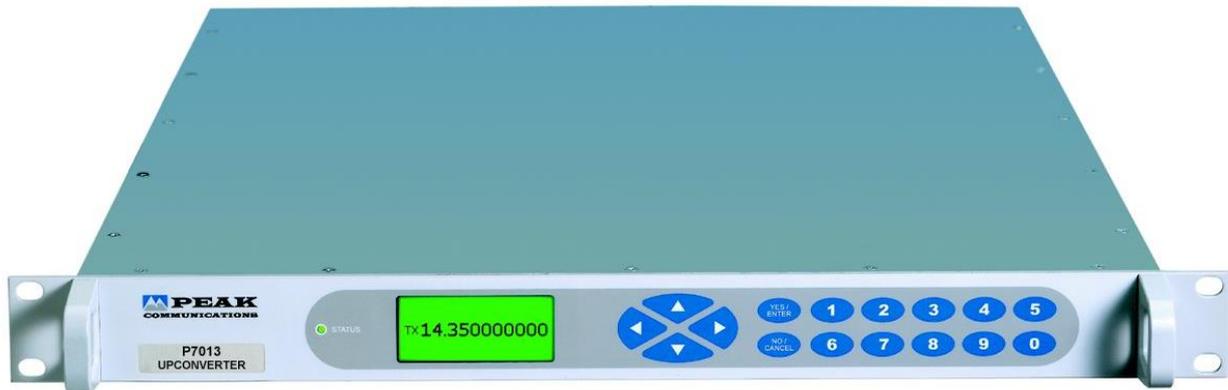


P7013 Series

Fully Synthesised, IF to Ku-Band, Up Converter



High Grade Up Converter Products;

P7127A	12.75 - 13.5GHz
P7127B	12.75 - 14.5GHz (covered with two internally switched ranges 12.75-13.5 & 13.75-14.5GHz)
P7130A	13.0 - 13.75GHz
P7130B	13.0 - 14.5GHz (covered with two internally switched ranges 13.0-13.75 & 13.75-14.5GHz)
P7013	13.75 - 14.5GHz
P7013B	13.75 - 14.8GHz
P7013C	13.75 - 14.8GHz (covered with two internally switched ranges 13.75-14.5 & 14.5-14.8GHz)
P7014	14.0 - 14.5GHz
P7145	14.5 - 14.8GHz

For other non-standard frequency requirements please contact the factory.
For equivalent remote mount units, please contact the factory.

The **P7013 series** are next generation fully synthesised Ku-Band up converters which provide a low-cost solution for systems requiring an IF interface at 70MHz \pm 18MHz or 140MHz \pm 36MHz. The unit incorporates an L-Band interface as standard allowing mixed 70/ 140MHz & L-Band infrastructure to be accommodated, whilst future-proofing for L-Band infrastructure upgrades.

For redundancy the **P7013 series** use a simple CANBUS® interface and have an integral redundancy controller for 1+1 & 2+1 operation (for use with external **T1000H**, **T2000H** switch units), for N+1 systems a separate stand-alone control and switch unit is provided (**RCU1000 series**).

Note: Separate stand-alone control and switching units can also be provided for 1+1 & 2+1 systems, please consult the factory.

The **P7000 series** of converters are designed to meet the phase noise, spurious, level and frequency stability requirements of Intelsat IBS/ Eutelsat SMS specifications and is compliant with IESS308/ 309. The product is suitable for high order modulation schemes and both very high & low data rates associated with digital TV signals. The units incorporate a graphics display module, membrane keyboard and feature a clear and intuitive control and configuration menu fully utilising the unique graphics display.

The unit has a highly stable internal reference source and will automatically detect and lock to an external 10MHz signal, when applied.

Peak Features

-  Compliant with IESS308/ 309 requirements
-  Suitable for use with latest high order modulation schemes in excess of 100Mbps/sec
-  L-Band interface, as standard
-  Integral 1+1 & 2+1 CANBUS® redundancy control & N+1 switch system available
-  Gain/ temperature compensated
-  Software trimming of internal 10MHz reference
-  External alarm monitoring
-  Integral test loop translator option available for TX signal path monitoring



P7013 series - Typical Specification

IF Input

Frequency	70 ±18MHz
Option 1a;	140 ±36MHz
Option 1c;	Switchable 70 ±18MHz & 140MHz ±36MHz (only available on single range units)
Connection	BNC (f), 50Ω
Option 3a;	BNC (f), 75Ω
VSWR	Better than 1.3:1

Output

Frequency	P7127A 12.75-13.5GHz
	P7127B 12.75-13.5GHz & 13.75-14.5GHz (two ranges)
	P7130A 13.0-13.75GHz
	P7130B 13.0-13.75GHz & 13.75-14.5GHz (two ranges)
	P7013 13.75-14.5GHz
	P7013B 13.75-14.8GHz
	P7013C 13.75-14.5GHz & 14.5-14.8GHz (two ranges)
	P7014 14.0-14.5GHz
Connection	N-type (f), 50Ω
VSWR	Better than 1.3:1

