RIEDEL

RIEDEL

Welcome

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Dear valued client,

If we at Riedel have learned just one thing after three decades in the broadcast and event technology business, it's that we have to constantly evolve in order to remain the innovative and passionate company that you know us to be.

Our industry experiences disruptive technological change on a regular basis, providing equal amounts of excitement and headache, but also opportunity. And we expect to see even more radical changes over the coming years, both in terms of new technologies like IP and VR, and in how audiences experience and consume content.

The worlds of broadcast, sports, and entertainment are continuing to converge and we see it as our mission to help guide you through these changes, with ideas and customized solutions all from a single source. As a manufacturer and system provider with a 360-degree view, we want to be your partner now and for the future.

We look at technology from the perspective of usability. Our goal is to make life as easy as possible for you. We aspire to create solutions that perfectly fit your needs and expectations, not only in terms of the physical hardware and software, but also for service, expertise, commitment, and passion.

We also understand that the tools that you use to do your job can be complicated and we work tirelessly to create user interfaces that free you from the complex technical details and allow you to be more efficient and effective at telling unique and compelling stories.

As the former Chief Designer of Braun, Dieter Rams said, "Good design is the sum of well-resolved details." We believe that technology should adapt to people and their needs, not the other way around.

We will continue to be innovative. We will continue to be game-changing. We will continue to be by your side, wherever the road leads.

We are over 700 employees in nearly two dozen offices with six engineering hubs worldwide.

We are RIEDEL.



Thomas Riedel



Creating Sustainable Value through Technology Leadership

Riedel designs solutions to meet your highest expectations and demands. That philosophy has been in place since we began nearly 30 years ago. Today, we are focusing on it more than ever, as few industries develop as dynamically as broadcast, media, and entertainment. It is now very clear that IP will be the driving force for the foreseeable future and as technological innovations are changing our market, both manufacturers and users will face new challenges.

We at Riedel have understood the need for a paradigm shift in terms of developing future integrated solutions for video and audio infrastructures, including the next generation of intercom solutions. We offer flexible solutions for today's and future standards in the broadcast environment that are perfectly matched to your needs and expectations. We want to support this challenging paradigm shift to ensure a smooth transition for you into the new world of IP broadcast.

Riedel has always created sustainable value through technological leadership. Hence, all our current solutions are already based on IP architectures. At the same time, we continue to support all the legacy interfaces. With Riedel's "plug and play" feature set, you will be able to continue operating our new systems like you do with our current gear. We are already introducing you, step by step, into this new world of IP-based media infrastructures. These infrastructures and more standardized hardware will help you to reduce operational costs, enhance workflow efficiency, and create more networking opportunities. And this will enable more powerful production and delivery environments.

Our flexible systems offer you an integrated approach with maximum connectivity options on your standard of choice while providing seamless workflows and ease of use. By supporting layer 1, 2 (such as AVB), and 3 (such as AES67 for audio or SMPTE 2022 for video) interfaces, we will integrate all three transport layers into one solution to maintain maximum flexibility and to achieve compatibility at the same time.

We are ready for the future. Our goal is to make your investments safe and to support you on your path towards the brave new world of IP-based media infrastructures.



MEDIORNET Distributed Video Infrastructures for Routing, Multiviewing & Processing

The broadcast media and entertainment industries find themselves in the midst of a massive and disruptive transition from SDI to IP technologies. Over the past decades, SDI has proven to be a reliable and practical standard for the distribution of video, audio and data signals – and it will continue to be an important building block in broadcast facilities and production in the next years. However, IP-based systems have emerged to form a powerful and flexible infrastructure that can accommodate the increasing demands for higher-resolution video and better connectivity. Consequently, IP infrastructures promise a solution for the ever-growing demand for content production, as well as the capacity and flexibility to handleconstantly evolving media formats.

So, yes. IP is the future! But we're not entirely there yet. Until then, we'll continue to live in a world built from SDI bricks. These may be perceived as a barrier to technological progress, but also a solid foundation that provides security and reliance. And this is where Riedel solutions come in: Businesses looking to future-proof their operations are able to choose a progressive approach to the implementation of IP technology that allows them to build on their SDI foundation and overcome the obstacles of the IP transition, at

If you are standing at the SDI-IP crossroads, you may ask yourself: Which technology will get me the right solution, at what cost and at what point in time? Does it have to be full IP right now? What would a transitional period or hybrid solution look like? And, most importantly, who has the skill set to cope with my unique migration requirements? Riedel is here to help you answer all these questions. Our team will design a tailored solution that fits your requirements perfectly, one that can usher your production facility into the future.

MediorNet - Features

the right time and at the right cost.

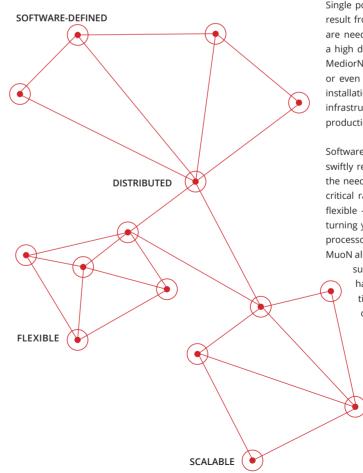
- » One redundant architecture for video, audio, data & intercom
- » Real-time signal distribution, routing and processing
- » SDI/TDM, hybrid or full IP solutions
- » Video and audio processing: Up/down/cross conversion, color correction, J2K & JPEG-XS compression, embedding/ de-embedding, frame sync/store and more
- » Multiviewer with fully flexible and static layouts including rich widget library
- » Supports any combination of network topologies
- » 3rd party router control
- » Software definable future-proof hardware platform

MediorNet – Key Benefits

- » Integration of various infrastructures into one network provides savings in cabling and infrastructure investments
- » MediorNet's flexibility and scalability allow versatile usage and quick adaption to new production needs
- » Signal processing eliminates external glue hardware and again increases the installations flexibility
- » Expandable, software-based feature set makes MediorNet a secure long-term investment
- » Low power consumption

With the introduction of MediorNet more than a decade ago, Riedel has pioneered the distributed approach to video infrastructures by combining signal transport, routing, processing, and conversion in a redundant real-time network. Since then, MediorNet has grown to be the market's most versatile and reliable AV networking backbone. To this day, MediorNet remains the only system that offers all the advantages of distributed, software-defined hardware.

The story of MediorNet's success is a story of continuous evolution. In the past years, the MediorNet family has grown dramatically on both the hardware and software sides, greatly expanding its capabilities and its areas of application. With its great versatility and flexibility, the distributed system excels in event or sports venues, broadcast centers or outside broadcast fleets, and corporate or governmental facilities. That's why today there are millions of MediorNet SDI and IP I/Os deployed in different verticals all around the globe – from small installations to large and complex infrastructures.



MediorNet's futureproof modular structure and innovative app concept enable it to adapt easily to changes in the market: As the industry's standards and expectations evolve, MediorNet evolves with them. Riedel's most recent answer to the challenges arising from the IP transformation is a range of innovative SFP-based technologies to complement MediorNet's MicroN UHD, MicroN, and Compact intelligent signal interfaces and the MetroN core switch. Boasting the highest density on the market, the processing modules and processing hubs MuoN, FusioN and VirtU round out the Riedel video portfolio with full IP solutions. All these versatile devices can serve a wide range of different functions and applications, but are united by two key qualities that have been at the foundation of our philosophy for media infrastructures for years: They're distributed, and they're software-defined.

Distributed video infrastructures bring several benefits to productions on both the operational and system levels. For one, they enable routing of any type of signal from any point to any other without requiring staff to reconfigure any cables. Single points of failure are reduced and operational efficiencies result from the placement of physical I/Os closer to where they are needed. At the same time, distributed topologies allow for a high degree of flexibility on a system architecture scale: With MediorNet, you can easily add single devices to your system or even scale the entire system up from a small to a complex installation. Through this flexibility and scalability, Riedel's video infrastructures are highly customizable to meet virtually any production requirement.

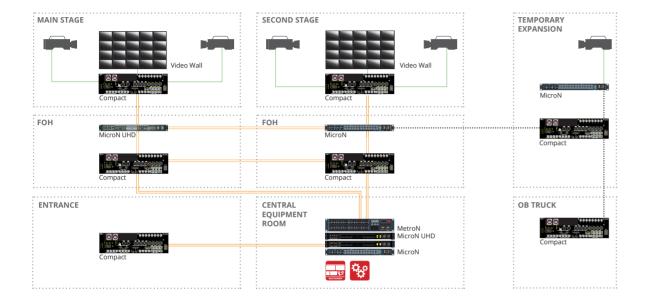
Software-defined hardware devices like MicroNs or MuoNs can be swiftly reconfigured to fulfill a vast range of functions, reducing the need for single- purpose peripheral devices and thus saving critical rack space and associated costs. Operation is easy and flexible – with just a few clicks, you can switch between apps, turning your device from a simple router to an advanced signal processor or multiviewer. Furthermore, app-based platforms like MuoN allow you to grow I/Os in a very linear and organic manner,

supporting a gradual move to IP workflows without radical hardware changes in your equipment room. At the same time, our FPGA-based devices will keep evolving with your demands. With a software-defined MediorNet device, you buy not only what the product is capable of today, but also what it will evolve to in the future.

Within the extended MediorNet family, you'll find all the tools you need for your production – whether it's SDI-centric, IP-centric, or anything in between. Riedel is just the right partner to guide you through this challenging time, providing you with a perfect transition path from legacy SDI to full IP, at your own pace and within your budget constraints.

MediorNet Applications

TDM Solutions for Live Events



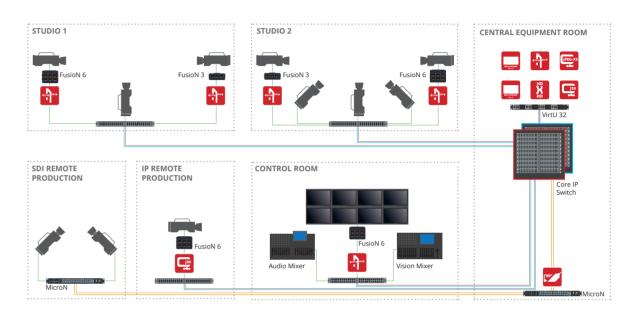
Riedel's robust MediorNet TDM devices are built for the rigors of live events. With its distributed, flexible topology and its innovative app concept, the system is highly adaptable to rapidly changing production needs. This is particularly useful in dynamic environments like festivals, where MediorNet allows to add more devices and apps on the fly and with minimal effort. Need additional video capacity at side stage 2? Just add a MicroN or Compact Pro node, connect it to the network and off you go!

In any live event scenario, MediorNet shines as a legitimate plug & play solution with very short setup times, fast and intuitive configuration, as well as integrated processing and multiviewing capabilities. And whenever you need even greater processing power, the flexible MicroN Apps make advanced processing or multiviewing available just where they are needed.

As an all-round event backbone, MediorNet incorporates various infrastructures in one network and provides an ethernet tunnel for systems including CCTV, internet access, weather monitoring, cashless payment, lighting control and of course intercom.

Not only suitable for large festivals, MediorNet offers a host of advantages to smaller events and venues. These benefit from devices like MediorNet Compact Pro and MicroN providing integrated signal processing at the cost of simple multiplexing point-to-point products.

IP & Hybrid Solutions for TV Studios



Planning to go full IP in your TV studios? The MediorNet family is just the kind of company you've been looking for. Our full IP solutions are scalable, simple, and both space and cost-efficient, offering a wide range of processing functionality. Their flexible and scalable distributed architecture lets you swiftly add not just single devices but entire subsystems like backup glue.

Boasting 64 (UHD) processing channels per rack unit, MediorNet provides the highest density available and, with each channel consuming only a few Watts, is by far the most economical system in the market. Besides its fully open, standards-based and proven interoperability, it easily integrates in Ember+/NMOS-based orchestration and control. And since it is software-defined hardware, you can have multiviewing, processing, and routing in one system with a minimum number of devices but maximum flexibility.

Or are you looking to make a first step towards IP but don't want to abandon all your trusted legacy SDI equipment? Thanks to MediorNet, you won't have to! Our flexible systems allow for hybrid solutions that combine the best of both worlds and support a smooth, incremental transition to IP workflows. The MediorNet IP bridge creates high-speed IP pipes between your SDI infrastructure and your IP network, while the MuoN IP-based SFPs allow you to gradually grow your IP-based routing, multiviewing and processing capabilities.

So the options are varied and versatile. Thanks to its flexibility, MediorNet is the perfect infrastructure for your future-proof studio – whether as a hybrid IP solution based on your legacy SDI equipment, or as your cutting-edge full IP non-proprietary production environment.

Distributed Routing

MediorNet provides versatile distributed routing and gateway capacities for any TDM, IP, or hybrid production environment. Instead of a central router, MediorNet infrastructures are based on an array of decentralized network devices and intelligent nodes. This distributed system intelligence allows the free placement of physical I/Os, which increases the flexibility of any installation while significantly reducing cabling and set-up time. With MediorNet, you get one unified TDM or IP backbone for all your signals. Because MediorNet is not just about video... even audio, intercom, serial data or ethernet can be transported and routed effortlessly to and from any conceivable point.



MicroN UHD & MicroN Standard App

The Standard App provides high-density signal interfaces into the distributed MediorNet TDM ecosystem and allows to build highly scalable audio and video routing solutions. It enables 48/24 SDI video signal port (up to 12G SDI) and 2 MADI audio interfaces and provides 400G/80G backbone connectivity. All audio and video ports come with standard processing features like frame synchronizers, embedders/de-embedders and many more...



MicroN IP App

Delivering seamless gateway functionality, the IP App bridges between distributed SDI and ST 2110 IP networks. The gateway allows to convert video signal from MediorNet TDM to ST 2110-20 and vice versa and audio signals to ST 2110-30/-31 and vice versa. In addition to PTP sync, the MicroN IP App also supports NMOS IS-04 and IS-05 for device discovery, registration and connection management.



MuoN & FusioN Encapsulation/De-Encapsulation Apps

Offering the highest density on the market, these Apps provide highly scalable and flexible audio and video gateways into distributed IP networks. The broad selection of conversion applications enables conversion of various baseband signals to IP and vice versa, including SDI to ST 2110 or ST 2022-6. MuoN & FusioN video gateway applications also come with various add-on options for UHD support and frame synchronizers.



MuoN Audio Routing App

Allowing to re-route and re-format IP audio flows, the MuoN Audio Routing App enables management of different IP audio stream schemes and mappings. It comes with an internal 2048x2048 audio router to send and receive up to 64x ST 2110-30/-31 audio flows with up to 32 audio channels each.

Distributed Signal Processing

Basic signal processing is integrated across all MediorNet devices. These processing functions allow for seamless routing across the decentralized MediorNet network and across different formats. With a wide selection of apps, enhanced processing capabilities like up/down/cross conversion, color correction, or encoding/decoding, can be added to the system just where they are needed. As MediorNet solutions are software- defined and FPGA-based, you buy not only what the product is capable of today, but also what it will be capable of in the future.



MediorNet TDM Integrated Processing

With integrated processing features such as frame store/ frame sync, embedders/de-embedders, test pattern generators and sample rate converters available on all ports, MediorNet minimizes the need for external processing and glue equipment. Through these features, the system provides enormous efficiency gains in all production environments.



MicroN Processing App

The MicroN Processing App adds decentralized and powerful processing capabilities to MediorNet TDM systems. This app is a virtual resource that enables on-board signal processing including 2 channel up/down/cross conversion, 4 channel color correction and a multiviewer with 9 PiPs and 2 screens. Each input signal can be routed to this virtual resource to be processed and played out at any output within the system.







MuoN Up/Down/Cross Conversion Apps

These SFP-based converter apps enable high-quality conversion to/from any HD/3G/UHD HD content. They can be used for incoming feed signal normalization or to provide down-converted HD versions of UHD signals for easy monitoring inside the facility. The MediorNet UDC converters provide pristine image quality scaling and de-interlacing motion adaption and directional interpolation. This app also includes color space conversion between BT.709 and BT.2020 as well as a full color converter.





MuoN & FusioN Encode/Decode Apps

The Encode/Decode Apps for MuoN and FusioN handle conversion to or from IP ST 2110 with JPEG encoding and decoding, while also providing SDI for your inputs and outputs. When used with MediorNet VirtU devices, they boast the highest density in the market with 64 encode/decode channels within a single RU. Additional benefits of the powerful Encode/Decode Apps include low latency, support of HD-3G signals and configurable compression schemes & bitrates.



Up/Down/Cross Conversion



Color correction (for RGB and YCbCr)

Distributed Multiviewing

Multiviewing remains one of the most important processing and monitoring features in any video system – and distributing multiviewer capacities may considerably streamline all associated processes and workflows. For one, the integration into a distributed MediorNet ecosystem enables efficient monitoring of any signal and flexible routing of multiviewer heads to any physical output. For another, the various MultiViewer Apps available for MicroN UHD, MicroN, MuoN and FusioN provide unmatched scalability, flexibility and density, as well as support for 3rd party interfaces like Ember+, NMOS, and TSL, making them just the right choice for any production.



MicroN UHD & MicroN MultiViewer Apps

With access to all distributed MediorNet TDM signals, the MicroN UHD & MicroN MultiViewer Apps make these available on one of up to eight output heads that can be routed to any given output. Both apps feature a rich set of widgets, as well as fully flexible scaling and positioning of elements on the screen.

As MediorNet is distributed by nature, the MultiViewer Apps allow to use system-wide clocks, time codes and counters, audio level meters, images, UMDs and Tallies and provides easy configuration sharing. The MicroN UHD Multiviewer App includes all the powerful features of the MicroN Multiviewer App, while adding UHD support and increasing the input channel amount to 36 PiPs.







MuoN & FusioN MultiViewer Apps

The MuoN & FusioN MultiViewer Apps enable access to any IP video signal in the network to be monitored and fed back to any IP destination. Riedel's microservice approach makes all MuoN and FusioN multiviewers incredibly flexible: There are three different MultiViewer Apps (4x1, 9x1 or 16x1 PiPs) and various widgets and layouts available, allowing to tailor the solution to individual needs. In combination with the VirtU 32, these apps allow to build a highly dense multiviewer with up to 512 PiPs on 32 heads in 1RU.



