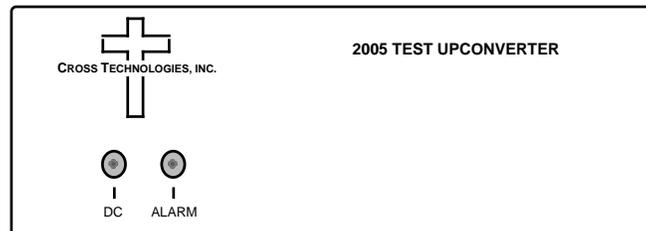


Instruction Man

Model 2005-23 Downconverter

October 2013, Rev. B



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INSTRUCTION MANUAL

MODEL 2005-23 Upconverter

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MODEL 2005-23 Upconverter

1.0 General

1.1 Equipment Description - The 2005 Upconverter, for loop-back applications, converts a 65 to 75 MHz IF signal to 2.33 to 2.34 GHz in 1 KHz resolution with a low side LO (Ku). Featuring low phase noise, these units are used to loop 70 MHz modulators to S-band receivers in uplinks. The 65 to 75 MHz carrier input is mixed with a synthesized local oscillator (LO) signal. The LO is factory set to 2,200,000 to 2,400,000 KHz in 1 KHz resolution. Front panel LEDs light when DC power is applied (green) and when a PLL alarm occurs (red). The mixer output is applied to the output amplifier providing a nominal gain of -10 dB. Power is provided by the LNB voltage from the receiver under test and connectors are BNC female for both the IF input and the RF output. Wall power supply option -P is for 120 VAC, 60Hz. The 2005 can be mounted on a 1 3/4" X 19" 1RU rack mount panel (option -R).

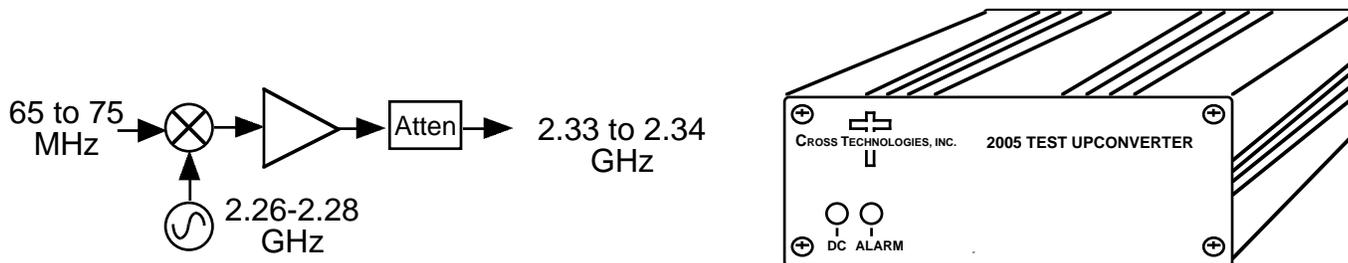


FIGURE 1.1 2005-23 Upconverter Block Diagram and Chassis

1.2 Technical Characteristics

TABLE 1.0 2005-23 Upconverter Specifications*

Input Characteristics

Input Impedance/RL	75Ω /12 db
Frequency	65 to 75 MHz center
Input Level	-10 to -30 dBm
Input 1 dB/3rd order	0/+10 dBm

Output Characteristics

Impedance/RL	75Ω/8 db
Frequency Band	2.33 to 2.34 GHz

Channel Characteristics

Gain	-10 dB ±3 dB
Spurious Response	NA; output not filtered

Synthesizer Characteristics

Frequency Accuracy	± 100 kHz max
Frequency Step	1.0 MHz minimum

Phase Noise @ Freq	10kHz	100kHz	1MHz
dBc/Hz	-80	-90	-100

Indicators

DC Power	Green LED
PLL Alarm	Red LED

Other

RF, IF Connectors	BNC (female)
Size, Bench Top	4.7" wide X 1.75" high X 6.5" deep
Size, Rack Mount (-R)	19 inch standard chassis 1.75"high X 7.0" deep (optional)
Power	+14 to +24 VDC, 180 ma on RF In
AC Power (-P)	120 ±10% VAC, 60 Hz, 10W max wall mount power supply (optional)

*+10 to +40 degrees C; Specifications subject to change without notice

2.0 Installation

2.1 Mechanical - The 2005 is packaged in an aluminum extrusion. The **-R option** is mounted on a 1 3/4" X 19" panel that can be mounted to a rack using the 4 holes at the ends. The unit derives +DC from the RF out center conductor (+14 to +24 VDC) or the wall power supply (**option -P, option -C**) (+15V unregulated). See Figure 2.1.

