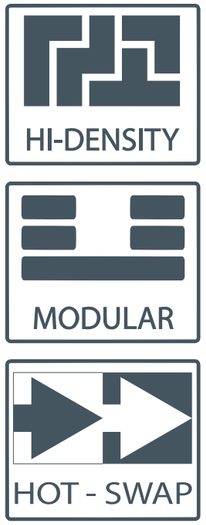

DC1000/DC1100 version 003

Appear TV

DC1000/DC1100

APPEAR TV AS

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PRODUCT BRIEF

System of choice for multiservice cable operators

Appear TV's DC1000/DC1100 enables cable operators to use a common hardware platform to deliver high quality analog and digital TV services. By integrating all functions into a single chassis, Appear TV is able to offer a high density solution boasting high performance outputs with exceptional reliability.

The most manageable solution on the market, the DC1000/DC1100 offers an intuitive user interface as well as remote configuration of all modules, simplifying system deployment and reducing operational routines. The DC1000/DC1100 includes a comprehensive alarm system along with facility for integration with 3rd party management systems, enabling fully automatic alarm capture and fault rectification.

Simulcast for Cable Operators

The DC1000/DC1100 eliminates the need to distribute analog channels over the core network; ensuring optimal bandwidth utilization whilst maintaining complete flexibility of local programming. The high performance RF module supports A2, NICAM stereo as well as Russian SECAM.

Downlink and Monitoring

Appear TV decoders with SDI/HDSDI outputs and optional AES/EBU audio outputs are ideal for downlink and rebroadcast, or for local studio monitoring purposes. The DC1000/DC1100 may be configured with DVB-S, DVB-S2, DVB-C or DVB-T input modules. This high density MPEG-2 SD/HD and MPEG-4 AVC SD/HD decoder with SDI/HDSDI output enables decoding of up to 30 channels in a single 4RU chassis. The output is either SDI or HD-SDI with 2 (or 4) embedded stereo audio tracks and VBI.

Cable FM Radio System

Appear TV FM radio decoders offer cable operators a compact solution for the delivery of radio services. Decoding and FM modulating up to 8 radio services per module makes it possible to provide all required FM channels in a single chassis. This solution is easy to deploy and operate, and supports RDS data insertion. In addition, these FM radio decoders can be combined with decoders having built-in RF modulation and digital QAM modulator, making them a complete remote head-end for cable operators.

Digital Cable Modulation

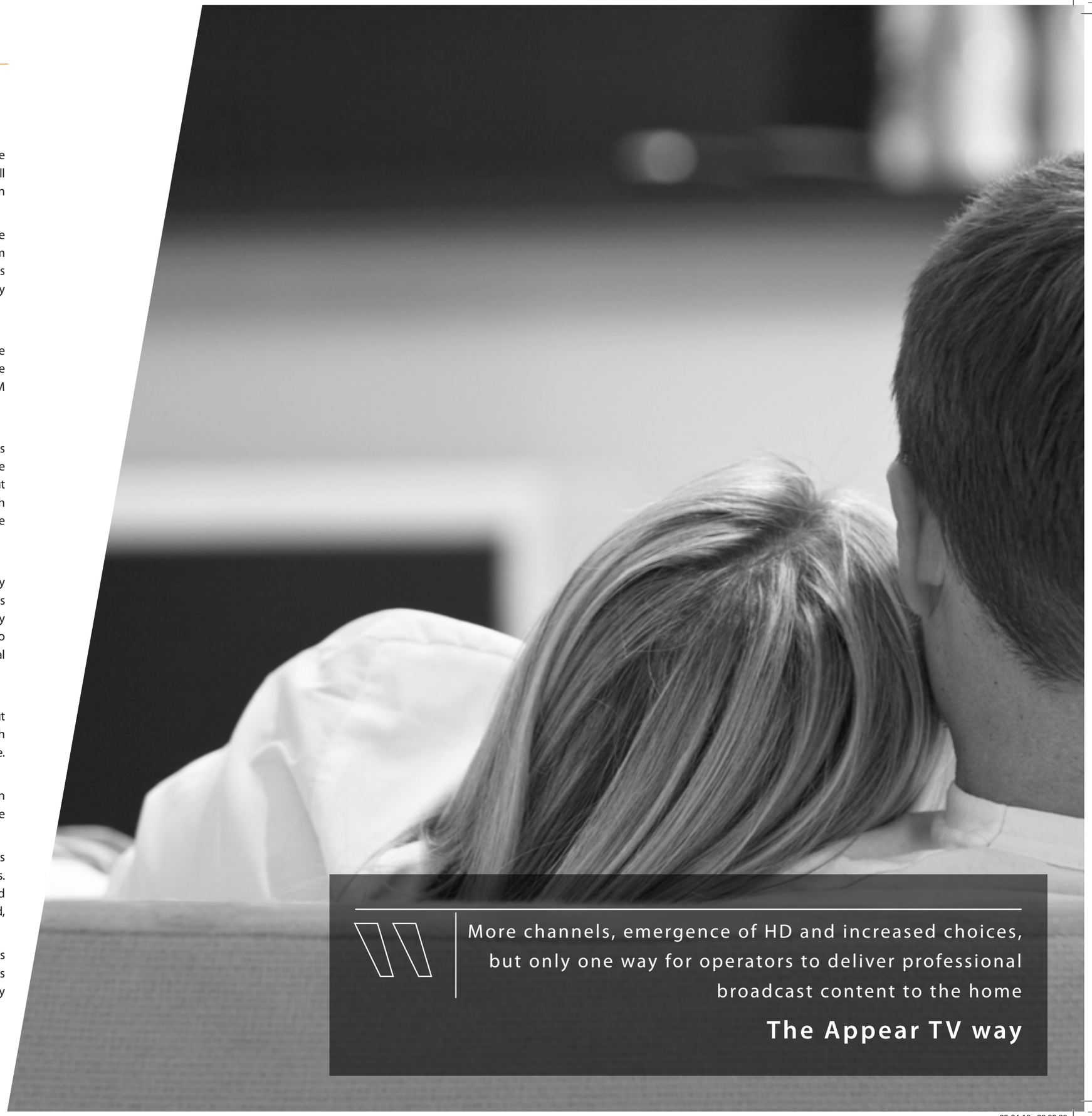
The DC1000/DC1100 can also be equipped with digital QAM output or COFDM output modules to deliver the digital subscriber package, enabling operators to manage both analog and digital services within a common platform, through a single user interface.

