

# **INSTRUCTION MANUAL**

## **MODEL 1200-07 IF AGC AMPLIFIER**

Data, drawings, and other material contained herein are proprietary to Cross Technologies, Inc., but may be reproduced or duplicated for normal operating purposes without the prior permission of Cross Technologies, Inc.

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

First Edition      **October 2006**

**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](http://www.crosstechnologies.com)  
E-MAIL [info@crosstechnologies.com](mailto:info@crosstechnologies.com)**

**INSTRUCTION MANUAL**  
**MODEL 1200-07 IF AGC AMPLIFIER**

<b><u>TABLE OF CONTENTS</u></b>	<b><u>PAGE</u></b>
<b>Warranty</b>	<b>2</b>
<b>1.0 General</b>	<b>3</b>
<b>1.1 Equipment Description</b>	<b>3</b>
<b>1.2 Technical Characteristics</b>	<b>4</b>
<b>2.0 Installation</b>	<b>5</b>
<b>2.1 Mechanical</b>	<b>5</b>
<b>2.2 Rear I/O's, Control</b>	<b>6</b>
<b>2.3 Front Panel I/O's, Indicators</b>	<b>6</b>
<b>2.4 Operation</b>	<b>7</b>

**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.

**CROSS TECHNOLOGIES, INC.**  
**6170 SHILOH ROAD**  
**ALPHARETTA, GEORGIA 30005**

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

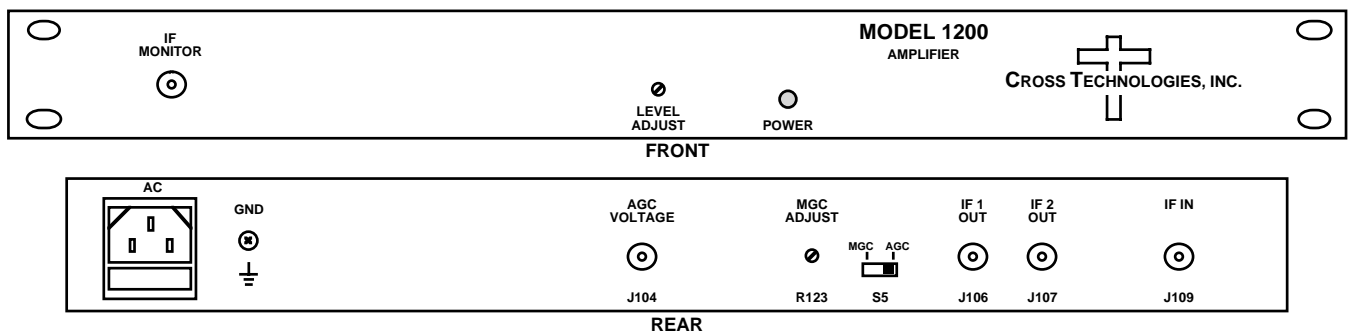
**WEB [www.crosstechnologies.com](http://www.crosstechnologies.com)**  
**E-MAIL [info@crosstechnologies.com](mailto:info@crosstechnologies.com)**

# MODEL 1200-07 IF AGC AMPLIFIER

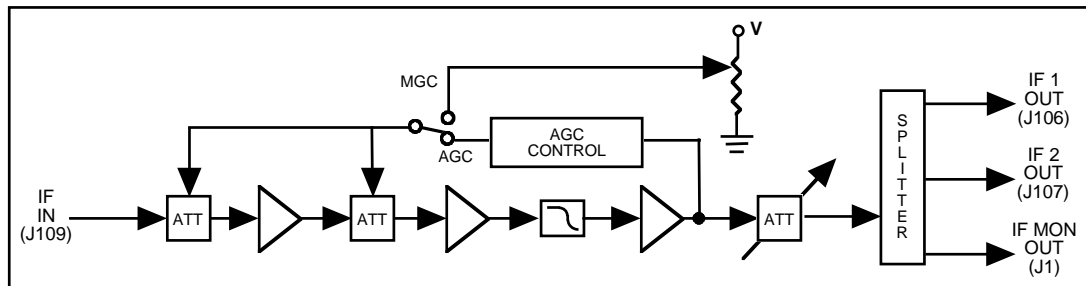
## 1.0 General

### 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  $-35 \text{ dBm} \pm 10 \text{ dB}$  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 90-260 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	90-260 VAC, 47-63 Hz, 30 W max

