

DAB-4s

EDI/ETI Satellite Receiver and Converter

Highlights

- ▶ High-density DAB distribution extractor
- ▶ EDI/ETI extraction from DVB-S/S2 and MPEG-TS ASI
- ▶ Multi-format EDI/ETI and ETI/EDI converter for up to 4 channels



DAB-4s – EDI/ETI Satellite Receiver and Converter

General

The DAB-4s is a professional DAB EDI/ETI satellite receiver and converter for up to 4 DAB multiplexes. It demodulates up to 4 EDI/ETI data streams from DVB-S or DVB-S2. The DAB-4s can flexibly be configured as 4 x EDI/ETI converter, 4 x ETI/EDI converter or 4 x EDI Level converter. Additionally, it monitors all EDI/ETI streams. A pair of input sources ETI/EDI can work together in a redundant master / slave configuration.

Input	Output
-------	--------



-
- | | |
|---|---------------------------------|
| ▶ SAT-input for EDI/ETI | ▶ 4 ETI E1 G703/G704 interfaces |
| ▶ 4 ETI E1 G703/G704 interfaces | ▶ ASI for ETI (MPEG2-TS) |
| ▶ ASI for ETI (MPEG2-TS) | ▶ IP EDI on data interfaces |
| ▶ 1 BNC 10 MHz for reference clock | |
| ▶ EDI over UDP/IP on data interfaces ¹ | |
| ▶ DAB tuner for monitoring* | |
-

Converter

- ▶ One EDI/ETI or ETI/EDI converter included in each unit
- ▶ Up to 4x EDI/ETI or ETI/EDI converter can be activated*
- ▶ FEC level conversion for outgoing IP EDI streams

SAT receiver

- ▶ Integrated satellite tuner with loop-through output
- ▶ Upgrade options: dual tuner module with 2 inputs
- ▶ GSE support*
- ▶ Transport stream (TS) IP forwarding from MPE and GSE*
- ▶ Extraction of 4 EDI/ETI streams
- ▶ Conditional access decryption (BISS-1)*

ETI/EDI redundancy switch

- ▶ ETI link or EDI stream redundancy
- ▶ Seamless switching and alarming for 2 redundant inputs (master/slave)
- ▶ Redundancy on device level

¹ This function is optional. Please find the complete list of options at the end of the document.



DAB-4s – EDI/ETI Satellite Receiver and Converter

Control

- ▶ Revised configuration via web user interface for easier setup
- ▶ Remote control with various possibilities: HTTP/S, FTP, SSH, NMS, SNMP or via Satellite (on request)
- ▶ Relays, inputs



Technical details (1/3)

Input/output

SAT

	Basic single tuner (default)	Dual 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, step 1 kHz All LNB oscillator frequencies possible	950 – 2.150 MHz, step 1 kHz All LNB oscillator 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, 22kHz high band	13 V vertical, 18 V horizontal, off 0 kHz low band, 22kHz high band
Noise figure	Typically 6 dB, max. 12 dB	Typically 6 dB, max. 12 dB
DVB-S demodulation/Decoding	QPSK CCM VITERBI and Reed-Solomon decoder 1/2, 2/3, 3/4, 5/6, 6/7, 7/8	QPSK CCM VITERBI and Reed-Solomon decoder 1/2, 2/3, 3/4, 5/6, 6/7, 7/8
DVB-S2 demodulation/Decoding	QPSK and 8PSK CCM LDPC and BCH decoder	QPSK, 8PSK, 16APSK and 32APSK CCM, VCM and ACM LDPC and BCH decoder 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10
Symbol rates	0.128 – 45 MSym/s	1 – 45 MSym/s
Data processing	MPEG TS (EDI MPE); MPEG TS (ETI SC/PC, MC/PC); GSE (EDI)*	MPEG TS (EDI MPE) MPEG TS (ETI SC/PC, MC/PC)
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

Technical details (2/3)

ETI

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



ASI

Connector	1x BNC 75 Ω output 1x BNC 75 Ω configurable to be either ASI input or 1PPS SYNC input (option)
Data	MPEG2 TS 270 Mbps (ETI)

