

Case Q Study

How Italy's Serie A Football Broadcasts Scored Big With Jünger Audio™ AlXpressor



Elevating Broadcast Excellence at Lega Serie A with Jünger Audio's AIXpressor

In the dynamic realm of sports broadcasting, delivering an immersive experience to viewers isn't just expected – it's required. The excitement, the adrenaline, the chanting fans – these are all parts of the experience, but the expert, play-by-play commentary is also essential. How do you combine all these pieces into a single, thrilling broadcast?

The Italian Serie A Football League, with a relentless schedule of multiple matches broadcast in multiple languages (including Italian, English and Arabic) faces the formidable task of delivering seamless and engaging commentary plus immersive environmental audio for international audiences every season – an undertaking which demands not only operational efficiency but technical innovation. The need for real-time audio adjustments along with efficient distribution to broadcast partners poses significant challenges, with 5 different content streams produced and distributed in Italy, Europe, America, Asia, and the Middle East & North Africa for every single game.

The Client:

Lega Serie A, Italy's premiere soccer league, broadcasting multiple matches and match highlights each week in several languages to millions of viewers around the world.

The Requirement:

An automated solution for mixing venue audio de-embedded from SDI signals originating in remote stadiums with commentary audio received from the local Dante network, with automatic voice-over mixing of multiple independent language tracks and output loudness control compliant with international broadcast standards.

The Solution:

Seven Jünger Audio AIXpressors installed in the league's International Broadcast Centre, equipped with three SDI and one Dante interface each, are equipped with channel strips which apply automatic level control, voice processing, and an automatic voice-over mixer. Mixed audio is fed to the Centre's SDI network for delivery to broadcast partners.

Setting the Stage

El Towers, a leading infrastructure management company in Italy for TV, Radio, IoT and Telecommunications, has been the technical partner of Lega Serie A for a decade, providing contribution and distribution services for audio, video and data signals in Italy and around the world for broadcasters and rights holders. In 2021, El Towers built a brand new International Broadcast Centre (IBC) in Lissone, Italy, in which the League's game-day broadcasts originate.

This facility, spanning two floors in a sprawling 2,400 square meter building, was meticulously designed to manage audio, video, and data for 12 main signals (plus 12 backups) which are transported from the stadiums to the IBC for all the matches of the Championship, the Italian Cup and the Italian Super Cup. After production, the signals are redistributed via fiber links to DAZN, Sky Italia, Rai, Mediaset, and many other places across the globe using unique branding. The facility contains 24 editing stations, 16 commentary booths, 3 post-production rooms, 1 Control Content Room and a Master Control Room for video production, as well as 12 VAR (Video Assistant Referee) rooms for reviewing plays on the field.

Infrastructure to connect the 17 stadiums is also prodigious, boasting 10 + 10 Gbps stadium-to-IBC connectivity via optical fiber, transmitting 1080p50 HD and 2160p50 4K video signals – 320 signals sorted per match round!

The Challenge: Bridging the Language Divide

Commentary is an essential part of any sporting event, and because of its global audience, each Lega Serie A match receives commentary in Italian and English; additionally, 5 daily matches receive Arabic commentary broadcast on YouTube in the MENA region. In addition to live broadcasts and production of the matches, match highlights are produced in several varied lengths, also with Italian, English and Arabic commentary. To accomplish this, the IBC contains 16 commentary booths (14 single and 2 double) coupled with 24 post-production workstations.

With so much activity and so many audio channels needed to support the various language requirements, the need for real-time adjustments and efficient distribution to broadcasters posed significant challenges. A solution for automating the commentary streams was required that eliminated the need for mixing desks.

The Team Hero: Jünger Audio AIXpressor

After researching the options, Jünger Audio's Italian distributor, Video Progetti, delivered the solution to the challenges presented in producing these premier sporting events: the I/O and audio processing prowess of Jünger's AIXpressor, together with its automatic-mixing capabilities, delivered the functionality that Lega Serie A and EI Tower needed to make their goal.

