

P7021 Series

Fully synthesised, S-band to IF, Down Converters



High Grade Down Converter Products;

P7021A	2200 - 2300MHz
P7021B	2200 - 2400MHz
P7021C	2000 - 2400MHz

For other non-standard frequency requirements please contact the factory.
For multi-channel versions, please contact the factory.
For equivalent remote mount units, please see P7021R series.

The **P7021 series** are next generation fully synthesised S-Band down converters which provide a low-cost solution for systems requiring an IF interface at 70MHz \pm 18MHz or 140MHz \pm 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 **P7021 series** utilise a simple CANBUS® interface and have an integral redundancy controller for 1+1 & 2+1 operation (for use with external **R1000L**, **R2000L** 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
-  Multi-channel units available
-  Software selectable spectrum inversion
-  Software trimming of internal 10MHz reference



P7021 series – Typical Specification

S-band Input

Frequency	
P7021A	2200 - 2300MHz
P7021B	2200 - 2400MHz
P7021C	2000 - 2400MHz
Connection	N-type (f), 50Ω

IF Output

Frequency	70 ±18MHz
Option 1b;	140 ±36MHz
Option 1d;	switchable between 70 ±18MHz & 140MHz ±36MHz
Connection	BNC (f), 50Ω
Option 3b;	BNC (f), 75Ω
Spectrum sense	Invert switchable (from front panel)

Transfer Characteristics

Conversion gain	+30dB ±1dB
Attenuation	0 to 30dB, stepped 0.1dB
1 dB GCP	Input -10dBm, output +15dBm
Gain stability	±0.5dB from 0 to 40°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	-60dBc/Hz at 10Hz
	-70dBc/Hz at 100Hz
	-75dBc/Hz at 1kHz
	-80dBc/Hz at 10kHz
	-90dBc/Hz at 100kHz
	-110dBc/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

LNA Drive (Option 10)

DC supply	+22.5 volts regulated at 0.5 amps
Connection	Fed on S-band cable
Control	Switchable from front panel

S-Band Monitor (Option 11a)

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
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, 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
Option 4b;	Short chassis 400mm (15.7"), plus connectors
Construction	Stainless steel chassis
Weight	Approx. 9kgs (20lbs)
Option 4;	Lightweight Aluminium chassis 7.5kg (15.5lb)

Environmental

Operating temp	-10°C to +50°C
EMC	ETSI EN 301 489-1: V2.2.1 & ETSI EN 300 673: V1.2.1 IEC/EN 62368-1:2014 (second edition)
Safety	

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)

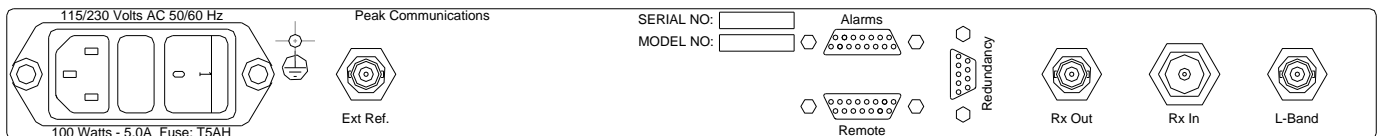
Options

- 1b) 140MHz IF output
- 1d) IF switchable between 70MHz and 140MHz output
- 2) Custom front panel logo and colour
- 3b) 75Ω IF output
- 4) Lightweight Aluminium chassis
- 4b) Short chassis (Aluminium)
- 8) High stability internal reference option
- 9) Ethernet interface with embedded web server & SNMP
- 10) LNA DC supply option
- 11a) 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 reserves the right to alter the specifications of this equipment without prior notice. P7021series-140521.

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