Transfer Characteristics

Conversion gain	+30dB ±1dB
Attenuation	0 to 30dB, stepped 0.1dB
1 dB comp. point	Input -10dBm, output +8dBm
Gain stability	±0.5dB from 0 to 40°C ±0.1dB per week (constant temp.)
Gain flatness	±1dB full band (±1.5dB for bandwidths >575MHz) ±0.5dB across any 36MHz in band
Synth resolution	1Hz

RF Performance

Phase noise	-75dBc/Hz at 10Hz -85dBc/Hz at 100Hz -85dBc/Hz at 1KHz -85dBc/Hz at 10KHz -97dBc/Hz at 100KHz -108dBc/Hz at 1MHz
Harmonics	Better than -50dBc
Spurious	<-55dBm (in band, non-carrier related) <-55dBc (in band, carrier related)
Group delay	Linear 0.025ns/MHz Ripple 1ns p-p Parabolic 0.015ns/MHz ²
Mute isolation	>80dB at minimum gain setting

Note; P7013B specified as -45dBc

Auxiliary L-band Input (Option 13; L-Band Output)

Frequency	950-2000MHz, depending upon output bandwidth
Connector	BNC (f), 50Ω
Max power input	-5dBm

Monitor Ports (Option 11)

This option replaces the standard auxiliary L-Band input facility.

Note; for additional monitor ports or for front panel mounting, please consult the factory

Option 11c;	IF monitor
Option 11d;	L-Band monitor
Option 11e;	SHF monitor

Connection	50Ω, BNC (f), rear panel (option 11e; N-Type)
Level	-20dBc ±3dB

Integral Test Loop Translator (Option 14)

TX sample input	SMA (f), 50Ω on rear panel, 0dBm max
L-Band output	SMA (f) 50Ω on rear panel
Translation loss	15dB

External Reference Input (with automatic detection & locking)

Frequency	Factory selectable 5 or 10MHz
Connector	50Ω, BNC (f)
Level	0dBm ±5dB
Phase noise	to be better than 50dBc/Hz of output phase noise

Internal Back-up Reference

Frequency	10MHz
Adjustment	±0.45ppm, software stepped 0.01ppm

Standard Stability

Allan deviation	<5 x 10 ⁻¹² over 1s
Ageing	<±3 x 10 ⁻¹⁰ /day, <±3 x 10 ⁻⁹ /month, <±3 x 10 ⁻⁸ /year
Temp stability	<±2 x 10 ⁻⁹ over operating range

High stability (Option 8)

Allan deviation	<2 x 10 ⁻¹² over 1s
Ageing	<±2 x 10 ⁻¹⁰ /day, <±2 x 10 ⁻⁹ /month, <±2 x 10 ⁻⁸ /year
Temp stability	<±1.5 x 10 ⁻⁹ over operating range

Mechanical

Width	19", standard rack mount
Height	1U (1.75")
Depth	534mm (21"), plus connectors
Construction	Stainless steel chassis
Weight	Approx. 9.5kgs (21lbs)

Environmental

Operating temp	-10°C to +50°C
EMC	ETSI EN 301 489-1: V2.2.1 & ETSI EN 300 673: V1.2.1
Safety	IEC/EN 62368-1:2014 (second edition)

Power supply

Voltage	90-264VAC
Frequency	47-63Hz
Power	45 Watts
Option 17;	Redundant PSU; provides a 1+1 redundant PSU configuration with separate prime power inputs

Control System

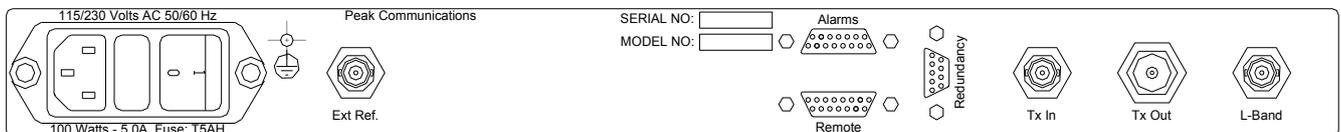
Remote control	RS232/ 485 port
Option 9;	Ethernet; embedded web server & SNMP network management support
Redundancy	CANBUS® interface for N+1 system
Alarms	In-built 1+1 & 2+1 controller 1 st & 2 nd LO lock failure PSU failure External alarm inputs Summary failure relay (form C)
Output mute	TTL input active low, front panel & remote control

Options

- 1a) 140MHz IF input
- 1c) IF switchable between 70MHz and 140MHz output
- 2) Front panel with custom logo and colours
- 3a) 75Ω IF input
- 4) Lightweight Aluminium chassis
- 8) High stability internal reference option
- 9) Ethernet interface with embedded web server & SNMP
- 11c) IF monitor instead of standard L-Band auxiliary input
- 11d) L-Band monitor instead of standard L-Band auxiliary input
- 11e) SHF monitor instead of standard L-Band auxiliary input
- 13) L-Band auxiliary output instead of standard L-Band auxiliary input
- 14) Integral TLT for TX signal monitoring
- 17) Redundant power supplies

Notes: Other 'P7000 series' options do not apply to these products. The addition of options can modify the typical specification, for details please consult the factory.

Rear panel view (sample)



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