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SYS-ONE

Ultrasonic Pulser Receiver



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Features

- Broadband square wave pulser
- Selectable pulse widths
- Broadband (15MHz) receiver
- Selectable pulse voltage (up to 400V)
- Selectable repetition rate
- Selectable RF gain (up to 80dB)
- Selectable low pass filter
- Selectable output rectifier
- Two fully programmable gated threshold alarms
- User friendly menu driven interface

Description

AGE Scientific SYS-ONE ultrasonic pulser-receiver is a compact instrument designed to provide very high performances. The SYS-ONE hosts a high voltage square wave pulser (up to 400V) and a high gain receiver (up to 80dB) in a small 7 slots 3U crate. The union of a pulser and a receiver is the basic instrumentation needed to perform ultrasonic testing or NDT. In the Pulse/Eco mode the pulser generates the high voltage pulse needed to excite the piezoelectric material in the transducer. This energy is transferred to the material as a travelling ultrasonic wave that is reflected back to the transducer when it encounters a flaw or a discontinuity. In this mode there is only one transducer acting first as transmitter and then as receiver. In Through-Transmission mode the pulse is transmitted by one transducer and it's received from a different transducer connected to the receiver. After the amplification and filtering the signal detected is then available to be displayed with an oscilloscope or stored in a data acquisition board.

Applications

The SYS-ONE can be used in any application involving the ultrasonic testing as flaw detection, thickness gaging, material characterization and so on. In many situations, square wave excitation provides greater signal amplitude with no loss of near-surface resolution. The SYS-ONE can adjust the pulse width in order to have a better transducer tuning, not available in conventional spike pulsers. In addition the very high voltage (up to 400V) is useful to test material with great attenuation. The SYS-ONE hosts two user settable gates to perform automatic test. The user can change the gate delay, the gate width and the gate level. An alarm is set in case of coincidence or anti-coincidence of a gate event. It is also possible to rectify the received signal (Positive only, Negative only, Positive + Negative and RF). The SYS-ONE parameters can be programmed with a user friendly, menu driven interface.

Specifications

PULSER

- **Pulse Type** Positive Square Wave, adjustable duration and amplitude.
- **Pulse Amplitude** 50V to 400V in 50V steps.
- **Pulse Width** 25ns to 500ns in 25ns steps.
- **Pulse Repetition Frequency** AC LINE, 100Hz, 200Hz, 1kHz, 2kHz, 5kHz, 10kHz, EXTERNAL*.
- **Pulse Rise Time** 5ns max (no load, full pulse amplitude), 15ns max (50, full pulse amplitude).
- **Pulse Fall Time** It depends from the damping.
- **Pulse Damping** 50, 100, 200 , 400.
- **Output Power** 0.8W maximum.
- **Sync Signal Output** TTL Level.
- **External Trigger** Positive edge, 2.2V minimum. Min pulse duration 50ns.
- **Mode** Pulse-echo or Through-Transmission.

* Some combinations of high pulse amplitude, high pulse width and high pulse repetition frequency can destroy the transducers

RECEIVER

- **Input Resistance** 200 (with input voltages < 0.3V, for higher voltages the protection clip the signal)
- **Max. Input Power** The maximum average power which the receiver input can dissipate is 1W.
- **Rectification** Positive, Negative, Positive + Negative and RF.
- **Voltage Gain** 0 to 80dB in 0.5dB Steps (no load, 74dB RL=50).
- **Bandwidth** 15MHz (-3dB).
- **Noise** (Referred to the Input) Typically 15 μ V RMS (BW = 15MHz)
- **Low Pass Filter** 2MHz, 4MHz, 10MHz, Full.
- **Maximum Output Voltage** \pm 1.0Vpk min (RL = 50).
- **Output Impedance** 50 ohms.
- **Alarm** Two gates programmable in over threshold or under threshold; coincidence or anti-coincidence.
- **Gates Delay** 125ns to 512s in 125ns steps.
- **Gates Width** 125ns to 128s in 125ns steps.

SYSTEM

- **Power Requirements** 220VAC, 50Hz, 16 VA.
- **Fuse** 0.3A @ 220VAC.
- **Size** 18.5 X 16 X 24 cm.
- **Weight** 1.5 kg.
- **Operating Temperature** 0 to 50°C

Ordering Informations

The Model SYS-ONE is shipped with operating manual and power cord.
The transducers and transducer cables are not included.
All specifications are subject to change without notice.