



Dual with Trays  
FCS300T



## Features

- Two hot swappable converters in 1U
- Outperforms IESS 308/309 phase noise by 3dB
- Superior linearity
- 125 kHz step size
- On-site reference aging correction capability
- Intuitive front panel user interface
- RS232 terminal and RS485 packet mode remote interface

## 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 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.

## Application

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

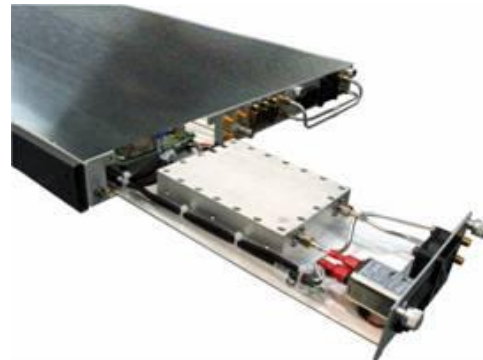
## Operating Bands

### Up-Converters

Model Number	RF Output	IF Frequency
ARUD-70KST	14.00 – 14.50 GHz	70 MHz
ARUD-70KXT	13.75 – 14.50 GHz	70 MHz

### Down-Converters

Model Number	RF Output	IF Frequency
ARDD-K1 70 T	10.95 – 11.70 GHz	70 MHz
ARDD-K2 70 T	11.70 – 12.20 GHz	70 MHz
ARDD-K3 70 T	12.25 – 12.75 GHz	70 MHz
ARDD-K4 70 T	10.70 – 11.70 GHz	70 MHz
ARDD-K5 70 T	11.70 – 12.75 GHz	70 MHz



## Options

- 140 MHz IF Frequency
- Ethernet port and SNMP Interface
- Low Group Delay (option)
- 10 MHz External/Internal Reference with Autosensing
- 1kHz step size

# Ku-Band Synthesized Frequency Converter

Technical Specifications				
Up-Converter		Down-Converter		
<b>IF Input</b>		<b>RF Input</b>		
Frequency range	70 ± 18 MHz or 140 ± 36 MHz (optional)	Frequency range	(See table on front page)	
Impedance	50 Ω	Impedance	50 Ω	
Input Connector	SMA (female)	Input Connector	SMA (female)	
Return loss	18 dB	Return loss	16 dB	
<b>RF Output</b>		<b>IF Output</b>		
Frequency range	(See table on front page)	Frequency range	70 ± 18 MHz 140 ± 36 MHz (optional)	
Output level	+10 dBm at P1dB	Output level	+5 dBm at P1dB	
Output connector	SMA (female)	Output Connector	SMA (female)	
Connector Impedance	50 Ω	Connector Impedance	50 Ω	
Return loss	16 dB	Return Loss	18 dB	
<b>Transfer Characteristics</b>		<b>Transfer Characteristics</b>		
Maximum Conversion Gain	20 dB (standard) 30 dB (option)	Conversion Gain	40 dB	
Gain adjustment	20 dB (0.1 dB step size)	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 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	Gain stability	±0.25 dB max. / 24 hours ±1 dB over temp. range	
Spurious	< -55 dBc related @ 0 dBm output < -55 dBm non-related	Spurious	-55 dBc @ -5 dBm output	
IMD3 (two tone)	-40 dBc max @ 0 dBm output	IMD3 (two tone)	-40 dBc max @ -5 dBm output	
		Image rejection	60 dBc	
		Noise Figure	20 dB	
Group delay	8 ns p-p typical			
Group delay option	36MHz	Linear 0.03 ns/MHz	Parabolic 0.01 ns/MHz <sup>2</sup>	Ripple 1 ns p-p
	72MHz	Linear 0.025 ns/MHz	Parabolic 0.003 ns/MHz <sup>2</sup>	Ripple 1 ns p-p
Phase noise (dBc/Hz)	100Hz	1kHz	10kHz	100kHz
	-63	-73	-83	-93
Synthesizer step size	125k kHz			
<b>Reference</b>		<b>Mechanical</b>		
External Reference	10 MHz, +/- 5 dBm input level	Dimensions	Width 19" (482.6 mm)	
Internal reference stability	± 2 x 10 <sup>-8</sup> over 0°C to +50°C		Height 1U 1.75" (44.5 mm)	
Aging	± 2 x 10 <sup>-10</sup> / day ± 5 x 10 <sup>-8</sup> / year		Depth 28" (711.2 mm)	
<b>Environmental</b>		<b>Power Supply</b>		
Operational	0°C to +50°C standard	Voltage	90 – 265 VAC (47 – 63 Hz)	
Storage	-55°C to +85°C	Power	50W (typical)	
Humidity	Non-condensing	Connector	IEC 603320 10A	
Altitude	3,000m AMSL	<b>Monitor and Control</b>		
		RS 485	DB9	
		RS 232	DB9	
		Discrete	DB9	
		Ethernet (optional)	RJ45 F (optional)	

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