



Photograph Shown for Option of Two Translators in One Package

These Portable Translators are designed for applications where frequency translation is needed with a minimum of amplitude and group delay distortion. Units are provided in RF-Transmit to RF-Receive and RF-Transmit to L-band configurations.

STANDARD FEATURES

- Output signal monitor port (L-band output only)
- Phase noise IESS-308/309
- Low intermodulation distortion
- Low phase noise
- 30 dB level control
- Summary alarm
- CE mark

OPTIONS

- Additional gain – Transmit to L-band
- Reference clean-up loop and improved frequency stability

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	TRS-6.1-3.9
5.85-6.65	3.4-4.2	2.45	TRS-6.25-3.8
6.725-7.025	4.5-4.8	2.225	TRS-6.8-4.6
7.9-8.4	7.25-7.75	0.65	TRS-8.15-7.5
7.9-8.4	7.175-7.675	0.725	TRS-8.15-7.4
12.75-13.25	10.7-11.2	2.05	TRS-13-11.2
13.75-14.5	10.7-11.45	3.05	TRS-14-11
13.75-14.5	11.45-12.2	2.3	TRS-14-11.8
13.75-14.5	12.0-12.75	1.75	TRS-14-12.3
13.75-14.5	10.95-11.7	2.8	TRS-14-11.3
13.75-14.5	11.7-12.45	2.05	TRS-14-12
17.3-18.1	11.7-12.5	5.6	TRS-17.7-12.1

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	TLS-6.25
5.925-6.425	0.95-1.45	7.375	TLS-6.175-INV
7.9-8.4	0.95-1.45	6.95	TLS-8.15
12.75-13.25	0.95-1.45	11.8	TLS-13
14.0-14.5	0.95-1.45	13.05	TLS-14.25
13.75-14.5	0.95-1.7	12.80	TLS-14.125
14.5-14.8	0.95-1.25	13.55	TLS-14.65
17.3-18.1	0.95-1.75	16.35	TLS-17.7

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 continuously adjustable					
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	$\pm 2 \times 10^{-8}$, 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) –	LO Frequency	Offset (Hz)				
Typical Phase Noise		100	1K	10K	100K	1M
	≤ 4.0 GHz	-75	-85	-87	-100	-127
	> 4.0 GHz	-70	-77	-87	-87	-117
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.					
Input/Output Isolation	60 dB minimum					

INDICATOR and ALARMS

Alarm	Red LED (panel)
Internal Reference	Yellow LED (panel)

OPTIONS

- 16-1. 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:
 $\pm 2 \times 10^{-9}$, 0 to 50°C
 Frequency Aging:
 1 x 10⁻⁹ per day after 24 hours operation
 preceded by 10 days operation

OPTIONS

16-2. Gain on Transmit to L-band Units -

Gain	20 ±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)

16-3. Two Translators in Chassis-
Example:

X- and Ku-band translators in one chassis-
Model Number: TRS-8.15/7.5-14/11.8

PRIMARY POWER REQUIREMENTS

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

PHYSICAL

Weight	12 pounds (5.44 kg)
Chassis Dimensions	13" x 18" x 6" inches (330 x 457 x 152 mm)
Connectors -	
RF	SMA female
L-band	SMA female
L-band Monitor	SMA female
External Reference...	BNC female
Primary Power	IEC-320

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

NOTE: FOR DESCRIPTION OF OPERATION REFER TO TECHNICAL NOTE GS16-TCN.

