

SONIFEX

Professional PCIe Sound Cards &
Radio Capture Cards

2014-15
Catalogue



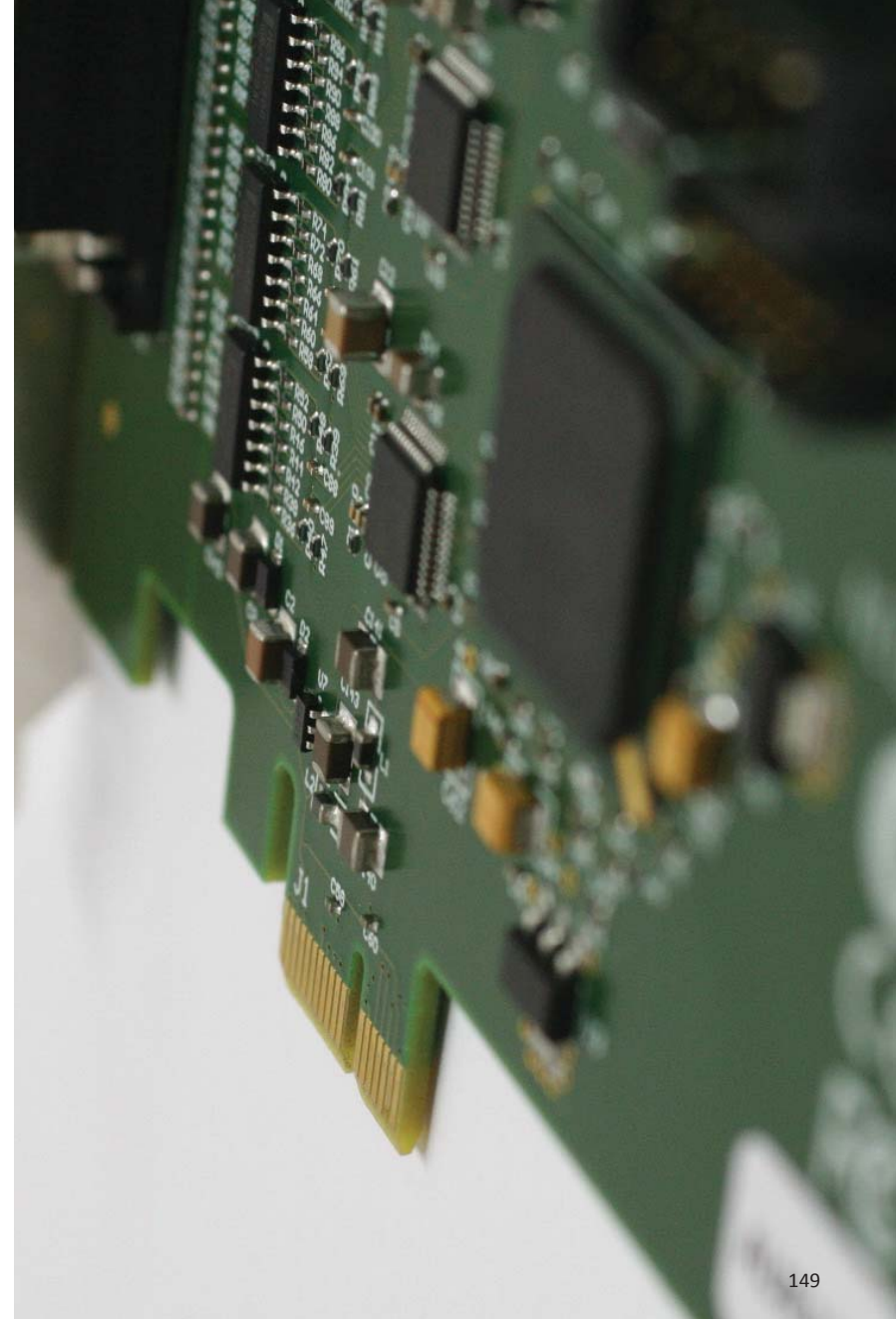
Professional PCIe Sound Cards & Radio Capture Cards