MediorNet TDM MultiViewer

Remote and Distributed I/O

There are ever-larger distances to be covered between the various parts of modern production chains, e.g. between venue and production truck, between buildings on a campus, or between facilities in different parts of the city. The MediorNet family is fully suited to all those needs: For IP networks, it includes JPEG-2000 or JPEG-XS encode/decode solutions and the compact FusioN devices, which can be installed right at the signal sources and destinations to transfer the signals directly. And for both TDM and IP environments, there are powerful and efficient stagebox solutions to be implemented with MediorNet Compact or FusioN, or the MicroN Point-to-Point App.



MicroN Point-to-Point App

The MicroN Point-to-Point App enables all hardware ports on the device, but limits network size to two devices in one net, making it a cost-efficient solution to connect two devices located in your main production site and your remote facility. The app also enables the hardware to operate standalone – a single MicroN can act as a 12x12 router and audio embedder/deembedder with MADI and sync delay, while also providing video frame sync and delay.



Compact Standard App

MediorNet Compact is a fiber-based stagebox providing enough capacity for bi-directional transport of up to 16 SDI video signals your as well as analog / digital audio signals. On top of that, Compact also supports MADI, intercom and GBit Ethernet signals – ideal for streamlining the infrastructure of any mobile, studio or live event application.





MuoN & FusioN Encode/Decode Apps

Signal compression is a key enabler to exchange feeds between remote sites through low bandwidth connectivity. The JPEG-2000 and JPEG-XS Encode/Decode Apps can be installed on MuoN SFPs or FusioN devices to provide an extremely dense and cost-effective solution. In addition to providing SDI I/Os with encode or decode signals into JPEG-2000 (JTNM TR01), the I/Os are also available as ST2110. This solution is perfect for internal television station monitoring systems, signal contribution or remote production applications.

Meet the MediorNet Family

MicroN UHD





MicroN UHD is the next generation of MediorNet signal distribution and processing devices. Building on Riedel's distributed and software-defined concept, this new node adds more bandwidth, more I/O, more processing power and UHD resolution to the MediorNet platform. The new addition to the MediorNet family provides 400G backbone connectivity for signal distribution over meshed architectures, includes 12G-SDI for native UHD (4k) workflows, and allows reliable operation due to link redundancy.



Features

- » Seamless integration into MediorNet TDM family
- » 4x 100G Highspeed links
- » 8x 12G/3G/HD/SD SDI In1 & 8x 12G/3G/HD/SD SDI Out2
- » 8x 3G/HD/SD-SDI In & 8x 3G/HD/SD-SDI Out
- » 16x 3G/HD/SD-SDI In / Out (switchable)
- » 2x SFP ports (for MADI)
- » Sync reference In / Out (BB, Tri-Level, WC)
- » Powerful integrated processing functions including sample rate conversion, frame synchronizers, test pattern generator and more

¹ Each 12G input disables 3× 3G/HD/SD inputs ² Each 12G output disables 3× 3G/HD/SD outputs





















MicroN



MicroN is software-enabled, app-based hardware that can be many different things: It can be a throw-down signal processor, a simple point-to-point link for up to 12 bi-directional 3G signals, or part of a large de-centralized router - but it can even serve as a MultiViewer or a bridge between MediorNet networks and IP networks!



Features

- » Seamless integration into MediorNet TDM family
- » 8x 10G Highspeed links
- » 12x 3G/HD/SD-SDI In & 12x 3G/HD/SD-SDI Out
- » 2x SFP ports (for MADI)
- » Sync reference In / Out (BB, Tri-Level, WC)
- » Software-defined hardware: 5 Apps available
- » Powerful integrated processing functions including sample rate conversion, frame synchronizers, test pattern generator and more

MetroN



The MediorNet MetroN core router provides intense real-time signal-routing capacity (32x10G/32x4.25G ports) and offers nonblocking switching. The The 2-RU device features switching delays of <40ms as well as high-speed re-routing that allows as many as 1.000 connections to be re-routed in less than a second.



Features

- » 64 auto-sensing ports (32x 10G / 32x 4.25G)
- » 2 ethernet ports plus 1 config port
- » 1 sync In / 2 sync Out

- » Rack-mountable in various positions
- » Redundant power supplies and fan modules
- » <40ms switching delay

Compact





MediorNet Compact is the cost-effective and easy-to-use entry to the world of MediorNet. With a network bandwidth of 50 Gbit/s, MediorNet Compact provides enough capacity for bi-directional transport of up to 16 SDI video signals as well as analog / digital audio signals. On top of that, Compact also supports MADI, intercom and GBit Ethernet signals.



Features

- » Wide array of I/Os, capacity for 16 HD-SDI signals, two MADI streams or GBit Ethernet signals and hundreds of audio channels or intercom ports
- » Powerful integrated processing functions including sample rate conversion, frame synchronizers , test pattern generator and more

MuoN



















MuoN SFPs are pluggable gateway and processing devices that can be used inside the VirtU frames or inside COTS IP switches (Muon A series). The software-defined hardware is available with a range of different input and output configurations, including BNC, fiber, or HDMI (1.4 and 2.0). MuoN SFPs can be configured with a wide range of different apps: A simple change of the software license turns the device into an up/down/cross converter, JPEG- 2000/XS encoder or decoder, an audio router, or even a 16x1 multiviewer.

Features

- » Software-defined platform with up to 3 app spaces per
- » Available with different I/O port configs or as an IP-to-IP SFP without external connectors
- » Powerful processing apps, including Gateway, UDX, Multiviewing, or Encode/Decode Apps with optional Frame Sync and Clean Switching Add-Ons
- » Extremely compact, low weight, low power consumption
- » Field upgradable

FusioN



FusioN 3







The FusioN series of compact standalone I/O and processing devices can be configured with a range of software apps to act as IP gateways, encoders/ de-encoders, or as IP multiviewers. Due to their small form factor and low power consumption, the devices can be placed close to signal sources or destinations, creating powerful efficiencies in any production environment.

FusioN 6







Features

- » Miniature processing frame with 3 or 6 SFP slots supporting 2x fiber links for ST2022-7 hitless redundancy
- » Auto-sensing for HD and UHD formats
- » Mountable to the back of a standard monitor or installed into 2RU bracket housing up to 9/18 frames
- » Powerful processing apps, including Gateway, UDX, Multiviewing, or Encode/Decode Apps with optional UHD, Frame Sync, and Clean Switching Add-Ons

VirtU

VirtU 32



The VirtU IP infrastructure platform can host an extremely dense array of Riedel MuoN SFP processors in just 1RU. The frame can be used as a bulk gateway, as a very dense processing unit or for any combination of gateway and processing. This modular platform allows users to gradually build their key advanced gateway and processing power as their needs grow!



Features

- » 8 independent clusters of 4x MuoN SFP connecting to a dual set of 40G/100G uplinks for ST2022-7 hitless redundancy
- » Allows any mix of MuoN SFPs (per cluster host data rate must be the same)
- » Very high reliability: fully passive signal path from QSFPs to SFPs, redundant power supply

MediorNet Specifications Overview

Features	MediorNet MicroN UHD	MediorNet MicroN	MediorNet MetroN	MediorNet Compact
MediorNet TDM Links	400G (16x 25G)	80G (8x 10G)	50G (12x 4,25G)	320G (32x 10G or 64x 4,25G)
SDI Video I/O	16x in (up to 8x 12G), 16x I/O switchable, 16x out (up to 8x 12G)	16x in (up to 3G), 12x out (up to 3G)	4x in (up to 3G), 4x out (up to 3G), up to 8 optional I/O	
Video Sync	1x I/O switchable, 1x out	1x I/O switchable, 1x out	1x in, 3x out	1x in, 2x out
MADI	2x 64ch (optical or electrical)	2x 64ch (optial or electrical)	2x 64ch (optial or electrical)	-
Ethernet Tunnel	3x 1000/100/10 Mbit/s	1x 1000/100/10 Mbit/s	3x 1000/100/10 Mbit/s	2x 1000/100/10 Mbit/s
Integrated MediorNet Processing	Available on all video ports	Available on all video ports	Available on all video ports	-
MediorNet Apps	Standard App, MultiViewer App	Standard App, MultiViewer App, Processing App, IP App, Point to Point App	-	
Additional Connectivity	-	-	Display Ports, Analog Audio, AES Audio, Serial Interface, GPI Ports	-
Redundant Power Supply	2x Wide Range AC PSU	2x Wide Range AC PSU	Wide Range AC PSU, 12V DC Input	2x Wide Range AC PSU
Power Consumption	200 W	50 W	80 W	175 W
Weight	6.9 kg	5.1 kg	8.2 kg	12.5 kg
Dimensions	482 mm (19") × 44 mm (1RU) × 330 mm	483 mm (19") × 44 mm (1 RU) × 241 mm	483 mm (19") × 133 mm (3 RU) × 241 mm	483 mm (19") × 88 mm (2RU) × 425 mm

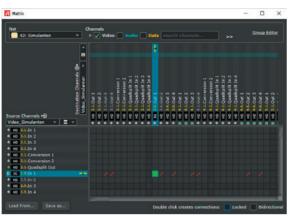
Features	MediorNet MuoN A	MediorNet MuoN B	MediorNet FusioN 3B	MediorNet FusioN 6B
APP types	ST2022-6 and ST2110 - SDI Gateways	ST2110-SDI Gateways, MultiViewer, JPEG-2000 Encode/ Decode, JPEG-XS Encode/ Decode, UDC Conversion,	ST2110-SDI Gateways, MultiViewer, JPEG-2000 Encode/ Decode, JPEG-XS Encode/ Decode	ST2110-SDI Gateways, MultiViewer, JPEG-2000 Encode/ Decode, JPEG-XS Encode/ Decode
I/O types	SDI (2T, 2R), and (HDMI 1T)	SDI (2T, 2R, RT) and IP to IP (PP)	SDI (2T, 2R, RT), Fiber (2T, 2R, RT), HDMI (1T, 1R)	SDI (2T, 2R, RT), Fiber (2T, 2R, RT), HDMI (1T, 1R)
Formats	HD and 3G	HD, 3G and UHD	HD, 3G and UHD	HD, 3G and UHD
Media Networks	1x 10GE with support of ST2022-7	2x 10GE or 25GE depends on APP selection	2x 10GE or 25GE depends on APP selection	2x 10GE or 25GE depends on APP selection
Management and control	in-band	in-band	in-band	in-band
Housing frame	VirtU-48-S , FusioN 3A	VirtU-32	Standalone frame or installaed inside MBR-18-B-F	Standalone frame or installaed inside MBR-18-B-F
Redundant PSU	NA	NA	Optional	Optional
Power Consumption (depends on selected APP)	2w	5-8w	7-14w	7-18w
Noise level	0dBA	0dBA	27.4dBA	42dBA
Weight	.02kg	.02kg	.068kg	.055kg
Dimensions	L: 5.5, W: 1.3, H: 1.3 cm	L: 5.5, W: 1.3, H: 1.3 cm	L: 10.7, W: 5.7, H: 2.3 cm	L: 12, W: 5.7, H: 5.2 cm

Features	MediorNet VirtU-48-S	MediorNet VirtU-32
Housing capacity	48x MuoN A SFPs	32x MuoN B SFPs
Media Networks	48x 1/10/25GE ports + 8x 40/100GE ports	32x 10/25GE ports + 16x 40/100GE ports
Management and control	out-of-band	out-of-band
Redundant PSU	Yes	Optional
Power Consumption	362w max	510w max
Noise level	71.6dBA	70dBA
Weight	8.52kg	4.54kg
Dimensions	L: 43.6, W: 43.8, H: 4.3 cm	L:20.3 , W: 44.8, H: 4.3 cm

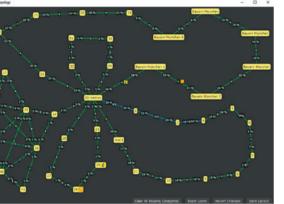
MEDIORWORKS – Intuitive Real-Time Configuration, Control & Monitoring

Riedel's intuitive configuration software MediorWorks enables real-time control and monitoring of MediorNet networks. MediorWorks auto senses the configuration and status of the system it is connected to.

Five windows give easy access to any aspect of the MediorNet installation, all of them visible at the same time. Alternatively, they can easily be accessed via one mouse click on the "Views" window, which is floating above all other windows. The "Device Browser" shows all available nodes, the cards installed in the node and each connector of the specific media card. If a connector is selected, the "Connections" window shows the active connections and how the signal is routed to the destination(s). A "Matrix View" allows for a quick overview of all connections including matrix-style programming. Looking into the "Parameters" window of a link card gives access to the fiber usage of a specific fiber link. In the "Parameters" view of a media card you can see and adjust the signal format, force the input or output to a certain format and configure the processing and conversion features available within MediorNet. Detailed "Logging" and "Alarm" views complete the software's feature set. Elaborate user rights management and user specific view modes allow for easy and secure operation.



Matrix View



Topology View

MediorWorks at a Glance:

- » Auto-sensing no need for manual configuration
- » Real-time monitoring and control of the complete network
- » Intuitive, clearly-managed windows with quick access to any information via list filters
- » Multi-user support
- » User-friendly installer for Windows & Mac OS X
- » Download MediorWorks at MyRiedel (https://myriedel.riedel.net/)



MultiViewer Configuration View

MNSET – MediorNet IP Configuration Software

The MNSet software is a server/client software application that can run on Windows or on Linux platforms. The software includes a discovery mechanism for MediorNet IP products and provides full access to configure, control and monitor each device. The server software can be installed on a PC or Virtual Machine running separated or along side to the client application. Multiple instances of client GUI can run in parallel through an internet web browser.

This software supports IP products including gateways, multiviewers, up/down/cross converters and other IP processing function offered by MediorNet IP solutions. It offers various pages allowing quick monitoring of devices and signals, configuration and upgrades. A simple control panel is also included allowing routing of individual flows or logical sources.

The MNSet User Interface

MNSet at a Glance:

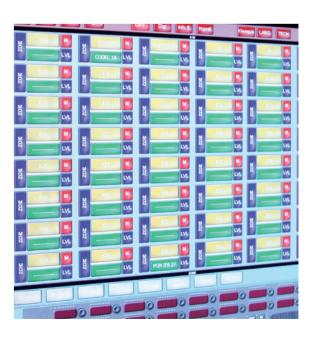
- » Module discovery
- » Device and flow configuration, monitoring and control
- » Easy navigation using search / filtering engines and tagging
- » Simple control panel
- » Device location in the network (LLDP)
- » Routing in group of multiple flows and attributes (Logicals)
- » Bulk configuration possibilities
- » Bulk live update of modules
- » Fast configuration, easy to use
- » Free with the purchase of any MediorNet IP product

Third Party Control Systems

Riedel's MediorNet allows for seamless integration with thirdparty control and monitoring systems. A well-established range of control protocols, including ProBel SW-P-08, Ember+, and SNMP, is implemented by default in MediorNet and enables users to address their specific control and monitoring requirements.

Due to its open design, users have various options to monitor and control MediorNet via third-party solutions. These include L-S-B's VSM, AXON's Cerebrum, BFE's KSC Commander, Atos' BNCS, Skyline's DataMiner and many more.

This open philosophy enables users to integrate MediorNet quickly and easily into existing workflows, while simplifying and optimizing the overall user experience.





RILINK – IP MEDIA WAN The Solution to Globally Connect Venues and Studios

RiLink is our IP-based solution for transferring broadcast signals such as audio and video feeds with a maximum of flexibility providing a channel for each individual media signal as well as for voice and other data communication in parallel. RiLink has some key advantages compared to satellite links since traffic can be sent bidirectionally during the entire event period

rather than only during dedicated time slots in case of a satellite connection. In addition, the Riedel RiLink solution based on our own network infrastructure provides a much more cost efficient service with business class quality and reliability. The result is an integrated, all-round service package that can be customized to your specific requirements.

Features:

Bi-directional:

RiLink connections are always bi-directional, allowing clients to send and receive feeds, access digital archives, or achieve full-duplex communication all in parallel, resulting in a high level of flexibility.

Multi-VPN:

For complex network architectures, several logically separated VPNs can be implemented. This enables a flexible segregation of signals, services or user groups on one physical connection. Thus, any number of bi-directional Audio/Video channels can be handled based on different VLANs..

Latency:

RiLink's latency is provides high quality data connectivity with short data run time as known from fixed networks. This signal propagation time is significantly shorter than any satellite link and signals exhibit significantly less jitter. Within Europe, for instance, signal runtime on the Riedel Network is in the order of 20 milliseconds, whereas a satellite link exceeds 300 milliseconds by far.

Flat-rate billing:

In contrast to satellite links, RiLink is charged at a flat rate for the duration of the event or term. This allows for more precise budgeting and further live, pre-, or post-event processing will never incur extra costs.

High quality:

RiLink provides guaranteed, dedicated bandwidth which is available during the entire event period. However, by implementing priorities for certain services, the available bandwidth can be optimized. Since the connectivity on the MPLS network is any-to-any, IP packets are always taking the most direct path to their target destination, ensuring efficient use of the available bandwidth.

RiLink generates synergies between various communications services including broadcast signals, audio/video feeds, voice communication (intercom/VoIP), data transfer (CRM/SAP) and Internet access.

Reliable:

Versatile:

The Riedel Networks MPLS Backbone is based on a highly redundant network architecture to ensure a high level of availability. For local access to sites or events, RiLink can accommodate different levels of redundancy. The assured availability on Riedel's MPLS core network is 99.999%. For local customer locations, the availability varies between 99 and 99.6% depending on the physical infrastructure and any selected backup options.

Performance Monitoring & proactive trouble shooting:

Riedel operates a Performance Monitoring tool that clients can access to monitor relevant indicators like availability, capacity utilization, jitter and signal run time. Each connection can be monitored via Web Browser or Smartphone App for iOS and Android. In case of any issue, the Riedel Networks 24/7 NOC is located near Frankfurt and available to assist. Trouble-shooting is automatically, proactively initiated without customer input to ensure the fastest possible solutions.

Managed Router CPE from 3rd party provider Managed Router Riebel NETWORKS MPLS Riedel PRTG

RILINK – DIRECT INTERNET ACCESS The Business Class Internet Access for your Event

RiLink Direct Internet Access is a business class connection to the public Internet with guaranteed bandwidth and Quality. The service is available in several flavors, as a transparent service, with a managed router, via the Riedel MPLS network and protected including a Firewall blocking all unwished data streams. The Direct Internet Access service delivers a reliable Internet connection that can be customized to your specific requirements.

