

# i series Trader Voice Solutions

## iG330 – Digital Gateway

### Features Include

- Support for Hoot 'n' Holler and Private Wires (ARD/MRD)
- Conversion of Digital (E1/T1) Signalling to *i* series Speakerbus Real Time Protocol (SbRTP) and UDP Unicast Wide Area Network (WAN)
- Single E1/T1 Interface Emulating Analogue Signalling for 2-Wire or 4-Wire E&M, 2-Wire FXO \ FXS or 4-Wire Non Signalling
- Customisable Channel Associated Signalling
- Conversion of IP Recording Channels to Digital (E1/T1) Channels Offering Connectivity to Digital Voice Recording Solutions
- Embedded Resiliency via Connectivity to a Secondary iG330
- Optional Dual Redundant Hot Swappable Power Supplies
- Comprehensive Set of Front Panel Indicators Providing Real-time Status Updates
- Durable 1U Metal Enclosure



iG330 - *i* series Digital Gateway

### Overview

Financial institutions consider Private Wire and Hoot 'n' Holler voice services to be an integral part of any trading environment. Speakerbus' *i* series iG330 digital gateway integrates multiple Private Wire and Hoot 'n' Holler services using a single digital (E1/T1) circuit to connect to an IP environment.

The *i* series is a suite of Voice over Internet Protocol (VoIP) applications that increase the resilience, flexibility and power of trading room voice solutions, through a "Plug and Trade" approach to trader voice technology. Based on dedicated network hardware and IP packet technology, the *i* series product family maintains traditional voice quality and scalability standards while offering an evolutionary migration to a pure IP environment.

At the heart of the *i* series IP solution suite is Speakerbus enhanced SbRTP technology, which was developed to deliver exceptional voice quality across the Local Area Network (LAN). The iG330 converts a wide range of signalling protocols to SbRTP and Unicast WAN packet technology, ensuring that Hoot 'n' Holler and/or Private Wire calls reach the end user without the distracting latency between speakers.

The iG330 can run in two dedicated modes. Mode one enables digital circuits to be presented as Hoot 'n' Holler and/or Private Wires to Speakerbus' *i* series devices. Mode two enables connectivity to a TDM voice recording system by converting the IP recording channels to a digital connection. Each iG330 supports either (30) E1 digital channels or (24) T1 digital channels. Larger implementations may require multiple iG330's.

Speakerbus' iG330 includes redundancy features such as digital E1/T1 pass through and a secondary hot-swappable Power Supply Unit (PSU) providing back up support to the primary PSU. Offered in a standard 1U 19" rack unit, the iG330's compact design ensures rapid, convenient installation and implementation. Configuration and setup of the iG330 is via an intuitive web-based interface.

### Channel Capacity

- Single E1/T1 Channel Associated Signalling (CAS)
- Fractional E1/T1 Channel Associated Signalling (CAS)

### Call Types

- Hoot 'n' Holler
- Private Wires (PLARD and MRD)

### Protocol Conversion of SBRTP LAN to:

- Unicast WAN (UDP)
- E1/T1 Channel Associated Signalling (CAS)

### Signalling Types

- Call Types
  - Hoot 'n' Holler
  - Private Wires (PLARD/PLMRD)
- Signalling Types
  - Private Wire (ARD/MRD) E&M Immediate, Wink or Delay Start
  - Private Wire (ARD/MRD) FXO and FXS Loop or Ground Start
  - Hoot 'n' Holler No signalling
- Customisable CAS Settings
  - D4 PLAR Custom 1 to 3
  - Ring Down Custom 1 to 3

### Mixing Capability

- 30 unique groups that are able to interconnect with the following audio sources, IP WAN links, E1/T1 Channels and SBRTP Channels<sup>1</sup>

### Network Requirements

- Network 100 Base-Tx (full duplex)
- IP addressing: Dynamic or Static
- Voice LAN: Multicast network utilisation IGMP and supporting SBRTP
- Other supported network protocols: Ethernet, IPv4, DHCP, TCP/IP, DNS & HTTPS

### VoIP Media

- Transmission protocol on LAN: Speakerbus Real Time Protocol (SBRTP) enhanced– 16KHZ voice bandwidth (adjustable packet sizes 1ms, 2ms and 4ms)
- Typical latency over LAN 6ms (using 1ms packet sizes)
- Max packet loss 5-7%
- Bandwidth utilisation per LAN stream (not including Ethernet pre-amble) between 416K/ bits to 836K/bits (dependent upon packet size configuration)

- Bandwidth utilisation per WAN stream between 14kbits/s to 100.8 kbits/s (dependent upon packet size and voice compression configuration)<sup>2</sup>
- Audio compression on the WAN: G.711 PCM 3.4kHz A-law/U-law; G.729 Annex A – CSACELP; G.722 7kHz audio-coding within 64kbit/s
- Bandwidth optimisation techniques: VAD (Voice Activity Detection)
- DiffServ RFC 2475 – Type of service field configurable

### System Management

- Individual device management via integral HTTPS server
- Browser support either IE6, IE7 and IE8, Mozilla Firefox v2.0, v3.0 and up to and including v3.5
- Upgradeable operating firmware

### Status Indicators

- Power supplies 1 and 2
- Software status
- Ethernet ports status
- LAN TX and RX
- WAN error
- T1/E1 alarms:- LOS, LOF, AIS & RAI

### Dimensions

- 1U high 19" wide rack mount (with detachable rack mounting brackets)
- Width: 432 mm
- Height: 1U
- Depth: 294 mm
- Weight: 4.5Kg

### Power Requirements

- Dual redundant hot-swappable 110v-230v AC PSU's<sup>3</sup>

### Interfaces

- E1/T1 Line, RJ45 sockets
- E1/T1 Pass-through, RJ45 sockets
- 2 x Network interface 10/100 base Ethernet auto sensing LAN, RJ45 sockets<sup>4</sup>
- 8 Pin mini din com port (reserved for use by Speakerbus)

- Handset test socket, RJ12
- USB host (not supported)
- IEC connector for PSUs (on rear of unit)

### Operating Environmental

- Operating temperature 0°C to 35°C
- 10% to 90%, RH non condensing

### Regulatory

- EC Directive 2002/96/EC (WEEE)
- RoHS compliance
- EMC standards - EU- EN55022; EN55024; USA - FCC part 15; JPN - VCCI V-3/02.04
- Safety - IEC60950-1 :2001 (1st Edition); EN 60950-1:2001 + A11: 2004
- E1/T1 interface standards
  - ITU-T G.703/4/6
  - ITU-T G.824
  - ITU-T I.431
  - TBR 12/13
  - I.431/ETS 300 011
  - ANSI T1.403
- Telecom approvals
  - EU: TBR12/13
  - USA: 47CFR Part 68, TIA-1096, TIA-968-A, TIA-968-A-1, TIA-968-A.2, TIA-968-A-3, TIA-968-A-4 & TIA-968-A-5
  - Canada: CS-03
  - Japan: Ordinance 31
  - Hong Kong: HKTA 2028
  - Australia: AS/ACIF S016

1. Limitations on the number of links/channel variants per mixer group is governed by the available onboard DSP resource

2. The figures quoted are for a one way RTP stream without voice activity detection enabled

3. A secondary PSU must be purchased separately

4. Redundancy support planned for a future release

