

# WorldCast Horizon

## Professional Audio over IP Networking



Designed to offer peace of mind for critical audio links, the WorldCast Horizon provides real-time, bi-directional, broadcast-grade audio over IP networks using linear audio or Enhanced apt-X coding.

Perfect for STLs and mission-critical applications, the WorldCast Horizon offers either analog or digital audio I/O and an IP port for control and streaming. Supplied with APT's Content Management System (CMS) software, the WorldCast Horizon provides extensive control and monitoring capabilities to manage your audio, data and network conditions.

### Delivering Exceptional Audio Quality

- Fully duplex stereo audio codec
- Available audio bandwidths from 10Hz through to 22.5kHz, for FM, AM and HD Radio™/DAB applications
- Analog or AES/EBU (AES3) I/O, Digital Reference In
- 16 and 24 bit word resolution
- Dynamic Range of up to >120dB
- Enhanced apt-X algorithm and Linear PCM 16 bit and 24 bit resolution

### Ensuring Extensive Connectivity

- High quality audio transport over IP networks using RTP/UDP and SIP/SDP
- Auxiliary data for transmission of RBDS / RDS or PAD (can be embedded in audio stream at 1200 - 9600 baud or sent via separate IP connection at 1,200 - 115,200 baud)
- Up to 4 Opto-coupled Inputs and up to 8 Relay Outputs

### Enabling Professional Audio over IP Networking

- Support for Unicast & Multicast applications for flexible IP configuration
- EBU N/ACIP Compliant with support for SIP/SDP protocols
- "Autosync™" feature of Enhanced apt-X ensures consistent high quality and robust connection under stressed network conditions and super fast, automatic reconnection if a link is dropped
- Codec Management System (CMS) Software enables extensive management of network conditions such as packet size, jitter buffers and QoS levels for optimum audio performance

### Providing a Robust Professional Platform

- Fully Redundant IP & Audio Path using optional APT Audio Switcher
- Adjustable Silence Detection with alarm output to enable switching between redundant sources
- DSP-based architecture for 24/7/365 reliability

### Allowing Simple Management and Monitoring

- Highly Intuitive Codec Management Software (CMS) enables remote configuration & management
- User-definable access levels and logins maintain network security

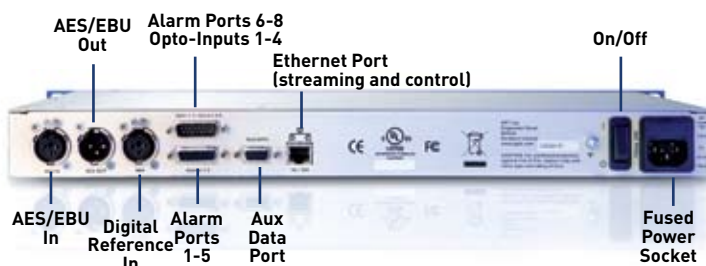
### Technical Specification

Physical	Size	1U x 19" Rackmount
	Dimensions	44mm x 482mm x 220mm 1.75" x 19" x 10.63"
	Weight	2.25Kg / 5lbs
	Power Supply	100-250VAC, 50-60Hz (optional 48VDC Supply)
	Power Consumption	<15W
	Environmental	0°C to +55°C, 95% humidity

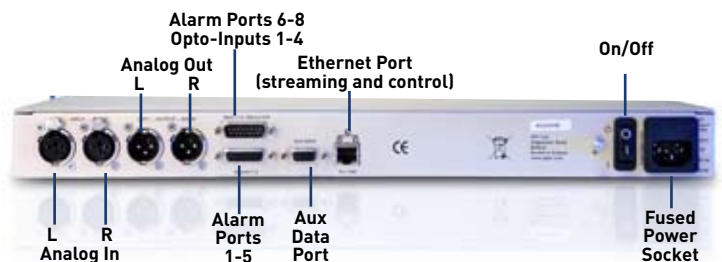
Interfaces	IP	Ethernet 1 x RJ45, RTP/UDP, SIP/SDP, SHOUTcast, Icecast
	Aux Data	9 pin D Type, RS232 level
	Data Rates (embedded)	1200, 2400, 4800, 9600 Baud
	Data Rates (via IP)	1200, 2400, 4800, 9600, 19200, 38400, 76800, 115200 Baud
	Control	CMS Software
	Digital Audio I/O	AES/EBU, Balanced XLR-3, Impedance 110 Ω
	Digital Ref Input	XLR-3
Audio	Alarms	8 Alarms on 15 pin D Type
	Opto-Coupler	15 way D Type, 4 Inputs driving 4 Relay Outputs

