

DAB-4c

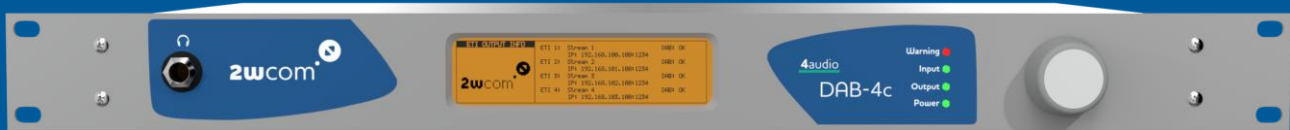
Multi-format EDI/ETI and ETI/EDI converter

Datasheet

Highlights

- Multiformat EDI/ETI and ETI/EDI converter for up to 4 channels
- High-density DAB distribution inserter
- EDI/ETI redundancy switch

EDI/ETI Converter and Switch



The DAB-4c is a professional DAB distribution extractor and inserter. It offers EDI/ETI conversion, ETI/EDI conversion and EDI level conversion for up to 4 DAB multiplexes. The DAB-4c can be configured as a 4x EDI/ETI converter, a 4x ETI/EDI converter or a 4x EDI level converter. Additionally, the DAB-4c monitors all EDI/ETI streams and a pair of ETI/EDI input sources can operate as a redundant configuration.

Flexible in Application – Pay as You Grow

- Versatile in serving various use cases
- Upgradeable with hardware and software options according to your needs

Dedicated to your use case

The DAB-4c can be customized with a variety of different features:

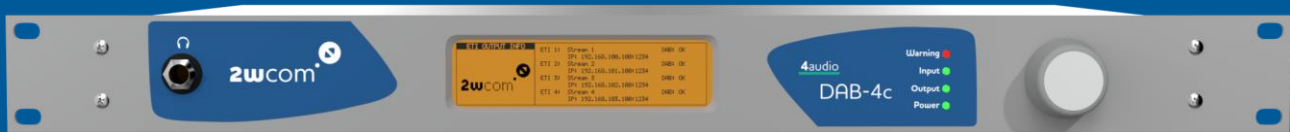
- Adaptation of FEC levels and buffer behavior of EDI streams
- Convert EDI to ETI (NI or NA) for interoperability between IP-based distribution and existing ETI chains
- Convert ETI inputs to EDI streams for IP-based distribution
- Integrated transport stream multiplexing
- Forward MPE and GSE streams directly from Transport stream to IP
- Encode and decode EDI via SRT for stable DAB feeds over unmanaged networks
- Redundancy and backup switching
- Freely assign inputs to converters and converters to outputs
- Configure ETI inputs as additional outputs (mirrored routing)
- Integrated DAB monitoring with optional tuner
- Optional power-down relays for fail-safe ETI bypass

Advanced Streaming Robustness – Unmatched Broadcast Resilience

- Forward Error Correction (FEC) and dual streaming for resilient, redundant streams
- Secure and reliable streaming over unpredictable networks with Secure Reliable Transport (SRT)*
- Manage packet size, buffering, and Quality of Service (QoS) for a robust streaming performance

*optional

EDI/ETI Converter and Switch



Reliable and Uninterrupted Operation

- 2 dedicated IP interfaces for data transmission, along with an extra IP interface for control, allow a dependable IP streaming experience.
- All 3 IP interfaces can be flexibly configured for either data transmission or control.
- Redundant power supplies (90 – 260 VAC or 48 VDC) provide a fail-safe system, ensuring continuous operation even during a power supply failure.

User-Friendly and Streamlined Access

- Modern and easy-to-use web interface
- Uniform operating concept across all 2wcom devices for maximum usability
- LCD menu for direct on-site access

Smart Management and Seamless Integration

- Well-established APIs and physical control seamlessly integrate into your current infrastructure: Rest API, Ember+, SNMP, NMOS, and GPI
- Stay informed: Flexibly configurable alarm events and notifications over SNMP, GPO, and front panel LED

Verified IP Security

- High-level security within open IP infrastructures
- Thoroughly examined by independent audit authorities through whitelist/blacklist penetration tests



