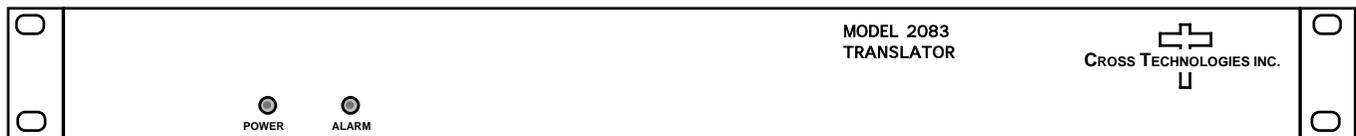


Instruction Manual

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 \pm 10% VAC power supply and housed in a 1.75" X 19" X 16" 1RU chassis.

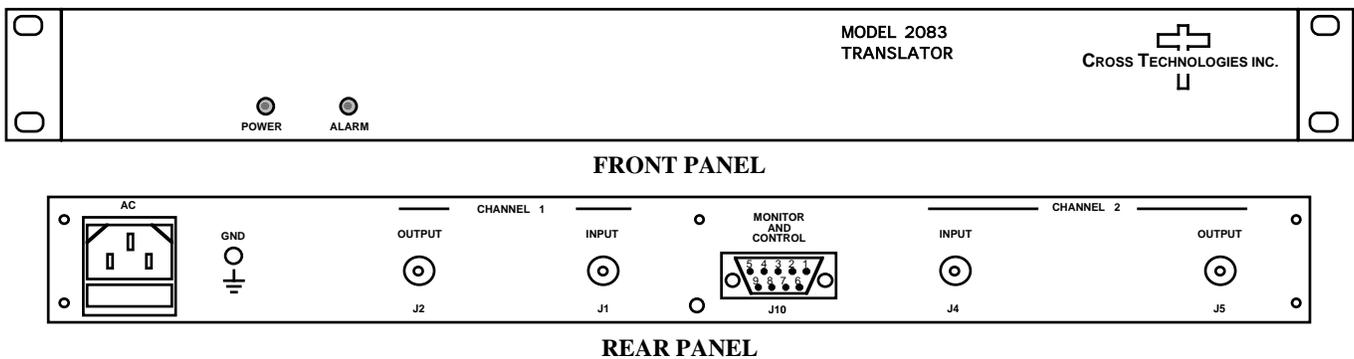


FIGURE 1.1 Front and Rear Panels

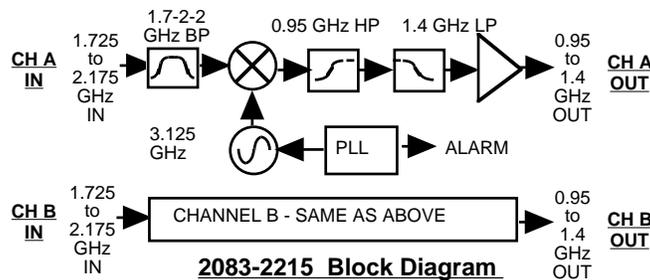


FIGURE 1.2 Block Diagram

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 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.

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.

