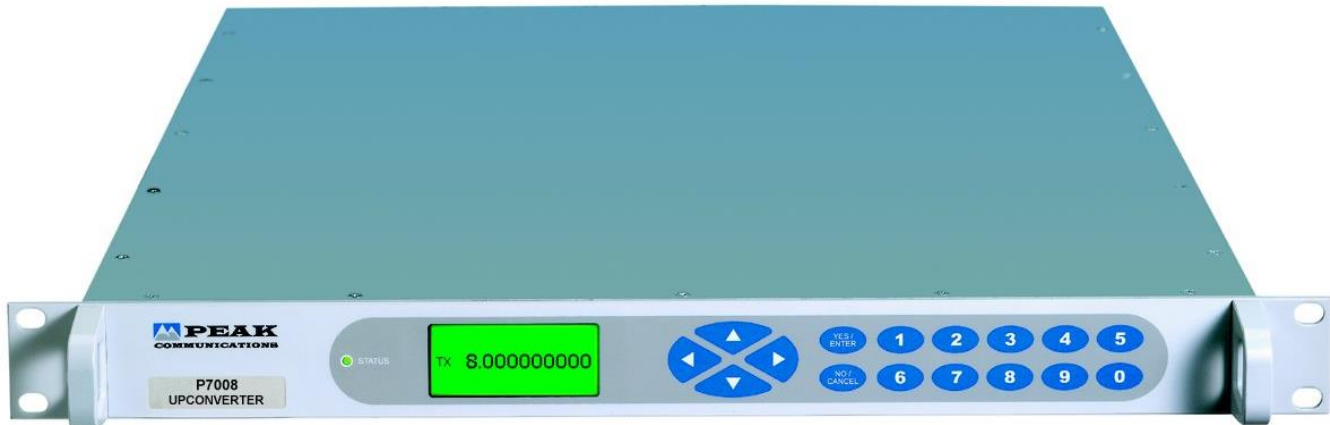


## P7008

### Fully Synthesised, IF to X-Band, Up Converter



The **P7008** is a next generation fully synthesised X-Band up converter which provides a low-cost solution for systems requiring an IF interface at  $70\text{MHz} \pm 18\text{MHz}$  or  $140\text{MHz} \pm 36\text{MHz}$ . 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 **P7008** uses a simple CANBUS® interface and has 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 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
-  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
-  Integral test loop translator option available for TX signal path monitoring



# P7008 – Typical Specification

## IF Input

Frequency	70 ±18MHz
Option 1a;	140 ±36MHz
Option 1c;	Switchable 70 ±18MHz & 140MHz ±36MHz
Connection	BNC (f), 50Ω
Option 3a;	BNC (f), 75Ω
VSWR	Better than 1.25:1

## Output

Frequency	7.90-8.40GHz
Connection	N-type (f), 50Ω
VSWR	Better than 1.3:1

## Transfer Characteristics

Conversion gain	+30dB
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 ±0.5dB across any 36MHz in band
Synth resolution	1Hz

## RF Performance

Phase noise	-75dBc/Hz at 100Hz -85dBc/Hz at 1kHz -90dBc/Hz at 10kHz -95dBc/Hz at 100kHz -115dBc/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 <sup>2</sup>
Mute isolation	>80dB at minimum gain setting

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

Frequency	950-1450MHz
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	BNC (f), 50Ω
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. 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	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 <sup>®</sup> interface for N+1 system In-built 1+1 & 2+1 controller 1 <sup>st</sup> & 2 <sup>nd</sup> LO lock failure
Alarms	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 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)