Professional PCIe Sound Cards

| | | |
|----------|--|-----|
| PC-DIG4 | Digitorc 4, 4 Stereo AES-3 I/O PCIe Sound Card | 150 |
| PC-AUR44 | Auricon 4.4 PCIe Analogue Sound Card | 151 |

Radio Capture Cards

| | | |
|-----------|--|-----|
| PC-DAB1-4 | Multi-Ensemble DAB+/DAB Radcap PCIe Card | 152 |
| PC-FM6-32 | FM Radcap PCIe Card (6 to 32 Channels) | 153 |
| PC-AM6-32 | AM Radcap PCIe Card (6 to 32 Channels) | 154 |



Professional Sound Cards These professional sound cards and radio capture cards have been precision engineered by Innes Corporation in Australia, designers of the world's finest audio and radio capture cards. Use of the highest quality components & excellent electronic design give these cards the flatest frequency response in the business.

PC-DIG4 Digitorc 4, 4 Stereo AES-3 I/O PCIe Sound Card



Category: Professional Sound Cards & Radio Capture Cards.

Product Function: Provides four AES-3 audio inputs and outputs for use in a PC.

Typical Applications:

Audio workstations, automation systems, audio logging, multi-channel layout.

Features:

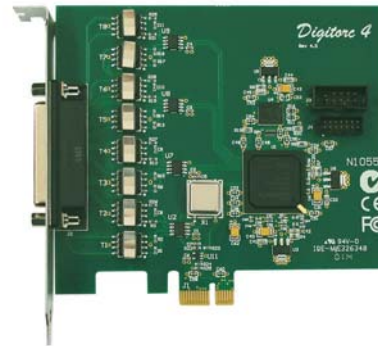
- 4 independent transformer-coupled AES-3 inputs and outputs.
- 24-bit audio resolution.
- Sampling rates up to 96kHz.
- Asynchronous sampling rate converters on each input.
- Card synchronisation to any input or NTP-locked system clock.
- 32 and 64 bit drivers for Windows XP, & Windows7/8.
- WDM-compliant supporting Wave, DirectSound, DirectShow and Core Audio APIs.

The Digitorc 4 has four AES-3 stereo input and output channels on a Windows platform and is fully compatible with the Wave, DirectSound, DirectShow, MCI and Core Audio APIs.

On the card is implemented both a single lane bus-master PCIe interface and four x 24-bit AES-3 codecs. Independent asynchronous sampling rate conversion on the inputs supports rates from 32kHz to 96kHz, while the output rate can be configured as 96kHz, 88.2kHz, 48kHz, 44.1kHz or 32kHz, either free-running or locked to an AES3 or AES11 reference on any of the inputs. When used with an internet time standard (e.g.ntp.org), a very precise sampling rate can be achieved.

Software sampling rate conversion is automatically inserted by Windows when the application rate does not match the hardware rate, ensuring that files of any sample rate can be played. Extended software bit depths of 32 and 24 bits are supported as well as 16 and 8 bits for playback and recording.

The playback topology consists of a master output level, mute control and peak meter, a wave level and mute control, and input monitor level and mute controls for each of the line inputs. The record topology consists of a master input level, mute control and peak meter, line input level controls for each of the physical inputs and a digital loopback level control and mute. The range



The Digitorc 4, 4 Stereo AES-3 I/O PCIe Sound Card

on the input and output master controls is -96dB to +6dB, while the individual line controls range from -96dB to 0dB. The mixer functions allow inputs to be mixed back into each output, while a digital loopback is available from each playback channel into its corresponding record channel. High quality electrostatically-shielded transformers are used on all the inputs and outputs to give superb performance.

Multiple cards may be installed in a single PC.

A 25-pin D-type connector to 8 x XLR breakout lead is offered as an option.