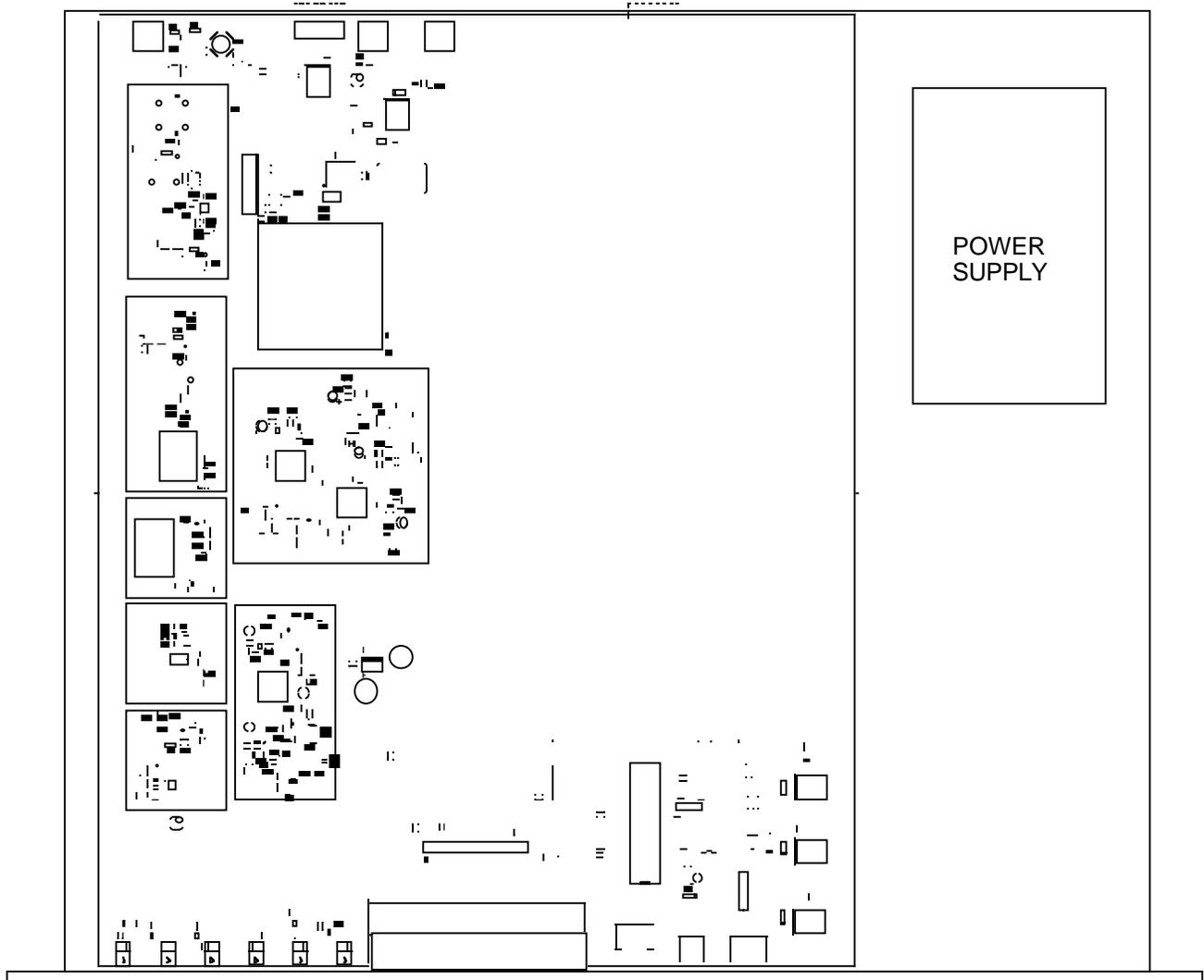


FIGURE 2.0 2083-2215 Mechanical Assembly

2.2 Rear Panel Input/Output Signals

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

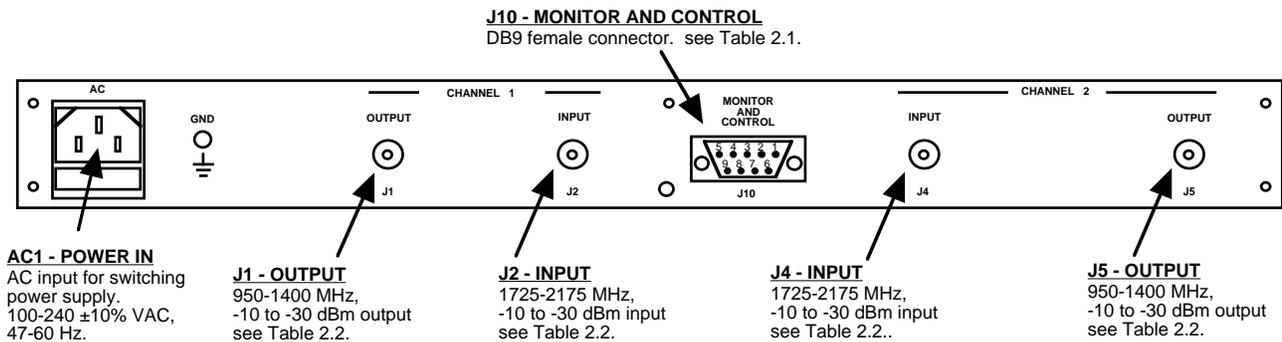


FIGURE 2.1 2083-2215 Rear Panel I/O's

| TABLE 2.1 J10 Pinouts* | |
|------------------------|------------------------------|
| 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 |

