



PD1600

Headend in a Box



PD1600
(front view)

ATX's PD1600 is an ultra-compact "headend in a box" for the secure delivery of cable, satellite & IPTV content to MDUs, headend in the sky (HITS) & hospitality video clients. Offering the performance, functionality & broadcast-approved security features of a traditional multi-rack headend within a compact 5RU form factor, the high-density PD1600 decodes, decrypts, re-encrypts & rebroadcasts content in IP, QAM, or analog NTSC output, while providing end-to-end content protection from uplink to the TV. Scaling from a few channels to 96 transponders of video content, the PD1600 platform offers the highest density available on the market, the lowest cost per HD channel & an unmatched feature set.

* Satellite receiver blade not available for U.S. market

Features

- Compact 5RU form factor
- End-to-end content protection from uplink to the TV
- 12 slots for multiple satellite, QAM, ATSC, DVB®-T/T2 or ISDB-T input cards
 - Each card features eight tuners to either descramble one TV service or pass through a complete transponder or carrier
 - Optional transcoder module for format conversions of eight streams per blade
- Four slots for QAM & NTSC output cards
 - The QAM output card is available with 16, 48 or 96 channels (72, 144 or 288 services)
 - The NTSC output card provides 24 RF analog channels
 - DVB-T & ISDB-T output card now available

Applications

- Headend in the sky (HITS)
- IPTV headend
- Cable TV headend
- Hospitality TV system
- Output is free-to-air or scrambled using either DRM or CAS-based encryption
- Supports multiple encryption formats, including LG Pro:Idiom®, Samsung LYNK® & Verimatrix VCAS™
- Fully secure platform
- Front-facing connectors & top-accessible fans
- Built-in 96-channel stacking switch (CSS)
- Remote management via a built-in, intuitive web interface
- Redundant power supplies
- Hot-swappable modular cards with a wandering-master architecture
- Internal multi-Gb Ethernet switching fabric
- Low power consumption

Benefits

High Density

Up to 96 transponders of video content in an ultra-compact form factor.

Low Cost of Ownership

Full headend functionality in a single low-cost unit that consumes 25% less power than comparably equipped systems.

Security

Output can be scrambled using DRM- or CAS-based encryption, with formats such as LG Pro:Idiom, Samsung LYNK & Verimatrix VCAS supported. Content is scrambled until displayed by the TV.

Ease of Use

Front facing connectors, top-accessible fans & front panel Ethernet connectivity make installation & maintenance quick & easy, while a built-in 96-channel stacking switch (CSS) simplifies connection to satellite dishes. Easy-to-read LEDs provide immediate notification of issues with the unit, while a built-in, intuitive web interface provides the convenience of remote management.

Reliability

Redundant power supplies implement load sharing to reduce wear & ensure continued operation, while the wandering-master architecture of the unit's hot-swappable modular cards allows quick switch over in the event of a failure. An internal multi-Gb Ethernet switching fabric enables nonblocking, seamless packet transfers between cards.

Flexibility

Create digital & analog cable TV & IPTV signals to supply to different clients at the same time.







Specifications

PD1600

16-SLOT DIGITAL PLATFORM	
GENERAL	
DIMENSIONS	5RU; 8.75"H x 19.0"W x 15.8"D (22.23H x 48.26W x 40.1D cm)
POWER CONSUMPTION	1500W Max.
OPERATING TEMPERATURE	0°C to +50°C (+32°F to +122°F)
BLADE CONFIGURATIONS	
SATELLITE RECEIVER BLADE	1-12 Blades per Chassis
ATSC RECEIVER BLADE	0-15 Blades per Chassis
QAM BLADE	0-2 Blades per Chassis
NTSC ANALOG BLADE	0-3 Blades per Chassis
SATELLITE INPUTS (From LNB)	
NUMBER OF INPUTS	4
FREQUENCY RANGE	950-2150 MHz (Stacked LNB)
INPUT LEVEL PER CARRIER	-65 dBm to -25 dBm Aggregate
IMPEDANCE	75 Ω
CONNECTORS	F-Female
INTEGRATED RF SWITCH (Multiswitch)	
INTERNAL L-BAND CHANNEL STACKING	4x8x12 CSS
IP INPUT/OUTPUT	
NUMBER OF PORTS	4x RJ-45 (1x Management Port)
CONNECTIONS (4)	RJ-45, GbE, Full Duplex, Auto-neg
ADDRESSING	Multicast
TRANSPORT PROTOCOL	UDP/IP
TRANSPORT FORMAT	SPTS

Specifications (cont'd)