AIXpressor, a versatile 1RU audio processing tool for professional broadcasting and production, employs advanced dynamics processing, noise reduction, and loudness management to enhance audio quality across various platforms, delivering clear, consistent sound output. Its intelligent algorithms effectively control dynamic range, balance audio levels, and suppress background noise, making

it an essential tool for refining audio in TV, radio, streaming, and post-production contexts. It can also convert between commonly used AoIP audio formats - including Telos Alliance Livewire+, AES67, SMPTE ST 2110-30 and -31 and Dante - while also providing support for traditional analog, MADI, AES3, SDI, and microphone signals.

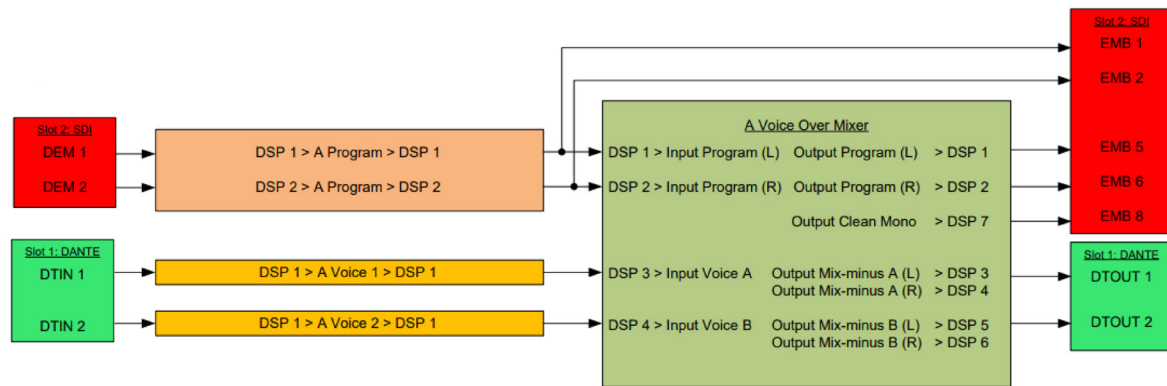
The Action On The Field

Within EI Tower's revamped facility, seven AIXpressors were deployed. Inside the AIXpressor, channel strips were built using Jünger Audio's highly-regarded audio processing algorithms, including automatic level control, voice processing, and an automatic voice-over mixer.

The workflow is as follows:

- Programs are transmitted from the stadiums to the Broadcast Centre (IBC) for all Championship matches, plus the Italian Cup and the Italian Super Cup. Stadium sound is delivered to the AIXpressors via SDI; each AIXpressor is equipped with several flexAI option cards to de-embed audio from the SDI channels.
- The fully automated voice-over mixers inside the flexAI software create mixes autonomously, freeing the sound engineer to tweak critical audio quality while focusing on other important tasks. This approach allows EI Towers to refrain from building full mixing suites for each game production.
- All program output feeds are loudness controlled according to international standards and are ready for broadcast.
- After processing, audio is delivered from the AIXpressors to the facility's SDI infrastructure.

A sample block diagram of the voice-over processing function is explained below:



- The signals “INT.LEFT” & “INT.RIGHT” from the stadium comes via SDI and is sent to the program leveler “A Program”. The output of that leveler feeds the program input of the “A Voice Over” mixer.
- The commentators’ line signals originate from a Glensound commentator unit via the local Dante network. It is sent to the respective voice processing channels “A Voice 1” and “A Voice 2.” Both processed voice signals are sent to the voice inputs of the voice-over mixer, “Input Voice A” and “Input Voice B.”
- The program output of the voice-over mixer is then embedded into the incoming SDI “EMB 5” and “EMB 6” channels, and the clean feed is embedded into “EMB 8”. The respective Mix-Minus outputs are available via the Dante network for use by the commentator boxes.
- Finally, the output of the program leveler is embedded in parallel into SDI channels “EMB1” and “EMB 2” for downstream use of the stereo mix.

Conclusion: The Game-Winning Play

Fully operational since the first Serie A TIM match on 21 August 2021, El Towers' revamped International Broadcast Centre ushered in a new era for the production of sporting events in Italy. The intelligent automation provided by Jünger Audio's AIXpressors yielded transformative results, with each AIXpressor enabling the simultaneous production of three different games with one or two commentators — or three independent language tracks for a single game event. The ongoing success of this project underscores Jünger Audio's pivotal role in providing pioneering audio technology that continues to shape the modern broadcast landscape.