| TABLE 2.2 Input/Output Connector Options | | |
|--|--------------|--------------|
| 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.

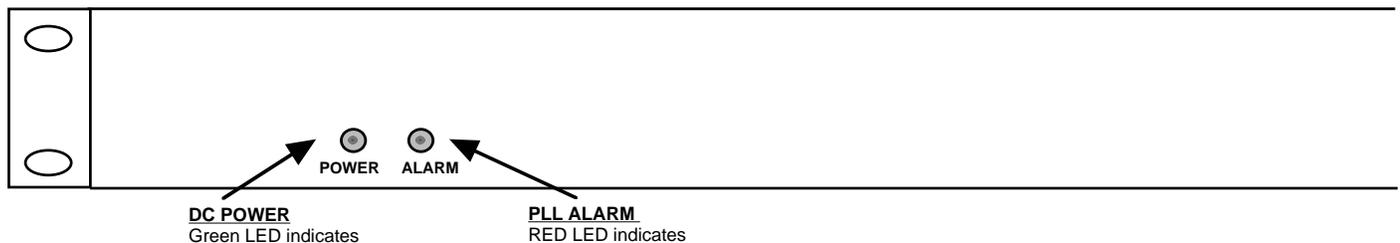


FIGURE 2.2 2083-2215 Front Panel Indicators

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.

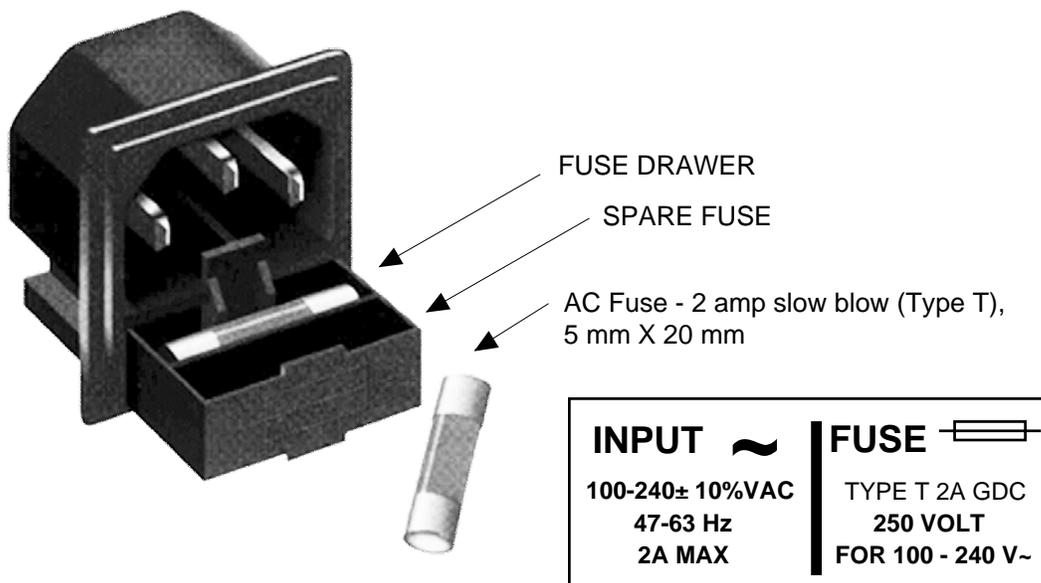


FIGURE 2.3 Fuse Location and Spare Fuse



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