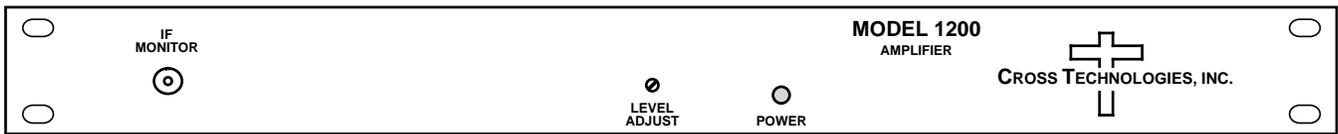


# Instruction Manual

# Model 1200-07 IF AGC Amplifier

September 2010 Rev A



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# INSTRUCTION MANUAL

## MODEL 1200-07 IF AGC AMPLIFIER

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**WARRANTY** - The following warranty applies to all Cross Technologies, Inc. products.

All Cross Technologies, Inc. products are warranted against defective materials and workmanship for a period of one year after shipment to customer. Cross Technologies, Inc.'s obligation under this warranty is limited to repairing or, at Cross Technologies, Inc.'s option, replacing parts, subassemblies, or entire assemblies. Cross Technologies, Inc. shall not be liable for any special, indirect, or consequential damages. This warranty does not cover parts or equipment which have been subject to misuse, negligence, or accident by the customer during use. All shipping costs for warranty repairs will be prepaid by the customer. There are not other warranties, express or implied, except as stated herein.



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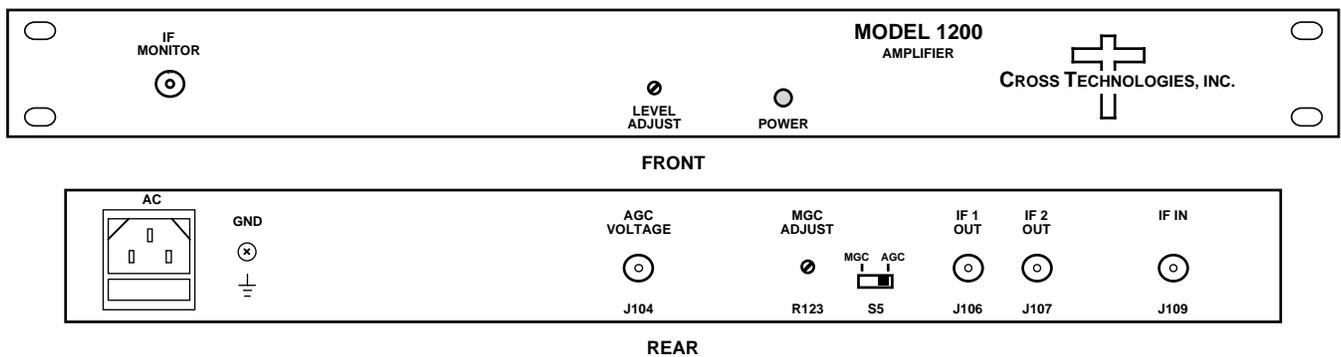
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# MODEL 1200-07 IF AGC AMPLIFIER

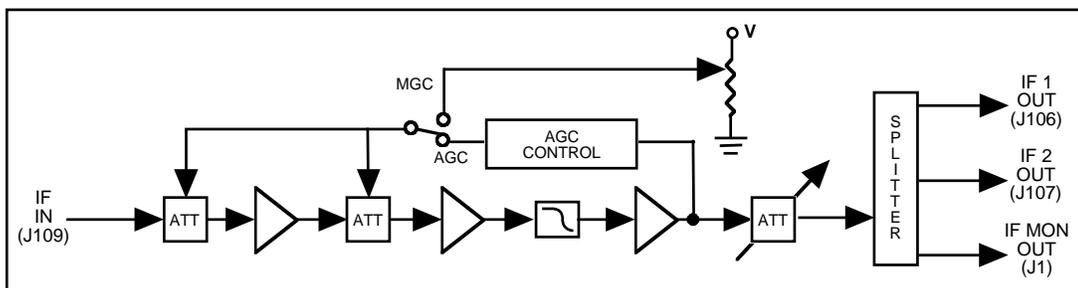
## 1.0 General

### 1.1 Equipment Description

The 1200-07 IF Amplifier provides automatic gain control (AGC) for a 50 to 200 MHz IF signal. It takes a -80 to 0 dBm input signal and automatically adjusts the gain for a -35 dBm  $\pm$  10 dB output. The 1200-07 has a band limiting lowpass filter. It also has capabilities to switch between automatic gain control (AGC) or manual gain control (MGC). A potentiometer on the rear panel allows for manual gain adjustment when in MGC mode. The IF in and out connectors are BNC female. All circuitry is on a single PCB housed in a 1RU X 14" deep chassis. An internal switching power supply powers the unit with a 100-240  $\pm$ 10% VAC, 47-63 Hz input.