Specification for PC-DIG4 Digitorc 4 AES3 Sound Card

Operating Systems Supported

| | |
|-----------|---|
| Platform: | Windows XP, Server 2003, Vista, Server 2008, Windows 7, Server 2008 R2, Windows 8 and Server 2012 (32- and 64-bit versions) |
|-----------|---|

Features

| | |
|----------------------------|--|
| Card Interface: | Single lane PCI Express version 1.1 |
| Line Interface: | Transformer coupled AES3 (AES/EBU) |
| Line Output Sampling Rate: | 96kHz, 88.2kHz, 48kHz, 44.1kHz or 32kHz (configurable) |
| Line Input Sampling Rate: | 32kHz to 96kHz via independent asynchronous sampling rate converters |
| Audio Resolution: | 24 bits |
| Sampling Rate Accuracy: | +/- 5ppm |
| External: | AES11 compliant synchronisation: |
| Frequency Response: | DC to 43.5kHz (at 96 kHz sampling) |
| Connector: | 25-pin D-type female |

Equipment Type

| | |
|---------|---|
| PC-DIG4 | Digitorc 4 4 stereo AES-3 I/O PCIe sound card |
|---------|---|

Physical Specification

| | |
|---------------|--|
| Dims (Raw): | 14cm (L) x 12.5cm (H) x 2cm (D) 5.5" (L) x 4.9" (H) x 0.8" (D) |
| Dims (Boxed): | 27cm (L) x 22.5cm (H) x 6cm (D) 10.6" (L) x 8.9" (H) x 2.4" (D) |
| Weight: | Nett: 0.10kg Gross: 0.20kg Nett: 0.2lbs Gross: 0.4lbs |

Accessories

| | |
|-----------|-------------------------------|
| PC-DIG4BC | Digitorc 4 XLR breakout cable |
|-----------|-------------------------------|

PC-AUR44 Auricon 4.4 PCIe Analogue Sound Card



Category: Professional Sound Cards & Radio Capture Cards.

Product Function: Provides four stereo balanced analogue audio inputs and outputs for use in a PC.

Typical Applications:

Audio workstations, automation

systems, audio logging, multi-channel playback.

Features:

- 4 independent high level balanced stereo inputs and outputs.
- 24-bit audio resolution.
- Sampling rates up to 192kHz.
- 32 and 64 bit drivers for Windows XP, & Windows 7/8.
- WDM-compliant supporting Wave, DirectSound, DirectShow and Core Audio APIs.
- Simultaneous record/play per channel.

The Auricon 4.4 is a professional quality 4 stereo input and 4 stereo output analogue PCIe audio card. The inputs and outputs can be reconfigured as separate mono channels, giving eight inputs and outputs.

It is supplied with a Windows WDM driver to provide full sound card functionality under Windows XP, Server 2003, Vista, Server 2008, Windows 7, Server 2008R2, Windows 8 and Server 2012.

The card uses 24-bit 192kHz sigma-delta converters which pass data to and from the PC via a single lane PCI Express interface. An onboard FPGA provides audio buffering, level adjustment and mixing functions. Hardware sampling rates of 48kHz, 96kHz and 192kHz

are available, with the Windows sampling rate converter transparently providing support for other rates. The card supports extended bit depths to 32 bit and the software sampling rate and bit depth (32, 24, 16 or 8 bits PCM) can be set independently for each input and output channel.

Windows Wave, DirectSound and DirectShow API's are supported, as are a variety of audio compression modes via the Windows Audio Compression Manager or other software compression systems. On Windows Vista/Server 2008 and later systems, the Core Audio API is also fully supported.

There are four configuration settings for the Auricon 4.4, these being Mode (stereo/mono), H/W Sampling Rate, Input Coupling



The Auricon 4.4 PCIe Analogue Sound Card

and Nominal Line Level. The mode may be configured as either stereo or mono. In mono mode the number of input and output channels that Windows sees is doubled. The nominal line level can be set to +8dBu, +4dBu or 0dBu. In each case the clipping level is 16dB above the nominal level. The input coupling can be set to either DC or AC (the default is AC).

