The Affordable High Quality IP Audio Codecs

Bridge-IT II

Bridge-IT XTRA II

Tieline®
The Codec Company

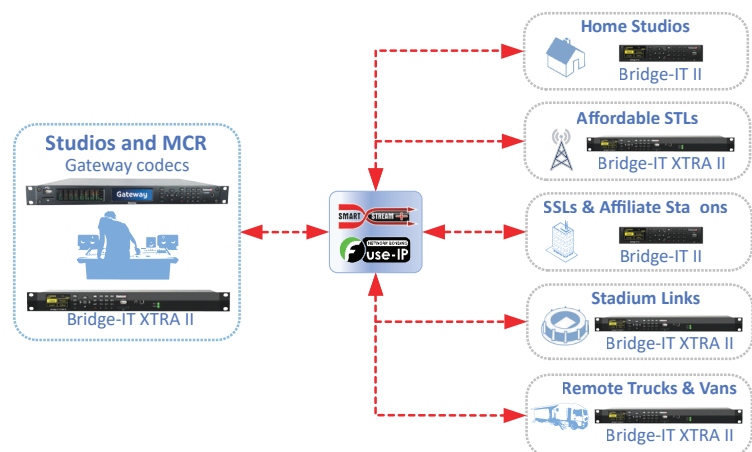# Bridge-IT - Beyond Expectations, Not Beyond Budget

Experience unparalleled audio quality and versatility with Bridge-IT II and Bridge-IT XTRA II audio codecs as they deliver flexible, low cost broadcasting solutions over IP networks. These codecs are designed to meet the demands of modern broadcasting and deliver affordable, reliable, and high quality IP broadcasting with:

➤ Exceptional audio quality with rock solid IP streaming reliability.

➤ Seamless integration throughout the latest IP network infrastructure.

➤ Multiple layers of redundancy.

➤ Simple configuration and control.

Unlike some low cost alternatives, Tieline's Bridge-IT II and XTRA II codecs have a front panel screen for simple, user-friendly operation. Smartstream PLUS redundant streaming and Fuse-IP data aggregation are included as standard to deliver rock-solid IP connections. A wide range of encoding options is available, including the AAC suite of algorithms, Opus, G.722, MPEG Layer 2, Enhanced aptX, Tieline Music and MusicPLUS.

Applications

➤ Home studios

➤ Simple remote broadcasts

➤ Studio-to-Transmitter Links (STLs)

➤ Interstudio / Studio-to-Studio Links (SSLs)

➤ Multi-unicasting

➤ Multicasting

Studios and MCR
Gateway codecs

Gateway

Bridge-IT XTRA II

SMART STREAM
Fuse-IP

Home Studios
Bridge-IT II

Affordable STLs
Bridge-IT XTRA II

SSLs & Affiliate Stations
Bridge-IT II

Stadium Links
Bridge-IT XTRA II

Remote Trucks & Vans
Bridge-IT XTRA II

Bridge-IT II

Bridge-IT II is the ideal affordable solution for home studios and simple remote broadcasts. Connect it to a LAN and simultaneously connect a USB cellular data interface, delivering hitless packet switching using SmartStream PLUS redundant streaming. Attach a microphone and headset for home studio use and simple remote broadcasts, or broadcast stereo high fidelity live audio from events like concerts, sporting events and conferences. Two codecs fit side-by-side in a single 1RU 19" rack tray for studio installations.

Bridge-IT XTRA II

Bridge-IT XTRA II is ideal for a wide range of broadcast applications, including STLs, inter-studio links, remote truck or stadium installations, as well as multi-unicasting or multicasting. The codec includes all the features in the Bridge-IT II, plus dual internal IEC power supplies, dual Ethernet ports and dual AoIP ports for AES67/ST 2110-30/ST2022-7 IP networking. The codec also natively supports Livewire+ and RAVENNA.

Key Features

Features	Bridge-IT II	Bridge-IT XTRA II
OLED Menu Screen	Yes	Yes
Analog Inputs	2 (Ch1 mic/line level; Ch2 line level)	2 (Ch1 mic/line level; Ch2 line level)
Digital AES3/AoIP Input Channels	2	2
IP Streaming	Mono, Dual Mono, Stereo	Mono, Dual Mono, Stereo
LAN Ports	2 (unless 2nd port used for AoIP)	2
AoIP Ports	LAN 2 switchable to AoIP	2
USB Host Port for Cellular Data/Tethering	Yes	Yes
Native AoIP Protocols	AES67, ST 2110-30, Livewire+, RAVENNA	AES67, ST 2110-30, ST 2022-7, Livewire+, RAVENNA
Power	12VDC	Dual Internal IEC Power Supplies
SmartStream PLUS Redundant Streaming	Included as standard	Included as standard
Fuse-IP Data Bonding	Up to 3 IP interfaces	Up to 3 IP interfaces
Failover Options	Connection, SD card file playback, HTTP streaming	Connection, SD card file playback, HTTP streaming
Multi-unicasting / Multicasting	Yes	Yes
Remote Control	HTML5 Web-GUI and optional Cloud Codec Controller	HTML5 Web-GUI and optional Cloud Codec Controller

