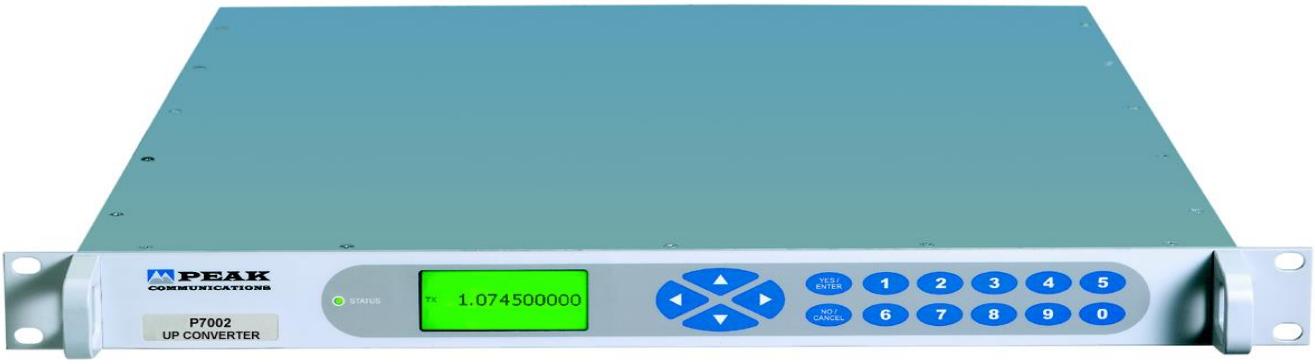
P7002

Fully Synthesised, IF to L-Band, Up Converter



The **P7002** is a next generation fully synthesised L-Band up converter which provides a low-cost solution for systems requiring an IF interface at 70MHz ±18MHz, 140MHz ±36MHz or switchable between 70 & 140MHz.

For redundancy the **P7002** uses a simple CANBUS® interface and has an integral redundancy controller for 1+1 & 2+1 operation (for use with external **T1000L**, **T2000L** switching 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 unit incorporates a graphics display module, membrane keyboard and features 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 100Mbits/sec
- Wide range of integral 1+1 & 2+1 CANBUS® redundancy control & N+1 switch system available
- Aux. DC and 10MHz reference outputs for block converters
- External alarm monitoring for block converters
- Software trimming of internal 10MHz reference

P7002 – Typical Specification

IF Input

Frequency		70±18MHz
	Option 1a;	140±36MHz
	Option 1c;	Switchable between 70±18MHz & 140MHz±36MHz
Connection		50Ω, BNC (f)
	Option 3a;	75Ω, BNC (f)

L-band Output

Frequency		950-1525MHz
	Option 5;	950-1700MHz
	Option 5a;	950-1750MHz
	Option 5b;	950-2000MHz
Connection		50Ω, N-type (f)

Transfer Characteristics

Conversion gain	+20dB ±1dB
Attenuation	0 to 30dB, stepped 0.1dB
1 dB GCP	Input -10dBm, output +10dBm
Gain stability	±0.5dB from 0 to 40^{0}C ±0.1dB per week (constant temp.)
Gain flatness	±1dB full band (±1.5dB for wideband options) ±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;	
In-band, non-carrier	<-65dBm (<-60dBm for wideband options)
In-band, carrier related	<-60dBc
Group delay	Linear; 0.025ns/MHz Ripple; 1ns p-p Parabolic; 0.015ns/MHz^2
Noise figure	20 to 25dB typical at maximum gain
Mute isolation	>80dB at minimum gain setting

Block Up Converter Drive

Output reference	10MHz at 0dBm nominal
DC supply	+22.5 volts regulated at 0.65 amps
Connection	Fed to BUC on L-band cable
Control	Switchable from front panel

L-Band Monitor

Connection		50Ω, BNC (f), rear panel
Level		-20dBc ±3dB
	Option 11f;	IF monitor, replacing the standard L-Band monitor

External Reference Input (with automatic detection & locking)

Frequency	Factory selectable 5 or 10MHz
Connection	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, stepped 0.01ppm
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. 9kgs (20lbs)

Environmental

Operating temp	-10^{0}C to +50^{0}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		60 Watts
	Option 17;	Redundant PSU; provides a 1+1 redundant PSU configuration with separate prime power inputs

Control System

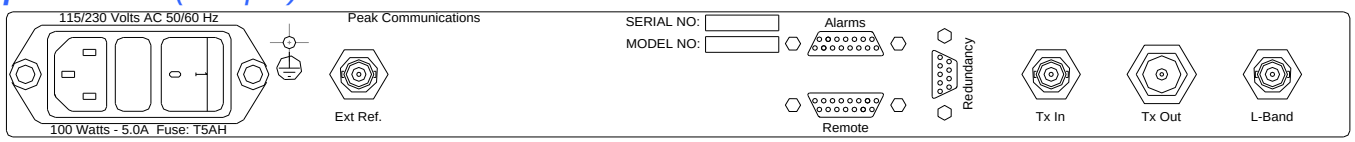
Remote control		RS232/ 485 port
	Option 9;	Ethernet; embedded web server & SNMP network management support
Redundancy		CANBUS® interface for N+1 system In-built 1+1 & 2+1 controller
Alarms		LO lock failure PSU failure External alarm inputs Summary failure relay (form C)
Output mute		TTL input active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

Options

1a) 140MHz IF input
1c) IF switchable between 70MHz and 140MHz input
2) Custom front panel logo and colour
3a) 75Ω IF input
4) Lightweight Aluminium chassis
5) Wideband output 950-1700MHz
5a) Wideband output 950-1750MHz
5b) Wideband output 950-2000MHz
6a) L band fibre optic output (refer to factory for details)
8) High stability internal reference option
9) Ethernet interface with embedded web server & SNMP
11f) IF monitor instead of standard L-Band monitor port
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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