The playback topology consists of a master output level, mute control and peak meter, and input monitor level and mute controls for each of the line inputs. The record topology consists of a master input level, mute control and peak meter, and level controls and mutes for the physical input and digital loopback. The digital loopback allows the output of the card to be digitally mixed back into the input. The range on the input and output

master controls is -96dB to +6dB, while the individual line controls range from -96dB to 0dB.

Multiple cards may be installed in a single PC.

A 44-pin high-density D-type connector to XLRs breakout lead is offered as an option.

Specification for PC-AUR44 Auricon 4.4 PCIe Analogue Sound Card

Operating Systems Supported

| | |
|-----------|---|
| Platform: | Supports Windows - XP, Server 2003, Vista, Server 2008, Windows 7, Server 2008 R2, Windows 8, Server 2012 (32-bit and x64 versions) |
|-----------|---|

Audio Specification

| | |
|---------------------|---|
| Dynamic Range: | 114dB typical (unweighted) |
| Input Impedance: | 20k (balanced) |
| Output Impedance: | 40Ω (balanced) |
| Maximum Signal: | +24dBu (34.6Vp-p) |
| Frequency Response: | Input – DC to 88kHz (DC coupling) 1Hz to 88kHz (AC coupling) Output – DC to 88kHz (192kHz hardware sampling rate) |
| Connector: | 44-pin high-density D-type female |

Equipment Type

| | |
|----------|--------------------------------------|
| PC-AUR44 | Auricon 4.4 PCIe analogue sound card |
|----------|--------------------------------------|

Physical Specification

| | |
|---------------|--|
| Dims (Raw): | 14cm (L) x 12.5cm (H) x 2cm (D) 5.5" (L) x 4.9" (H) x 0.8" (D) |
| Dims (Boxed): | 27cm (L) x 22.5cm (H) x 6cm (D) 10.6" (L) x 8.9" (H) x 2.4" (D) |
| Weight: | Nett: 0.10kg Gross: 0.20kg Nett: 0.2lbs Gross: 0.4lbs |

Accessories

| | |
|------------|--------------------------------|
| PC-AUR44BC | Auricon 4.4 XLR breakout cable |
|------------|--------------------------------|

Radio Capture Cards

Radio capture cards don't have inputs and outputs, other than an aerial to capture the required signal. They allow a PC to record or monitor a number of DAB/DAB+, FM or AM radio channels so are useful for logging and monitoring applications.

PC-DAB1-4 Multi-Ensemble DAB+/DAB Radcap PCIe Card



Category: Professional Sound Cards & Radio Capture Cards.

Product Function: Simultaneous audio capture of multiple DAB services for use in a PC.

Typical Applications:

Audio logging, station monitoring, media tracking.

Features:

- Simultaneous capture of every audio service across multiple ensembles.

- Available in 1, 2, 3 or 4 ensemble versions with field expansion option.
- Tunes Band III (174-240 MHz) using standard European channel numbers.
- DAB+ and legacy DAB supported
- Each service appears as a standard audio input device.
- 32 and 64 bit drivers for Windows Vista and all later versions.
- WDM-compliant supporting Wave, DirectSound, DirectShow and Core Audio APIs.
- API for monitoring, control and PAD extraction.
- Sample application for displaying DLS text and MOT slideshow.

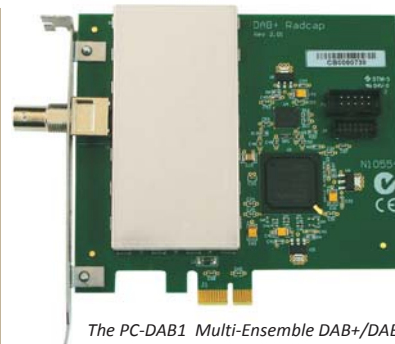
The PCIe DAB+/DAB radio capture card receives and decodes the entire contents of up to four DAB+/DAB ensembles, rendering each audio service as a virtual Windows audio capture device for use with multi-channel recording or monitoring software.

