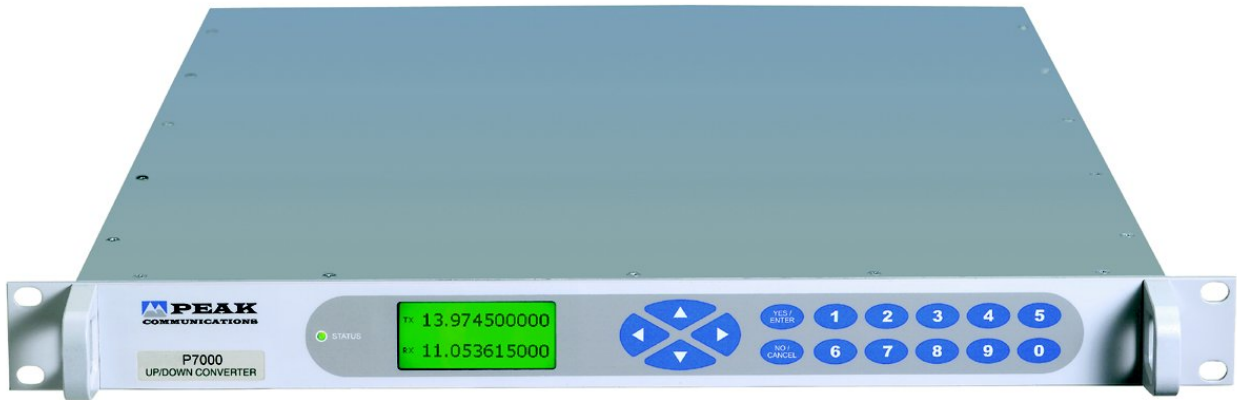


P7000










Combined Up and Down Frequency Converter



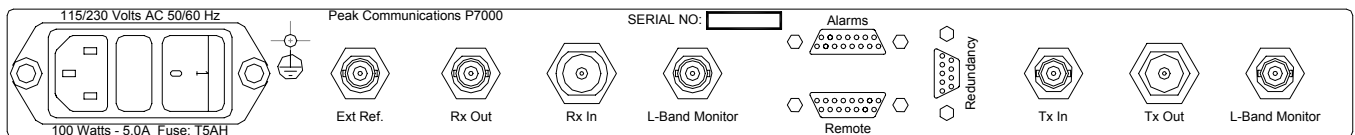
The **P7000** is a next generation fully synthesised combined L-Band Up and Down Converter which provides a low-cost solution for systems requiring an IF interface at $70\text{ MHz} \pm 18\text{MHz}$ or $140\text{MHz} \pm 36\text{MHz}$. The unit incorporates a graphics display module, membrane keyboard and features a clear and intuitive control and configuration menu fully utilising the unique graphics display. The **P7000** has an integral redundancy controller for 1:1 & 1:2 operation, and a CANBUS® interface for 1:N systems.

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 IESS 308 / 309. The product is most suitable for both high and low rate data and both digital and analogue TV signals.

Peak Features

-  Compliant with IESS 308 / IESS 309 requirements
-  Used for 8PSK and 16QAM modulations in excess of 50Mbits/sec
-  1:1 & 1:2 inbuilt redundancy control (see T1000/R1000 and T2000/R2000 redundancy unit data sheets)
-  CANBUS® for 1:N systems (see RCU1000 series redundancy unit data sheet)
-  Aux DC and 10MHz reference outputs for Block Up and Downconverters
-  Software selectable spectrum inversion on Downconverter
-  External alarm monitoring for Block Converters
-  Software trimming of internal primary frequency reference
-  L-Band monitoring points

Rear Panel View



P7000 Specification

Upconverter

IF Input

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

L-band Output

Frequency 950-1525MHz (option 5; 950-1700MHz)
Connection 50Ω N-type

Transfer Characteristics

Conversion gain +20dB ±1dB
Attenuation 0 to 30dB, stepped 0.1dB
1 dB GCP Input -10dBm, Output +10dBm
Gain stability ± 0.5 dB from 0 to 40°C,
± 0.1 dB per week (constant temp.)
Gain flatness ± 1 dB full band
± 0.5 dB across any 36MHz in band
Synth. Resolution 1 Hz

