



# AVP 3000 VOYAGER



The AVP 3000 Voyager is Ericsson's sixth generation DSNG product and is the most flexible and scalable news gathering system on the market, reflecting Ericsson's technology leadership and unique heritage in this segment.

The AVP 3000 Voyager excels in providing maximum flexibility, performance and interoperability while delivering the best return on investment to operators and service providers through the widest range of software upgradeable paths and expansions options.

The AVP 3000 Voyager is built upon a revolutionary modular chassis in a space-saving 1RU form factor with up to six hot swappable option slots. It supports a comprehensive range of processing options, including MPEG-2, MPEG-4 AVC, JPEG-2000 and HEVC are all supported. An integrated satellite modulator offers high order DVB-S/S2/S2X modulation on both IF and L-Band outputs.

AVP 3000 Voyager features a fully functional front panel re-engineered bottom-up to meet the demand of the mobile environment, including ease of operations, quick menu access and effective monitoring. Overall it represents the most advanced DSNG unit on the market, offering broadcasters, operators and service providers the level of integration, flexibility and scalability necessary to future-proof any operational investment during today's technology migration.

## PRODUCT OVERVIEW

### **Outstanding Innovation Delivers the most Flexible Integrated DSNG**

Based on two decades of encoder design experience, and a series of SNG world firsts, the AVP 3000 Voyager is a radical new design. Based on Ericsson's in-house technology, the AVP 3000 Voyager targets today's network technology migration with a future-proof modular platform, capable of multi-codec, multi-format and multi-channel operations. Highly flexible, the AVP 3000 Voyager provides a multitude of independent and concurrent output options, including IP, ASI and an integrated DVB-S and DVB-S2 satellite modulator providing high order modulation on IF and L-Band outputs.

### **Multi-codec**

The AVP 3000 Voyager can provide MPEG-2, MPEG-4 AVC, JPEG-2000 and HEVC video encoding, along with a wide range of audio coding and audio pass through modes.

### **Efficient Use of Spectrum**

It also supports DVB-S2 and DVB-S2X high order modulation on both IF and L-Band outputs. DVB-S2 gives a 30 % performance gain compared to DVB-S, and DVB-S2X gives up to 20% performance gain compared to DVB-S2.

### **Scalable, Expandable and Configurable**

All modules in the AVP 3000 Voyager are hot swappable to allow on-site servicing, expansion of the unit functionality and easy re-purposing of units for multiple applications.

### **Fully Functional Front Panel Operations**

A fully-functional front panel provides complete unit control in mobile environments. Its unique ergonomic new design is the result of development based on industry feedback and includes:

- Rotary control for fast item selection and key-pad for easy value insertion
- High-resolution display for video confidence monitoring
- Audio monitoring
- Quick access menus specifically designed for mobile operations with customizable shortcuts and ample configuration storage

### **Simple to operate**

The AVP 3000 Voyager can be precisely configured to suit a specific operational need via its web user interface. However in normal operation this detailed level of configuration is usually not required. So a simple operational web user interface is also provided that makes all the commonly used controls and status information available on one, clear web page. This makes the unit very easy to operate, which is vital in the high pressure world of live television.

## BASE UNIT FEATURES

### Chassis

- Six slot single PSU AVP3000/BAS/1AC/A, FAZ 101 0196/231
- Four slot dual PSU AVP3000/BAS/2AC/A, FAZ 101 0196/232
- Six slot dual PSU Flying Leads AVP3000/BAS/2ACFL/A, FAZ 101 0196/233

### Base Chassis Includes

- Integrated DVB-S/S2 modulator with IF and L-Band outputs
- Integrated redundant IP outputs
- Fully functional front panel control with highest level of monitoring
- SMPTE 2022-1/-2 (Pro-MPEG) FEC on a single SPTS/MPTS
- Encryption of output MPEG-2 Transport Stream using Basic Interoperable Scrambling System (BISS) for secure contribution links Supports BISS modes 0,1 and E
- Web browser control
- Service level Remux, (Requires AVP/HWO/ASI/IO/A)

### Chassis Platform Capabilities

- MPEG-2 Transport Stream generation
- Multiple concurrent and independent output options
- Exceptional modulation accuracy and spectral purity
- Ericsson's RAS scrambling scheme available free of charge on all AVP 3000 units though the Satellite modulator only

\* Activation through Value Packs

## VALUE PACKS

### Basic Modulation Value Pack

**(AVP/SWO/VP/MOD, FAZ 101 0196/248)**

Provides capability for:-

- DVB-DSNG 8PSK and 16QAM modulation
- DVB-S2 QPSK and 8PSK
- Enable extended symbol rate range from 45 Msym/s to 66 Msym/s

