2. THEORY OF OPERATION

The GoPac Power amplifier has been designed to receive the output from a low power transmitter and amplify it. The following discussion assumes that the external transmitter has output power less than 250mW and has been verified to abide by all FCC rules and regulations.

The RF output from the low power transmitter is applied to the *RF Input Connector* (J1) as shown in Figure 1. The signal is passed through a power coupler (C1). This coupler feeds two circuits: a variable attenuator (U1), and a power detector (D1). This power detector (the first of two) is designed to detect the presence of an RF signal at J1. If the signal is too high or too low, the main power amplifier (A1) will be forced into standby by the internal controller. This is to prevent the power amplifier from going into transmit mode without a signal applied, or with a signal that is too high for the system to handle.

Power control:

After the RF signal from the coupler (C1) is applied to variable attenuator (U1), it is routed to a high gain high power amplifier (A1). The output of the amplifier is then applied to a power couple (C2). A portion of the output power is applied to a second power detector (D2) that is then fed back through an automatic gain control loop (AGC). The output of the AGC loop controls the variable attenuator. An analog signal from the microprocessor is applied to the AGC controller. This signal is compared to the power level from the main power detector (D2). If the signal from (D2) is higher than the signal from the microprocessor, the attenuator is increased therefore reducing the total output power, reducing the voltage from (D2). If the signal from (D2) is lower than the signal from the microprocessor, the attenuator is reduced therefore increasing the total output power, and increasing the voltage from (D2). This process is performed continuously until a steady state output power has been reached.

Main RF output:

The RF output from the amplifier is routed through a low pass filter and an output isolator. The low pass filter is used to remove any unwanted harmonics created inside the power amplifier. The output isolator is used to protect the power amplifier from being damaged when devices with poor RF match are applied.

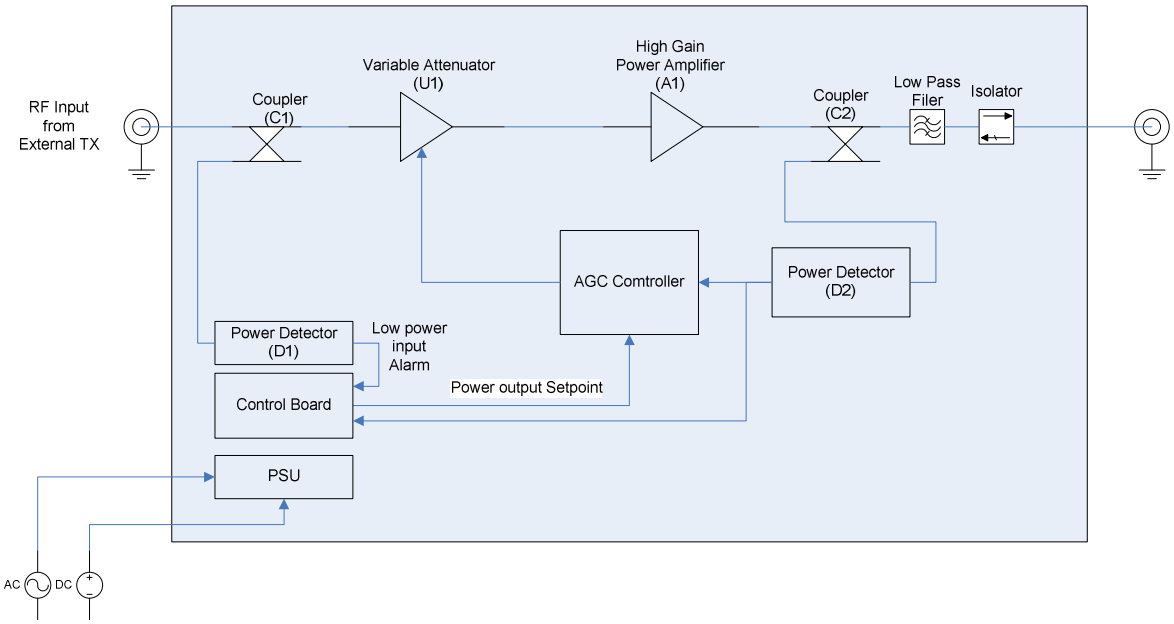

Figure 1: System Block Diagram

3. SPECIFICATIONS

RF Performance

Frequency band:.....1.99 GHz – 2.70 GHz
.....6.40 GHz – 7.10 GHz
Frequency tuning step size:.....50 KHz (*United States*)
RF Output Power: .....1 to 5W (digital) standard (8W optional)

