

S-Band Synthesized Frequency Converter



1:1 Redundant High Performance Synthesized Frequency Converters

Features

- Two hot swappable converters in 1U
- 70 MHz or 140 MHz IF
- 125 kHz step size
- Cost effective solution
- 1:1 Redundancy included
- 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 dual converter tray mount 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.

Options

- Group Delay Equalization
- 1 KHz step size
- Operating band extension 2.0-3.0GHz
- Gain flatness optimization 0.5/0.8dB (70/140MHz)

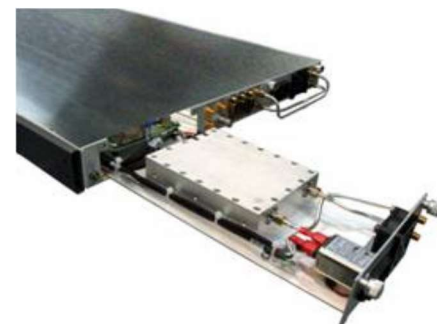
Operating Bands

Up-Converters		
Model Number	RF Output	IF Frequency
ARUD-70-SR	2.0 – 2.4 GHz	70 MHz
ARUD-140SR	2.0 – 2.4 GHz	140 MHz

Down-Converters		
Model Number	RF Input	IF Frequency
ARDD-S70R	2.0 – 2.4 GHz	70 MHz
ARDD-S140R	2.0 – 2.4 GHz	140 MHz

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.



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Technical Specifications			
Up-Converter		Down-Converter	
IF Input		RF Input	
Frequency range	70 ± 20 MHz or 140 ± 40 MHz	Frequency range	2.0 – 2.4 GHz
Impedance	50 Ω (optional 75Ω)	Impedance	50 Ω
Input Connector	BNC (female)	Input Connector	Type N (female)
Return loss	18 dB	Return loss	18 dB
No damage level	+15dBm	No damage level	+15dBm
RF Output		IF Output	
Output power (P1dB)	+15 dBm min	Frequency range	70 ± 20 MHz or 140 ± 40 MHz
Frequency range	2.0 – 2.4 GHz	Output level	+15 dBm min at P1dB
Output connector	Type N (female)	Output Connector	BNC female
Connector Impedance	50 Ω	Connector Impedance	50 Ω (optional 75Ω)
Return loss	18 dB	Return Loss	18 dB
Transfer Characteristics		Transfer Characteristics	
Conversion Gain	30 dB min @ max gain setting	Conversion Gain	40 dB min @ max gain setting
Gain adjustment	31 dB (0.1 dB step size)	Gain adjustment	30 dB (0.1 dB step size)
Gain flatness	0.7 dB p-p max. 40 MHz 1.0 dB p-p max. 80 MHz	Gain flatness	0.7 dB p-p max. 40 MHz 1.5 dB p-p max. 80 MHz
Gain stability	±0.25 dB / 24 hours ±1 dB over temp. range	Gain stability	±0.25 dB / 24 hours ±1 dB over temp. range
Spurious	-70 dBc carrier related @ 0dBm -80 dBm non-carrier related	Spurious	-70 dBc @ 0 dBm output -80 dBm non-carrier related
Group delay	70 MHz IF Linear 0.03 ns/MHz Option 140 MHz IF 0.25 ns/MHz	Parabolic	0.01 ns/MHz ² 0.003 s/MHz ²
IMD3 (two tone)	-40 dBc @ Pout 0 dBm	IMD3 (two tone)	-40 dBc @ Pout 0 dBm
Noise Figure	15 dB at maximum gain	Image rejection	75 dBc
Phase noise (dBc/Hz)	10Hz 100Hz -65 -80	Noise Figure	1kHz 10kHz 100kHz 1MHz -90 -95 -105 -115
Synthesizer step size	125k kHz (optional 1 KHz)	Synthesizer step size	125 kHz (optional 1 KHz)
Reference		Mechanical	
External Reference	10 MHz	Dimensions	Width 19" (482.6 mm)
Internal reference stability	+/-2 x 10 ⁻⁸ / day		Height 1U 1.75" (44.5 mm)
Aging	+/-1 x 10 ⁻⁷ / year		Depth 28" (711.2 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	80W (typical)
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 (optional)

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