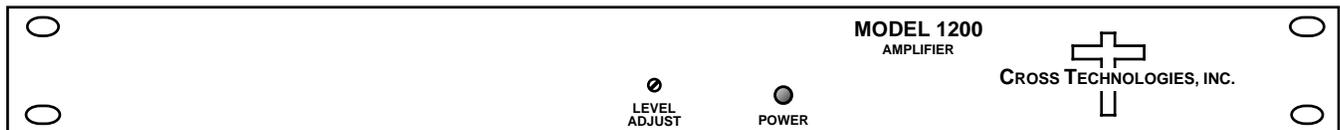


Instruction Manual

Model 1200-75 AGC Amplifier

August 2012, Rev. A



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INSTRUCTION MANUAL

MODEL 1200-75 AGC Amplifier

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MODEL 1200-75 AGC Amplifier

1.0 General

1.1 Equipment Description

The 1200-75 AGC Amplifier provides automatic gain control (AGC) for a 250 to 750 MHz signal (can also take a composite 250-2150 MHz input signal and extract the 250-750 MHz band with its low pass filter). The 1200-75 takes the -45 to -25 dBm, composite, 250-750 MHz signal and automatically adjusts the gain for a -10 to 0 dBm (± 1 dB) output which can be adjusted using the front panel potentiometer. The 1200-75 can 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. Input/output impedance is 75 ohm BNC (50 ohm BNC Option -D). The 1200-75 is powered by a 100-240 $\pm 10\%$ VAC switching power supply and is housed in a 1RU x 14" deep chassis.

