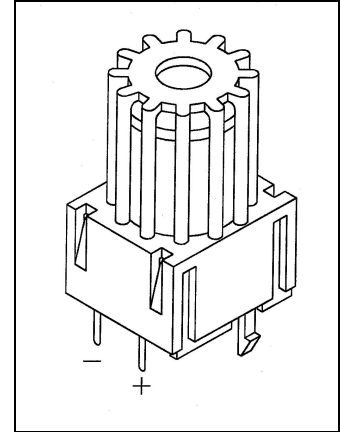


Piezoelectric film (PVDF) ultrasound receivers offer unique advantages for air ranging applications. Cylindrical 40kHz PVDF receivers exhibit very wide horizontal beam directivity and broad band characteristics. These characteristics lend unique solutions in many applications such as two-dimensional positioning, digitizer, object detection, and distance measurement. Depending on the applications, resonance frequency and vertical beam directivity of the receiver can easily be customized by changing the diameter and length of the PVDF cylinder. The receiver has a very wide horizontal beam angle and it can be reduced by changing the housing design if necessary. PVDF receivers also have very low resonance Q value. Typically, PVDF receivers have a Q value of 4. This means that the rising time and the signal decay time are much faster than the conventional ceramic receivers. This characteristic is suitable for high speed data acquisition or high speed digitizer applications. Also, a preamplifier is available for easy evaluation of 40kHz receivers.



CHARACTERISTICS

- Wide horizontal beam directivity
- Broad band
- Low resonance Q
- Excellent impact resistance
- Low cost
- Light weight

	Part #	Model #
40kHz Receiver	1005856-1	US40KR-01
Preamplifier Board	1005857-1	US40KA-01

APPLICATIONS

Two dimensional position detection, digitizer, distance measurement, object detection, and general purpose air ranging applications.

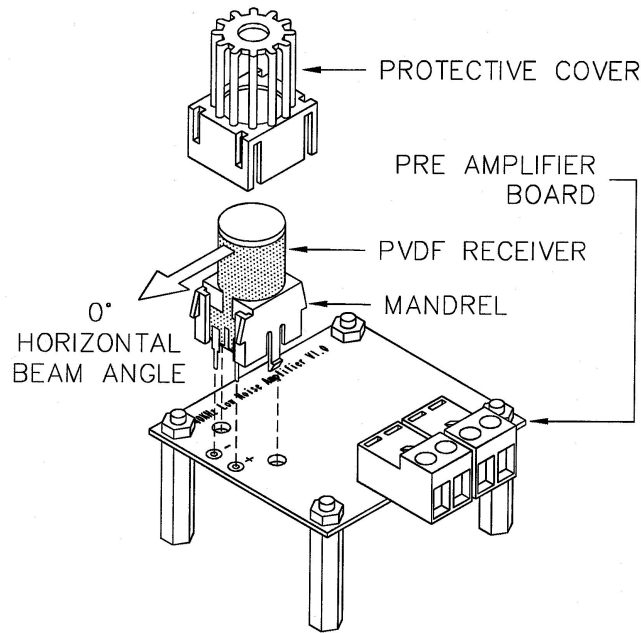
SPECIFICATIONS ⁽¹⁾

PVDF Thickness:	30 μm
Resonance Frequency:	40 kHz
Bandwidth:	10 kHz
Resonance Q:	4 ⁽²⁾
Sensitivity output:	1.5 mV/Pa
	-76 dB ⁽³⁾
Horizontal beam directivity:	±150° ⁽⁴⁾
Vertical beam directivity:	±40°
Capacitance:	140 pF