**FIGURE 1.1 Model 1200-07 Front and Rear Panels**



**FIGURE 1.2 Model 1200-07 Block Diagram**

## 1.2 Technical Characteristics

**TABLE 1.1 1200-07 Specifications\***

### **Input Characteristics**

Impedance/Return Loss	50Ω / 18 dB
Frequency	50 to 200 MHz
Input Level range	-80 to 0 dBm
Input 1 dB comp.	+5 dBm

### **Output Characteristics**

Impedance/Return Loss	50Ω / 12 dB
Output Level	-35 ± 10 dBm

### **Channel Characteristics**

Gain	-35 to +35 dB (AGC)
Frequency Response	± 1.0 dB, ± 18 MHz
Group Delay, max	± 5 ns, max 50 to 100 MHz

### **Controls/Indicators**

AGC/MGC Switch	Switches between Manual (MGC) or Automatic (AGC) Gain control
MGC Potentiometer	Adjusts gain in MGC mode
AGC Voltage	Allows for monitoring of the AGC gain (BNC female connector)
DC Power	Green LED

### **Other**

IF Connectors	BNC (female)
Size	19 inch standard 1RU chassis 1.75" high X 14.0" deep
Power	100-240 ±10% VAC, 47-63 Hz, 30 W max

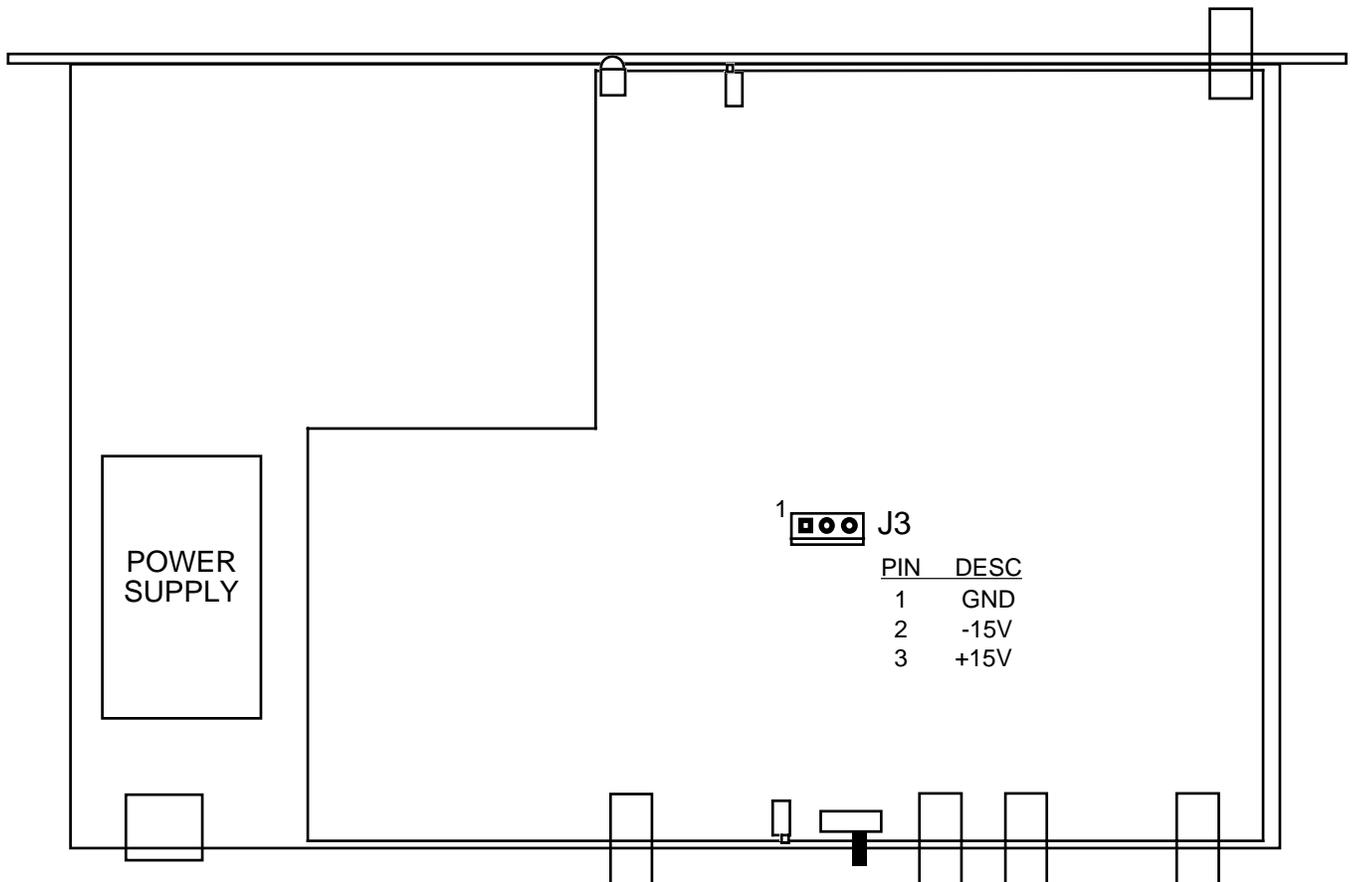
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\*+10°C to +40°C; Specifications subject to change without notice

