



**THE LIGHTEST, MOST
COMPACT
CONTRIBUTION
ELECTRONIC
SUBSYSTEM**

DVE5000, ADM5000, AMR5000,
IRD5000, ASC5000, APS5000,
AUC5000 and ACU5000

State of the art compact half rack electronics designed to give exceptional performance with Advents antenna systems.



Advent's 5000 Series Electronics

COMPACT, LIGHTWEIGHT 1/2 WIDTH RACK UNITS

Advent Communications established lightweight, compact, 1U half rack electronics packages are ideally suited for flyaway or vehicle mounted solutions, where weight and space are at a premium. The 5000 series of electronics can be packaged in different lightweight, ruggedised canvas flight cases, depending on units selected and configuration.

- Compact 1/2 width 19" x 1U rack mountable units
- 1/4 of the size and 1/6th of the weight of competitors equivalent products
- Designed for contribution flyaway and DSNG vehicle applications where space and weight are critical
- Full range of units available;
 - SD and HD L Band Digital Video Exciter
 - IP Modem
 - Multiplexer Router
 - BUCS
 - Antenna and Drive Control units
 - IRD and System / Redundancy controllers
 - Protection Switches
- All units field upgradeable
- All units have integral web browser facility (where applicable) for RM&C applications
- A comprehensive range of flight case solutions for 1/2 rack and 19" rack units to suit system configuration, i.e. 3U, 4U, 5U.
- All units can also be fixed together and mounted in a standard 19" flight case or rack within a vehicle



Two units joined to fit into 19" rack

ACU5000, DVE5000 and AUC5000 showing front panel display



Rear panels of ACU5000, DVE5000 and AUC5000 housed within a 3U half rack flightcase

Half rack flight case, housing three 5000 series units. Flightcases are available in variety of options to suit the application



DVE5000 STANDARD DEFINITION AND HIGH DEFINITION L BAND DIGITAL VIDEO EXCITER

KEY FEATURES

- DVE5000 is a Standard Definition and High Definition MPEG encoder with integrated L band modulator
- Integrated HPA controller supporting a wide range of TWTA / SSPA's
- HPA controller via L band cable or direct connection
- MPEG-4 PT10, H264 SD & HD 4:2:0/4:2:2 encoding, upgradeable
- L-band monitor
- Integral L-band combiner for external L-band carrier addition
- DVB-S QPSK, 8PSK, 16QAM
- DVB-S2, QPSK, 8PSK, 16 and 32 APSK options
- HD and SD MPEG-2, 4:2:2 encoding.
- 8 audio channels (4 analogue plus embedded SDI)
- AC3, Dolby E auto aligner
- BISS1 / E conditional access
- Low delay
- 70MHz output option
- DVB-T/LMS-T COFDM option for IF output
- 19" 1U HD SHF solution available with AUC5000 series
- Remote control via web browser
- SNMP control
- Field upgrade by USB memory stick

SPECIFICATION

RF PARAMETERS

Output Frequency Range
L-band 950 to 1750 MHz stepsize 1KHz
(70MHz option)

Frequency Stability

+/- 2 x 10⁻⁸

Output Power Level

L-band -5 / +5dBm

Gain Adjustment

40 dB min.

Gain Variation

+/- 2 dB full band +/- 0.25 dB 24hr @ constant temperature

Spurious

-70 dBc / 4 KHz

L-Band Monitor

Monitor level -20dBc

L-Band Combiner

Combining ratio 5dB +/-2

Modulation

QPSK 1 - 36Msymb/s
Option
8PSK / 16QAM / 64QAM / DVD-S2 DVBS,
DVB-S2, DVB-T 1 - 45Msymb/s

FEC

DVBS QPSK
FEC rates 1/2, 2/3, 3/4, 5/6, 7/8
DVBS 8PSK
FEC rates 2/3
DVBS 16QAM
FEC rates 3/4
DVB-T QPSK, 16QAM, 64QAM
FEC rates 1/2, 2/3, 3/4, 5/6, 7/8
DVBS-2 QPSK
FEC rates 1/4, 1/3, 2/5, 1/2, 3/5, 2/3,
3/4, 4/5, 5/6, 8/9, 9/10
DVBS-2 8PSK
FEC rates 3/5, 2/3, 3/4, 5/6, 8/9, 9/10
DVBS-2 8PSK 16/32 APSK
FEC rates 3/5, 2/3, 3/4, 5/6, 8/9, 9/10