Features:

Direct Internet Access - only:

Internet Access without active Network Monitoring and Troubleshooting via DSL, fibre, Ethernet or LTE.

Direct Internet Access - plus:

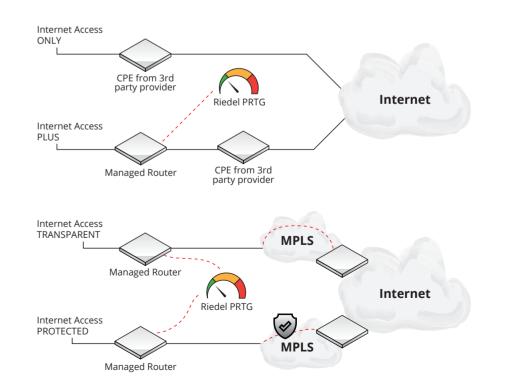
in addition a managed router provided by Riedel Networks with active Network Monitoring.

Direct Internet Access - transparent:

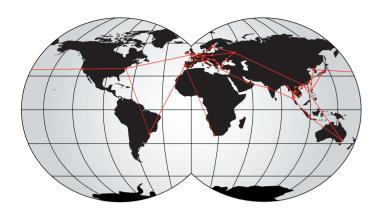
Internet Access via the Riedel MPLS network directly to one of the Internet peering points, fully managed and monitored by the Riedel NOC team.

Direct Internet Access - protected:

In addition to the Rilink – Direct Internet Access transparent service, all data traffic, in coming and outgoing, is routed via a Firewall to block all fraudulent and blacklisted traffic streams.



Riedel's Global Fiber Network



How does RiLink work?

Riedel's global network service is based on a dedicated, global MPLS backbone, owned and operated by Riedel Networks GmbH & Co. KG. The network has a meshed structure and provides the foundation for global Multi Protocol Label Switching (MPLS) based connectivity, providing maximum reliability and minimum latency. Unlike solutions realized using the Internet, the Riedel global network service provides a secure and fully transparent end-to-end solution with dedicated connections and guaranteed bandwidth, quality and availability.

QoS mechanisms throughout the entire backbone meet maximum requirements with regards to transmission quality (latency, bit error rate, jitter), reliability (guaranteed bandwidth, redundancy), security, availability and delivery time.

RiLink References (selected)

Moving event locations

- ESC 2019 Tel Aviv, provision of several redundant Internet links, telephone services and DDoS attack prevention.
- Nations' Village @ Olympic Winter Games Pyeong Chang 2018, delivery od a high bandwidth and performant Internet
- Live Nation @ Wireless Festival Germany 2019, high bandwidth and performant Internet Access for complementing services e.g. Intercom, VoIP, WLAN and CCTV.
- VideoART @ 5-Continent-Congress Barcelona 2018, live transmission between conference centre and clinic location over a Layer 2 EVPL connection.
- BMC UK @ football match England vs. Lithuania 2017, transport of A/V feeds over Layer 2 EVPL connection between Lithuania to England
- RTL @ F1, transmission of live HD 1080i signal on H.264 from every race track to Cologne broadcast station with embedded audio channels plus data service, including off-peak usage in case of no video signal transmission
- NOS @ Olympic Winter Games 2014 in Sochi, transmission of 2x live HD 1080i signals on H.264 from Sochi MCR to Hilversum broadcast station with 16x audio channels embedded plus 400M data service for file transfers
- ESPN @ X-Games Tignes 2013, transmission of three primary live feeds (world feeds, english, non-english and non-sponsor) and two additional camera feeds for the on-site studio show from Tignes (in the Alps) in France to ESPN IBC in Bristol plus data service in parallel

Long term contracts

- WDR @ Cologne, connecting the WDR foreign offices in Warsaw, Moscow, Brussels, New York, Washington and Paris to the Cologne headquarter for transfer of live and preproduced content.
- RTL @ NewYork, connecting their US foreign office of RTL group to Cologne broadcast station via Ethernet for live HD 1080i signal transmission and for file transfer during off-peak usage
- RussiaToday @ Berlin, connecting their German foreign office of Russia Today to Moscow broadcast station via MPLS for live HD 1080i signal transmission and for file transfer during offpeak usage

How to get a quote for your application

Please contact your Riedel sales manager or send the following information to rilink@riedel.net:

- » Addresses of the locations
- » Starting time and duration of the event
- » Quantities & formats of video signals
- » Compressed or native signal transport
- » Quantities & formats of audio signals» Quantities & formats of intercom signals
- » Desired bandwidth and type of IP services



Customer: House of Switzerland, P&G and others
Project: Nations Village Winter Games 2018 in

Pyeongchang

Task: Internet and MPLS for media representatives

and broadcasters



Customer: ITR
Project: DTN

sk: MPLS and public internet for up to 60 live

streams on major social media platforms and private video streams to teams and organizer



Customer: FBII

Project: Eurovision Song Contest Tel Aviv 2019
Task: Provision of redundant internet links, telephone

services, VoIP, USOC and cybersecurity



Customer: RTL (Germany)

Project: Formula One Season (since 2011)

Task: Transmission of live broadcast signals from the racetrack, provision of archive access & intercom connectivity to main facility in Cologne (Germany)



ARTIST Ecosystem The Advanced Communications Platform

Artist is a decentralized, scalable digital intercom network that provides reliable communications and audio signal distribution for any audio or intercom application.

An Artist system can be anything from a single Artist frame to a vast, fiber-based and remotely connected network of interconnected nodes. Each modular node contains client cards that accept and distribute different types of signals including SMPTE 2110-30/31 (AES67), VoIP, DANTE, AVB, MADI, AES3 and analogue audio. At the present time, Artist is the only intercom platform that talks all audio standards – and its modular architecture allows for the easy accommodation of future standards.

Artist easily scales to fit any application from small theatres to OB vans to multi-national broadcast centers and global events. The non-blocking Artist system can be expanded from 8x8 to 1024x1024 ports and, via inter-node trunking, can connect several thousand subscribers within a single ecosystem. Scaling an Artist system is as easy as adding new client cards to an existing node or adding additional nodes (Artist-32, Artist-64, Artist-128, Artist-1024). This flexibility and modularity make Artist solutions futureproof and enable the system to scale to the demands of any project.

Artist infrastructures natively allow for a high degree of decentralization and the flexible placement of nodes, considerably reducing the wiring and setup costs for any installation. The decentralized network structure also enhances the system's reliability as its dual ring fiber optic network topology provides full redundancy. On top of that, all internal modules within the Artist frames are hot-swappable, the frames themselves have dual power supplies, and the system configuration is stored within each node

But a comms platform is not just about the nodes. The user experience of any intercom system is defined by its control panels – and Artist is the only intercom system to employ the SmartPanel concept of app-driven user interfaces. Riedel's SmartPanels provide multiple connectivity options, allow for software-definable workflows, and combine a vast range of features into a single user interface. Plus, only Artist seamlessly integrates with the award-winning Bolero wireless intercom system to provide flexible and reliable wireless communications to complement the wired intercom panels.

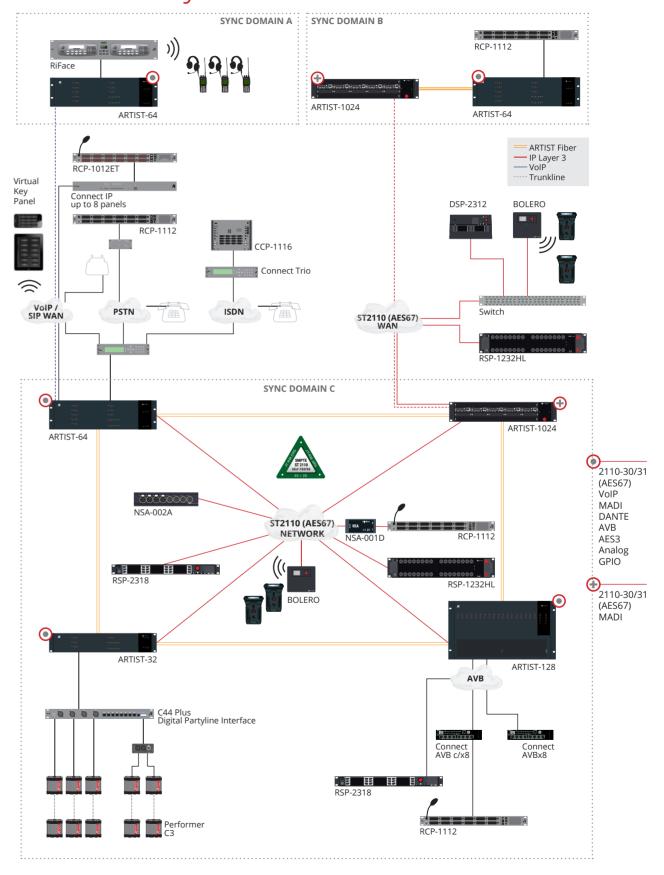
ARTIST – Key Benefits

- » Decentralized, masterless architecture with a fiber ring reduces wiring and installation costs
- » Fastest configuration software (Director)
- » Seamless integration of Bolero wireless intercom and SmartPanel user interfaces
- » Compatible with the latest market requirements on IP (ST2110 and NMOS) and JT-NM tested

Any comms solution is only as good as its configuration software – and the Director software is just one more differentiator that sets Artist apart from the rest. Powerful and user-friendly, Director offers industry-leading configuration upload times and an intuitive interface with drag-and-drop simplicity that gets people talking right out of the box. With Director, Artist is the only intercom that can load a full configuration in just a few seconds – even in large systems with hundreds of users.

Artist has seen countless additions to its feature set, on both the hardware and software side, as it has continued to evolve in response to industry developments. And now, its modular structure has facilitated a swift reaction to the paradigm shift from baseband to IP-based media infrastructures, making Artist the first fully SMPTE 2110-30/31 compliant intercom system available on the market.

ARTIST – System Overview



ARTIST-1024 The Next Piece of the Puzzle

Artist-1024 is the next evolutionary step in the continuous development of the Artist intercom ecosystem. This new node complements the Artist family, expanding its capabilities with a focus on IP-based installations and higher port densities. With Artist-1024, full compatibility is guaranteed. The node can be effortlessly added into any Artist fiber ring and, just like its siblings Artist-32, Artist-64, and Artist-128, is easily and intuitively configured within the Director software environment.

As its name suggests, the Artist-1024 node boasts 1024 non-blocking ports in just a 2RU frame size. This unparalleled port density significantly reduces rack space requirements and creates powerful efficiencies in any application where space is a critical factor. This latest addition to the Artist ecosystem introduces a range of technical innovations centered around a software-definable Universal Interface Card (UIC). This entirely new type of interface card combines networking, mixing, and management and can be configured to act as a SMPTE 2110-30/31 (AES67) or MADI subscriber card, or as an Artist fiber/router/processor card. Changing the connectivity type is as easy as reconfiguring the UIC with the click of a button in Director, Artist's powerful configuration software. With Director, this reconfiguration is completed within seconds!

The frame provides ten bays for UICs, with two being reserved solely for routing and networking UICs. The remaining eight bays can be flexibly equipped with UICs of various configurations to provide subscriber connectivity. The integral mixer on each subscriber card can be scaled from 8 to 128 ports per card and can access all 1024 channels of the Artist backbone. Since UICs support internal sample rate conversion, each card can be connected to a different clock environment (MADI, PTPv2).

Artist-1024 has been architected with redundancy at its core. By supporting multiple redundancy schemes including manual N+1, NIC, and SMPTE 2022-7, it can provide an unprecedented degree of robustness and reliability. In addition to SMPTE 2022-7-compliant stream redundancy, there are several redundancy mechanisms in place to avoid single points of failure: With the manual N+1 subscriber redundancy scheme, any SIC (Subscriber Interface Card) can take over the configuration of any other subscriber card, while the NIC scenario allows a seamless handover between the two routing cards of a single node. As expected from a professional system, all control logic and data links within the frame are redundant. The advanced frame design provides additional security with two load-sharing PSUs and a fan module with redundant fan units. The sum of these measures equals the most comprehensive comms safety net available on the market.



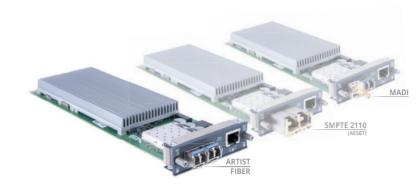
The frame design is rounded off by an e-ink display that provides configuration and licensing information, even when powered off. Artist-1024 also offers flexible mounting options: The frame can be mounted with an offset of 0, 25, 50 or 75mm and can be rotated in the rack. If required, the ventilation can be reversed to provide efficient cooling in any situation.

Artist-1024's UIC concept and its versatile licensing scheme give you unprecedented flexibility, scalability, and capability. With the ability to move ports between subscriber cards and flexibly assign connectivity types as needed, you can easily customize individual nodes, and the entire system, to fit the needs of your specific application. With Artist-1024 you get more than just full IP standards compliance and massive port densities. What you get is the full power of the sophisticated Artist intercom ecosystem, a versatile and future-proof solution that continues to evolve with industry developments and standards. With Riedel, you have a partner on your IP journey who is committed to push the boundaries of innovation and is passionate about shaping the future of production communications.

ARTIST-1024 – Key Benefits

- » 2RU frame with up to 1024 ports
- » High-density Universal Interface Cards (UIC) with up to 128 ports per card
- » Software-defined UICs can switch between SMPTE 2110-30/31 (AES67), MADI or router/processor/Artist fiber
- » New 2022-7 and N+1 redundancy schemes
- » Sample rate converter available on each UIC input
- » Flexible licensing scheme
- » Advanced frame design with reversible front-to-rear cooling

The Universal Interface Card (UIC)



What's a UIC?

- » Combines networking, mixing, and management
- » Configurable as a
- SMPTE 2110-30/31 (AES67)
- MADI subscriber card
- Artist fiber/router/processor card
- » Reconfigurable with the click of a button in Director

One client card, many connectivity types:

The software-definable Universal Interface Card (UIC) with flexible licensing

Licensing Scheme

Artist-1024 introduces a new customer-friendly, flexible licensing scheme with frame-level licensing instead of connectivity-type licensing. Each node starts with a Virtual Artist Matrix (VAM) license which includes a defined number of ports (16 to 1024) that can be freely distributed across the node's subscriber cards. Additional ports can be licensed with Virtual Artist Expansion (VAE) licenses. Besides these node-locked licenses, there are also Flexible Virtual Artist Expansion (FVAE) licenses that allow for fast (re-) configuration of the system by simply moving capacities between nodes. Since the licensing model does not involve connectivity, systems can be freely altered to meet any connectivity requirement.

VAM = Virtual Artist Matrix License

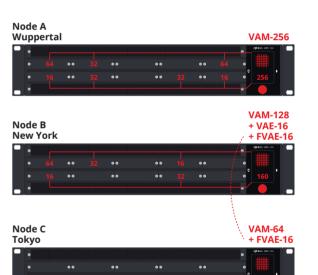
- A cost-beneficial bundle of ports (16, 32, 64, 128, 256, 512, 1024)
- Node-locked to a 1024 node
- One VAM per node

VAE = Virtual Artist Expansion License

- Adds ports to a VAM in 16 port blocks
- Node-locked to a 1024 node
- Multiple VAEs per node

FVAE = Flexible Virtual Artist Expansion License

- Adds ports to a VAM in 16 port blocks
- Can be moved between 1024 node
- Multiple FVAEs per node



ARTIST at a Glance

1024

- 2 RU frame with up to 1024 ports
- Flexible licensing scheme
- Multiple independent sync domains per node
- New 2022-7 and N+1 redundancy schemes
- E-ink display
- Reversible front-to-rear cooling

Universal Interface Card (UIC)

- Software-defined hardware that can be used as a router/processor, Artist fiber, MADI or SMPTE 2110-30/31 (AES67) device
- Scalable from 8 to 128 ports



32 / 64 / 128 / 1024

- Decentralized
 architecture with a
 fiber ring allowing rapid
 merging
- Seamless integration of Bolero
- SmartPanel user interface
- Supports current IP standards and architecture will support future standards
- Fastest configuration software
- Richest feature set (key functions, logics, options, etc.)
- Powerful configuration tools (MCR, RRCS, SNMP, Trunking)







32 / 64 / 128

- Unparalleled connectivity:
- SMPTE2110-30/31 (AES67)
- VoIP
- MADI
- DANTE
- AVB
- AES3
- Analogue
- GPIO

Intercom System

Product name	Artist Intercom
Non-blocking subscriber ports per ring	1024
Artist nodes per ring	50+
Trunked Artist rings	25+
Subscriber ports in trunked systems	6000+
Redundant fiber switchover	Fully automatic & seamless

Intercom Nodes

Product name	ARTIST-32	ARTIST-64	ARTIST-128	ARTIST-1024
Subscriber ports per node (min - max)	8-32	8-64	8-128	16-1024
Subscriber ports per card (min - max)	8	8	8	8-128
CPU / NIC card bays	2	2	2	2
Client / subscriber card bay	4	8	16	8
GPIO card bays	Client card bays	Client card bays	Client card bays + 2	4
Sync card / module bays	2	2	2	2
Display	-	-	-	E-ink
Mounting options	19" Rack Ears	19" Rack Ears	19" Rack Ears	19" Rack Ears (offset 0, 2.4, 5, 7.5cm) 180° rotatable
Width	19" / 483mm	19" / 483mm	19" / 483mm	19" / 483mm
Height	2RU / 88mm	3RU / 130mm	6RU / 264mm	2RU / 88mm
Depth	370mm	370mm	370mm	404mm
Weight (inc. PSUs and fan units)	5,15kg	5,6kg	11,8kg	6,3kg
Airflow direction	side-to-side	side-to-side	front-to-rear	front-to-rear (reversible)
Redundant PSUs	✓	✓	V	V
Hot swappable PSUs	V	V	V	V
Load-sharing PSUs	-	-	-	V
Input voltage	90-264 VAC, 50/60 Hz	90-264 VAC, 50/60 Hz	90-264 VAC, 50/60 Hz	85-264 VAC, 50/60 Hz
Power consumption	max. 200W	max. 250W	max. 400W	max. 225W