### Advanced Modulation Value Pack

**(AVP/SWO/VP/MOD/ADV, FAZ 101 196/249)**

Provides capability for:-

- DVB-S2X MODCODs and FECs.
- Higher order modulation support of DVB-S2 QPSK, 8PSK, 16PSK and 32APSK

## HARDWARE OPTIONS

### CE-HEVC Series Encoder Modules

**(CE/HWO/HEVC/BNC/A, FAZ 101 0196/272)**  
**(CE/HWO/HEVC/SFP/C/A, FAZ 101 0196/273)**  
**(CE/HWO/HEVC/SFP/F/A, FAZ 101 0196/274)**

- Up to four modules per chassis depending on configuration
- 4 x 3G/HD/SD-SDI, video input  
*/272 BNC co-axial cable inputs*  
*/273 HD-BNC co-axial cable inputs on SFP slots*  
*/274 Fibre connections on SFP slots*
- 1 UHD or 4 HD encodes per module<sup>1</sup>
- HEVC and MPEG-4 AVC encoding capabilities<sup>1</sup>
- 4:2:0 and 4:2:2 chroma sampling modes
- 8 or 10-bit precision
- 1 Mb/s to 100 Mb/s video bit-rate<sup>1</sup>
- Multiple low latency modes
- Up to 32 stereo pairs of audio encoding and pass-through<sup>1</sup>
- VANC data extraction and support for generic VANC (SMPTE 2038)

<sup>1</sup> Exact capabilities depend on module and Value Packs; please refer to CE-HEVC Series datasheet for a more detailed description.

### CE-x Series Encoder Modules

**(CE/HWO/VP/CE-xA/A, FAZ 101 0196/240)**  
**(CE/HWO/VP/CE-x/A, FAZ 101 0196/292)**

- Two slots per module, up to two modules per chassis
- 3G/HD/SD-SDI, video input
- Analogue CVBS input NTSC and PAL (PAL-M not supported on /240)
- MPEG-4 AVC HD/SD 4:2:2/4:2:0 encoding (up to High422 Profile)
- MPEG-2 Video and MPEG-4 AVC encoding capabilities<sup>1</sup>
- 4:2:0 and 4:2:2 Chroma sampling modes
- Up to 10-bit precision resolution<sup>1</sup>
- 1 Mb/s up to 80 Mb/s video bit-rate<sup>1</sup>
- Embedded (SDI) and AES-EBU audio input
- Up to eight stereo pairs of audio encoding and pass-through VANC data extraction and support for generic VANC (SMPTE 2038)<sup>1</sup>
- Analogue/SDI switchable input (/240)

Exact capabilities depend on Value Pack; please refer to CE-x datasheet for a more detailed description.

### CE-x Value Packs

**(AVP/SWO/VP/x/SD, FAZ 101 0196/268)**

**(AVP/SWO/VP/x/HD, FAZ 101 0196/269)**

Not all Encoder Value Packs listed please refer to individual datasheets

**CE-a Encoder Module**

**(CE/HWO/CE-a/A, FAZ 101 0196/239)**

- One slot per module. Up to six modules per chassis
- HD/SD-SDI, video input
- MPEG-2 Video and MPEG-4 AVC encoding capabilities<sup>2</sup>
- 4:2:0 chroma sampling mode
- 1 Mb/s to 50 Mb/s video bit-rate<sup>2</sup>
- Embedded (SDI) and AES-EBU audio input
- Up to eight stereo pairs of audio encoding and pass-through
- VANC data extraction and support for generic VANC (SMPTE 2038)

<sup>2</sup> Exact capabilities depend on Value Pack; please refer to CE-a datasheet for a more detailed description.

**CE-a Value Packs**

**(AVP/SWO/VP/a/SD, FAZ 101 0196/252)**

**(AVP/SWO/VP/a/HD, FAZ 101 0196/253)**

*Not all Encoder Value Packs listed, please refer to individual datasheets*

**CE-aJ2K Encoder Module**

**(CE/HWO/CE-a/J2K/A, FAZ 101 0196/237)**

- Single slot per module
- Up to six modules per chassis depending on configuration
- HD/SD-SDI, video input
- JPEG-2000 SD and HD encoding capabilities
- 4:2:2 10-bit operation

**External Synchronisation Module**

**(CE/HWO/EXTSYNC/A, FAZ 101 0196/235)**

- One slot per module. Up to one module per chassis
- Supports synchronisation of all encoders in the chassis to support single PCR operation
- 10 MHz or HSYNC input