## 2.0 Installation

### 2.1 Mechanical

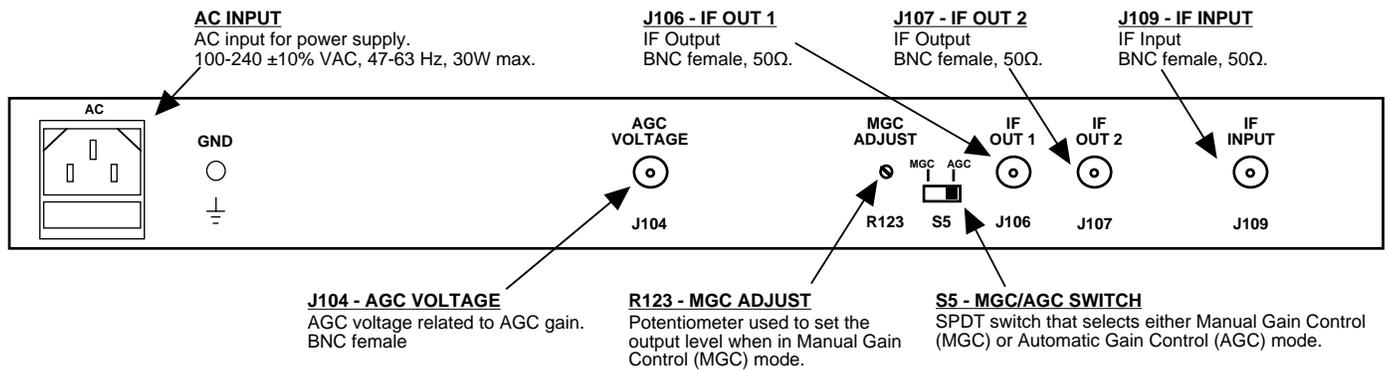
The 1200-07 consists of one PCB assembly and one power supply housed in a 1 RU (1 3/4 inch high) by 14 inch deep chassis. An AC power supply provides +15VDC and -15VDC to the PCB. The 1200-07 can be secured to a rack using the 4 holes on the front panel. Figure 2.1 shows how the 1200-07 is assembled.



**FIGURE 2.1 1200-07 Mechanical Assembly**

## 2.2 Rear Panel Input/Output Signals and Controls

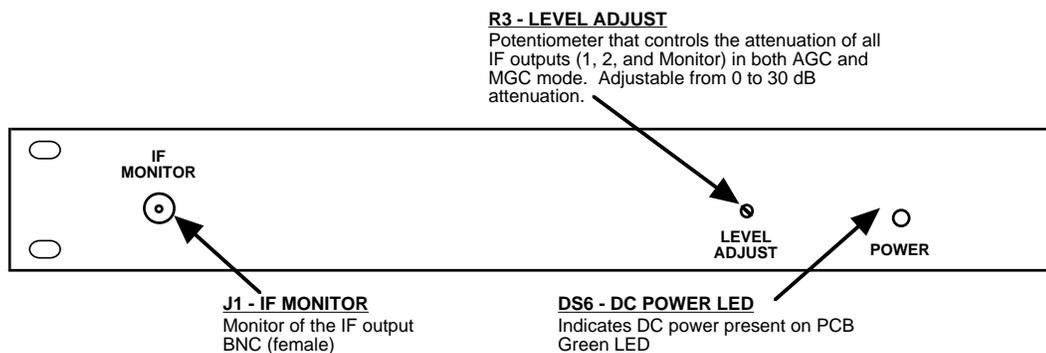
Figure 2.2 shows the input, output, and control connectors on the rear panel.