VIDEO PARAMETERS

Inputs

HD-SDI / SDI: SMPTE 292M SMPTE 259M /
ITU-R BT.656 with embedded audio.
SD version, composite PAL/NTSC

VIDEO ENCODING

SD 420MP@ML 1.5 - 15Mbits
422MP@ML 2 - 50Mbits
HD 420MP@HL 8 - 80Mbits 720p/1080i
422MP@HL 8 - 80Mbits 720p/1080i

Resolutions

HD 1080psf30	HD 1080i/60
HD 1080psf29	HD 1080i/59
HD 1080psf25	HD 1080i/50
HD 1080psf24	HD 1080i/60
HD 1080psf23	HD 720p/60
HD 1080p/30	HD 720p/50
HD 1080p/29	
HD 1080p/25	
HD 1080p/23	

SD

480 x 720 NTSC	480 x 704 NTSC
576 x 720 PAL	576 x 704 PAL

Delay (encoding)

Typically less than 50ms

SCRAMBLING

BISS 1 & E Encryption

DATA CHANNEL

RS232 @ 9600 / 19200 / 38400 band

AUDIO PARAMETERS

Inputs

2 analogue stereo pairs / 4 mono
600 Ω impedance
plus 4 channels embedded in SDI / Linear
PCM, AC3, Dolby E. DTS: pass through with
Dolby E auto align

Performance

THD <0.1% +18 dBm max input level
S/N >66 dB RMS
Frequency response 20 Hz-20 KHz +/- 0.5dB
Crosstalk better than 60 dB

Encoding

MPEG1 Layer 2 128 kbs - 384 kbs / channel
(Audio A & B)

SMPTE 302 2.4MB/s linear PCM / Dolby pass
through (Audios A, B, C & D)

HPA CONTROLLER

Integrated HPA controller for RS485 serial
controlled TWTA / SSPA - Xicom, CPI, e2V,
Paradise supported, others to order.
Control via L-band using AUC5000 series
converter

REMOTE CONTROL

RS 485 2400 - 9600 band
Ethernet / Web browser / SNMP

WEB BROWSER

Supporting Internet Explorer 7, Firefox, Safari
and Opera

CONNECTORS

CVBS	75 Ω BNC female
(HD) SDI	75 Ω BNC female
ASI IN	75 Ω BNC female
ASI / 70MHz out	75 Ω BNC female
RF Output & Monitor	50 Ω N-female
Combiner in	50 Ω TNC female

Audio Input

15W D type male breakout to 4 x XLR
provided

Data / Remote / Status / HPA Control

15W D type female
2 x USB for field upgrades

Ethernet / Web Interface

RJ45 10 /100 base-T

ENVIRONMENT AND PHYSICAL

Temperature

Operational: 0° to +50°C
Storage: -20° to +70°C

Size

210mm wide by 350mm deep
1U half rack width

Weight

1.9kg approx.

POWER

Frequency 47 to 63 Hz @ <60W
Operating Voltage 100 - 240 Vac +/- 10%

ADM5000 L BAND MODEM

KEY FEATURES

- Compact L-band IESS and DVB modem
- 2.4kb/s to 5Mb/s (option 20Mb/s) dependant on modulation and framing type
- Compliant with IESS 308 / 309 / 310 / 314 / 315
- Compliant with closed network IBS
- Optional compliance to DVB EN 301210 / EN300421
- Optional compliance MIL-STD-188-165A
- Optional 10MHz high stability reference
- Optional HPA control
- BPSK/QPSK (optional 8PSK 16QAM)
- Viterbi / Trellis / Reed Soloman coding (optional Turbo Product Code)
- Serial and Ethernet data interfaces



ADM5000 Rear Panel

SPECIFICATION

SYMBOL RATES

2.4 to 5Msym/s
(option 20Msym/s)

