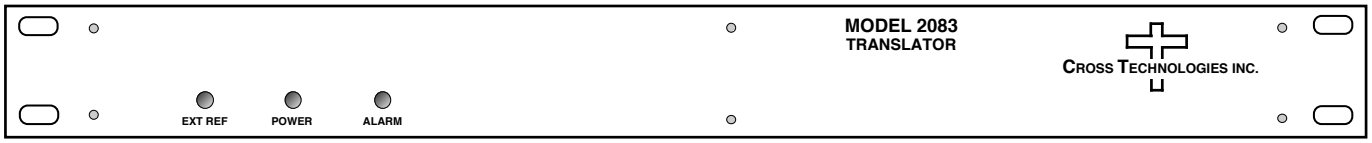
Instruction Manual

Model 2083-0312-30036
Dual Translator

April 2023, Rev. 0



When ordering parts from Cross Technologies, Inc., be sure to include the equipment model number, equipment serial number, and a description of the part.

CROSS TECHNOLOGIES, INC.

6170 Shiloh Road
Alpharetta, Georgia 30005

(770) 886-8005
FAX (770) 886-7964
Toll Free 888-900-5588

WEB www.crosstechnologies.com
E-MAIL info@crosstechnologies.com

INSTRUCTION MANUAL

MODEL 2083-0312-30036 Dual Translator

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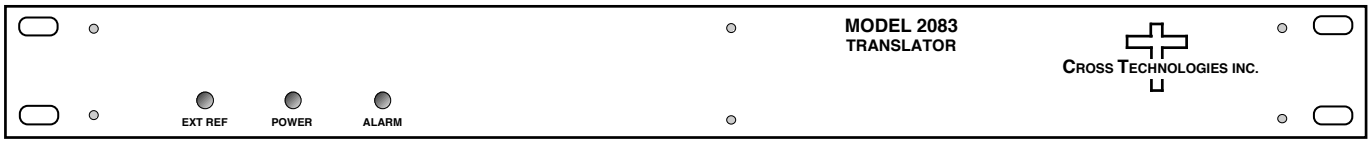
2083-0312-30036 Dual Translator

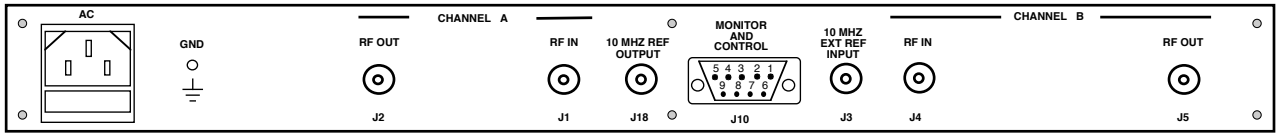
1.0 General

1.1 Equipment Description

2083-0312-30036 Up/Down Translator consists of a 370 ±150 MHz to 1200 ±150 MHz Upconverter and a 1200 ±18 MHz to 370 ±18 MHz Downconverter with 1.570 GHz LOs (inverted spectrums). The converters have a gain of 0±2 dB. Both 370 MHz IN/OUT connectors are 50 ohm BNC female. The 1200 MHz out connector is 75 ohm, Type F female and the 1200 MHz in connector is 50 ohm N female. Front panel LEDs light when DC power is applied (green), a PLL alarm occurs (red),and the unit detects presence of EXT input (yellow). The 2083-0312-30036 is powered by a 100-240 ±10% VAC power supply and housed in a 1.75" X 19" X 16" 1RU chassis.

