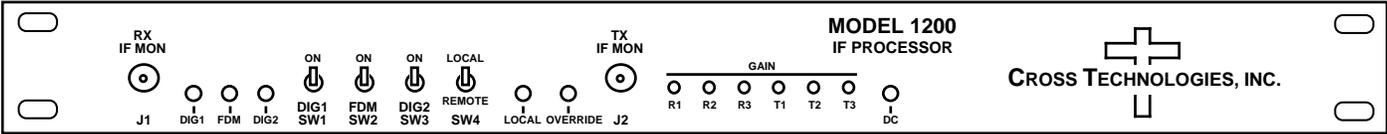


Instruction Manual

Model 1200-05 IF Processor

October 2010, Rev. 0



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INSTRUCTION MANUAL

1200-05 IF Processor, Filtered AGC Detection, 70 ±0.2 MHz

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1200-05 IF Processor, Filtered AGC Detection, 70 ±0.2 MHz

1.0 General

1.1 Equipment Description - The 1200-05 IF Processor has a transmit and receive side. The receive side signal passes through an Automatic Gain Control (AGC) amplifier (using a narrow SAW filter prior to the AGC detection circuitry so only energy at 70 ±0.2 MHz automatically controls the gain; if there is no energy in this region it will go to max gain in AGC). The output is split into three signals each having variable attenuators to adjust levels via front panel multi-turn potentiometers. The AGC amplifier adjusts a -95 to -15 dBm, 50 to 90 MHz IF input signal to a -30 dBm, +5, -15 dB output. A front panel connector provides a monitor signal directly out of the AGC amplifier, and front panel potentiometers adjust the attenuation (between 0 and 20 dB) to each of the three output signals, DIG1RX, FDMRX, and DIG2RX.

The transmit side has three transmit IF signals combined into one. DIG1TX, FDMTX, and DIG2TX signals each pass through individual attenuators controlled via front panel potentiometers and a switch that is controlled remotely through a DB9 connector or locally with three SPDT switches located on the front panel. A SPDT switch on the front panel selects either REMOTE or LOCAL operation. A local override feature is included such that when the REMOTE/LOCAL switch is left in the LOCAL position, the override pin on the DB9 can be set to override the LOCAL control and allow for REMOTE control.

DIG1 and DIG2 on both transmit and receive sides are 75Ω in/out while FDM on both transmit and receive sides are 50Ω in/out. When power is removed from the 1200-05, the FDM TX and FDMRX signals pass through to the output. IF connectors are TNC female. The 1200-05 is housed in a 1RU x 14" deep chassis and powered by a 100-240 ±10% VAC, 47-63 HZ input power supply.

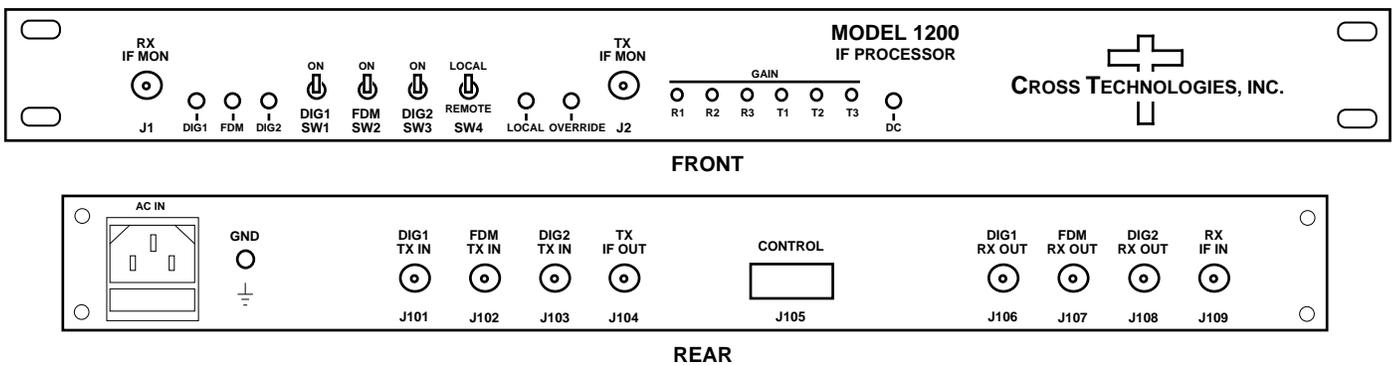
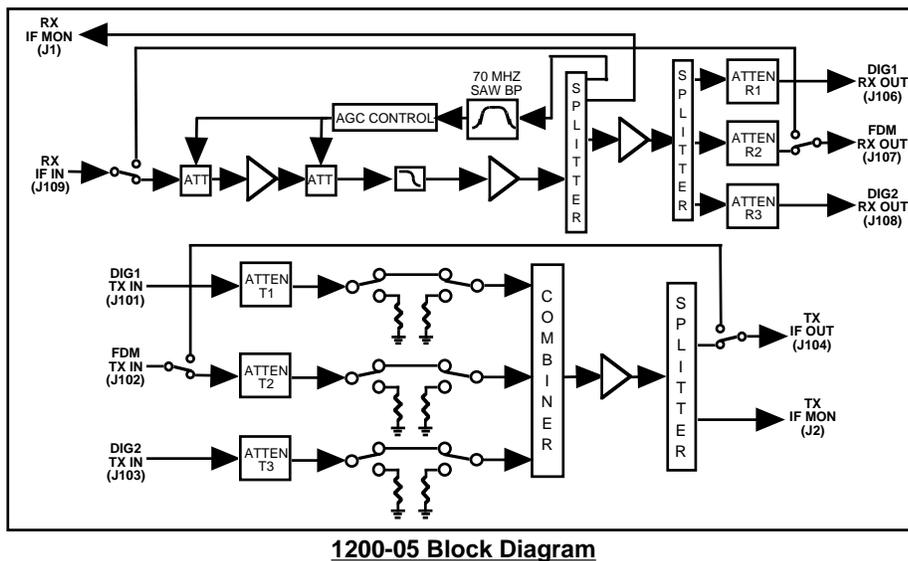