Interface / Subscriber Cards

CPU-128F	CPU-128F	CPU-128F	UIC-128
AES67-108	AES67-108	AES67-108	UIC-128
MADI-108	MADI-108	MADI-108	UIC-128
VoIP-108	VoIP-108	VoIP-108	-
DANTE-108	DANTE-108	DANTE-108	-
AVB-108	AVB-108	AVB-108	-
AES-108	AES-108	AES-108	-
ANALOG-108	ANALOG-108	ANALOG-108	-
GPI-108	GPI-108	GPI-108	-
	AES67-108 MADI-108 VoIP-108 DANTE-108 AVB-108 AES-108 ANALOG-108	AES67-108 AES67-108 MADI-108 MADI-108 VoIP-108 VoIP-108 DANTE-108 DANTE-108 AVB-108 AVB-108 AES-108 AES-108 ANALOG-108 ANALOG-108	AES67-108 AES67-108 AES67-108 MADI-108 MADI-108 MADI-108 VoIP-108 VoIP-108 VoIP-108 DANTE-108 DANTE-108 DANTE-108 AVB-108 AVB-108 AVB-108 AES-108 AES-108 AES-108 ANALOG-108 ANALOG-108

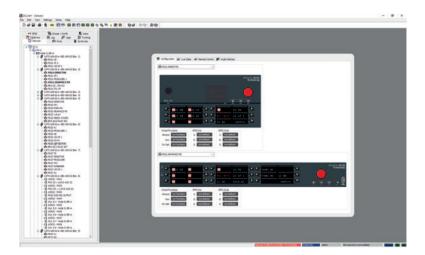
Redundancy

CPU / NIC	✓	✓	✓	✓
Dual Fiber Ring	✓	✓	✓	✓
N+1 Redundancy	-	-	-	✓
SMPTE 2022-7	-	-	-	V

IP Networking & Connectivity

SMPTE 2110-10 / -30 / -31	V/V/V	V/V/V	V/V/V	V/V/V
SMPTE 2110-30	Level A & B	Level A & B	Level A & B	Level A & B & C
PTP	IEEE 1588:2008	IEEE 1588:2008	IEEE 1588:2008	IEEE 1588:2008
ST-2059-2 / Media Profile / AES R16	VIVIV	VIVIV	VIVIV	VIVIV
IP Layer3 WAN	VoIP, SMPTE 2110-30/31	VoIP, SMPTE 2110-30/31	VoIP, SMPTE 2110-30/31	SMPTE 2110-30/31
IGMPv3 / SSM	VIV	VIV	V/V	VIV
JT-NM TR-1001:1	✓	✓	✓	V
DHCP	✓	✓	V	-
DNS	✓	✓	✓	-
NMOS IS-04 / -05	VIV	VIV	V/V	VIV
SDP import / export	VIV	VIV	VIV	VIV
In-band / out-band control	-/ v	-/ v	-/ v	VIV

DIRECTOR Intuitive Configuration Software



Access, set-up and control of any aspect of an Artist system consisting of hundreds of intercom ports on multiple nodes is achieved using the comfortable and intuitive Director configuration software.

Director provides the facilities, look and feel of most Windows software products, so that the basic navigation, location and operation of the standard features are familiar. It's quick to learn and extremely convenient to use. Configurations are easily edited by drag-and-drop. Programmable logic functions provide the possibility to handle even complex production requirements with ease, while freely definable markers allow a customized control of the system. With the Audio Patch function, all internal routing and DSP aspects of any control panel of an Artist system can be configured and saved remotely reducing a considerable amount of time in set-up and service of the system.

A high degree of monitoring and diagnostic features are implemented allowing maintenance personnel to quickly solve a problem or to assist a user – even in complex IP installations. This is achieved by the real-time Crosspoint View function in conjunction with the full remote control of each aspect of the system. Control panels and matrix activities can be logged for later inspection. Multiple PCs can control and monitor the system using the Ethernet connection on the network interface controllers. All PCs show the online configuration status simultaneously; and each can access and change the configuration according to its user rights. Since the configurations are stored within each networking Artist frame, the system's reliability won't be affected by the failure of a configuration PC.

An extensive user level control allows for setting up user groups with dedicated access rights to the system. Not only whole configurations, but also parts of configurations can be saved and reloaded as "partial files". This allows system setups for different types of productions to be easily stored and recalled.

DIRECTOR - Key Benefits

- » Intuitive user interface
- » Easy to learn and use
- » Drag-and-drop configurations
- » Real-time status of the entire system
- » IP configuration and IP statistics for ST2110 networks
- » Multiple PC access with user level control
- » Configurations are stored in the matrix
- » Remote control
- » Real-time cross point view» Versatile IFB tools
- » Audio patches
- Dragrammable logic fun
- » Programmable logic functions
- » Free definable markers

Add-on Features

The modularity of the Artist platform is also implemented with the Director configuration software. The powerful Director configuration tool can be further enhanced by modular software add-ons like RRCS, Trunk Navigator, Partial Files, Audio Video Router or the Master Control Room.

Partial Files

The Partial Files add-on saves not only entire configurations but can also save just a portion of a configuration. These "partial files" can be reloaded so that system setups for different types of productions can be easily stored and recalled.

Audio/Video Router Interface

With this optional software package, the system continuously monitors up to two external routing switchers and provides conference-based tracking of your Artist intercom system.

Events/Scheduler

The Events/Scheduler add-on is a versatile tool to automatically trigger pre-defined events (including MCR conferences) or configuration changes.

Master Control Room

With Master Control Room, the individual conference intercom systems or 4-wire conference systems found in many broadcast installations can be easily replaced and integrated into the main intercom system. An integrated scheduler allows for preprogramming the start of regular conferences, e.g. the daily editorial conference at 9:00 am.

Riedel Router Control Software (RRCS)

The Riedel Router Control Software (RRCS) provides a universal XML interface for enabling third party router control systems to control Riedel Artist Intercom systems. The RRCS Software features an expanded set of XML commands for the software to allow for an even deeper integration of external third party control systems and Artist.

Trunk Navigator

Riedel's Trunk Navigator Software enables you to comfortably network geographically seperate Artist Intercom systems by dynamically allocating audio trunk lines between their locations. This way, several thousand subscribers can be connected within a single ecosystem. The trunk lines can be established with ATM, ISDN, VoIP, digital leased lines or analog land lines. The redundancy design enables the software to run on two computers simultaneously and switch seamlessly from one computer to the other in the case of a failure.

ACTOR - RTS®/Telex® Trunking Interface

The Riedel Actor is a revolutionary solution that allows intelligent trunking between Riedel Digital Matrix Intercom systems and existing RTS*/Telex* intercom installations (using Trunkmaster version 8.71). It provides seamless communications between both systems. This includes all point-to-point connections with port alpha transfer and tally as well as IFBs, group calls and conferences (partylines). Actor helps to secure previous intercom investments and enables customers to proceed in future intercom installations with an Riedel Digital Matrix Intercom solution.

RTS & Telex are registered trademarks of Bosch Security
Systems Inc.

RIEDEL SmartPanels – The Multifunctional User Interfaces

Riedel's SmartPanel concept decouples a keypanel's capabilities from its hardware and turns it into a generic device on which you may install apps for different purposes. Therefore, you do not only buy what the panel is capable of today – but benefit also from what the panel will be capable of in the future.

Riedel SmartPanels - Features

- » SmartPanel concept turning an Intercom panel into a true multi-purpose device
- » High-resolution, sunlight-readable multi-touch displays
- » Ergonomic key design suited for any workflow
- » Individual listen level controls to adjust the level of each talk key
- » Wide range of connectivity options
- » Full support of SMPTE 2110-30/31 (AES67)



1200 Series SmartPanels

Building upon the technology that powers Riedel's SmartPanel App-driven user interfaces, the new 1200 series represents a quantum leap forward in workflow flexibility, power, and connectivity. Featuring multiple truecolor multi-touch displays, 32 innovative

hybrid-lever keys, and the ability to easily adapt to the various workflows in use today, this new panel is poised to allow you to work the way you always have while opening up entirely new possibilities. Completely new from the ground up, the new 1200 Series SmartPanel RSP-1232HL (Hybrid Lever) is Riedel's smartest SmartPanel yet.



2300 Series SmartPanels

With the 2300 Series, Riedel introduced



the world's first SmartPanel. Its unique feature set includes high-resolution, multi-touch color displays, premium quality stereo audio, as well as a multilingual character set. The 2300 Series is an "open platform" for applications that is natively fully compliant with SMPTE-2110-30/31 (AES67) and is also AVB and AES3 compatible. The 2300 Series panels are essentially two devices in one. In addition to the Intercom app, the MediorNet Control App allows to route and control audio and video signals within MediorNet media networks.

RIEDEL Intercom Panels – The Easy-to-operate Key Panels

No matter which Riedel Intercom panel you choose: You can be sure to get easy-to-operate, high-tech control panels with broadcast quality audio, minimum dimensions and outstanding design made through quality German manufacturing.

Riedel Intercom Panels - Features

- » High-resolution, high-contrast displays designed for optimal readibility in different work environments
- » Ergonomic key design suited for any workflow
- » Individual listen level controls to adjust the level of each talk key
- » Digital matrix connectivity (AES3, AVB mSMPTE 2110-30/31 (AES67))
- » 3x GPI In / 3x GPI Out
- » 2x Analog In / 2x Analog Out
- » 2x Headset connections
- » Ultra-compact design with integrated power supply



1100 Series Panels

The 1100 Series is Riedel's high-tier control key panels for Riedel digital matrix

intercoms. Following Riedel's intuitive concept of integrated displays in the panel keys, the 1100 Series features high-res color OLEDs. With 65,000 colors and a resolution of 140 dpi, these new displays provide excellent readability and are able to show highly detailed characters and icons of up to 24x24 pixels. The panel provides individual rotary encoders to adjust the listen level of each talk key.



Riedel Virtual Panels

The Riedel Virtual Panels allow a regular computer or a mobile device to function as an intercom control panel in combination with any Riedel digital matrix intercom system. The communication between the matrix and the virtual panel is handled via the VoIP-108 G2 client card.







	1200 Series SmartPanel	2300 Series SmartPanel	1100 Series Panel
Features			
Displays	High-resolution sunlight readable true color TFT (touchscreen)	High-resolution sunlight readable high-color TFT (touchscreen)	High-resolution multi-color OLED (in-key)
Кеу Туре	Hybrid lever (lever with integrated rotary encoder)	Pushbutton (with touchscreen)	Pushbutton (with integrated display)
Individual Volume Control	✓ (integrated rotary for each key)	✓ (touch gesture)	✓ (rotary for each key)
Sidetone Adjustment	✓ (via secondary rotary)	✓	✓
Key Banks	✓	✓	✓ (Shift Pages)
Maximum Characters (per key)	8 (main title) 16 (subtitle)	When connected to Artist G2: 8 when connected to Artist-1024: 8 (main title) 16 (subtitle)	8
Icon Support	✓	✓	v
Function Keys	Touch-enabled Info Display; context sensitive secondary functions per key	Headset/panel mic, Mute, Shift page, Menu	Headset/panel mic, Shift page, Configurabled F1/F2 keys, Options
Digital Matrix Connection	SMPTE 2110-30/31 (AES67) optional: AES3, VoiP	SMPTE 2110-30/31 (AES67), AES3, AVB, optional: VoIP	AES3, optional: SMPTE 2110-30/31 (AES67), AVB, VoIP
Analog In/Out	2 / 2 (RJ45)	2 / 2 (RJ45)	2 / 2 (9-pin female D-sub)
GPI In/Out	3 / 3 (9-pin female D-sub)	3 / 3 (9-pin female D-sub)	3 / 3 (9-pin female D-sub)
Headset Connections	2 (XLR4, RJ45)	2 (XLR4, RJ45)	2 (XLR4, 9-pin female D-sub)
Connectivity	Matrix: BNC, RJ45 Ethernet: 2x RJ45, 2xSFP	Matrix: BNC, RJ45 Ethernet: 1x RJ45	Matrix: BNC, RJ45
Loudspeaker	RSP-1232HL: 2 (stereo, full-range) RSP-1216HL: 1 (stereo, full-range)	1 (full-range)	1 (full-range)
Supported Character Sets	Latin Cyrilic Kanji Katakana	Latin Cyrilic Kanji Katakana	Latin Cyrilic Kanji Katakana
Types			
Rack-mount	RSP-1232HL (32 keys, 2RU 19", depth: 95 mm / 3.7")	RSP-2318 (18 keys, 1RU 19", depth: 79 mm / 3.1")	RCP-1112 (12 keys, 1RU 19", depth: 80 mm / 3.2")
	RSP-1216HL (16 keys, 2RU 19", depth: 95 mm / 3.7")		RCP-1128 (28 keys, 2RU 19", depth: 80 mm / 3.2")
Expansion		ESP-2324 (24 keys, 1RU 19", depth: 79 mm / 3.1")	ECP-1116 (16 keys, 1RU 19", depth: 80 mm / 3.2")
Desktop		DSP-2312 (12 keys)	DCP-1116 (16 keys)
Commentary			CCP-1116 (16 keys)
Software Licenses			
Intercom App	V	V	-
AES3 License Add-On	V	-	
AES67 4-Wire License Add-On	v	-	-
MediorNet Control App	-	V	-
Control Panel App	V	-	
1 F			

1200 Series SmartPanel



Building upon the technology that powers Riedel's SmartPanel app-driven user interfaces, the new 1200 Series SmartPanels represent a quantum leap forward in workflow flexibility, power, and connectivity. Featuring multiple full-color multi-touchscreen displays, innovative hybrid lever keys, the ability to leverage apps for multifunctionality, and the ability to easily adapt to the various workflows in use today, these new panels are poised to allow you to work the way you always have while opening up entirely new workflow possibilities.

Completely new from the ground up, the 1200 Series SmartPanels are Riedel's smartest panels yet! The SmartPanel concept decouples the panel's capabilities from its hardware and turns it into a generic device on which customers can install different apps to enable different capabilities. With a Riedel SmartPanel, you not only get what the panel is capable of today – but also what it will be capable of in the future.

The 1200 Series Intercom App supports multiple workflows. Some comms users prefer a "Talk/Listen" workflow where the user chooses what to listen to from an initially silent panel. Other users prefer a "Talk/Mute" workflow that starts with a panel that broadcasts everything, with the users selecting which signals to turn off. Users can decide which mode they prefer on a per-panel basis. New features that further enhance the panel's ease of use include Riedel's new Logical Groups concept. Logical Groups allow users to choose custom colors for the key labels or the LED rings around the keys. Each key label has an 8-character main label, a 16-character sub label, and user-defined icons. Other icons provide information about the state of each key at any point in time. The "open mic", "muted key", "incoming beep", or "port busy" prompts are easy to read and understandable at a glance. Users can get as much or as little information about any given key as needed.

Connectivity is king at Riedel. The new panels take advantage of the AES3 digital connectivity that Riedel has always used along with SMPTE 2110-30 (AES67) connectivity. AES67 connection is provided via fiber SFPs or RJ45 connections, creating a variety of daisy-chaining and redundancy options to realize extraordinary cabling flexibility and resilience. Stereo speakers optimized for

high speech intelligibility and audio fidelity maintain a balanced sound even at high volume levels. Other include front-panel mic mute and sidetone adjustments, front/rear USB ports, Bluetooth and NFC connectivity, GPIO and 4-wire ports.

With the new **Control Panel App**, third-party control, monitoring, and automation systems can be adapted to the SmartPanel's easy-to-use and highly intuitive user interface. Its feature set is surprisingly simple but incredibly powerful. Users can trigger actions in third party systems with the panel's keys and rotaries, and get visual feedback on configuration status and changes via colors, labels, and symbols on touchscreens and LEDs. The Control Panel App is built on open NMOS standards for easy interoperability and scalability. Key to this is the NMOS IS-07 standard which allows the exchange of event/state information (e.g. the press of a button or the color of an LED) across systems of different vendors.

Uniting powerful intercom and control functionalities in a single keypanel, the 1200 Series SmartPanels deliver a truly unique combination of capabilities that empowers users while saving valuable rack or desk space. The software-defined SmartPanels are set to keep up with new technologies and workflows in the dynamic environments of broadcast, event production, and Pro AV, as their capabilities continue to evolve with industry demands.