RF Performance

Phase noise -68dBc/Hz at 10Hz
-80dBc/Hz at 100 Hz
-84dBc/Hz at 1 kHz
-86dBc/Hz at 10 kHz
-99dBc/Hz at 100 kHz
-110dBc/Hz at 1 MHz
Harmonics Better than -50dBc
Spurious <-60 dBm (in band, non-carrier related)
<-60 dBc (in band, carrier related)
Group delay Linear 0.025ns/MHz
Ripple 1ns p-p
Parabolic 0.015ns/MHz²
Noise figure 20dB nominal at maximum gain

Downconverter

L-band Input

Frequency 950 - 1750MHz (option 7; 950 - 2150MHz)
Connection 50Ω N-type

IF Output

Frequency 70 ± 18MHz (option 1b; 140 ± 36MHz)
Connection 50Ω BNC (option 3b; 75Ω)
Spectrum 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 ± 0.5 dB from 0 to 40°C,
± 0.1 dB per week (constant temp.)
Gain flatness ± 1.0 dB full band (± 1.5 dB 950 - 2150MHz
option)
± 0.5 dB across any 36MHz in band
Synth. Resolution 1 Hz

RF Performance

Phase noise -65dBc/Hz at 10Hz
-75dBc/Hz at 100 Hz
-80dBc/Hz at 1 kHz
-85dBc/Hz at 10 kHz
-96dBc/Hz at 100 kHz
-110dBc/Hz at 1 MHz
Harmonics Better than -50dBc
Spurious <-60 dBm (in band, non-carrier related)
<-60 dBc (in band, carrier related)
Group delay Linear 0.025ns/MHz
Ripple 1ns p-p
Parabolic 0.015ns/MHz²
Noise figure 20dB nominal at maximum gain

General

L-Band Monitors (Up & DownConverter)

Connections 50Ω BNC
Level -20dBc ±3dB

Block Up/Down Converter Drives

Output reference 10MHz at 0dBm nominal
DC supply +22.5 volts regulated at 0.5 amps
Connection Fed to BUC/BDC on L-band cables
Control Switchable from front panel

External Reference Input

Frequency Factory selectable 5 or 10MHz
Connector 50Ω BNC
Level 0dBm ±3dB
Required phase noise Better than 50dBc/Hz of output Phase Noise

Internal Reference

Frequency 10 MHz
Adjustment ±1.0ppm, software stepped 0.02ppm

Stability

Stability <5 x 10⁻¹⁰ over 1s, <5 x 10⁻⁹ per day
Ageing <5 x 10⁻⁷ per year
Temp. stability <5 x 10⁻⁸ over 0 to 50°C

High stability option 8

Stability <2 x 10⁻¹² over 1s, <2 x 10⁻¹⁰ per day
Ageing <2 x 10⁻⁸ per year
Temp. stability <2 x 10⁻⁹ over 0 to 50°C

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 EN55022 part B & EN50082-1
Safety EN60950

Power supply

Voltage 85-132/170-265VAC, auto-select
Frequency 50/60Hz
Power 100 Watts max.

Control System

Remote Control RS232/ RS485 port
Ethernet (option 9, replaces RS232/485 port)
Redundancy In-built 1:1 & 1:2 controller
CANBUS® interface for 1:N systems
Alarms LO lock fail
PSU fail
External alarm inputs
Summary failure relay (form C)
Output mute TTL input, active low

Options

- 1a) 140MHz IF input
- 1b) 140MHz IF output
- 2) Front panel with custom logo and colours
- 3a) 75Ω IF input
- 3b) 75Ω IF output
- 4) Lightweight Aluminium chassis
- 5) Wide band U/C output 950 to 1700MHz
- 7) Wide band D/C input 950 to 2150MHz
- 8) High Stability internal reference option
- 9) Ethernet interface, replaces RS232/485 port

Other P7000 series options do not apply to this product



Peak Communications reserves the right to alter the specifications of this equipment without prior notice. P7000-180806.

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