FIGURE 1.1 Model 1200-05 Front and Rear Panels



1200-05 Block Diagram

1.2 Technical Characteristics

TABLE 1.1 1200-05 IF Processor Specifications*

RX Input Characteristics

Impedance/Return Loss	50Ω /18 dB
Frequency	50 to 90 MHz
Level Range	-15 to -95 dBm
1 dB compression	-10 dBm

RX Output Characteristics

Output Impedance/RL	50Ω, 75Ω/18 dB
Monitor/AGC Out Level	-30 dBm, +5, -15 dB
Level Range, Nominal	-30 to -50 dBm

RX Channel Characteristics

Gain, AGC	-25 to +45 dB range
AGC Response time, typ.	6 sec. 10 dB step
Gain Adjustment	0 to -20 dB
Frequency Response	±1.0 dB

TX Input Characteristics

Impedance/Return Loss	50Ω, 75Ω /18 dB
Frequency	50 to 90 MHz
Level Range	-20 to +5 dBm

TX Output Characteristics

Impedance/Return Loss	50Ω, /18 dB
Level Range	+5 to -20 dBm
1 dB compression	+10 dBm

TX Channel Characteristics

Gain Adjustment	0 to -30 dB
Frequency Response	±1.0 dB
Group Delay, max.	+5 ns, max.

TX Switch Characteristics

Isolation, Switch off	≥ 60 dB
Isolation, Port to Port	≥ 50 dB, all "ON"
Switch Time	≤ 10 milliseconds

SAW filter prior to AGC detection circuitry typical characteristics

1 dB Bandedge (typ.)	69.9 MHz lower; 70.09 MHz upper
40 dB Bandedge (typ.)	69.56 MHz lower; 70.46 MHz upper

Controls, Indicators

DIG1TX, FDMTX, DIG2TX	Green LEDs and SPDT switches
LOCAL/REMOTE	Red LED and SPDT switches
OVERRIDE	Yellow LED
POWER	Green LED indicates power is supplied to the unit

Other

IF Connectors	TNC (female)
Connector, DC, Control	DB9 (female)
Size	19.0" 1RU chassis x 14.0" deep
Power	100-240 ±10% VAC, 47 - 63 Hz, 30 watts max.

*+10 to +40 degrees C; Specifications subject to change without notice.

2.0 Installation

2.1 Mechanical - The 1200-05 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 +15 VDC and -15 VDC to the PCB. The 1200-05 can be secured to a rack using the 4 holes on the front panel. Figure 2.1 shows how the 1200-05 is assembled.