Interoperability

Bridge-IT II and Bridge-IT XTRA II codecs are backwards compatible with all Tieline IP codecs. In addition they include:

➤ EBU N/ACIP Tech 3326 SIP compliance with non-Tieline codecs and devices.

➤ Native support and compliance with AES67, ST 2110-30, Livewire+ and RAVENNA. Plus, Bridge-IT XTRA II supports ST 2022-7 seamless protection switching.

➤ NMOS IS-04 and IS-05 compliance.

By natively supporting AES67, ST 2110-30, Livewire+ and RAVENNA, the codecs integrate seamlessly into AoIP infrastructure at the broadcast plant. This delivers simple discovery and routing of AoIP audio sources and destinations.

Failover and Backup Options

For affordable STLs, the Bridge-IT II and Bridge-IT XTRA II support failing over to:

➤ An alternative connection over a LAN or attached cellular modem, or

➤ Pre-recorded audio files on SD card, or

➤ An HTTP Icecast or Shoutcast stream.

Both codecs feature automated connection failover and failback, as well as SD card file failover, making them ideal for STLs, SSLs, and other multi-unicasting and multicasting applications.

Monitoring and Remote Control

It doesn't matter whether a codec is deployed at a transmitter site or a radio host's home, real-time monitoring and management of connections is simple with the built-in Toolbox HTML5 web-GUI, or optional Cloud Codec Controller software. This provides peace of mind when a codec is hard to reach in a hurry. SNMP support is also included.
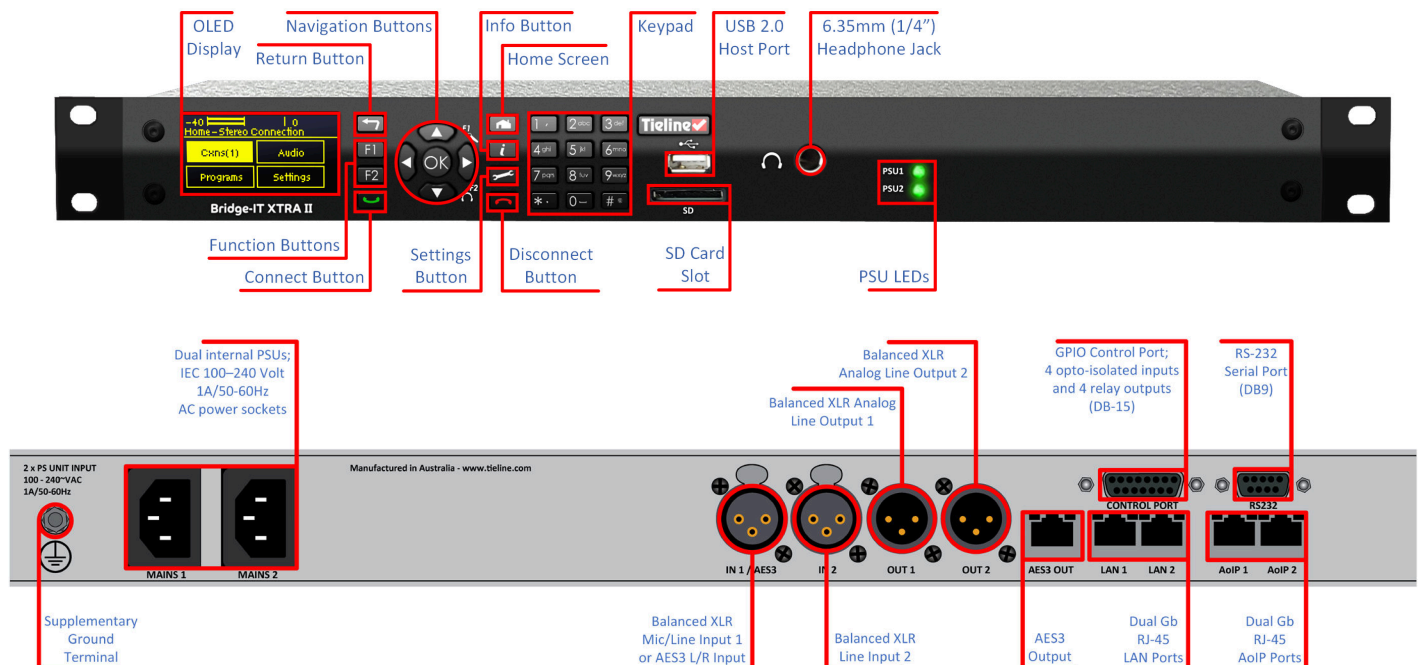
Our Ongoing Tieline Commitment

When you purchase Tieline codecs you get:

➤ Free technical support with comprehensive documentation.

