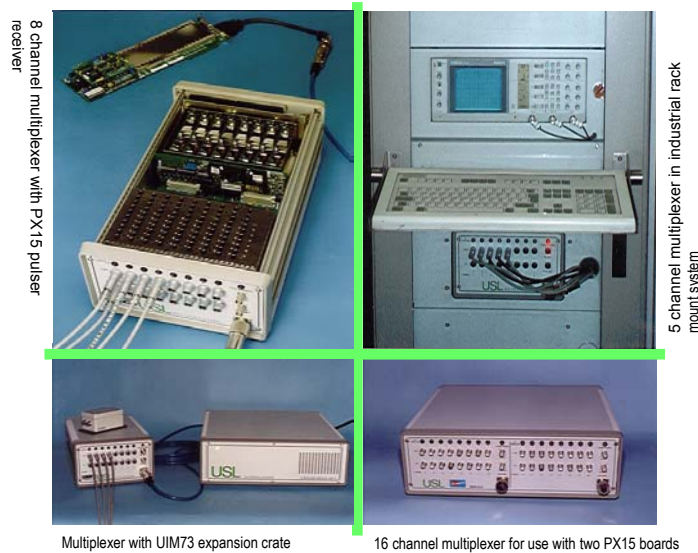


MUX 8 Ultrasonic Systems Multiplexer



8 channel multiplexer with PX15 pulser receiver

5 channel multiplexer in industrial rack mount system

Multiplexer with UIM73 expansion crate

16 channel multiplexer for use with two PX15 boards

- Multi-channel capability in a PC based unit
- Shop floor hardened for systems application
- 2 to 32 channels, pulse echo / pitch catch
- 25MHz bandwidth with tunable pulsers and receivers, up to 20kHz PRF
- Remote operation up to 300m distance
- Exceptional S/N ratio and noise immunity

The USL range of MUX8 multiplexers provide a multi-channel ultrasonic capability from a single PC based Pulser Receiver. They combine the convenience and flexibility of a PC-based package, with USL's "no compromise" performance in terms of sensitivity, signal/noise ratio, near surface resolution and noise immunity.

The MUX8 is used in conjunction with USL's PM30 and PX15 range of Pulser Receiver boards, with both linear and logarithmic amplifiers. The multiplexers can be operated from a remote point, up to 300 metres from the computer housing the pulser receiver. A custom umbilical cable is used for interconnection, combining the functions of software control of the remote unit with low-noise transmission of RF signals.

The Multiplexer incorporates individual HT power supply and pulser-preamplifier boards for each channel, so that the channel configuration can be easily modified.

The Pulser Receiver/MUX8 combination is designed for sophisticated software control in multi-channel, multi-gate applications. Most inspection parameters, such as gain, filtering and DAC, can be changed on a pulse-by-pulse basis, even at 20kHz PRF. This means that widely differing setups can be operated within one testing sequence.

For systems requiring more than 8 channels, additional Multiplexers can be connected in series. High speed data acquisition boards are available for amplitude and time interval measurement - these can also be multiplexed to synchronise with each pulse.

Typical applications

- Industrial in-line ultrasonic systems for tube, bar, strip and plate
- Industrial immersion testing systems for high throughput requirements
- Units for inspection of power plant, pressure vessels etc - nuclear and fossil fuelled
- Combined through transmission and pulse echo testing systems for aerospace composites
- Multi-probe monitoring of structures, fatigue testing installations etc
- Inspection of spirally welded and ERW steel tube and pipe
- High pressure cylinder inspection systems

MUX8 Multiplexer Specification

PHYSICAL	
Dimensions (WxDxH)	255 x 410 x 145 mm May be rack mounted in a 19" rack, occupying 4U height
Weight	6.7 kgs (8 channel version)
Operating temperature range	+5 to +35 deg C
POWER	
Input power requirements	220/240 volts AC or 110/120 volts AC (350VA maximum)
I/O CONNECTIONS	
Probe connectors	Tx/Rx (pulse echo) - 8 off Fischer triax type Rx only - 8 off Fischer triax type (Triax BNC connectors available as an option)
To PX15 Pulser Receiver (or UIM73 Expansion Crate)	Multi way bayonet connector (15 way). This carries trigger pulse and software control signals from the PX15 to the MUX and the RF out to the PX15.
RF out / Sync out	BNC
Miscellaneous (15 pin D)	Sync #1, sync #2 - can be software configured to synchronise on channels 1 to 8 3 bit binary output indicating current timeslot Timeslot 0 reset - displays on last selected timeslot
GENERAL	
No of channels	8 maximum per MUX8 unit (8 pulse echo probes or 8 transmit/8 receive probes or any combination up to a maximum of 8. Multiplexers can be linked in series to provide 32 channels or more
No of timeslots	Up to 32
Modes	Transmit on any "Tx/Rx" connector Receive on any "Tx/Rx" or any "Rx only" connector.
Upgrade capability	Add 1 Pulser preamplifier and 1 HT Power Supply board for each additional channel, up to 8 in total.
PRF	20kHz maximum
PARAMETER CONTROL	
Pulse by pulse multiplexing	The following parameters can be switched on a pulse by pulse basis: Preamplifier mode (transmit or receive) Time period/PRF Receiver gain/attenuation RF filter bandwidth RF filter offset Post rect/detect filter Output type (RF/rectified/log) DAC period DAC gain DAC mode DAC interface blanking DAC interface threshold
Software controlled, non multiplexing parameters	The following parameters can be independently set for each "timeslot" or probe, but cannot be multiplexed. For example, if Probe 1 is set to transmit on two different timeslots in the multiplexing cycle, these parameters must be the same for both timeslots: Pulse voltage Pulse width Damping Preamp gain / attenuation DAC polarity

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