Descrambling

Appear TV provides two types of descramblers: one that is CAM-based (DVB-Common Interface) and another for bulk descrambling. The DVB-CI based descramblers are capable of descrambling up to 10 DVB scrambled services per CAM.

The bulk descrambler, on the other hand, is aimed at software-based CA systems. It is used for the descrambling of multiple services protected by one or more CA systems. The bulk descrambler is capable of descrambling up to 250 DVB or AES scrambled services. With support for various CA systems, be it hardware-based or software-based, Appear TV's descramblers are an efficient, space and energy saving solution.

Resilience is built into the Appear TV architecture. DC1000/DC1100 modules are hot-swappable, including power supplies and fans. Pro MPEG FEC support is optional, and Appear TV's redundancy solution offers full or partial redundancy for a variety of failure scenarios.



"More channels, emergence of HD and increased choices, but only one way for operators to deliver professional broadcast content to the home

The Appear TV way

DC1000 - UP TO 30 CHANNELS IN A SINGLE 4RU CHASSIS (DEPENDING ON OPTIONS)

FEATURES

- Up to 30 channels in one 4 RU chassis
  Up to 12 channels in one 1 RU chassis
- Input options:
  - IP - ASI - DVB-S/S2
  - DVB-T - DVB-C/J.83 - 8VSB
- Decoding of:
  - MPEG-2 HD and SD decoding
  - MPEG-4 AVC HD and SD decoding
- Decoded output options:
  - Composite (PAL), analogue audio (future option)
  - HDSDI/SDI out with embedded audio
  - Analogue RF with NICAM or A2 stereo support
  - FM radio with RDS insertion
- Decoder supports:
  - VBI re-insertion
  - EBU/DVB subtitling support
  - Support for DVB Common Interface
  - On Screen Display Messaging (OSDM) System
- MPEG output options with multiplexing and PSI/SI/ATSC regeneration:
  - IP - ASI - QAM Annex A,B or C - COFDM
- Hot-swappable modules (4 RU only)
- Intuitive web-based user control
- Dual redundant hot-swappable power supplies (option, 4RU only)
- Monitoring of power and fans (4 RU only)
- SNMP Alarm MIB
- SOAP/XML Interface for external control

CHASSIS

4RU

- Modular configuration with up to 16+2 board positions
- WEB based configuration, SNMP Alarms, SOAP/XML interface
- Forced air-cooling (through back of 4RU)
- Dual redundant hot-swappable power supply
  Option 1. 325W each, T250V 5A fuse
  Option 2. 400W each, T250V 6A fuse
- 4 individually monitored hot-swappable fans
- Hot-swappable modules

1RU

- Modular configuration with up to 9+1 board positions
- WEB based configuration, SNMP Alarms, SOAP/XML interface
- Forced air-cooling (through sides of 1RU)
- Swappable modules in back
- Optional IP IO or descrambler in front

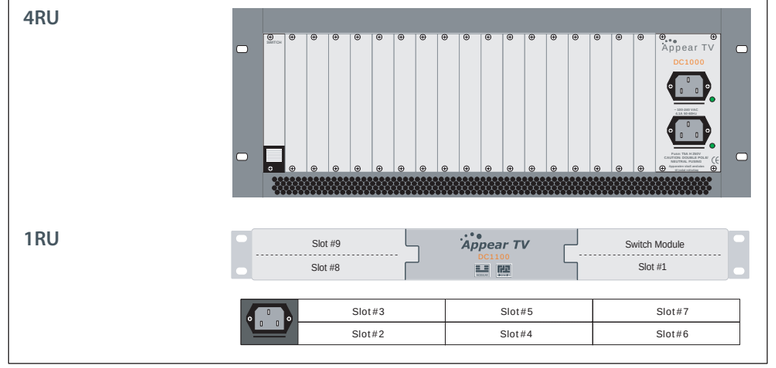
SWITCH MODULE

DC/SWM (product code)

