Ku-Band Synthesized Frequency Converter

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 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.

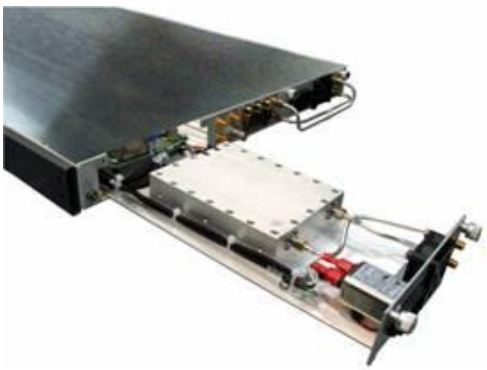
Operating Bands

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

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Technical Specifications

Up-Converter

IF Input	
Frequency range	70 ± 18 MHz or 140 ± 36 MHz (optional)
Impedance	50 Ω
Input Connector	SMA (female)
Return loss	18 dB

RF Output	
Frequency range	(See table on front page)
Output level	+10 dBm at P1dB
Output connector	SMA (female)
Connector Impedance	50 Ω
Return loss	16 dB

Transfer Characteristics							
Maximum Conversion Gain		20 dB (standard) 30 dB (option)					
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 related @ 0 dBm output < -55 dBm non-related					
IMD3 (two tone)		-40 dBc max @ 0 dBm output					
Group delay		8 ns p-p typical					
Group delay option	36MHz	Linear 0.03 ns/MHz	Parabolic 0.01 ns/MHz^2	Ripple 1 ns p-p			
	72MHz	Linear 0.025 ns/MHz	Parabolic 0.003 ns/MHz^2	Ripple 1 ns p-p			
Phase noise (dBc/Hz)		100Hz	1kHz	10kHz	100kHz		
		-63	-73	-83	-93		
Synthesizer step size		125k kHz					

Reference	
External Reference	10 MHz, +/- 5 dBm input level
Internal reference stability	± 2 x 10^{-8} over 0°C to +50°C
Aging	± 2 x 10^{-10} / day ± 5 x 10^{-8} / 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	SMA (female)
Return loss	16 dB

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

Transfer Characteristics	
Conversion Gain	40 dB
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
IMD3 (two tone)	-40 dBc max @ -5 dBm output
Image rejection	60 dBc
Noise Figure	20 dB

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 (optional)	RJ45 F (optional)

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