2.1.1 Cleaning Instructions - Wipe the exterior with a dry, soft cloth. Use no detergent or cleaning chemicals.

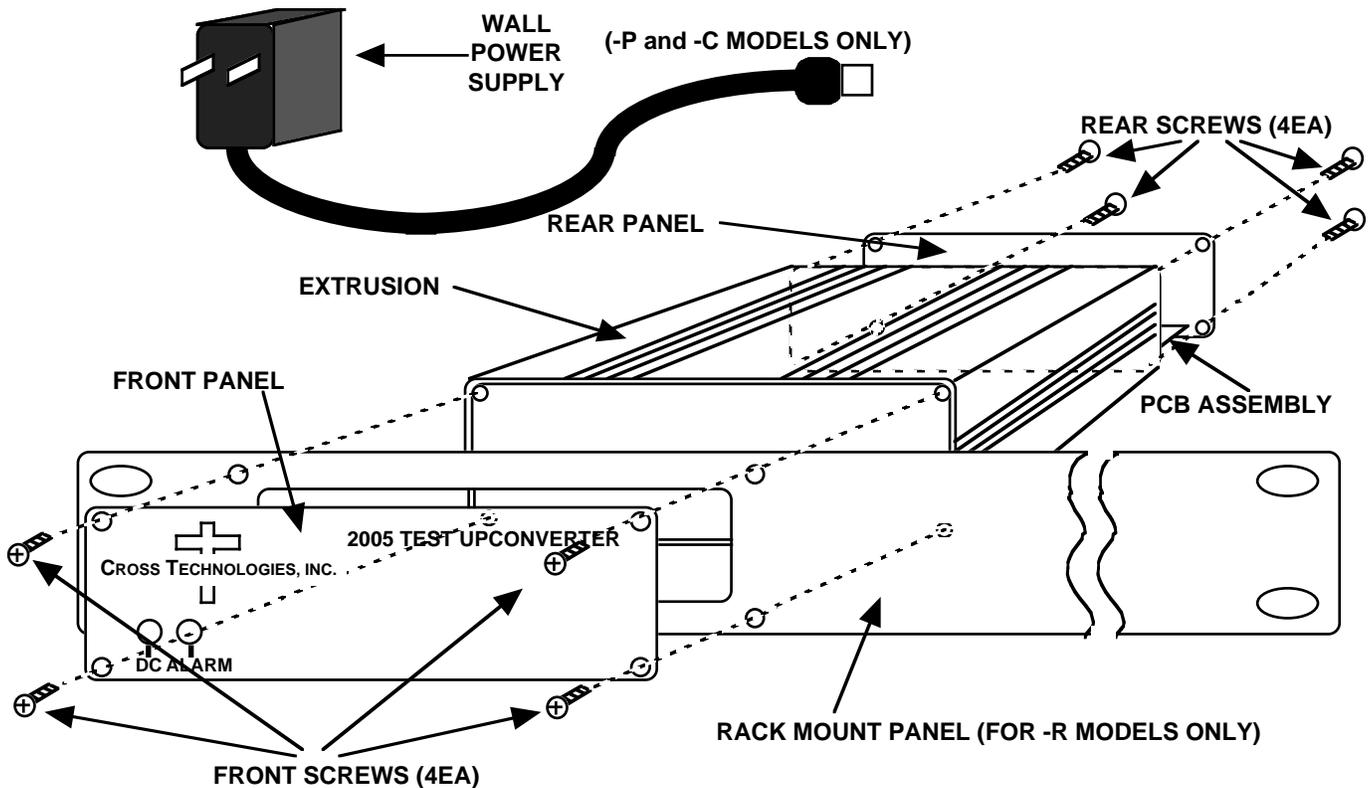


FIGURE 2.1 2005 Assembly Drawing

2.2 Front Panel Indicators - Figure 2.2 shows front panel indicators for the 2005-23.

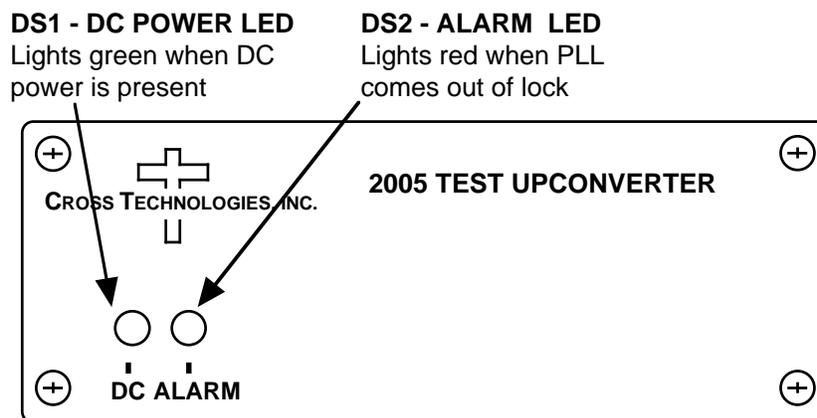


FIGURE 2.2 2005-23 Front Panel Controls and Indicators

2.3 Rear Panel Input / Output Signals - Figure 2.3 shows the input and output signals to the 2005-23.

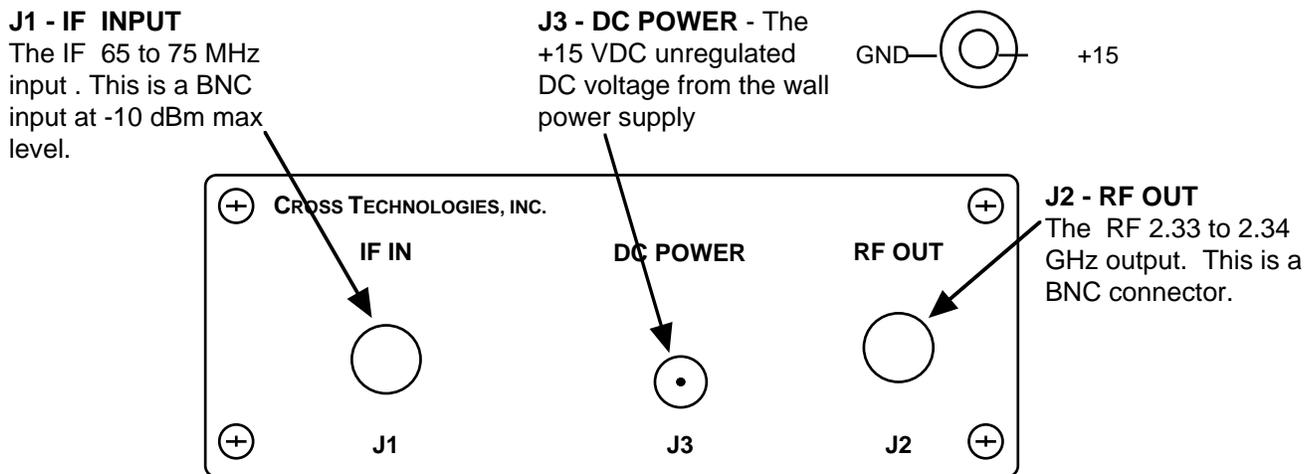


FIGURE 2.3 2005-23 Rear Panel Inputs and Outputs

2.4 Accessing the PC Card - There are NO USER JUMPERS or other on-card controls. ALTHOUGH IT IS NOT RECOMMENDED AND MAY VOID THE WARRANTY the following shows how to remove the printed circuit board (PCB) from the extrusion:

- 1.) **Always remove power** when installing or removing the PCB from the extrusion
- 2.) Remove four (4) **rear panel screws** (see Figure 2.1).
- 3.) **Gently** pull the rear panel and PCB assembly completely out of the extrusion.
- 4.) To install the PCB **gently** push the rear panel and PCB assembly completely into the extrusion Make sure the shield goes in the lower channel and the PCB in the next channel above that in the extrusion and that the front panel controls go through the front panel holes.
- 5.) Install four (4) **rear panel screws**.

2.5 Installation / Operation

2.5.1 Installing and Operating the 2005-23

- 1.) If using the receiver LNB voltage to power the 2005-23, be sure +14 to +24 VDC is on the RF center conductor.
- 2.) If using the wall power supply, connect it to the 2005-23 and the wall power supply to 115 VAC, 60 Hz (Figure 2.1)
- 3.) Connect a -10dBm (max.) signal to IF In, J1 (Figure 2.1, Figure 2.3).
- 4.) Connect the RF OUT, J2, to the receiver under test (Figure 2.3).
- 5.) Be sure DS1 (green, DC Power) is on and DS2 (red, Alarm) is off (Figure 2.2).

2.5.2 LO and IF for the 2005-23

