

Ultrasonic Multiplexer

Physical Acoustics Corporation

1. OVERVIEW & DESCRIPTION

The UT Multiplexer is a 8 to 1 multiplexer board. This board can be populated for a 4 to 1 configuration, a 8 to 1 or dual 4 to 1. If more channels are needed, this can be accomplished by stacking additional boards up to a 128 to 1 multiplexer system. This UT Multiplexer System will have a built preamplifier in order to provide the additional gain, signal conditioning and its ability to drive long cables for optimum signal acquisition.

2. FEATURES AND SPECIFICATION

Here is a list of the Features for the UT Multiplexer System:

1. The UT Multiplexer will be a an 8 channel to 1 or Dual 4 to 1 on a single card, stackable/expandable up to 128-channels.
2. Front Panel display showing active channel
3. Channel selection:
 - A) Internal Counter with reset.
 - B) Addressable with decoder.
 - C) Direct Addressable.
 - D) Front Panel switch.
4. 20-40 dB gain adjustable for each channel digitally controlled thru front panel or serial interface (RS-485 or USB).
5. Independently fired pulser in repeating sequence and external triggering when integrated with other UT systems.
6. Pulse/Receive or Thru-transmission switchable.

System Specifications

UT Multiplexer Board Size:	6.75 in x 8.75 in
Power Requirements	120/240 VAC or 12VDC
Electrical Safety Standards:	EN60950 (IEC-950)
EMC Emission Standards:	EN55011, EN55022
EMC Immunity Standards:	EN50082-1, IEC-1000-4-2,IEC-1000-4-3, IEC-1000-4-4
Operating Temperature:	32° - 176° F (0° - 80° C)

Storage Temperature: -4° - 176° F (-20° - 80° C)

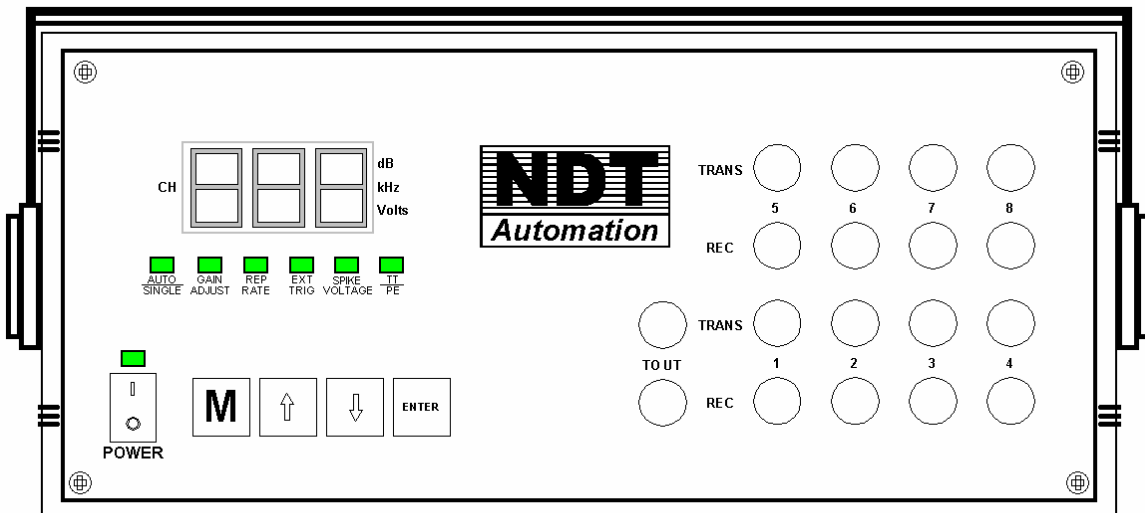
PR Spike Pulser / Multiplexer

Pulser Voltage: – 50 to –300V pot adjustable
Damping: 50 or 2000 ohms
Pulse Type: Negative going spike
Fall Time: <10 nsec.
Pulse Width: 5 uSec.
Triggering: External, Internal Rate
Repetition Rate 0.1 Hz to 10kHz
Time Delay (bet. Switching and pulse): 10 μS

Preamplifier

Gain: 20 to 40 dB pot adjustable/Front Panel/Serial Port
Max Output Voltage: 10 Vpp (no load)
Noise: 30 uVpp.RTI
Bandwidth/Filter: 0.5 or 1MHz to 10, 20 or 40MHz (bypass)

Front Panel Board – The front panel board contains the front panel displays and controls. The main display is a three-digit LCD readout. Three digits are used to display the active channel on single channel mode, gain setting for each channel, repetition rate in 0.1 Hz to 10.0 kHz.



There will be bright square LED's to indicate various other functions. Here is a list of the LED's:

AC Power On green Lit when power is applied

Auto/Single	green	Lit when single channel (manual mode) is selected
Gain Adjust	green	Lit when adjusting gain of each channel (manual mode only)
Rep Rate	green	Lit when adjusting repetition rate (switch and pulse rate)
Ext Trigger	green	Lit when selecting internal or external trigger
TT/PE	green	Lit when switching between Thru-Transmission or Pulse-Echo

There will be a plastic front panel on/off switch and four push button key switches like the front panel key switches on the M100A. Here is a list of the functions of the push button key switches:



Selects the operation mode of the UT Multiplexer by toggling to the next mode when the M key is pressed. An LED will indicate which mode is selected.



Multi or Single in Multi/Single Mode, Adjust gain for each channel, Increments/Decrements the Repetition Rate and Spike Voltage, Toggles External or Internal Trigger in Ext Trigger Mode and Toggles between Pulse Echo or Thru Trans in TT/PE Mode.

Toggles



Execute