RACK MOUNTED
RF- to C-BAND BLOCK CONVERTERS

This equipment is designed for applications where frequency translation is needed between transponder frequencies and C-band.

STANDARD FEATURES

- Amplitude slope adjust
- RS422, RS485 and 10/100Base-T Ethernet
- Serial output for Redundancy Switchover units
- RF monitor ports
- Automatic 5/10 MHz internal/external reference selection
- Electronic adjust of internal reference frequency
- 30 dB gain control, split between input and IF
- Low phase noise
- Low intermodulation distortion
- Elapsed time and event log after power turn on

OPTIONS

- Reference clean-up loop and improved stability
- Rack slides

DOWNCONVERTERS

Band	Input Frequency Band (GHz)	Output Frequency Band (GHz)	Translation (GHz)	Model Number
1	0.25 - 0.5	3.55 - 3.8	3.3	DBR-0.375-3.8
1	0.9 - 1.7	3.4 - 4.2	2.5	DBR2-1.7-3.8
2	1.7 - 2.5	3.4 - 4.2	1.7	
1	7.25 - 8.05	3.4 - 4.2	3.85	DBR2-7.8-3.8
2	7.6 - 8.4	3.4 - 4.2	4.2	
3	12.2 - 13.0	3.4 - 4.2	8.8	
1	10.7 - 11.5	3.4 - 4.2	7.3	DBR3-11.8-3.8
2	11.4 - 12.2	3.4 - 4.2	8	
3	12.2 - 13.0	3.4 - 4.2	8.8	
1	10.9 - 11.7	3.4 - 4.2	7.5	DBR3-11.82-3.8
2	11.7 - 12.5	3.4 - 4.2	8.3	
3	12.25 - 12.75	3.7 - 4.2	8.85	
1	17.7 - 18.5	3.4 - 4.2	14.3	DBR5-19.5-3.8
2	18.4 - 19.2	3.4 - 4.2	15	
3	19.1 - 19.9	3.4 - 4.2	15.7	
4	19.8 - 20.6	3.4 - 4.2	16.4	
5	20.5 - 21.3	3.4 - 4.2	17.1	

SPECIFICATIONS

INPUT CHARACTERISTICS

Frequency	See model number table
Impedance	50 ohms
Return loss	20 dB minimum
Input Signal monitor	-20 dBc nominal
Input level (non-damage)	+10 dBm maximum
LO Leakage	-80 dBm maximum

OUTPUT CHARACTERISTICS

Frequency	See model number table
Impedance	50 ohms
Return loss	20 dB minimum
Output Signal monitor	-20 dBc nominal
Power output (P1dB)	+15 dBm typical at minimum attenuation, +10 dBm, up to 20 dB attenuation.

TRANSFER CHARACTERISTICS

Gain	35 dB minimum, 41 dB maximum							
Noise figure	15 dB maximum at maximum gain							
Level Control	30 dB in 0.2 dB steps							
Image rejection	80 dB							
Level stability	±0.25 dB/day at constant temperature							
Amplitude response	±0.25 dB/40 MHz, ±0.5 dB/72 MHz, ±2 dB over 800 MHz							
Group delay	1 ns peak to peak maximum							
Intermodulation distortion (third order)	With two 0 dBm output signals, 40 dBc minimum up to 20 dB attenuation							
AM/PM conversion	0.1°/dB maximum up to 0 dBm output							
Spurious outputs-								
Signal related	-60 dBc in-band minimum							
Signal indepedent	-70 dBm in-band maximum							
Frequency stability	±2 x 10^{-8}, 0 to 50°C							
Frequency aging	5 x 10^{-9} 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.							
Phase noise Offset (Hz)	10	100	1K	10K	100K	300K	1M	10M
dBc/Hz	-55	-70	-90	-90	-92	-95	-110	-135
Band-to-band isolation	60 dB minimum, center of band.							

