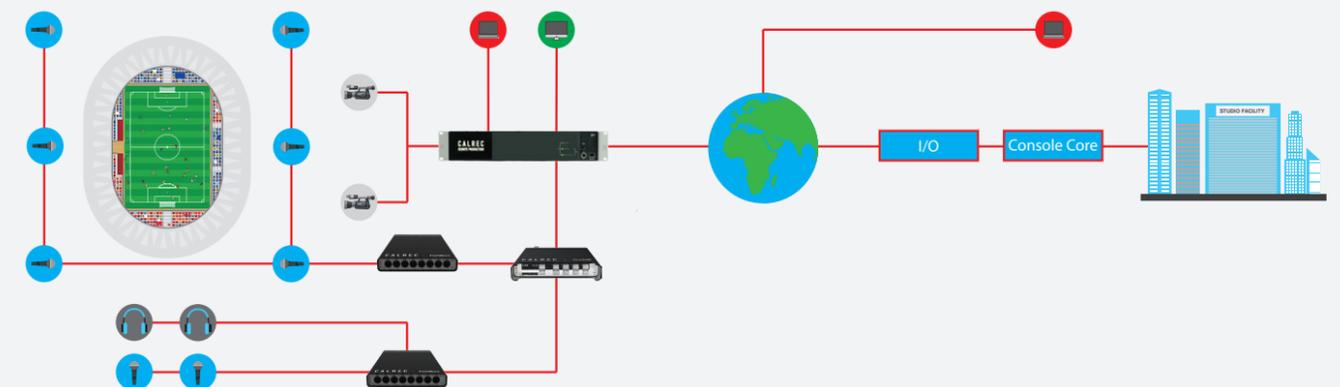
This enables venue infrastructure, routing and monitor feeds to be tested prior to transmission. Local DSP processing also means there is no latency for commentary or talent monitoring.

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.

- 3 x expansion slots to increase standard built in I/O, or to provide interface to other formats, including SDI, MADI, Dante etc.
- Hydra2 Module allows for further I/O to be connected, and to network audio with other consoles
- 8 x GPI + 8 x GPO built in



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) 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 send & 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)

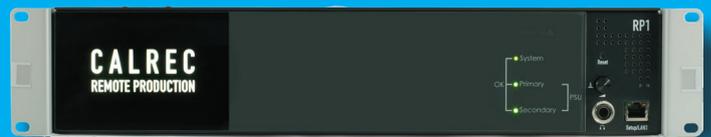


Small soft panel (SSP)

REMOTE PRODUCTION. TAKE YOUR CONSOLE ANYWHERE WITH RP1.

Mix live to air with no boundaries or borders, reduce production costs and increase content output.

Calrec's remote production unit 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 thousands of miles away.



calrec.com

RP1 takes your favourite Calrec console anywhere in the world without ever leaving the studio.



 **CALREC**