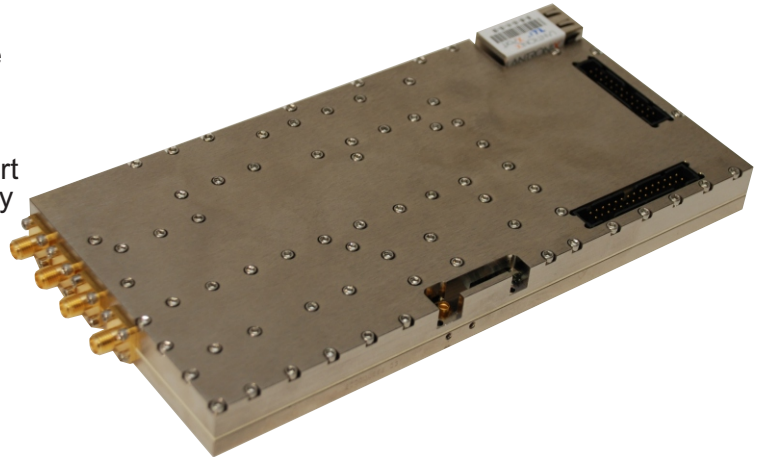


This series of up- and down-converter modules are designed for integration into larger multifunction assemblies.

A strong set of monitor and control functions support powerful remote control. A contact closure summary alarm is provided for fault monitoring.

The standard phase noise is compliant with IESS-308/309 and options are available for lower phase noise.

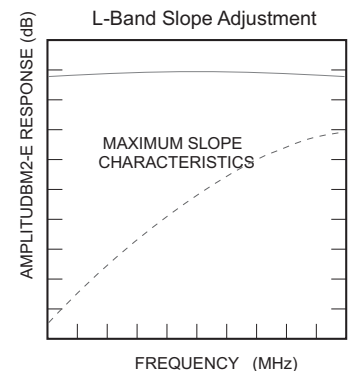


STANDARD- FEATURES

- Amplitude slope adjust
- RS422, RS485 and 10/100 Base-T Ethernet
- Serial output for Redundancy Switchover units
- RF and L-band monitor ports
- Low phase noise
- Low intermodulation distortion
- 45 dB of independent RF and L-band level control
- Mute function on alarm or external mute input command
- Elapsed time and event log after power turn on
- Summary alarm

OPTIONS

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



BLOCK DOWNCONVERTERS

Input (GHz)	Output (GHz)	LO (GHz)	Model Number
2 – 2.4	0.95 – 1.35	3.85/4.9	DBM2-2.2
3.4 – 4.2	0.95 – 1.75	5.15	DBM2-3.8INV
3.4 – 4.2	0.95 – 1.75	9/6.55	DBM2-3.8
4.5 – 4.8	0.95 – 1.25	3.55	DBM2-4.65
10.7 – 11.7	0.95 – 1.95	9.75	DBM2-11.2
10.95 – 11.7	0.95 – 1.7	10	DBM2-11.35
11.2 – 12	0.95 – 1.75	10.25	DBM2-11.6
11.4 – 12.2	0.95 – 1.75	10.45	DBM2-11.8
11.45 – 12.25	0.95 – 1.75	10.5	DBM2-11.85
11.7 – 12.5	0.95 – 1.75	10.75	DBM2-12.1
11.7 – 12.75	0.95 – 2	10.75	DBM2-12.225
12.2 – 12.75	0.95 – 1.5	11.25	DBM2-12.475
12.2 – 13.25	0.95 – 2	11.25	DBM2-12.725
18.3 – 19.3	0.95 – 1.95	17.35	DBM2-18.8
20.2 – 21.2	0.95 – 1.95	19.25	DBM2-20.7

BLOCK UPCONVERTERS

Input (GHz)	Output (GHz)	LO (GHz)	Model Number
0.95 – 1.35	2 – 2.4	4.9/3.85	UBM2-2.2
0.95 – 1.525	5.85 – 6.425	7.375	UBM2-6.11INV
0.95 – 1.75	5.85 – 6.65	4.9	UBM2-6.25
0.95 – 1.825	5.85 – 6.725	4.9	UBM2-6.28
0.95 – 1.35	6.7 – 7.1	5.75	UBM2-6.9
0.95 – 1.45	12.75 – 13.25	11.8	UBM2-13
0.95 – 1.7	13.75 – 14.5	12.8	UBM2-14.125
0.95 – 1.45	14 – 14.5	13.05	UBM2-14.25
0.95 – 1.75	17.3 – 18.1	16.35	UMB2-17.7
0.95 – 2.05	17.3 – 18.4	16.35	UBM2-17.85
0.95 – 1.25	18.1 – 18.4	17.15	UBM2-18.25

