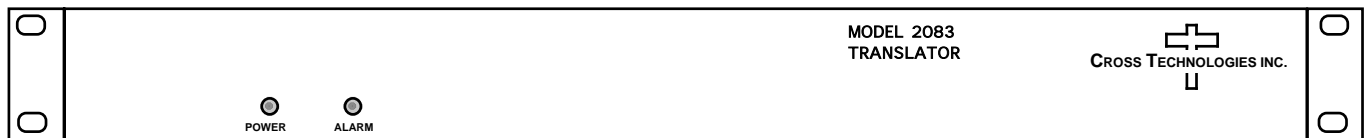


Instruction Manual

Model 2083-2215 Dual Translator

September 2009 Rev B



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INSTRUCTION MANUAL

MODEL 2083-2215 Frequency Translator

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2083-2215 Dual Translator

1.0 General

1.1 Equipment Description

2083-2215 Dual Translator - Consists of two converters (inverted spectrums) each of which convert a **1.725 - 2.175 GHz** signal to a **0.95-1.4 GHz (LO =3.125 GHz)**. The two 1.725 - 2.175 GHz inputs are bandpass filtered and then mixed with a 3.125 GHz synthesized local oscillator (LO) signal to 0.95-1.4 GHz. The mixer output is applied to the output filters and amplifier. The converters have a nominal gain of 0 dB. All connectors are 75 ohm BNC female. Front panel LEDs light when DC power is applied (green) and when a PLL alarm occurs (red). The 2083-2215 is powered by a 100-240 ± 10% VAC power supply and housed in a 1.75" X 19" X 16" 1RU chassis.

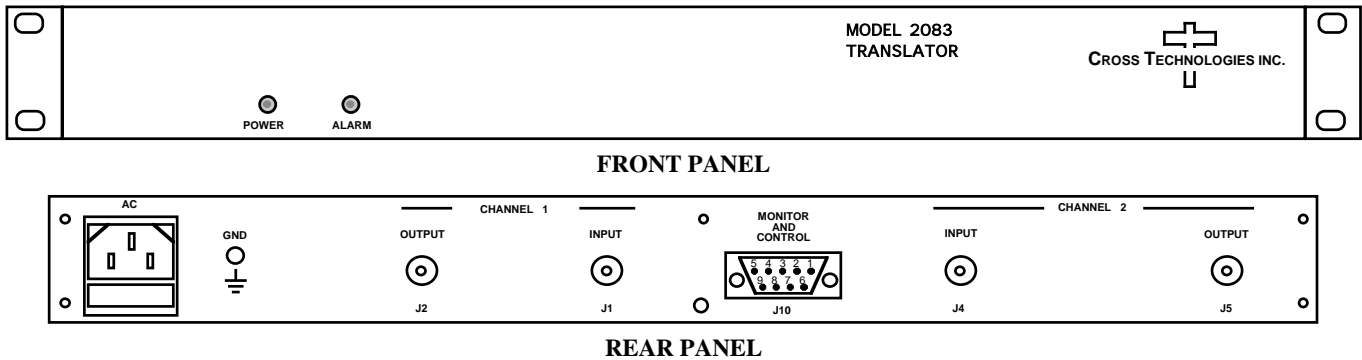


FIGURE 1.1 Front and Rear Panels

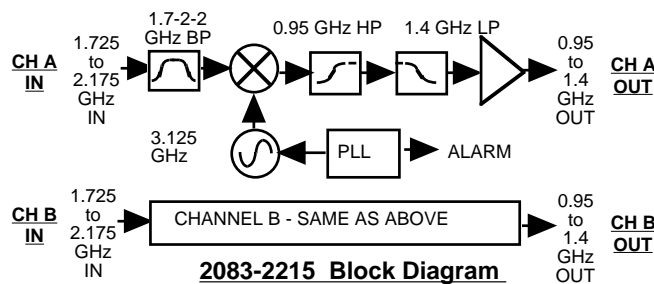


FIGURE 1.2 Block Diagram

1.2 Technical Characteristics

TABLE 1.0 2083-2215 Dual Frequency Translator Specifications*

EQUIPMENT SPECIFICATIONS*

Input Characteristics

Input Impedance/RL	75 Ω /12 dB
Frequency,	1.725-2.175 GHz
Input Level	-10 to -30 dBm
Input 1 dB compression	0 dBm

Output Characteristics

Impedance/RL	75 Ω/12 dB
Output 1 dB compression	0 dBm
Output Level, Range	-10 to -30 dBm
Frequency	0.95-1.4 GHz

