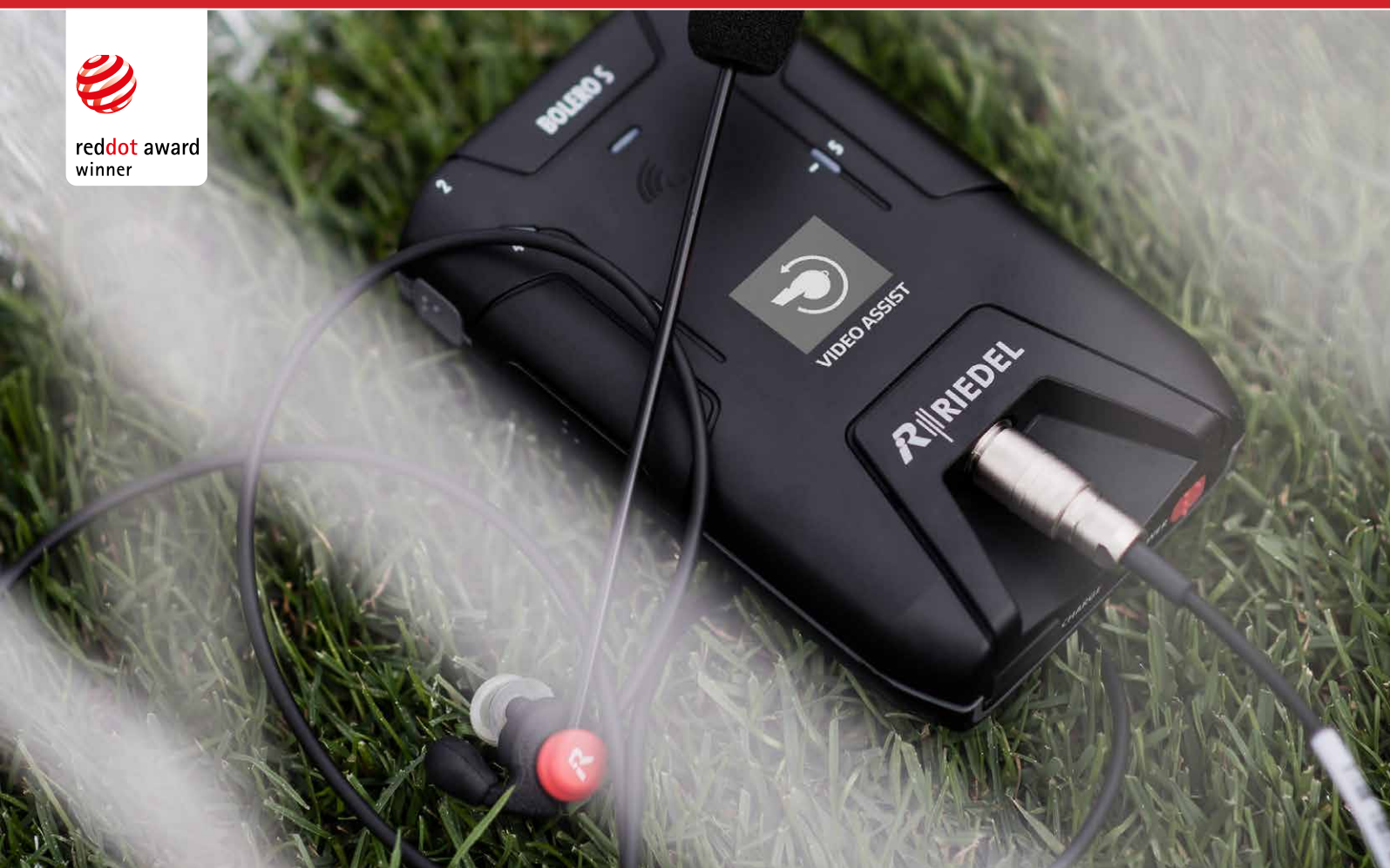


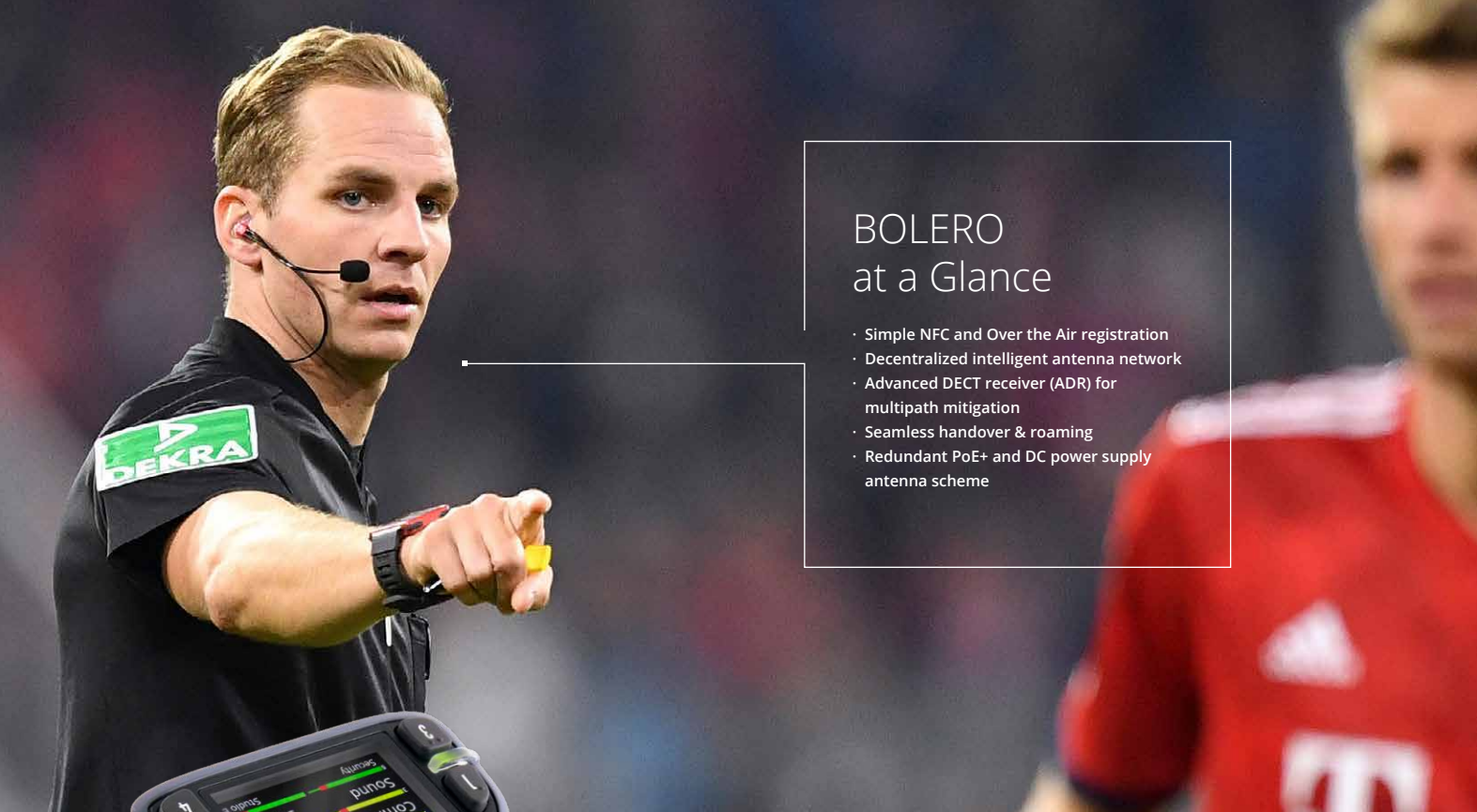


reddot award  
winner



# **BOLERO** WIRELESS INTERCOM

**BOLERO S REFEREE COMMUNICATIONS**



## BOLERO at a Glance

- Simple NFC and Over the Air registration
- Decentralized intelligent antenna network
- Advanced DECT receiver (ADR) for multipath mitigation
- Seamless handover & roaming
- Redundant PoE+ and DC power supply antenna scheme



## BOLERO S

Bolero S is the core of an all-new managed services offering built around the award-winning Bolero wireless intercom from Riedel Communications. Developed at the request of the German Football League (DFL) to address the comms requirements of its officiators, it pairs industry-leading intercom technology with custom engineering and hands-on support by Riedel-qualified engineers. The result is clear, reliable, and seamless communications that can be applied to any sport – for crew members, athletes, referees or coaches.

