



WAAS & EGNOS Compliant 70 MHz to L-Band Single / Dual Channel Up-Converter

Low Phase Noise and High Stability



FCS1000 Series

Features

- Up to two embedded converters in single 1RU chassis
- 70 +/- 20 MHz IF
- 10 Hz step size
- 950 – 1850 MHz L-Band
- Fully compliant with WAAS and EGNOS requirements
- Internal/External 10 MHz Reference with Autosensing. High stability
- Low phase noise
- Cost effective solution
- Front panel control (local) via buttons, display and LEDs
- Full remote control via RS232, RS485 or optional Ethernet interface port

Overview

The Advantech Wireless WE 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 high stability meet the requirements of WAAS and EGNOS international satellite network operators.

The flexible and comprehensive monitor and control features on the WE series converters 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
- Redundant Ready (for 1:N)
- Rack mount set of slides

Operating Bands

Up-Converters (non-inverting)			
Model Number	Type	IF Input	RF Output
ARUD-70LR	single	70 ± 20 MHz	950 – 1850 MHz
ARUD-70LXR	dual		

Application

The WE range of converters are particularly suited for use in WAAS and EGNOS networks that provide accurate location indication, by correcting the GPS signal provided. This makes them an ideal choice for large earth stations specialized in WAAS or EGNOS applications. The lightweight, rugged and compact design also ensures that the WE converter provides the ideal solution for mobile satellite systems. With fully welded aluminum chassis and robust modular internal construction the converter can even meet the demands of military installations. The WE range of converters provides an industry leading MTBF of over 250,000 hours.

Redundancy

For customers requiring redundancy Advantech Wireless can provide 1:1, 1:2 and 1:N (up to 12) solutions. The 1:N redundancy is provided by the additional external 1:N Controller and 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. For more details please see information in a datasheet for the 1:N Switch Controller.



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Technical Specifications		
Up-Converter		
IF Input		
Frequency range	70 ± 20 MHz	
Synthesizer step size	10 Hz	
Impedance	50 Ω standard	
Input Connector	BNC (f) <i>other options available</i>	
Return loss	25 dB	
Transfer Characteristics		
Conversion Gain	25 +/- 1 dB @ max gain setting	
Gain adjustment	25 dB (0.1 dB step size)	
Gain flatness	0.7 dB p-p max. 40 MHz	
Gain stability	±0.25 dB max. /24 hours ±1 dB over temp. range	
In band Spurious	-55 dBc carrier related @ 0 dBm	
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	
Noise Figure	15 dB at maximum gain	
Phase noise	@ offset	L-Band Single Side Band Phase Noise (max.)
	4 Hz	-47 dBc/Hz
	10 Hz	-60 dBc/Hz
	100 Hz	-80 dBc/Hz
	1 kHz	-90 dBc/Hz
	10 kHz	-95 dBc/Hz
	100 kHz	-100 dBc/Hz
1 MHz	-110 dBc/Hz	
RF Output		
Output power (P1dB)	+10 dBm	
Frequency range	950 – 1850 MHz	
IMD3 (two tone)	-40 dBc max @ 0 dBm output	
Output connector	Type N (f) <i>other options available</i>	
Connector Impedance	50 Ω	
Return loss	20 dB	
Environmental		
Operational	0°C to +50°C standard	
Storage	-55°C to +85°C	
Humidity	Non-condensing	
Altitude	3,000m AMSL	
Monitor and Control		
RS 485	DB9	
RS 232	DB9	
Discrete	DB9	
Ethernet (optional)	RJ45 F (optional)	
Buttons, Display & LEDs	via Front Panel	
	via Front Panel	
Mechanical		
Dimensions	Width 19" (482.6 mm)	
	Height 1U 1.75" (44.5 mm)	
	Depth 22" (558.8 mm)	
Cooling	Forced-Air	
Power Supply		
Voltage	90 – 265 VAC (47 – 63 Hz)	
Power	40W (typical, single converter)	
Connector	IEC 603320 10A	
Reference		
External Reference	10 MHz ± 2 Hz, 0 ± 3 dBm	
Internal reference stability	5 x 10 ⁻¹¹ / 1 to 10 sec	

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