PD1600

16-SLOT DIGITAL PLATFORM (cont'd)	
IP INPUT/OUTPUT (cont'd)	
IP MANAGEMENT	HTTP, TR-069
LOCAL USER INTERFACE	Web Browser
WIRELESS INTERFACE (Optional)	
CONNECTOR	SMB
IMPEDANCE	50 Ω
RECEIVER SENSITIVITY	-105 dBm (Typical)
TRANSMIT POWER	+24.5 dBm (Typical)
CDMA EV-DO Rev A	800/1900 MHz - 3.1 Mb/s (Forward Link), 1.8 Mb/s (Reverse Link)
SMS	MT/MO PDU/Text Mode
POWER SUPPLY	
OUTPUT POWER	700W (per Power Supply)
INPUT RANGE	90 VAC - 264 VAC
INPUT FUSING	Internal 10A Fuses
REDUNDANCY	Triple Hot-swappable N+1
COOLING	Internal Fan (Smart Fan Speed Control)
CERTIFICATION	
     	
INPUTS	
SATELLITE RECEIVER BLADE (not available for U.S. market)	
SATELLITE CHANNELS	8 Transponders or 8 Programs
MODULATION RATES	DVB-S: 1 to 45 Msps 1/2, 2/3, 3/4, 5/6, 7/8
	DVB-S2: 5 to 33 Msps
	QPSK: 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10
	8PSK: 3/5, 2/3, 3/4, 5/6, 8/9, 9/10
	Turbo: 2 Msps to 30 Msps
	QSPK: 1/2, 2/3, 3/4, 5/6, 7/8
	8PSK: 2/3, 3/4, 4/5, 5/6, 7/8
SECURITY	CI
ACQUISITION RANGE	\pm 5 MHz
TUNER STEP SIZE	100 kHz
OPTIONAL MODULES	Transcoder
POWER CONSUMPTION	30W (Typical)
ATSC RECEIVER BLADE	
ATSC FREQUENCIES	8 Carriers or 8 Programs
FREQUENCY RANGE	54-806 MHz (UHF/VHF)
CONNECTOR	F-Female
IMPEDANCE	75 Ω
RETURN LOSS	> 15 dB
INPUT LEVEL PER CARRIER	-75 dBm to -5 dBm
OPTIONAL MODULES	Transcoder
POWER CONSUMPTION	20W (Typical)

Specifications (cont'd)

PD1600

INPUTS (cont'd)	
QAM RECEIVER BLADE	
QAM FREQUENCIES	12 Programs (2x6)
FREQUENCY RANGE	42-1002 MHz
SECURITY	Multi-stream CableCARD™, M-card, or CI
CONNECTOR	F-Female
IMPEDANCE	75 Ω
RETURN LOSS	> 15 dB
INPUT LEVEL PER CARRIER	-75 dBm to -5 dBm
OPTIONAL MODULES	Transcoder
POWER CONSUMPTION	20W (Typical)
TRANSCODER MODULE (Optional)	
MAX. NUMBER OF STREAMS/TRANSPONDERS	8
CONVERSIONS SUPPORTED	MPEG-4 to MPEG-4, either HD or SD, with lower output bit rate (transrating) with no format conversion
	MPEG-4 to MPEG-2, either HD or SD, with no format conversion
	MPEG-2 to MPEG-4, either HD or SD, with no format conversion
	MPEG-2 or MPEG-4 HD to MPEG-2 SD, with format conversion to 480i with no cropping
POWER CONSUMPTION	30W (Typical)
IP INPUT	
INPUT CONNECTOR TYPE	4 x RJ-45 (1x Management Port)
LAYER 1 ETHERNET	GbE (1000 Base-T)
LAYER 2 ADDRESSING/PROTOCOLS	Multicast (UDP/IP)
PACKETIZED DATA TYPES	SPTS (ITU13818-1)
DVB-T / T2 INPUT	
NUMBER OF DVB - T/T2 CARRIERS	8 Carriers / Programs
FREQUENCY	470-854 MHz
CONNECTOR	F-type Female
IMPEDANCE	75 Ω
INPUT LEVEL PER CARRIER	-75 dBm to -5 dBm
RETURN LOSS	>15 dB
POWER CONSUMPTION	20W (Typical)
ISDB-T INPUT	
FREQUENCY	470-806 MHz
CONNECTOR	F-type Female
IMPEDANCE	75 Ω
INPUT LEVEL PER CARRIER	-75 dBm to -5 dBm
RETURN LOSS	>10 dB
POWER CONSUMPTION	20W (Typical)
OUTPUTS	
QAM OUTPUT BLADE	
QAM CARRIER PER BLADE	MAX. SERVICES PER BLADE
16 CHANNELS	72
48 CHANNELS	144
96 CHANNELS	288