➤ Free firmware updates.

➤ New product manufacturer warranty.

Bridge-IT II Front and Rear Panel Connections

OLED Display
Navigation Buttons
Return Button
Info Button
Home Screen
Keypad
USB 2.0 Host Port

Function Buttons
Connect Button
Settings Button
Disconnect Button
SD Card Slot

Balanced XLR Analog Line Output 2
Balanced XLR Analog Line Output 1
GPIO Control Port; 4 opto-isolated inputs / 4 relay outputs (DB-15)
Stereo 6.35 mm (¼") Headphone out
RS-232 Serial Port (DB9)

IN 1 / AES3   IN 2   OUT 1   OUT 2   AES3 OUT   LAN 1   LAN 2 / AoIP   12V ⎓ 1.5A

CONTROL PORT   RS232   Manufactured in Australia www.tieline.com

Balanced XLR Mic/Line Input 1 or AES3 L/R Input
Balanced XLR Line Input 2
AES3 Output
Dual Gb RJ-45 LAN Ports; LAN2 switches to AoIP
2.5mm 12V DC Power Input

Bridge-IT XTRA II Front and Rear Panel Connections

OLED Display
Navigation Buttons
Return Button
Info Button
Home Screen
Keypad
USB 2.0 Host Port
6.35mm (1/4") Headphone Jack

Function Buttons
Connect Button
Settings Button
Disconnect Button
SD Card Slot
PSU LEDs

Dual internal PSUs; IEC 100–240 Volt 1A/50-60Hz AC power sockets
Balanced XLR Analog Line Output 2
Balanced XLR Analog Line Output 1
GPIO Control Port; 4 opto-isolated inputs and 4 relay outputs (DB-15)
RS-232 Serial Port (DB9)

2 x PS UNIT INPUT 100 - 240~VAC 1A/50-60Hz
Manufactured in Australia - www.tieline.com

MAINS 1   MAINS 2   IN 1 / AES3   IN 2   OUT 1   OUT 2   AES3 OUT   LAN 1   LAN 2   AoIP 1   AoIP 2

CONTROL PORT   RS232

Supplementary Ground Terminal
Balanced XLR Mic/Line Input 1 or AES3 L/R Input
Balanced XLR Line Input 2
AES3 Output
Dual Gb RJ-45 LAN Ports
Dual Gb RJ-45 AoIP Ports

Specifications

Common Input/Output Specifications

Analog Audio Inputs	2 x Female XLR (Channel 1 mic/line; channel 2 line only)
Analog Audio Outputs	2 x Male XLR left and right outputs
AES3 Left/Right Input	1 x female XLR (Channel 1 in; shared with Ch1 analog input)
AES3 Left/Right Output	1x RJ-45
USB 2.0 Host Port	USB Type-A supports connecting a single device like a cellular modem, or a tethered cellphone; 500mA power for charging
SD/SDHC/SDIO Card Slot	Full size push-push SD card slot for backup/restore config, firmware upgrades, and file failover playback of MPEG Layer 2, MPEG Layer 3, AAC, uncompressed 24-bit stereo PCM
AES3 (AES/EBU)	24 bit inputs with support for sample rates from 32kHz to 96 kHz; 24 bit outputs
Audio Input Impedance	High Impedance > 10k ohm
Output Impedance	<40 ohm Balanced
Clipping Level	+24dBu
A/D & D/A Converters	24 bit
Frequency Response	20Hz to 20kHz
Total Harmonic Distortion	<0.005% at +19dBu, 1kHz
Signal To Noise Ratio	> 96dB at +4dBu, unweighted, 20Hz − 20kHz
Crosstalk	< -80dB between adjacent channels

Bridge-IT II Input/Output Specifications

Headphones	1 x 6.35mm (1/4") Jack on rear panel
Gigabit LAN Port	Gbit Ethernet port for IP streaming over WANs
Gigabit LAN/AoIP Port	Second Gbit Ethernet port for IP streaming over WANs, or configure as AoIP port for AoIP streaming (AES67, ST 2110-30, Livewire+, RAVENNA)
AES3 Left/Right Output	1 x RJ-45
12VDC, 1.5A Power Input	2.5mm Jack with Thread Lock

