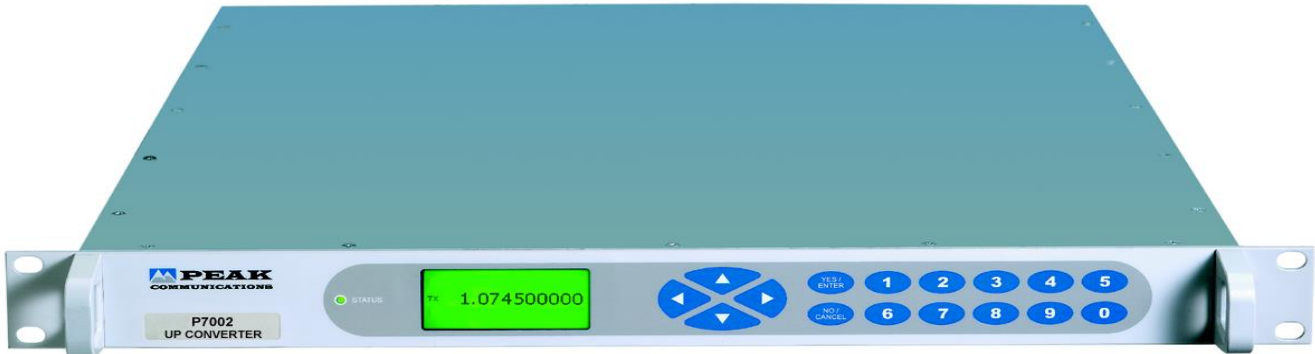


P7002

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 $70\text{MHz} \pm 18\text{MHz}$, $140\text{MHz} \pm 36\text{MHz}$ 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°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	-68dBc/Hz at 10Hz
	-80dBc/Hz at 100Hz
	-84dBc/Hz at 1KHz
	-86dBc/Hz at 10KHz
	-99dBc/Hz at 100KHz
	-110dBc/Hz at 1MHz
	Better than -50dBc
Harmonics	
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°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	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
Alarms	In-built 1+1 & 2+1 controller 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)