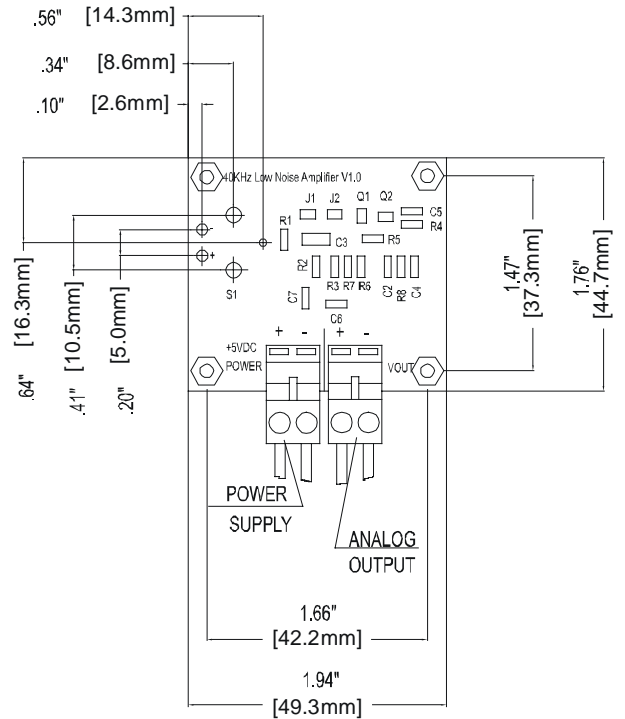
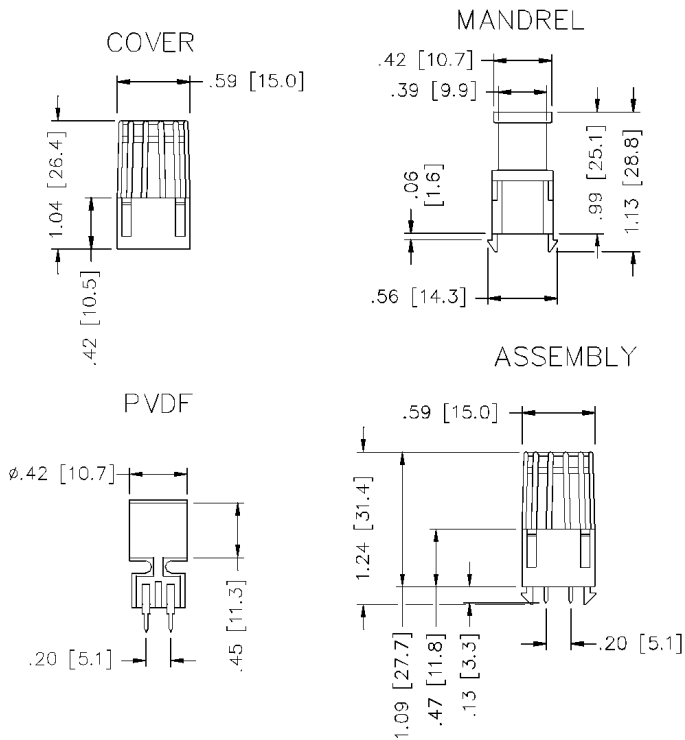
ENVIRONMENTAL CHARACTERISTICS

Storage Temperature:	-20°C - +85°C
Operating Temperature:	+5°C - +60°C

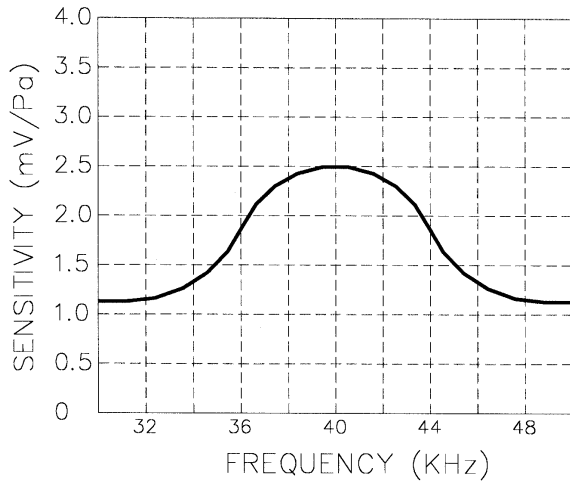
- (1) Values are Typical
- (2) Resonance Q may vary depending on receiver housing design
- (3) 0dB =1V/μbar (10V/Pa)
- (4) This beam directivity can be reduced by changing the housing design