The smartest SMARTPANELS™



RSP-1216HL



BACK VIEW





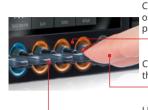
Front view

- 1 Logical groups:
- Choose custom colors for key labels or LED rings
- High-resolution, bright color, sunlight readable TFT displays with multi-touch control
- 3 2× multi-touch color key displays
- 32/16 hybrid lever keys with rotary encoder & LED key rings
- NFC / Bluetooth connection (future use)
- 6 Front USB connector
- Rotary encoder (sidetone control & menu navigation)

Back view

- 8 Power supply
- 2x SFP slots (AES67/ethernet)
- Rear USB connector
- MicroSD card slot
- 2× ethernet connectors (AES67/ethernet)
- Expansion / management port (future use)
- Artist matrix connector (AES3)
- (AES3)
- **(**6 DisplayPort (future use)
- GPI input/output connectors
- ② 2× analog 4-wire input/output connectors
- 2× headset connectors

Unique new key design: The Hybrid Lever Key



Combines lever and rotary into one single key: control countless parameters with one key

Comfortably rest your fingers on the lever, always ready to talk

LED ring allows for easy grouping of keys based on colors

Full color, high-resolution, sunlight readable touch screen



Info Display & Key Banks

No mixing of "operating mode" and "menu mode"

Stay fully operational (i.e. you do not lose access to your intercom keys) when accessing additional settings or menus

Find additional information and navigation for your current working context (e.g. key banks)



Create one page with all relevant keys for your your show rehearsal



Quickly change to all relevant keys for your for your live setup with just one tap
Users can still see status messages (open mics, incoming calls, and other) from key banks which are currently not visible

Logical Groups

Quickly identify the teams / team members you need to talk to Flexibly choose between 16 individual group colors and assign them to either the key label or the LED color ring

Create a simple way to show relationships between keys





Assign group colors to the LED rings or on the key labels

Hardware Front Elements		RSP-1232HL		RSP-1216HL	
Keys & rotaries		32× software-assignable lever keys with rotary encoder and push button 2× rotary encoders		16× software-assignable lever keys with rotary encoder and push button 2× rotary encoders	
Displays		-	, sunlight readable TFT displays wi	-	e)
Mic		1× threaded 6.3 mm jack for mi 1× internal panel microphone (
Headset		User-exchangeable headset cor	nnector with preinstalled 4-pin ma	ale XLR connector	
Speaker		2× full-range, DSP-controlled		1× full-range, DSP-controlled	
USB		USB 1× USB 2.0 (standard Type	-A, max. 500 mA)		
NFC		Technology RFID, frequency 13.	.56 MHz (future use)		
Bluetooth		Frequency DTS band 2400 24	183.5 MHz (future use)		
Light sensor		Adaptation of the display bright	tness to the environment (future t	use)	
Hardware Rear Elements		RSP-1232HL		RSP-1216HL	
IEC		Power input			
SFP		2× ethernet ETH 3 / ETH 4 (1000	BASE-X, Ethernet, AES67)		
USB		1× USB 2.0 (standard Type-C, m	ax. 500 mA)		
MicroSD card			ip to 32 GB (for service purpose or	nlv)	
RJ45		2× ethernet ETH 1 / ETH 2 (1000		119)	
1945		1× expansion port for expansion			
		1× management port for panel			
		1× Artist matrix connector (AES3			
		2× analog audio 4-wire inputs a			
DNIC		2× headset ("Headset A" is ident			
BNC		1× Artist matrix connector (AES3			
DisplayPort		1× DisplayPort connector (futur			
Sub-D9 (male)			mA, protected by self-healing fuse	2	
Sub-D9 (female)		3× GPI input, Uin = +5 V +48 V	1		
Audio Specs				RSP-1232HL	RSP-1216HL
		Audio A/B input // output		+24 dBu // +24 dBu	
		Headset phones		+20.5 dBu	
Maximum level		Headset microphone		+6 dBu	
		Internal speaker		max. 110 dB SPL	max. 101 dB SPL
		Panel/internal mic (electret)		70 Hz 20 kHz, -3 dB (70 Hz h	igh-pass filter)
		Headset mic A/B		20 Hz 20 kHz, -0.1 dB	,
Frequency response		Headset phones		20 Hz 20 kHz, -0.4 dB	
and a series		Audio A/B input // output		20 Hz 20 kHz, -0.4 dB // 20 H	Iz 20 kHz0.3 dB
		Internal speaker		120 Hz 16.6 kHz, -10 dB // 14	
Sample rate / resolution		48kHz / 24 Bit		,	,
		RSP-1232HL		DCD 4246111	
General	Constant			RSP-1216HL	
Power	Supply voltage	100 – 240 VAC, 50 – 60 Hz		100 – 240 VAC, 50 – 60 Hz	
D: :	Power consumption	≤20 W, ≤70 BTU/hr		≤15 W, ≤50 BTU/hr	
Dimensions	Form factor	19", 2 RU		19", 1 RU	
	Width × height × depth	483 (445) × 88 × 138 (95) mm / 19 (17.5) × 3.5 × 5.4 (3.7) " oute (installing dimensions)	er dimensions	483 (445) × 44 × 138 (95) mm / 19 (17.5) × 1.7 × 5.4 (3.7) " outer dimensions (installing dimensions)	
Weight		3.4 kg / 7.4 lbs		2.3 kg / 5.1 lbs	
Cooling	Fan noise	<23 dB(A) idle,	@ 0.7m	<23 dB(A) idle,	@ 0.7m
	(temperature controlled fan)	34 dB(A) max.	(noise emission meets GK15 /	26 dB(A) max.	(noise emission meets
Ferioren	0	fan speed	DIN 15996)	fan speed	GK10 / DIN 15996)
Environment	Operating temperature	0 +45°C		0 +45°C	
	Storage temperature	-30 +80°C		-30 +80°C	
Humidity		20 90 % relative (non-conden	nsing)	20 90 % relative (non-condensing)	
	Max. altitude	3000 m AMSL		3000 m AMSL	
Software Licenses		RSP-1232HL		RSP-1216HL	
Intercom App Pro		V		V	
AES3 License		<i>V</i>		v	
AES67 4-Wire License		<i>V</i>		<i>V</i>	
Control Panel App		<i>V</i>		<i>v</i>	
rr					
Accessories		RSP-1232HL		RSP-1216HL	
MIC-30 electret microphone, cardioid,		V		v	
MIC-3 electret microphone, cardioid, I	entgth 3cm	✓		<i>V</i>	

2300 Series SmartPanel

RSP-2318

With the RSP-2318, Riedel introduced the world's first SmartPanel. The RSP-2318 SmartPanel is a compact, 1RU intercom panel featuring three high-resolution, sunlight readable, multi-touch color displays. The RSP-2318 is an "open platform" for applications that is natively fully compliant with SMPTE-2110-30 (AES67) and is also AVB and AES3 compatible.

The RSP-2318 essentially is two devices in one. In addition to the Intercom App, the MediorNet Control App allows to route and control audio and video signals within MediorNet media networks. RSP-2318 panels also come with 18 keys, high-quality stereo audio, multi-lingual character support and individual volume control. Supporting up to 4 expansion panels, the RSP-2318 allows for a high key density of 114 keys in 5RU.

Needless to say, the RSP-2318 SmartPanel provides backwards compatibility and thus can be integrated in any existing Riedel installation, allowing for smooth interoperability between all Riedel intercom systems, such as Artist, Tango, and Performer.



What's a SmartPanel?

It is an open app-based user interface, with integrated multi-touch technology designed to bring your workflow to a whole new level.

Riedel RSP-2318 – Key Features

- » Open expandable platform for applications
- » 3x high-resolution, sunlight-readable displays
- » Intercom and control panel in one device
- » Individual volume control
- » Intuitive touch-screen UI
- » Integrated power supply

DSP-2312

Being one of the smallest desktop panels on the market, the DSP-2312 brings all the SmartPanel benefits in a small form factor perfectly suited for narrow production environments. Its compact design features integrated tripod mounting options as well as ergonomically optimized key positions.

Riedel DSP-2312 - Key Features

- » Open expandable platform for applications
- » 2x high-resolution, sunlight-readable displays
- » Ergonomic design for use in narrow production areas
- » 1/4-20 threads for use with tripods or magic arms for any installation environment
- » Intercom and control panel in one device
- » Individual volume control

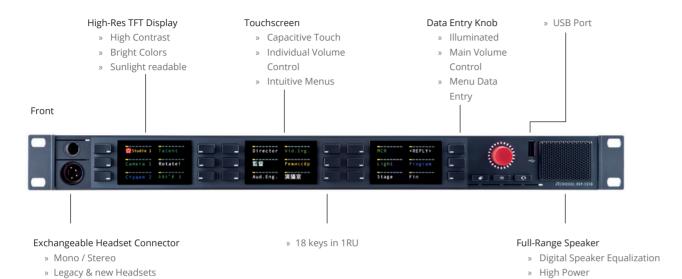


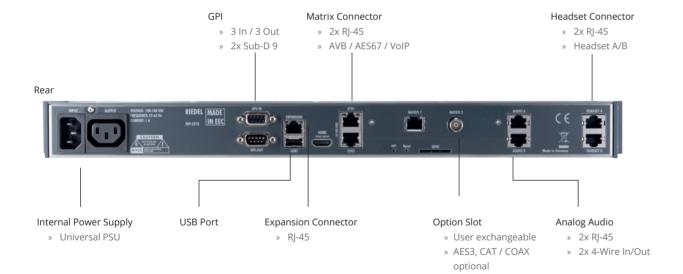


Tech Specs

0 °C +45 °C
100 240 VAC, 50 / 60 Hz
15 W / ≤ 30 W (typ. / max.)
Desktop Panel
262 mm × 84 mm × 179 mm / 10.3" x 3.3" x 7.1"
1.81 kg / 4.0 lbs

RSP-2318

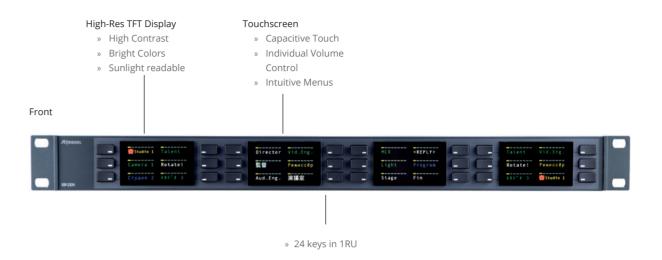




Tech Specs

Environmental Temperature	0 °C +45 °C
Supply Voltage	100 240 VAC, 50 / 60 Hz (redundant)
Power Consumption	≤ 30 W
Form Factor	19", 1 RU
Dimensions (w×h×d)	446 mm × 44 mm × 79 mm / 17.6" x 3.1" x 1.7"
Weight	1.7 kg / 3.8 lbs

ESP-2324





Tech Specs

Environmental Temperature	0 °C +45 °C
· · · · · · · · · · · · · · · · · · ·	
Supply Voltage	100 240 VAC, 50 / 60 Hz (redundant)
Power Consumption	≤ 5 W
Form Factor	19", 1 RU
Dimensions (w×h×d)	446 mm × 44 mm × 79 mm / 17.6" x 3.1" x 1.7"
Weight	1.4 kg / 3.1 lbs

SmartPanel Apps

Intercom App

2300 Series SmartPanels come with a choice of three intercom apps, each with a range of connectivity options to meet specific user requirements and keep costs low: You only pay for those features you actually need.

The 1200 Series Intercom App already includes all features of the 2300 series while adding unique features like Logical Group colors and Key Banks as well as rich connectivity options.

		2300 Seri	es	1200 Series
	BASIC	PLUS	PRO	PRO
Intercom Keys	12	12	18	16/32
Individual Volume Control	1	✓	1	✓
Multi-touch Displays	1	✓	✓	✓
AVB	✓	✓	✓	-
AES67	1	✓	✓	1
GPI (In/Out)	-/-	3/3	3/3	3/3
Audio I/O A	-	1	✓	✓
Audio I/O B	-	-	✓	✓
Headset A	✓	✓	✓	1
Headset B	-	✓	✓	1
Expansion Panels	-	✓	✓	✓
Key Banks	✓	✓	✓	✓
Panel Mic, Panel Speaker	✓	✓	✓	1
Logical Group Colors	-	-	-	1

MediorNet Control App

2300 Series SmartPanels are essentially two devices in one. In addition to the Intercom app, the MediorNet Control App allows to route and control audio and video signals within MediorNet media networks. MediorNet Control App can be used simultaneously with the Intercom App on the same SmartPanel.

	2300 Series	
	RSP-2318	DSP-2312
Control Keys	18	12
Expansion Panel Support	✓	-
Shift Page	✓	✓
Audio I/O	34/34	34/34
Video I/O	34/34	34/34
GPI I/O	34/34	34/34
Macros	34	34
Macro depth	100	100
Panels per network running MediorNet Control	25	25
MediorNet 3rd-party IDs	250	250
Configuration via browser	1	✓

Control Panel App

API based on open NMOS standards:
Discover via IS-04, connect via IS-05, transport via IS-07



Trigger actions in 3rd party control, monitoring and automation systems

Get visual feedback on configuration status and changes

The Control Panel App brings the user interface of a 3rd party control, monitoring and automation system onto the easy-to-use and highly intuitive UI of the SmartPanel. The user can manage complex multi-step workflows through a user-friendly remote panel.

Each 3rd party contol system supporting NMOS IS-07 will be able to natively use the Control Panel App. In addition, the Control Panel App can be connected to multiple control systems at the same time.

	1200 Series
16 or 32 configurable keys (selectable in blocks of 8)	✓
1 dedicated keybank	✓
NMOS integration	1
Easy setup via WebUI	✓
works standalone or along with other APPs on the same Hardware	✓
Parallel use of Control Panel App and Intercom App and switch via keybank view	✓

Super Efficient, Ultra Compact: Riedel 1100 Series Keypanels

Following Riedel's intuitive concept of integrated displays in the panel keys, the 1100 series features high-res color OLEDs. With 65,000 colors and a resolution of 140 dpi these new displays provide excellent readability and are able to show highly detailed characters and icons of up to 24x24 pixels. Definable marker colors for the keys complete the labeling options and provide instant function identification and signalization, e.g. for an incoming call.

The panels provide individual rotary encoders to adjust the listen level of each talk key. Furthermore all 1100 Series control keypanels provide 5 dedicated function keys, a built-in high-power loudspeaker, an XLR headset connector and a removable gooseneck microphone. 3 GPIs and 3 GPOs are available for system-wide programming as standard. Two sets of balanced line level audio inputs and outputs are also provided as standard.

For matrix connectivity, the panel provides both BNC and CAT-5 connectors as standard. The second audio channel of the AES3 signal allows the panel to transport broadcast quality audio in addition to the intercom application – an ideal feature for commentary positions. The efficient circuit design of the 1100 Series panel results in ultra-compact design with an integrated power-supply, 50 per cent less power consumption and less heat generation.

1100 Series Keypanels – Features

- » free programmable intercom keys with 8 character high-resolution OLED displays
- » Balanced analog line level inputs / outputs (2x / 2x)
- » GPI opto-inputs / relay outputs on DB9 connectors (3x / 3x)
- » Integrated power supply
- » Quick and easy setup

CD_1129



RCP-1112

DATEST	USER DEF () TIASS	O TASSE O BEE	() () () () () () () () ()	
	VIEWS O MORE			
ECP-1116				



CP-1116

Tech Specs

	RCP-1128	RCP-1112	ECP-1116	DCP-1116	CCP-1116
Number of Keys	28	12	16	16	16
Environmental Temperature	-5° C – 55° C	-5° C – 55° C	-5° C – 55° C	-5° C - 55° C	-5° C – 55° C
Supply Voltage	90-264 V	90-264 V	90-264 V	90-264 V	90-253 V
Power Consumption	Max 48 VA	Max 30 VA	Max 30 VA	Max 30 VA	Max 35 VA
Dimensions (w×h×d)	482,2 x 88 x 97 mm	482,2 x 44 x 97 mm	482,2 x 44 x 97 mm	255 x 77 x 235 mm	390 x 110 x 290 mm
Weight	2,2 kg	1,6 kg	1,6 kg	1,7 kg	5,2 kg

Intercom goes Commentary: Riedel Commentary Control Panel



Riedel Commentary Panel – Features

- » High-quality microphone preamplifier with 48V supply, transformer balanced input, low-cut, +6dBu Limiter and level mater.
- » All line inputs electronically balanced, all line outputs transformer balanced
- » Large illuminated push-button switches for ON AIR and COUGH/MIC MUTE
- » 16 free programmable intercom keys with 8 character high-resolution OLED displays
- » Additional programmable and remote controllable mono line input (e.g. to feed local playback sources) and speaker output
- » High quality headphone amplifier with monitor mix section: 3 source level controls, sidetone and overall level
- » Elaborated split-ear operation for commentary headphones; all sources routable
- » Standalone/emergency mode operation
- » Power supply redundancy via DC connector
- » Quick and easy set-up

The Riedel CCP-1116 is a commentary unit for two commentators with integrated intercom functionality. The device provides up to two commentary positions with high-quality mic pre-amps and all the intercom features known from Riedel Digital Matrix Intercom systems.

Combined in one compact device and cabled via one single CAT5 or COAX cable, the CCP-1116 reduces cabling effort, set-up time and points of failure. In addition, the CCP-1116 provides a clearly arranged user interface with improved functionality at the commentary position including programmable buttons for communications and GPIOs as well as remote control of the commentary panel.

In case of failure within the system – e.g. loss of the cable connection in between a CCP-1116 and the matrix – the standalone/emergency mode will be established without a loss of signal. ON AIR and MIC DIRECT OUT audio signals are available separately and A/B combined at XLR outputs of the CCP-1116. AUX IN XLR inputs feed the Phones Monitor Mix and thus replace the monitor signals.

Intercom Controls:

16 free programmable intercom control keys with individual listen volume controls. For two-user operation the set of keys can be split, resulting in 8 intercom keys per commentator. Following Riedel's intuitive concept of integrated displays in the panel keys, the 1100 series features the next generation of high-res colour OLEDs. With 65,000 colours and a resolution of 140 dpi, these new displays provide excellent readability and are able to show up to eight highly detailed characters of up to 24x24 pixels – ideal for displaying icons or Asian characters. Definable marker colours for the keys complete the labelling options and provide instant function identification and signalization, e.g. for incoming calls. Function keys for fast operation: headset/panel mic, shift-page, F1, F2, options.



BOLERO – Riedel's state-of-the-art wireless intercom system

As an all-new wireless intercom system capable of supporting up to 250 beltpacks and 100 antennas in a single deployment, Bolero is a true game-changer. Bolero redefines the wireless intercom category with features such as its ADR (Advanced DECT Receiver) with multi-diversity and anti-reflection technology for greater RF robustness, "Touch&Go" NFC beltpack registration, and versatile operation as a wireless beltpack, a wireless keypanel, or — in an industry first — a walkie-talkie.

With the addition of the newest Bolero Standalone 2110 (AES67) mode, there are now three network modes available for Bolero systems – each of them dedicated to specific applications.

Bolero **Integrated** leverages the powerful Artist ecosystem, including SmartPanels and extensive I/O connectivity, and runs over a standards-based SMPTE 2110-30 (AES67) IP network. Decentralized Bolero antennas connect to AES67-capable switches and to Artist frames equipped with AES67 client cards, providing a fully integrated point-to-point seamless handover intercom ecosystem. With each decentralized antenna added, coverage and network robustness are increased. Up to 250 beltpacks per Bolero Net are now supported.

Bolero **Standalone Link** provides plug & play simplicity that is ideal for smaller installations, portable deployments, or cases where IP networks are not required. Up to 100 antennas and 100 beltpacks can be quickly and easily set up and configured via a web browser, without the need for an Artist Intercom matrix since audio mixing and all control functions are handled by the antennas. Antennas may be positioned in a redundant ring or daisy chain topology using CAT5 cabling. With the optional EPS-1005 power supply, up to five antennas can be powered and adding multiple PSUs creates a redundant power ring. Finally, an NSA-002A stream adapter is used to interface Bolero with other intercom systems via analog 4-wire and provide GPIOs for convenient external device handling.