Channel Characteristics

Gain at band center	0 dB ±2 dB, fixed
Frequency Response	±1.5 dB, 0.95-1.4 GHz out; ± 0.7 dB, any 36 MHz increment
Frequency Sense	Inverting (1.725 GHz Translates to 1.4 GHz, 2.175 GHz Translates to 0.95 GHz)
Intermodulation	<-50 dBC for two carriers each at -13 dBm out
Spurious Response	<-40 dBC, for 1.725-2.175 GHz input to 0.95 to 1.4 GHz out 0.95-1.4 GHz Feedthru <-30 dBC, min, <-40 dBC, goal 1.725-2.2 GHz Feedthru <-10 dBC, min, <-20 dBC, goal LO rejection <-40 dBm, LO at the output

Synthesizer Characteristics

LO Frequency	3.125 GHz
Frequency Accuracy	± 1.0 ppm max

Phase Noise @ Freq	100 Hz	1kHz	10kHz	100kHz	1MHz
dBc/Hz	-70	-80	-80	-95	-110

Indicators

DC Power; PLL Alarm	Green LED; Red LED
---------------------	--------------------

Other

Connectors	RF in and RF Out, BNC, female, 75 ohm
Connector, Alarm	DB9 - NO or NC contact closure on Alarm
Size	19 inch, 1RU standard chassis 1.75”H X 16.0”D
Power	100-240 ± 10% VAC, 47-63 Hz, 15 watts max

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

1.3 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 multi-unit rack assembly, the operating ambient temperature of the rack may be greater than room ambient temperature. Therefore, consideration should be given to T_{mra} .
- 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.

2.0 Installation

2.1 Mechanical

The 2083-2215 consists of one RF/Controller PCB housed in a 1 RU (1 3/4 inch high) by 16 inch deep chassis. A switching, ± 12 , +24, +5 VDC power supply provides power for the assemblies. The 2083-2215 can be secured to a rack using the 4 holes on the front panel. Figure 2.0 shows how the 2083-2215 is assembled.

