GeoSync Microwave™

BLOCK CONVERTER MODULES With HIGH PERFORMANCE OPTIONS

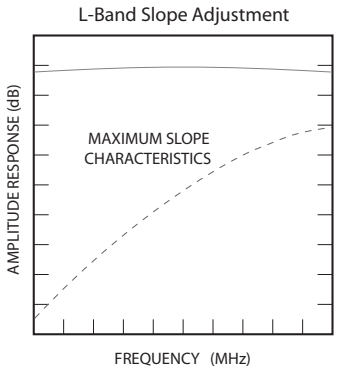
This equipment is designed for applications where frequency translation is needed between L-band and the transponder frequency. Multiple remote connections and a robust protocol provide strong M&C support.

STANDARD FEATURES

- Amplitude slope adjust
- RS422, RS485 and 10/100 Base-T Ethernet
- RF and L-band monitor ports
- Low intermodulation distortion
- Low phase noise
- Independent RF and IF level control
- Mute function on alarm or external mute input command
- Elapsed time and event log after power turn on
- 10 MHz reference input
- Summary alarm

OPTIONS

- High performance package
- Lower gain
- Lower phase noise (high performance package)



BLOCK UPCONVERTERS

Input (GHz)	Output (GHz)	LO (GHz)	Model Number
0.95-1.525	5.85-6.425	7.375	UBM-6.1-INV
0.95-1.75	5.85-6.65	4.9	UBM-6.25
0.95-1.35	6.7-7.1	5.75	UBM-6.9
0.95-1.45	7.9-8.4	6.95	UBM-8.15
0.95-1.45	12.75-13.25	11.8	UBM-13
0.95-1.7	13.75-14.5	12.8	UBM-14.125
0.95-1.45	14.0-14.5	13.05	UBM-14.25
0.95-1.75	17.3-18.1	16.35	UBM-17.7
0.95-2.05	17.3-18.4	16.35	UBM-17.85
0.95-1.25	18.1-18.4	17.15	UBM-18.25

BLOCK DOWNCONVERTERS

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

NOTE: 1.The DBM-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 (1dB Compression) –	+13 dBm minimum	+18 dBm minimum

TRANSFER CHARACTERISTICS -		
Gain	30 dB, ±3 dB at 23°C	35 dB, ±3 dB at 23°C
RF Level Control	15 dB in 0.2 dB steps	
L-band Level Control	30 dB in 0.2 dB steps	
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 (including 2 x 1 spurious on 1 GHz IF bandwith units)	
Signal Independent	-75 dBm maximum	

Maximum Phase Noise (dBc/Hz) –	LO Frequency	Offset (Hz)					
With Maximum Reference Phase Noise:		10	100	1K	10K	100K	1M
10 Hz: -120 dBc/Hz,	≤ 6.7 GHz	-52	-80	-90	-100	-110	-125
100 Hz: -145 dBc/Hz,	≤ 12 GHz	-46	-73	-84	-94	-104	-119
1 kHz: -160 dBc/Hz	≤ 17.15 GHz	-45	-68	-80	-90	-100	-115

Frequency Stability	Same as Frequency Reference
Frequency Accuracy	Same as Frequency Reference
Frequency Reference	10 MHz at +4 ±3 dBm.
Converter Mute	60 dB minimum on summary alarm or mute command.

REMOTE CONTROLS

Serial Interface	RS485/RS422
Ethernet Interface	10/100 Base-T Ethernet interface providing:
	• HTTP-based web server
	• SNMP 1.0 configuration
	• Alarm reporting via SNMP Trap
	• Telnet access
	• Password protection

OPTIONS

7-1. High Performance Package -

Power Output (1 dB Compression) ..... +20 dBm minimum

Gain Slope ..... 0.03 dB/MHz maximum

Level Stability ..... ±0.25 dB/day maximum at constant temperature, 1.0 dB peak-to-peak maximum, 0 to 50°C

Group Delay ..... 1 ns peak-to-peak maximum

Spurious Outputs (Inband) –

Signal Related ..... 65 dBc minimum at 0 dBm output

Signal Independent..... -80 dBm maximum

Image Rejection ..... 80 dB minimum

Intermodulation Distortion (Third Order)..... With two inband signals at 0 dBm ouput, third order intermodulation products are less than 60 dBc minimum.

High Performance Phase Noise (dBc/Hz) (Maximum) -

LO Frequency	Offset (Hz)					
	10	100	1K	10K	100K	1M
≤ 6.7 GHz	-54	-78	-108	-116	-119	-136
≤ 12 GHz	-48	-73	-103	-112	-115	-132
≤ 17.15 GHz	-47	-70	-100	-108	-111	-128

Noise Spectral Density..... -85 dBm/4 kHz maximum

AM/PM Conversion (at 0 dBm Output)..... 0.1°/dB maximum

Upconverter Mute..... 80 dB minimum on summary alarm, external mute input control or remote command

7-2. 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)

7-3. 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)

PRIMARY POWER REQUIREMENTS

Primary Power	+12V ±1V, 25W typical

PHYSICAL

Weight	3 pounds (1.4 kg), typical
Module Dimensions	4” x 6” x 1.2”
Connectors -	
RF	SMA female
RF Monitor	SMA female
IF	N Female
IF Monitor	SMA Female
External Reference	SMA female
Alarm, RS485, RS422	DE-9P
Ethernet	RJ-45 female
Primary Power	Molex 22-12-2024
Auxiliary Analog Interface	JST-S7B-PH-SM4
Analog Input	0-12V DC
Analog Output	0-14V DC
DC Output	15V at 0.5A unfused

ENVIRONMENTAL

Operating -	
Baseplate Temperature	-40 to +60°C
Relative Humidity	Up to 95% at 30°C
Altitude	Up to 10,000 feet
Non-operating –	
Ambient Temperature	-50 to +70°C
Relative Humidity	Up to 95% at 40°C
Altitude	Up to 40,000 feet
Shock and Vibration	Normal handling by commercial carriers

NOTE : FOR DESCRIPTION OF OPERATION REFER TO TECHNICAL NOTE GS7-TCN.

GeoSync Microwave, Inc. • 400 Oser Avenue, Suite 250 Hauppauge, NY 11788
Phone: 631 760-5567 • Fax: 631 780-0214 www.geosyncmicrowave.com