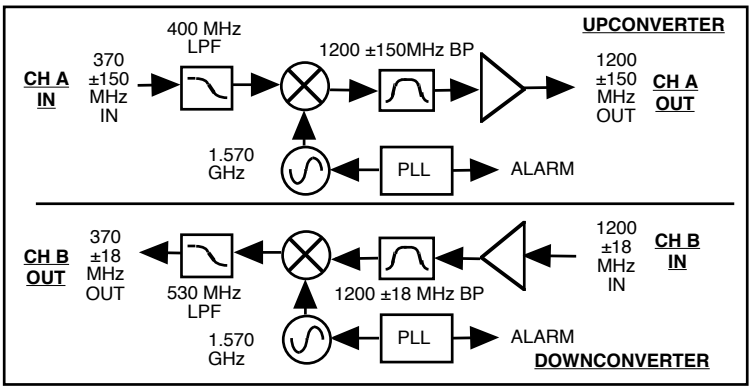


FRONT PANEL



REAR PANEL

FIGURE 1.1 Model 2083-0312-30036 Front and Rear Panels



2083-0312-30036 Block Diagram

FIGURE 1.2 Model 2083-0312-30036 Block Diagram

1.2 Technical Characteristics

EQUIPMENT SPECIFICATIONS*

Input Characteristics	**CH A Up**	**CH B Down**
Input Impedance/RL	50Ω /12 dB	50Ω /12 dB
Frequency, GHz	**0.37±0.0150**	**1.20±0.18**
Input Level, Range, dBm	-10 to -30 dBm	-10 to -30
Input 1 dB compression	0 dBm	0 dBm
Output Characteristics		
Impedance/RL	75Ω /10 dB	50Ω /10 dB
Output 1 dB compression	0 dBm	0 dBm
Output Level, Range, dBm	-10 to -30 dBm	-10 to -30
Frequency, GHz	**1.20±0.18**	**0.37±0.18**

Channel Characteristics

Gain at band center	0 dB ±2 dB, fixed
Frequency Response	±0.7 dB, **for ±150 MHz (UP)**; ±1.5 dB, **for ±18 MHz band**; ±0.7 dB, any 36 MHz increment **(DOWN)**
Frequency Sense	Inverting (**0.22 GHz Translates to/from 1.35 GHz, 0.52 GHz Translates to/from 1.05 GHz**, **DOWN)**
Intermodulation	<-45 dBc for two carriers each at -13 dBm out
Spurious Response	**<-35 dBc, for ±150 MHz band DOWN and ±18 MHz band UP**
In to out Feedthru	**<-30 dBc, min, <-40 dBc, goal**
LO rejection	**<-40 dBm, LO at the output**

Synthesizer Characteristics

LO frequency	**1.570 GHz**
Frequency Accuracy	±1.0 ppm max

Phase Noise @ F (Hz) >	*100*	*1K*	*10K*	*100K*	*1M*
dBc/Hz	***-70***	***-80***	***-85***	***-95***	***-110***

Indicators

Power; PLL Alarm; **Ext.Ref.** Green LED; Red LED; **Yellow LED**

Other

Connectors, 370 MHz	**370 MHz RF in and Out, BNC, female, 50 ohm;**
Connectors, 1200 MHz	**1200 MHz Out, type F, 75 Ohm; 1200 MHz In N, 50 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 to +40 degrees C; 2000 meters max elevation; 80% max humidity; 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 units 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 2083-0312-30036 consists of one RF/Controller PCB housed in a 1 RU (1.75 inch high) by 16 inch deep chassis. A switching, ± 12, +24, +5 VDC power supply provides power for the assemblies. The 2083-0312-30036 can be secured to a rack using the 4 holes on the front panel. Figure 2.0 shows how the 2083-0312-30036 is assembled.

