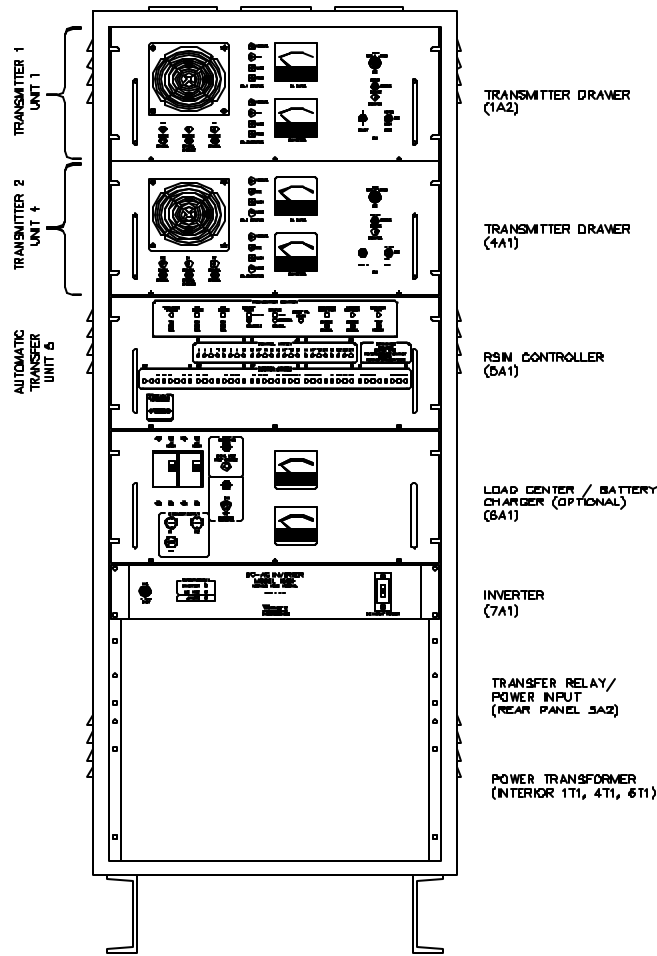




Southern Avionics[®] Company's DGPS Reference Station Transmitter System.



SC1000 DGPS USCG Dual Transmitter

- **Model: SC1000 DUAL USCG**

QUALIFICATIONS: Meets applicable requirements of the United States Coast Guard and the Federal Communication Commission

FREQUENCY: 283.5 to 325 kHz.

POWER OUTPUT: Carrier power into 50 ohms continuously adjustable 50 to 1000 watts.

SPURIOUS EMISSION: Spurious Emissions (measured at a dummy antenna) are better than 70dB below the 1000 watt carrier.

RADIATED HARMONICS: Radiated Harmonics (measured at a dummy antenna) are better than 60dB below the 1000 watt carrier.

TYPE OF EMISSION: NON, G1D.

NOISE AND HUM LEVEL: Better than 40 dB below the carrier level.

INPUT POWER: 115/230V $\pm 10\%$, single phase 50-60 Hz. 144 VDC. Nominal AC input power is 1250W at 1000W carrier. Nominal DC input power is 1150W at 1000W carrier.