Broadcast data services, including DLS text and MOT slideshows, are also available through a simple application programming interface.

The card supports both legacy DAB MP2 audio coding as well as the new HE-AAC v2 encoding used with DAB+ broadcasts.

Any application that records from standard wave input devices can be used to record the audio streams from the DAB+ Radcap. A recording level and mute control are provided for each service through the devices' mixer ports.

A sample monitor application is included which displays a control panel for each card and creates buttons for each audio service. When a button is clicked, it plays the audio through the default output device while



The PC-DAB1 Multi-Ensemble DAB+/DAB Radcap PCIe.

displaying information obtained from the service and any DLS text and MOT images being broadcast.

The number of ensembles is factory-set as 1 (PC-DAB1), 2, 3 or 4 (PC-DAB4) but is field-expandable through a purchased expansion key. Multiple cards can be installed, allowing simultaneous monitoring or recording of more than four ensembles.

A sample application is provided with the card, allowing monitoring of DAB+/DAB audio and data as well as providing diagnostic ensemble spectrum displays, signal quality indicators and an uncorrected error counter. Each card panel displays the ensemble name and identifier, along with the phase reference correlator level and signal spectrum.

Specification for PC-DAB1-4 Multi-Ensemble DAB+/DAB Radcap

System Requirements

| | |
|--------------|---|
| Platform: | Windows Vista, Server 2008, Windows 7, Server 2008 R2, Windows 8, Server 2012 (32-bit and 64-bit versions supported) (Note: Windows XP and Server 2003 are not supported) |
| Processor: | 2GHz quad-core or better |
| Memory: | 1GB minimum |
| Motherboard: | PCIe socket, single lane or greater |
| Other: | Sound card or motherboard sound port for monitoring |

Specifications

| | |
|-------------------------------|---|
| Tuning Range: | Band III (174-240 MHz) |
| DAB Format: | Mode 1 |
| RF Input: | BNC connector |
| PCIe Interface: | Single lane PCIe 1.1 |
| Number of Ensembles: | Factory-configured for 1, 2, 3 or 4 ensembles (field-expandable for an additional fee) |
| Total Number of Services: | 128 |
| Error Correction: | Soft-decision Viterbi inner decoder, Reed-Solomon outer decoder |
| Audio Decoding: | MP2 and HE-AAC v2 |
| Audio Format: | 48kHz 16-bit stereo (other application sampling rates and bit depths supported through the Windows SRC) (24kHz and 32kHz services are internally up-converted to 48kHz) |
| Decoding Latency: | 3 seconds |
| Equipment Type | |
| PC-DAB1-4 | Multi-ensemble DAB+/DAB radcap PCIe card |
| Physical Specification | |
| Dims (Raw): | 14cm (L) x 12.5cm (H) x 2cm (D) 5.5" (L) x 4.9" (H) x 0.8" (D) |
| Dims (Boxed): | 27cm (L) x 22.5cm (H) x 6cm (D) 10.6" (L) x 8.9" (H) x 2.4" (D) |
| Weight: | Nett: 0.10kg Gross: 0.20kg Nett: 0.2lbs Gross: 0.4lbs |

PC-FM6-32 FM Radcap PCIe Card (6 to 32 Channels)



Category: Professional Sound Cards & Radio Capture Cards.

Product Function: Simultaneous audio capture of multiple FM radio stations for use in a PC.

Typical Applications:

Audio logging, station monitoring, media tracking.

Features:

- Simultaneous capture of multiple FM

stations.

- Available in 6, 12, 18, 24 and 32 station versions with field expansion option.
- Tunes 87.5-108.5 MHz in 25kHz steps.
- Stereo and RDS decoding.
- Each station appears as a standard audio input device.
- 32 and 64 bit drivers for Windows XP and all later versions, as well as Debian Linux.
- WDM-compliant supporting Wave, DirectSound, DirectShow and Core Audio APIs (Windows) and ALSA (Linux).
- API for monitoring and control.

