Up/Down Converters Series
70/140 MHz to Ka-Band Indoor Frequency Converter

The Advantech Wireless Advantages

- Up converter or Down converter in a single enclosure
- 70 MHz ,or 140 MHz IF Frequency
- Ka-Band TX: 27.0-31.0 GHz, RX: 18.1-21.2 GHz frequency
- Cost effective solution
- Fully compliant with IESS 308/309 requirements
- High linearity
- Internal High Stability Reference
- Front panel control (local)
- Full remote control (remote)

Operating Bands

Model Number	Output	Input
ARUN-70Ka	27.0 - 31.0 GHz	70 +/- 18 MHz
ARUN-140Ka	27.0 - 31.0 GHz	140 +/- 36 MHz
ARDN-Ka70	70 +/- 18 MHz	18.1 -21.2 GHz
ARDN-Ka140	140 +/- 36 MHz	18.1 -21.2 GHz

* Other operating bands are available upon request

Overview

The Advantech Wireless 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.

This converter model provides up converter and down converter in a single enclosure.

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.

Major Options

- Ethernet port and SNMP Interface
- Low Group Delay (option)

Applications

- This type of converter is particularly well suited for wide band Ka installations. The Ka-band 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 ± 18 MHz or 140 ± 36 MHz (option)	Frequency range	18.1 - 21.2 GHz
Input level	-25 dBm to -5 dBm	Input level	-60 dBm to -40 dBm
Impedance	50 Ω	Impedance	50 Ω
Input Connector	BNC (female)	Input Connector	SMA (female)
Return loss	16 dB	Return loss	16dB
RF Output		**IF Output**	
Frequency range	27.0 - 31.0 GHz	Frequency range	70 ± 18 MHz (140 ± 36 MHz option)
Output power (P1dB)	+10 dBm	Output power (P1dB)	+5 dBm at P1dB
IMD3 (two tone)	-26 dBc max @ +7 dBm tot. output	Output connector	BNC female
Output connector	WR28	Connector Impedance	50 Ω
Connector Impedance	50 Ω	Return loss	14 dB min
Return loss	14 dB min		
Transfer Characteristics		**Transfer Characteristics**	
Conversion Gain	40 dB @ max gain setting	Conversion Gain	40 dB min @ max gain setting
Gain adjustment	20 dB (0.1 dB step size)	Gain adjustment	30 dB (0.1 dB step size)
Gain flatness	1.0 dB p-p max. 36 MHz 1.5 dB p-p max. 72 MHz	Gain flatness	1.0 dB p-p max. 36 MHz 1.5 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 carrier related < -70 dBc non-carrier related	Spurious	-55 dBc @ 0 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/Hz Parabolic 0.01 ns/MHz2 Ripple 1 ns p-p	Group delay (with optional group delay equalizer)	Linear 0.03 ns/Hz Parabolic 0.01 ns/MHz2 Ripple 1 ns p-p
Phase noise	Exceeds IESS 308/309 by 4 dBc	Image rejection	60 dB
Synthesizer step size	125KHz	Noise Figure	20 dB
		Phase noise	Exceeds IESS 308/309 by 4 dBc
		Synthesizer step size	125KHz
Reference		**Mechanical**	
External Reference (optional)	10 MHz, (5 MHz option)	Dimensions	Width 19" (482.6 mm)
Internal reference stability	+/-2 x 10^{-8} / day		Height 1U 1.75" (44.45 mm)
Aging	+/-1 x 10^{-7} / year		Depth 20" (254 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)
Humidity	Non-condensing	Connector	IEC 603320 10A
Altitude	3,000m AMSL	**Monitor and Control**	
		RS 485	DB9
		RS232	DB9
		Discrete	DB9
		Ethernet (optional)	RJ45 F

Ref.: PB-RC560-01-19015

NORTH AMERICA

USA
info.usa@advantechwireless.com

CANADA
Info.canada@advantechwireless.com

EUROPE

UNITED KINGDOM
info.uk@advantechwireless.com

RUSSIA & CIS
info.russia@advantechwireless.com

SOUTH AMERICA

info.latam@advantechwireless.com

BRAZIL
info.brazil@advantechwireless.com

ASIA

info.asia@advantechwireless.com

INDIA
info.india@advantechwireless.com