RF Power Modes

Standby: .....No RF out
Tx:.....Instant on-frequency transmission
Stability:.....+/– 2.5 PPM

Power Requirements

Input Range.....90 to 240 VAC (40 to 60Hz), or +11 to +32 VDC (without the need for internal jumpers or switch settings)

Consumption:.....80 watts (with attached camera back transmitter)

Physical Characteristics

Dimensions: .....6.8”(17.27cm) x 13”(33cm) x 17”(43.2cm)
Weight:.....8.8 lbs (4 kg)

Environmental

Temperature:.....-20°C to +65°C (*operational*)
Humidity: .....95% (+10°C to +50°C)

Connectors

Power .....Multi-pin MS Type(Detoronics DT02H-14-18PN)
RF:.....Type “N” (*Female*) (*50 ohms*)

4. INSTALLATION

4.1 UNPACKING & INSPECTION

Unpack and visually inspect the unit for LCD, connector, and surface area damage. All claims should be filed with the carrier. Save all shipping and packing materials for possible re-use.

4.2 MECHANICAL INSTALLATION

The GoPac comes standard with an Anton Bauer Mounting Bracket Assembly. This allows a camera back transmitter to be quickly attached or removed from the docking station.

To mount a camera back transmitter to the GoPac, perform the following:

1. Orient the camera back transmitter mounting slots to align with the GoPac guide pins as shown in (Figure 2).
2. Slide the camera back transmitter onto the GoPac guide pins until you hear the thumb-catch lock. Ensure that there is no play between the camera back transmitter and the GoPac.
3. Connect an appropriate RF jumper between the RF output of the camera back transmitter, and the RF input of the GoPac. (Figure 3).

To connect a power source to GoPac:

The built-in power supply accepts 90 to 240 VAC (*40 to 60 Hz*) **or** +11 VDC to +32 VDC without requiring any jumper or switch settings.

Nucomm ships a DC cable, and the appropriate local AC line cord. Alternate line cords are available upon request.

Connect the supplied cable between an appropriate power source and the GoPac front panel power connector. (Figures 4 & 5).

CIRCUIT BREAKERS

The GoPac is protected against over/under voltage and reverse polarity conditions. The unit has AC & DC circuit breakers, as shown in Figure 4. The breakers will trip at 10 Amps.

If a breaker trips, check and verify all power connections and specs, then reset the breaker by pushing it back into position.

