C-Band Synthesized Frequency Converter
WAAS/EGNOS Compliant

Low Phase Noise/High Stability
Synthesized Frequency Converter FCS2001

Features

- 51 MHz Input within 1150-1600 MHz
- 51 MHz Output within 6.6-7.075 GHz
- 10 Hz step size
- Fully compliant with WAAS and EGNOS requirements
- High stability
- Low Phase Noise
- Front panel control (local)
- Full remote control (remote)

Overview

The Advantech Wireless WEK 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 meet the requirements of all WAAS or 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 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.

Options

- Ethernet port and SNMP Interface
- Redundant Ready (for 1:N)
- Rack Mount set of slides

Operating Bands

Up-Converters		
Model Number	**Input**	**Output**
ARUN-LC-WEK	Any 51 MHz band within 1150-1600 MHz	Any 51 MHz band within 6.6-7.075 GHz

Down-Converters		
Model Number	**Input**	**Output**
ARDN-CL-WEK	Any 51 MHz within 6.6-7.075 GHz	Any 51 MHz within 1150-1600 MHz

Application

The WEK range of converters is 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 WEK range of converters provides an industry leading MTBF of over 250,000 hours.

Redundancy

For systems 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 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.

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Technical Specifications

Up-Converter

IF Input	
Frequency range	Any 51 MHz band within 1150-1600 MHz
Tuned Frequency	10 Hz step
Impedance	50 Ω
Input Connector	N-type (female)
Return loss	18 dB
RF Output	
Frequency range	Any 51 MHz within 6.6-7.075 GHz
Output Level	+27 dBm at P1dB
IMD3 (two tone)	-40 dBc max @ 17 dBm output
Output connector	SMA (female)
Connector Impedance	50 Ω
Return loss	20 dB
Noise Figure	15 dB at maximum Gain
Transfer Characteristics	
Conversion Gain	40 +/- 1dB
Gain adjustment	40 dB (0.5 dB step size)
Gain flatness	1.0 dB p-p max. 51 MHz
Gain stability	±0.25 dB max. /24 hours ±1 dB over temp. range
Spurious	< -55 dBc @ -10 dBm output, any gain settings
Group delay stability (over 51 MHz)	+/- 0.5 ns p-p /day at constant temperature

Phase noise common for up and down converter	
@ offset	Single Side Band Phase Noise (max.)
1 Hz	-37 dBc/Hz
4 Hz	-48 dBc/Hz
10 Hz	-55 dBc/Hz
100 Hz	-75 dBc/Hz
1 kHz	-90 dBc/Hz
10 kHz	-95 dBc/Hz
100 kHz	-100 dBc/Hz
1 MHz	-110 dBc/Hz

Reference	
External Reference	10 MHz, 0 +/- 2 dBm (Optional)
Internal reference stability	5 x 10^{-11} / 1 to 10 seconds
Environmental	
Operational	0°C to +50°C standard
Storage	-55°C to +85°C
Humidity	Non-condensing
Altitude	3,000m AMSL

Down-Converter

RF Input	
Frequency range	Any 51 MHz within 6.6-7.075 GHz
Tuned Frequency	10 Hz step
Impedance	50 Ω
Input Connector	SMA (female)
Return loss	18 dB
IF Output	
Frequency range	Any 51 MHz within 1150-1600 MHz
Output level	+10 dBm at P1dB
IMD3 (two tone)	-40 dBc max @ 0 dBm output
Output Connector	Type N (female)
Connector Impedance	50 Ω
Return Loss	20 dB
Noise Figure	15 dB at maximum Gain
Transfer Characteristics	
Conversion Gain	25 +/- 1dB
Gain adjustment	25 dB (0.5 dB step size)
Gain flatness	1.0 dB p-p max. 51 MHz
Gain stability	±0.25 dB max. / 24 hours ±1 dB over temp. range
Spurious	< -55 dBc @ -10 dBm output, any gain settings
Group delay stability (over 51 MHz)	+/- 0.5 ns p-p /day at constant temperature

Monitor and Control	
RS 485	DB9
RS 232	DB9
Discrete	DB9
Ethernet (optional)	RJ45 F (optional)

Mechanical	
Dimensions	Width 19" (482.6 mm)
	Height 1U 1.75" (44.5 mm)
	Depth 22" (558.8 mm)
Power Supply	
Voltage	90 – 265 VAC (47 – 63 Hz)
Power	40W (typical, single converter)
Connector	IEC 603320 10A

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