MULTIBAND 1/3 RACK-MOUNTED BLOCK CONVERTER

DOWNCONVERTER

Input Frequency (GHz)	Output Frequency (GHz)	LO Frequency (GHz)	Model Number
10.7 -11.7 11.7 -12.75	0.95 -1.95 0.95 -2	9.75 10.75	DNB2-11.725TR

FEATURES

- Automatic 5/10MHz internal/external reference selection with a 0.1 Hz nominal bandwidth clean-up loop
- RS485/RS422 and 10/100Base-T Ethernet remote control
- Gain control
- RF and L-band signal monitor ports
- Low phase noise
- Low intermodulation distortion
- High frequency stability
- Summary alarm
- Mute function on alarm or external mute input command
- LO frequency and power monitor

This equipment is designed for applications where multiple frequency translations are needed between L-band and the transponder frequency.

OPTIONS

- High performance package
- Higher frequency stability
- Lower phase noise
- LO level monitor
- Lower gain

Patent Pending

SPECIFICATIONS

INPUT CHARACTERISTICS

Return loss (50 ohms)	20 dB minimum
LO leakage	-80 dB maximum
Signal monitor	-20 dBc nominal

OUTPUT CHARACTERISTICS

Return loss	18 dB minimum
Signal monitor	-20 dBc nominal
Power output (1 dB compression)	+18 dBm minimum

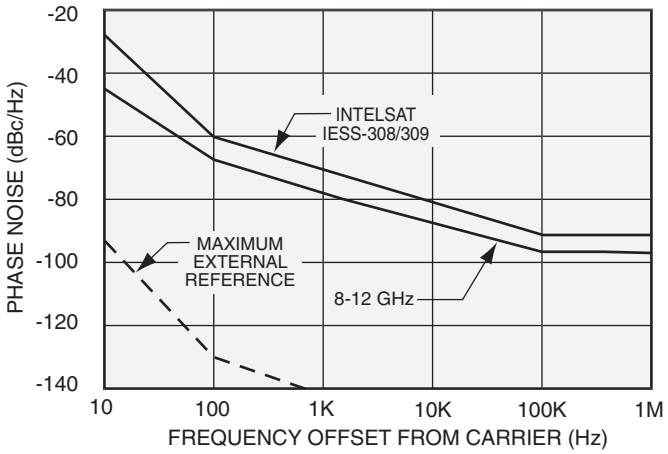
TRANSFER CHARACTERISTICS

Gain	35 dB, ±3 dB at 23°C
Gain control	30 dB in 0.2 dB steps
Gain stability	±0.25 dB/day maximum at constant temperature
Amplitude response	±0.25 dB/40 MHz maximum, ±1 dB maximum over RF frequency band
Image rejection	80 dB minimum
Noise figure (at minimum attenuation)	15 dB maximum
Intermodulation distortion (third order)	With two inband signals at 0 dBm output, third order intermodulation products are less than 60 dBc minimum
Spurious outputs (inband)	
Signal related	65 dBc minimum up to 0 dBm output
Signal independent	-75 dBm maximum
Phase noise	See graph
Frequency stability	±5 x 10^{-8}, 0 to 50°C (higher stability options available), 5 x 10^{-9}/day typical (fixed temperature 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. 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
RF mute	60 dB minimum on summary alarm or mute command
Remote interface	10/100Base-T Ethernet interface providing Web-browser based configuration, SNMP 1.0 configuration, alarm reporting via SNMP trap, telnet access, password protection and selectable RS485/RS422. Refer to MITEQ's Technical Note 25T060 for details.