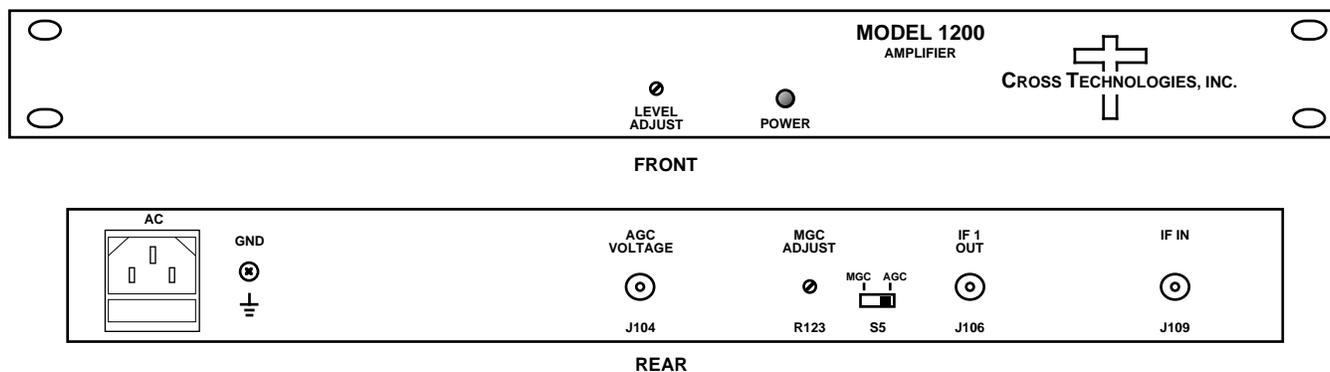


FIGURE 1.1 Model 1200-75 Front and Rear Panels

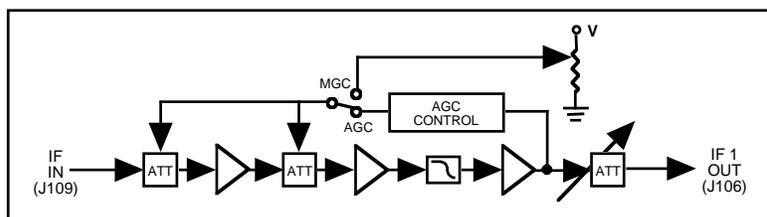


FIGURE 1.2 Model 1200-75 Block Diagram

1.2 Technical Characteristics

TABLE 1.1 1200-75 AGC Amplifier, Technical Specifications**	
Input Characteristics	
Impedance/Return Loss	75Ω / 12 dB
Frequency	250 to 750 MHz
Input Composite Level	-45 to -25 MHz
Input, Max. no damage	+15 dBm
Output Characteristics	
Impedance/Return Loss	75Ω / 12 dB
Frequency	250 to 750 MHz
AGC'd Comp. Level	-10 to 0 dBm, ± 1 dB, set by a potentiometer
Output 1 dB compression	+10 dBm
Channel Characteristics	
AGC Set	-10 to 0 dBm, potentiometer
MGC Gain	0 to +20 dB, potentiometer Set
AGC Response	Green LED; Green/Yellow LED; Yellow LED
Frequency Response	RS232C/RS485 selectable, (Ethernet, Option W8, W18, or W28)
0.95 - 2.2 GHz Rejection	< -50dBc, 0.95-2.2GHz feed through rejection; relative to the COMPOSITE Output Level
Group Delay Max.	0.015 ns/MHz ² , parabolic, 0.03ns/MHz, linear, 1 ns ripple, 36 MHz BW
Harmonics	>40 dBc
Controls/Indicators	
AGC/MGC Switch	Switches between Manual (MGC) or Automatic (AGC) Gain Control
Level Adjust	Potentiometer that adjusts output level in AGC mode
MGC Adjust	Potentiometer that adjusts manual gain in MGC mode
AGC Voltage	Allows for monitoring of the AGC gain (BNC female connector)
Power	Green LED
Other/Options	
RFConnectors	BNC (female), 75Ω
Size	19 inch, 1RU standard chassis, 1.75" high x 14.0" deep
Power	100-240 ±10% VAC, 47- 63 Hz, 30 watts maximum
Option -D	50 ohm impedance, Input and Output connectors
**+10°C to +40°C; Specifications subject to change without notice	
Cross Technologies, Inc. 2012	

2.0 Installation

2.1 Mechanical

The 1200-75 consists of two PCB assemblies 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 1200-75 can be secured to a rack using the 4 holes on the front panel. Figure 2.1 shows how the 1200-75 is assembled.

