70/140 MHz to L-Band or L-Band to 70/140 MHz Dual Channel with Trays Converter

FCS500T Series

Features

- Two hot swappable frequency converters in 1U
- 70 MHz or 140 MHz IF
- 125 kHz step size
- Cost effective solution
- 1:1 Redundancy (option)
- 950 – 1750 MHz or 950 – 2150 MHz L-Band
- Meets or exceeds IESS 308/309 requirements
- Internal/External 10 MHz Reference with Autosensing
- High linearity
- Front panel control (local) via buttons, display and LEDs
- Full remote control via RS232, RS485 or optional Ethernet interface port
- Down-converters with inverted or non-inverted output spectrum available

Overview

The Advantech Wireless HP range of dual channel 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 1RU chassis contains two hot swappable drawers (trays) designed for easy removal and replacement. Each drawer includes independent frequency converter, power supply and 10 MHz reference source modules.

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 oscillator either locked to a highly stable internal 10 MHz reference or if the external 10 MHz reference signal with proper power level is present, the PLL will automatically lock to the external reference.

Options

- Ethernet port and SNMP Interface
- Low Group Delay
- 10 MHz Reference for LNB via L-Band, on down converters

Operating Bands

Up-Converters (non-inverting)

Model Number	Type	IF Input	RF Output
ARUD-70L-T ARUD-140L-T	dual with trays	70 ± 18 MHz 140 ± 36 MHz	950 – 1750 MHz
ARUD-70LX-T ARUD-140LX-T	dual with trays	70 ± 20 MHz 140 ± 40 MHz	950 – 2150 MHz

Down-Converters (non-inverting/inverting)

Model Number	Type	RF Input	IF Output
ARDD-L70-T ARDD-L140-T	dual with trays	950 – 1750 MHz	70 ± 18 MHz 140 ± 36 MHz
ARDD-LX70-T ARDD-LX140-T	dual with trays	950 – 2150 MHz	70 ± 20 MHz 140 ± 40 MHz

Application

The HP range of converters is particularly suited for use in VSAT, SCPC Networks, SNG, DVB-RCS and Hub systems where compact appliance 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.
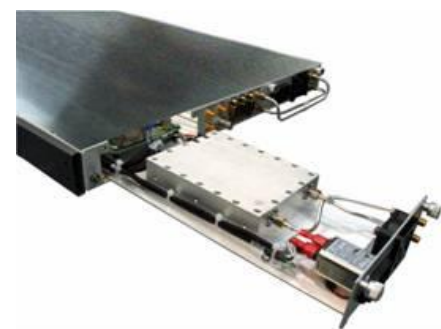
70/140 MHz to L-Band or L-Band to 70/140 MHz
Dual Channel with Trays Converter

Technical Specifications

Up-Converter		Down-Converter	
IF Input		**RF Input**	
Frequency range	(See table on front page)	Frequency range	(See table on front page)
Impedance	50 Ω standard (optional 75Ω)	Impedance	50 Ω
Input Connector	SMA (f)	Input Connector	SMA (f)
Return loss	18 dB	Return loss	16 dB
RF Output		**IF Output**	
Frequency range	(See table on front page)	Frequency range	(See table on front page)
Output power (P1dB)	+5 dBm	Output power (P1dB)	+5 dBm
IMD3 (two tone)	-40 dBc max @ -5 dBm output	Output Connector	SMA (f) *other options available*
Output connector	SMA (f) *other options available*	Connector Impedance	50 Ω standard (optional 75Ω)
Connector Impedance	50 Ω	Return Loss	18 dB
Return loss	16 dB		
Transfer Characteristics		**Transfer Characteristics**	
Conversion Gain	20 dB @ max gain setting	Conversion Gain	30 dB min @ max gain setting
Gain adjustment	20 dB (0.1 dB step size)	Gain adjustment	20 dB (0.1 dB step size)
Gain flatness	1.0 dB p-p max. 40 MHz 1.5 dB p-p max. 80 MHz	Gain flatness	1.0 dB p-p max. 40 MHz 1.5 dB p-p max. 80 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 carrier related @ -5 dBm < -60 dBm non-carrier related	Spurious	-55 dBc @ -5 dBm output
Group delay (over 40 MHz)	10 -15 ns p-p	Group delay (over 40 MHz)	10 -15 ns p-p
Group delay (with optional group delay equalizer)	Linear 0.03 ns/MHz Parabolic 0.01 ns/MHz^2 Ripple 1 ns p-p	Group delay (with optional group delay equalizer)	Linear 0.03 ns/MHz Parabolic 0.01 ns/MHz^2 Ripple 1 ns p-p
		Image rejection	50 dB
		Noise Figure	20 dB
Phase noise	Meets or Exceeds IESS 308/309	Phase noise	Meets or Exceeds IESS 308/309
Synthesizer step size	125k kHz	Synthesizer step size	125 kHz
Reference		**Mechanical**	
External Reference Freq.	10 MHz ± 2 Hz, 0 ± 3 dBm	Dimensions	Width 19" (482.6 mm)
External Reference Input	BNC (f) *other options available*		Height 1U 1.75" (44.5 mm)
Internal reference stability	± 2 x 10^{-10} / day		Depth 24" (609.6 mm)
Aging	± 5 x 10^{-8} / year	Cooling	Forced-Air
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
Humidity	Non-condensing	Connector	IEC 603320 10A
Altitude	3,000m AMSL		
		Monitor and Control	
		RS 485	DB9
		RS 232	DB9
		Discrete	DB9
		Ethernet (option)	RJ45 F (option)
		Buttons, display & LEDs	via Front Panel

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