

## Broadsound Pulser/Receiver 1003PR

### Introduction

The Broadsound 1003PR is a manually controlled broadband pulser receiver for a variety of applications including research, development and field applications for ultrasonic non-destructive testing. Its outstanding features include:

- Low-noise broadband receiver with -3 dB bandwidth from 0.3 MHz to 110 MHz
- Pulse-echo, through transmission, and external pulser modes
- Negative spike pulse with 6 energy levels
- Fast pulse rise time
- Wide attenuation from 0 to 60 dB
- Individual high-pass and low-pass filters
- User friendly control interface
- Small and lightweight

In application, the ultrasonic transducer can be connected to the T/R connector through the coaxial cable, and 1003PR generates electric energy to excite pulses on the ultrasonic transducer to emit ultrasonic waves. The 1003PR is available in six energy levels to suit different applications or types of ultrasonic transducers. In addition, 1003PR also provides seven damping levels to adapt to the characteristics of different ultrasonic transducers.

When the 1003PR operates in pulse-echo (P/E) mode, the reflected acoustic echoes from the interface or defect of the test material are converted into electrical signals by the ultrasonic transducer. The electronic signals are amplified by the low-noise broadband receiver and can be adjusted by different sets of high-pass and low-pass filters. A wide-range selectable attenuator in the range of 0 dB to 60 dB is applied for preventing saturation of the received electrical signal. The gain of the 1003PR receiver can be adjusted in the range of 14 dB to 46 dB. There are four high-pass filters and four low-pass filters selectable for optimizing signal-to-noise ratio of received signals.

When the 1003PR operates in through transmission (THRU) mode, the pulse generator and receiver are isolated. A second transducer for detecting acoustic waves propagating through materials testing or media is connected to the 1003PR receiver R connector. The received signals are processed in a similar way as for pulse-echo mode operation.

The 1003PR allows external devices such as A/D digitizer device or oscilloscope to synchronize with the pulse generator. By connecting the TRIG IN connector on the rear panel to external trigger source and set the 1003PR to external trigger mode, the 1003PR pulse generator is triggered by the trigger pulse from the TRIG IN connector. Additionally, the SYNC OUT connector outputs short pulses while simultaneously generating excitation pulses.

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#### – Appearance and Overall View of Pulser/Receiver 1003PR



Figure 1. Appearance of the Pulser/Receiver 1003PR.



Front View



Rear View

Figure 2. Front and rear views of the Pulser/Receiver 1003PR.

#### – Specifications refer to "Broadsound Pulser-Receiver\_1003PR\_Specifications\_V1.pdf"