Audio	Digital Operation	32kHz, 44.1kHz, 48kHz
	Digital Audio Bandwidth	10Hz through to 22.5kHz mono & stereo
	Sample Rate Converter	3:1 (with bypass modes)
	Standard Coding	Enhanced apt-X 16-Bit & 24-Bit, Linear PCM 16 & 24 Bit (Linear: 32kHz & 48kHz sampling)
	Compression Ratio	apt-X: 4:1 others: variable
	Coding Delay	Enhanced apt-X 1.9ms @48kHz Fs
	Dynamic Range	16 Bit > 85dB 24 Bit > 120dB
	Phase Response Linear	DC to Fs/2
	Pass Band Ripple	< 0.2dB

### Digital Unit: Back Panel View

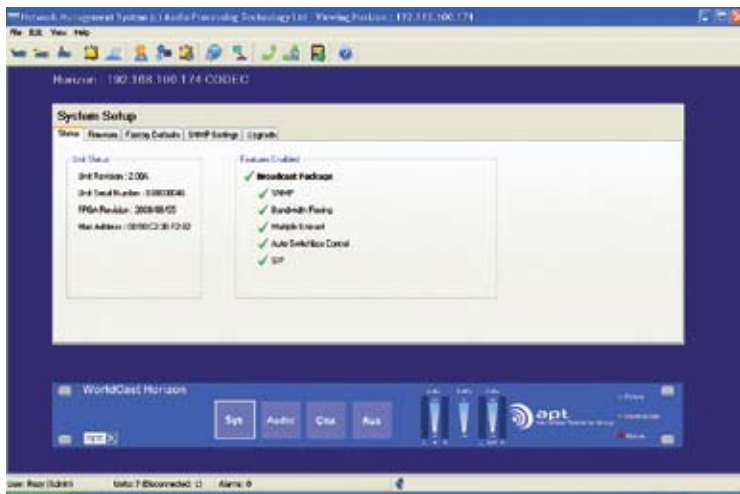


### Analog Unit: Back Panel View



# Broadcast Package for WorldCast Horizon

An optional Broadcast Package is available for the WorldCast Horizon enabling the additional functionality required for selected broadcast applications. These features include Bandwidth Flexing, SNMP, SIP support, Multiple Unicast and control of the Audio Switcher unit described below.



## 1) Bandwidth Flexing

On detection of input silence, the Bandwidth Flexing feature will send a series of 'keep alive' packets to ensure the IP connection remains active. This enables the most efficient use of available bandwidth as it reduces the IP traffic required to a minimum while not affecting the status of the link.

## 2) SIP

Ensuring maximum compatibility with all compliant IP audio codecs, SIP (Session Initiation Protocol) enables automation of both peer-to-peer and SIP server-based connections. As part of the Broadcast Package, the user can avail of a SIP address book, for all frequently used destinations, a SIP Dialler for hassle-free set-up and the ability to set both audio and IP preferences to aid with auto-negotiation between codecs.

Activated by a software key, the Broadcast Package is available as an upgrade to existing WorldCast Horizon units or as an option at the time of purchase.

## 3) SNMP

With support for SNMP enabled, the TRAP function can be implemented for the following alarms:

- Autosync
- Silence detect on left input or right input
- Network Transmission or Receiver Alarm
- Audio alarm, left output or right output
- Loss of digital input or Loss of digital reference
- Reduced bandwidth

SNMP SET functionality is available for Destination IP address, VCXO Operating Mode, RX enabled and TX enabled.

## 4) Multiple Unicast

Multiple Unicast allows a user to transmit one stream to a total of 8 different destinations. A copy of each packet sent to the primary IP address will be copied to up to 7 additional transmit routes.

## 5) Audio Switcher Control

The Broadcast Package is required in order to enable control of the Audio Switcher unit (see below). Once enabled, the status of the Audio Switcher can be monitored from the CMS software.