Specifications (cont'd)

PD1600

OUTPUTS (cont'd)	
GENERAL	
OUTPUT FREQUENCY	45-1003 MHz
MODULATION	ITU-T J.83 Annex A, C (16, 32, 64, 128 or 256 QAM) ITU-T J.83B Annex B (64, 256 QAM)
QAM SYMBOL RATE	2.0 Msps ~ 7.0 Msps
CONNECTOR	F-Female
OUTPUT LEVEL	45 dBmV Effective Pre-combined Output Power
OUTPUT ATTENUATION	0-10 dB (0.5 dB Step)
OUTPUT LEVEL FLATNESS	(45-864 MHz) \pm 1 dB, (45-1003 MHz) \pm 2 dB
SPURIOUS	> 60 dBc (in 4 MHz)
OUTPUT IMPEDANCE	75 Ω
INTERLEAVING	128/1 Annex B, 12/17 Annex A, C
CHANNEL PLANS	EIA, HRC, IRC
POWER CONSUMPTION	25W (Typical)
NTSC OUTPUT ANALOG BLADE	
MAX. NUMBER OF NTSC CHANNELS	24
FREQUENCY RANGE	121-547 MHz
CONNECTOR	F-Female
OUTPUT LEVEL	45 dBmV (Pre-combined)
OUTPUT IMPEDANCE	75 Ω
BAND PLAN	STD, HRC
AUDIO/VIDEO RATIO	15 \pm 5 dB
POWER CONSUMPTION	40W (Typical)
IP OUTPUT	
INPUT CONNECTOR TYPE	4x RJ-45 (1x Management Port)
LAYER 1 ETHERNET	GbE (1000 Base-T)
LAYER 2 ADDRESSING/PROTOCOLS	Multicast (UDP/IP)
PACKETIZED DATA TYPES	SPTS (ITU13818-1)
ENCRYPTION	
PRO:IDIOM (Zenith LG) FOR IP OR QAM	
LYNK (Samsung) FOR IP OR QAM	
VCAS (Verimatrix) FOR IP OR QAM	
GUIDE OPTIONS	
EPG - ELECTRONIC PROGRAM GUIDE	
SCROLLING GUIDE	
DVB-T OUTPUT	
FREQUENCY	470-854 MHz
CHANNEL BW	6, 7, 8 MHz
NUMBER OF CARRIERS	24
MODULATION	DVB-T (ETSI EN 300 744)
MODULATION MODES	COFDM 2K, 8K
MODULATION TYPE	QPSK, 16 QAM, 64 QAM
MAX. BIT RATE	31.7 Mbps

Specifications (cont'd)

PD1600

OUTPUTS (cont'd)	
DVB-T OUTPUT (cont'd)	
CONNECTOR	F-type Female
IMPEDANCE	75 Ω
INPUT LEVEL PER CARRIER	-85 dBm to -5 dBm
RETURN LOSS	>10 dB
POWER CONSUMPTION	20W (Typical)



PDIRD8
Satellite Receiver
Blade, 8 Tuners



PDXC8
Transcoder Module,
8 Channels
(Optional)



PDATSC8
ATSC Receiver
Blade, 8 Tuners



PDQ16
QAM 16 Blade
16 Channels



PDQ48
QAM 48 Blade
48 Channels



PDQ96
QAM 96 Blade
96 Channels



PDNTSC24
NTSC Blade, 24
Analog Channels



PDDVB8
DVB-T / T2
Receiver Blade 8
Tuner Channels



PDDVB24
DVB-T Output
Module, 24
DVB-T Carriers



PDISDB8
ISDB-T Receiver
Blade, 8 Tuners

Ordering Information

Part Number	Description
PD1600	16-Slot Digital Platform with Redundant Power Supply
PDIRD8	Satellite Receiver Blade, 8 Tuners (not available for U.S. market)
PDATSC8	ATSC Receiver Blade, 8 Tuners
PDXC8	Transcoder Module, 8 Channels
PDQ16	QAM 16 Blade, 16 Channels
PDQ48	QAM 48 Blade, 48 Channels
PDQ96	QAM 96 Blade, 96 Channels
PDNTSC24	NTSC Blade, 24 Analog Channels Single
PDDVB8	DVB-T/T2 blade, 8 Tuners
PDDVB24	DVB-T Output Module, 24 Channels
PDISDB8	ISDB-T Blade, 8 Tuners
PD1600FP	Blade Filler Plate
PD1600PS	Power Supply for PD1600

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