The FM Radcap PCIe is a radio capture card designed for simultaneous recording of multiple radio stations. The frequency of each station is set in software and its audio appears as a standard Windows audio input device. RDS decoding is also supported.

The card uses a high-speed A/D converter to digitise the entire FM band, with up to 32 individual tuners. The Radcap achieves exceptionally low audio distortion through the use of linear phase filtering and mathematically precise FM demodulation and stereo decoding. FM demodulation and stereo decoding is done in FPGA

fabric, while RDS decoding, if enabled, is performed in the driver using the host CPU's SSE-2 instruction set. This division of labour between the FPGA and driver allows greatest flexibility in catering for future baseband technologies while minimising the CPU overhead of the card.

A WDM driver for Windows XP (SP2 or later), Server 2003, Vista, Server 2008, Windows 7, Server 2008 R2, Windows 8 and Server 2012 is supplied as well as software for setting the tuner frequencies and monitoring the received audio. A programming API and DLL for software control and monitoring are also supplied.



The PC-FM6-32 FM Radcap PCIe Card (6 to 32 Channels).

The card can be configured to operate in stereo, mono or paired mono (two mono stations combined on a 2-channel audio stream) modes. Multiple cards can be used in a single PC, subject to available CPU bandwidth. The audio de-emphasis may also be set to either 50us or 75us. In Australia, New Zealand and Europe 50us is used, while in the USA and Canada 75us is used.

A utility called FMSpectrum is supplied. This displays the RF spectrum from 85MHz to 111MHz, using data from the card's front-end 256-point FFT and may be useful in selecting the best location for the antenna or resolving interference problems.

The card is factory-configured for 6 (PC-FM6), 12, 18, 24 or 32 (PC-FM32) stations, but may be expanded in the field for an additional charge.

Specification for PC-FM6-32 FM Radcap PCIe (6 to 32 channels)

System Requirements

| | |
|------------|---|
| Platform: | Windows XP (SP2 or later), Server 2003, Vista, Server 2008, Windows 7, Server 2008 R2, Windows 8 and Server 2012 (32-bit and 64-bit versions) |
| Processor: | 2.5GHz Pentium 4 or better |
| Memory: | 256 MB minimum (1GB for Vista Windows 7/Server 2008, 2GB for Windows 8/Server 2012) |
| Bus: | Single lane PCI Express v1.1 |
| Other: | Sound card or motherboard sound port for monitoring |

Specifications

| | |
|----------------------|---|
| Tuning Range: | 87.5MHz to 108.5MHz in 25kHz steps |
| Sensitivity: | 10uV for 40dB S/N |
| Maximum Input: | 150mV RMS |
| RF Input Impedance: | 75Ω |
| De-emphasis: | Configurable as 50us or 75us |
| Audio Distortion: | <0.01% |
| Audio Sampling Rate: | 48kHz (all other rates automatically supported via Windows sampling rate converter) |
| Number of Stations: | 6, 12, 18, 24 or 32 (factory configured but end-user expandable) |
| RDS Decoding: | Optionally enabled in driver configuration |

Equipment Type

| | |
|-----------|--|
| PC-FM6-32 | FM Radcap PCIe card (6 to 32 channels) |
|-----------|--|

Physical Specification

| | |
|---------------|---------------------------------|
| Dims (Raw): | 14cm (L) x 12.5cm (H) x 2cm (D) |
| | 5.5" (L) x 4.9" (H) x 0.8" (D) |
| Dims (Boxed): | 27cm (L) x 22.5cm (H) x 6cm (D) |
| | 10.6" (L) x 8.9" (H) x 2.4" (D) |
| Weight: | Nett: 0.10kg Gross: 0.20kg |
| | Nett: 0.2lbs Gross: 0.4lbs |

PC-AM6-32 AM Radcap PCIe Card (6 to 32 Channels)



Category: Professional Sound Cards & Radio Capture Cards.

