OPERATING INSTRUCTIONS

T1 Development Kit

04/11/18
17-143 rev. 03

WARNING: The power supply must be OFF before making electrical connections.

WARNING: The power supply requires a 0.5 amp fast-blow fuse or circuit breaker.

IMPORTANT*:* Please read the instructions completely before proceeding.

Applications

- For use with Airmar's Ultrasonic Transducers.
- To aid in designing ultrasonic systems.
- Allows the designer to quickly and easily transmit and receive echoes.

Features

- Jumper selectable pulse width and frequency for optimal interfacing.
- Transmit pulse is amplified to 200 - 500 Vpp via a power MOSFET and transformer.
- Received echoes can be viewed at X1, X10, X100, or X1000 amplification.

Set Up

J1—Set the jumper at the position appropriate for the model being tested (see Table 1 and Figure 1). This selects the initial value for the pulse rate.

J2—Set the jumper at the position appropriate for the model being tested. This selects the initial value for frequency.

J8—Set the jumper to the proper voltage range for the model being tested.

J7—Set the jumper for the desired echo amplification: X1, X10, X100, or X1000.

J5—Connect the transducer.

J6—Connect an oscilloscope.

J4—Connect a 15VDC power supply capable of delivering at least 125mA.

Jumper Position & Adjustability

The available models with their corresponding pulse width, frequency, and voltage range adjustability are shown on Table 1.

NOTE*: These values are approximate.*

Table 1: Jumper Position and Adjustability

Model	J1 Pulse Rate	J2 Frequency	J8 Voltage	POT1 Pulse Width Range	POT2 Frequency Range	POT3 Voltage Range
AR-30	C1 (3Hz)	C9	<100kHz	120 - 2400µs	25 - 34kHz	204 - 450Vpp
AR-41	C2 (5Hz)	C10	<100kHz	80 - 1600µs	32 - 46kHz	204 - 516Vpp
AR-50 AT-50	C3 (6Hz)	C11	<100kHz	60 - 1200µs	46 - 60kHz	172 - 452Vpp
AT-75	C4 (10 Hz)	C12	<100kHz	50 - 1000µs	64 - 83kHz	196 - 508Vpp
AT-120	C5 (25Hz)	C13	>100kHz	40 - 800µs	115 - 149kHz	90 - 248Vpp
AT-200	C6 (25Hz)	C14	>100kHz	16 - 320µs	173 - 228kHz	90 - 260Vpp
AT-225	C7 (25Hz)	C15	>100kHz	16 - 320µs	202 - 265kHz	90 - 256Vpp
AT-300	C8 (25Hz)	C16	>100kHz	16 - 320µs	296 - 357kHz	90 - 252Vpp

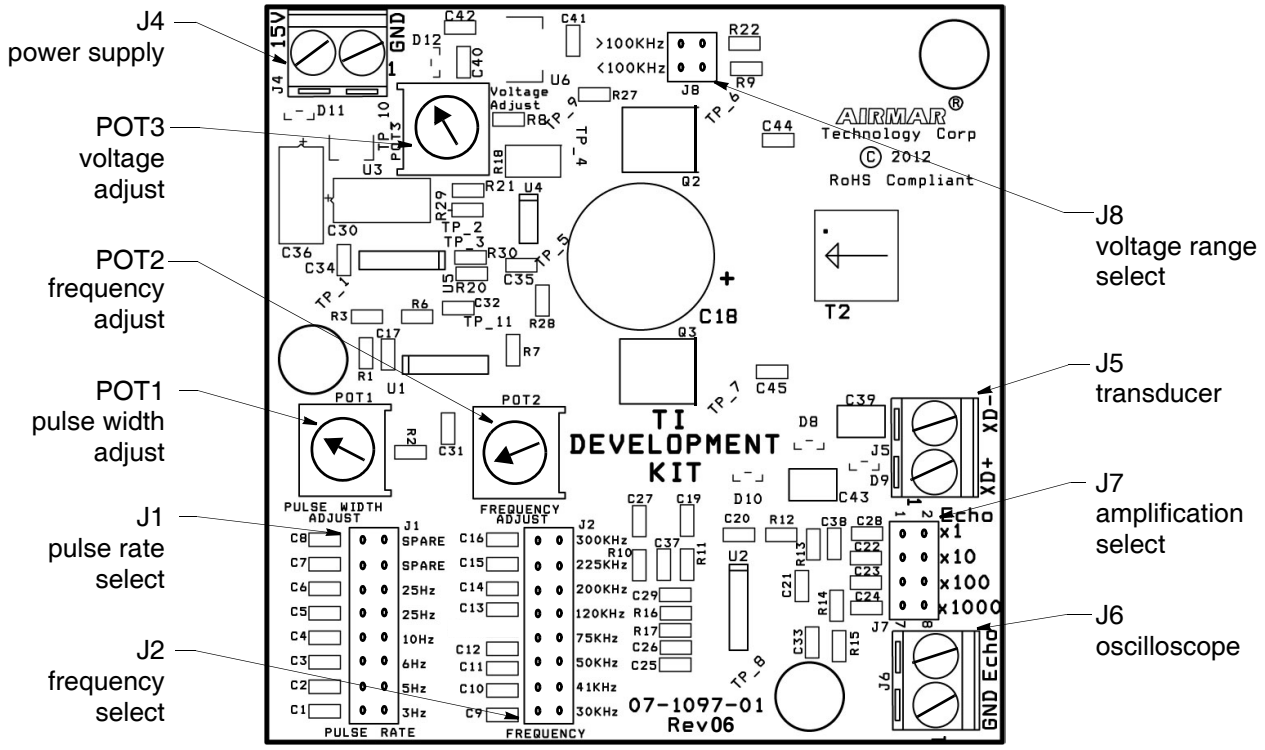


Figure 1. T1 Development Kit

Operation

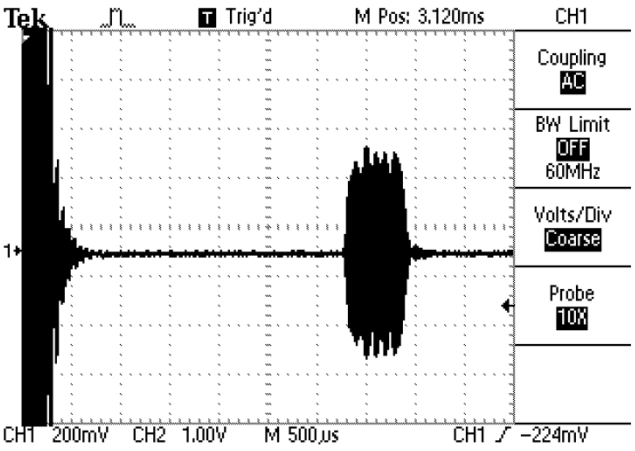
Aim the transducer directly at a flat reflecting surface.

Adjust the following variables within the range specified (see Figure 1).

POT1—Adjust the pulse width for the desired echo width.

POT2—Adjust the frequency for the maximum echo.

POT3—Adjust the voltage for desired signal amplitude.



Example of oscilloscope screen
120k Amplified 10X

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