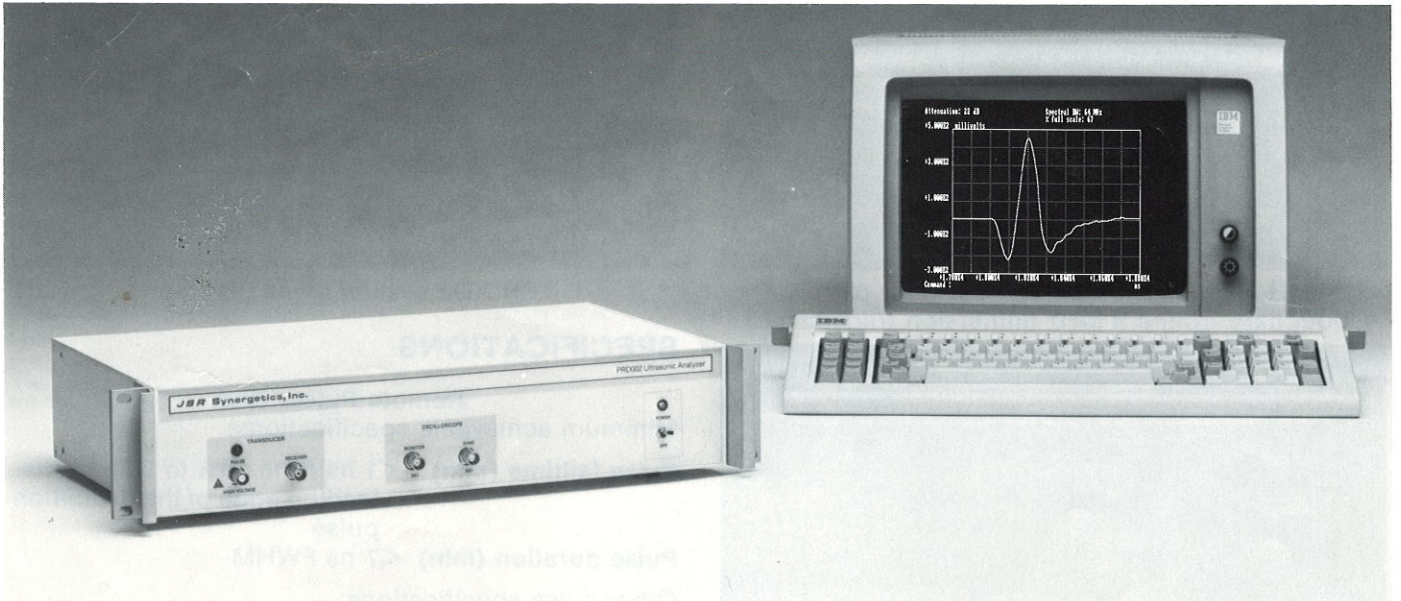# JSR SYNERGETICS

PRD002
ULTRASONIC ANALYZER

Features

- 200 MHz bandwidth (standard)
  10-500 MHz (optional)
- Advanced low noise receiver
- 1 GHz effective sampling rate through repetitive sampling

- Subnanosecond pulse falltime capability
- Interchangeable remote pulsers
- Menu driven software with soft front panel controls standard

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A General Purpose Pulser, Receiver, and Digitizer
In combination with an IBM PC, the PRD002 ultrasonic analyzer eliminates the need for many separate instruments such as gates, peak detectors, spectrum analyzers and digitizers.

General applications include laboratory data acquisition, nondestructive test and evaluation, analysis and characterization of materials, liquids and suspensions, and thickness gauging of thin films and materials.

High Bandwidth, Low Noise Receiver
Recent advances in RF and microwave electronics have been incorporated into the design of the PR series of ultrasonic instruments. The result is a low-noise receiver with a standard bandwidth of 200 MHz, and optional bandwidths from 10-500 MHz.

Synerpulse™ Pulse System
The PRD002's unique, high energy Synerpulse™ pulser subsystem utilizes an interchangeable remote pulser which eliminates excitation pulse degradation due to cable effects. Transducers can be attached directly to the remote pulser unit.

During pulse-echo mode operation, the pulser output and receiver input are isolated from each other. There are no components of the pulser impedance present at the receiver input to alter or distort the spectral characteristics of incoming signals.

Pulse parameters such as falltime, duration, and peak amplitude can be specified when ordering PR series remote pulsers. Instrument performance can thus be optimized for applications requiring greatly differing pulse shapes or energy by obtaining remote pulsers with tailored pulse parameters.

Software Control of Instrument Functions
Like a conventional instrument, the PRD002 can be operated manually via its 'soft' front panel, or the instrument can run under the control of user written or custom programs.
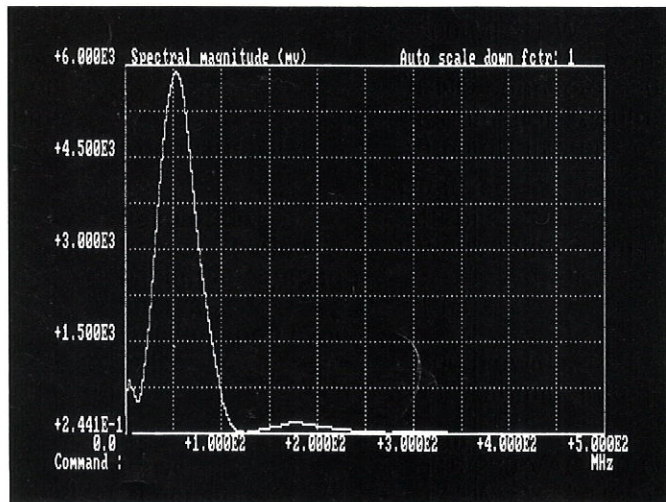
Standard software features include waveform capture and display, FFT, sample averaging, digital filtering, and disk file data storage and retrieval.