- Gbit/s routing between modules in a chassis
- 1 slot wide (4RU switch module must be placed in slot 0. Redundant module in slot 17)

DIMENSIONS

4RU (w*h*d mm) 440 (480 with ears) * 180 * 400 (+ connectors)
1RU (w*h*d mm) 440 (480 with ears) * 45 * 480 (+ connectors)
Standard 19 inch rack mounting, 4RU high



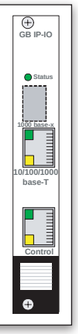
INPUT MODULES

(*Product codes)

Ethernet Input

- 10/100/1000BaseT input card (RJ45)
- Mini-GBIC interface (SFP) for optical input
- Supports UDP/RTP Multicast/Unicast reception
- Supports reception of MPTS and SPTS
- Service filtering
- PCR regeneration
- 10/100/1000BaseT management port (RJ45)
- Enables WEB management
- 1 slot wide

*DC/GBIPIN-MMI



ASI Input w/Management

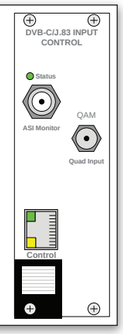
- 3xASI input
- BNC connectors
- 213 Mbit/s per input
- Supports reception of MPTS and SPTS
- Service filtering
- 10/100/1000BaseT management port (RJ45)
- Enables WEB management
- 1 slot wide

*DC/3ASI-MMI

DVB-C Input w/Management

- 4xQAM inputs
- F connector
- 0.87-6.9 Ms/s
- Supports reception of MPTS and SPTS
- Service filtering
- ASI monitoring port
- 10/100/1000BaseT management port (RJ45)
- Enables WEB management
- 2 slots wide

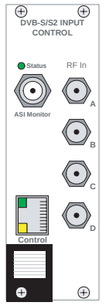
*DC/4QAM-MMI



DVB-S/S2 Input w/Management

- 4xDVB-S/S2 inputs
- F connectors
- DVB-S, DVB-S2 QPSK and 8PSK modes
- 950 – 2150 MHz Frequency Range
- 1-45 MSym/s (mode dependent)
- 1/2, 2/3, 3/4, 5/6, 7/8, 8/9, 9/10 FEC (mode dependent)
- Supports reception of MPTS and SPTS
- Service filtering
- ASI monitoring port
- 10/100/1000BaseT management port (RJ45)
- Enables WEB management
- 2 slots wide

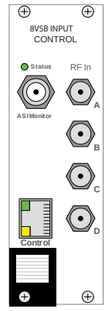
*DC/4DVBS-MMI *DC/4DVBSS2-MMI



8VSB Input w/ Management

- 4x8VSB Inputs
- F connectors
- 50 to 860 MHz Frequency Range
- Supports reception of MPTS and SPTS
- ASI monitoring port
- Service Filtering
- 10/100/1000 BaseT management port (RJ45)
- Enables WEB management
- 2 slots wide

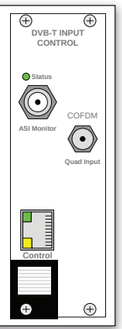
*DC/4x8VSB-MMI



DVB-T Input w/Management

- 4xCOFDM inputs
- F connector
- 1/2, 2/3, 3/4, 5/6, 7/8 FEC
- 2k and 8k carrier mode
- QPSK, 16QAM, 64QAM modulation
- Supports reception of MPTS and SPTS
- Service filtering
- ASI monitoring port
- 10/100/1000BaseT management port (RJ45)
- Enables WEB management
- 2 slots wide

*DC/4COFDM-MMI



Please note that card ejector will not be mounted for modules installed in 1RU chassis. Modules mounted in front of 1 RU chassis are not hot-swappable.

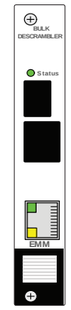
PROCESSING MODULES

(*Product codes)

Bulk Descrambler

- Descrambles up to 250 services (850 Mbit)
- Integrated with soft clients for ECM handling (no smart card required)
- Support for both DVB-CA and AES descrambling
- BISS descrambling
- 1 slot wide

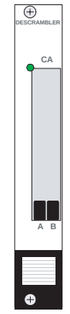
*DC/BDESC25, *DC/BDESC50, *DC/BDESC100,
*DC/BDESC150, *DC/BDESC200, *DC/BDESC250



Descrambler

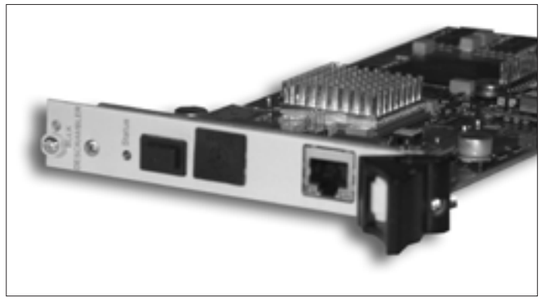
- 2xDVB Common interface
- Descrambling of 10 services per CAM (depends on common interface)
- Support for all major CA systems and CAMS
- 1 slot wide

*DC/2C1



QAM input module

Bulk descrambler - 250 services



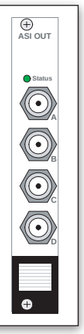
MPEG OUTPUT SPECIFICATIONS

(*Product codes)

