

TEST TRANSLATORS RACK MOUNTED FOR SATELLITE COMMUNICATION



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

Refer to data sheet GS10 for outdoor translators below 18 GHz and datasheet GS47 for outdoor Ka band translators. Rack mountable multiple band translators are located in datasheet GS40.

Outdoor multiple band translators are located in datasheet Gs46.

A second independent channel is available as an option to support two polarization applications.

STANDARD FEATURES

- Local oscillator monitor port
- RS422, RS485 and 10/100Base-T Ethernet
- 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
- Second independent RF channel

RF TRANSMIT-BAND TO RF RECEIVE-BAND

Input Frequency (GHz)	Output Frequency (GHz)	LO Frequency (GHz)	Model Number
5.85-6.425	3.625-4.2	2.225	TRR-6.1-3.9
5.85-6.65	3.4-4.2	2.45	TRR-6.25-3.8
6.725-7.025	4.5-4.8	2.225	TRR-6.8-4.6
7.9-8.4	7.25-7.75	0.65	TRR-8.15-7.5
7.9-8.4	7.175-7.675	0.725	TRR-8.15-7.4
12.75-13.25	10.7-11.2	2.05	TRR-13-11.2
13.2-14.2	10.7-11.7	2.5	TRR-13.7-11.2
13.75-14.5	10.7-11.45	3.05	TRR-14-11
13.75-14.5	11.45-12.2	2.3	TRR-14-11.8
13.75-14.5	12.0-12.75	1.75	TRR-14-12.3
13.75-14.5	10.95-11.7	2.8	TRR-14-11.3
13.75-14.5	11.7-12.45	2.05	TRR-14-12
17.3-17.8	12.2-12.7	5.1	TRR-17.55-12.45
17.3-18.1	11.7-12.5	5.6	TRR-17.7-12.1



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Ka-BAND

Input Frequency (GHz)	Output Frequency (GHz)	LO Frequency (GHz)	Model Number
29.5-30	19.2-19.7	10.3	TRR-29.75-19.45
29.5-30	19.7-20.2	9.8	TRR-29.75-19.95
29-30	19.2-20.2	9.8	TRR-29.5-19.7
30-31	20.2-21.2	9.8	TRR-30.5-20.7

RF TRANSMIT-BAND TO L-BAND

Input Frequency (GHz)	Output Frequency (GHz)	LO Frequency (GHz)	Model Number
5.85-6.65	0.95-1.75	4.9	TLR-6.25
5.85-6.725	0.95-1.825	4.9	TLR-6.28
5.925-6.425	0.95-1.45	7.375	TLR-6.175-INV
7.9-8.4	0.95-1.45	6.95	TLR-8.15
12.75-13.25	0.95-1.45	11.8	TLR-13
14.0-14.5	0.95-1.45	13.05	TLR-14.25
13.75-14.5	0.95-1.7	12.80	TLR-14.125
14.5-14.8	0.95-1.25	13.55	TLR-14.65
17.3-18.1	0.95-1.75	16.35	TLR-17.7
17.3-18.4	0.95-2.05	16.35	TLR-17.85

Ka-BAND

Input Frequency (GHz)	Output Frequency (GHz)	LO Frequency (GHz)	Model Number
28.35-28.6	0.95-1.2	27.4	TLR-28.475
29.25-29.5	0.95-1.2	28.3	TLR-29.375
29.25-30	0.95-1.7	28.3	TLR-29.75
30-31	0.95-1.95	29.05	TLR-30.5
30-31	1-2	29	TLR-30.5-1



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SPECIFICATIONS

INPUT CHARACTERISTICS

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

TRANSFERT CHARACTERISTICS

Level Control	30 dB continuously adjustable, 30 dB/0.2 dB step (Option 9-2)	
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	±2 x 10 ⁻⁸ , 0 to 50°C	
Frequency Aging	5 x 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) -

Typical Phase Noise

LO Frequency	Offset (Hz)				
	100	1K	10K	100K	1M
≤ 4.2 GHz	-85	-90	-92	-100	-120
$4.2 < LO \leq 9$ GHz	-80	-84	-87	-90	-115
$9 \text{ GHz} < LO \leq 16 \text{ GHz}$	-70	-77	-85	-87	-110

Automatic Reference Configuration

External 5 or 10 MHz at $\pm 4 \pm 3$ dBm. If external reference is below +1 dBm nominal, the converter will automatically lock to the internal reference.

Input/Output Isolation

60 dB minimum

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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	10/100 Base-T Ethernet interface providing: - HTTP-based web server - SNMP1.0 configuration - Alarm reporting via SNMP Trap - Telnet Access and Password protection



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OPTIONS

9-1. 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 o set, 65 dB at 10 Hz o set and
65 dB at 10 Hz o set and
Frequency Stability: $\pm 2 \times 10^{-9}$, 0 to 50°C
Frequency Aging: 1×10^{-9} per day after 24 hours operation preceded by 10 days operation

9- 3. Gain on Transmit to L-band Units

Gain	20 $\pm$ 3 dB
Power Output (1 dB Compression)	+18 dBm minimum
Gain Slope	0.03 dB/MHz maximum
Gain Stability	± 0.25 dB/day maximum at constant temperature
Group Delay	1 ns peak-to-peak maximum
Spurious Outputs (Inband)	
Signal Related	65 dBc minimum at 0 dBm output
Signal Independent	-75 dBm maximum
Intermodulation Distortion (Third Order)	With two inband signals at 0 dBm output, third order intermodulation products are less than 60 dBc minimum and 50 dBc minimum (Ka-band units)

9-4. Second independent translator channel

Change model number to TLR2-XXX or TRR2-XXX.

PRIMARY POWER REQUIREMENTS

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

PHYSICAL

Connectors

RF	SMA female (2.92 mm above 18.4 GHz)
L-band	SMA female
L-band Monitor	SMA female
External Reference	BNC female
Summary Alarm	DE-9P
Remote Interface	DE-9S for RS422, RS485 RJ-45 female for Ethernet
Primary Power	IEC-320





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ENVIRONMENTAL

Operating

Ambient Temperature

0 to 50°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 45°C

Altitude

Up to 40,000 feet

Shock and Vibration

Normal handling by commercial carriers

PHYSICAL

Weight

10 pounds (4.5 kg) nominal with rack slides,
14 pounds (6.4 kg) nominal without rack slides

Chassis Dimensions

19" x 1.75" panel height x 20" maximum



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