## WHY?

Bolero S is a truly unique solution – a custom-engineered, managed services offering borne of the DFL's specific need but based on Riedel's game-changing Bolero wireless intercom. Bolero S is not available as a stand-alone product; rather, it's offered exclusively for sports and is a part of Riedel's Managed Technology services. Subscribers get an entire package that includes locally installed communications hardware plus remote management of the entire system by comms experts from Riedel's ROC (Remote Operations Center).

Bolero S is an extensively tested and field-proven service, optimized for the specific challenges of communications in a noisy and crowded stadium environment. The headset, for example, is tuned to best deal with the ambient noise at any given time. A custom earmold manufacturer was enlisted to protect the user's hearing in these very noisy environments and to ensure optimal speech understanding through a perfect fit.

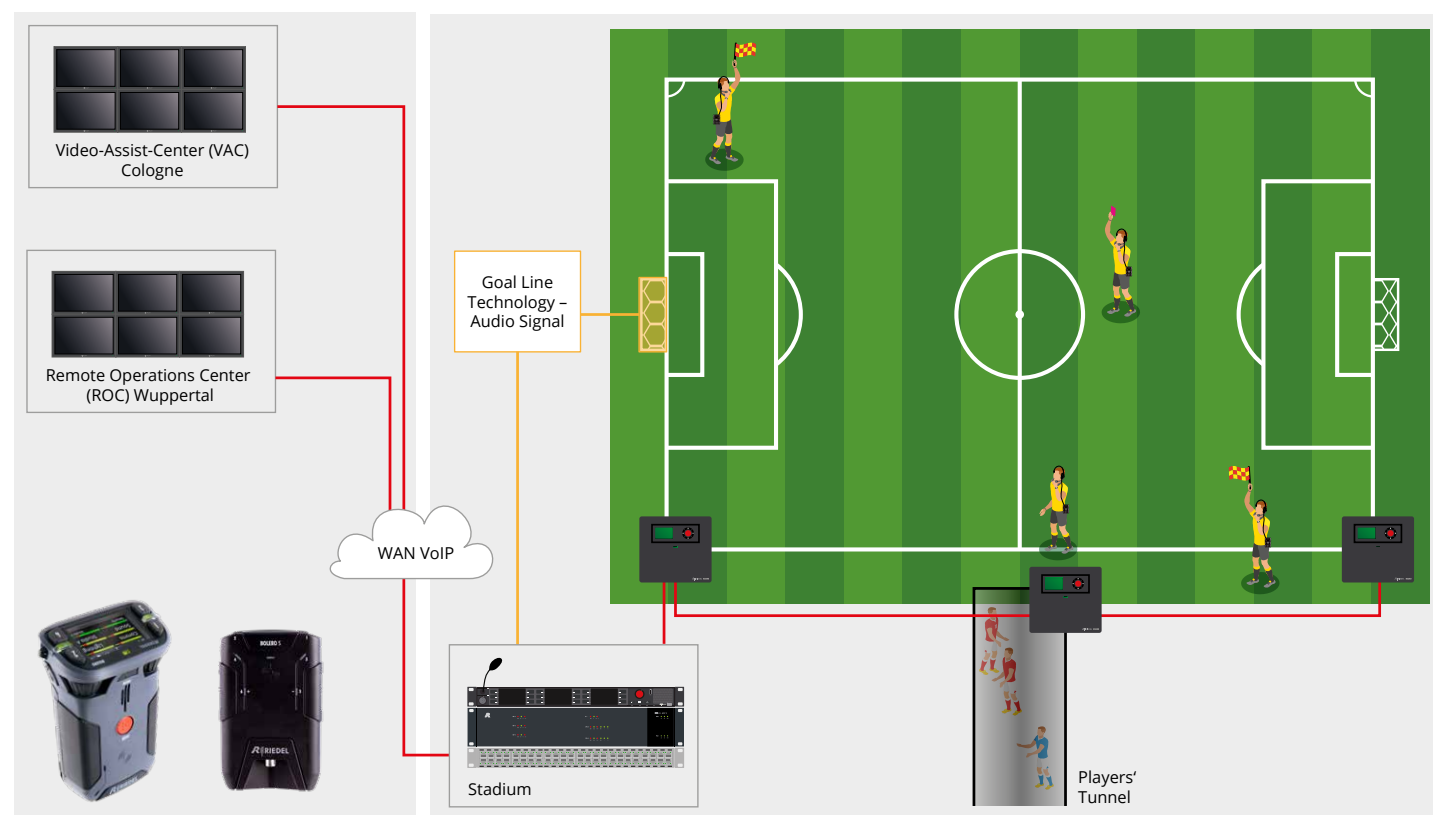
The live monitoring by Riedel's ROC engineers is another critical factor in ensuring that Bolero S facilitates reliable, clear communications between each stadium and the central video room in Cologne. The ROC actively and dynamically establishes the point at which the microphones' VOX circuit "opens," ensuring that sudden increases in the noise level (for instance, the crowd going wild after a goal) don't open the noise gate on the VOX circuit and activate the microphone. Only active monitoring and system adjustments can avoid these types of situations and maintain service levels.