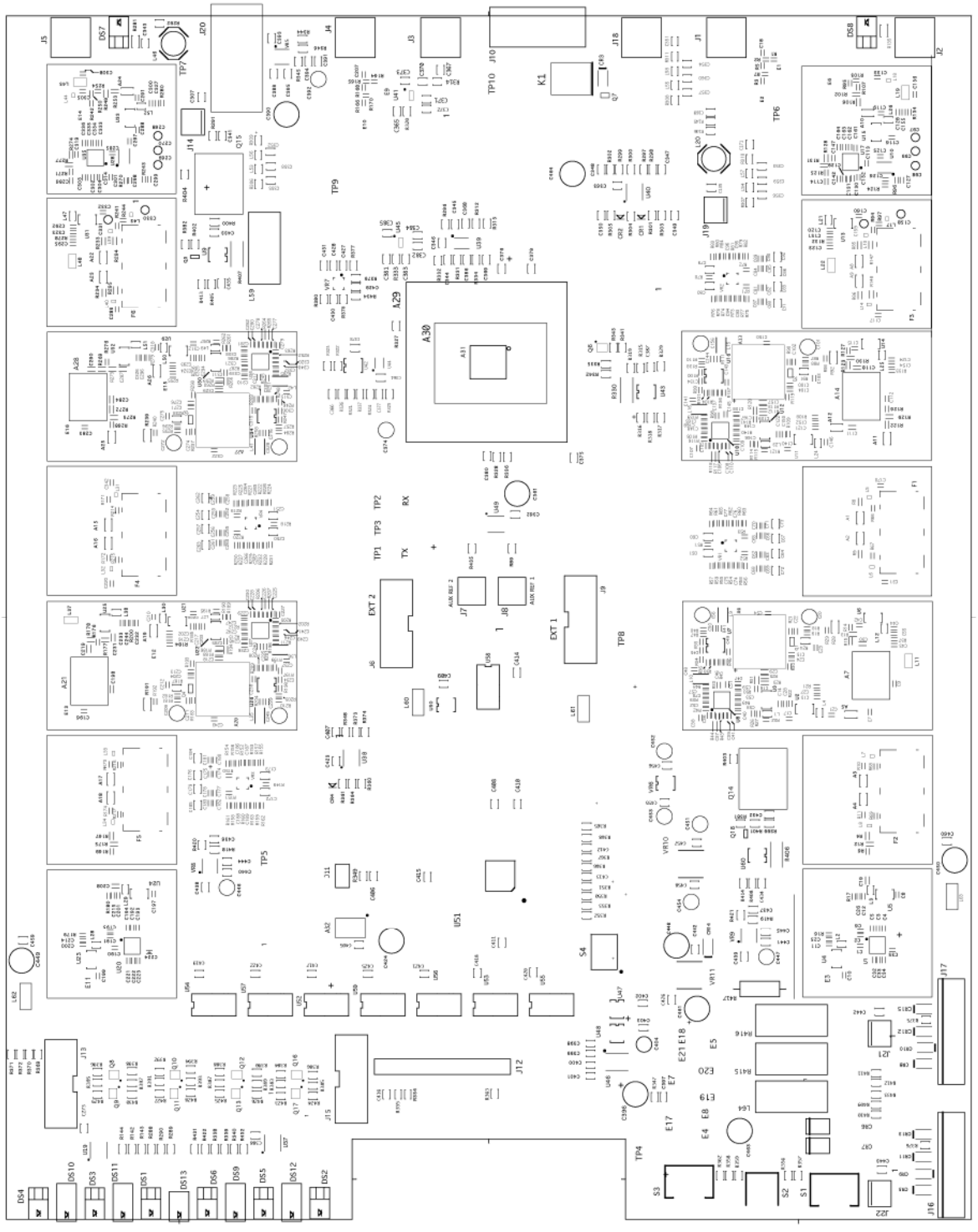


FIGURE 2.0 2083-0312-30036 Mechanical Assembly

2.2 Rear Panel Input/Output Signals

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

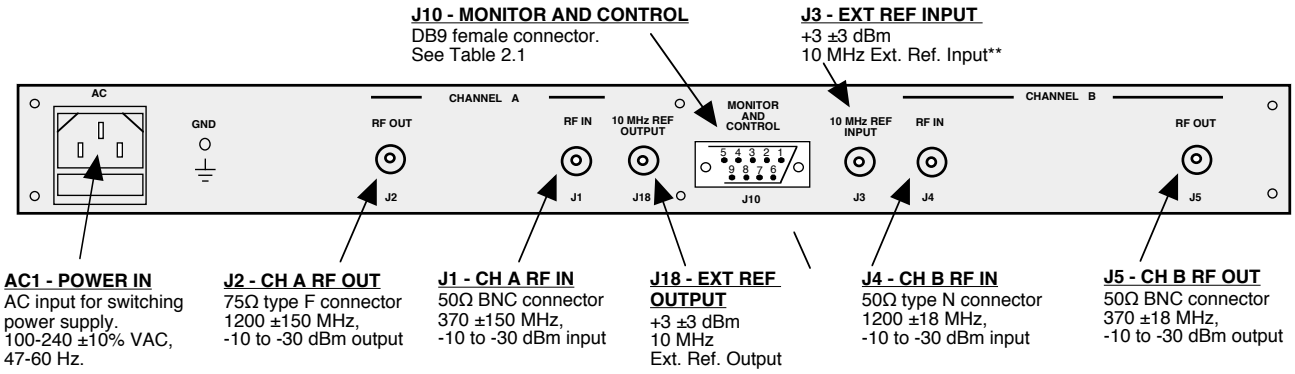


FIGURE 2.1 2083-0312-30036 Rear Panel I/O's

TABLE 2.1 J10 Pinouts*

Pin	Function
1	Not Used
2	Not Used
3	Not Used
4	Not Used
5	GND
6	Alarm Relay: Common
7	Alarm Relay: Normally Open
8	Not Used
9	Alarm Relay: Normally Closed

****External Reference Input**

Unit detects presence of EXT Input and automatically switches to EXT Reference.
User is responsible for the suitability of applied input (Frequency Accuracy, Phase Noise, etc.)