**ASI I/O Module**

**(CE/HWO/ASI/IO/A, FAZ 101 0196/234)**

- One slot per module
- 2 x ASI MPEG-2 Transport Stream outputs configured as mirrored or independent
- 2 x ASI inputs for Transport Stream pass-through to SatMod

**G703 Module**

**(CE/HWO/G703/A, FAZ 101 0196/236)**

- One slot per module
- Supports E3 and DS3 output connectivity

**GPI Module**

**(CE/HWO/GPI/A, FAZ 101 0196/238)**

- One slot per module
- Supports GPO relay triggers for “Alarm” and “Failure” modes
- Supports manual SCTE-35 splice point insertion

*NOTE: RS-232 a future option*

## SAMPLE CONFIGURATION



## SPECIFICATIONS

### IP Transport Stream Interfaces

#### Input

2x Electrical Ethernet (/100/1000BaseT)

#### Output

2x Electrical Ethernet (100/1000BaseT)

Physical port redundancy with active-active and active-standby operation

Multicast streaming

### Satellite Modulator

Base unit supports both 70 MHz IF output and L-band output.

DVB-CID support.

Signal conditioning: EN 300 421 (DVB-S) and option for EN 301 210 (DVB-DSNG) EN302-307 (DVB-S2)

Modulation: QPSK and option for 8PSK, 16QAM, DVB-S2 QPSK, 8PSK, 16APSK, 32APSK DVB-S2X QPSK, 8PSK, 16PSK, 32APSK, 64APSK (Roll Off 0.05, 0.10, 0.15, 0.20, 0.25 0.35)

Symbol Rate: 1 Msym/s to 45 Msym/s (variable in 1 Sym/s increments ). Optional extension to 66 Msym/s

FEC rates:

1/2, 2/3, 3/4, 5/6 and 7/8 (DVB-S QPSK)

2/3, 5/6 and 8/9 (DVB-DSNG 8PSK)

3/4 and 7/8 (DVB-DSNG 16QAM)

1/4, 1/3, 2/5, 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9 and 9/10 (DVB S2 QPSK)

3/5, 2/3, 3/4, 5/6, 8/9 and 9/10 (DVB-S2 8PSK)

2/3, 3/4, 4/5, 5/6, 8/9 and 9/10 (DVB-S2 16APSK)

3/4, 4/5, 5/6, 8/9 and 9/10 (DVB-S2 32APSK)

13/45, 9/20, 11/20 (DVB-S2X QPSK)

23/36, 25/36, 13/18 (DVB-S2X 8PSK)

5/9, 26/45 (DVB-S2X 8APSK-L)

26/45, 3/5, 28/45, 23/36, 25/36, 13/18, 7/9, 77/90 (DVB-S2X 16APSK)

5/9, 8/15, 1/2, 3/5, 2/3 (DVB-S2X 16APSK-L)

2/3 (DVB-S2X 32 APSK-L)

11/15 (DVB-S2X 64 APSK)

32/45, 7/9, 4/5, 5/6 (DVB-S2X 64 APSK-L)

### IF Output Option

IF frequency: 50 MHz to 180 MHz (1 kHz steps)

Output power: -30 dBm to +5 dBm (0.1 dB steps)

Monitor output: -30 dB relative to main IF output

### L-band Output Option

Frequency: 950 MHz to 2150 MHz (1 kHz steps)

Output power: -40 dBm to +5 dBm (0.1 dB steps)

Monitor output: -30 dB relative to main output

Switchable up-converter power: +15 V and 24 VDC, 500 mA max.

Switchable 10 MHz reference

### Management

2x Electrical Ethernet (100/1000BaseT)

SNMP v1/v2/v3, for alarm traps

User management via Web browser

Fully functional front panel control

### Physical and Power

#### Dimensions (W x H x D)

44.20 x 4.45 x 59.69 cm  
(17.40 x 1.75 x 23.5 inches)

#### Weight

8.0 kg (17.6 lbs) unpopulated

#### Input Voltage

100 VAC to 240 VAC 50/60 Hz

#### Input Power

50 Watt (chassis only)

Up to 350 Watt (depending on option modules fitted)

### Environmental Conditions

#### Operating Temperature

-10°C to +50°C (14°F to 122°F)

#### Storage Temperature

-40°C to +85°C (-40°F to 185°F)

#### Relative Operating Humidity

10% to 90% (Non-condensing)

### Compliance

CE marked in accordance with EU Low Voltage and EMC Directives

#### EMC Compliance

EN55022, EN55024, AS/NZS3548, EN61000-3-2 and FCC CFR47 Part 15B Class A

#### Safety Compliance

EN60950, IE60950