## WorldCast Horizon HD



Designed specifically for HD Radio™ applications, the WorldCast Horizon HD is a duplex stereo codec enabling the delivery of both FM and HD1 content from studio to transmitter site. The unit can also provide a LAN extension to a remote site.

Offering both a T1/E1 and ethernet interface, Broadcasters can utilize existing T1 and E1 links for the FM transport and send their HD1 content as a UDP stream embedded in the T1/E1 link. At the remote/transmitter link, the HD1 content is presented back on the IP port.

As a fully duplex device, WorldCast Horizon HD allows off-air monitoring or an independent channel to backhaul RPU feeds. An RS232 port is available for PAD and contact closures for remote control.

## Audio Switcher



For mission critical applications where an additional layer of redundancy is required, APT's Audio Switcher provides the ability to monitor audio output and /or input and automatically switch to a second codec system upon loss of sync.

This two-channel unit will switch two outputs (typically stereo pairs) between two pairs of inputs and, in the reverse direction, switch two inputs between two pairs of outputs. The control inputs to the switchover box will typically be connected to the sync alarm of the main audio codec.

The Audio Switcher Unit also provides control outputs in the form of voltage signalling. These will typically be connected to the codec's opto-isolator inputs and will interface with the Codec Management System software. They will therefore be used to display the state of the Audio Switcher (i.e. Main or Backup operation) to the CMS operator.

# Codec Management Software on WorldCast Codecs

Supplied as standard with all WorldCast units, APT's Codec Management Software (CMS) package is a powerful and intuitive graphical user interface which enables extensive remote monitoring and management capability of up to six units deployed throughout a network. For larger networks and multi-unit control, APT's Network Management Software (NMS) extends the functionality of the CMS and offers a complete, professional network management solution.

## Mode / Status View ▶

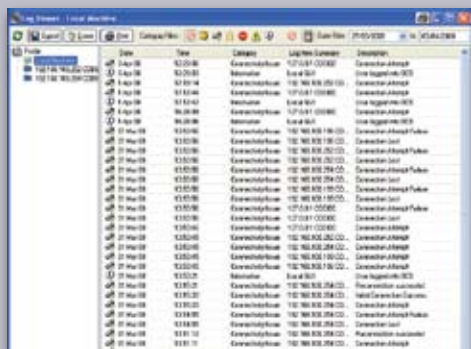
Click on any unit to see detailed configuration and connection settings. Graphical representation shows live status view of level bars and enables configuration of primary and back-up connections as well as Master / Slave status.



## Web Browser ▲

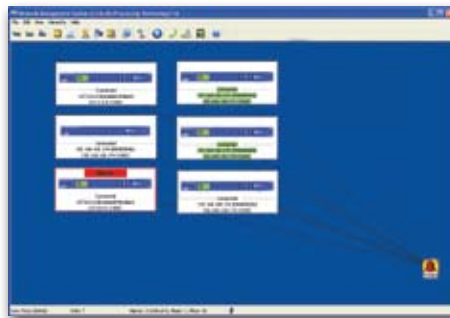
When a user chooses the dual IP ports on the WorldCast Astral or WorldCast Equinox, they automatically receive access to the APT web browser.

The web browser application delivers the full functionality of the CMS software but with the added benefit of being accessible from any location with an IP connection.



## Alarm and Event Logs ▲

View and save logs of all connection activity and alarms through this screen. Logs can be filtered by event category e.g. major, minor or critical or by individual codec.



## ◀ Network Overview

At-a-glance view of multiple units throughout your audio network enables easy monitoring of multiple sites and provides immediate notification of alarms, alerts and other network issues.

## Connection Settings ▶

Configure your IP network settings to transmit or receive unicast, multicast or multiple unicast streams. You can also set packet size, QoS and buffer levels to compensate for network jitter. Store up to 150 fully configured IP Speed Dials for simple, fast connection to frequently-used locations. X.21/V.35 and ISDN settings can also be extensively managed through this screen.



## ◀ Audio Settings

This screen enables you to configure audio alarm levels and time-outs, set algorithms and data rates and establish pre-set configurations (audio profiles) which can be assigned to connection speed dials for 'one-click connection'.

## SIP Dialler ▶

Enabling 'one click' connection, the SIP Dialler is an intuitive interface enabling the simple setup and teardown of SIP calls. It allows all commonly used destinations and settings to be stored in an address book for easy access by non-technical users.

