

Extended S-Band Synthesized Frequency Converter

Single / Dual / Triple / Quad
FCS501-S



Features

- 70 MHz or 140 MHz IF
- 1kHz step size
- Low Phase Noise
- Low Group Delay
- Cost effective solution
- S-Band 2000 – 2400 MHz option 2000 – 2500 MHz
- Fully compliant with IESS 308/309 requirements
- High linearity
- Front panel control (local)
- Full remote control (remote)

Overview

The Advantech Wireless 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 downloading.

The converter is fully synthesized with the PLL oscillators 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.

Application

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 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 (non-inverting)

Model Number	
ARUN-70S	70MHz to S-Band up-converter (single)
ARUD-70S	70MHz to S-Band up-converter (dual)
ARUT-70S	70MHz to S-Band up-converter (triple)
ARUQ-70S	70MHz to S-Band up-converter (quad)

Down –Converters (non-inverting)

Model Number	
ARDN-S70	S-Band to 70MHz down-converter (single)
ARDD-S70	S-Band to 70MHz down-converter (dual)
ARDT-S70	S-Band to 70MHz down-converter (triple)
ARDQ-S70	S-Band to 70MHz down-converter (quad)

Down-Converters (inverting)

Model Number	
AREN-S70	S-Band to 70MHz down-converter (single)
ARED-S70	S-Band to 70MHz down-converter (dual)
ARET-S70	S-Band to 70MHz down-converter (triple)
AREQ-s70	S-Band to 70MHz down-converter (quad)

Up/Down –Converters

Model Number	
ARMT-70S	70MHz to S-Band up/Down-converter (Up/Down NINV)
ARMT-70S	70MHz to S-Band up/Down-converter (Up-converter NINV, Down-converter INV)

Options

- 140 MHz IF Frequency
- Ethernet port and SNMP Interface
- 1:1 Hot Swap Redundancy in single 1RU
- Redundant Ready (for 1:N)
- Input and Output Monitors
- Operating band to cover 2400 – 2500 MHz

Redundancy

For systems requiring redundancy Advantech can provide 1:1, 1:2 and 1:N (up to 12) solutions. The 1:N redundancy is provided by the 1:N Controller and the Switch Panel. Each Switch Panel can handle up to four (4) converter units. A 1:12 system requires one Controller panel plus three Switch Panels. A complete 1:12 complete system occupies a space of 17U.

Extended S-Band Synthesized Frequency Converter

Technical Specifications						
Up-Converter			Down-Converter			
IF Input		RF Input		IF Output		
Frequency range	70 ± 20 MHz 140 ± 40 MHz (optional)		Frequency range	2000 – 2400 MHz Option 2000 – 2500 MHz		
Impedance	50 Ω standard (optional 75Ω)		Impedance	50 Ω		
Input Connector	BNC (female)		Input Connector	Type N (female)		
Return loss	18 dB		Return loss	18 dB		
RF Output		IF Output		IF Output		
Output power (P1dB)	+10 dBm		Frequency range	70 ± 20 MHz 140 ± 40 MHz (optional)		
Frequency range	2000 – 2400 MHz Option 2000 – 2500 MHz		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 (optional 75Ω)		
Connector Impedance	50 Ω		Return Loss	18 dB		
Return loss	18 dB					
Transfer Characteristics						
Conversion Gain	30 dB @ max gain setting					
Gain adjustment	20 dB (0.1 dB step size)					
Gain flatness	0.8 dB p-p max. 40 MHz 1.0 dB p-p max. 80 MHz					
Gain stability	±0.25 dB max. /24 hours ±1 dB over temp. range					
Spurious (in band)	<-60 dBc carrier related @ 0 dBm <-70 dBm non-carrier related					
Noise Figure	15 dB					
	Image Rejection -60 dBc					
Group delay	70 MHz IF 140 MHz IF	Linear	0.03 ns/MHz 0.25 ns/MHz	Parabolic	0.01 ns/MHz ² 0.003 ns/MHz ²	Ripple 1ns p-p Ripple 1ns p-p
Phase noise	5dB better than IESS 308/309			Image rejection	50 dB	
Synthesizer step size	1 kHz					
Phase Noise @	10Hz	100Hz	1 kHz	10 kHz	100 kHz	1 MHz
dBm/Hz	-65	-80	-90	-95	-100	-115
Reference			Mechanical			
External Reference	10 MHz (optional)		Dimensions	Width 19" (482.6 mm)		
Internal reference stability	± 2 x 10-8 over 0° to +50°C			Height 1U 1.75" (44.5 mm)		
Aging	± 2 x 10-10 / day ± 5 x 10-8 / 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	40W (typical, single converter)		
Humidity	Non-condensing		Connector	IEC 603320 10A		
Altitude	3,000m AMSL					
Other options			Monitor and Control			
1) 24V (4A) or 48V (2A) supply to BUC			RS 485	DB9		
2) 20V supply to LNB			RS 232	DB9		
3) 10 MHz reference for the BUC or LNB			Discrete	DB9		
4) Dual, quad, 1:1 redundant in a single shelf (this option is not available with option 1, 2 & 3 above)			Ethernet (optional)	RJ45 F (optional)		
5) 10MHz auto-sensing reference						

Ref.: PB-FCSS01-Se-19026

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