

These Selectable Band Outdoor Block Converters are designed for applications where frequency translation is needed between the transponder and demodulator with a minimum of amplitude and group delay distortion.

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
- Automatic 5/10 MHz internal/external reference selection
- Electronic adjust of internal reference frequency
- Low phase noise
- Low intermodulation distortion
- 64 programmable memory locations
- 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
- CE Mark



OPTIONS

- High performance package
- Lower gain
- Reference clean-up loop and improved stability

DOWNCONVERTERS

Band	Input Frequency Band (GHz)	Output Frequency Band (GHz)	LO Frequency (GHz)	Model Number
1	10.7 - 11.45	0.95 - 1.7	9.75	DBE-3KuL
2	11.45 - 12.2	0.95 - 1.7	10.5	
3	12.2 - 12.75	0.95 - 1.5	11.25	
1	10.95 - 11.7	0.95 - 1.7	10	DBE-3KuL-1
2	11.7 - 12.2	0.95 - 1.45	10.75	
3	12.2 - 12.75	0.95 - 1.5	11.25	
1	10.7 - 11.7	0.95 - 1.95	9.75	DBE-3KuL-2
2	11.45 - 12.45	0.95 - 1.95	10.5	
3	12.2 - 13.25	0.95 - 2	11.25	
1	10.7 - 11.75	0.95 - 2	9.75	DBE-2KuL
2	11.7 - 12.75	0.95 - 2	10.75	

UPCONVERTERS

Band	Output Frequency Band (GHz)	Input Frequency Band (GHz)	LO Frequency (GHz)	Model Number
1	12.75 - 13.25	0.95 - 1.45	11.8	UBE-2LKu
2	13.75 - 14.8	0.95 - 2	12.8	
1	10.7 - 11.7	0.95 - 1.95	9.75	UBE-2LKu-1
2	11.7 - 12.75	0.95 - 2	10.75	

CONVERTER 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	60 dBc minimum up to 0 dBm output (including 2x1 spurious on 1 GHz IF bandwidth units)					
Signal Independent	-70 dBm maximum					
Maximum Phase Noise (dBc/Hz) –	Offset (Hz)					
	10	100	1K	10K	300K	1M
Converter	-50	-70	-90	-95	-95	-115
Maximum reference	-120	-145	-160			
Frequency Stability	$\pm 5 \times 10^{-8}$, -40° to 60°C (reference 25°C)					
Frequency Aging	5×10^{-9} /day after 24 hours on time					
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.					
Upconverter Mute	60 dB minimum on summary alarm or mute command.					

REMOTE CONTROLS

Serial Interface	RS485/RS422
Ethernet Interface	10/100Base-T Ethernet interface providing: <ul style="list-style-type: none"> • HTTP-based web server • SNMP 1.0 configuration • Alarm reporting via SNMP Trap • Telnet access • Password protection

INDICATOR and ALARMS

Remote Mode	Green LED (front panel)
Alarm	Red LED (front panel)
Summary Alarm	Contact closure status for DC voltage and local oscillator

OPTIONS

45-1. 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	80dB minimum
Intermodulation Distortion (ThirdOrder)	With two inband signals at 0 dBm output, third order intermodulation products are less than 60 dBc minimum.
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

45-2. Lower Gain..... 20 \pm 3 dB at 23°C, 18 dB noise figure
(20 dB noise figure for upconverters with 1 GHz bandwidth)
(2x1 signal related, 65 dBc at -10 dBm output)

45-3. LowerGain 10 \pm 3 dB at 23°C, 20 dB noise figure
(22 dB noise figure for upconverters with 1 GHz bandwidth)
(2x1 signal related, 65 dBc at -10 dBm output)

45-4. 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:
 $\pm 5 \times 10^{-9}$, -40 to 60°C
Frequency Aging:
 1×10^{-9} per day after 24 hours operation
 preceded by 10 days operation

PRIMARY POWER REQUIREMENTS

Voltage..... 90-250 VAC
 Frequency..... 47-63Hz
 Consumption..... 20W typical
 Fuse..... T1.25A