ALARMS

Summary alarm	Contact closure status for DC voltage and local oscillator

TYPICAL PHASE NOISE CHARACTERISTICS (1.0 Hz BANDWIDTH)



OPTIONS

1. High performance package.

Power output (1 dB compression) ..... +20 dBm minimum
Gain slope..... 0.03 dB/MHz maximum
Gain stability ..... ±0.25 dB/day maximum at constant temperature,
±1.0 dB peak-to-peak maximum/-40 to +60°C
Group delay ..... 1 ns peak-to-peak maximum
Spurious outputs (inband)
Signal related..... 65 dBc minimum up to 0 dBm output
Signal independent..... -80 dBm maximum
Image rejection ..... 80 dB minimum
Intermodulation distortion (third order) ..... With two inband signals at 0 dBm output, third order intermodulation products are less than 60 dBc minimum

High performance phase noise (dBc/Hz)(maximum)

	OFFSET (Hz)					
LO Frequency	**10**	**100**	**1K**	**10K**	**100K**	**1M**
8 LO < 12 GHz	-48	-73	-103	-112	-115	-132

Noise spectral density ..... -90 dBm/4 kHz maximum, -85 dBm/4 kHz maximum
AM/PM conversion (at 0 dBm output) ..... 0.1°/dB maximum
RF mute..... 80 dB minimum on summary alarm, external mute input command or remote control.

2. Lower gain.

Gain..... 20 ±3 dB at 23°C

8. LO level alarm.

Summary alarm is generated for loss of power in any of the required local oscillators.

10. Higher frequency stability reference.

A. ±1 x 10^{-8}, 0 to 50°C,
1 x 10^{-9}/day typical (fixed temperature after 24 hour on time)

B. ±5 x 10^{-9}, 0 to 50°C,
1 x 10^{-9}/day typical (fixed temperature after 24 hour on time)

Notes: Converter may require 7-10 days to reach stability after long storage periods.
For literature describing local control (front panel) and remote control (bus control), refer to MITEQ's Technical Note 25T066. Missing option numbers are not applicable for this product.

MULTIBAND 1/3 RACK-MOUNTED BLOCK CONVERTERS

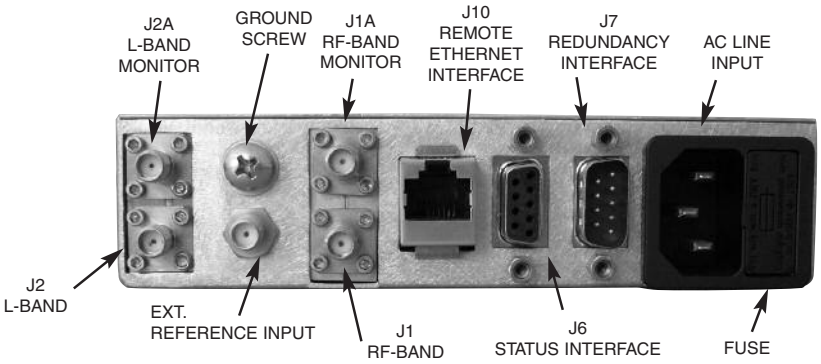
PRIMARY POWER REQUIREMENTS

Voltage ..... 90–250 VAC
Frequency ..... 47–63 Hz
Consumption ..... 12 W typical

PHYSICAL

Weight ..... 4.5 pounds (2.04 kg) nominal
Dimensions (excluding connectors) ... 5.70" [144.8mm] x 1.48" [37.6mm] x 18" [457.2mm]
Rear panel connectors
- RF band ..... SMA female compatible
- L-band ..... SMA female
- RF band monitor ..... SMA female
- L-band monitor ..... SMA female
- External reference input ..... SMA female
- Status monitor DE-9S
- Redundancy interface DE-9P
- Remote interface ..... RJ-45 female for Ethernet, RS422/485 available on status connector
- Primary power input IEC-320

Front panel connectors
- LO monitor ..... SMA female



TYPICAL REAR PANEL VIEW

ENVIRONMENTAL

Operating
- Temperature ..... -40 to +60°C
- Atmospheric pressure ..... Up to 10,000 feet

Nonoperating
- Temperature ..... -50 to +70°C
- Atmospheric pressure ..... Up to 40,000 feet
- Shock and vibration ..... Normal handling by commercial carriers

ACCESSORIES

Rack Mount Frame
- Model number OL-TR3-20
- Weight ..... 1.5 lbs. [0.68 kg] nominal
- Dimensions ..... 19" [482.6mm] x 1.75" [44.5mm] x 20" [508.0mm]

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