ASI Output

- 4xASI outputs
- BNC connectors
- 213 Mbit/s per output
- 4 different multiplexed outputs
- PSI/SI regeneration
- 1 slot wide

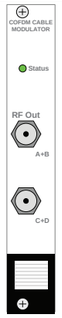
*DC/4ASIOUTMX



COFDM Output

- 4 COFDM modulators (ETSI EN 300744)
- Full digital modulation and up-conversion
- QPSK, 16-QAM and 64-QAM
- 5, 6, 7, 8 MHz bandwidth
- Frequency range 47-862 MHz, fully agile
- PSI/SI regeneration
- 2 x 75 ohm RF output (EN/IEC 60728-5) - F connector
- 1 slot wide

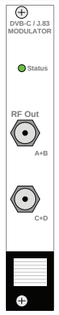
*DC/4COFDMOUTMX



QAM Output

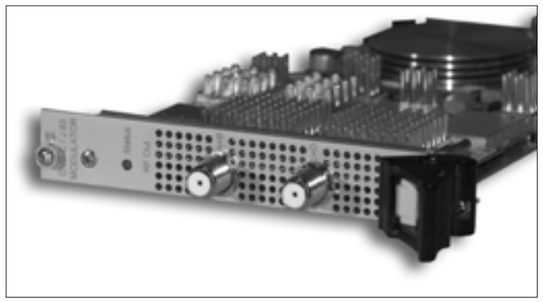
- 16 QAM modulators, 4 and 4 paired
- Full digital modulation and up-conversion
- DOCSIS 3.0 RF compliant
- 32 / 64 / 128 / 256 QAM modulation
- Frequency range of 47 – 862 MHz
- Supports multiplexing and transparent pass through
- PSI/SI/PSIP regeneration
- 2 x 75 ohm RF output (EN/IEC 60728-5) - F connector
- ITU-TJ83. Annex A/B/C
- 1 slots wide

*DC/8QAMOUTMX



HD dual decoder with SDI output

QAM output module



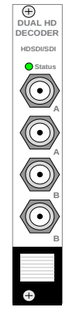
DECODER MODULES

(*Product codes)

MPEG 4 HD Decoder with SDI Output

- 2 SDI/HDSDI outputs per decoder
- MPEG2 and MPEG4 (H264) SD and HD
- VBI re-insertion (WSS, WST/EBU Teletext, VPS, VITS)
- DVB and EBU subtitling
- 2 SDI /HDSDI outputs per decoder
- 1 slot wide

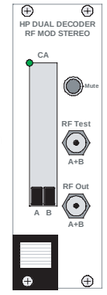
*DC/ADMSDISD *DC/ADMSDISDOSDM
*DC/ADMSDIHD *DC/ADMSDIHDOSDM



HP Dual Decoder w/RF output and NICAM/A2

- 2 decoders per module
- MPEG-2 DVB 4:2:0 MP@ML decoding
- VBI re-insertion (WSS, WST/EBU Teletext, VPS, VITS)
- DVB and EBU subtitling
- 2 DVB Common Interfaces. One per channel
- High performance RF modulation and up-conversion
- 47 – 862 MHz frequency range
- F connector output with both channels combined
- Test output – F connector
- External mute of RF output
- NICAM or A2 stereo audio (option)
- 2 slots wide

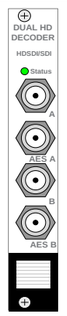
*DC/HPDDMRF, *DC/HPDDMRFNI, *DC/HPDDMRFA2



MPEG 4 HD Decoder with SDI output & AES audio option

- 2 decoders per module
- MPEG2 and MPEG4 (H264) SD and HD
- VBI re-insertion (WSS, WST/EBU Teletext, VPS, VITS)
- DVB and EBU subtitling
- 1 SD/HDSDI output per decoder
- 1 AES audio output per module
- 1 slot wide

*DC/ADMSDIAUDSD *DC/ADMSDIAUDSDOSDM
*DC/ADMSDIAUDHD *DC/ADMSDIAUDHDOSDM



FM Radio with RDS

- 8 independent radio channels per module
- Decoding of MPEG-1,2 audio
- FM modulation and up-conversion to FM band
- Fully agile independent frequency setting for each channel
- RDS insertion - UECP SPB490 or static
- One RF output connector, F-type, with all 8 channels
- MPX test output
- 1 slots wide

*DC/8FMR

DC1100

LATEST INNOVATION

Appear TVs QAM Output Module

Appear TV's new QAM output module can output up to 16 individual MPTSs, 4 by 4 paired. This module provides full digital modulation and up-conversion. The QAM output module has a frequency range of 47 – 862 MHz and supports multiplexing as well as transparent pass through. In addition, the module can handle both PCR regeneration and PSI/SI regeneration. The module is compliant to the ETS EN300 429 and ITU-TJ.83 annex A/B/C standard.

Appear TVs MPEG4 HD Decoder with SDI Output

Appear TV's new advanced MPEG-4 HD decoder module enables up to 30 HD channels to be decoded in either SD/HD or MPEG-4 AVC/SD/HD format, including HD to SD down-conversion. The module also enables SD/HD-SDI output with embedded audio.