In addition to DFL and FIFA, Bolero S has already made its way into several other sporting organizations – including MLB, NFL, and other major US leagues. Here, we were also able to demonstrate how the Bolero technology can actively shape sporting formats, e.g. with its unparalleled voice clarity allowing to make high-fidelity live PA announcements.





## REFEREE COMMUNICATIONS IN THE BUNDESLIGA



The 1st and 2nd German Bundesliga, as well as the Swiss soccer league, rely on Riedel's Bolero S for bulletproof referee communications at all of their matches. Bolero S connects the referee with his on-field assistants and with the Video-Assist-Center in Cologne.

Along with custom engineering, part of the Managed Sports Services is the support provided by our Remote Operations Center (ROC) in Wuppertal. There, trained staff can dynamically monitor and adjust audio levels to ensure optimal performance.

Other sports leagues around the world are looking closely at Bolero S for their referee comms while new applications like coach communications are being trialed by several high-profile clubs.



## VIDEO ASSISTANT

Bolero S antennas in the sports arena connect via AES67 to a Riedel Artist frame, which interfaces with the Riedel Remote Operation Center (ROC) in Wuppertal. There, experienced engineers monitor audio quality, RF performance, and battery life to ensure that everything runs smoothly throughout the match. Each official is equipped with a Bolero S pack and a customized Riedel RUN headset.





## FEEL THE ACTION



Riedel's leading-edge hardware and software technologies were at the core of the 360-degree concept for the coverage of the 36th America's Cup presented by PRADA, provided for the event by host broadcast partner circle-o. The concept included an innovative technology approach combining live TV production, event infrastructure, and race management for the premier sailing event in the Hauraki Gulf off Auckland, New Zealand.

Riedel delivered innovative camera solutions, new audio technologies, and sensor technology embedded in a comprehensive technical infrastructure. This was supported by an on-site team of 30 members managing all audio, video, communications, tracking, and data transmission systems, including signals from on-board cameras, chase boats, and helicopters. Since all camera, microphone, and transmission systems had to withstand extreme marine conditions, Riedel provided bespoke equipment aboard each competing yacht.

"We're thrilled to play such a foundational role in this year's battle for the America's Cup, the world's oldest international sporting trophy"

**Thomas Riedel**  
CEO and Founder  
Riedel Communications.





Riedel Communications GmbH & Co. KG  
Uellendahler Str. 353 | 42109 Wuppertal | Germany  
Phone +49 (0) 202 292-90 | [info@riedel.net](mailto:info@riedel.net) | [www.riedel.net](http://www.riedel.net)

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