Bridge-IT XTRA Input/Output Specifications

Headphones	1 x 6.35mm (1/4") Jack on front panel
Gigabit LAN Ports	2 x Gbit Ethernet ports for IP streaming over WANs
Gigabit AoIP Streaming Ports	2 x Gbit Ethernet ports for AoIP streaming (AES67, ST 2110-30, ST 2022-7, Livewire+, RAVENNA)
AES3 Left/Right Output	1 x male RJ45
AC Power inlet sockets	Dual AC 90-240V IEC power inlets; 1A 50-60 Hz

Encoding and IP Streaming

Encoding Formats	Tieline Music, Tieline MusicPLUS, Opus, G.711, G.722, MPEG Layer 2, MPEG Layer-3 LC-AAC, HE-AAC, HE-AACv.2, AAC-LD, AAC-ELD, 16/24 bit aptX® Enhanced algorithm. MPEG audio technologies licensed by Fraunhofer IIS (http://www.iis.fraunhofer.de/audio)
Uncompressed IP	Linear PCM16/24 bit 32kHz, 44.1kHz, 48kHz sampling
IP Sample Frequencies	8kHz, 16kHz, 32kHz, 44.1kHz, 48kHz
Asymetric Encoding	Supports asymetric multi-format encoding
Protocols	RTP, DHCP, SNMP, DNS, HTTP, IGMP, IPv4/IPv6, RTCP, STUN, SSL Security Certificate
SmartStream PLUS	Primary plus 2 redundant streams supported
Multi-unicasting	Bridge-IT II up to 6 endpoints; Bridge-IT XTRA II up to 10 endpoints
Multicasting	Support for Multicasting over compatible IP networks
Fuse-IP	Bond up to 3 IP interfaces to aggregate data

Data and Control

Config/Connectivity	HTML5 Toolbox Web-GUI, Cloud Codec Controller (CCC)
GPIO Control Ports	4 relay inputs and 4 opto-isolated outputs via female DB-15 connector
Serial	RS232 up to 115kbps with or without CTS/RTS flow control via female DB9 connector, can be used as a proprietary data channel

AoIP Standards & Specifications

EBU N/ACIP Tech 3326	Audio Contribution Over IP Compliant
I3P EBU Tech 3347	Intercom Over IP Compliant
N/ACIP 3368	SIP Profiles Compliant
AES67 Compliant	44.1.kHz, 48kHz, 96kHz Sample rates; 16 & 24 Bit, SDP
SMPTE 2110-30 Compliant	Sender and Receiver Compliant
RAVENNA Compliant	Natively supports RAVENNA Stream Discovery and Advertisement
Livewire Compliant	Natively supports Livewire+ for AoIP streaming
ST 2022-7 Compliant	Bridge-IT XTRA II is compliant with requirements for sending multiple redundant streams of RTP packets to enable seamless protection switching
NMOS Compliant	NMOS IS-04 & IS-05 Discovery, Registration and Connection Management
Supported Audio Frames	125us, 250us, 333μs, 1ms, 4ms, 5ms
Clock Modes Supported	Primary Leader, Follower, Follower Only

Advanced Networking

VLAN Tagging	IEEE 802.1Q,802.1p
Quality of Service (QoS)	Support for DiffServ (DSCP)
Synchronization	IEEE 1588-2008 (PTPv2)
Multicasting	IGMP v2 and v3
SAP	SAP v2 (Session Announcement Protocol) as defined in RFC 2974

General

Display	128 x 64 OLED display
Keypad	20 button keypad
Navigation	5 button keypad
Dimensions (Bridge-IT II)	8 5/8" x 6 31/32" x 1 11/16 " [219mm (W) x 177mm (D) x 43mm (H)] including rear connectors and front panel buttons
Dimensions (Bridge-IT XTRA II)	19" x 6 27/32" x 1 47/64" [483mm (W) x 174mm (D) x 44mm (H)] including rear connectors and front panel buttons
Weight	Bridge-IT II 3lb 2oz / 1.4kg; Bridge-IT XTRA II 5lb 14 oz / 2.66kg
Power Consumption	Bridge-IT XTRA II: ~12W one PSU, ~18W both PSU at 240VAC dual IEC Power Inlets
Operating Temp	0°C to 40°C (40°F to 104°F)
Humidity Operating Range	30% ≤RH ≤90% (0 to 40°C), non-condensing

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