Product Function: Simultaneous audio capture of multiple AM radio stations for use in a PC.

Typical Applications:

Audio logging, station monitoring, media tracking.

Features:

- Simultaneous capture of multiple AM stations.
- Available in 6, 12, 18, 24 and 32 station versions with field expansion option.
- Tunes 500-1610 kHz in 1kHz steps.
- Each station appears as a standard audio input device.
- 32 and 64 bit drivers for Windows XP and all later versions, as well as Debian Linux.
- WDM-compliant supporting Wave, DirectSound, DirectShow and Core Audio APIs (Windows) and ALSA (Linux).
- API for monitoring and control.

The AM Radcap PCIe card is a radio capture card designed for simultaneous recording of up to 32 radio stations. The frequency of each individual station may be set in software and its audio appears as a standard Windows audio input device.

The AM Radcap uses a high speed analogue-to-digital converter to digitise the entire AM band, with advanced digital signal processing on a Spartan 6 FPGA used to tune and extract the audio for each individual station. It can be configured to either create a separate audio stream for each station or to pair stations together as 2-channel streams.

A WDM driver for Windows XP, Windows 7/8 and other versions is supplied as well software for setting the tuner frequencies and monitoring the received audio.

A recording level control, mute control and peak meter are provided for each station (or pair of stations) through the devices' mixer ports. The default level setting is 50%, and at this setting 100% modulation will produce a peak audio level 6dB below clipping.

A utility called AmSpectrum is supplied. This displays the RF spectrum from 500kHz to 1700kHz and may be useful in selecting the best location for the antenna or resolving interference problems. The receiver bandwidth can be set to wide (default) or



The PC-AM6-32 AM Radcap PCIe Card (6 to 32 Channels).

narrow. The narrow setting restricts the audio response to about 3kHz, which may be useful in noisy environments.

A utility program called Tuner is also supplied which can be used to set the frequency of each station and to monitor each station through the PC's standard sound card or motherboard sound port. The Tuner program also provides relative signal strength indicator bars which may be useful in adjusting antenna placement.

The card is factory-configured for 6 (PC-AM6), 12, 18, 24 or 32 (PC-AM32) stations, but may be expanded in the field for an additional charge.

Specification for PC-AM6-32 AM Radcap PCIe (6 to 32 channels)

System Requirements

| | |
|------------|---|
| Platform: | Windows XP, Server 2003, Vista, Server 2008, Windows 7, Server 2008 R2, Windows 8, Server 2012 (32-bit and 64-bit versions) |
| Processor: | 1GHz Pentium II or better |
| Memory: | 128MB minimum (1GB for Vista and later systems) |
| Bus: | Single lane PCI Express v1.1 |
| Other: | Sound card or motherboard sound port for monitoring |

Specifications

| | |
|----------------------|--|
| Tuning Range: | 500kHz to 1710kHz in 1kHz steps |
| Sensitivity: | 50uV for 40dB S/N |
| RF Input Impedance: | 50Ω |
| Filter Attenuation: | 82dB at 15kHz or more from centre frequency |
| Audio Bandwidth: | 5kHz |
| Audio Distortion: | <0.1% |
| Audio Sampling Rate: | 22.05kHz (other rates supported via Windows SRC) |
| Number of Stations: | 6, 12, 18, 24 or 32 |

Equipment Type

| | |
|-----------|--|
| PC-AM6-32 | AM Radcap PCIe card (6 to 32 channels) |
|-----------|--|

Physical Specification

| | |
|---------------|--|
| Dims (Raw): | 14cm (L) x 12.5cm (H) x 2cm (D) 5.5" (L) x 4.9" (H) x 0.8" (D) |
| Dims (Boxed): | 27cm (L) x 22.5cm (H) x 6cm (D) 10.6" (L) x 8.9" (H) x 2.4" (D) |
| Weight: | Nett: 0.10kg Gross: 0.20kg Nett: 0.2lbs Gross: 0.4lbs |

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