Ku-Band HP-Converters Series

1:1 Redundant Dual High Performance Synthesized Frequency Converters

HP-Frequency Converter Series

KEY FEATURES

- Two hot swappable converters in 1U
- 70 MHz IF
- Cost effective solution
- 1:1 Redundancy included
- 125 kHz step size
- Meets or exceeds IESS 308/309 requirements
- High linearity
- Front panel control (local)
- Full remote control (remote) RS485 or RS232

OVERVIEW

The Advantech Dual - HP range of converters uses the latest technology in conversion, giving two independent conversion chains in 1 RU package, 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 hot swappable 1:1 redundancy feature provides for the ultimate flexibility in a very compact package.

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 downloading.

The converter uses a PLL oscillator 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 oscillator will automatically lock to the external reference.

MAJOR OPTIONS

- 140 MHz IF Frequency
- Ethernet port and SNMP Interface
- Low Group Delay (option)
- 10 MHz External/Internal Reference with Autosensing

Operating Bands

Up-Converters

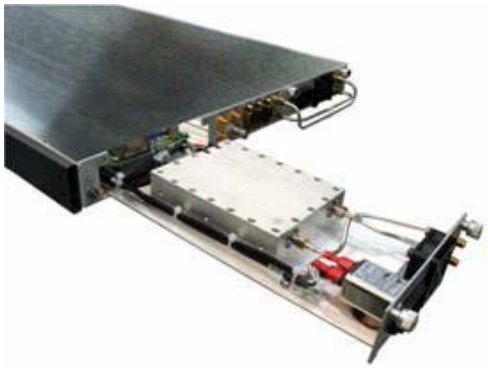
Model Number	RF Output	IF Frequency
ARUD-70KSR	14.00 – 14.50 GHz	70 MHz
ARUD-70KXR	13.75 – 14.50 GHz	70 MHz

Down-Converters

Model Number	RF Output	IF Frequency
ARDD-K1 70 R	10.95 – 11.70 GHz	70 MHz
ARDD-K2 70 R	11.70 – 12.20 GHz	70 MHz
ARDD-K3 70 R	12.25 – 12.75 GHz	70 MHz

APPLICATIONS

The HP range of converters is particularly suited for use in VSAT, SCPC Networks, SNG, DVB-RCS and Hub systems were compact redundancy is required. 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 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.



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Up-Converter

IF input

Frequency range	70 ± 18 MHz 140 ± 36 MHz (optional)
Impedance	50 Ω (optional 75Ω)
Input Connector	BNC (female)
Return loss	18 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 (0.1 dB step size)
Gain flatness	1.5 dB p-p max. 36 MHz 2.0 dB p-p max. 72 MHz
Gain stability	±0.25 dB max. /24 hours ±1 dB over temp. range
Spurious	-55 dBc carrier related @-10dBm < -50 dBm non-carrier related
Group delay (over 36 MHz)	10 -15 ns p-p
Group delay (with optional group delay equalizer)	
Linear	0.03 ns/MHz
Parabolic	0.01 ns/MHz^2
Ripple	1 ns p-p
Phase noise	Meets or Exceeds IESS 308/309
Synthesizer step size	125 kHz

Reference

External Reference	10 MHz (optional)
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	18dB

IF output

Frequency range	70 ± 18 MHz 140 ± 36 MHz (optional)
Output level	+5 dBm at P1dB
Output Connector	BNC female
Connector Impedance	50 Ω (optional 75Ω)
Return Loss	18 dB

Transfer Characteristics

Conversion Gain	40 dB min @ max gain setting
Gain adjustment	20 dB (0.1 dB step size)
Gain flatness	1.5 dB p-p max. 36 MHz 2.0 dB p-p max. 72 MHz
Gain stability	±0.25 dB max. / 24 hours ±1 dB over temp. range
Spurious	-55 dBc @ -5 dBm output
Group delay (over 36 MHz)	10 -15 ns p-p
Group delay (with optional group delay equalizer)	
Linear	0.03 ns/Hz
Parabolic	0.01 ns/MHz^2
Ripple	1 ns p-p
Image rejection	50 dBc
Noise Figure	20 dB
Phase noise	Meets or Exceeds with IESS 308/309
Synthesizer step size	125 kHz

Mechanical

Dimensions	Width	19” (482.6 mm)
	Height	1U 1.75” (44.5 mm)
	Depth	28” (711.2 mm)

Power Supply

Voltage	90 – 265 VAC (47 – 63 Hz)
Power	50W (typical)
Connector	IEC 603320 10A

Monitor and Control

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

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