INMARSAT C- and L-Band Translators

This series of test-loop translators is designed to operate in INMARSAT satellite communication terminals.

Type Band	Input Frequency (MHz)	Output Frequency (MHz)	LO Frequency (MHz)	Model Number
C – L	6410 – 6475	1500 – 1580	4895*	DN-6.4-1.5-INMST
L – C	1610 – 1670	3565 – 3665	1973.5**	UP-1.6-3.6-INMST
C – C	6410 – 6460	3565 – 3665	2825	DN-6.4-3.6-INMST
L – L	1610 – 1670	1500 – 1580	(see note)	DN-1.6-1.5-INMST

* 4880 MHz and 4921 MHz local oscillator frequencies available as an option.
** 1968.5 MHz and 1994.5 MHz local oscillator frequencies available as an option.

Features

- Minimum amplitude and delay distortion
- Low intermodulation distortion
- No spectral inversion
- Low phase noise
- External 5 MHz reference

Options

- 60 dB level control
- Input filtering
- High stability internal frequency reference
- Internal/external frequency reference selection
- Internal/external local oscillator
- Summary alarm
- Multiple local oscillator frequencies
- Remote local oscillator frequency selection

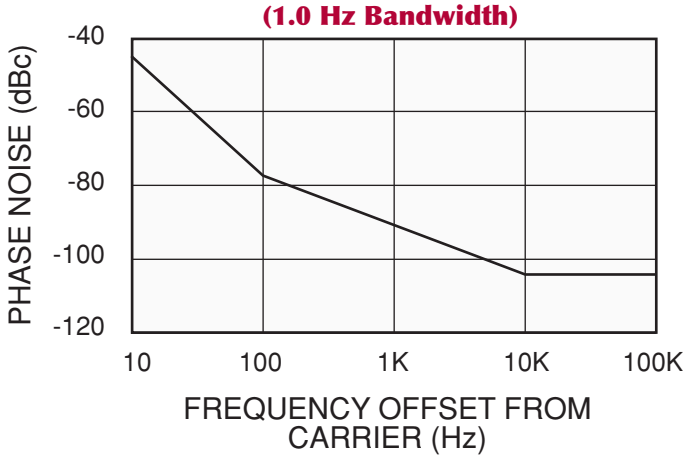
Specifications

Type	Single conversion, dual conversion for DN-1.6-1.5-INMST
Frequency sense	No inversion
Input characteristics	
Frequency	Refer to model number table
Impedance	50 ohms
Return loss	20 dB minimum
Output characteristics	
Frequency	Refer to model number table
Impedance	50 ohms
Return loss	20 dB minimum
Transfer characteristics	
Conversion loss	12 dB nominal (at minimum attenuation), 15 dB with Options 1 or 2
Level stability	±0.25 dB/day maximum at constant temperature
Amplitude response	±0.25 dB/±20 MHz, ±0.20 dB/±18 MHz
Intermodulation distortion (third order)	At -25 dBm output, 50 dBc minimum
Gain slope	0.02 dB/MHz maximum
Spurious outputs	
Signal related	65 dBc minimum
Signal independent	-80 dBm maximum
Gain adjustment	30 dB minimum continuously variable
Input/output isolation	60 dB minimum
External reference input	5 MHz, 0 ±3 dBm (4 ±3 dBm for DN-1.6-1.5-INMST)

Note: Local oscillator frequencies for DN-1.6-1.5-INMST are 5440 MHz and 5338.5 MHz. The resulting input and output translation frequency is 101.5 MHz.

Phase Noise Specifications

Typical
Phase Noise Characteristics
(1.0 Hz Bandwidth)



Options

1. A. 60 dB total attenuation. 30 dB attenuation in front of mixer and 30 dB attenuation behind mixer. A single calibrated dial controls both attenuators.

B. 60 dB total attenuation. 30 dB attenuation in front of mixer and 30 dB attenuation behind mixer. Independent, calibrated dials control both attenuators.

2. Input filter.

3. Addition of SPDT switch for internal/external frequency reference selection. Front panel control and input. Option 3 must be ordered with Option 5.

4. Addition of SPDT switch for internal/external local oscillator selection. Front panel control and input.

5. Addition of internal 5 MHz reference.

A. $\pm 2 \times 10^{-8}$ (0 to 50°C)
$\pm 5 \times 10^{-9}$/day typical (fixed temperature after 24 hours on-time).

B. $\pm 1 \times 10^{-8}$ (0 to 50°C)
5×10^{-9}/day typical (fixed temperature after 24 hours on-time).

C. $\pm 5 \times 10^{-9}$ (0 to 50°C)
1×10^{-9}/day typical (fixed temperature after 24 hours on-time).

D. $\pm 2 \times 10^{-9}$ (0 to 50°C)
1×10^{-9}/day typical (fixed temperature after 24 hours on-time).

6 A. 4880 MHz local oscillator frequency for DN-6.4-1.5-INMST.

B. 4921 MHz local oscillator frequency for DN-6.4-1.5-INMST.

C. 1968.5 MHz local oscillator frequency for UP-1.6-3.6-INMST.

D. 1994.5 MHz local oscillator frequency for UP-1.6-3.6-INMST.

7. Summary alarm output. Contact closure for DC power or local oscillator fault. Rear panel connector.

8. Three local oscillator frequencies. Selection via front panel switch.

A. 4895 MHz, 4880 MHz and 4921 MHz for DN-6.4-1.5-INMST.

B. 1973.5 MHz, 1968.5 MHz and 1994.5 MHz for UP-1.6-3.6-INMST.

9. Remote local oscillator selection via contact closure. Local selection via front panel switch.

A. 4895 MHz, 4880 MHz and 4921 MHz for DN-6.4-1.5-INMST.

B. 1973.5 MHz, 1968.5 MHz and 1994.5 MHz for UP-1.6-3.6-INMST.

10. Rear panel input/output and reference connectors.

NOTE: Missing option numbers are not applicable to this product.

General Specifications

Primary Power Requirements

Voltage	100/120/220/240 VAC +10%, -13% (rear panel selectable) 250 VAC maximum
Frequency	47–63 Hz
Power consumption	75 W typical

Summary Alarm (Option 7 only)

Contact closure/open for DC voltage alarm
Contact closure/open for DC voltage and/or LO alarm

Physical

Weight	20 pounds (9.07 kg) nominal
Overall dimensions	19" [482.6mm] x 3.5" [88.9mm] panel height x 17" [431.8mm] maximum (chassis depth 15" [381mm])
Connectors	
RF	N female (front panel)
Reference input	BNC female (front panel)
External local oscillator input (Option 4 only)	SMA female (front panel)
Remote interface	DB-37S (rear panel)
Summary alarm	DEM-9P (rear panel)
Test points	LO frequency/power monitor (SMA female), LO phase-lock voltage (jack), DC voltage (jack)

Environmental

Operating	
Ambient temperature	0 to 50°C
Relative humidity	Up to 95% at 30°C
Atmospheric pressure	Up to 10,000 feet
Nonoperating	
Ambient temperature	-50 to +70°C
Relative humidity	Up to 95% at 40°C
Atmospheric pressure	Up to 40,000 feet
Shock and vibration	Normal handling by commercial carriers

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