2.3 Front Panel Indicators

Figure 2.2 shows the front panel indicators.

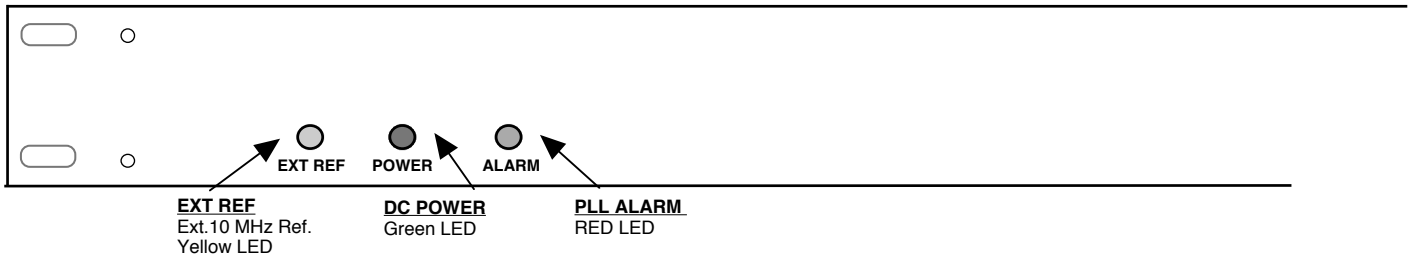


FIGURE 2.2 2083-0312-30036 Front Panel Indicators

2.4 Installation / Operation

2.4.1 Installing and Operating the 2083-0312-30036, Dual Translator Section

1. Connect a -10 dBm to -30 dBm signal to IN, J1/J4 (Figure 2.1)
2. Connect the OUT, J2/J5, to the external equipment.
3. Connect 100-240 ±10% VAC, 47 - 63 Hz to AC on the back panel.
4. Be sure DS6 (green, DC Power) is on and DS2 (red, Alarm) is off (Figure 2.2).
5. 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.

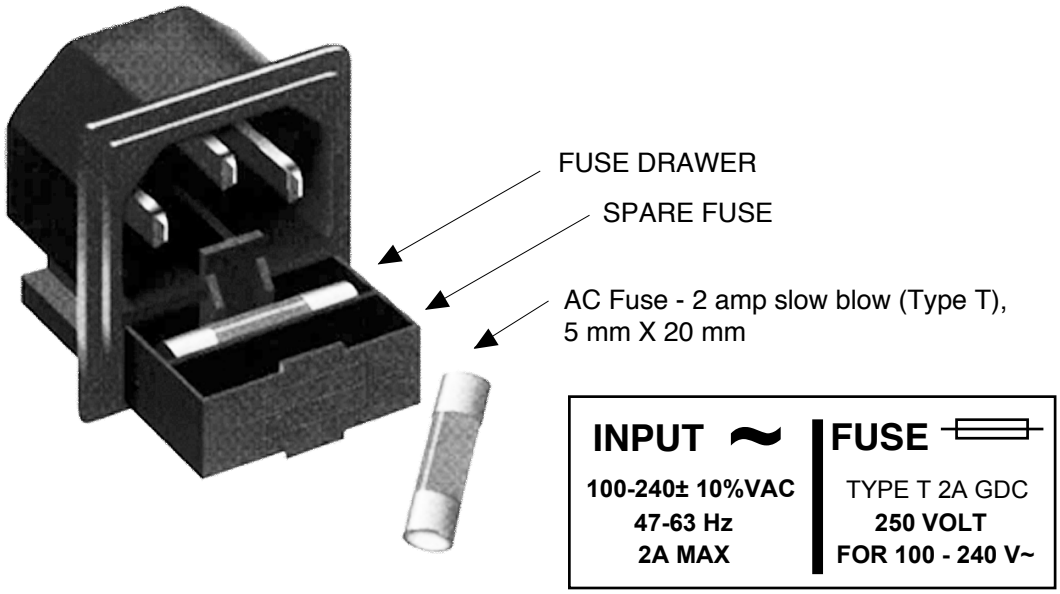
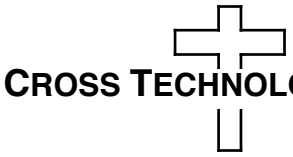


FIGURE 2.3 Fuse Location and Spare Fuse



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