
Pulsar HF 10000, 10KW Solid State Shortwave Transmitter



**FRONT VIEW (LESS FRONT DOORS)
PULSAR HF 10000, 10KW SOLID STATE
SHORTWAVE TRANSMITTER**

"The Transmitter People"



ENERGY-ONIX

BROADCAST EQUIPMENT CO., INC.
P.O. Box 801, 1306 River Street, Valatie, New York 12184
518-758-1690 FAX 518-758-1476
E-Mail: energy-onix@energy-onix.com
WEB PAGE: www.energy-onix.com

Description

Synthesized Exciter -The RF source of the transmitter is a front panel controlled unit which serves as the frequency source for the transmitter when operating the transmitter as an AM analog broadcast transmitter. The normal frequency coverage is from 2 to 10MHz. As an option, this drawer can produce adequate TTL drive from 2 to 18 MHz. All circuitry is solid state.

Controller – The Pulsar HF-10,000 utilizes a controller that permits (5) power level presets, (4) times fault recycling and (4) overload circuits. These overloads relate to protective levels for maximum allowable output VSWR, DC over current, DC over voltage and excessive RF output current. The controller chassis contains a PDM generator which operates at 200KHz and has a frequency response of ± 0.5 db from 20Hz to 50KHz.

2KW RF Amplifiers – The Pulsar HF 10,000, contains (6) 2KW broadband solid state RF amplifiers. All amplifiers are broadband and require no tuning over 2 to 10MHz. As an option, these amplifiers can be supplied to produce rated output from 2 to 18 MHz. The amplifier drawer contains (4) 500 watt broadband, solid state amplifiers which are combined to produce 2KW output. These circuits are operated in Class E and have an RF efficiency of 93 to 97%

12KW Solid State Combiner– This combiner accepts the output of each 2KW amplifier and combines all six amplifiers by utilizing conventional solid state combiner techniques. The output impedance of the combined six amplifiers is relatively low. This impedance is transformed to 50 ohms by appropriate front panel adjustment of (3) calibrated counter dials which describe the settings of three variable vacuum capacitors. These counter dials are calibrated so that the operator can change frequency by simply setting these controls to their desired positions.

Antenna Tuning Unit – The output of the combiner is fed to a full “T” network. The front panel control of this chassis utilizes calibrated counter dials which are used to permit the operator to change to the desired operating frequency within minutes. These controls have the capacity of transferring rated power output to a mismatch as high as 3:1.

DRM Compatible– The Pulsar HF 10,000 has been designed with utilization of DRM (Digital Radio Mondiale) in mind. This has required a PDM source of 200KHz, a PDM frequency response of 20Hz to 50KHz, an IM distortion of less than -55 db and RF tuned circuits with essentially zero group delay. Thus, customer need only add DRM exciter to achieve excellent DRM digital stereo performance.

High Efficiency, Low Distortion PDM – The Pulsar HF 10,000 utilizes modern Pulse Duration Modulation which has a frequency response of 20Hz to 50KHz. Its efficiency is 95% at all audio frequencies at 95% modulation levels. The combination of this high modulator efficiency and the high RF efficiency of 93 to 97% results in an AC efficiency of 85 %.

Pulsar HF 10,000 10KW Solid State TECHNICAL and MECHANICAL SPECIFICATIONS

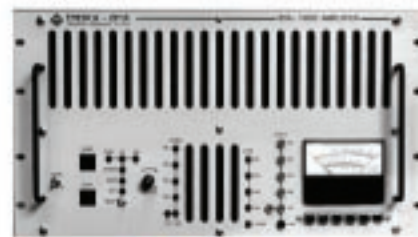
- Configuration: Six independent power modules with integral cooling fans
- Power Output: 10,000 watts (rated) 12,000 watts (capable)
- Power Control: Automatic via five (local or remote) selectable levels. 1 through 4 are pre-sets, #5 is front panel adjustable.
- Frequency Range: 2.3Mhz to 10MHz (optional 18MHz, specify)
- RF Output Impedance: 50 Ohms, 1-5/8" EIA, can accommodate any load that produces a resistance of 18 ohms to 150 ohms.
- Modulator Type: Pulse Duration (PDM)
- Audio Freq. Resp: ± 0.5 dB, 20-20,000 Hz @ 95% modulation
- Audio Dist. (THD): $<0.5\%$ @ 95% Modulation, 30Hz to 20KHz
- Mod. Capability: 133% positive peak
- Carrier Shift: Less than 1%
- RF Harmonic: -80dB or more below rated output. Meets FCC and CCIR specs
- Spurious Outputs: -80dB or more below rated output. Meets FCC and CCIR specs.
- Noise and Hum: -65 dB or better below 100% Mod
- Protective System: VSWR, DC Over Current, PA over voltage and over current RF
- Freq. Stability: ± 5 Hz
- Audio Input: 600 ohms active balanced. -10 dBm to +10dBm
- Power Input: 198-450 volts (specify). 3-phase, 50/60Hz (specify). Single phase available by special order.
- Power Variation: $\pm 10\%$ voltage ± 2 Hz frequency
- Power Factor: 0.9 or better (.92 typical)
- Overall AC Efficiency: 85%
- Power Consumption: 11,750W (0% modulation) W (100% modulation) 17,000W
- Metering: Forward/Reflected Power, DC Current, DC and AC Voltage – each PA meter indicates (4) currents, (1) voltage and (1) power output of 2KW
- Remote Control: Transmitter ON/OFF, power level selection overload reset, telemetry metering samples.
- Ambient Temp: -10° C to 50° C
- Humidity Range: 0-95%
- Altitude: 0 to 4,000m (0-13,000 ft.)
- Size: Two cabinets, combined dimensions 72-3/4"H x 56-1/2"W x 37-1/4"D
- Weight: 1800 lbs. (Net)

