

RBU137-2

2+1 Redundant, High Grade, Ku-Band, Block UpConverter System









The **RBU137-2** 2+1 redundant Ku-Band block UpConverter system comprises three **IBU137** block UpConverters, plus an **RCU200** control unit along with matched SHF, L-Band and a complete control interface cable set. It includes all that is required to implement a dual-feed 2+1 redundant Ku-Band UpConverter system, maintaining maximum availability whilst allowing routine maintenance and repair work to be carried out on the standby converter without the normally associated down-time.

The **RBU137-2** system maintains two converters on-line whilst the other is held in hot standby, allowing the user to select the on-line converters. The redundancy unit can be controlled from the front panel (local mode) or by the RS232/RS485 link to a host computer (remote mode). In remote mode, the on-line converters can be selected and monitored whilst keeping switch-over automatic in case of failure.

In AUTO mode, the **RCU100** control unit monitors the converter alarm signals via the interface connecting cables and if a fault condition develops within the on-line converter, the **RCU100** automatically switches traffic to the standby unit.

All units are mains powered and are constructed of high grade components to give the ultimate stability, ripple and phase noise performance. The converters utilise externally phase locked dielectric resonator oscillators (XPDROs) and are far superior in stability and phase noise to voltage controlled oscillators (VCOs), as commonly used in other BUC designs.

Peak Features

-  High stability, low ripple and excellent phase noise
-  10MHz external reference option fitted as standard with automatic internal reference back-up
-  Dual mains input & redundant power supplies on control unit fitted as standard
-  Keys removable for security in any position
-  Dual switching arrangement (L-band and SHF)
-  Matched SHF, L-band and converter control interface cable set provided as standard



RBU137-2 Typical Specification

SHF Outputs

| | |
|-----------------|----------------|
| Input frequency | 13.75-14.50GHz |
| Connector | 50Ω, SMA (f) |
| Return loss | >15dB |
| 1dB GCP | +7dBm |
| Option 5; | +17dBm |

L-Band Inputs

| | |
|------------------|--------------|
| Output frequency | 950-1700MHz |
| Connectors | 50Ω, SMA (f) |
| Option 3; | 75Ω, BNC (f) |
| Return loss | >15dB |

System Transfer Characteristics

| | |
|-----------------|----------------------------------|
| Conversion gain | 13dB ±0.5dB at band centre |
| Option 4; | 23dB ±1dB at band centre |
| Gain stability | ±0.5dB from 0 to 40°C |
| Gain flatness | ±1dB full band |
| | ±0.5dB across 40MHz in band. |
| 2+1 changeover | 1dB max variation (unit to unit) |

RF Performance

| | |
|--|---|
| LO phase noise (typical with good phase noise ext. 10MHz ref) | -55dBc/Hz at 10Hz -75dBc/Hz at 100Hz -92dBc/Hz at 1kHz -100dBc/Hz at 10kHz -105dBc/Hz at 100kHz -125dBc/Hz at 1MHz |
| Harmonics Spurious | Better than -50dBc <-80dBm (in band non-carrier related) <-75dBc (in band carrier related) |
| 3rd order intercept LO leakage | >+17dBm (Option 5; >+27dBm) -80dBm (always out of band) |

Manual Attenuation (Option 10)

| | |
|-------------------|--|
| Attenuation range | 30dB nominal |
| Control | Continuously variable from front panel |

Notes; options 10c & 10d offer manually adjustable attenuators fitted to the switch unit 'common' input or output paths. Can degrade gain flatness performance.