MODULATION / FEC / CODE RATES

BPSK Vit	1/2
BPSK TPC	3/4, 8/7, 21/44
QPSK Vit	1/2, 3/4, 7/8
QPSK Vit RS	1/2, 3/4, 7/8
QPSK TPC	1/2, 3/4, 7/8
8PSK TRE	2/3
8PSK TRE RS	2/3
8PSK TPC	3/4, 7/8
16QAM Vit	3/4, 7/8
16QAM Vit RS	3/4, 7/8
16QAM TPC	3/4, 7/8

MODULATOR

L Band Tuning

950 to 2050 Hz 1 Hz steps

Frequency Stability

1e-6 (1e-8 option) over temperature

Output Power

0 to -25 dBm

Output Accuracy

+/-1dB over temperature

Output Spectrum

IESS 308 / 309 / 310, DVB-S .25, .35

Scrambler

V35, IBS, DVB

Clock Source

Internal, Tx data, Rx satellite

BUC Reference Output

10MHz @ 3 dm +/-3 dB
(with high stability option only)

BUC Power

18/24V @ 1.5A

DEMODULATOR

L-Band Tuning

950 to 2050 MHz 1Hz steps

Input Level

-55 to +10 dBm

Composite Input Power

Lesser of +20 dBm or +40 dBc

Acquisition Range

Programmable 1 to 255 kHz

Input Spectrum

IESS 308 / 309 / 310, DVB-S .25, .35

Descrambler

V.35, IBS, DVB (OM73 optional)

Clock Source

Internal, Tx data, Rx satellite

Buffer Size

0 to 64 ms

LNB Reference Output

10 MHz @ 3 dBm +/-3 dBm
(with high stability option only)

LNB Power

13/17V @ 500 ma

HPA CONTROLLER (option)

Intergrated HPA controller for RS485 serial controlled TWTA / SSPA - Xicom, CPI, e2V, Paradise supported, others to order.

Control via L band using AUC5000 series converter.

CONNECTORS

RF Input & Output: 50/75R N-Type
Ext Reference I/P: 50R BNC

Terrestrial Interface:

Balanced EIA 530, DCE 25W D type female
2 x Data: RJ45 10/100 base-T 2port Ethernet Switch/Bridge

Data / Remote / Status / HPA Control:

15W D type female

RC&M Ethernet Interface:

RJ45 10/100 base-T Web Browser
2 x USB for field upgrades

ENVIRONMENTAL AND PHYSICAL

Temperature

Operational: 0° to +50°C
Storage: -20° to +70°C

Size

210mm wide x 390mm deep
1U half rack width

Weight

2.4 Kg

POWER

Frequency 47 to 63 Hz @ <50W
Operating Voltage 100 - 240 Vac +/-10%



ADM5000 Front Panel

AMR5000 Multiplexer / Router

KEY FEATURES

- Compact integrated multiplexer / router
- Ethernet / serial data
- Ethernet / serial aggregate - interface
- Compatible with ADM5000 modem to form 1U modem / multiplexer
- Vocality enabled
- Options:
 - TCP Acceleration
 - IP Switch Module
 - Additional voice ports
 - ISDN: 1 or 4 BRI

SPECIFICATION

BASIC FUNCTIONALITY

1 x Bridge router with 2 ports
2 x 5 Mb/s serial data port
Expansion slot for extra module
Compact flash for Logs, Software and Configurations

SOFTWARE OPTIONS

TCP Acceleration
SNMP
Satellite optimised VoIP (2, 8 channel)

VOICE MODULE

4 Voice ports (2 and 4 wire)
Expandable to 8 ports
G723.1, G729A, ADPCM, PCM Netcoder

ISDN MODULE

1 or 4 basic rate Interfaces (replaces corresponding voice ports)
ISDN Extender (remote delivery of ISDN)
ISDN terminal adapter
Bonding
Compatible with Vocality hub ISDN or T1/E1 card

IP SWITCH MODULE

Converts 1 IP port to 8 ports (can not be used in conjunction with voice ports)

SECURE VOICE RELAY CARD

Upgrades Voice Module with secure voice relay support
STU IIB and STU III compatible