SPECIFICATIONS CONTINUED

INDICATOR and ALARMS

Alarm	Red LED (front panel)
Remote Mode	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

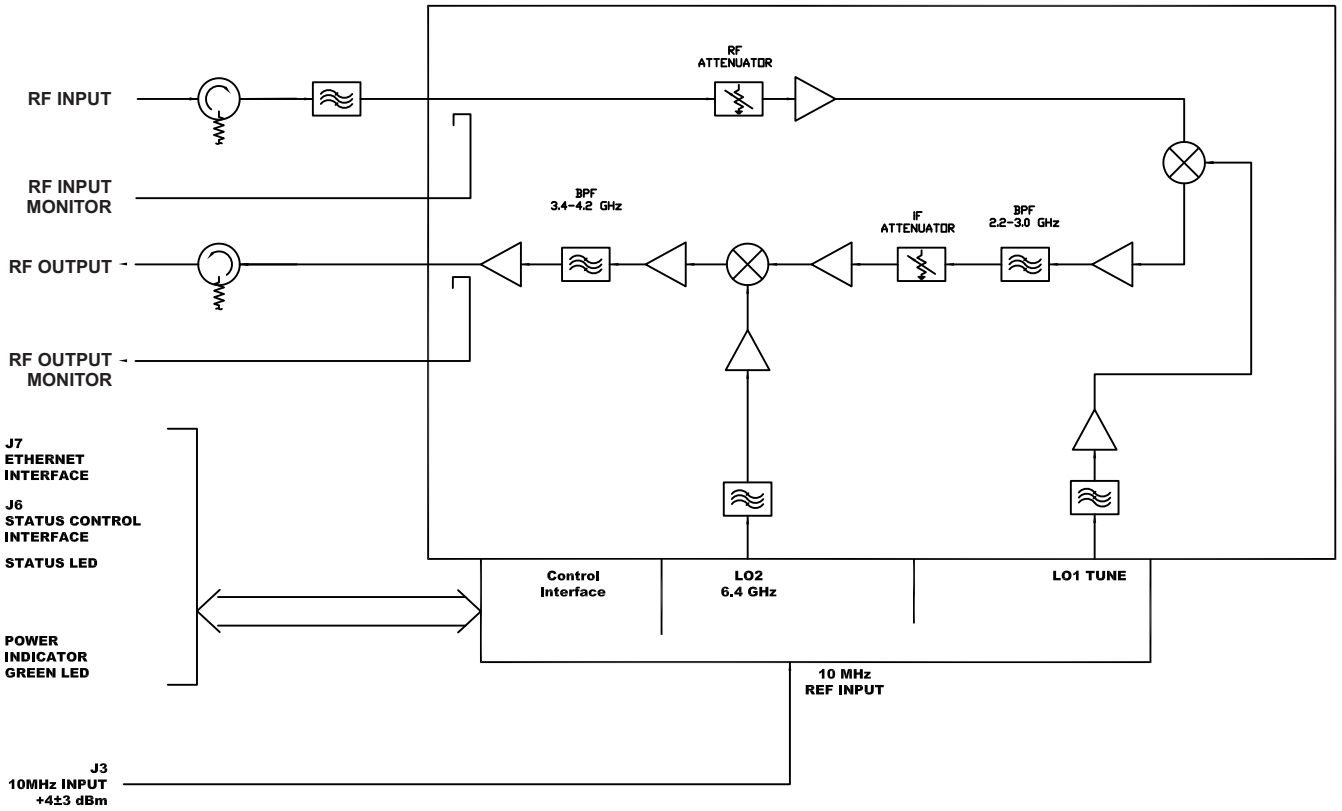
70-4. Reference Clean-up Loop and Improved Frequency Stability ..... Reference oscillator acts as an phase lock with a 0.1 Hz nominal loop bandwidth. Typical loop suppression of the external reference is as follows:

28 dB at 1 Hz offset; 65 dB at 10 Hz offset and 100 dB at 100 Hz offset

Frequency Stability: ±2 x10^{-9}, 0 to 50°C

Frequency Aging: 1 x 10^{-9} per day after 24 hours operation proceeded by 10 days operation

70-RS. Rack slides



PRIMARY POWER REQUIREMENTS

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

PHYSICAL

Weight..... 9 pounds (4.08 kg) nominal without rack slides
13 pounds (5.9 kg) nominal with rack slides
Chassis Dimensions..... 19” x 1.75” panel height x 20” maximum
Connectors-
RF ..... N female (SMA compatible above 17 GHz)
RF Monitor ..... SMA female
External Reference ..... BNC female
Summary Alarm..... DE-9P
Remote Interface ..... DE-9S for RS485, RS422
RJ-45 female for Ethernet
Primary Power IEC-320
Redundancy Interface DE-9P

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

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