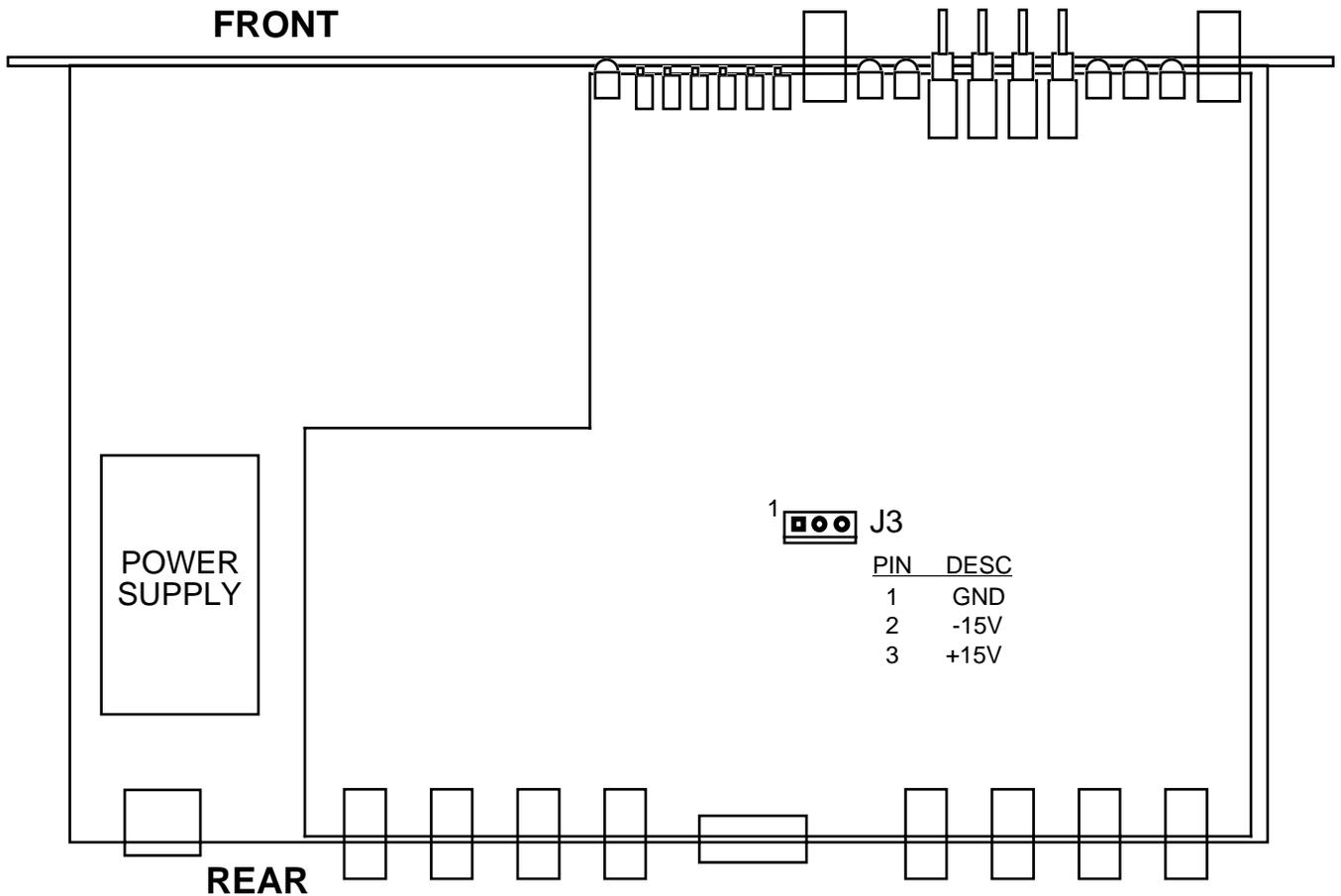


FIGURE 2.1 1200-05 Mechanical Assembly

2.2 Rear Panel Input/Output Signals and Controls - Figure 2.2 and Table 2.1 show the input, output, and control connectors on the rear panel.