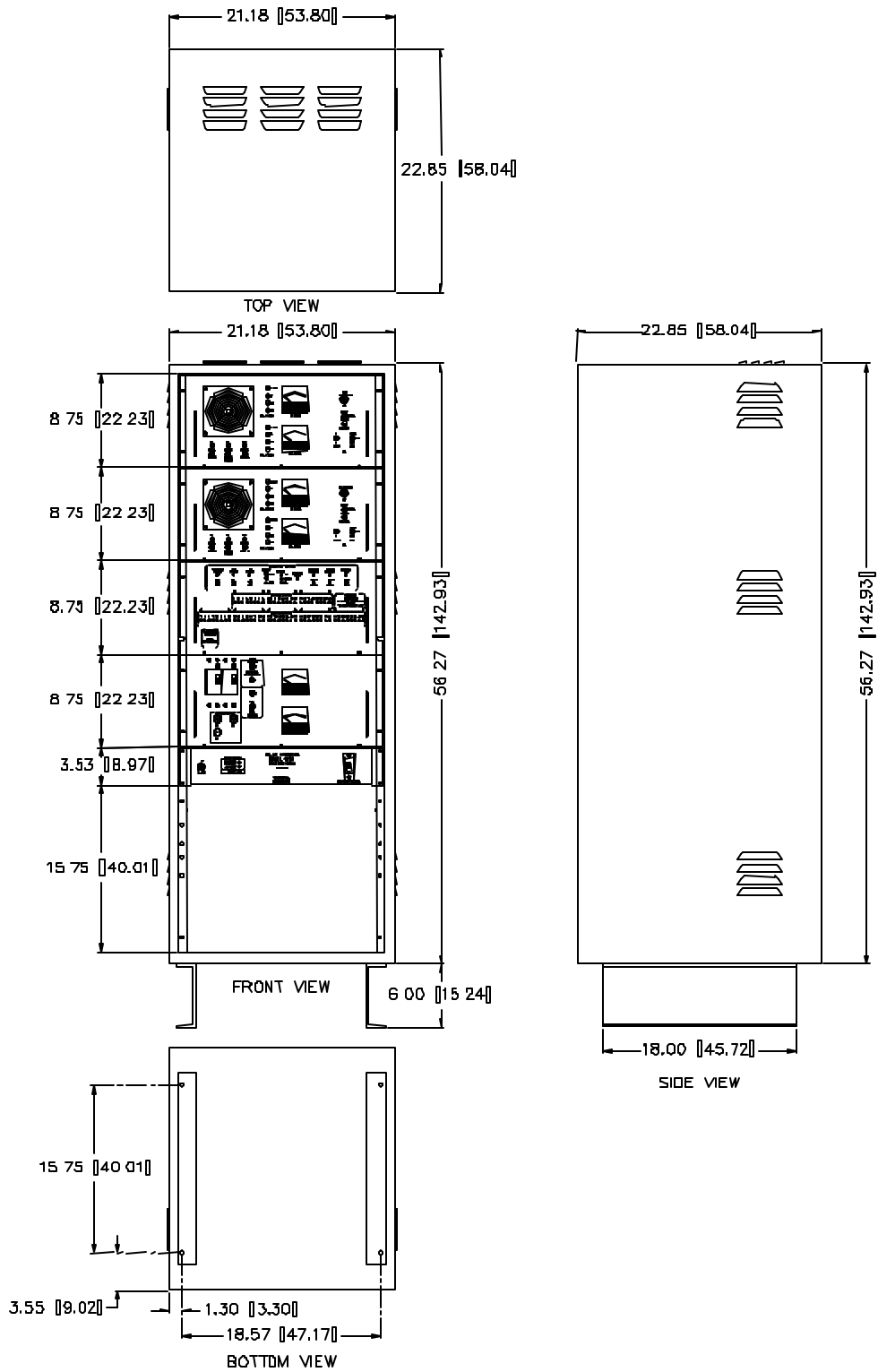
EMERGENCY BATTERY POWER: When using emergency battery power, 144VDC and 24VDC are required. Output power drops less than 15% when AC is lost and the batteries supply power. Power required is 144V at 8A and 24V at 50mA.

METERING: Forward power output, reflected power, PA voltage, PA current.