**FIGURE 2.2 1200-07 Rear Panel I/Os and Control**

## 2.3 Front Panel Controls and Indicators

Figure 2.3 shows the front panel outputs, controls and indicators.

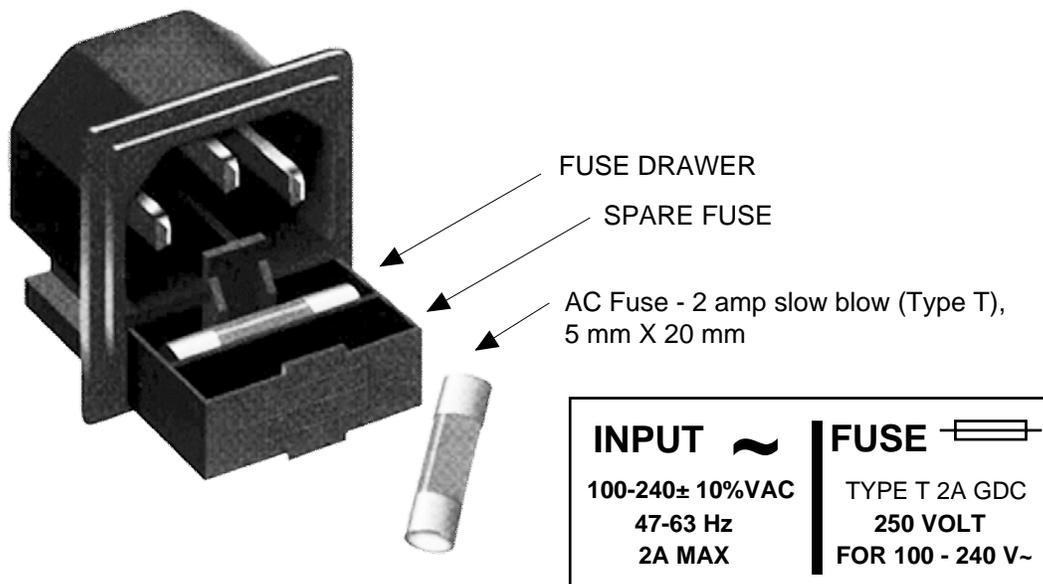


**FIGURE 2.3 1200-07 Front Panel Controls and Indicators**

## 2.4 Operation

### 2.4.1 Installing and Operating the 1200-07

1. Install the 1200-07 in the equipment rack.
2. Connect 100-240  $\pm$ 10% VAC, 47 - 63 Hz to AC IN on the back panel (Figure 2.2).
3. Be sure the POWER LED, DS6, is on (Figure 2.3).
4. Connect a 50-200 MHz signal to IF INPUT, J109 (Figure 2.2).
5. Select Manual Gain Control (MGC) or Automatic Gain Control using switch, S5 (Figure 2.2).
6. Connect IF OUT 1 and IF OUT 2 (Figure 2.2) to the desired equipment, and check for proper level using IF MONITOR on the front panel (Figure 2.3).
7. If in MGC mode adjust rear panel potentiometer R123 for the desired gain (Figure 2.2).
8. Adjust output to desired level using front panel attenuator pot, R3 (Figure 2.3). Clockwise rotation provides increased output level (full clockwise = 0 dB atten, full counter-clockwise = 30 dB atten).
9. 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 2.4. There is a spare fuse in the near slot. If a fuse continues to open, the power supply is most likely defective.



**FIGURE 2.4 Fuse Location and Spare Fuse**

## 2.4.2 AGC voltage relating to Gain

The 1200-07 IF AGC Amplifier operates over a 0 to -80 dBm input range. The Automatic Gain Control (AGC) provides a constant -35 dBm  $\pm$  10 dBm output IF output level over the entire input range. The AGC VOLTAGE BNC connector, J104, can be monitored to determine the approximate input level (and corresponding gain) in AGC as Table 2.2 shows.

<b>TABLE 2.1 - Approximate AGC Voltage vs Gain and Input Level</b>		
<b>AGC Voltage (J104)</b>	<b>AGC Gain</b>	<b>Input Level</b>
+0.2 VDC	-35 dB	0 dBm
-0.2 VDC	-25 dB	-10 dBm
-0.8 VDC	-15 dB	-20 dBm
-1.3 VDC	-5 dB	-30 dBm
-1.6 VDC	+5 dB	-40 dBm
-1.8 VDC	+15 dB	-50 dBm
-1.9 VDC	+25 dB	-60 dBm
-2.1 VDC	+35 dB	-70 dBm
-2.6 VDC	+45 dB	-80 dBm

### 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 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 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.



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