Similarly, Bolero **Standalone 2110 (AES67)** lets users establish IP-based Bolero networks without the need for an Artist matrix. The antennas are distributed over a SMPTE 2110-30 (AES67) IP network and connected via AES67 PoE switches. Up to 100 antennas and 100 beltpacks can be accomodated per Bolero Net and configured via a web browser. In Standalone Link deployments, audio mixing and control functions are handled by the antennas; the optional NSA-002A provides analogue interfacing and GPIOs and fiber-connected switches or switch cascades can be used to cover long distances.

The Bolero high-clarity voice codec provides both higher speech intelligibility and more efficient use of RF spectrum supporting twice the number of beltpacks per antenna for the same radio bandwidth as other DECT-based systems. The Riedel-exclusive ADR technology combines a unique receiver design with multiple diversity elements specifically designed to reduce sensitivity to multipath reflections, making Bolero useable in challenging RF environments where other systems have great difficulty.

The beltpack itself features six intercom channels and a separate "Reply" button for a quick reply to the last caller. Bolero's sunlight readable and dimmable display can be rotated so that it is readable in any orientation. Also, in an industry first, the beltpack can be used without a headset like a walkie-talkie radio utilizing an integrated mic and speaker. Bolero beltpacks support Bluetooth, allowing either a Bluetooth headset or a Smartphone to be connected. When a Smartphone is connected, the beltpack can act like a car's "hands free" setup so the user can receive calls on their phone and talk and listen via their beltpack headset. Users can also inject phone calls directly into the intercom channels, providing new levels of workflow flexibility.

Based on Riedel's extensive rental experience, the beltpack uses a combination of premium materials, including high-impact plastics and rubber overmolds, making it both tough and comfortable to use in any situation.

BOLERO – Key Benefits

- » Up to 10 beltpacks per antenna
- » Up to 250 beltpacks per Bolero Net
- » Best-in-class voice clarity
- » "Touch&Go" beltpack registration
- » 6-channel beltpack plus dedicated REPLY button
- » Built-in microphone and speaker for Walkie-Talkie mode
- » Ergonomic, robust beltpack design
- » Sunlight-readable display with Gorilla Glass $^{\text{\tiny TM}}$
- » Decentralized AES67 IP networked antennas
- » Seamless integration into Riedel's Artist intercom matrix



reddot award 2019

Riedel-exclusive ADR technology overcomes multipath issues

Modern, high-clarity voice codec

increases beltpack to antenna density

Up to six full-duplex keys plus convenient REPLY button to last caller

Integrated mic and speaker for headset-free operation

Can be used as a beltpack, a portable desktop keypanel, or walkie-talkie

NFC means no registration headaches! Touch the beltpack to the antenna or beltpack and GO!

Tough, ergonomic beltpack built to survive

Next generation, digital, global license free, 1.9GHz DECT band

Integrated Bluetooth technology for wireless headsets or phone connection

IP-65 environmental sealing

Bottle opener – just in case!

BOLERO Accessories



Meet the growing Bolero Family: color-coded beltpack covers, rack mount kits and protection kits further enhance Bolero systems.



BL-BPK-COVER



BL-CHG-1005-R



BL-RMK-1002 -01



BL-EPS-1005-00



SPK-001 Stagebox Protection Kit

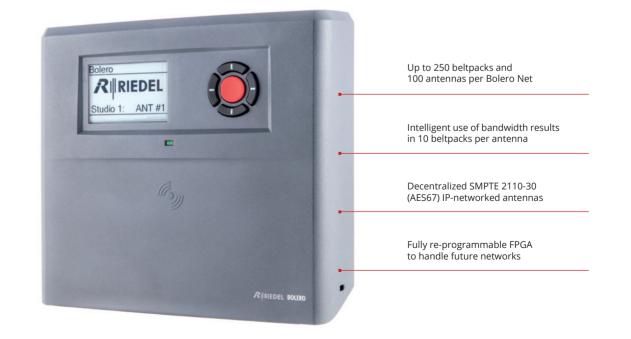


RMK-001 Stagebox Rack Mount Kit

Beltpack	Bolero 6-key beltpack (BL-BPK-1006-19-xx)	
Multi-path delay spread protection	Yes, ADR (Advanced DECT Receiver)	
Audio bandwidth	200 Hz to 7 KHz (-3dB)	
Mode of operation	Full-duplex on all routes	
Encryption	AES256 Bit encryption	
Line in	3.5 mm jack, 40 Hz 20 kHz, max. +12 dBu input level (local audio mix only)	
Talk controls	4 pushbuttons + reply key + 2 walkie-talkie keys (PTT, latching & auto mode)	
Volume / level controls	2x master or slave + menu navigation	
Display	High contrast sunlight readable full colour TFT display	
Audio prompts	Out of range, Bluetooth connected / disconnected, battery low, volume change, Beltpack registered / deregistered / not connected	
No. of full-duplex audio paths	6 with individual level control	
Handheld operation	Walkie-talkie mode	
Vibrate module	Programmable vibrate indicates incoming calls and other notifications	
Internal loudspeaker	Freq. <500Hz to >7kHz 80dB/SPL/0.5W/1m, @ <5% THD.	
Remote health monitoring	Battery charge status, via web browser	
Battery	Lithium Ion removeable battery pack with user removeable clip	
USB charging	USB Type C connector for beltpack charging	
Operation time	17 hours typical	
Headset connector	4-pin male XLR, user replaceable	
Microphone type	Electret (ca. 5V bias voltage) or dynamic, user selectable or automatic	
Side-tone and microphone gain	Individually adjustable for each beltpack & via remote control	
Bluetooth	v4.1 (HFP - hands free profile, HSP - headset profile, A2DP - streaming profile)	
Bluetooth phone call mix into intercom	Yes	
Lanyard anchor points	Yes	
Environmental	IP-65 environmental sealing; protected against dust ingress and water spray from all angles (with XLR connector plugged in)	
Storage temperature	-20° 50 °C long term; -20° 60 °C short term	
Operational temperature	-10 to +40°C (device operating up to 55°C)	
Humidity	0-90%, non-condensing Ta=40°C	
Dimensions	(W) 86mm, (D) 48mm, (H) 130mm (W) 3.4", (D) 1.9", (H) 5.1"	
Weight	420g inc. battery and clip	

Battery Charger	5-bay drop in charger (BL-CHG-1005-R)
No of beltpack slots	5
Beltpack charge time	up to 3 hours
Charge status LEDs	1 per charge slot
Beltpack display	% charged, charging time remaining, temperature, battery health
USB Type A +C	For firmware update and charging a Phone or beltpack via cable
Power socket	1x IEC
Power supply	100-230VAC / 50 - 60 Hz
Mounting	2x wall mounts or 19" rack drawer via optional accessory kit

Antenna	Bolero Active Antenna (BL-ANT-1010-19x)		
No of beltpacks per antenna	10		
Radio frequency range	1.880 - 1.930GHz (region dependent)		
Antenna radio coverage (diameter)	Indoor (structure dependent): max. ~200; outdoor (free line of sight): ~300-500m		
Beltpack to antenna range	Indoor (structure dependent): max. ~200m; outdoor (free line of sight): ~150-250r		
Beltpack registration	1 touch NFC registration (beltpack to antenna, and beltpack to beltpack), OTA registration (over the air with PIN)		
Network connection	SMPTE 2110 (AES67) IP or direct cable connection in standalone mode		
Display type	High contrast E-ink display		
Programmable transmission power	yes		
Support of Layer 3 networks	yes		
TTL Settings	Adjustable multicast TTL (1 to 255 / default 16)		
DECT Master Priority	Configurable in WebUI		
Network monitoring on antenna display	IP / daisy chain / closed ring		
Power supply	PoE+ (802.3at, type 2, class 4, 15 30 W) or 10 57 VDC, 3 A		
Power consumption	15W		
Mounting points	Mic stand threaded socket 5/8" & 3/8" inside, spigot adapter with wing screw lock Kensington lock hole, & screw hole for a safety wire mounting		
Environmental	P-53 protected against limited dust ingress and water falling as a spray at an angle of up to 60° from vertical		
Operational temperature	-10 to 45 °C		
Humidity	0-90%, non-condensing Ta=40 °C		
Dimensions	210mm (W) x 66mm (D) x 190mm (H); 8.3" (W) x 2.6" (D) x 7.5" (H)		
Weight	1320g		



Flexible Licensing Scheme

Standalone License

The Bolero Standalone license includes both Standalone Link and Standalone 2110 (AES67) modes, so whether you're looking for a flexible and portable plug & play solution or an IP-based wireless intercom system to ride atop your backbone network, the Standalone license has you covered.

Extended Partylines

By installing the "Extended Partylines" license, the maximum number of Partylines in a Standalone/Link or Standalone 2110 (AES67) Bolero system can be increased from 12 to 32.

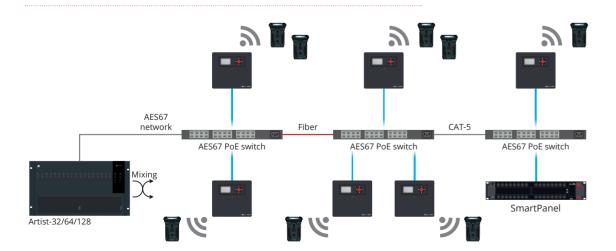
Advanced Monitoring (DECT Scanner)

Bolero features RF monitoring capabilities that allow users to leverage both antennas and beltpacks to scan or monitor the radio spectrum used by DECT devices. The antenna scanner enables period measurement of time-slot usage and identification of DECT systems in the RF space. At the same time, the Bolero beltpack can be used to monitor the time-slot capacity and audio quality while staying fully operational.

Network Modes

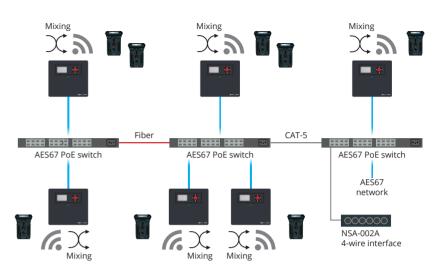
BOLERO Integrated

- » Seamless comms environments with the full power of Artist, including SmartPanels and extensive I/O connectivity
- » Multiple fiber-connected switch cascades for long distances
- » Antenna distribution via SMPTE 2110-30 (AES67) IP network
- » Redundant power supply
- » Extensive connectivity options including SMPTE 2110-30/31 (AES67),
- » AES3, MADI, Dante and analogue 4-wires
- » Configuration via Director, Artist's powerful configuration tool
- » 500 conferences and unlimited point-to-point connections
- » 250 beltpacks, 100 antennas



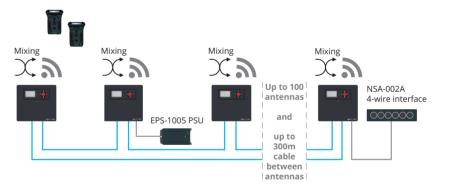
BOLERO Standalone 2110 (AES67)

- » Antenna distribution via SMPTE 2110-30 (AES67) IP network
- » Multiple fiber-connected switch cascades for long distances
- » Analogue 4-wires and GPIOs via optional NSA-002A throwdown box
- » Redundant power option
- » Integrated web browser for configuration (Artist not required)
- » 12 partylines and unlimited pointto-point connections
- » 100 beltpacks, 100 antennas



BOLERO Standalone Link

- » Daisy chain or redundant ring antenna network
- » Plug&Play simplicity
- » EPS-1005 PSU powers up to five antennas
- » Redundant power option
- » Up to 300m CAT5 cable between
- » Analogue 4-wires and GPIOs via optional NSA-002A throwdown hox
- » Integrated web browser for configuration (Artist not required)
- » Up to 32 partylines and unlimited point-to-point connections
- » 100 beltpacks, 100 antennas





PERFORMER The Digital Partyline Experience

The Performer Series was the world's first digital partyline intercom system, offering 2 and 4-channel master stations, rack-mount, wall-mount and desktop speaker stations as well as call light indicators and 2-channel beltpack headset stations. In addition to pure partyline applications, the C44plus system interface makes the Performer series the first fully integrated "digital" solution for combined digital matrix and partyline intercom.

PERFORMER Partyline - Key Benefits

- » High quality digital audio: no noise, no hum
- » Fully digital: audio, DSP, controls
- » Perfect sidetone-nulling
- » Remote Mic-Kill
- » 2-channel intercom operation plus additional program sound on XLR cables
- » Real plug-and-play installation





Performer CR-4 / CR-2 Master Station

The Performer master stations CR-4 (4-channel) and CR-2 (2-channel) are the ideal choice for setting up a stand-alone digital partyline system. Depending on the setup, the integrated power supply of the 19"/1RU device can power up to 32 Performer devices per line including beltpacks, split-boxes or desktop speaker stations. Additional power supplies easily expand the possibilities. The clear UI provides users with ultimate performance and flexibility. The colour-illuminated buttons are ideal for applications in real-world environments. The remote mickill function allows the user to mute any open microphone on the intercom channels. The CR-4/CR-2 features an additional program input that can be mixed individually to each of the intercom channels. Other features include individual listen volume controls for all partylines, Call and GPI, IFB and a stage announce function to use the intercom microphone to talk over the PA system. The CR-4/CR-2 can be operated using a headset or the integrated powerful loudspeaker with a gooseneck microphone.

Performer C3 Digital Beltpack / Headset Station

The Performer C3 is an ergonomically shaped, fully digital 2channel beltpack that includes all the standard features from conventional analog partyline systems including daisy-chaining. The beltpack uses high-quality digital audio for noise-free and hum-free signals. Extensive DSP signal processing provides perfect sidetone-nulling and excellent intelligibility in applications with very high ambient noise levels. The C3 has three XLR connectors, one for headset, one for signal input and one for signal loop through, which can also be used as an additional analog program

Operation is extremely convenient. Two large rotary level controls on the top of the C3 adjust the listen volumes for CH-A and CH-B. Pushing on the A or B volume control toggles talk on/off with momentary/latching operation to the respective channel and includes talk LED indication. The C3 is easy to configure and also features a call send button. A bright call light indicates an incoming call to all daisy-chained Performer devices.



Performer CD-2

Desktop Speaker / Headset Station

The CD-2 Desktop Speaker/Headset Station provides the same feature set as the CR-2 Master Station except for the internal power supply. This makes the CD-2 ideal either for operation as a desktop speaker station or - in combination with an external power supply – as a 2-channel master station for setting up a stand-alone digital partyline system.



Performer CW-2

Wall Mount Speaker / Headset Station

The CW-2 Wall Mount Speaker/Headset Station comes with a standard 4-gang outlet box and provides an easy-touse 2-channel digital intercom panel. The large rotary level controls combine volume control and a talk button with momentary/latching operation. The unit can be operated using a headset or the integrated powerful loudspeaker with a microphone. A call signal LED, plus Call and GPI functions complete the feature list. The CW-2 can be powered from the partyline or via a local power supply.





Performer C44plus

System Interface

The C44plus System Interface allows for seamless integration of digital partylines in matrix intercom environments. The 19"/1RU unit converts four two-channel CAT5 matrix ports to four phantom powered beltpack lines. The beltpacks are connected to the C44plus via standard 3 pin XLR cables. Up to 16 beltpacks can be daisy chained on each line: one C44plus can power up to 38 beltpacks. For stand-alone operation, the device features an integrated 24x24 port digital intercom matrix, which can be configured via Riedel's audio assignment software. Pre-programmed configurations can be loaded via the DIP-switches on the front. Full digital interfacing is provided for Artist and Performer 32 matrix systems. Analog 4-wire I/Os and GPIs are provided for interfacing to 3rd party intercom systems.



Performer C31 Split Box

The C31 Split Box splits one signal input on XLR3 onto three XLR3 outputs. The device can be powered by the partyline or with an external power supply for extra long cable runs.



Performer CI31 call Indicator

The CI31 Call Indicator combines a C31 Split Box with a selectable high volume buzzer and a large flashing lamp to provide visual and/or audible indication of a "call."

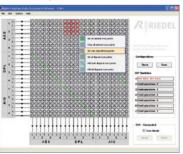


System Interface

The Performer C22 system interface converts two two-channel CAT5 matrix ports to two phantom powered digital beltpack lines and vice versa, allowing seamless integration of digital partylines with matrix intercom systems. In addition it can also be used for any application where you would like to route the audio of digital partyline intercoms via an AES digital audio infrastructure such as MediorNet, Artist or any 3rd party AES audio router solution. The Performer C22 can power daisy-chains of up to nine beltpacks, split-boxes or desktop speaker stations per line.

