P7022 Series

Fully Synthesised, IF to S-Band, Up Converters

High Grade Up Converter Products;

P7022A	2025 - 2120MHz
P7022B	2200 - 2400MHz
P7022C	2000 - 2400MHz

For other non-standard frequency requirements please contact the factory.
For equivalent remote mount units, please see P7022R series.

The **P7022 series** are next generation fully synthesised S-Band up converters which provide a low-cost solution for systems requiring an IF interface at 70MHz ±18MHz or 140MHz ±36MHz. The units incorporate a graphics display module, membrane keypad and feature a clear and intuitive control and configuration menu, fully utilising the unique graphics display.

For redundancy the **P7022 series** utilise a simple CANBUS® interface and have an integral redundancy controller for 1+1 & 2+1 operation (for use with external **T1000L**, **T2000L** 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 are 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 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
- Integral 1+1 & 2+1 CANBUS® redundancy control & N+1 switch system available
- Software trimming of internal 10MHz reference

P7022 series – Typical Specification

IF Input

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

S-band Output

Frequency	
P7022A	2025-2120MHz
P7022B	2200-2400MHz
P7022C	2000-2400MHz
Connection	N-type (f), 50Ω

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	±1.0dB full band
	±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	<-60dBm (in band, non-carrier related)
	<-60dBc (in band, carrier related)
Group delay	Linear 0.025ns/MHz
	Ripple 1ns p-p
	Parabolic 0.015ns/MHz^2
Noise figure	15dB nominal at maximum gain
Mute isolation	>80dB at minimum gain setting

S-Band Monitor (Option 11b)

Connection	Rear panel, BNC (f), 50Ω
Level	-20dBc ±3dB

IF Monitor (Option 11g)

Connection	Rear panel, BNC (f), 50Ω
Level	-20dBc ±3dB

External Reference Input (with automatic detection & locking)

Frequency	Factory selectable 5 or 10MHz
Connection	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, 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 mountable
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

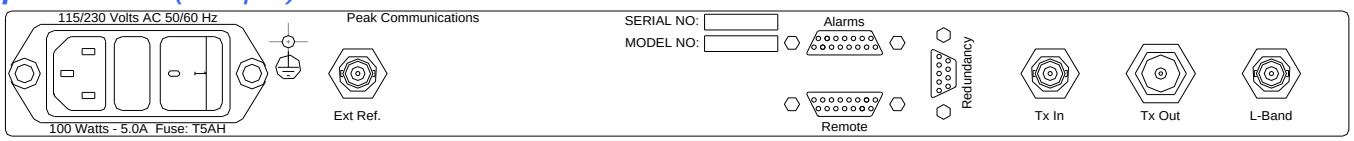
Remote control		RS232/ 485 port
	Option 9;	Ethernet; embedded web server & SNMP network management support
Redundancy		CANBUS® interface for N+1 system
		In-built 1+1 & 2+1 controller
Alarms		LO lock failure
		PSU failure
		External alarm inputs
		Summary failure relay (form C)
Output mute		TTL input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

Options

1a)	140MHz IF input
2)	Custom front panel logo and colour
3a)	75Ω IF input
4)	Lightweight Aluminium chassis
8)	High stability internal reference option
9)	Ethernet interface with embedded web server & SNMP
11b)	S-Band rear panel monitor port
11g)	IF rear panel 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)



PEAK COMMUNICATIONS

Peak Communications Ltd., Unit 1, The Woodvale Centre, Woodvale Road, Brighouse, West Yorkshire, HD6 4AB, U.K.
Tel; +44 (0)1484 714200 Email; sales@peakcom.co.uk web; www.peakcom.co.uk