Reception

Satellite Tuner

	Basic DVB-S/S2 Single Tuner (optional)	Dual DVB-S/S2/S2X Tuner (optional)
Connector RF1	F connector female (input)	F connector female (input)
Connector RF2	F connector female (loop-through)	F connector female (2 nd input)
Frequency range	950 – 2.150 MHz, in 1 kHz steps All LNB oscillator frequencies possible	950 – 2.150 MHz, in 1 kHz steps All LNB frequencies possible
Input level, impedance	-75 – -20 dBm, 75 Ω	-75 – -20 dBm, 75 Ω
LNB Control	13 V vertical, 18 V horizontal, off 0 kHz low band, 22 kHz high band	13 V vertical, 18 V horizontal, off 0 kHz low band, 22 kHz high band
Noise figure	Typically 6 dB, max. 12 dB	Typically 6 dB, max. 12 dB
DVB-S demodulation/Decoding	QPSK: 1/2, 2/3, 3/4, 4/5, 5/6, 7/8 CCM VITERBI and Reed-Solomon decoder DIRECTV™ (DSS) compliant	QPSK: 1/2, 2/3, 3/4, 4/5, 5/6, 7/8 CCM VITERBI and Reed-Solomon decoder DIRECTV™ (DSS) compliant
DVB-S2 / S2X demodulation/Decoding	QPSK: 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 8/10 8PSK: 3/5, 2/3, 3/4, 5/6, 8/9, 9/10 Roll-off 0.35 CCM LDPC and BCH decoder S2 Broadcast Profile	QPSK: 1/4, 1/3, 2/5, 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 8/10 8PSK: 3/5, 2/3, 3/4, 5/6, 8/9, 9/10 16APSK: 2/3, 3/4, 4/5, 5/6, 8/9, 9/10 32APSK: 3/4, 4/5, 5/6, 8/9, 9/10 Roll-off 0.05 – 0.35 Normal Frames only (no short frames) CCM / VCM / ACM LDPC and BCH decoder S2 Professional Profile / S2X Broadcast Profile
Symbol rates	1 – 45 MSym/s	QPSK, 8PSK, 16APSK: 1 – 45 MSym/s 32APSK: 1 – 40 MSym/s
Data processing	single and multiple MPEG TS MPEG TS (EDI MPE) MPEG TS (ETI SC/PC, MC/PC) single and multiple GSE	single and multiple MPEG-TS MPEG TS (EDI MPE) MPEG TS (ETI SC/PC, MC/PC) GSE-HEM (S2X only) – on request



	Basic DVB-S/S2 Single Tuner (optional)	Dual DVB-S/S2/S2X Tuner (optional)
PL scrambling	ID 0 – 262144	ID 0 – 262144
IF Filter bandwidth	Automatic selection	Automatic selection
MPEG decoding	according to ETSI TR 101 154	according to ETSI TR 101 154

Formats and Protocols

Streaming

IP protocols	UDP unicast, multiple unicast & multicast
Transmission robustness	SRT FEC Dual Streaming

Synchronization

Internal	free-running
External	PTP, PTPv2, NTP, 1PPS, 10 MHz

Interfaces

EDI/ETI

ETI in	4x BNC socket E1/ETI in
ETI out	4x BNC socket E1/ETI out

Interface Extensions

ASI input	75 Ω BNC socket, 270 Mbit/s, MPEG2 TS
ASI output	75 Ω BNC socket
FM/DAB Tuner	2x 75 Ω F-type
RF-DAB	50 Ω BNC socket

Ethernet

Connector	3x RJ45 (1x Control, 2x Data)
Type	Auto-switching 10/100/1000 BASE-T



Synchronization

1PPS input	75 Ω BNC socket
GPS (optional)	75 Ω BNC socket
10 MHz output (optional)	50 Ω SMA socket, from GPS module
1PPS output (optional)	75 Ω BNC socket, from GPS module

Serial and GPIO

DTE	15 pole D-Sub male connector for serial RS-232C data communication
USB	USB 2.0 interface for service, configuration, and firmware updates
GPIO	26 pole D-Sub male; combined connector for inputs (GPI) and outputs (GPO)

Internal Storage

Size	7 GB (optional 128 GB)
Type	eMMC (optional SSD)

Front Panel

Headphone	6.3 mm / 1/4" socket, < 10 Ω
LEDs	Power, Input, Output, Warning
Operation	Display and Jog Wheel
Display	LCD, graphical, 264x64 pixel

General Data

Integrated Web GUI

Languages	English
Web technologies	HTML5, Java Script

Device

Power consumption	< 20 W
Case dimensions	19", 1 RU, depth: 310 mm, width: 424 mm, front panel: 484 mm
Weight	< 5 kg
Material	Steel plate, aluminum-zinc coated
Operating temp. range	0 – +45 °C
Storage temp. range	-40 – +70 °C



Power Supply

Standard AC	1x internal IEC power connector voltage range 90 – 260 VAC (nominal 100 – 240 VAC) frequency range 47 – 63 Hz (nominal 50 – 60 Hz)
Dual internal (optional)	2x internal redundant power supplies (AC or DC) automatic switchover and prioritization AC: 90 – 260 VAC (nominal 100 – 240 VAC), 47 – 63 Hz (nominal 50 – 60 Hz) DC: -40 – -60 VDC (nominal -48 VDC)
Dual hot-plug (optional)	2x hot-swappable redundant power supplies (AC or DC) automatic switchover and prioritization AC: 90 – 260 VAC (nominal 100 – 240 VAC), 47 – 63 Hz (nominal 50 – 60 Hz) DC: -40 – -60 VDC (nominal -48 VDC)