ENVIRONMENTAL AND PHYSICAL

Temperature

Operational: 0° to +50°C
Storage: -20° to +70°C

Size

210mm wide x 350mm deep
1U half rack width

Weight

1.8 Kg

POWER

Operating voltage: 100 to 240Vac
Frequency: 47 to 63 Hz@<60W

*Vocality is the trading name of
Vocality International Ltd - www.vocality.com*



AMR5000 Front Panel



AMR5000 Rear Panel

IRD5000 - SD AND HD RECEIVER DECODER

KEY FEATURES

- SD and HD auto switching
- L-band or ASI inputs
- MPEG2 with up-grade path to H264
- Down-converted HD output for monitoring
- Remote control via web browser / SNMP
- Field upgrade by USB memory stick
- DVBS & DVBS-2
- BISS 1 and E Decryption
- Satellite ID display

SPECIFICATION

RF

2 L band inputs or 1 plus RF loop thru'
DVBS QPSK
DVBS-2 QPSK and 8PSK (option)
Symbol rate up to 45 Ms/s
950 - 2150 MHz

ASI

270Mb/s ISO/IEC 1318-2 188 bytes

DECODER

MPEG-2 4:2:0 and 4:2:2
H264 4:2:0 / 4:2:2 (option)
SD to 55 Mb/s
HD to 80 Mb/s (option)
Analogue audio to +18 dBm
Dual AES outputs

REMOTE CONTROL

RS 485 2400 - 9600 board
Ethernet / Web browser / SNMP

WEB BROWSER

Supporting Internet Explorer 7, Firefox, Safari
and Opera

CONNECTORS

RF

2 x N-Type female
ASI Input 75R BNC

Audio

15W D male, breakout to 4 x XLR male
supplied

Remote Control

15W D type female
2 x USB for field upgrades
Ethernet / Web Interface
RJ45 10 / 100 base-T

ENVIRONMENTAL AND PHYSICAL

Temperature

Operational: 0° to +50° C
Storage: -20° to +70° C

Size

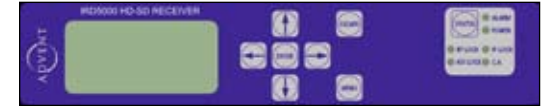
210mm wide by 350mm deep
1U half rack width

Weight

1.2kg approx.

POWER

Frequency: 47 to 63 Hz @ <60W
Operating voltage: 100 - 240 Vac +/- 10%



IRD5000 Front Panel



IRD5000 Web Browser Screen Shot

ASC5000 SYSTEM CONTROLLER & APS5000 PROTECTION SWITCH

KEY FEATURES - ASC5000

- 1+1 redundancy controller providing automatic redundancy protection for up to four pairs of units
- Graphical system mimic showing switch routing and unit status information
- Audible alarm triggered when a monitored unit fails
- Integrated dual amplifier controller
- Remote control via web browser / SNMP
- Field upgrade by USB memory stick
- Web browser interface providing a single entry point for control of the entire system
- Used in conjunction with the APS5000, supports RF phase combining

SPECIFICATION

SWITCH DRIVES

Two optional internal coaxial switches
Three switch drives for external switches
Additional switching capability available through the APS5000 protection switch

HPA CONTROLLER

Integrated HPA controller for RS485 serial controlled TWTA / SSPA - Xicom, CPi, e2V, Paradise supported, others to order.

REMOTE CONTROL

RS 485 2400 - 9600 band
Web browser / SNMP

WEB BROWSER

Supporting Internet Explorer 7, Firefox, Safari and Opera.

CONNECTIONS

Switch drives

3 x screw terminal blocks providing drive and tellback connections for connection to switches.

Internal SHF splitter / switch

SMA Female (option)

Status Inputs

2 x screw terminal blocks each providing four status inputs and one amplifier inhibit output.

Remote / HPA Control

2 x 15W D type female
2 x USB for field upgrades

Ethernet / Web Interface

RJ45 10 / 100 base-T

ENVIRONMENTAL & PHYSICAL

Temperature

Operational: 0° to +50°C
Storage: -20° to 70°C

Size

210mm wide by 350mm deep
1U half rack width

Weight

1.2kg approx.