DAB tuner *

Connector	1x F-jack 50 Ω input
Frequency range	168-240 MHz (DAB Band III)
RF sensitivity	10 dB μ V
Max. RF input	100 dB μ V

Ethernet

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

Serial/USB

DTE	8x RS-232C (rear) Sub D-15
USB 2.0	interface for service, configuration and firmware updates

Contact closure

Connector	26 pole sub-D male
Inputs	8 inputs
Outputs	7+1 floating relays 7 relays SPST (from A) 1 relay SPDT (from C) Optional: 16 relays DC: max. 30 V, 1 A, 10 W

Internal storage *

Data	internal audio files
Size	7 GB (optional 1000 GB)
Type	eMMC (optional SSD)

Time synchronization

10 MHz	BNC connector
NTP	Network synchronization



Technical details (3/3)

PTP v2	Network synchronization according to IEEE 1588-2008
SYNC / AUX1	BNC – 75 Ω – 1PPS

Control and monitor

GUI and interfaces

User interface	Integrated WebGUI, LCD display
Protocols	HTTP(S), FTP, Telnet, Ember+, JSON, NMS, SNMP

Front panel

LCDisplay	Graphical, 264x64 pixel
Jog wheel	Impulse, enter button
LED	4 duo LEDs: power, input, output, warning

General data

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
Languages	English

Power supply

Standard AC	1 internal IEC power connector voltage range 90 – 260 VAC (nominal 100 – 240 VAC) frequency range 47 – 63 Hz (nominal 50 – 60 Hz)
Standard DC (optional)	1 internal (Neutrik powerCON) voltage range -40 – -60 VDC (nominal -48 VDC)
Dual internal (optional)	Two 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)	Two 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 (1/2)

DAB-4s base unit variations

One basic single SAT-tuner and one converter of your choice (VER64023/VER64024) is included in the base unit. Please inform us when ordering. You can choose between the following base unit variations:

Article no.	Name
VER64101	Base unit DAB-4s with 1x internal AC power supply
VER64102	Base unit DAB-4s with 2x internal AC power supply
VER64103	Base unit DAB-4s with slot for 2x hot-plug power supply ▶ 2x hot-plug power supplies AC / DC not included. ▶ Please order 2 hot-plug power supplies AC (VER45851) or DC (VER45852).

DAB-4s 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
VER64112	Dual satellite tuner(*)	DVB-S/S2 Dual-tuner module ▶ QPSK, 8PSK, 16APSK, 32APSK ▶ Supported symbol rates: 1 MSym/s - 45 MSym/s (*) Replaces default basic single tuner
VER64031	DAB dual tuner (*)	DAB multi-band tuner for monitoring & control ▶ Up to 2 DAB-tuners may be activated ▶ Dual tuner with 75Ω F-Type connector input ▶ Alarm messages via SNMP or relay
VER64032	ASI output	ASI output for DAB multiplex (MPEG2-TS).
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)

DAB-4s software options

Please note that software options can be retrofitted remotely.

Article no.	Name	Description
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).



Options (2/2)

Article no.	Name	Description
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).
VER64110	EDI IP input	Receives and decodes an EDI input via Ethernet for redundancy purposes, e.g. main or backup. ► An ETI or EDI output is possible. ► In combination with additional backup, an automatic switch between two input sources is possible Requires VER64023 EDI to ETI/EDI conversion . Price per activated converter.
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.
VER64022	Additional backup (*)	Define a backup source for automatic backup switching in case of main source failures. (*) On request
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
VER64026	PTP synchronization	According to IEEE 1588-2008 - IEEE Standard for a Precision Clock Synchronization Protocol for Networked Measurement and Control Systems. Price per activated converter.
VER64033	MPEG-TS encoder	Converts the ETI/EDI input signals to MPEG2-TS. Price per activated converter.
VER64034	TS MPE IP forwarding	IP forwarding Transport Stream with MPE Price per activated converter.



VER64027	Advanced GSE processing	▶ GSE decapsulation, ▶ GSE-IP forwarding Price per activated converter.
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.