SPECIFICATIONS

INPUT CHARACTERISTICS -	UPCONVERTER		DOWNCONVERTER					
Return Loss (50 Ohms)	18 dB minimum							
Signal Monitor	-20 dBc nominal							
LO Leakage	N/A			-80 dB maximum				
Input Level (Non-damage)	+10 dBm							
INPUT CHARACTERISTICS -								
Return Loss (50 ohms)	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 center frequency			35 dB, ± 3 dB at center frequency				
L-band Level Control	30 dB in 0.2 dB steps							
RF-band Level Control	15 dB in 0.2 dB steps							
Level Stability	± 0.25 dB over any 20°C, ± 1.5 dB over -40° to 60°C							
Amplitude Response	± 0.25 dB/40 MHz maximum, ± 1 dB maximum over RF frequencyband							
Slope Adjust	0 to 6 dB minimum							
Noise Figure at Minimum Attenuation	15 dB maximum 18 dB maximum ≥ 1 GHz IF			15 dB maximum at maximum gain				
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 up to 0 dBm output	65 dBc minimum							
Signal Independent	-75 dBm maximum							
Signal Harmonic Related up to -10 dBm output	65 dBc minimum (including 2 x 1 spurious on IF bandwidths ≥ 1 GHz)			55 dBc minimum (including 2nd harmonic)				
Maximum Phase Noise (dBc/Hz) –								
With Maximum Reference Phase	LO Frequency	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	Up to 30 GHz	-45	-68	-80	-90	-100	-115	
Frequency Stability								
Per external reference								
Frequency Accuracy								
Per external reference								
Frequency Reference								
External 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	10/100Base-T Ethernet <ul style="list-style-type: none"> • HTTP-based web server • Telnet access • Password protection

INDICATORS and ALARMS

Summary Alarm	Contact closure/open for voltage and local oscillator (programmable LNA current alarm on downconverters +12VDC at 250 mA)
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Note: All specifications are at 23°C and maximum gain unless otherwise noted.

2-1. 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 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
Local Oscillator Leakage.....	-65 dBm maximum (upconverters only)
Image Rejection	80 dB minimum
Intermodulation Distortion (Third Order)	With two inband signals at 0 dBm output, third order intermodulation products are less than 60 dBc minimum.

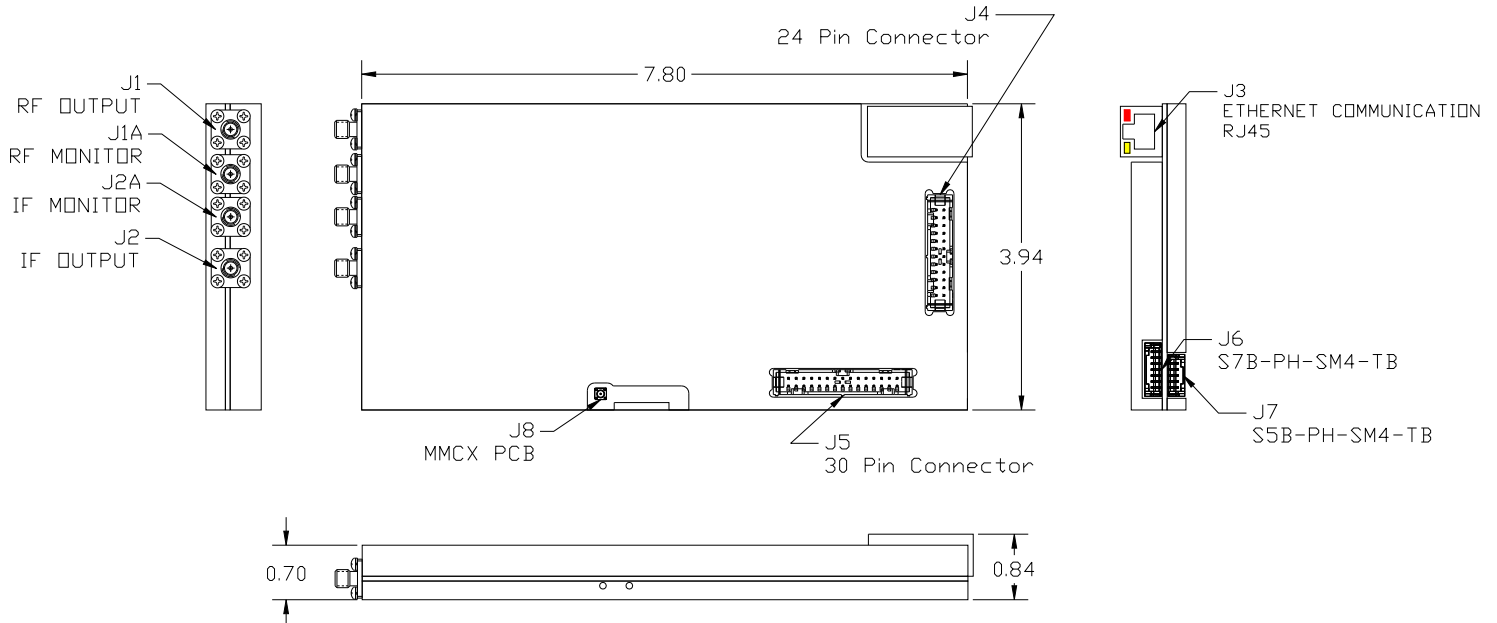
High Performance Phase Noise (dBc/Hz) (Maximum) -

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

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

2-2. 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)

2-3. 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 (1.4kg), typical

Module Dimensions 3.94" x 7.8" x 0.84"

Connectors-

RF SMA female

RF Monitor SMA female

IF SMA female

IF Monitor SMA female

External Reference SMB female (SMA option)

Alarm,RS485,RS422 DE-9P

Ethernet RJ-45female

Primary Power Molex 22-12-2024

Auxiliary Analog Interface JST-S7B-PH-SM4

 Analog Input..... 0-12 VDC

 Analog Output..... 0-14 VDC

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 40,000feet

Shock and Vibration Normal handling by commercialcarriers