Innovation from
Pro-Bel and Snell & Wilcox

Case Study

MBC Builds "Smart" IQ Modular™ Broadcast Infrastructure Throughout Korea

Leading public broadcaster relies on Snell to control its transition to digital and high definition broadcasting.

The Customer

MBC (Munhwa Broadcasting Corp.) is a leading multimedia public service broadcaster in Korea. MBC operates a single terrestrial TV and three radio channels and is a unique combination of a public institution, private corporation and a commercial enterprise. Broadcasting since August 8, 1969, MBC's television service now has access to 13.5 million households and coverage of 98 percent of the Korean peninsula. Its diverse program line-up includes everything from news to sports, cultural programs, nnews magazines, drama, and entertainment.

The Challenge

To grow into the digital and high-definition eras of broadcasting, MBC sought a controlled, planned infrastructure expansion model that could span multiple cities throughout Korea. Especially important to MBC was high-quality up and down conversion as it becomes a national leader in HDTV.

The Snell Solution

MBC chose Snell's IQ Modules due to their features, flexibility, reliability and built-in futureproof "intelligence." IQ modules are ideal "bridges" to interconnect "islands" of broadcast technology no matter whether analog, digital, high-definition or the most advanced file-based IT systems.

IQ modules handle analog and digital audio and video distribution, analog-to-digital and digital-to-analog conversion, video decoding and encoding, frame synchronization, audio conversion, subframe remapping, digital proc amp control, gamut legalization, and standards conversion for international program exchange.

The Snell RollCall™ Network Management System provides integrated monitoring and control capabilities of all IQ Modules. This allows engineers to comprehensively monitor a broadcast operation for all networks from a single PC.

MBC is particularly pleased with the Snell's IQDEC series and IQDMENCS modules, which provide high-quality decoding and encoding solutions, respectively.

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The Results
MBC successfully adopted Snell IQ Modular equipment as the central infrastructure of its TV stations. Installations, deployed on an incremental basis, are now operational in 18 cities.

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Using multi-aperture spatio-temporal filters, the IQDEC modules combine adaptive frame comb, adaptive line comb decoding, and audioprocessing features such as analog audio embedding. These modules also provide frame synchronization to lock incoming signals to a local reference. Analog audio can be input directly to the card, timed to match the videoprocessing delay, and embedded into the resulting SD-SDI stream. AES outputs are also included to enable easy signal monitoring if required.

A noise-reduction feature in the IQDEC range makes MPEG compression more efficient, saving valuable bandwidth. An auxiliary SDI input allows future SD-SDI lines to be accommodated. Additional features include video and audio firewalls to enable a continuous valid output, horizontal and vertical enhancers, video and audio proc. amps, and four assignable 8-channel audio mixers.

The IQDMENCS provides 10-bit composite encoding for SD-SDI signals with frame synchronization, full genlock, and minimum delay operation. Standards include PAL, NTSC, and SECAM.

MBC also found success with IQUDC, an advanced universal up-, down-, and crossconversion module. This module provides a level of HD conversion that was only previously available in 2-RU box-type converters. Moreover, it provides the unique ability to function as the upconverter for SD signals and as a synchronizer or downconverter for HD signals. This means local stations working in multiformat networks can always achieve the correct output format fromany input type.