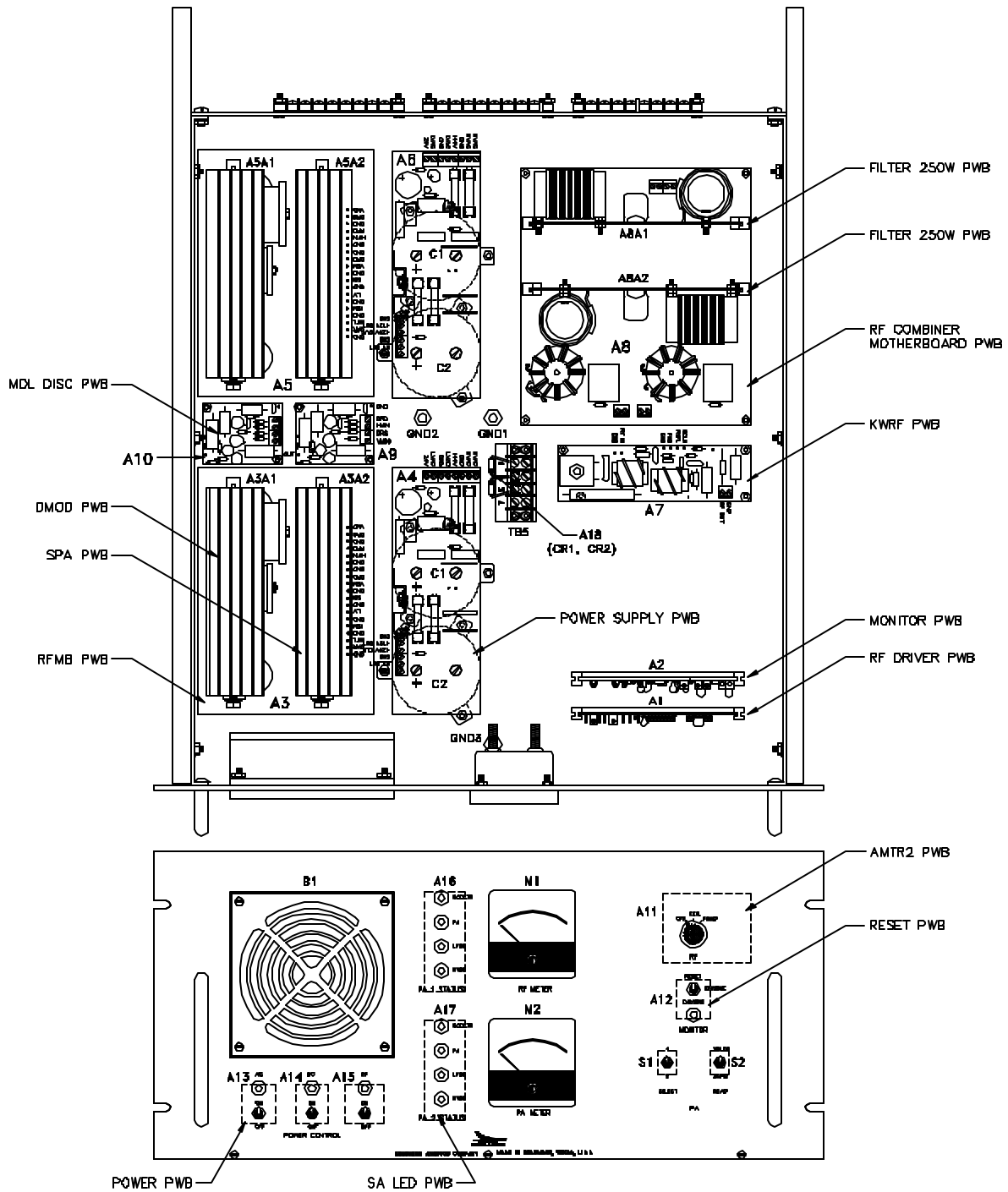
CIRCUIT PROTECTION: Individual fuses are used to protect the AC and DC circuits. A VSWR circuit shuts down the transmitter if VSWR exceeds an adjustable value.

WORKING CONDITIONS: Continuous unattended operation in the following environments: Ambient temperature, -40° to $+70^{\circ}\text{C}$; Relative humidity, 0-95% noncondensing; High salinity as encountered in offshore conditions.

MONITORING: Transmitter shuts down when power falls below an adjustable value, or when VSWR rises above an adjustable value. With a dual system a shutdown signal initiates a transfer from the primary transmitter to the secondary transmitter.



Transmitter Enclosure Dimensions



Transmitter Drawer Diagram

- **Transfer / RSIM Control System:**

INPUT/OUTPUT PORTS: An RS-422 Serial I/O port located on the rear panel allows the user to remotely control and monitor the system using RSIM standards as described in RTCM PAPER 88-96/SC104-STD. An RS-232 Serial I/O port located on the front panel of the control drawer allows the user to locally control and monitor the system. A 24 Contact Barrier Block (Terminal Strip) for connecting 24 binary control states, (0 volts, 12 volts). A 40 Contact Barrier Block (Terminal Strip) for connecting 40 binary control states, (open circuit, short circuit).