Performer AAS

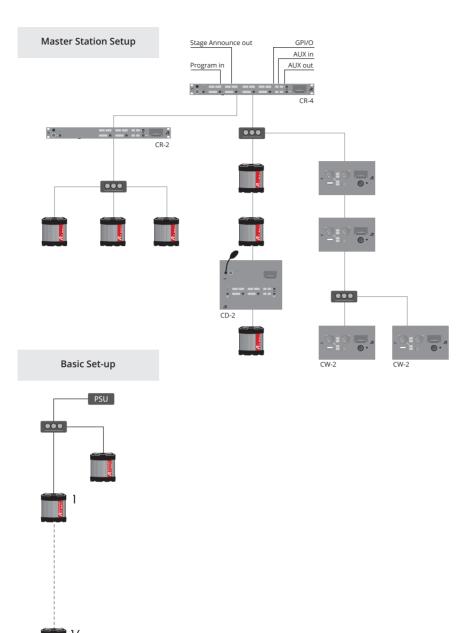
Audio Assignment Software

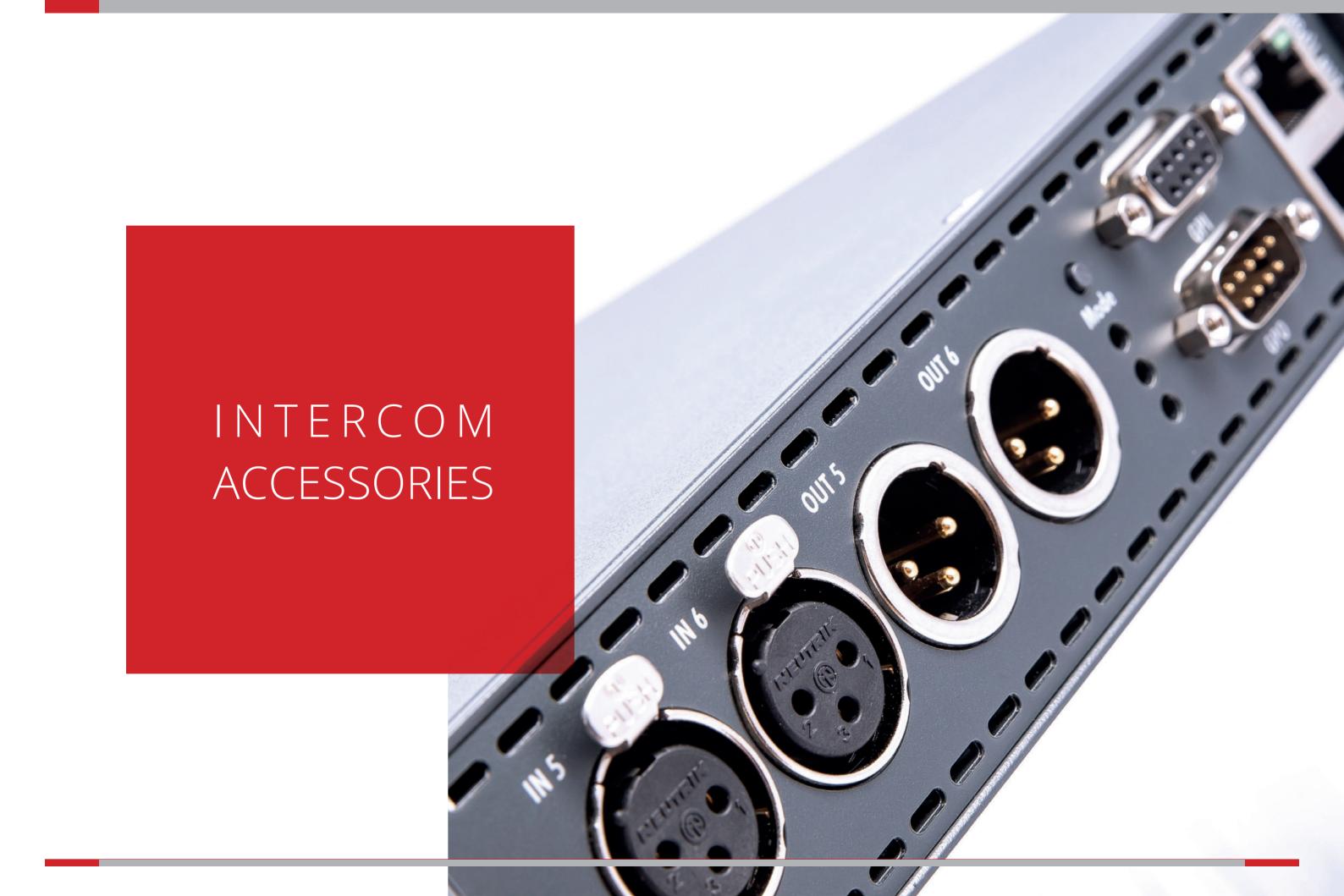


The Performer Audio Assignment Software is an intuitive tool for editing the settings of the eight pre-programmed configurations of the Performer C44plus System Interface. This enables the C44plus to serve as the heart of a small stand-alone intercom solution.

The Performer series is a flexible and powerful system to meet your specific communications needs. The setup of distributed partylines can be easily adjusted to meet any requirement and finally provides digital audio quality on a beltpack.

Whether used in standalone partyline applications or integrated with a digital matrix intercom system: The Performer product line is always the ideal choice for demanding customers in broadcast, opera houses and theatres as well as for sports and cultural events.





Network Interfacing

Intelligent and seamless interfacing to the outside world is the key to success in many intercom applications. The Artist platform is an open world of communications. Dedicated interface solutions let you communicate with telephones, digital and analog partylines, camera intercoms, 2-way radios and other analog and digital systems.



Connect Trio

ConnectTrio combines the following in one half-rack/1RU device: two independent analog POTS telephone hybrids; an ISDN BRI/ $S_{\rm 0}$ interface with two independent ISDN B-channels; and two independent VoIP audio codecs. This not only saves rackspace and eliminates the need for additional equipment, but also provides enhanced flexibility to the intercom installation. Connect Trio enables you to dial, make and receive calls to and from any PSTN, VoIP, ISDN or mobile phone as well as G.722 reporter codecs. When used with Artist and Tango intercom systems, you can even remote key panels via ISDN.



Connect IPx8

Connect IPx8 provides high-quality audio-over-IP interfacing for intercom systems (EBU Tech 3347 compatible). The 19"/1RU unit is designed to connect up to eight Artist control panels or audio lines to the Artist VOIP-108 G2 matrix client card via IP based networks. The SIP-based interface converts AES3 or analog signals into compressed IP data and vice versa. Connect IPx8 can be configured to meet your individual bandwidth needs, always providing an unmatched combination of audio quality and low network traffic. The panel interface flawlessly connects any Riedel 1100, 1000, 2300 or 5108 series key panel with full functionality to Artist and Tango matrices via IP-networks.



Connect IPx2

Connect IPx2 is the little brother to the Riedel Connect IPx8 panel interface. The $\frac{1}{4}$ 19"/1RU unit is designed to connect up to two Riedel key panels to Artist and Tango matrices via IP based networks.

Partyline Interfacing



Performer C44plus system Interface

The C44plus System Interface seamlessly integrates digital partylines in matrix intercom environments and can also serve as a stand-alone matrix for small applications. The plus-version features a USB-port on the front to connect a PC to configure the internal 24x24 matrix via the Performer AAS Audio Assignment Software.



Performer C22 System Interface

The Performer C22 system interface converts two two-channel CAT5 matrix ports to two phantom powered digital beltpack lines and vice versa, allowing for the seamless integration of digital partylines with matrix intercom systems. In addition, it can also be used for any application that necessitates the routing of digital partyline intercom audio via an AES digital audio infrastructure such as with MediorNet, Artist or any 3rd party AES audio router solution.

Radio Interfacing



RiFace G2 – Universal Radio Interface

The RiFace G2 is a universal radio interface to connect wired communication systems with walkie-talkie style radio systems. The 19"/2RU interface includes one or two two-way radios (user provided), processor logic to control the radios, DSP-presets as well as circuitry to adjust the levels of the various audio sources. Set-up and operation is fast and easy. The RiFace G2 can also operate as a stand-alone radio repeater.



JUGGLER - TETRA Radio Interface

The Riedel JUGGLER solution seamlessly integrates TETRA digital trunked radio networks into the wired intercom matrix, providing intelligent integration between TETRA radio groups and Riedel Artist intercom ports. The system allows calls from any port/group/conference of the Artist system to up to 64 individual TETRA radio groups and vice versa. The interface connects the TETRA Base Station Controller to any given Riedel Artist system via MADI JUGGLER works with any TETRA-standard compliant subscriber.

Network Stream Adapters

Panel Accessories



NSA-001D

Leverage existing IP infrastructures for your 1000 and 1100 Series intercom panels with this small and convenient interface.

Riedel's NSA-001D Network Stream Adapter handles all bi-

Riedel's NSA-001D Network Stream Adapter handles all bidirectional signal conversion between AES3 and AES67. The NSA-001 is a plug-and-play device that has multiple mounting options and connects between an AES67-capable switch and a legacy Riedel intercom panel of the 1000 and 1100 Series.

Power is provided externally or via PoE and convenient LEDs indicate system status. Extend the service-life of your panels and simplify cabling in your Artist system!



NSA-002A

Riedel's NSA-002A Network Stream Adapter handles all bidirectional signal conversion between analog signals and AES67. The NSA-002A is a plug-and-play device that has multiple mounting options and connects between a Bolero wireless intercom system and any analog 4-wire.

Power is provided internally or via PoE and convenient LEDs indicate system status.



FBI - Fiber Interface Adapter

The FBI bidirectionally converts an Artist panel port from CAT5 to fiber allowing Artist key panels to be operated over long distances. Since the unit offers connectors both for the matrix and for the panel, it can be inserted on either the panel or matrix side of the link. The interface may also be used for the bidirectional transmission of an AES3 signal. Distances up to 2,000 m (6,600 ft) can be covered using duplex multi-mode fiber.



CIA - Coax Interface Adapter

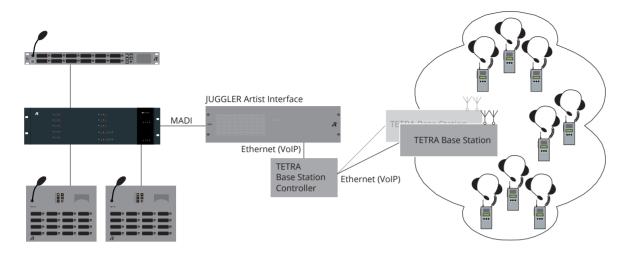
The CIA interface converts an Artist panel port from CAT5 to 75 Ω Coax and vice versa. Since Artist control panels provide both CAT5 and coax interfaces for connection to the matrix, CIA's can be used to adapt an Artist matrix port to the existing infrastructure, which is especially useful for OB-vans and mobile applications. Distances of up to 300 m (1,800 ft) can be achieved using 0.8/4.9 video cable.



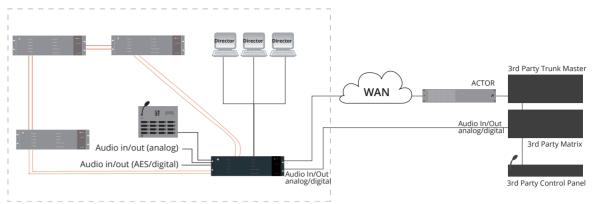
SPX-AES

The SPX-AES option card for the SmartPanel offers real-time connectivity via CAT or COAX linking the SmartPanel to the Artist digital intercom matrix using AES3.

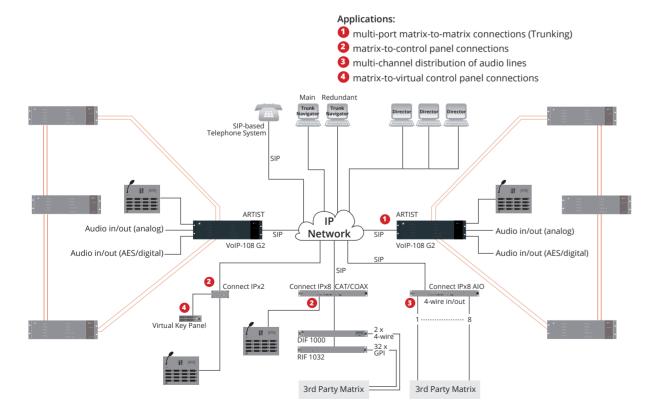
JUGGLER - System Overview



ACTOR - System Overview



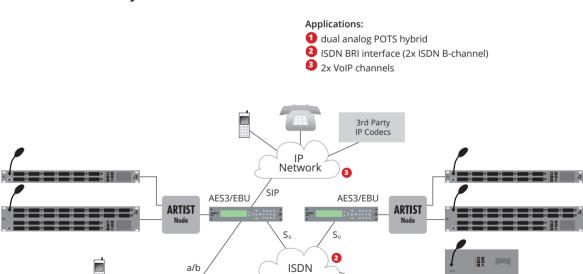
CONNECT IPx2 / IPx8 – System Overview



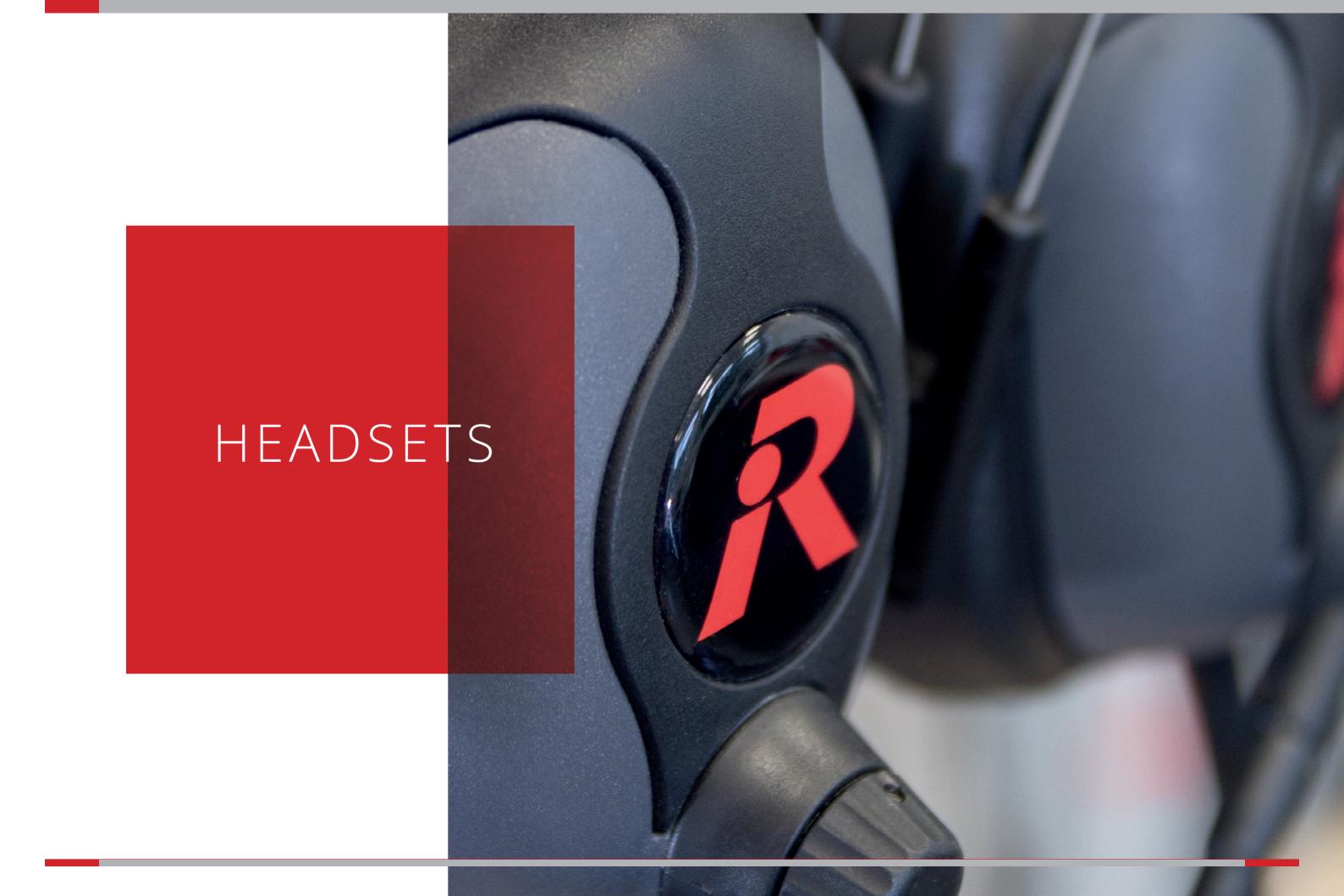
CONNECT TRIO – System Overview

0

POTS



G.722 ISDN Reporter Set



Comfortably functional... Headsets for Intercom & Radio Applications

As an intercom technology specialist, Riedel perfectly understands the specific demands and requirements of customers for intercom headsets. Headsets should be durable, light weight, small, comfortable and easy to clean and to maintain. All Riedel intercom headsets combine optimal audio quality with absolute reliability and are compatible with radios, beltpacks and intercom control panels from other manufacturers.









AIR - Ultra Light Professional Headset

The Riedel AIR series is the ideal ultra lightweight headset for customers who place great demands on quality, design and comfort. The AIR headset allows you to communicate with your immediate environment while simultaneously speaking and listening via your headset. The specially engineered Coolmax® material used for the exchangeable ear cushions provide great breathability and comfort for long hours. The 270° rotation of the microphone boom allows the microphone to be worn on either left or right side, and a noise compensating electret or dynamic microphone guarantees a high quality response.

Coolmax® is a registered trademark of INVISTA

PRO - Closed Professional Headset

The Riedel PRO series provides reliable, high-quality professional headsets that were designed in conjunction with beyerdynamic® to meet the demanding requirements of digital intercom applications. The headphone features a neodymium magnet system for accurate reproduction and balanced sound. The soft circumaural earcups provide very good noise attenuation and are as comfortable as the fully adjustable padded headband. The headset provides either a hypercardioid dynamic microphone or a high-quality omnidirectional condenser microphone for commentary applications. The 270° rotation of the microphone boom allows the microphone to be worn on either left or right side.

RUN - Professional In-Ear Headset

Optimized for use with Riedel's award-winning Bolero wireless intercom system, the RUN Series is an ultra-lightweight one-ear headset for demanding, high-noise environments Therefore they are a perfect match for environments like sports, security or live events. The fully adjustabe mic boom and the ability to be used with custom earmolds allow for a perfect indidual fit.







MAX - High Performance Headset

The MAX series headsets have been specially designed for use in areas with high ambient noise levels. The headsets feature excellent attenuation abilities and therefore provides optimal hearing protection for their users. The special noise cancelling electret or dynamic microphone guarantees clear communications in all conditions. This makes Riedel's MAX headset the ideal choice for sound & light crews or TV camera intercom in sports or concert venues. MAX offers high comfort and low weight. The soft headset cushions are easily detachable for quick exchange and fit perfectly to the ear. The microphone boom rotates 270° and allows the microphone to be worn either on the left-hand or right-hand side.

Customized Accessories

In addition to the AIR, PRO, MAX and RUN headset series, Riedel offers a wide range of accessories and customized solutions.

Connectors and Cables

All headsets are available with 4-pin XLR female as standard. The standard cable length is 1.5 meters. Customized connectors, cables and special PTT versions are available on request.