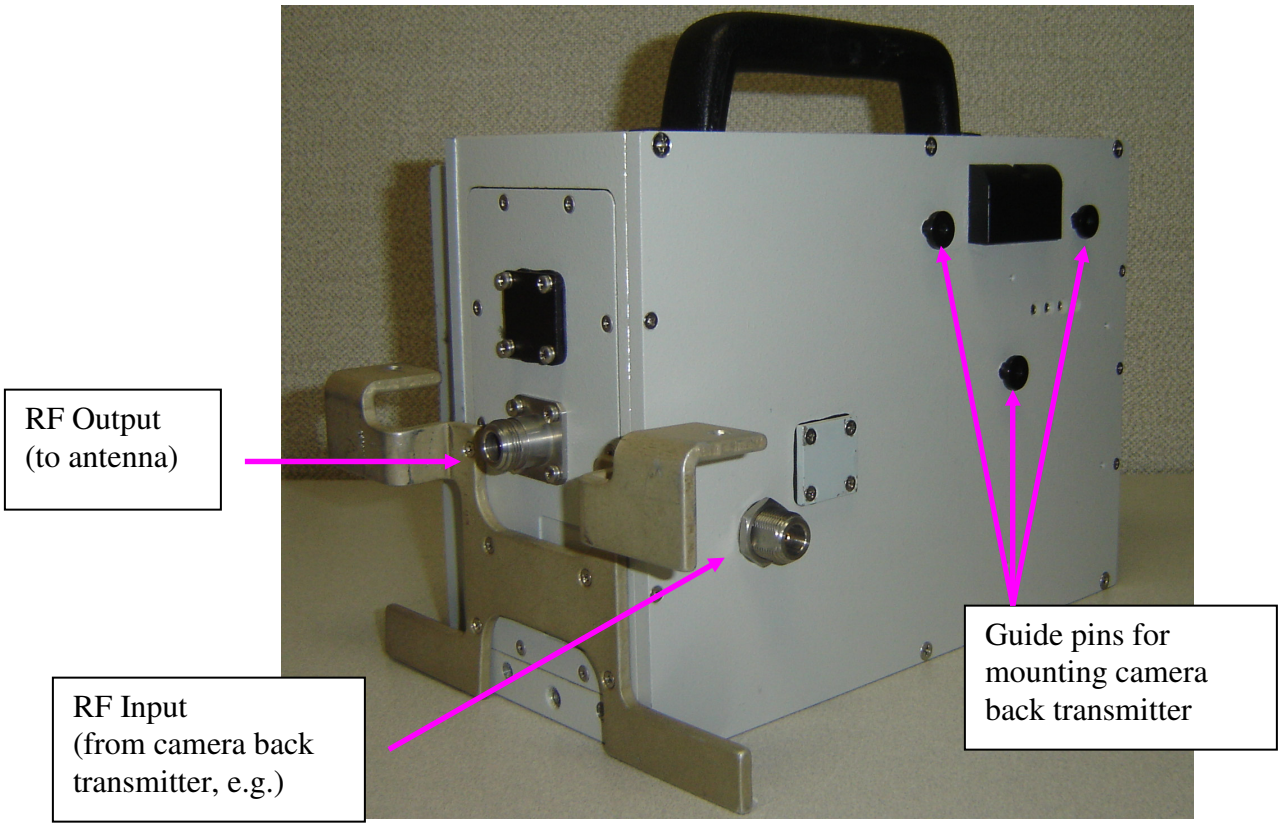

Figure 2: GoPac Guide Pins & RF Connectors

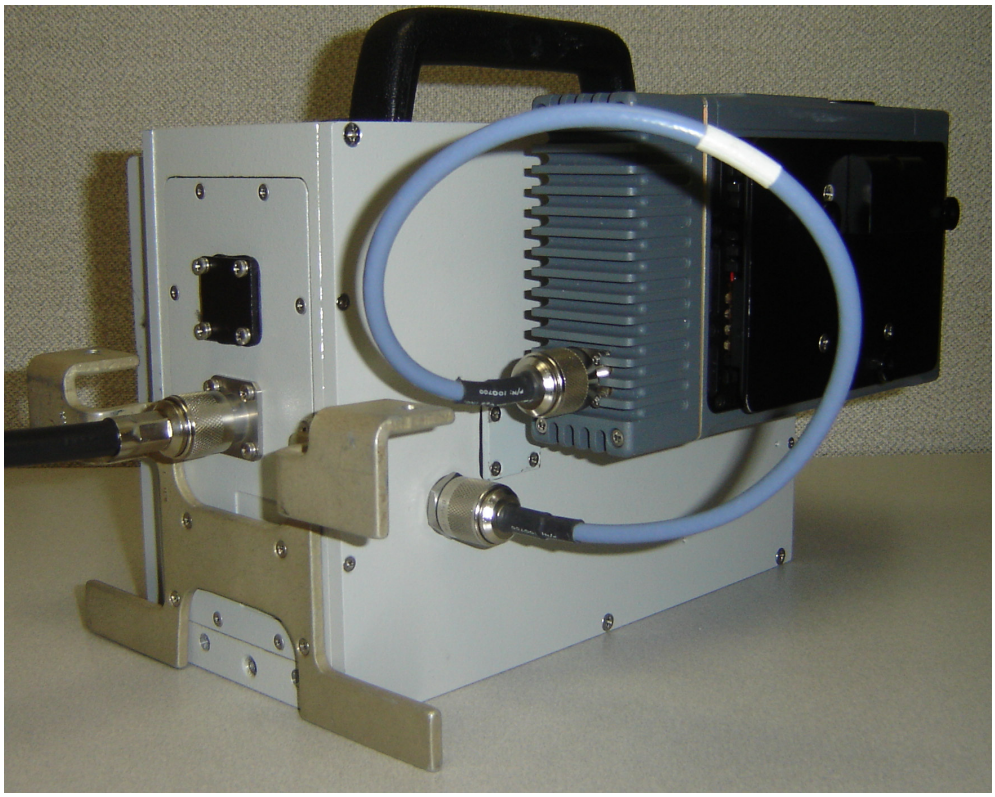

Figure 3: GoPac fitted with RF cables