SHF & L-Band Monitor (Option 2) on converters

| | |
|------------|---|
| Connector | |
| Option 2a; | L-Band monitor, 50Ω, SMA (f) on rear panel |
| Option 2b; | L-Band monitor, 50Ω, SMA (f) on front panel |
| Option 2c; | SHF monitor, 50Ω, SMA (f) on rear panel |
| Option 2d; | SHF monitor, 50Ω, SMA (f) on front panel |

Note; for other connector types please consult the factory

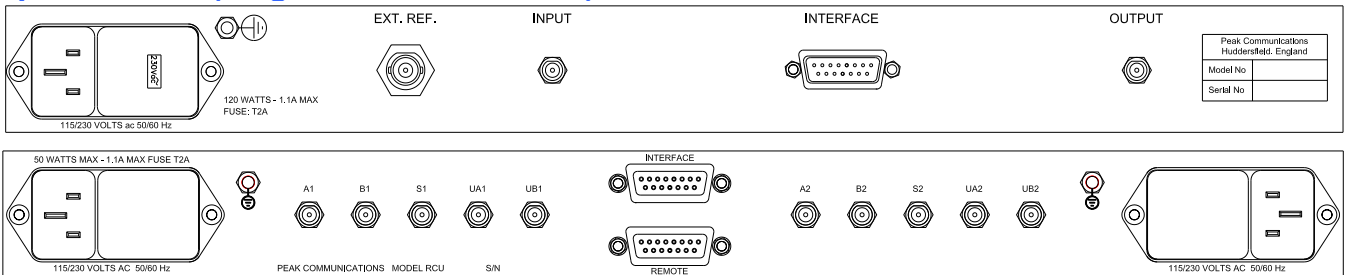
Internal Reference Stability

| | |
|----------------|-------------------------------------|
| Stability | <1 x 10 ⁻¹⁰ per second |
| Temp stability | <±5 x 10 ⁻⁸ (0 to +50°C) |
| Ageing | <±5 x 10 ⁻⁹ per day |

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 |

Rear panel Views (single Converter shown)



External Reference Input

| | |
|----------------------|--|
| Frequency | 10MHz (5MHz factory settable) |
| Connector | 50Ω, BNC (f) |
| Level | 0dBm ±3dB |
| Required phase noise | to be better than 50dBc/Hz of output phase noise |
| Locking delay | <2 minutes to stabilise from cold |

Switch Element Parameters

| | |
|-----------------|--|
| Switching speed | <15ms |
| Type | Co-axial, latching |
| Response speed | <150ms (from fault to switch completion) |

Mechanical

| | |
|---------------|---------------------------------|
| Width | 19" standard rack mountable |
| System height | 4U (1U (1.75") x 4) |
| Depth | ~400mm (15.7"), plus connectors |
| Construction | Aluminium chassis |
| Weight | 17kgs (~37lbs) approx |

Environmental

| | |
|----------------|------------------------------|
| Operating temp | 0°C to +50°C |
| EMC | EN 55022 part B & EN 50082-1 |
| Safety | EN 60950 |

Power Supply

| | |
|--------------|-----------------------------------|
| Voltage | 90-264VAC |
| | Dual redundant PSU on switch unit |
| Frequency | 47-63Hz |
| System power | 150Watts max |

Control System

| | |
|-----------------|---|
| Rem/Loc switch | 2 position key switch, for remote/ local mode |
| Auto/A/B switch | 3 position key switch, selects standby converter to chain A or B manually, or automatically |
| Remote control | RS232/RS485 port |
| Option 9; | Ethernet; embedded web server & SNMP network management support |
| Converter alarm | PSU fail, LO lock fail & Amp fail |

Options

- 2a) -20dBc L-band monitor on rear panel (SMA)
- 2b) -20dBc L-band monitor on front panel (SMA)
- 2c) -20dBc SHF monitor on rear panel (SMA)
- 2d) -20dBc SHF monitor on front panel (SMA)
- 3) 75Ω interface at L-band (gain reduced by 6dB)
- 4) Extra 10db increase in gain, to +23dB ±1dB
- 5) 1dB GCP increase to +17dBm (includes extra 10dB Gain option).
- 8) High stability internal reference option
- 9) Ethernet interface, replaces RS232/485 port
- 10c) System input manual variable attenuator, 0-30dB
- 10d) System output manual variable attenuator, 0-30dB

Note; the addition of options can modify the typical specification, for details please consult the factory



Peak Communications reserves the right to alter the specifications of this equipment without prior notice. RBU137-2-291215.

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