DT-4513

Ku-Band Down Converter Wide Band

APPLICATION

The DT-4513 Down Converter is the ultimate in high performance and cost effective Ku-Band frequency conversion. The DT-4513 can be used for SCPC, DAMA, and TDMA, as well as full transponder HDTV and analog TV. Spectral purity and stability characteristics fully meet or exceed the requirements of all domestic, international, and regional commercial satellite networks.

HIGH GAIN

The DT-4513 has +20 dBm minimum output level at the 1 dB compression point and 45 dB of gain as a standard. This capability permits longer cable runs to the modem rack or compensates for elaborate splitting networks without adding expensive options such as external line amplifiers.

LOW PHASE NOISE

The phase noise performance of the DT-4513 exceeds the Intelsat phase noise mask for IBS and IDR services by more than 6 dB. This allows phase dependent demodulators to perform better. The close-in phase noise is very low, making the converter ideal for low bit rate digital circuits such as those used in DAMA hub earth stations.

REMOTE CONTROL

The remote control interface is selectable between EIA-232 and EIA-485. All configuration control, status retrieval, and adjustments are available as simple ASCII commands through the serial interface or through the front panel menu. The remote control command structure can be customized in order to accommodate existing network control software.

DETACHABLE RF/IF CONNECTOR MODULE

Each DT-4513 is equipped with a detachable module that establishes input and output connections for the RF and IF paths. The module inserts into a rear compartment of the converter, and requires no additional outside space. The module includes Type SMA connectors for the RF path and BNC connectors at 50 or 75Ω for the IF path.

DAISY CHAIN REDUNDANCY SWITCHING

The converter uses CEFD's proprietary "Daisy Chain" integrated switching technology. The Daisy Chain design removes the relays associated with a centralized protection switch tray and distributes them across the individual converters. CEFD was awarded patent 5,666,646 on this distributed protection switch topology.

Daisy Chain technology successfully eliminates a central switching chassis, two power supplies, a microprocessor, and several long, costly cables. Widely accepted in the industry, CEFD's Daisy Chain provides both pricing and marketing advantages.

MINIMUM RACK SPACE

Due to its small rack height (1.75 inches) and the elimination of the space penalty paid for a separate 1+N switch chassis, the DT-4513 and the Daisy Chain switch architecture provide the most compact and cost effective converter subsystem available. The units are ideal for the construction of transportable systems such as "flyaways," and high capacity earth stations where space utilization and economy are prime considerations.

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DT-4513

Ku-Band Down Converter Wide Band

Frequency Range

DT-4513	10.95 to 12.75 GHz
DT-4513/E	10.70 TO 12.75 GHz
Conversion	Dual, No Inversion
Step Size	125 kHz standard, 1 kHz optional
Preset Channels	32 Frequencies
Stability (Time)	± 1x10 ^{5}/Day
Stability (over Temp)	± 1x10 ^{6}/Day

RF Input

Input Level	-45 dBm Typical
Return Loss	20 dB Minimum with IO Module
Impedance	50 Ohms
Noise Figure	11 dB Max. @ 0 dB Attn.

IF Output

Output Level	+20 dBm @ 1 dB Comp.
Range	52 to 88 or 104 to 176 MHz
Spurious	
Non-Carrier	-80 dBm
Carrier	-65 dBc @ +0 dBm Output
Intermodulation	-60 dBc at 0 dBm Output SCL
Impedance	50 or 75 Ohms
Return Loss	23 dB Minimum

Transfer

Gain	45 dB @ ±2 dB
Gain Adjust	0 to 20 in 0.25 dB Steps 0.1 dB Steps Optional
Gain Stability	±0.25 dB/Day
Ripple	± 0.25 dB (± 18 MHz), 0.75 dB (± 36 MHz)
Slope	0.05 dB/MHz
Image Rejection	-80 dB Inband
AM to PM	0.1°/dB for Output up to –5 dBm

External Ref.

	5 or 10 MHz @ +3 dBm
	Optional Rear Panel Reference Output

Group Delay

Linear	0.03 ns/MHz
Parabolic	0.01 ns/MHz^2
Ripple	1.0 ns Peak-to-Peak

Phase Noise

	Limit (dBc/Hz)	Typical (dBc/Hz)
100 Hz	-66	-69
1 kHz	-76	-79
10 kHz	-86	-89
100 kHz	-96	-99
1 MHz	-106	-109

Remote Control (Rear Panel)

Comm Port RS-485 or RS-232C

Indicators (Front Panel)

Power On	Green LED
Receive	Yellow LED
Remote	Yellow LED
On Line	Yellow LED
Stored Fault	Red LED
Fault	Red LED

Test Points (Front Panel)

RF Sample	SMA, -20 dBc Nom.
IF Sample	BNC, -20 dBc Nom.
Optional L.O. Sample	

Power

Voltage	90 to 250 VAC Auto-ranging
Frequency	47 to 63 Hz
Dissipation	60 Watts
Power Option	-48 VDC

Environmental

Temperature	0 to 50° C. (32 to 122° F)
Altitude	10,000 Feet MSL
Humidity	0 to 95% Relative

Physical

Width	19.0 In	48.26 cm
Height	1.75 In	4.44 cm
Depth	22.0 In	55.88 cm
Weight	15.0 lbs	7.00 kg

MTBF

	49,740 hrs. (calculated)
	>100,000 hrs. (field experience)

Summary Alarm

Relay Closure	Form C

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