Solid State FM Broadband Amplifiers

Note: Energy-Onix also manufactures 1 tube transmitters that produce 4KW to 40KW.



SSA-150/300/500C
150w, 300w, 500w



SSA-1000C

Energy-Onix offers a complete line of broadband solid state amplifiers that can be used to amplify the power output of existing 10 to 20 watt exciters. The result output can serve as a LPFM or Translator. It can also serve as an IPA for a High Power Transmitter.



SST-1000C

Low Power Solid State FM Transmitters



SST-150/300/500C



Legend 2000C



Legend 1500C

The (5) Five solid state transmitters produce controllable power output of 100 to 2000 watts. All of these transmitters can be operated from local or remote controls. These transmitters can be used in LPFM, Translator and Medium power applications. All transmitters are with independent Exciters. The 1000 C2 contains (2) independent 500 watt amplifiers while the 1500 C uses (3) 500 watt amplifiers. The 2000 C has (2) 1 Kw amplifiers.

Medium Wave Solid State AM Transmitters

Rack Mounted Units



Pulsar 250B/500B



Pulsar 1000B



Pulsar 20,000 / 25,000

Cabinet Transmitters



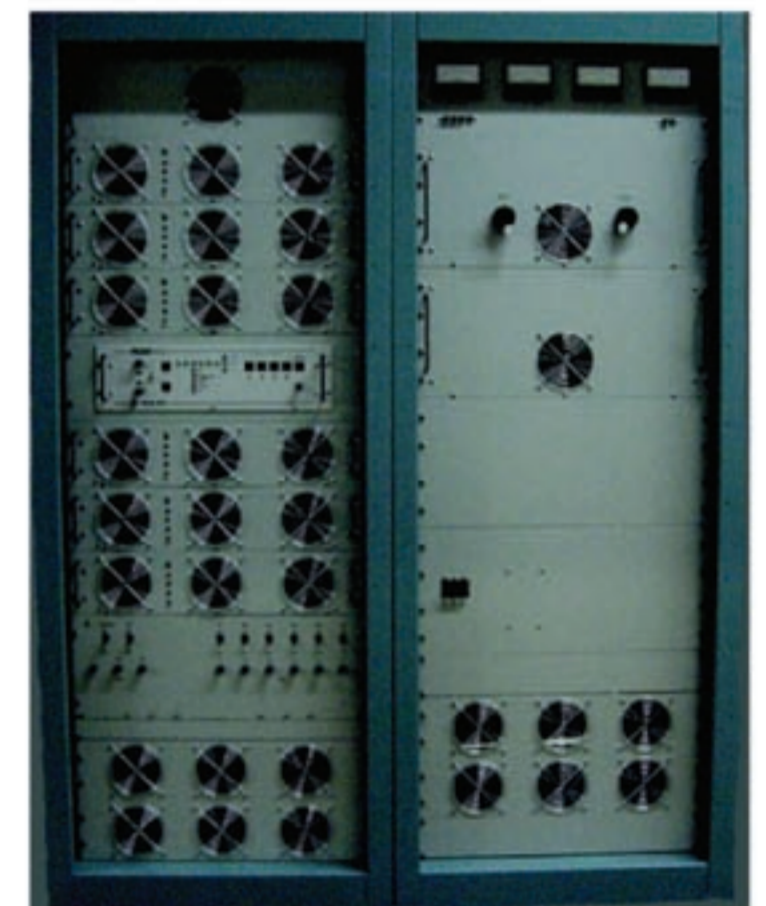
Pulsar 250/500/1000



Pulsar 2000/2500/3000



Pulsar 5000



Pulsar 10,000

****Above Pictures not to Scale****

The *Pulsar* transmitter is one of the most ruggedly constructed Solid State, AM transmitters available today. The *Pulsar* is designed for survivability in the most severe environments. These units offer you long term reliability, unsurpassed audio performance and state of the art features.

- A strong signal with 125% positive peak capability at rated power.
- Lower Power Cost.
- Redundant modular design avoids down time.
- Output tuning and loading controls for perfect match to antenna.
- VSWR over voltage, over current and RF current protection
- Three times fault recycling.
- Four power level presets
- Solid State PDM design achieves best audio quality, best frequency response and lowest levels of distortion.
- Step-start capability.