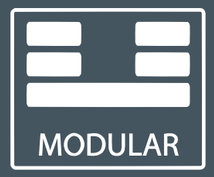
The new multi-format decoder module fits into the DC1x00/SC2x00/MC3x00 series of products – enabling it to be used in combination with any input and output modules. This new module is of particular interest to cable operators because it enables them to take advantage of the increasing commercial opportunities for HD content, without the complexity of traditional multi-format topologies.

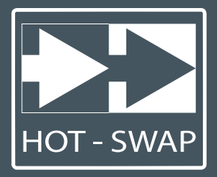
Superior performance, modular architecture, single management system, flexibility, manageability and high density

meaning professional TV delivery

INPUT INTERFACE SPECIFICATIONS

IP Input	Interface	: 10/100/1000 Base-T Ethernet and SFP interface
	Maximum data rate	: Up to 850 MBit/s
	Data format	: UDP Multicast/Unicast, RTP
	Transport stream	: SPTS and MPTS
	PCR de-jittering	: Yes
ASI Input (EN 50083-9)	Connector	: BNC female, 75Ω
	Number of inputs per module	: 3
	Maximum bit-rate per port	: Up to 213.7Mbit/s (burst)
	Management	: 10/100/1000 Base-T Ethernet
DVB-S/S2 Input (EN 300 421, EN 302 307)	Connector	: F female, 75Ω
	Number of inputs per module	: 4
	Decoding	: LDPC and BCH
	Symbol rate DVB-S	: 1-45 MSym/s
	Symbol rate DVB-S2	5–30 MSym/s
	FEC DVB-S	: 1/2, 2/3, 3/4, 5/6, 7/8
	FEC DVB-S2 QPSK	: 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10
	FEC DVB-S2 8PSK	: 3/5, 2/3, 3/4, 5/6, 8/9, 9/10
	DVB-S2 FEC frames	: Normal frames
	Input level	: -25 to -70 dBm
	Frequency range	: 950-2150 MHz
	LNB voltage	: 0/13/18 Volt
	Maximum LNB supply current	: 400 mA
	LNB signaling	: LNB voltage + 22kHz continuous tone
	Management	: 10/100/1000 Base-T Ethernet
DVB-T Input (EN 300 744)	Connector	: F female, 75Ω
	Number of inputs per module	: 4 demodulators (one connector)
	Input level	: -20 to -65 dBm
	Frequency range	: 49 – 861 MHz (center frequency)
	Channel bandwidth	: 7 and 8 MHz (6 MHz optional)
	Guard interval	: 1/4, 1/8, 1/16, 1/32
	Carrier mode	: 2k, 8k
	Hierarchy stream	: High and low priority
	Hierarchy mode	: All
	Carrier modulation	: QPSK, 16QAM, 64QAM
	FEC rate	: 1/2. 2/3, 3/4, 5/6, 7/8
	FEC	: Reed Solomon & Viterb Fully compliant with ETS 300 744 and NorDig 2 specifications
	Spectrum	: Non-inverted and inverted
	Management	: 10/100/1000 Base-T Ethernet





DVB-C Input (EN 300 429)	Connector	: F female, 75Ω
	Number of inputs per module	: 4 demodulators (one connector)
	Frequency range	: 51 – 858 MHz (center frequency)
	Channel bandwidth	: 7 and 8 MHz (6 MHz optional)
	QAM Mode	: 4, 16, 32, 64, 128, 256 QAM
	Symbol rate	: 0.87-6.9 Mbaud
	FEC	: ITU-T J83 annex A, B and C And ETS 300 429
	Spectrum	: Non-inverted and inverted
	Management	: 10/100/1000 Base-T Ethernet
	Input power level	: -20 to -50 dBm*
8-VSB Input (ATSC A/53)	Connector	: F female, 75Ω
	Number of inputs per module	: 4
	Input Level	: -34 to +40 dBmV
	Frequency range	: 50 – 860 MHz
	Modulation	: 8-VSB
	Band	: Broadcast
	Management	: 10/100/1000 Base-T Ethernet

*Maximum is combined power.

Please note that two versions of the DVB-C input card exists with different power requirements.

PROCESSING SPECIFICATIONS

Bulk Descrambling	Interface	: SW based smart card
	CA system support	: Please contact Appear TV
	BISS support	: Mode 1
	Maximum data rate	: Up to 850 MBit/s
	Number of services per module	: 250
	Scrambling algorithms	: DVB-CA and AES

DESCRAMBLER SPECIFICATIONS

DVB Descrambling	Interface	: DVB Common Interface
	CA system support*	: BetaCrypt, Conax, Cryptoworks, Irdeto, Mediaguard, Viaccess, NDS Viasat, Nagra
	Number of services per CAM	: 10 (requires multi service CAM)
AES Descrambling	Interface	: Virtual smartcard
	CA system support*	: Latens

* Appear TV aim to integrate with all major CA providers. Please contact Appear TV for an updated list over integrated CA systems.

** Before ordering AES descrambling, please contact Appear TV.

Specifications and product availability are subject to change with out notice.