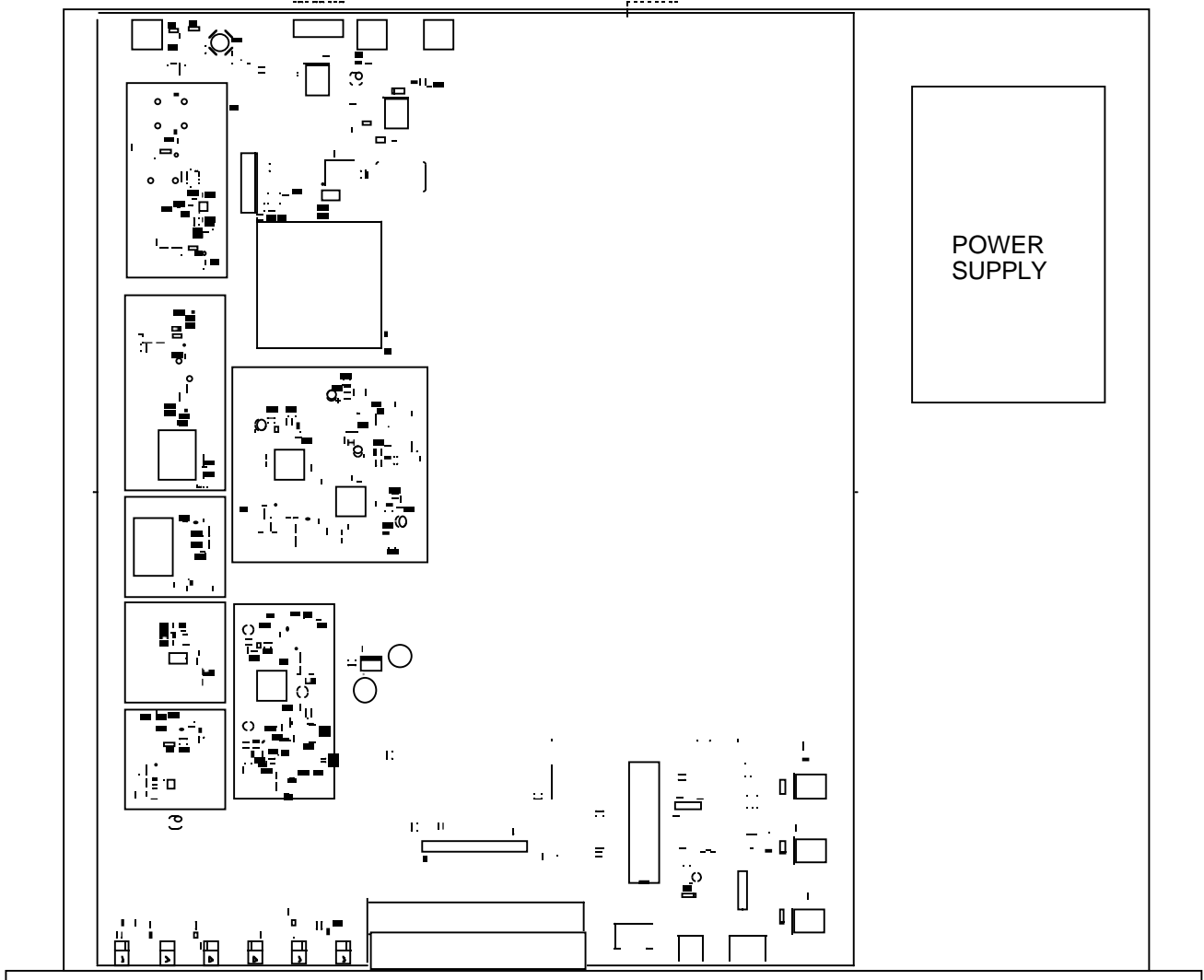


FIGURE 2.0 2083-2215 Mechanical Assembly

2.2 Rear Panel Input/Output Signals

Figure 2.1 shows the input and output connectors on the rear panel.

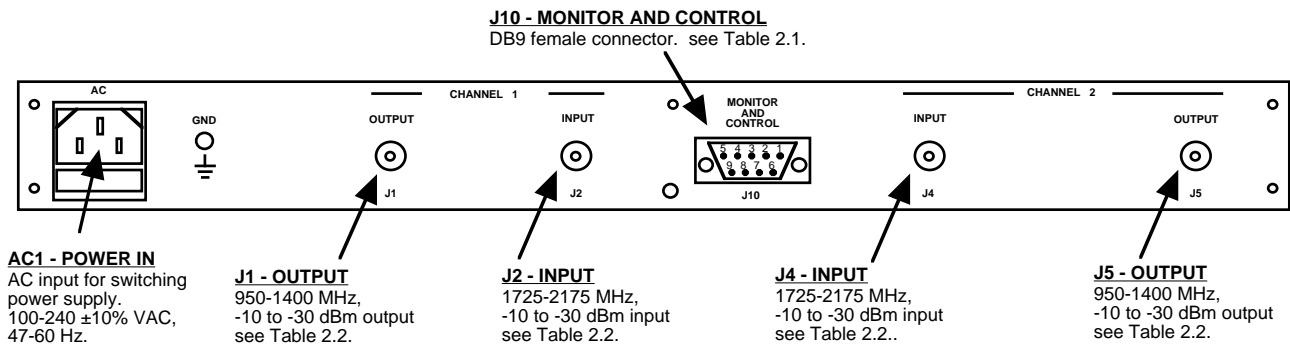


FIGURE 2.1 2083-2215 Rear Panel I/O's

Pin	Function
1	Rx-
2	Rx+ (RS-232C)
3	Tx+ (RS-232C)
4	Tx-
5	GND
6	Alarm Relay: Common
7	Alarm Relay: Normally Open
8	Not Used
9	Alarm Relay: Normally Closed

Option	Input	Output
STD	BNC, 75Ω	BNC, 75Ω
D	BNC, 50Ω	BNC, 50Ω
F	Type F, 75 Ω	Type F, 75 Ω

*Remote Serial Interface

Interface: DB-9 Male
Protocol: RS-232C (RS-232C/422/485,
option Q), 9600 baud rate, no parity, 8 data
bits, 1 start bit, 1 stop bit.

2.3 Front Panel Indicators

Figure 2.2 shows the front panel indicators.

