BLOCK CONVERTERS, RACK MOUNTED WITHOUT REMOTE FUNCTIONS

These Block Converters are designed for applications where frequency translation is needed between L-band and the transponder frequency.

STANDARD FEATURES

- Amplitude slope adjust
- Automatic 5/10 MHz internal/external reference selection
- Level control
- RF and L-band monitor ports
- Phase noise IESS-308/309
- Low intermodulation distortion
- High frequency stability
- Summary alarm
- Mute function on alarm or external mute input command
- CE mark

OPTIONS

- Lower gain
- Reference clean-up loop and improved frequency stability

BLOCK UPCONVERTERS

Input (GHz)	Output (GHz)	LO (GHz)	Model Number
0.95-1.525	5.85-6.425	7.375	UBR2-6.1-INV
0.95-1.75	5.85-6.65	4.9	UBR2-6.25
0.95-1.35	6.7-7.1	5.75	UBR2-6.9
0.95-1.45	7.9-8.4	6.95	UBR2-8.15
0.95-1.45	12.75-13.25	11.8	UBR2-13.0
0.95-1.7	13.75-14.5	12.8	UBR2-14.125
0.95-1.45	14.0-14.5	13.05	UBR2-14.25
0.95-1.75	17.3-18.1	16.35	UBR2-17.7
0.95-2.05	17.3-18.4	16.35	UBR2-17.85
0.95-1.25	18.1-18.4	17.15	UBR2-18.25

BLOCK DOWNCONVERTERS

Input (GHz)	Output (GHz)	LO (GHz)	Model Number
3.4-4.2	0.95-1.75	5.15	DBR2-3.8-INV
3.4-4.2	0.95-1.75	8.55/11	DBR2-3.8
3.7-4.2	0.95-1.45	8.55/11.3	DBR2-3.95
4.5-4.8	0.95-1.25	3.55	DBR2-4.65
7.25-7.75	0.95-1.45	6.3	DBR2-7.5*(Note1)
10.7-11.7	0.95-1.95	9.75	DBR2-11.2
10.95-11.7	0.95-1.7	10.0	DBR2-11.35
11.2-12.0	0.95-1.75	10.25	DBR2-11.6
11.45-12.25	0.95-1.75	10.5	DBR2-11.85
11.7-12.5	0.95-1.75	10.75	DBR2-12.1
11.7-12.75	0.95-2.0	10.75	DBR2-12.225
12.2-12.75	0.95-1.5	11.25	DBR2-12.475

NOTE: 1.The DBR2-7.5 Block Downconverter incorporates an inter-stage filter to attenuate the transmit frequency. Published performance will be maintained with a presence of a 7.9 GHz signal at a level of -5 dBm.

SPECIFICATIONS

INPUT CHARACTERISTICS	UPCONVERTER	DOWNCONVERTER
Return Loss (50 Ohms)	18 dB minimum	18 dB minimum
Signal Monitor	-20 dBc nominal	
LO Leakage	N/A	-80 dB maximum

OUTPUT CHARACTERISTICS		
Return Loss (50 Ohms)	18 dB minimum	18 dB minimum
Signal Monitor	-20 dBc nominal	
Power Output (1 dB Compression)	+13 dBm minimum	+18 dBm minimum

TRANSFER CHARACTERISTICS				
Gain	30 dB, ±3 dB at 23°C		35 dB, ±3 dB at 23°C	
Level Control	30 dB adjust			
Level Stability	±0.25 dB/day maximum at constant temperature			
Amplitude Response	±0.25 dB/40 MHz maximum, ±1 dB maximum over RF frequency band			
Slope Adjust	0 to 6 dB			
Noise Figure at Minimum Attenuation	N/A		15 dB maximum	
Noise Power Density	-125 dBm/Hz maximum		N/A	
Image Rejection	60 dB minimum			
Third Order Intermodulation Distortion With two inband signals each at 0 dBm, measured at the output	50 dBc minimum (+25 dBm IP3)		60 dBc minimum (+30 dBm IP3)	
Spurious Outputs (Inband) –				
Signal Related	65 dBc minimum up to 0 dBm output			
Signal Independent	(including 2 x 1 spurious on 1 GHz IF bandwith units) -75 dBm maximum			
Maximum Phase Noise (dBc/Hz) –	Offset (Hz)			
	100	1K	10K	100K
	-60	-70	-80	-90
Frequency Stability	±2 x 10^{-9}, 0° to 50°C			
Frequency Aging	1 x 10^{-9}/day after 24 hours operation proceeded by 10 days operation			
Automatic Reference Configuration	External 5 or 10 MHz at +4 ±3 dBm. If external reference is below +1 dBm nominal, the converter will automatically lock to the internal reference.			
Converter Mute	60 dB minimum on summary alarm or mute command.			

