Ku-Band HP-Converters Series

Single/Dual/Quad High Performance Block Frequency Converters

HP-Frequency Converter Series

KEY FEATURES

- L-Band IF
- Cost effective solution
- Fully compliant with IESS 308/309
- High linearity
- Low group delay
- Front panel control (local)
- Full remote control (remote)

OVERVIEW

The Advantech HP range of converters uses the latest technology in conversion, local and remote control thus providing the ultimate in performance and user friendly operation at a very competitive price.

The spectral purity, low phase noise and stability exceed the requirements of all major international satellite network operators.

The flexible and comprehensive monitor and control features on the HP converter ensure that it will fit into any network management system architecture. The user-friendly front panel or the RS485 remote interface will provide full set-up and fault monitoring facilities. The RS232 will provide the Monitor and Control functions via a PC and will also allow for software upgrades downloading.

The PLL oscillator used in the converter is either locked to a highly stable internal 10 MHz reference or if the external reference option is fitted and the proper level of signal is present, the PLL will automatically lock to the external reference.

APPLICATIONS

The HP range of converters is particularly suited for use in VSAT, SCPC Networks, SNG, DVB-RCS and Hub systems. This makes them an ideal choice for large earth stations requiring cost effective solutions for frequency conversion. The lightweight, rugged and compact design also ensures that the HP converter provides the ideal solution for mobile truck or flyaway DSNG systems. With a fully welded aluminum chassis and robust modular internal construction the converter can even meet the demands of military installations.

The HP range of converters provides an industry leading MTBF of over 120,000 hours.

MAJOR OPTIONS

- Ethernet port and SNMP Interface
- External 10 MHz with Autosensing
- Spectrum INV or NINV on down converter
- Dual, quad, Up/Down, or 1:1 redundant hot swap converters in single 1RU chassis.
- Redundant Ready (for 1:N)*

Operating Bands

Up-Converters

Model Number	Type	RF Output	IF Frequency
ARUN-LKu	single	14.00 - 14.50 GHz Non-inverted	950-1450 MHz
ARUD-LKu	dual		
ARUQ-LKu	quad		
ARUN-LKx	single	13.75 - 14.50 GHz Non-inverted	950-1700 MHz
ARUD-LKx	dual		
ARUQ-LKx	quad		

Down-Converters

Model Number	Type	RF Input	IF Frequency
ARDN-K1L	single	10.95 - 11.70 GHz	950 – 1700 MHz Non-inverted
ARDD-K1L	dual		
ARDQ-K1L	quad		
ARDN-K2L	single	11.70 - 12.20 GHz	950 – 1450 MHz Non inverted
ARDD-K2L	dual		
ARDQ-K2L	quad		
ARDN-K3L	single	12.25- 12.75 GHz	950 – 1450 MHz Non-inverted
ARDD-K3L	dual		
ARDQ-K3L	Quad		
ARDN-KFL	Single	10.95-12.75* GHz	950 – 1700 MHz Non-inverted

∗Note: 3 Selectable bands
A = 10.95-11.70 GHz
B = 11.70-12.25 GHz
C = 12.25-12.75 GHz

Up/Down -Converters

Model	Type	RF (GHz)	IF (MHz).
ARMT-LXY∗ See note below	Up/Down	See Note below	950-1450 or 950-1700

∗Note:
X and Y can be any of the following:
Ku = 14.00-14.50 GHz
Kx = 13.75-14.50 GHz
K1 = 10.95-11.70 GHz
K2 = 11.70-12.20 Ghz
K3 = 12.25-12.75 GHz

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Up-Converter

IF input

Frequency range	(See table on front page)
Impedance	50 Ω
Input Connector	BNC (female)
Return loss	16 dB

RF output

Output power (P1dB)	0 dBm
Frequency range	(See table on front page)
IMD3 (two tone)	-40 dBc max @ -10 dBm output
Output connector	Type N (female)
Connector Impedance	50 Ω
Return loss	18 dB

Transfer Characteristics

Conversion Gain	20 dB @ max gain setting
Gain adjustment	20 dB
Attenuator step size	0.1 dB
Gain flatness	±1.5 dB p-p over 500 MHz ± 0.5 dB p-p over 36 MHz
Gain stability	±0.25 dB max. /24 hours ±1 dB over temp. range
Spurious	-55 dBc carrier related @ -10 dBm < -60 dBm non-carrier related
Phase noise	Meets or Exceeds IESS 308/309

Reference

External Reference	10 MHz , +/- 3dBm input level
Internal reference stability	+/-2 x 10^{-8} / day
Aging	+/-1 x 10^{-7} / year

Environmental

Operational	0°C to +50°C standard
Storage	-55°C to +85°C
Humidity	Non-condensing
Altitude	3,000m AMSL

Down-Converter

RF input

Frequency range	(See table on front page)
Impedance	50 Ω
Input Connector	Type N (female)
Return loss	18 dB

IF output

Frequency range	(See table on front page)
Output level	+5 dBm at P1dB
Output Connector	BNC female
Connector Impedance	50 Ω
Return Loss	16 dB

Transfer Characteristics

Conversion Gain	30 dB min.
Gain adjustment	20 dB
Attenuator step size	0.1 dB
Gain flatness	±1.5.dB p-p over (500 or 750 MHz) ±0.5 dB p-p over 36 MHz
Gain stability	±0.25 dB max. / 24 hours ±1 dB over temp. range
Spurious	-55 dBc @ -10 dBm
Image rejection	60 dB
Noise Figure	20 dB
Phase noise	Meets or Exceeds IESS 308/309

Mechanical

Dimensions	Width	19” (482.6 mm)
	Height	1U 1.75” (44.5 mm)
	Depth	22” (558.8 mm)

Power Supply

Voltage	90 – 265 VAC (47 – 63 Hz)
Power	40W (typical, single converter)
Connector	IEC 603320 10A

Monitor and Control

RS 485	DB9
RS 232	DB9
Discrete	DB9
Ethernet (optional)	RJ45 F

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