24 BINARY CONTROL STATES: When the control state is 0, the transmitter will provide 0 Volts. When the control state is 1, the transmitter will provide +12 Volts. The Binary Control States are controlled by the micro-processor. The states are latched and maintained until changed by the micro-processor.

40 BINARY MONITOR STATES: When the input is an open circuit, the monitored state is 0. When the input is a short circuit, the monitored states is 1. The Binary Monitor States are read and monitored by the micro-processor.

DISPLAYS LOCALLY: 24 Binary Control States LEDs, 40 Binary Monitor States LEDs, Transfer Power, AC Power, DC Power, Select Main, Status (Main, Standby, Fail), Transfer Function, Remote Control, Standby Test.

DISPLAYS REMOTELY: Output Power, Reflected Power, DC Supply Voltage, DC Supply Current, Charging Current, Side A/Side B, AC or DC Unit Power Source, Failed Modules, 24 Binary Control States, and 40 Binary Monitor States using RSIM messages.

REMOTE CONTROLS: The RS-422 Serial I/O port provides remote control and monitoring of the Side A/Side B, AC or DC Supply Power Source, Automatic Switch-Over, ENABLE/DISABLE, Reset. 24 Binary Control States (0 or 12 Volts).

LOCAL CONTROLS: Transfer Power (ON-OFF), AC Power (ON-OFF), DC Power (ON-OFF), Select Main (Side A - Side B), Reset To Main, Transfer Function (Disable - Enable), Remote Control (Disable - Enable), Standby Test (Test - Normal).

WORKING CONDITIONS: Continuous unattended operation in the following environments: ambient temperature -40°C to 70°C, relative humidity 0 to 100%.

CIRCUIT PROTECTION: Fuses are furnished in AC and DC power lines. Logic line inputs are isolated by series impedances and diode clamps.

- **144VDC Load Center / Battery Charger System:**

INPUT POWER: 110/220 VAC \pm 15%, single phase 50-60 Hz. Nominal input power is 2000 watts at a 10 amp charge.

CHARGE CURRENT: 10 amp max.

CHARGE VOLTAGE: 165VDC nominal fast charge, 159VDC nominal float charge.

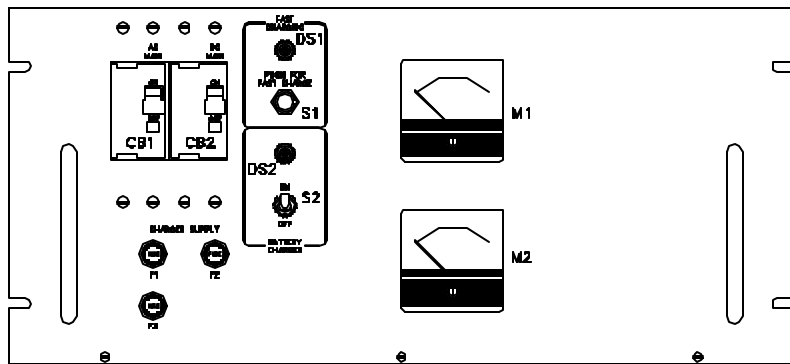
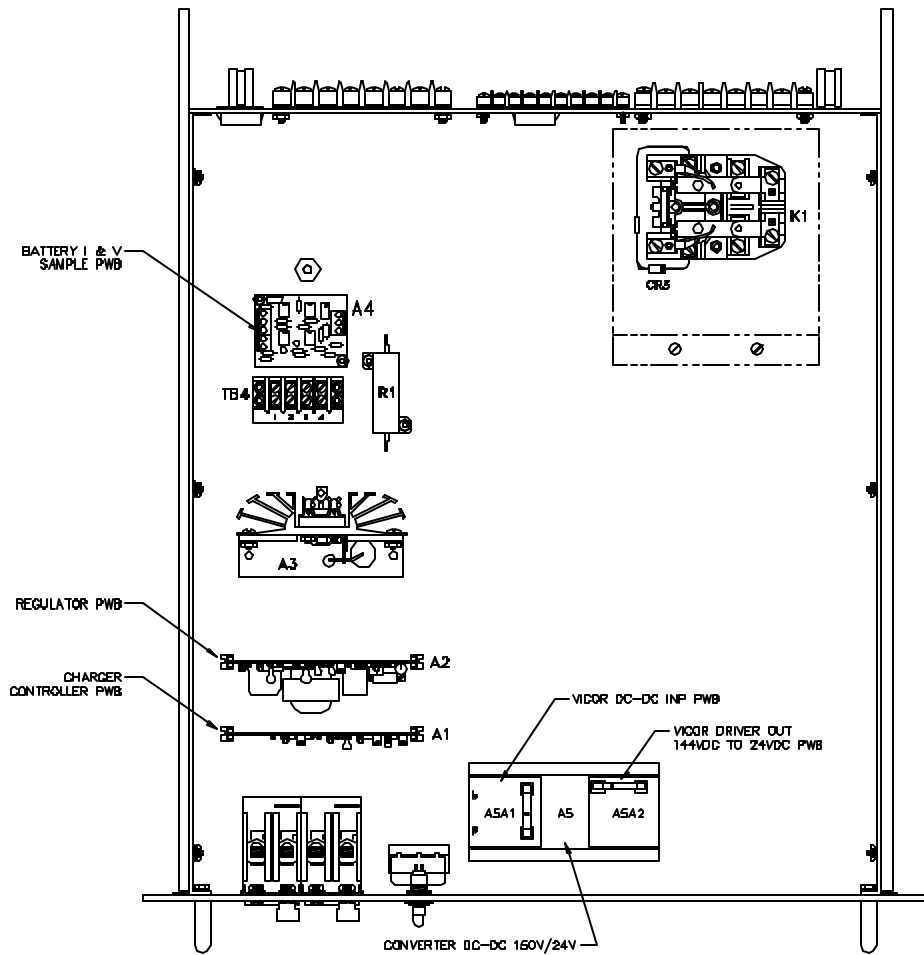
CIRCUIT PROTECTION: The battery charger output is protected by fuses. The battery charger input and transmitter AC/DC are protected by circuit breakers.