INDICATOR and ALARMS	
Alarm	Red LED (front panel)
Internal Reference	Yellow LED (front panel)
Power ON Indicator	Green LED (front panel)
Summary Alarm	Contact closure/open for DC voltage and local oscillator

CONTROLS	
Level Control	Front panel knob, single turn
Slope Control	Front panel knob, single turn

OPTIONS

5-1. Lower Gain ..... 20 ±3 dB at 23°C, 18 dB noise figure
(20 dB noise figure for upconverters with 1 GHz bandwidth)
(2 x 1 signal related, 65 dBc at -10 dBm output)

5-2. Lower Gain ..... 10 ±3 dB at 23°C, 20 dB noise figure
(22 dB noise figure for upconverters with 1 GHz bandwidth)
(2 x 1 signal related, 65 dBc at -10 dBm output)

5-3. Reference Clean-up Loop and
Improved Frequency Stability..... Reference oscillator acts as an analog phase lock with a 0.1 Hz nominal loop bandwidth. Typical loop suppression of the external reference is as follows:

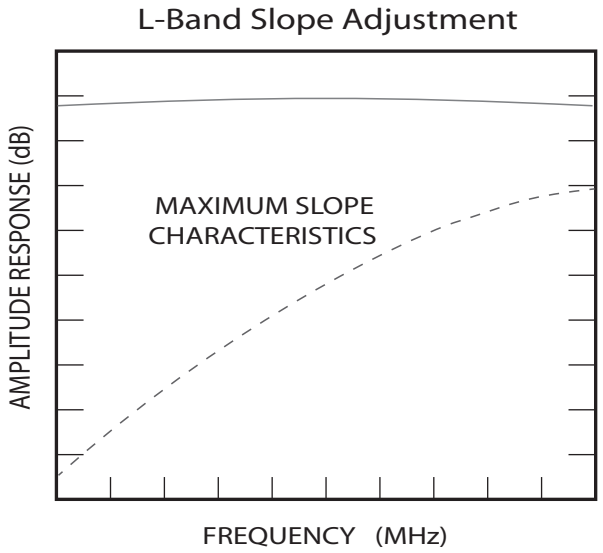
28 dB at 1 Hz offset,
65 dB at 10 Hz offset and
100 dB at 100 Hz offset

Frequency Stability:

$\pm 2 \times 10^{-9}$, 0 to 50° C

Frequency Aging:

1×10^{-9} per day after 24 hours operation proceeded by 10 days operation



PRIMARY POWER REQUIREMENTS

Voltage	90-250 VAC
Frequency	47-63 Hz
Power Consumption	40W typical
Fuse	T1.25

PHYSICAL

Weight	9 pounds (4.08 kg) nominal without rack slides 13 pounds (5.9 kg) nominal with rack slides
Chassis Dimensions	19” x 1.75” panel height x 20” maximum
Connectors -	
RF	SMA female
L-band	SMA female
RF Monitor	SMA female
L-band Monitor	SMA female
External Reference	BNC female
Status Interface and Control Mute	DE-9S
Primary Power	IEC-320

ENVIRONMENTAL

Operating -	
Temperature	0 to 50°C
Relative Humidity	Up to 95% at 30°C
Altitude	Up to 10,000 feet
Non-operating –	
Temperature	-50 to +70°C
Relative Humidity	Up to 95% at 45°C
Altitude	Up to 40,000 feet
Shock and Vibration	Normal handling by commercial carriers

NOTE : FOR DESCRIPTION OF OPERATION REFER TO TECHNICAL NOTE GS5-TCN.

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