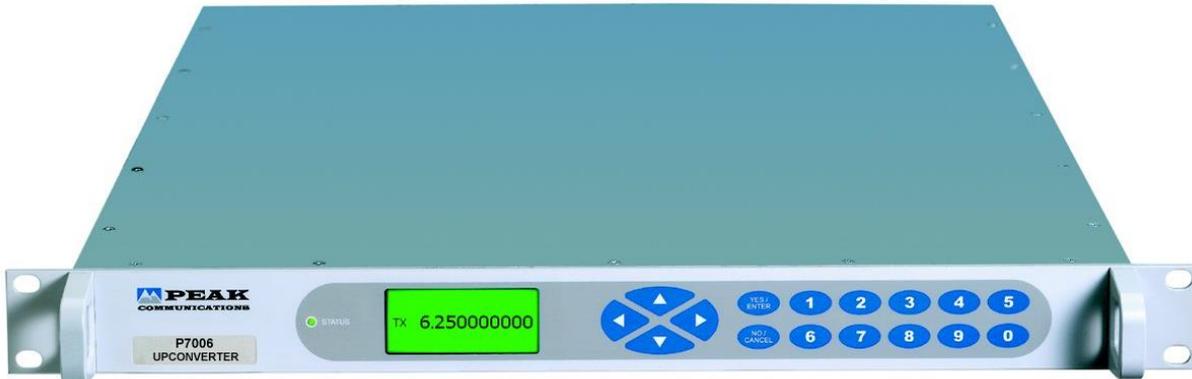


## P7600 Series

Fully Synthesised, IF to Multi-Band, Up Converters



### High Grade Up Converter Products;

**P7613** IF 70MHz (or 140MHz) to Dual-Band, extended C and wide Ku-Band

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

The **P7600 series** are next generation fully synthesised multi-band up converters which provide low-cost solutions 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.

These Multi-range converters are offered with internal range switching and a single input and output connection. Range selection is performed via the front panel user interface or via remote control.

For redundancy the **P7600 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 system a separate stand-alone control and switch unit is provided (**RCU1000 series**).

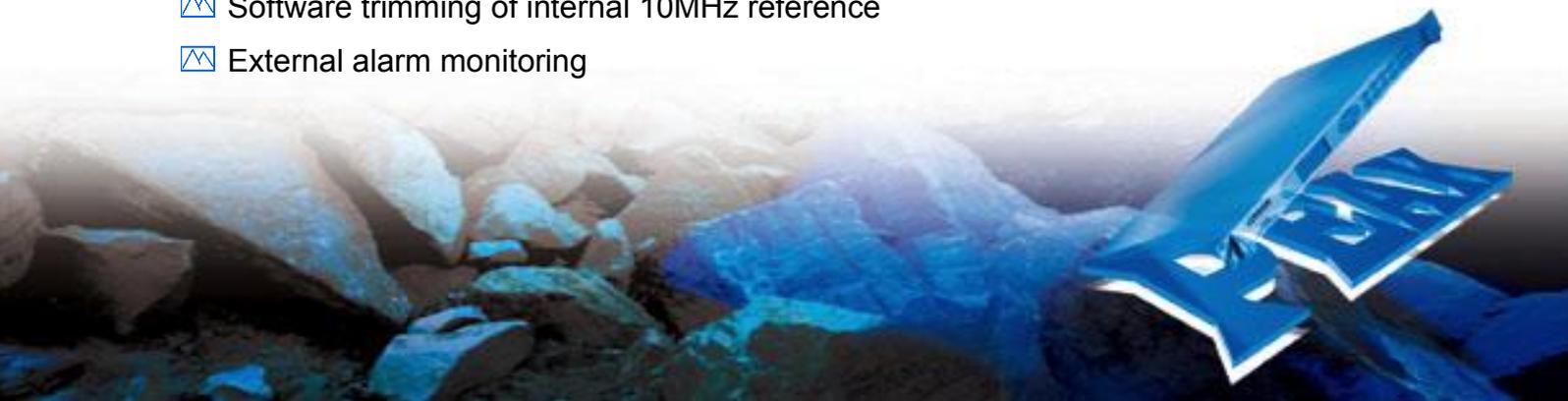
Note; separate stand-alone control and switching units can also be provided for 1+1 & 2+1 systems, please consult the factory.

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 100Mbits/sec
-  L-Band interface
-  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



## P7600 series – Typical Specification

### IF Input

Frequency	70 ±18MHz
Option 1a;	140 ±36MHz
Connection	50Ω, BNC (f)
Option 3a;	75Ω, BNC (f)
VSWR	Better than 1.3:1

### Output

Frequency	<b>P7613</b> Extended C-band 5.85-6.65GHz & wide Ku-Band 13.75-14.5GHz.
Connection	50Ω, N-type (f)
VSWR	Better than 1.3:1

### Transfer Characteristics

Conversion gain	+30dB
Attenuation	0 to 30dB, stepped 0.1dB
1dB GCP	Input -10dBm, output +8dBm
Gain stability	±0.5dB from 0 to 40°C
	±0.1dB per week (constant temp.)
Gain flatness	±1.5dB across full sub-bands
	±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 Spurious	Better than -50dBc <-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 <sup>2</sup>
Mute isolation	>80dB at minimum gain setting

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

Frequency	950-1750MHz
Connector	50Ω, BNC (f)

### 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

### 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 <sup>-12</sup> over 1s
Ageing	<±3 x 10 <sup>-10</sup> /day, <±3 x 10 <sup>-9</sup> /month, <±3 x 10 <sup>-8</sup> /year
Temp stability	<±2 x 10 <sup>-9</sup> over operating range

### High stability (Option 8)

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

### Mechanical

Width	19", standard rack mount
Height	1U (1.75")
Depth	534mm (21"), plus connectors
Construction	Stainless steel chassis
Weight	Approx. 10.5kgs (23lbs)

### 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 1 <sup>st</sup> & 2 <sup>nd</sup> LO lock failure PSU failure External alarm inputs Summary failure relay (form C)
Output mute	TTL input active low, front panel & remote control

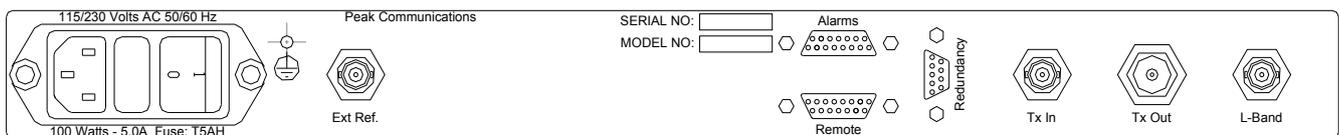
### Options

- 1a) 140MHz IF input
- 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 input
- 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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