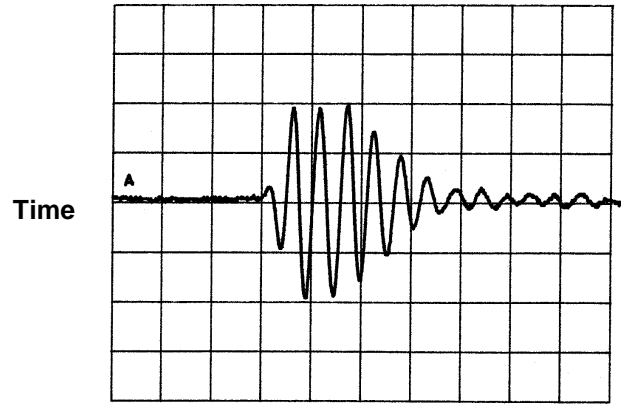
Preamplifier Board 0.63 [1.6] thickness



TYPICAL FREQUENCY RESPONSE



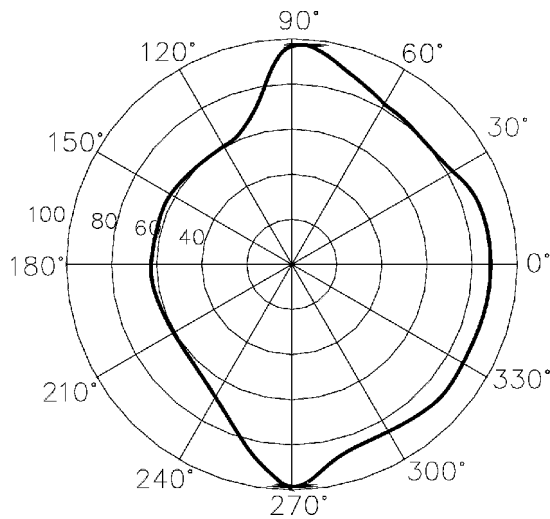
TYPICAL TIME RESPONSE



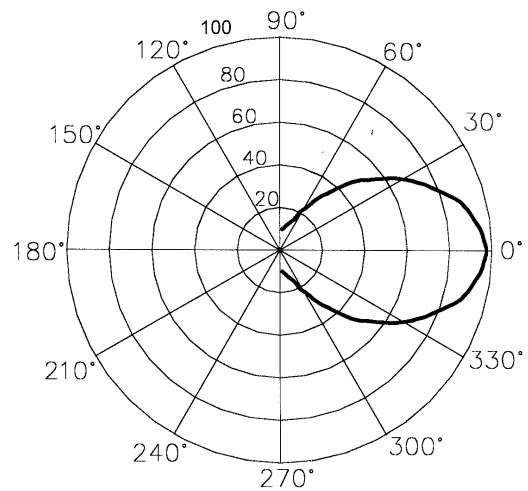
20mV/div, 50 μs/div

NOTE: Measured with PVDF transmitter (100Vp drive) and preamplifier (gain of 17)

TYPICAL HORIZONTAL BEAM DIRECTIVITY



TYPICAL VERTICAL BEAM DIRECTIVITY



Pre-amplifier has gain of 31 and a bandwidth filter to maximize the S/N ratio. The receiver can be snapped onto the pre-amplifier.

Part Number: 1005857-1
Model Number: US40KA-01

SPECIFICATIONS

	Min	Typ	Max	Unit
Supply Voltage		5		VDC
Supply Current		0.03		ADC
Frequency		40		kHz
Gain		31		dB