MKC 엠케이코포레이션 MKCORPORATION
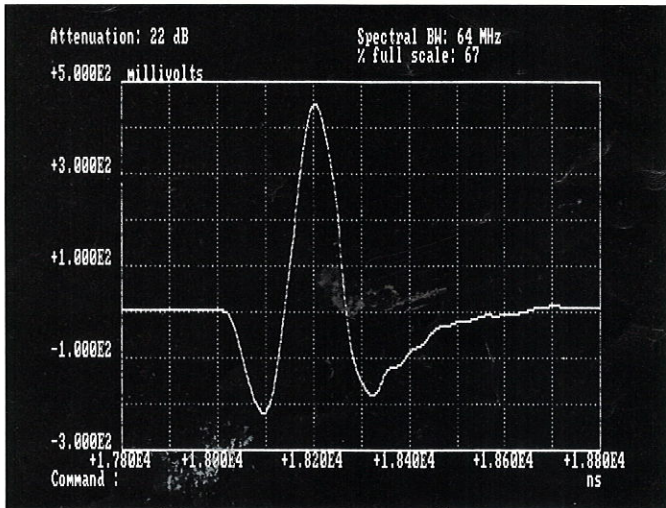
Reflection off a plexiglass water path boundary from a 5 MHz immersion transducer.
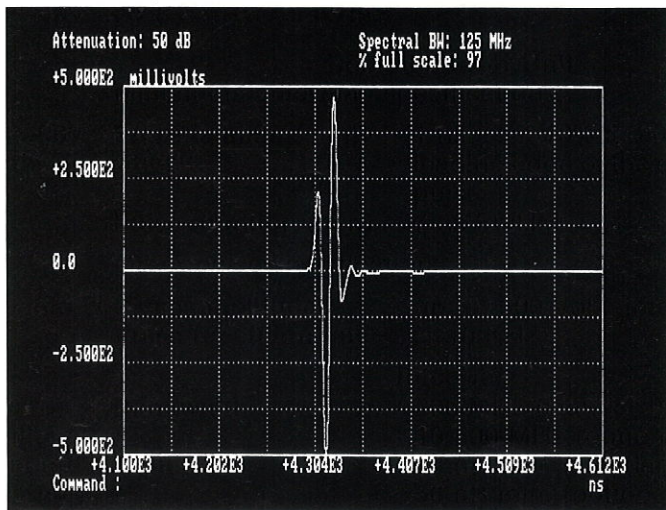

Reflection from a 50 MHz delay line transducer.

Magnitude spectrum of above reflection.

Requirements

Suitable ultrasonic transducer(s), IBM PC with an available standard expansion slot, 80x87 coprocessor, color graphics card (color monitor not required), and DOS or MS-DOS 2.0 or higher.

Should the PRD002 not meet the requirements of your particular application, then please contact us for information regarding either modifications, or custom designs. Custom applications software is also available.
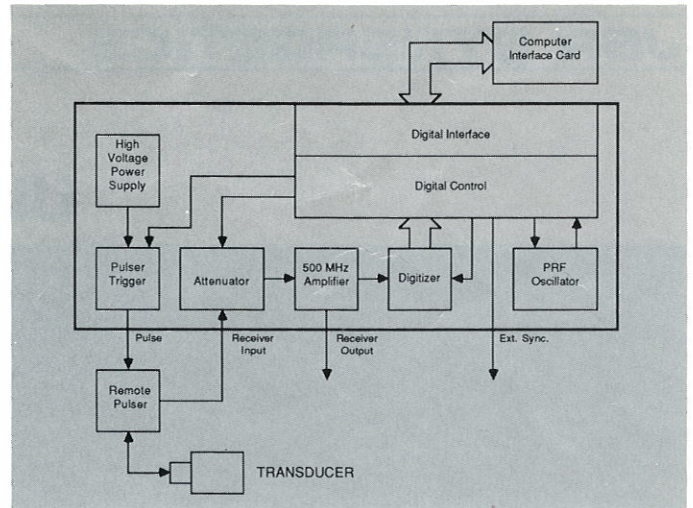
PRD002 system block diagram.

SPECIFICATIONS

Remote Pulser Unit

Minimum achievable specifications:

Pulse falltime (min) $<$1 ns from 10% to 90% of the leading edge of the excitation pulse

Pulse duration (min) $<$7 ns FWHM

Other pulse specifications:

Pulse amplitude	up to -500 Volts into 50 Ohms
Pulse repetition rate	.1-10 KHz

Receiver

Bandwidth	200 MHz (standard)
	10-500 MHz (optional)
Gain	28 dB min. (standard)
	56 dB min. (optional)
Gain flatness	±1 dB (28 dB), ±2 dB (56 dB)
Input impedance	50 ohms
Amplifier noise figure	2.8 dB over the full 500 MHz BW
Receiver output	available via a front panel BNC connector, 50 ohm termination required
Attenuation	0-60 dB in steps of 2 dB

Digitizer

Resolution	12 bits
Reconstruction	Via repetitive sampling
Minimum sampling interval	1 ns
Oscilloscope sync pulse	500 ns wide, +1 Volt min. into 50 ohms

System Unit

Power	115/230 VAC, 50-60 Hz, 45W
Dimensions	17″ W x 3.5″ H x 12″ D
Operating temperature	0-50° C

Accessories

Rack mounting kit.

Ordering Information

The PRD002 is shipped with operating manual, half slot IBM PC interface card and cable, and standard menu driven software with soft front panel.