THE GLOBAL LEADER IN HIGH POWER ULTRASONICS

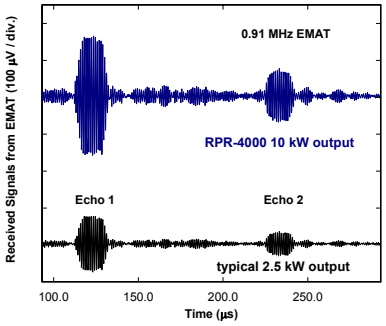
RITEC RPR- 4000

High Power Tone Burst Pulser and Receiver:

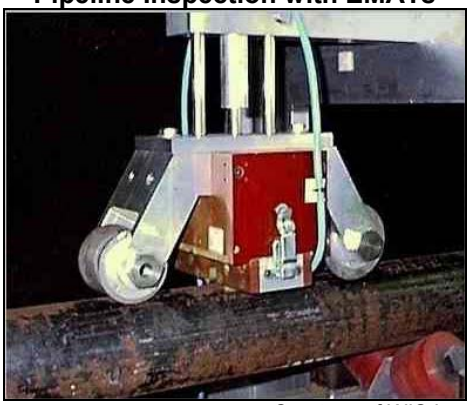
- Delivers high power RF tone burst pulses up to 8 kilowatts RMS up to 2 MHz,
- Drives EMATs, piezoelectric and air-coupled transducers,
- Controlled from front panel display and keypad or by computer through serial port,
- Has low noise broadband receiver with adjustable gain and filters,
- Make measurements using a single transducer with the internal diplexer,
- Has environmentally tolerant packaging,
- Is easily customized to specific frequency and power requirements.

Industrial Applications

Railroad Inspection with EMATs

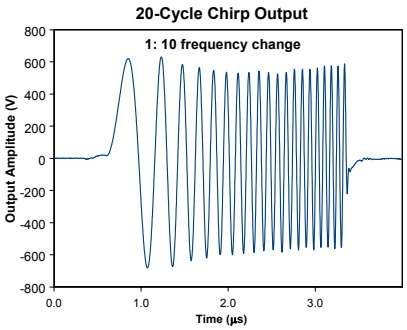


Pipeline Inspection with EMATs



Courtesy of WIS Inc.

Novel Applications



Using External Arbitrary Waveform To Drive Air-Coupled Transducers

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MOST POWERFUL
ULTRASONIC PULSER / RECEIVER

The RITEC RPR-4000 is a high power ultrasonic measurement system. Some special capabilities include:

- The ability to make reproducible measurements using short (down to single cycle) radio frequency (RF) tone burst excitations in composites and other difficult materials,

- High power RF tone burst excitations up to 8 kilowatts RMS, 16 kilowatts peak, to drive inefficient transducers, such as electromagnetic acoustic transducers (EMATs) or high capacity, low frequency piezoelectric transducers, at a maximum duty cycle of 1%.

- Alternatively, where a high duty cycle is required, a lower power configuration is also available, with an output of up to 400W at a maximum duty cycle of 5%. This version is ideal for use with a variety of air-coupled transducers.

- This remarkable instrument has been designed to withstand severe environmental pollution and high temperatures while providing the most powerful tone burst available to the ultrasonic testing market.

- The RPR-4000 has been tested at full duty cycle in environments up to 100 degrees Fahrenheit (38 degrees Celsius). If an over temperature condition should develop, an automatic shutdown feature will be enabled.

GENERAL SPECIFICATIONS

1. The unit can be mounted in a standard 19-inch rack. The height is 7 inches (17.8 cm) and the depth is 17 inches (43.2 cm).
2. Total weight is approximately 30 pounds (~13.6 kg). Universal line voltage requirements are from 85 to 240 Volts RMS at 50 to 60 Hertz. (300 Volt Amperes) at maximum duty cycle.
3. Settings can be saved in one of 10 setting memories for easy recall. Settings files can also be downloaded from an external computer to one of the 10 memory locations through the RS-232 port.
4. The front panel operator's console consists of a liquid crystal display and a 4x 4 matrix keypad. The display is a 4 line by 20 character dot-matrix liquid crystal display (LCD) with LED backlighting.

PULSER

1. Sinusoidal Radio Frequency (RF) Tone Burst. Select from a custom range or from three standard ranges: the high power version, at specified powers of 8kW, from 50 kHz to 2 MHz or 250 kHz to 5 MHz or the low power version at specified power of 400W from 100 kHz to 10 MHz.
2. Power Output: High Power: Low frequency unit; 8 kW up to 500 kHz. High frequency unit; 8 kW up to 2 MHz, 5 kW at 3 MHz, The saturated power output in the primary frequency ranges is ~ 10 kW. Low Power: 400W from 100 kHz to 10 MHz. The saturated power output may be as high as 500W. Level Control: Greater than 30 dB
3. Pulse Width: controllable in increments of time or in cycles of RF. Maximum Pulse Width: limited to a maximum of 200 microseconds.
4. Maximum Duty Cycle: limited by over current and over temperature settings; 1% for the high power pulser, greater than 5% for the low power pulser.
5. Three different protection circuits are provided: over current, over voltage and over temperature.
6. A diplexer is located at the pulser output for pulse/echo operation.
7. External gating signal and external RF signal from an arbitrary waveform generator.

RECEIVER

1. Total Gain: 20 dB to 100 dB
2. Gain Control: 80 dB in 0.4 dB steps
3. Noise Figure: Approximately 6 dB at maximum gain.
4. Inputs: One of the two inputs can be active or each input is selected on alternate triggers (Auto. Diplex).
5. Four high pass filters: 0.05, 0.2, 0.4, and 0.8 MHz in the low frequency unit: 0.2, 0.4, 0.8, and 22 MHz in the high frequency unit.
6. Four low pass filters: 0.2, 0.8, 1.6 and 22 MHz in the low frequency unit: 2.5, 5, 10, and 22 MHz in the high frequency unit.
7. Maximum bandwidth: 50 kHz to 20 MHz
8. Input Impedance: Either 50 Ohms or 10,000 Ohms (factory configured).
9. Receiver Output: 1 Volts peak-to-peak into 50 Ohms.
10. External Pre-Amplifier: can be powered by a rear panel connector. (+12V,–12V, and ground; max. current 100 mA)

TIMING

1. Triggered Internally, Externally or Software.
2. Internal Range: 0.08 Hz to 10,000 Hz in 42 steps
3. Positive trigger output coherent with the RF burst. 20 MHz clock output coherent with the RF burst also available.

For additional information on the capabilities of the RPR-4000 along with applications and measurements, please see the expanded specifications at www.RitecInc.com/rpr4000specs.pdf and contact RITEC for further details.