



These Frequency Band Translators are designed for applications where frequency translation is needed with a minimum of amplitude and group delay distortion.

Ka RF transmit band to Ka RF receive band, and Ka Transmit band to L-band are covered in multiple models. Both military and commercial Ka bands are available.

The outdoor package is allows for mounting on the antenna.

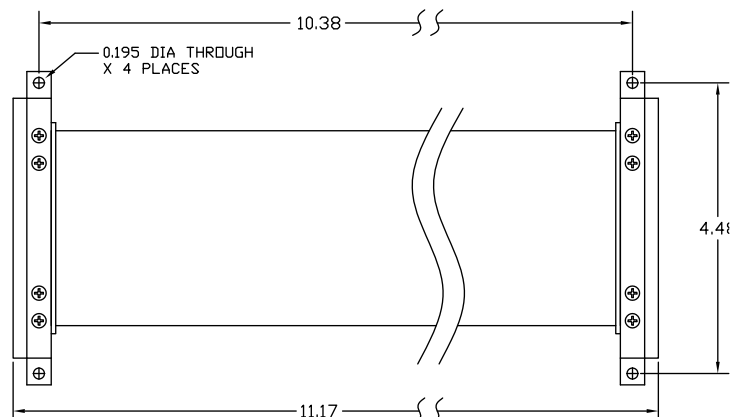
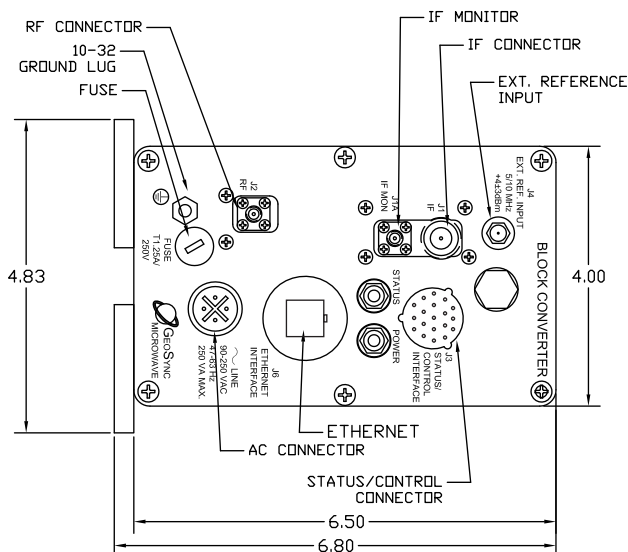
See data sheet GS26 for companion block up and downconverter models, and data sheet GS9 for indoor rack mount models.

STANDARD FEATURES

- Small-sized weather resistant enclosure
- RS422, RS485 and 10/100 Base-T Ethernet
- Local oscillator monitor port
- Output signal monitor port (L-band output only)
- Low phase noise, IESS-308/309
- Low intermodulation distortion
- 30 dB level control
- CE Mark

OPTIONS

- Additional gain - Transmit to L-band
- Reference clean-up loop and improved stability
- Local oscillator 2nd harmonic rejection



NOTE:
1. MOUNTING LEGS CAN BE DISASSEMBLED AND REINSTALLED ON WIDE SIDE OF ENCLOSURE (SHOWN INSTALLED ON NARROW SIDE.)

RF TRANSMIT-BAND TO RF RECEIVE-BAND

Input Frequency (GHz)	Output Frequency (GHz)	LO Frequency (GHz)	Model Number
29.5-30.0	19.2-19.7	10.3	TRE-29.75-19.45
29.5-30.0	19.7-20.2	9.8	TRE-29.75-19.95
29.0-30.0	20.2-21.2	9.8	TRE-29.5-19.7
30.0-31.0	20.2-21.2	9.8	TRE-30.5-20.7
27.97-28.02	18.67-18.72	9.3	TRE-28-18-6001248

RF TRANSMIT-BAND TO L-BAND

Input Frequency (GHz)	Output Frequency (GHz)	LO Frequency (GHz)	Model Number
27.5-27.75	1.0-1.25	26.5	TLE-27.62
28-29	0.95-1.95	27.05	TLE-28.5
28.35-28.6	0.95-1.2	27.4	TLE-28.475
28.5-29.5	0.95-1.95	27.55	TLE-29
29-30	0.95-1.95	28.05	TLE-29.5
29.25-29.5	0.95-1.2	28.3	TLE-29.375
29.25-30.0	0.95-1.7	28.3	TLE-29.75
30.0-31.0	0.95-1.95	29.05	TLE-30.5
30.0-31.0	1.0-2.0	29.0	TLE-30.5-1

SPECIFICATIONS

INPUT CHARACTERISTICS	RF TRANSMIT-BAND TO	RF RECEIVE BAND	RF TRANSMIT-BAND TO L-BAND
	Frequency	Refer to model number table	
Impedance	50 ohms		
Return Loss	18 dB minimum		
Input Level (Non-damage)	+10 dBm maximum		

OUTPUT CHARACTERISTICS

Frequency	Refer to model number table		
Impedance	50 ohms		
Return Loss	18 dB minimum		
Output Signal Monitor	N/A		-20 dBc nominal

TRANSFER CHARACTERISTICS

Level Control	30 dB/0.2 dB step					
Amplitude Response	± 0.25 dB/40 MHz, ± 1 dB/output frequency band					
Noise Figure at Minimum Attenuation	25 dB maximum			15 dB maximum		
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					
Conversion Loss	25 dB maximum			15 dB maximum (20 dB gain optional)		
Conversion Loss Stability	± 0.25 dB/day at 23°C					
Intermodulation	-50 dBc minimum at -5 dBm input					
Phase Noise (dBc/Hz) –	LO Frequency	Offset (Hz)				
Typical Phase Noise		100	1K	10K	100K	1M
	Below 10.3 GHz	-64	-75	-85	-95	-100
	Up to 30 GHz	-65	-78	-85	-92	-110
Automatic Reference Configuration	External 5 or 10 MHz at $+4 \pm 3$ dBm. If external reference is below +1 dBm nominal, the converter will automatically lock to the internal reference.					
Input/Output Isolation	60 dB minimum					
Translator Mute	60 dB minimum					

INDICATOR and ALARMS

LO Out-of-lock	Red LED (front panel)
Internal Reference	Yellow LED (front panel)
Power ON Indicator	Green LED (front panel)
Summary Alarm	Contact closure status for DC voltage and local oscillator

REMOTE CONTROLS

Serial Interface	RS485/RS422
Ethernet Interface	10/100Base-T Ethernet interface providing
	HTTP-based web server
	Telnet access
	Password protection

OPTIONS

47-1. 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

OPTIONS (continued)

- 47-3. LO 2nd harmonic rejection (Tx to Rx units only) -
In band LO 2nd harmonic signal
Independent spurious -45 dBm maximum
- 47-4. External LO input
Selectable external LO Input +10 dBm \pm 3 dB, frequency determined by model.
Connector 2.92 mm/SMA female

PRIMARY POWER REQUIREMENTS

Voltage.....90-250 VAC
Frequency.....47-63Hz
Consumption 16W typical
Fuse..... T1.25A

PHYSICAL

Weight 6 pounds (2.7 kg) nominal

Connectors-

- RF 2.92 mm/SMA female
- L-band N female
- 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