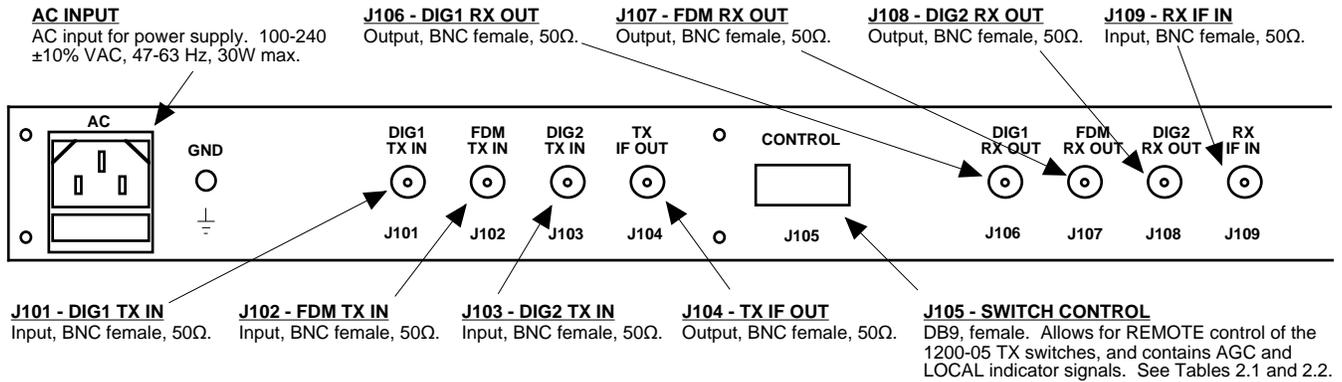
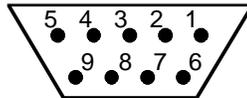


FIGURE 2.2 1200-05 Rear Panel I/Os and Control



PIN	CONTROLS		
1	SELECT DIG1 TX IN	External Closure In	GND/Open OFF; +15 VDC(+V) ON
2	SELECT FDM TX IN	External Closure In	GND/Open OFF; +15 VDC(+V) ON
3	SELECT DIG2 TX IN	External Closure In	GND/Open OFF; +15 VDC(+V) ON
4	LOCAL Indicator OUT	Indicator Output	GND LOCAL Control: Open REMOTE Control
5 9	GND	Ground Reference	
6	OVERRIDE IN	Local Override Input	+15 VDC (+V) overrides LOCAL control and allows for REMOTE control
7	AGC OUT	AGC Voltage	Indicates current AGC gain. (see Table 2.2)
8	+V	DC Voltage Reference	+15 VDC