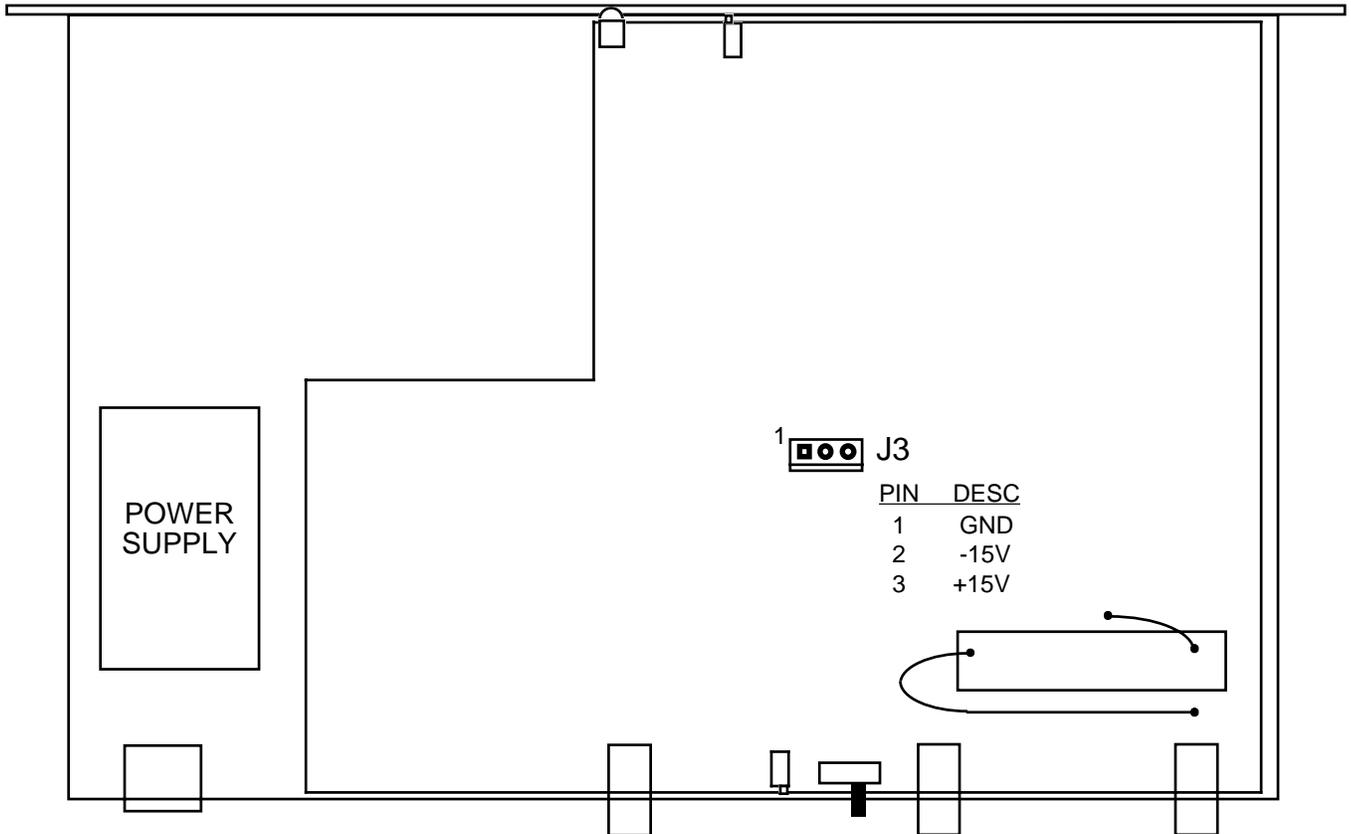


FIGURE 2.1 1200-75 Mechanical Assembly

2.2 Rear Panel Input/Output Signals and Controls

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

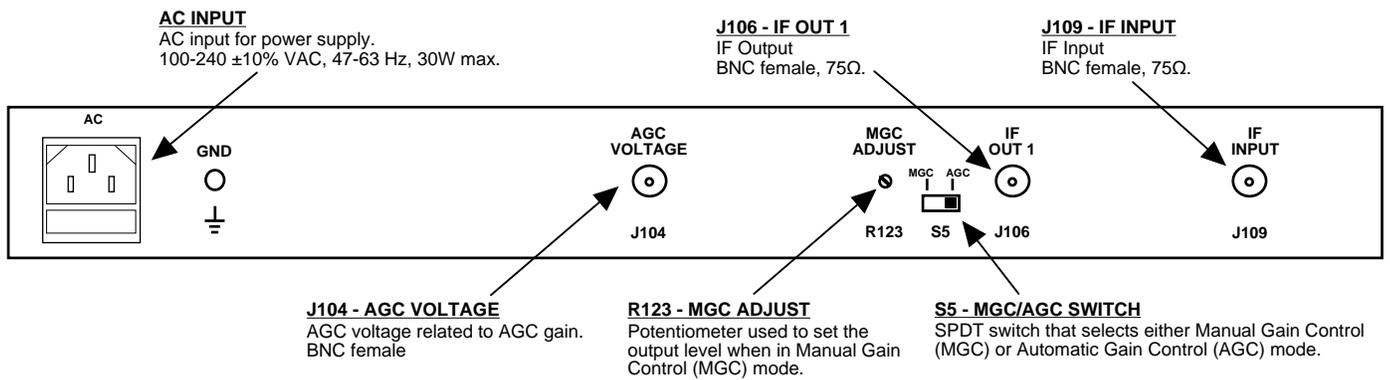


FIGURE 2.2 1200-75 Rear Panel I/Os and Control

2.3 Front Panel Controls and Indicators

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

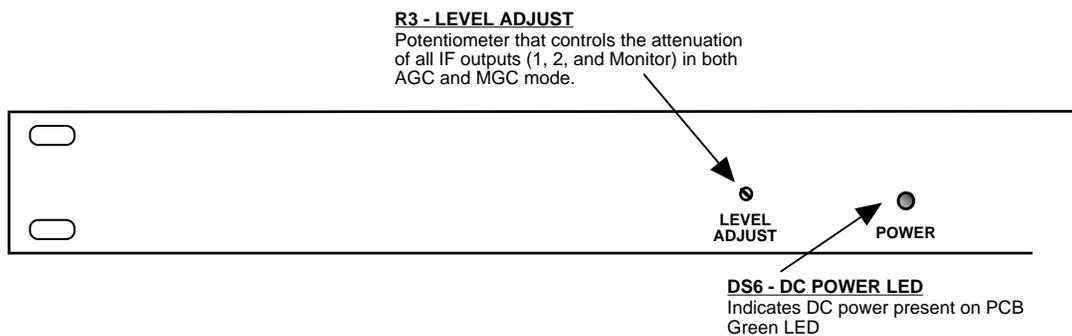


FIGURE 2.3 1200-75 Front Panel Controls and Indicators

2.4 Operation

2.4.1 Installing and Operating the 1200-75

1. Install the 1200-75 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 -25 to -45 dBm, 250-750 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 (Figure 2.2) to the desired equipment.
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.
