

P7702i

UHF to L-Band, Up Converter



The 19-inch, 1RU rack mounted **P7702i** block up converter unit from Peak Communications is designed to typically take the incoming UHF signal and produce an output at L-Band that is suitable for further conversion by a **P7001** converter or for direct connection to a receiver in a down link chain.

The **P7702i** unit is designed to meet the phase noise, spurious level and frequency stability requirements of Intelsat IBS/Eutelsat SMS specifications. The excellent group delay response makes the product suitable for high order modulation schemes and both very high & low data rates associated with digital TV signals.

The **P7702i** unit is mains powered and is constructed of high-grade components to give the ultimate in performance. These components include a high-grade crystal oscillator to give the highest performance of stability and phase noise, a well proven externally phase locked DRO, a high-grade waveguide band-pass filter to give minimum insertion loss and flatness across the band, a high performance low noise amplifier, high grade mixers and isolators between each section to ensure correct matching.

For redundancy the **P7702i** uses a simple CANBUS® interface and has an integral redundancy controller for 1+1 & 2+1 operation (for use with external 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 unit has a highly stable internal reference source and will automatically detect and lock to an external 10MHz signal, when applied.



P7702i – Typical Specification

UHF Input

Frequency	750 ±250MHz
Connection	50Ω, BNC (f)
Return loss	>11dB

L-band Output

Frequency	1200 ±250MHz
Connection	50Ω, N-type (f)
Return loss	>11dB

Transfer Characteristics

Conversion gain	+30dB ±1dB
Attenuation	0 to 30dB, stepped 0.1dB
1 dB GCP	Input -10dBm, output +10dBm
Gain stability	±1dB from -10 to +50°C
	±0.1dB per week (constant temp.)
Gain flatness	±1.3dB full band
	±0.5dB across any 36MHz in band

RF Performance

Phase noise	-50dBc/Hz at 10Hz
	-80dBc/Hz at 100Hz
	-90dBc/Hz at 1kHz
	-97dBc/Hz at 10kHz
	-100dBc/Hz at 100kHz
	-110dBc/Hz at 1MHz
Spurious	<-55dBm (in band non-carrier related)
	<-65dBc (in band carrier related)
Group delay	Linear 0.025ns/MHz
	Ripple 1ns p-p
	Parabolic 0.015ns/MHz ²
Noise figure	<25dB typical at maximum gain

External Reference Input (with automatic detection & locking)

Frequency	Factory selectable 5 or 10MHz
Connection	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	±1.0ppm, stepped 0.02ppm

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 mount
Height	1U (1.75")
Depth	534mm (21"), plus connectors
Construction	Stainless steel chassis
Weight	Approx. 9kgs (20lbs)

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
	In-built 1+1 & 2+1 controller
Alarms	LO lock failure
	PSU failure
	Summary failure relay (form C)

Options

- 2) Custom front panel logo and colour
- 8) High stability internal reference option
- 9) Ethernet interface with embedded web server & SNMP
- 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)