POWER

Frequency: 47 to 63 Hz @ <60W
Operating voltage: 100 - 240 Vac +/- 10%

KEY FEATURES - APS5000

- Provides remote switching capability for the ASC5000
- M&C link to ASC5000
- Integral phase shifter for combined applications
- Automatic phase adjustment
- Forward power monitor
- Reflected power monitor
- Status inputs from BUCs and HPAs

SPECIFICATION

ENVIRONMENTAL AND PHYSICAL

Temperature

Operational: 0° to +50°C
Storage: -20° to 70°C

Size

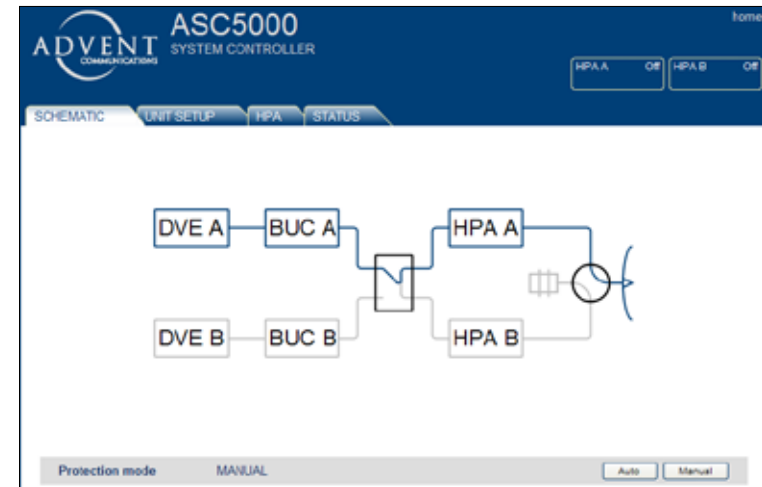
210mm wide by 350mm deep
1U half rack width

Weight

1.2kg approx.

POWER

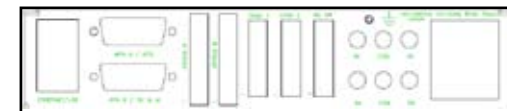
Frequency: 47 to 63 Hz @ <60W
Operating voltage: 100 - 240 Vac +/- 10%



ASC5000 Web Browser



ASC5000 Front Panel



ASC5000 Rear Panel

AUC5000 BLOCK UPCONVERTER MODULE

KEY FEATURES

- The AUC5000 is a high performance block upconverter with input at L band and output versions for C, X, Ku, DBS and Ka bands
- Internal / External reference
- High / Low gain options
- High stability
- Optional second SHF output for redundancy
- HPA control data pass-through
- 19" 1U HD SHF solution available with DVE5000 series and ADM5000
- Weather resistant for outdoor use



AUC5000 Front Panel

SPECIFICATION

FREQUENCY RANGE

Input Frequency Range
950 to 1750 MHz

Output Frequency Range
C Band - AUC5806
5.85 to 6.65 GHz

X Band - AUC5808
7.9 to 8.4 GHz

Ku Band - AUC5813 / 14
12.75 to 13.25 GHz
13.75 to 14.5 GHz
14.0 to 14.5 GHz

DBS Band - AUC5817 / 18
17.3 to 18.1 GHz
17.6 to 18.4 GHz

Ka Band - AUC5827 / 28 / 29 / 30
27.5 to 31.0
(specify 700 MHz Tx sub-band)

Others
Any 800MHz to order

FREQUENCY REFERENCE

Internal Frequency Accuracy
+/- 100 Hz from nominal at 25C
(+/- 80 Hz typically)

Internal Frequency Stability
2 x 10⁻⁸ Rack

External Reference (Internal link selectable)
User supplied via L band cable
10 MHz @ 0 dBm +/- 3 dB

GAIN

Input Power Level
-10dBm nominal, 0 dBm max

Output Power Level

-5 dBm min at 1 dB compression point
(+10 dBm to +35 dB with high gain option)

Gain

-5 to +20 dB nominal internally adjustable
(+10 to +35 dB with high gain option)

Gain Variation

+/- 0.25 dB any 36 MHz
+/- 1.5 dB over 800 MHz
+/- 0.25 dB over 24 hours @ constant temp

Group Delay Variation

+/- 0.25 ns in any 4 MHz

SSB PHASE NOISE

Better than 6 dB below IESS308

VSWR

Input Return Loss
12 dB @ 50 Ω

Output Return Loss
18 dB @ 50 Ω

SPURIOUS

Modulated
-60 dBc

Unmodulated
-65 dBm

Harmonics
-20 dBc

HPA CONTROLLER

Pass-through and protocol transfer of HPA control data from L band input to RS485 HPA control output - Xicom, CPI, e2V, Paradise supported, others to order.