Options



DAB-4c Base Unit Variations

To customize your device, start by selecting a base unit variation, then choose from our range of hardware and software options to fit your needs. Each unit includes one audio channel by default. You can choose from the following base unit variations:

Article no.	Name
VER64001	Base unit DAB-4c with 1x internal AC power supply
VER64002	Base unit DAB-4c with 2x internal AC power supplies
VER64003	Base unit DAB-4c with slot for 2x hot-plug power supplies Note: 2x hot-plug power supplies AC/DC not included. Please order 2x hot-plug power supplies AC (VER45851) or DC (VER45852).
VER64004	Base unit DAB-4c with 1x AC and 1x DC (DC leading) internal power supplies

Hardware Options

Please note that hardware options are installed at the factory in Flensburg, Germany, and can only be retrofitted independently in individual cases.

Article no.	Name	Description
VER64037	Basic single satellite tuner	DVB-S/S2 single tuner module with additional loop-through output. - QPSK, 8PSK, 16APSK, 32APSK - Supported symbol rates: 128 kSym/s – 45 MSym/s
VER64012	Dual satellite tuner	DVB-S/S2/S2X DUal tuner module - QPSK, 8PSK, 16APSK, 32APSK - Supported symbol rates: 1 MSym/s – 45 MSym/s
VER64031	DAB dual tuner (*)	Up to 2 DAB mutli-band tuner for monitoring and control. - Dual tuner with 75 Ω F-type connector input. - Monitors information about ensemble, active services, sub channels and CU usage. - Alarm messages via SNMP or relay. - Only for monitoring purposes, audio output not supported.

(*) Excludes Dual ASI out (VER64035).

Options



VER64032	ASI output	ASI output for DAB multiplex (MPEG2-TS).
VER64035	Dual ASI out (mirrored output) (*)	The ASI signal is mirrored to two outputs. (*) Excludes DAB dual tuner (VER64031).
VER65120	Internal SSD storage	128 GB internal SSD storage
VER45851	Hot-plug AC power supply	Power supply with automatic switch over in case of failure. • 90 – 260 VAC (nominal 100 – 240 VAC), • 47 – 63 Hz (nominal 50 – 60 Hz)
VER45852	Hot-plug DC power supply	Power supply with automatic switch over in case of failure. • 40 – -60 VDC (nominal -48 VDC)



Software Options

Please note that software options can be retrofitted remotely.

Article no.	Name	Description
VER64022	Additional backup (*)	Define a backup source for automatic backup switching in case of main source failures. (*) On request.
VER64023	EDI to ETI/EDI conversion	Converts an EDI input (ETSI TS 102 693) to an ETI output (ETI-NI, ETI-NA 5592, ETI-NA 5376) or an EDI output (ETSI TS 102 693). Up to 4 converters may be activated (1st converter VER64023 or VER64024 included in base unit).
VER64024	ETI to EDI conversion	Converts an ETI input (ETI-NI, ETI-NA 5592, ETI-NA 5376) to an EDI output (ETSI TS 102 693). Up to 4 converters may be activated (1st converter VER64023 or VER64024 included in base unit).
VER64020	EDI PFT seamless switching	- Decoding and seamless switching between two EDI PFT input streams. - Alarming in case of EDI PFT sync loss. Price per unit.
VER64021	ETI hardware mirroring	- Define the 4 ETI inputs as additional outputs. - Define loops to copy the input signals to defined outputs of the device. Price per unit.
VER64025	ETI switch (*)	Automatic and seamless switching between two ETI input streams to one ETI output stream. In combination with option ETI to EDI a parallel conversion to EDI is possible. (*) On request.
VER64039	SRT	Robust streaming of EDI over unstable networks - SRT encoding for EDI outputs - SRT decoding for EDI inputs (requires activated EDI to ETI/EDI conversion) - In combination with additional backup, an automatic switch between two input sources is possible. Price per activated converter.
VER64033	MPEG-TS encoder	Conversion of ETI/EDI input signals to MPEG-2 TS. Price per activated converter.
VER64034	TS MPE IP forwarding	IP forwarding transport stream with MPE. Price per activated converter.



Article no.	Name	Description
VER64026	PTP synchronization	Synchronized protocol for networked measurement and control systems. According to IEEE 1588-2008 - IEEE standard for a precision clock. Price per activated converter.
VER64027	Advanced GSE processing	• GSE decapsulation • GSE IP forwarding Price per activated converter.
VER64036	ARG/Scientific Atlanta encapsulation	Support of alternative TS encapsulation scheme for EDI/ETI converter output. Price per unit.