



# Ku-Band Block Frequency Converter



Single / Dual / Triple / Quad  
FCB300

## 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.

## 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		
ARUT-LKu	triple		
ARUQ-LKu	quad	12.75 - 13.25 GHz Non-inverted	950-1450 MHz
ARUN-LKL	single		
ARUD-LKL	dual		
ARUT-LKL	triple	13.75 - 14.50 GHz Non-inverted	950-1700 MHz
ARUQ-LKL	quad		
ARUN-LKx	single		
ARUD-LKx	dual		
ARUT-LKx	triple		
ARUQ-LKx	quad		

Down-Converters			
Model Number	Type	RF Output	IF Frequency
ARDN-K1L	single	10.95 - 11.70 GHz	950 – 1700 MHz Non-inverted
ARDD-K1L	dual		
ARDT-K1L	triple		
ARDQ-K1L	quad	11.70 - 12.20 GHz	950 – 1450 MHz Non inverted
ARDN-K2L	single		
ARDD-K2L	dual		
ARDT-K2L	triple	12.25- 12.75 GHz	950 – 1450 MHz Non-inverted
ARDQ-K2L	quad		
ARDN-K3L	single		
ARDD-K3L	dual	10.7- 11.7 GHz	950 – 1950 MHz Non-inverted
ARDT-K3L	triple		
ARDQ-K3L	quad		
ARDN-K4L	single	10.95-12.75* GHz	950 – 1700 MHz Non-inverted
ARDD-K4L	dual		
ARDT-K4L	triple		
ARDQ-K4L	quad	(10.70 – 12.75 GHz)	(950 – 1950 MHz)
ARDN-K5L	Single	11.70-12.75 GHz	950-2000 MHz Non-inverted

\*Note: 3 Selectable bands  
 A = 10.95-11.70 GHz or 10.70 – 11.45 GHz  
 B = 11.70-12.25 GHz 11.45-12.25 GHz  
 C = 12.25-12.75 GHz 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      K2 = 11.70-12.20 GHz  
 Kx = 13.75-14.50 GHz      K3 = 12.25-12.75 GHz  
 K1 = 10.95-11.70 GHz      K4 = 10.7 – 11.7 GHz

## 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, consult factory)



## Ku-Band Block Frequency Converter

Technical Specifications			
Up-Converter		Down-Converter	
<b>IF Input</b>		<b>RF Input</b>	
Frequency range	(See table on front page)	Frequency range	(See table on front page)
Impedance	50 Ω	Impedance	50 Ω
Input Connector	BNC (female)	Input Connector	Type N (female)
Return loss	16 dB	Return loss	18 dB
<b>RF Output</b>		<b>IF Output</b>	
Output power (P1dB)	+10 dBm	Frequency range	(See table on front page)
Frequency range	(See table on front page)	Output level	+10 dBm at P1dB
IMD3 (two tone)	-40 dBc max @ 0 dBm output	Output Connector	BNC female
Output connector	Type N (female)	Connector Impedance	50 Ω
Connector Impedance	50 Ω	Return Loss	16 dB
Return loss	18 dB		
Transfer Characteristics		Transfer Characteristics	
Conversion Gain	20 dB @ max gain setting	Conversion Gain	30 dB @ max gain setting
Gain adjustment	20 dB	Gain adjustment	20 dB
Attenuator step size	0.1 dB	Attenuator step size	0.1 dB
Gain flatness	±1.5 dB p-p over the full operating band	Gain flatness	±1.5 dB p-p over the full operating band
	1.0 dB p-p over 40 MHz		±0.5 dB p-p over 36 MHz
Gain stability	±0.25 dB max. /24 hours ±1 dB over temp. range		Gain stability
Spurious	-55 dBc carrier related @ 0 dBm < -60 dBm non-carrier related	Spurious	-55 dBc @ 0 dBm
		Image rejection	60 dB
		Noise Figure	20 dB
Phase noise	Meets or Exceeds IESS 308/309	Phase noise	Meets or Exceeds IESS 308/309
Reference		Mechanical	
External Reference	10 MHz, +/- 3 dBm input level	Dimensions	Width 19" (482.6 mm)
Internal reference stability	± 2 x 10 <sup>-10</sup> / day		Height 1U 1.75" (44.5 mm)
Aging	± 5 x 10 <sup>-8</sup> / year		Depth 22" (558.8 mm)
Environmental		Power Supply	
Operational	0°C to +50°C standard	Voltage	90 - 265 VAC (47 - 63 Hz)
Storage	-55°C to +85°C	Power	50W (typical, single converter)
Humidity	Non-condensing	Connector	IEC 603320 10A
Altitude	3,000m AMSL		
		Monitor and Control	
		RS 485	DB9
		RS 232	DB9
		Discrete	DB9
		Ethernet (optional)	RJ45 F

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