WORKING CONDITIONS: Continuous unattended operation in the following environments; ambient temperature, -40° to +70°C; relative humidity, 0-100% noncondensing.

INSTALLATION REQUIREMENTS: Indoor mounting only.

INDICATORS: Battery charger ON - Green LED. Fast Charge ON - Yellow LED.

METERING: DC Volts, Charge/Discharge Current.



144VDC Load Center/Battery Charger Drawer Diagram

- **144VDC To 120VAC Inverter:**

INPUT POWER: 144VDC.

OUTPUT POWER: 120VAC, 60Hz quasi-sine wave.

CIRCUIT PROTECTION: The AC line fuse is a 15A normal blow type 3AB fuse which protects against load faults appearing on the commercial AC line when it is selected by the inverter's transfer circuitry to power the load.

ALARM CONDITION LED: This LED is "on" when the Form C alarm contacts on the rear panel indicate an alarm condition.

DC INPUT CIRCUIT BREAKER: This is a combination DC input switch and circuit breaker, provided in the positive input line. It does not interrupt the commercial AC line input.

- **Model: PC1KILO USCG**

INPUT IMPEDANCE: 50 ohms.

LOAD IMPEDANCE: 2 to 25 ohms resistance, 500 to 3500 pF capacitance.

FREQUENCY: 283.5 - 325 KHz with a 500 to 3500 pF load.

POWER INPUT: 1000 watts average, 2000 watts peak.

METERING: Antenna current. Single meter with 4 position switch, OFF, TUNE, 0-20 amps, 0-10 amps.