2.3 Front Panel Controls and Indicators - The following are the front panel outputs, controls and indicators.

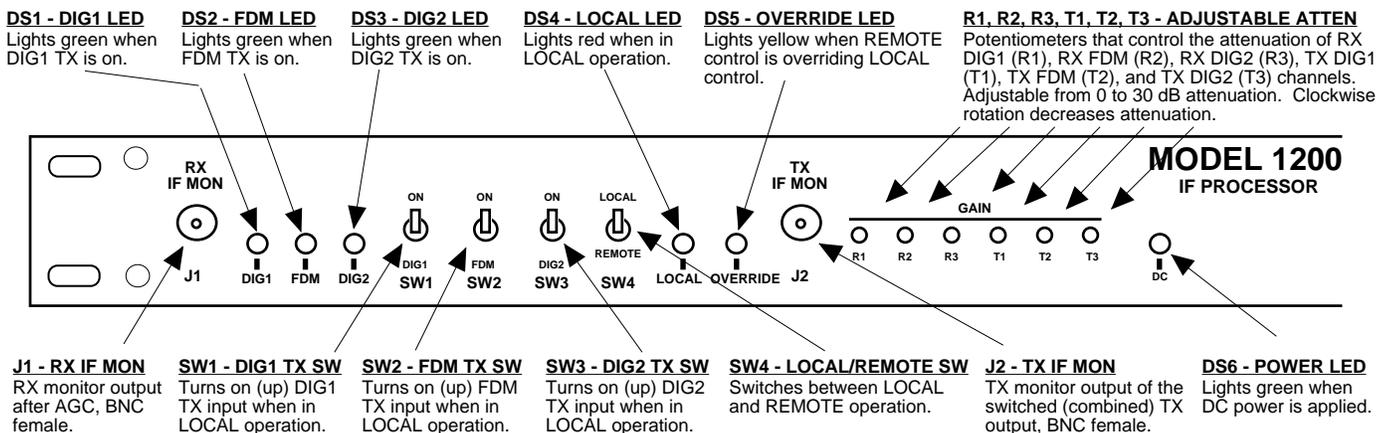


FIGURE 2.3 1200-05 Front Panel Controls and Indicators

2.4 Operation

2.4.1 Installing and Operating the 1200-05

- 1.) Install the 1200-05 in the equipment rack.
- 2.) Connect to signals on the CONTROL connector, J105, as desired (Figure 2.2).
- 3.) Connect 100-240 \pm 10% VAC, 47 - 63 Hz to AC IN on the back panel (Figure 2.2).
- 4.) Be sure the DC (power) LED, DS6, is on (Figure 2.3).
- 5.) Set SW4 for REMOTE or LOCAL operation (Figure 2.3).
- 6.) Choose the desired TX path(s) either remotely (J105, Figure 2.2) or locally using the front-panel switches (SW1 - SW3, Figure 2.3) and check for proper signal(s) at TX IF MON (J2, Figure 2.3) or TX IF OUT (J104, Figure 2.2) and that the appropriate LED(s) (DS1 - DS3, Figure 2.3) is lit.
- 7.) Adjust attenuator pots (R1, R2, R3, T1, T2, T3) as needed. Clockwise rotation provides increased output level (full clockwise = 0 dB atten, full counterclockwise = 30 dB atten).
- 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 2.4. There is a spare fuse in the near slot. If a fuse continues to open, the power supply is most likely defective.

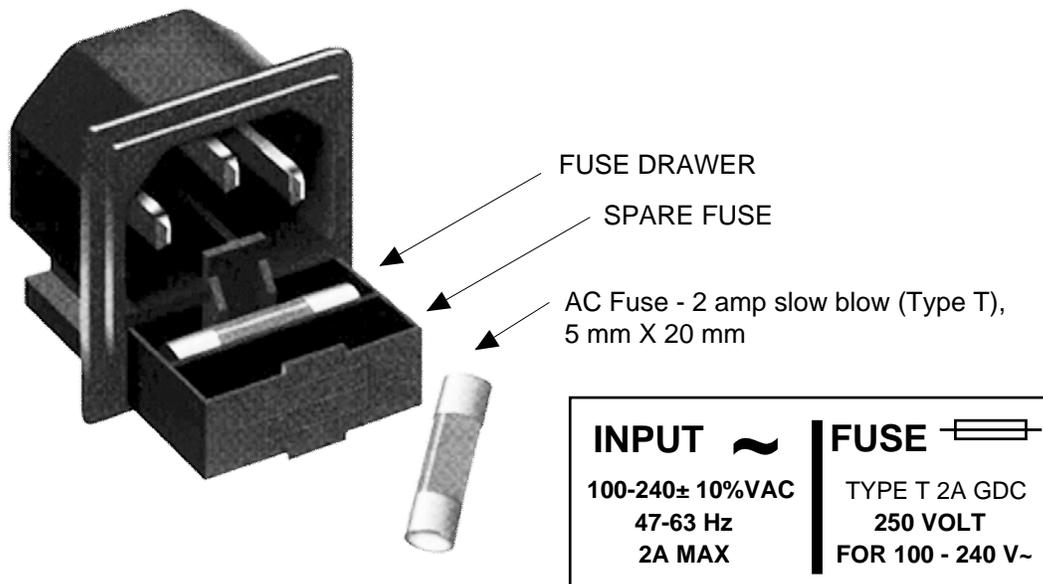


FIGURE 2.4 Fuse Location and Spare Fuse

2.4.2 AGC voltage relating to Gain - The 1200-05 IF Processor operates over a 0 to -80 dBm input range on the RX IF side. The Automatic Gain Control (AGC) provides a constant -30 dBm +5, -15 dBm output RX IF level over the entire input range. Pin 7 of the DB9 control connector, J105, can be monitored to determine the approximate input level (and corresponding gain) in AGC as Table 2.2 shows.

TABLE 2.2 - Approximate AGC Voltage vs Gain and Input Level		
AGC Voltage (pin 7, J105)	AGC Gain	Input Level
-0.2 VDC	-14 dB	-10 dBm
-0.5 VDC	-10 dB	-20 dBm
-1.2 VDC	0 dB	-30 dBm
-1.6 VDC	+10 dB	-40 dBm
-1.8 VDC	+20 dB	-50 dBm
-2.0 VDC	+30 dB	-60 dBm
-2.2 VDC	+40 dB	-70 dBm
-2.3 VDC	+47 dB	-80 dBm
-2.4 VDC	+50 dB	-90 dBm

1.3 Environmental Use Information

- A. **Elevated operating ambient temperature** - if installed in a closed or multiunit rack assembly, the operating ambient temperature of the rack may be greater than room ambient temperature. Therefore, consideration should be given to Tmra.
- B. **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.
- C. **Mechanical loading** - Mounting of equipment in a rack should be such that a hazardous condition does not exist due to uneven weight distribution.
- D. **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.
- E. **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).
- F. **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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