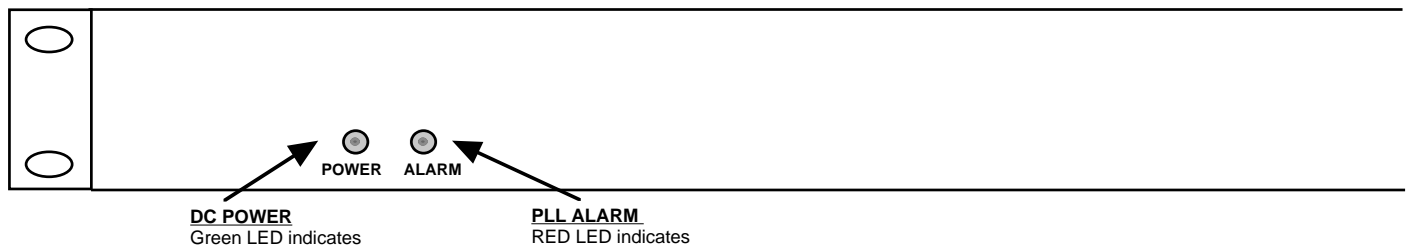


FIGURE 2.2 2083-2215 Front Panel Indicators

2.4 Installation / Operation

2.4.1 Installing and Operating the 2083-2215, Frequency Translator Section

1. Connect a -30 dBm to -10 dBm signal to IN, J4 (Figure 2.1)
2. Connect the OUT, J5, to the external equipment
3. Connect 100-240 \pm 10% VAC, 47 - 63 Hz to AC on the back panel.
4. Set the desired output frequency band (See Section 2.5 Menu Settings).
5. Set the composite input level (See Section 2.5 Menu Settings).
6. Set the gain for 0 to +20 dB. Make sure the output stays within -30 to -10 dBm with the gain selected and the input level provided. The firmware will prevent setting gain and input level outside this range. (See Section 2.5 Menu Settings).
7. Be sure DS6 (green, DC Power) is on and DS2 (red, Alarm) is off (Figure 2.2).
8. AC Fuse - The fuse is a 5 mm X 20 mm, 2 amp slow blow (Type T) and is inserted in the far slot in the drawer below the AC input as shown in Figure 2.3. There is a spare fuse in the near slot. If a fuse continues to open, the power supply is most likely defective.

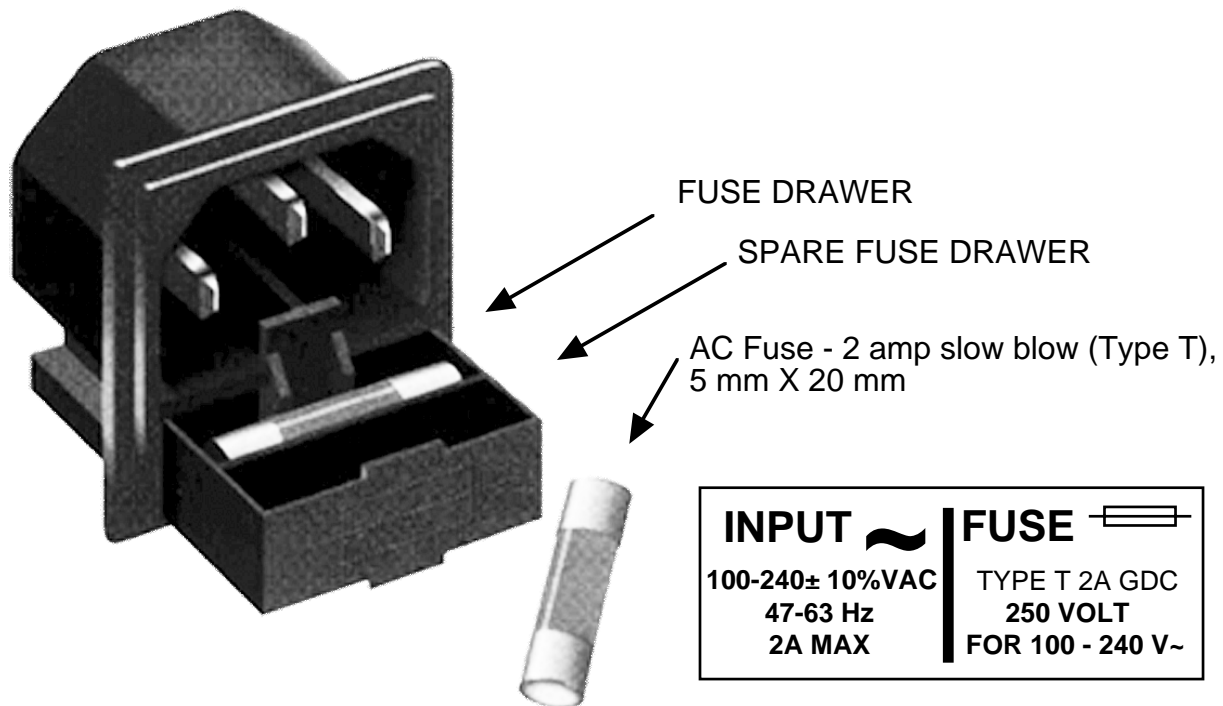


FIGURE 2.3 Fuse Location and Spare Fuse



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