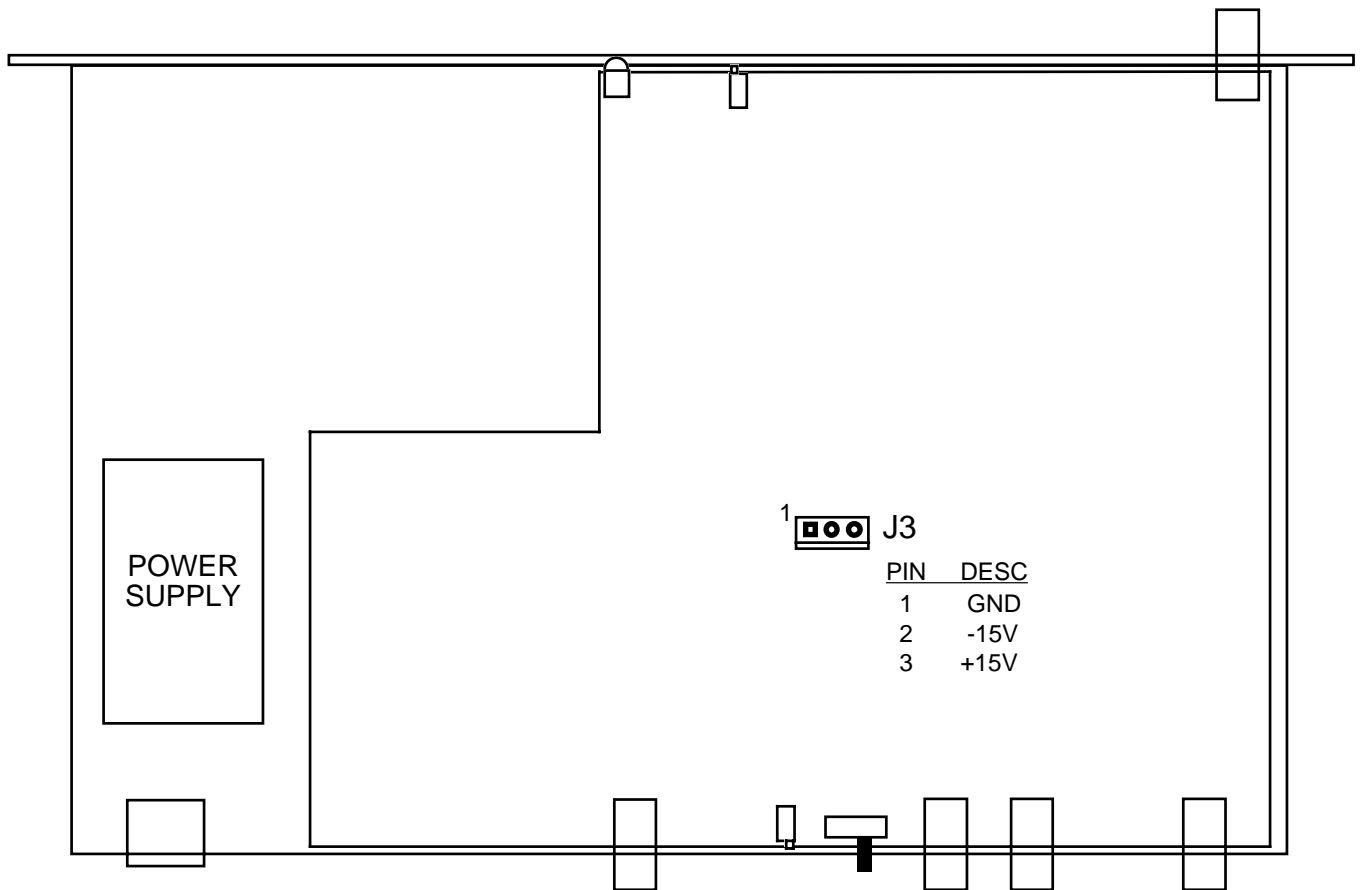
---

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

## 2.0 Installation

### 2.1 Mechanical

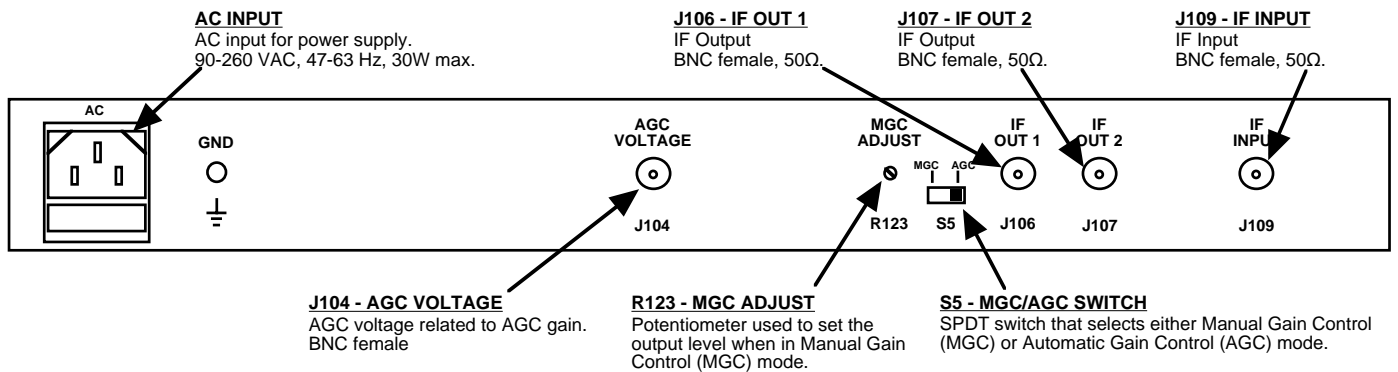
The 1200-07 consists of one PCB assembly and one power supply housed in a 1 RU (1 3/4 inch high) by 14 inch deep chassis. An AC power supply provides +15VDC and -15VDC to the PCB. The 1200-07 can be secured to a rack using the 4 holes on the front panel. Figure 2.1 shows how the 1200-07 is assembled.