MPEG OUTPUT SPECIFICATIONS

ASI Output	Connectors	: 4 BNC female, 75Ω
	Number of outputs per module	: 4 different Transport Streams
	Maximum bit-rate per port	: up to 213.7Mbit/s
	Transport stream output	: SPTS and MPTS
	Number of services per card	: 250 (sum of all 4 ports)
	Multiplexing	: Yes, per port
	Output format	: Constant bit-rate
	PCR Regeneration	: Yes, According to EN50083_9
	PSI/SI handling	: Automatically regenerated
	Tables Supported	: PAT, PMT, CAT, SDT, NIT, EITpf ,TOT, TDT
QAM Output	Interface	: 2 x F connector female, 75 ohm
	Number of QAM frequencies per module	: 16 different channels according to EN 300 429 8 per port
	Number of services per card	: 250 services (sum of all 16 channels)
	Multiplexing	: Yes, per port
	Transparent pass-through	: Yes, per port
	Modulation	: 32 / 64 / 128 / 256 - QAM
	Symbol rate	: 4,7 to 7,00 Mbaud (Annex A and C)
	Frequency range	: 47 – 862 MHz
	Frequency step size	: 1 Hz
	Frequency stability	: 2 ppm
	Output level with 16 carriers on	: -9,2 to +2,2dBm
	Output level adjustment step size (GUI)	: 0,5 dB
	PCR Regeneration	: Yes, According to EN50083-9
	Tables Supported	
	- PSI	: PAT, PMT, CAT
	- SI	: SDT, NIT, EITpf ,TOT, TDT
	- PSIP	: MGT, TVCT,CVCT
COFDM Output for Cable	Interface	: 2 x F connectors female, 75 ohm
	Number of COFDM frequencies per module	: 4 different channels according to EN 300 744 2 per port
	Number of services per card	: 250 services (sum of all 4 channels)
	Multiplexing	: Yes, per port
	Transparent pass-through	: Yes, per port
	Modulation	
	- IFFT size	: 2k, 8k
	- Guard intervals	: 1/4, 1/8, 1/16, 1/32
	- Code rates	: 1/2, 2/3, 3/4, 5/6, 7/8
	- Constellation	: QPSK, 16-QAM, 64-QAM
	- Channel spacing	: 5, 6, 7 or 8 MHz
	Frequency range	: 47– 862 MHz
	Frequency step size	: 1 Hz
	Frequency stability	: 2 ppm
	Output level with 4 carriers on	: -9,2 to +2,2dBm
	Output level adjustment step size (GUI)	: 0,2 dB
	PCR Regeneration	: Yes, According to EN50083-9
	Tables Supported	
	- PSI	: PAT, PMT, CAT
	- SI	: SDT, NIT, EITpf ,TOT, TDT
	- PSIP	: MGT, TVCT, CVCT

DECODER SPECIFICATIONS

Dual Decoder with SD/HDSDI	Number of channels	: 2 per module
	Interface	: 2 x BNC per decoder
	Interface format	: Option 1. 2 x SD/HDSDI Option 2. 1 x SD/HDSDI + 1 x AES/EBU unbalanced
	MPEG-2 Profiles	: MP@HL (HD) : MP@ML (SD)
	MPEG-4 ACV Profiles	: MP@L4, HP@L4 (HD) : HP@L3, HP@L4.1 (SD)

Down-conversion of HD formats to SD is supported. Aspect ratio conversion 16:9 to 4:3 is supported.

DVB Subtitling/VBI	DVB subtitling according to	: EN300 743 v1.3.1
	Wide Screen Signaling (WSS) according to	
	Input	: EN301 775 v1.2.1
	Output	: EN 300 294
	Video Programming System (VPS)	
	Input	: EN301 775 v1.2.1
	Output	: EN 300 231
	Teletext Subtitling (OSD)	: Supported
	VITS (Video Inserted Test Signals)	: ITU-T J.63 for 625 lines. Sin(x)/x on line 319 or 335
Audio Decoding	Number of decoded stereo pairs per video	: 2 (4 audio option)
	Codecs	: MPEG-1 Layer 1 and 2 (Musicam) : MPEG-2 Layer 2 : MPEG4 AAC-LC : MPEG4 AACplus (HE-AAC, AAC+SBR) v1 and v2 : Dolby Digital pass-through
Digital Video Outputs	Number of outputs	: 2 per decoder (Not available in AES option)
	Connector	: 75 ohm BNC
	Output format	: SMPTE 292 (HD-SDI) 259M (SD-SDI)
	Embedded audio	: SMPTE 272M (SD) 299M (HD)
Digital Audio Output (AES Audio option only)	Number of outputs	: 1 per decoder
	Connector	: 75 ohm BNC
	Output format	: Unbalanced
Conditional Access	DVB option	