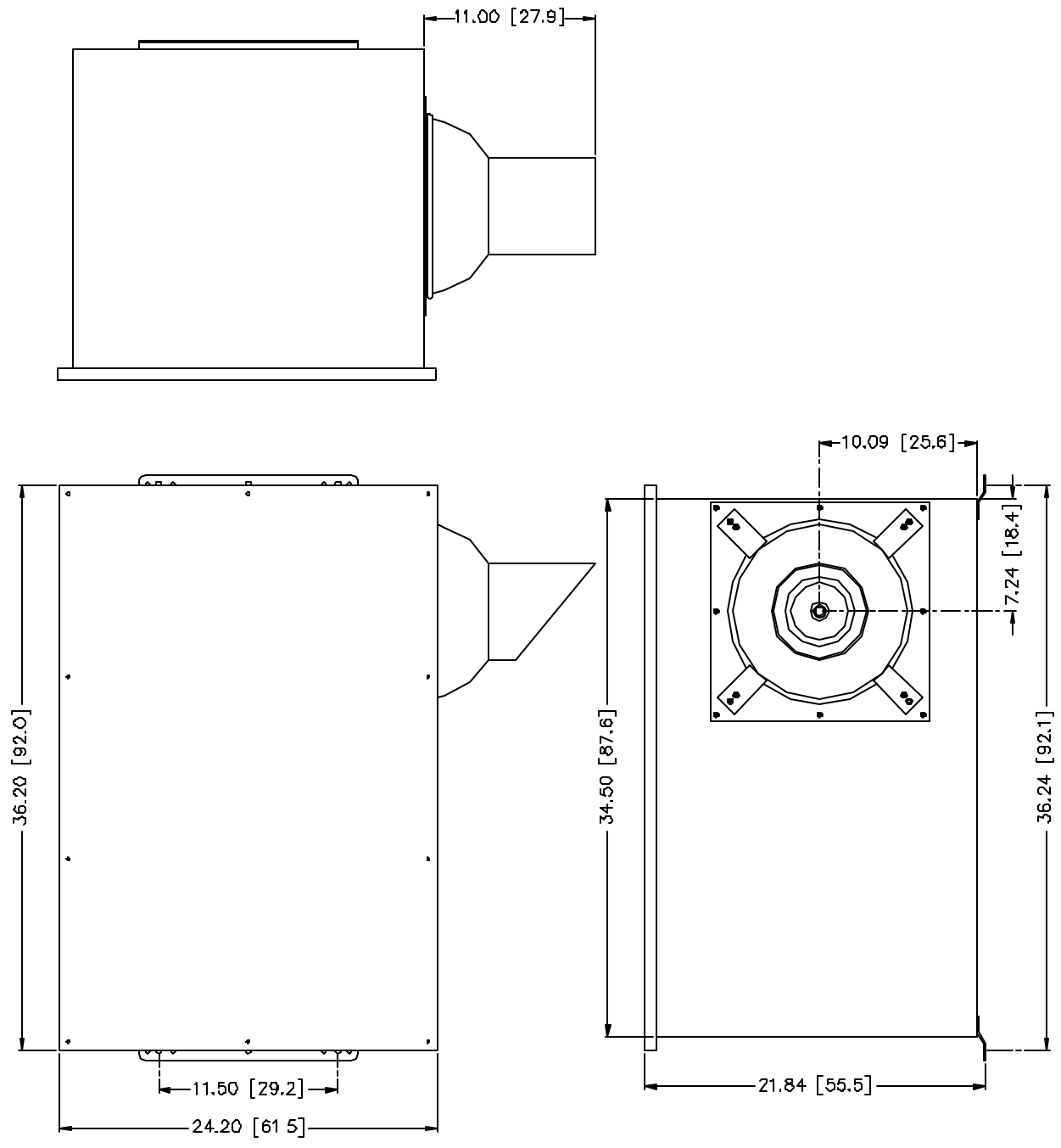
TUNING: Large coil with coarse taps and fine taps and a rotatable tuning ring. The coarse tap is selected with a solder connection behind an access panel. The fine tap is selected with a 10 position switch. The autotune system drives the tuning ring for exact tuning. Inductance range is 25 μ H to 650 μ H.

WORKING CONDITIONS: Continuous unattended operation in the following environments: ambient temperature, -50°C to +70°C; humidity, up to 95% noncondensing; altitude, up to 4000 meters. The antenna coupler is designed for outdoor installation at the base of the antenna.

POWER REQUIREMENTS: 12 VDC, 500mA, supplied to coupler from Southern Avionics transmitters. Optional 110/220 VAC, 50 - 60 Hz supply for use with other transmitters.

SIZE: 24" (61 cm) wide, 22" (56 cm) deep, and 36" (91 cm) high.

ACCESS: Access to the tuning controls and meter is available behind the weathertight front access door. Access to the coarse taps on the loading coil is available behind a removable panel above the tuning controls panel.



PC1Kilo USCG Antenna Coupler Enclosure Dimensions