**FIGURE 2.1 1200-07 Mechanical Assembly**

## 2.2 Rear Panel Input/Output Signals and Controls

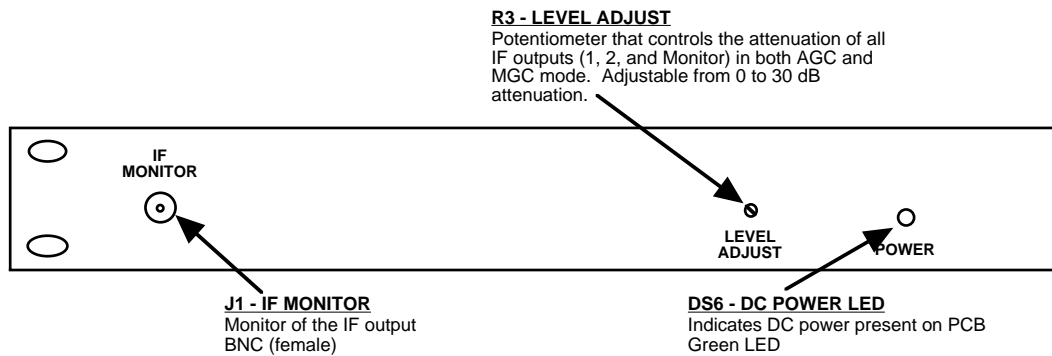
Figure 2.2 shows the input, output, and control connectors on the rear panel.



**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.

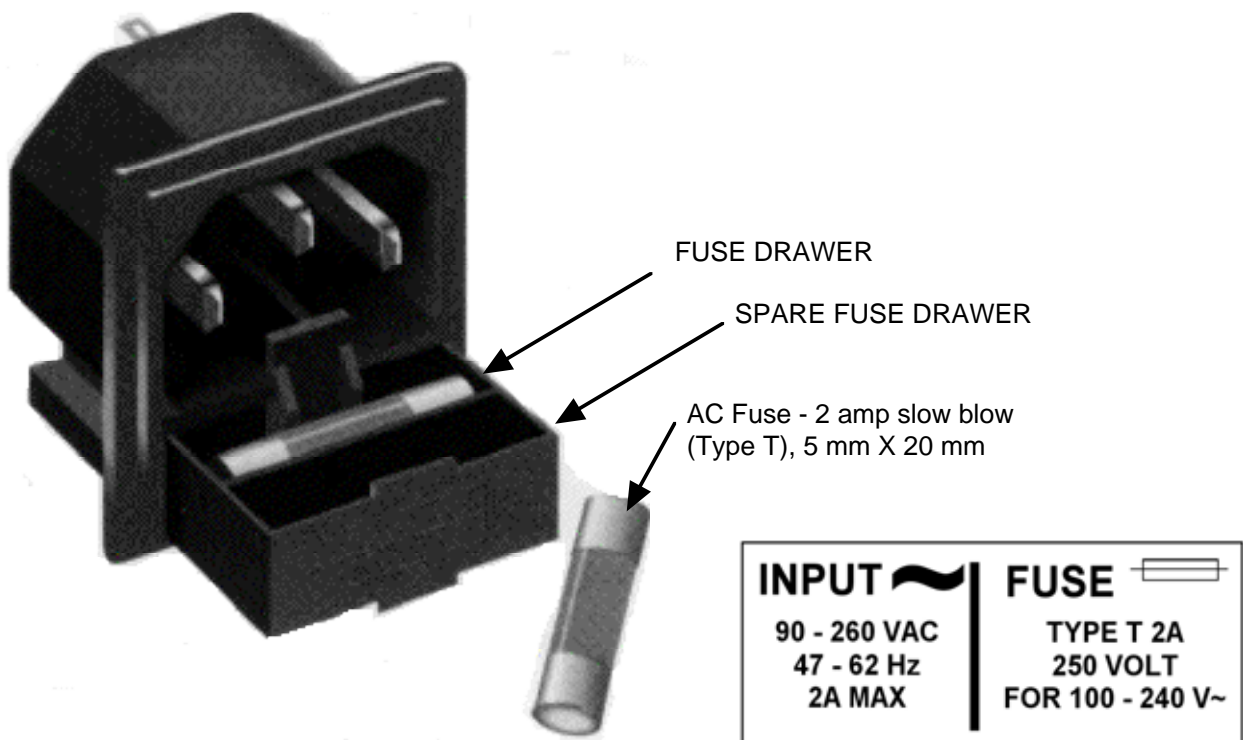


**FIGURE 2.3 1200-07 Front Panel Controls and Indicators**

## 2.4 Operation

### 2.4.1 Installing and Operating the 1200-07

1. Install the 1200-07 in the equipment rack.
2. Connect 90 - 260 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>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

**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](http://www.crosstechnologies.com)  
E-MAIL [info@crosstechnologies.com](mailto:info@crosstechnologies.com)**