RF VIDEO SPECIFICATIONS*

VHF/UHF Output	Analogue modulation	: PAL B/G and SECAM D/K
	RF output frequency range	: 47– 862MHz
	RF tuning step size	: 12.5 kHz
	RF output connector	: 1 Type F, female, both carriers
	Monitoring connector	: 1 Type F, female, both carriers -23db
	Output level (per carrier)	: 105 to 115 dBµV
	Total output level (2 channels combined)	: 108 to 118 dBµV
	Output level adjustment step size (GUI)	: 0.2 dB
	Output impedance	: 75ohm
	Return loss	: >16dB
	Video carrier frequency stability	: ± 3 ppm
	Carrier to noise, in-band	: >66dB
	Carrier to noise, adjacent channel	: >68dB
	Carrier to noise, out of band	: >75dB
	Carrier to noise (40 channels combined)	: Typical 65db
	Carrier to spurious, full band (40 – 862MHz)	: >62 dB
	Phase Noise	: >100 dBc/Hz @ 20kHz
Video (demodulated video)**	Differential gain (B/G/I)	: <2 %
	Differential phase (B/G/I)	: <2˚
	Group delay variations (B/G/I)	: <50 ns
	Luminance non-linearity (B/G/I)	: <1 %
	2T K factor	: <1 %
	Signal to noise ratio	: >60dB

*Using R&S ETL as demodulator

**All measurements are carried out in room temperature 20°c

RF SOUND SPECIFICATIONS

Mono	Audio carrier output level (relative to video carrier)	: -13dB
	Audio carrier output level range (PAL B/G)	: +3/-7 dB, 0.5 dB step
	Audio carrier output level range (SECAM D/K)	: +2/-7 dB, 0.5 dB step
	Audio inter carrier frequency stability	: ± 5 ppm
	Modulation	: FM
NICAM	NICAM modulation	: According to ETSI EN 300 163 v1.2.1, Fully synchronous operation, Digital J17 pre-emphasis
	Frequency refered to vision carrier	: 5.85 or 6.552 MHz
	NICAM carrier level relative to vision carrier	: 20dB
	NICAM carrier output level range	: +3/-6 dB, 0.5 dB step
	Frequency accuracy (relative to video)	: ± 10 Hz
	Audio output modes	: Stereo/Dual Mono/Mono
	Output precision	: 10 bits
A2 Stereo	Two sound-carrier FM system (A2)	: According to ITU-R BS.707, Annex 1
	Frequency referred to vision carrier	: f1=5.5 MHz, f2=5.742 MHz
	Audio carrier levels relative to vision carrier	: f1= -13dB, f2= -20dB
	Audio carrier output level range	: +3/-6 dB, 0.5 dB step
	Audio output modes	: Stereo/Dual Mono/Mono
	Modulation	: FM
	Audio-bandwidth	: 40 to 15 000 Hz

FM RADIO SPECIFICATIONS

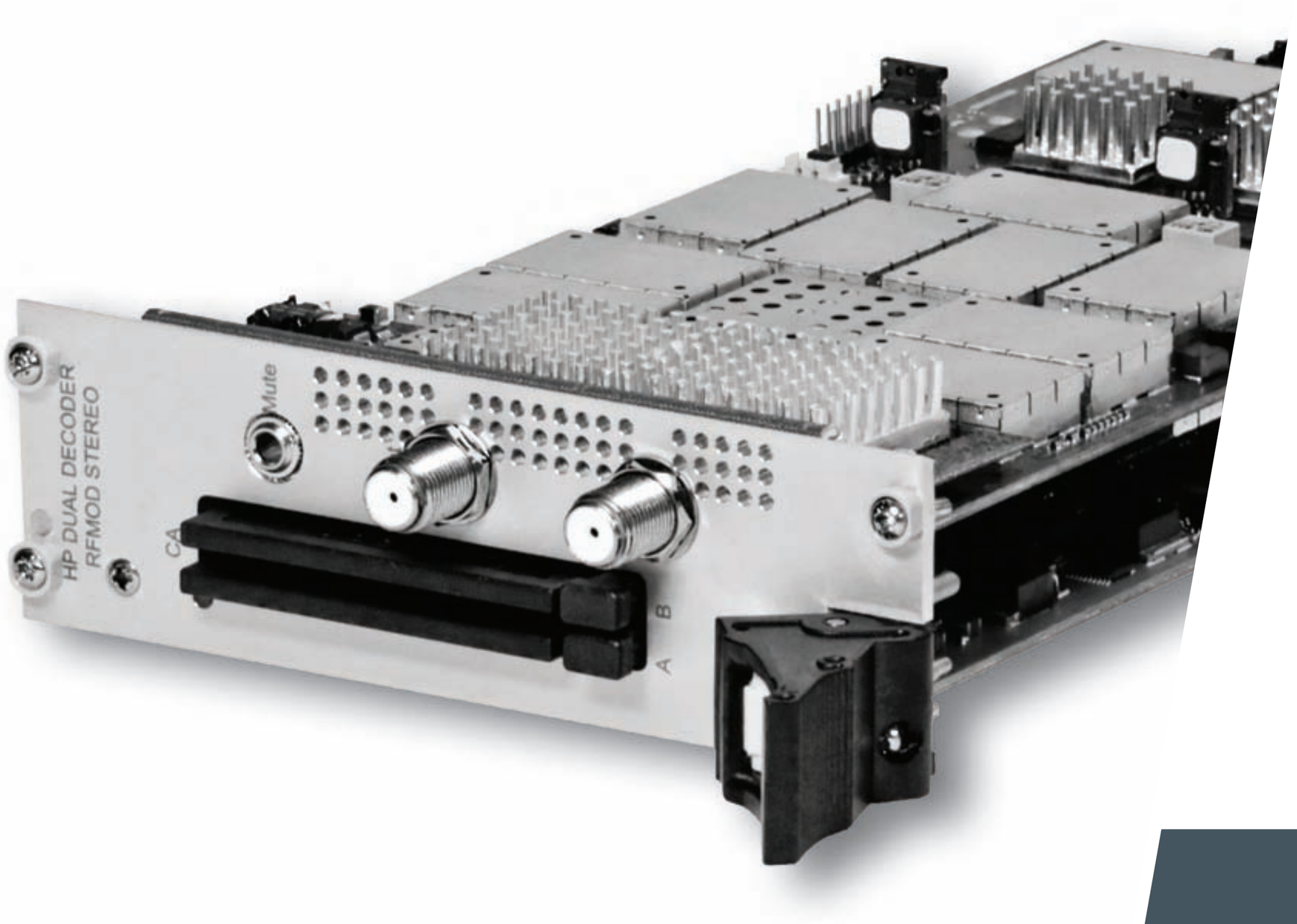
Decoder	Number of channels per module	: Up to 8
	Decoding of the following formats is supported	: MPEG-1 layers 1 and 2 (Musicam)
FM Output	Modulation	: FM
	RF output frequency range	: 87.5 - 108 MHz
	Output level 8 carriers combined	: 105 - 120 dBµV
	Output level adjustment step size (GUI)	: 0.1 dB
	Output connector	: F-type female
	Output impedance	: 75 ohm
	Return loss	: 18 dB
	Channel separation L/R	: > 46dB
	Carrier to spurious	: > 60dB
	RDS insertion	: UECP SPB490 or static
MPX Output	MPX Test output level	: 0 dBu
	MPX Test output load impedance	: 600ohm
	MPX Test output connector	: 1 BNC, service selectable from GUI