Specifications

AIR Headset

Headphone	AIR (D1/D2)	AIR (E1/E2)
Frequency response	100 Hz – 18 kHz	100 Hz – 18 kHz
Impedance (XLR4F version)	150 Ω 1 mW/1 kHz	150 Ω 1 mW/1 kHz
Characteristic SPL	91 dB 1 mW/1 kHz	91 dB 1 mW/1 kHz

Microphone

Transducer type	NC Dynamic	NC Electret
Polar pattern	Hypercardioid	Bi-Directional
Frequency response	150 Hz – 10 kHz	150 Hz – 15 kHz
Nominal Impedance	200 Ω	>1600 Ω
Supply power		4.5 V 400 μA

PRO Headset

Headphone	PRO (D1/D2)	PRO (E1/E2)
Frequency response	10 Hz - 30 kHz	10 Hz - 30 kHz
Impedance (XLR4F version)	250 Ω	250 Ω
Characteristic SPL	100 dB at 1 mW / 1 kHz	100 dB at 1 mW / 1 kHz

Microphone

Transducer type	Dynamic	Condenser (back-electret)
Polar pattern	Hypercardioid	Omnidirectional
Frequency response	40 Hz - 12 kHz	20 Hz – 18 kHz
Nominal impedance	200 Ω	680 Ω
Supply power	-	4.5 V 3.5 mA

MAX Headset

Noise Attenuation

Frequency / Hz	125	250	500	1,000	2,000	4,000	8,000
Attenuation (EN 24869-1) / dB	14	19	26	31	28	34	34

Headphone	MAX (D2)	MAX (E2)
Frequency response	80 Hz – 20 kHz	80 Hz – 20 kHz
Impedance (XLR4F version)	300 Ω	300 Ω
Characteristic SPL	94 dB at 1 mW / 1 kHz	94 dB at 1 mW / 1 kHz

Microphone

Transducer type	Dynamic	Back electret
Polar pattern	Hypercardioid	Bidirectional noise cancelling, pressure gradient type
Frequency response	40 Hz – 12 kHz	150 Hz - 5 kHz
Nominal impedance	200 Ω	2.2 kΩ
Supply power		4.5 V 170 μA

RUN Headset

Headphone

Frequency response	200 Hz – 5 kHz	
Impedance	$780/1450~\Omega$ at $500/1000 \text{Hz}$	
Characteristic SPL	100 dB	

Transducer type	Electret
Polar pattern	Omnidirectional
Frequency response	100 Hz – 10 kHz
Nominal impedance	<2.2 Ω
Supply power	1.5 - 10 VDC (3VDC nominal)

Symbols

1 2 single headphone / dual headphones



D E dynamic microphone / electret microphone



omnidirectional condenser microphone for commentary applications



excellent noise attenuation for high-noise environments

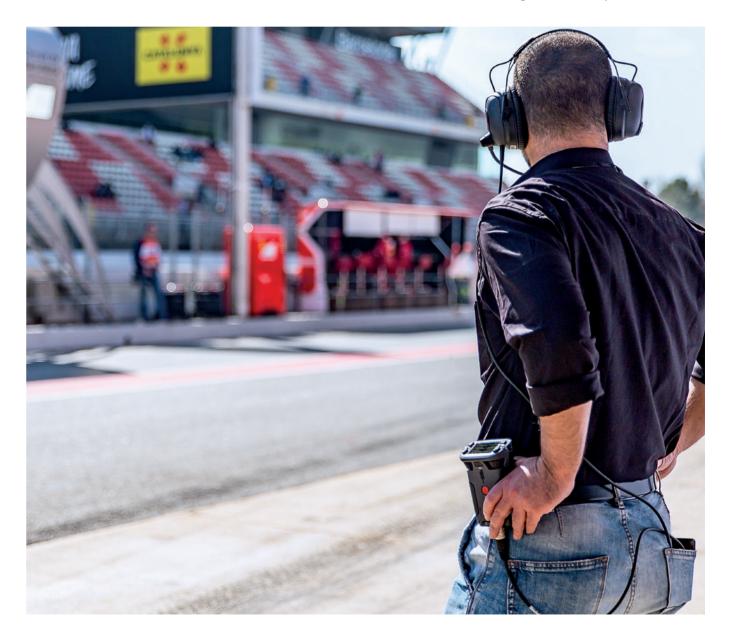


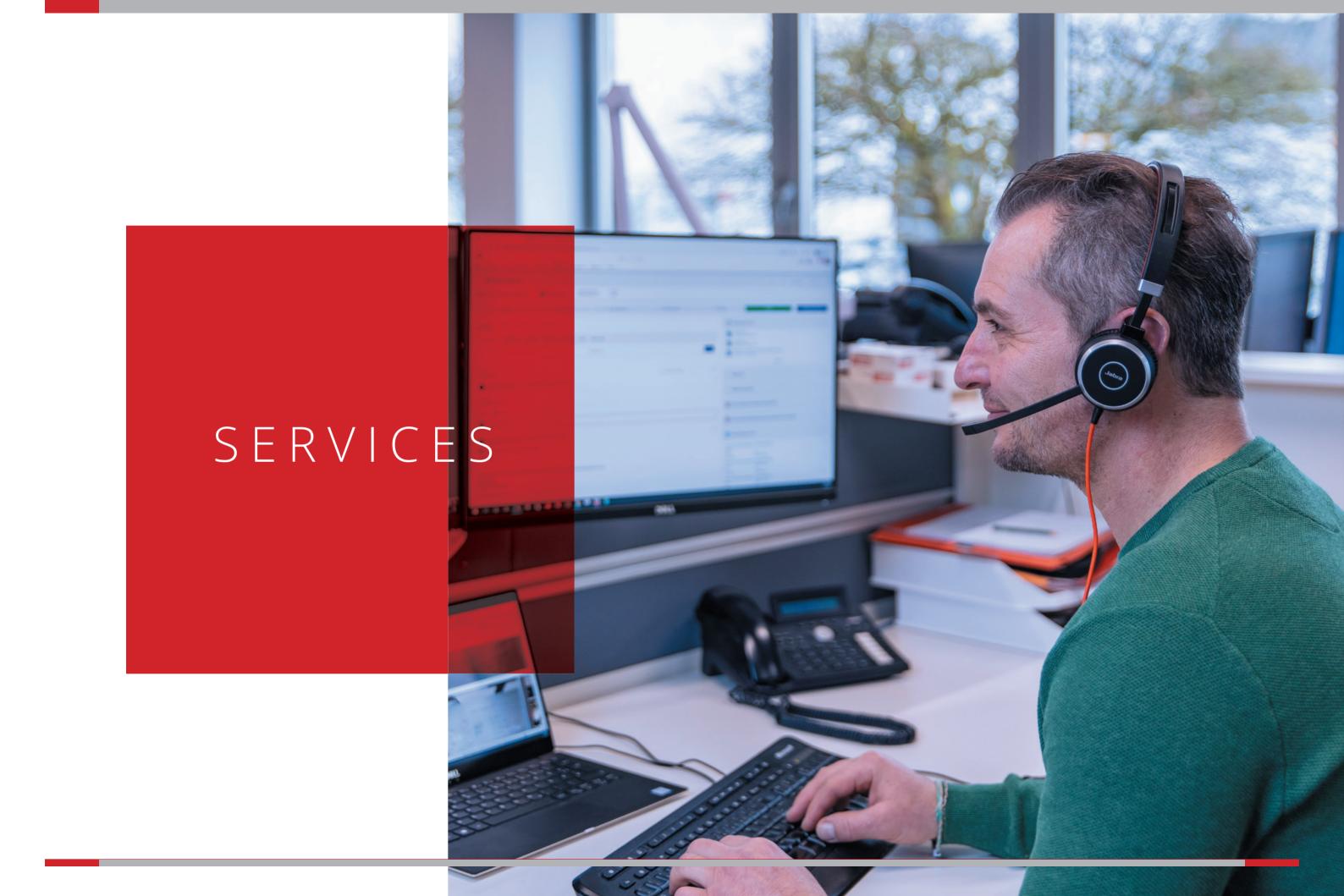
microphone boom rotates 270° allowing for either left or right sided mic/headphone



exchangeable components for easy maintenance

The MAX headset has been designed for the special communications needs in motor sports such as Formula One. In this environment, the crews at the pitwalls need to communicate under high ambient sound pressure levels.





Riedel Services

Design & Set-up - Maintenance - Support

We see ourselves as your partner in designing, setting-up, operating, and maintaining your Riedel products and solutions in the best possible way.

Do you work around the globe?

Do you work around the clock?

Do you have a big installation?

Do you have a small installation?

Whatever the case, uptime is crucial for your business.

Riedel's worldwide network of partners and offices, along with our headquarters in Wuppertal, offer a variety of services that are tailored to match your needs.

Explore the possibilities in the following pages.

Consulting

Are you unsure as to what you are looking for or wonder which products will best fit your workflow? No Problem!

Together with our sales managers, a dedicated global team of consultants are available to assist you through the process of system design. Our team is ready help you devise, develop, finetune, and implement strategic, cutting-edge solutions that meet and exceed your workflow requirements.

With consulting, we offer comprehensive scenario and workflow simulations and assistance with the design demonstration and realization of challenging technical integrations.

Our consultants pride themselves in assisting customers from project inception to completion and are available to work with you at any of our offices or on your premises.

Commissioning

It is important to ensure your product and system performance before you go live

Our team of experienced consultants, engineers and technicians will ensure that your system has up-to-date software and firmware and will help you with basic configurations as planned in the consulting phase.

Commissioning can be done at our facility (Factory Acceptance Test), at your facility (Site Acceptance Test), or as a service without any formal acceptance.

Riedel Academy

The more you know about our products, the better you can operate them and the more benefit they will deliver for you – Knowledge is key!

Riedel Tuesdays

You can get a hands-on introduction to Artist by joining us at a Riedel Tuesday. Hosted in our regional offices around the world the goal is to provide you with information about our products in an informal and casual setting. At these events you can meet other people from the industry and learn what's new from Riedel.

Online Seminars and Workshops

Join one of our online sessions, taking place throughout the year from the comfort of your own home or office. Online sessions are for users who want to build up mouse-on experience on specific products. Workshops take place in small groups of up to eight people where we offer a mix of product overview, hardware and software familiarization, and handson programming & configuration. These sessions are free-of-charge and can be booked directly from our events page: https://riedel.events.idloom.com.

Customized Training

Of course, we also offer training tailored specifically to your needs. These can be held at one of our subsidiaries or at your facility on your system. These sessions will allow your system administrators, service, and maintenance engineers to learn and implement best practices from our experienced trainers.

In case your system is already up and running and you want to refresh your staff on our products or train new staff, we can also provide dedicated equipment for the training.

Don't yet have a system? No problem!

We can also provide in-person training in our Riedel Media Studio - a fully-functional production studio where you can gain real-life experience in a practical setting and discover how to remove the stress from your workflows. These tailored sessions can be arranged through your account manager and take place in our HQ in Wuppertal, Germany.

Contact us via training@riedel.net

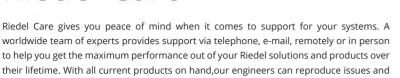
Dates and locations are published at

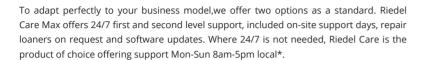
www.riedel.net/en/services/academy



find solutions quickly.

Riedel Care







	Riedel Care	Riedel Care Max
Hotline	Mon-Sun 8 am – 5 pm local*	24/7
Remote Support	Included	Included
Included On-Site Support days Excluding travel expenses	Depending on system size	Depending on system size
Additional On-site support days	20% discount on list price	30% discount on list price
Repair loaners	Dispatch within two business days	Dispatch within one business day
Discount on repairs	20%	30%
Software updates, bug fixes, patches	Included	Included

^{*}assigned to one of the following time zones: Pacific Standard Time, Central European Time, Australian Eastern Standard time depending of the system location

Distributed Service & Support

Our global team of support engineers coupled with our decentralized stock of spare parts and hardware for repair loaners ensure your continuous operation.



Hotline

Mon-Sun 24/7, 365 days access to Riedel's own worldwide support staff for critical issues. We can receive calls and e-mails in English from any caller at your facility. Other languages are available on a case-by-case basis. As far as it is possible, the assigned Riedel engineer will remain the point of contact through the entire case. Non-technical requests are ideally addressed to either your regional sales manager, your regional Riedel subsidiary or to the Riedel headquarters. For contact details please see

www.riedel.net/en/contact/

E-mail Support

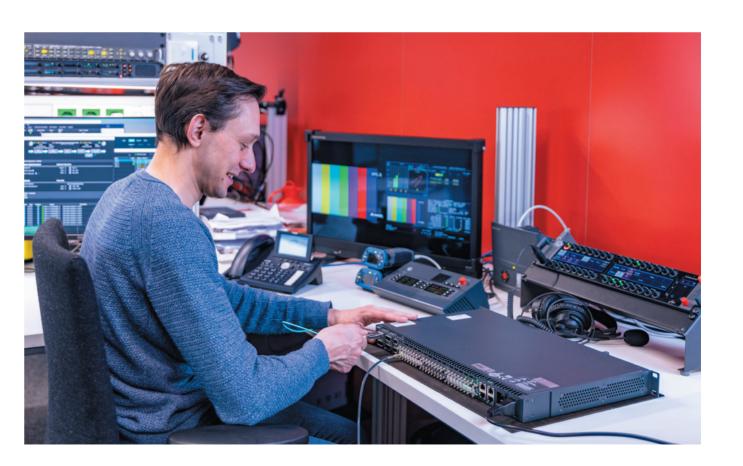
E-mail support is given in addition to the support via telephone. Our case management system ensures prioritization within the Riedel group.

Spare Parts

We hold an extensive stock of spare parts for current products as shown on the Riedel website. This covers complete devices, single PCBAs and components.

On-site Support Days

Riedel's second level support engineers are available to visit your facility for advanced trouble shooting after the system has been commissioned. The number of included on-site support days depend on the installed size of the system. Additional on-site support days can be offered in advance or ordered on a case-by-case basis. They will be discounted against list price depending on the grade of your Riedel Care package. Additional on-site services such as design or planning services, commissioning, technical product trainings can be ordered at any time and will be offered as a separate service.



Repair Loaner

In case Riedel's technical support team has confirmed a hardware issue with a device, a repair loaner can be sent on your request for the time of the repair. This ensures operation while waiting for the repair. Repair loaners are available for standard pricelist products. They are dispatched free of charge from our nearest logistics hub to the address specified in the Contract Data.

Our logistic hubs are located across the world:

» Europe/Middle East: Germany, Wuppertal Office » North America: USA, California, Los Angeles Office

» Asia-Pacific: Australia, Sydney Office

» Riedel Care: Dispatch within two business days » Riedel Care Max: Dispatch within one business day

Remote Support

With remote support, Riedel offers direct access to your system for online diagnostics. Using your local PC running our configuration software, we can view your system and help to fix configuration issues or explain error messages expediting the trouble shooting

Repairs

Costs for repairs are discounted when covered by Riedel Care. To better manage operational costs for repairs, our standard

An RMA (Return Material Authorization) number is not mandatory

cases for seven years after a product has been set to end of life (removed from our website, catalogue and pricelist).

manufacturer's warranty can be extended by purchasing an Extended Warranty program.

but available to return defective devices to Riedel. Repairs can be carried out for current products and in most

Even after that period, we can repair on a best effort basis in most

Warranty & Extended Warranty

Riedel products come with a two years standard manufacturer warranty. This can be extended by purchasing our Extended Warranty program for another one, two or three years to a total of up to five years.

Extended Warranty is not included in Riedel Care or Riedel Care Max, but can be purchased node locked for a device at the moment of sale.

See our detailed description for extended warranty and eligible products at https://www.riedel.net/en/services/warranty/.



Software Updates

To keep your system up to date, we offer software updates with bugfixes and patches multiple times per year on various products. All current versions are listed at our website for your quick reference:

www.riedel.net/en/downloads/firmware-software/

On request, we will provide you with the most recent software files and guide you through the update, if needed we can support remotely. Typically, we support the current release and the one

Software Upgrades

Software upgrades are defined as an upgrade to another edition of a Software. Software upgrades are typically listed in the Riedel sales pricelist and they are a chargeable line item.

Overview of Services and Support

	Riedel Care	Riedel Care Max	Comment
Support hours	Mon-Sun 8am – 5pm local ¹	24/7	-
First Level Support ²	Included	Included	F
Second Level Support ³	Included	Included	F
Hotline	Prioritized	Prioritized	F
E-mail support	Prioritized	Prioritized	-
Support per remote	Included	Included	Using TeamViewer
Included on-site support days	Included	Included	The number of days depends on the size of the system. Travel cost and expenses not included.
Travel expenses and cost for accommodation	Not included	Not included	Payable as incurred
Discount on additional support days	20%	30%	Not applicable on travel cost and expenses
Repair loaners	Included	Included	Available for standard price list items
Dispatch of repair loaners	Within two business days	Within one business day	From nearest logistic hub. Add transit time.
Freight cost for shipping of loaners	Included	Included	-
Repairs	Payable service	Payable service	-
Discount on repairs	20%	30%	Discount applies to spare parts and labor value
Time to repair	Prioritized	Prioritized	-
Access to spare parts	Yes	Yes	
Software update files	Included	Included	Including bugfixes and minor updates
Remote support during software update	Included	Included	Must be planned in advance
Software upgrade files	Payable service	Payable service	Higher edition of software
Remote Support during software upgrade	Included	Included	Must be planned in advance
Emergency response time	1 hour	30 minutes	-
Design / planning	Free of charge	Free of charge	Limited to overview planning and design. No detailed wiring diagrams, rack views
Installation of devices, cables	Not included	Not included	-
Installation of operation systems (OS) and support of third party IT systems	Not included	Not included	Can be ordered on a case by case basis
Commissioning Per remote or on-site	Payable service	Payable service	-
Technical training Per remote or on-site	Payable service	Payable service	-
Go live support Per remote or on-site	Payable service	Payable service	-

Assigned to one of the following time zones: Pacific Standard Time, Central European Time, Australian Eastern Standard time, depending on the system location.

²⁾ First Level Support
Our First Level Support team is your first point of contact. In First Level
Support we receive your request, fill in all needed information and document support we receive your request, min anneceded mornation and obcurrent it in our system. We will analyse the underlying problem and classify the request. Basic requests such as request for documentation, standard usage problems (e.g. on the physical layer) and basic configuration questions will be solved immediately using standard procedures and providing known solutions. More complex issues will be handed over to our Second Level

3) Second Level Support

Our Second Level Support covers complex inquiries and includes e-mail, telephone and remote support, log file analysis and reproduction of issues in a Riedel lab, if necessary.

Questions?

We are happy to answer all of your questions and tailor a service that fits your needs.

Contact your local Riedel office for more information.

www.riedel.net