PHYSICAL

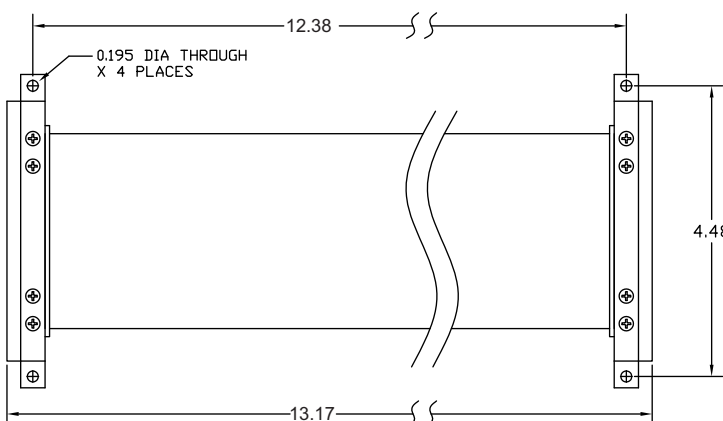
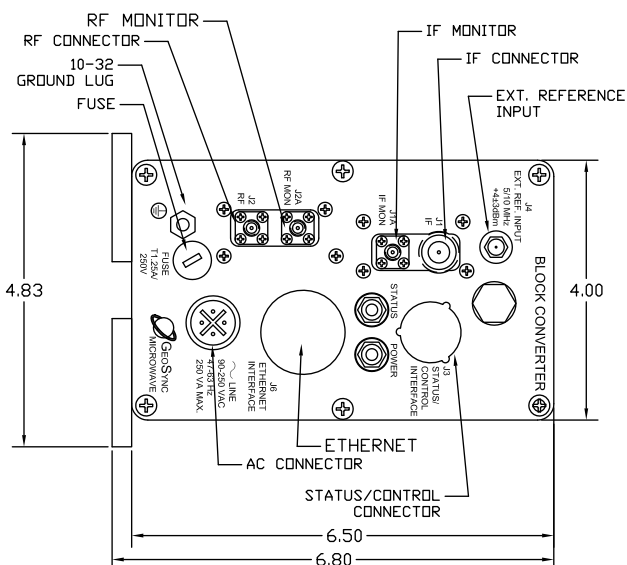
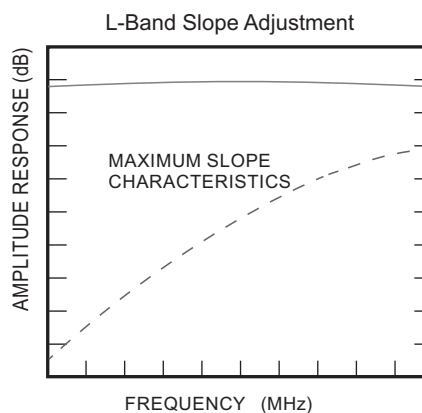
Weight..... 6 pounds (2.7 kg) nominal

Connectors-

RF SMA female
 L-band N female
 RF Up Out Monitor..... SMA female compatible
 L-band Monitor SMA female
 External Reference..... SMA female
 Status/Control Interface MS3116F14-18P type for summary alarm, RS422, RS485, and LNA power
 Remote Interface RJ-45 female for Ethernet RS485 available on Status connector
 Primary Power FCI clipper series CL1M1102

ENVIRONMENTAL

Enclosure rating IP-65
 Operating-
 Ambient Temperature -40 to +60°C
 Altitude Up to 10,000 feet
 Non-operating-
 Ambient Temperature -50 to +70°C
 Altitude..... Up to 40,000 feet
 Shock and Vibration Normal handling by commercial carriers



NOTE:
 1. MOUNTING LEGS CAN BE DISASSEMBLED AND REINSTALLED ON WIDE SIDE OF ENCLOSURE (SHOWN INSTALLED ON NARROW SIDE.)
 2. TAPPED 10-32 HOLES AVAILABLE ON SUPPLIED MOUNTING LEGS. FOR DIMENSIONS OF THIS CONFIGURATION PLEASE CONSULT TECH-NOTE.