ENVIRONMENTAL SPECIFICATIONS

Conditions	Operational temperature	: 0˚C to +40˚C
	Operational humidity	: 0% to 95% (non-condensing)
	Storage temperature	: -20˚C to +70˚C
	Storage humidity	: 5% to 95% (non-condensing)
Power	AC Power 4RU and 1RU	: Input voltage 110V/240V, 50/60 Hz
	DC Power 4RU	: Input voltage -35 to -75 V DC, F250 16A fuse
	AC Power supply rating 4 RU chassis	: Option 1. 325W each, T250V 5A fuse
		: Option 2. 400W each, T250V 6A fuse
	Control 4RU chassis	: Power supplies are monitored from GUI and via LEDs on chassis
	Mounting 4RU chassis	: Hot-swappable, mounted on opposite side of input/output Modules
	DC Power supply rating 4 RU chassis	: 360W each
	Number of power supplies 4RU chassis	: 1 or optionally 2 (not possible to combine AC and DC)
	Power supply rating 1RU chassis	: 200W, T250V 4A fuse
	Number of power supplies 1RU Chassis	: 1
	Mounting 1RU chassis	: Internally mounted
Fans	Cooling 4RU chassis	: Hot-swappable fans (airflow front-to-back)
	Number of fans 4RU chassis	: 4
	Control 4RU chassis	: Fans are monitored from GUI and via LEDs on chassis
	Cooling 1RU chassis	: Integrated fans (airflow right to left side)
	Number of fans 1RU chassis	: 6
Physical	Dimensions 4RU chassis	: 19" 4RU (w*h*d mm) 440 (480 with ears) * 180 * 400
	Mounting options 4RU chassis	: Telco – cable in front, Broadcast style – cable in back
	Dimensions 1RU chassis	: 19" 1RU (w*h*d mm) 440 (480 with ears) * 45 * 480
	Mounting options 1RU chassis	: Broadcast style – cable in back and front

APPEAR TV's HP DUAL DECODER RFMOD STEREO

Appear TV's HP dual decoder with RF modulation is designed with flexibility to support multiple video formats and high performance for the largest of cable networks. The module supports mono and stereo options.



REDUNDANCY

(AWARD WINNING)

INTELLIGENT SOFTWARE

Appear TV's intelligent redundancy software provides seamless integration between broadcast equipment and IP networks.

Appear TV's redundancy solution is unique in being the only software solution in the IP television market to take a holistic view of operation and network management. Redundancy configurations are simplified and automated, and operational routines are significantly reduced.

Appear TV's holistic approach is built upon a single software core capable of handling failures on both inputs and outputs. This redundancy solution offers operators using IP for video distribution significant quality of service benefits and improved network efficiency. The system provides automatic backup in case of service stream failure on an operator's network, without requiring complex control software.

IP Input Redundancy

IP Input redundancy is designed to monitor failures external to Appear TV systems that may be indicated by link loss or the absence of a bitrate.

The Appear TV chassis is configured with two IP input modules, one configured to serve as the main module, and the other as backup. In the event of input source failure, the IP input source is switched automatically.

Internal Redundancy

The DC1000 chassis provides an advanced, self-contained, input redundancy solution. The system is based upon 1+1 redundancy of the input module, switch module and backplane. Decoders can choose to receive data from either the Master input/switch module or, should failure occur, from the slave Input/switch module. Each decoder module will select input/switch based on the current status on the received services.

FEATURES

- Provides unmatched service availability
- Rapid switching