The 2005-23 operates over a 2.33 to 2.34 GHz range with low side LO (Ku) and 65-75 MHz input. The frequency of operation for each unit is factory set and Table 2.1 shows some available IF and RF frequencies for the 2005-23. The PLL will alarm if you try to operate the 2005-23 outside the unit's specified frequencies.

TABLE 2.1 2005-23 Upconverter IF and RF Frequencies			
LO-Side	IF IN (MHz)	LO (GHz)	RF OUT (GHz)
LOW	68.993	2.264472	2.333465
LOW	66.561	2.268744	2.335305
LOW	73.397	2.270648	2.344045
LOW	70.965	2.271240	2.342205

3.0 Environmental Use Information

- A. **Rack-Mounting** - To mount this equipment in a rack, please refer to the installation instructions located in the user manual furnished by the manufacturer of your equipment rack.
- B. **Mechanical loading** - Mounting of equipment in a rack should be such that a hazardous condition does not exist due to uneven weight distribution.
- C. **Elevated operating ambient temperature** - If installed in a closed or multiunit rack assembly, the operating ambient temperature of the rack may be greater than room ambient temperature. Therefore, consideration should be given to Tmra.
- D. **Reduced air flow** - Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised. Additional space between unit may be required.
- E. **Circuit Overloading** - Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of circuits could have on over current protection and supply wiring. Appropriate consideration of equipment name plate rating should be used, when addressing this concern.
- F. **Reliable Earthing** - Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connection to the Branch (use of power strips).
- G. **Top Cover** - There are no serviceable parts inside the product so, the Top Cover should not be removed. If the Top Cover is removed the ground strap and associated screw **MUST BE REINSTALLED** prior to Top Cover screw replacement. **FAILURE TO DO** this may cause **INGRESS** and/or **EGRESS** emission problems.



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