ENVIRONMENTAL AND PHYSICAL

Temperature

Operational: -20° to +60°C
Storage: -20° to +80°C

Size

210 mm wide x 350 mm deep
1U half rack width

Weight

2kg

POWER

Phantom from L band or 18V DC / 1A

CONNECTORS

SHF 50 Ω N female (Ka band K-type)
L band 50 Ω N female

HPA Control / Status / DC Input
Weatherproof multi-pin

ACU5000 ANTENNA CONTROL UNIT

KEY FEATURES

- The ACU5000 is an antenna control unit designed to operate with the Advent range of motorised antenna systems
- The unit provides user friendly 3 speed motor control of azimuth, elevation and polarisation axis as well as automatic stow and deploy functions
- The ACU5000 comes with the option of interfacing with a GPS receiver and/or fluxgate compass
- Integrated beacon receiver option provides facilities for automatic satellite acquisition and tracking
- The ACU provides an 800 city data base to enable satellite pointing without the need for GPS
- Optional ASI output
- Satellite identification capability
- External reference signal for LNB
- Can also operate as a standalone 'SatFinder' providing predicted Satellite look angles with Satellite Beacon signal tone and level indication for manual acquisition

SPECIFICATION

The ACU5000 series antenna control units are designed to operate with the complete range of Advent motorised antenna systems, using the 3000, 4000 and 5000 series Drive Control Units (DCU).

The ACU5000 provides a user friendly interface enabling the control of azimuth, elevation and polarisation for the deployment and operation of the motorised antenna system.

The ACU has embedded software to be able to calculate the position of a satellite from the current location and orientation of the uplink system. The location and orientation can also be entered manually. If the beacon receiver option is included, the ACU can search, peak and track the satellite beacon signal.

Tracking is maintained using a differential slope track algorithm. From the detailed characteristics of the beam pattern stored within the controller the ACU can optimise the antenna pointing with the minimum of movement during the tracking process.

Satellites containing commercial traffic can be positively identified by their 'Satellite ID', in addition to comparison of the beacon frequency. This ensures the correct satellite has been acquired without the need for a spectrum analyser or receiver. An optional ASI output is available to feed an external decoder.

The ACU5000 provides the ability to recall one of up to 100 stored satellite presets and additional software providing up to 800 city information database enabling the controller to find the satellite without the need of GPS.

FRONT PANEL INDICATIONS

Clear LCD shows information on the current status of the antenna, beacon receiver and DVB parameters.

FRONT PANEL CONTROLS

Start

Starts an antenna system activity.

Stop

Stops any current antenna system activity.

Rate

Changes the current movement rate.

Pol ← Pol →

Controls the polarisation axis movement.

↑, ↓, ←, → Controls the azimuth and elevation axis movement functions. In the menu mode, used to navigate and select options.

Menu

Steps through key menu options.

Enter, Escape

Used to select menu options and escape from current selections.

POSITIONAL DISPLAY ACCURACY

Azimuth, elevation and polarisation +/- 0.05

ANGULAR CONTROL RATES

Fast up to 5° /s (antenna type dependent)
Medium 0.5° /s
Slow 0.1° /s

ANGULAR CONTROL STEPS

All antenna types
Fast 1.0°
Medium 0.5°
Slow 0.1°

RF INPUT

950 -2150 MHz
Beacon level -90 dB min
DVB Input -20 to -65 dBm
LNB power switchable 18v/13v @ 1A
LNB reference 10 MHz
RF Monitor loop-thru

REMOTE CONTROL

RJ45 10/100 base-T
RS232/485 4800-115200 baud
Ethernet/Web interface/SNMP

WEB BROWSER

Supporting Internet Explorer 7, Firefox, Safari and Opera

ENVIRONMENTAL AND PHYSICAL

Temperature

Operational 0° to 50°C
Storage -20° to +80°C

Size

210mm wide x 350mm deep
1U half rack width

Weight

2 Kg

POWER

Operating Voltage

100 - 240 Vac

Power Consumption

<100 VA



ACU5000 - Antenna Control Unit



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These specifications are accurate at the time of issue but may be subject to change and will not form part of any contract.