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.

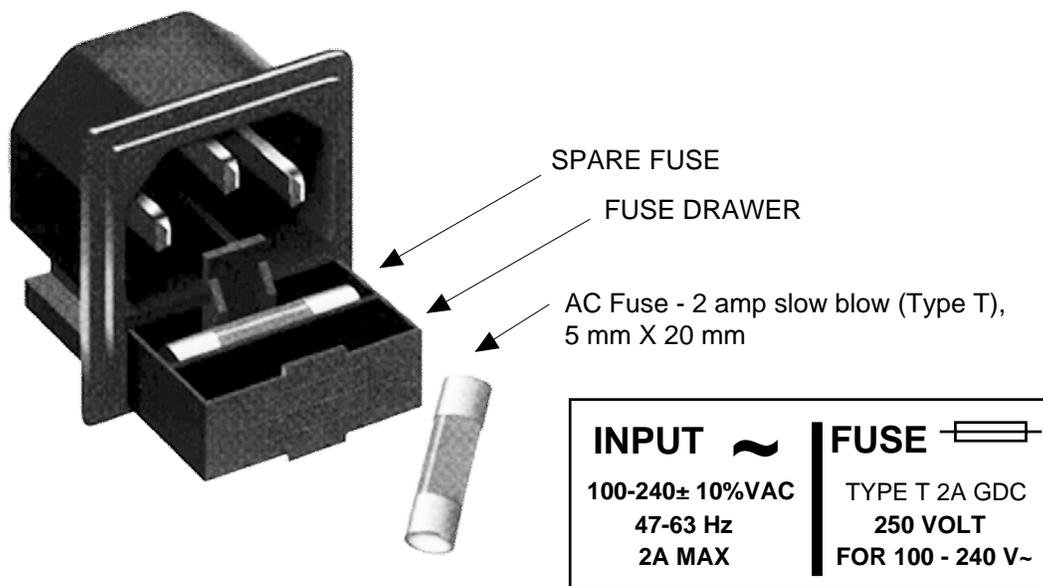


FIGURE 2.4 Fuse Location and Spare Fuse

2.4.2 AGC voltage relating to Gain

The 1200-75 AGC Amplifier operates over a -25 to -45 dBm input range. The Automatic Gain Control (AGC) provides a constant 0 dBm (± 1 dB) 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 (this table assumes the AGC level is set to output +0 dBm, which is a typical factory set AGC output).

AGC Voltage (J104)	AGC Gain	Input Level
1.73 VDC	+25 dB	-25 dBm
1.88 VDC	+35 dB	-35 dBm
2.05 VDC	+45 dB	-45 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 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.



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