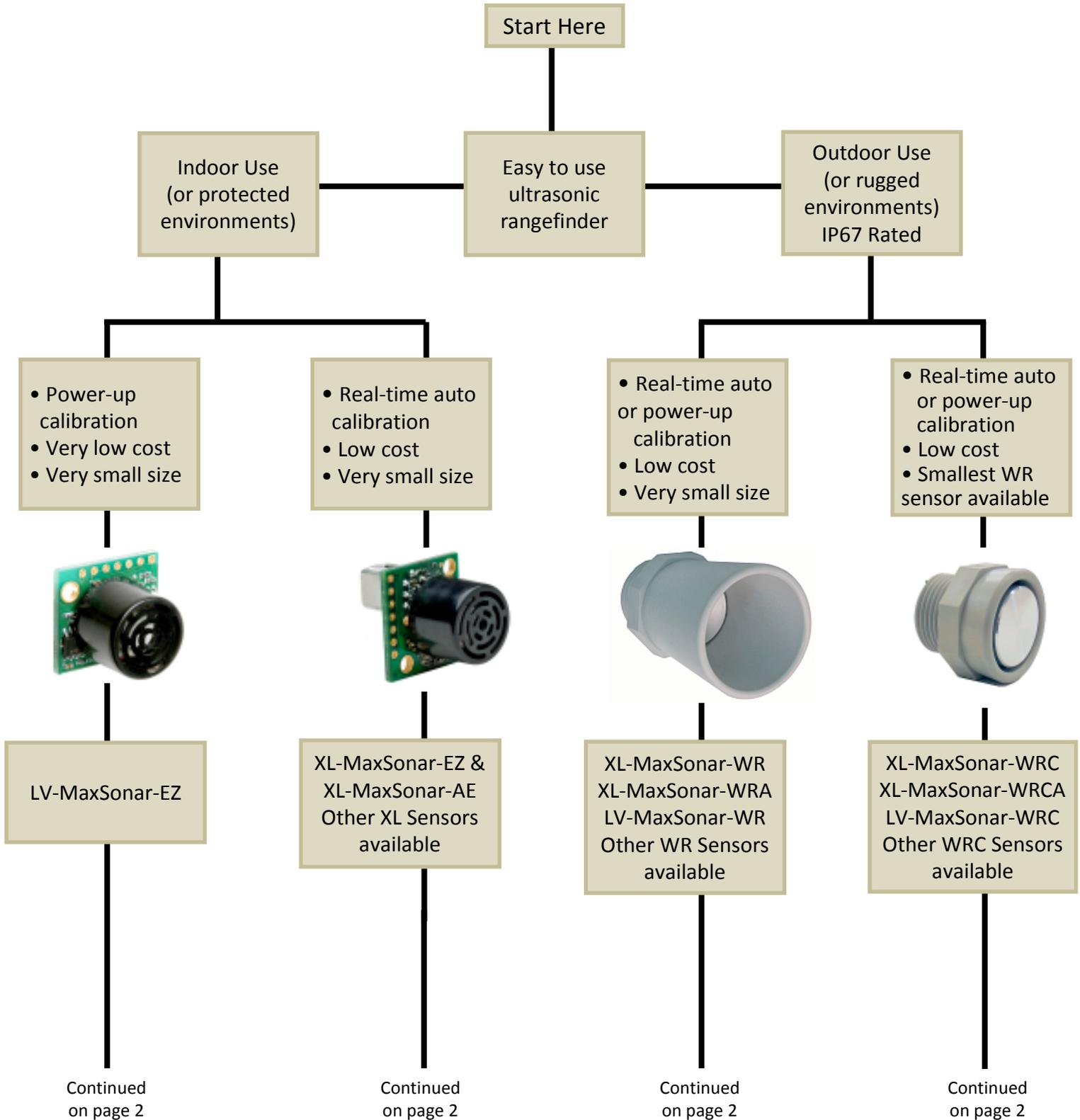


Choose the Proper Ultrasonic Sensor for your Application

This guide will help you select the correct MaxSonar® sensor for your use. We believe that the MaxSonar® sensors are among the easiest to use ultrasonic rangefinders available.



Product Line

	LV-MaxSonar-EZ 	XL-MaxSonar-EZ XL-MaxSonar-AE 	LV-MaxSonar-WR XL-MaxSonar-WR XL-MaxSonar-WRA 	LV-MaxSonar-WRC XL-MaxSonar-WRC XL-MaxSonar-WRCA 
Easy to use interface with Trigger or Free-run Operation and Stable Range Data	Yes	Yes	Yes	Yes
Range produced by Analog Voltage Output and Serial Output	Yes	Yes	Yes	Yes
Pulse Width Output	Yes	Yes-(XL-EZ) No-(XL-AE)	Yes-(XL-WR, LV-WR) No-(XL-WRA)	Yes-(XL-WRC, LV-WRC) No-(XL-WRCA)
Real-time Analog Envelope Output of the Acoustic Waveform	No	No-(XL-EZ) Yes-(XL-AE)	No-(XL-WR, LV-WR) Yes-(XL-WRA)	No-(XL-WRC, LV-WRC) Yes-(XL-WRCA)
IP67 Rated for Outdoor Use	No (can be mounted in a way that protects the sensor from exposure to the elements.)	No (can be mounted in a way that protects the sensor from exposure to the elements.)	Yes	Yes
Automatic Calibration to Compensate for Changes in Temperature, Voltage, Humidity and Noise.	On power up only	Yes	Yes No- (LV-WR On power up only)	Yes No- (LV-WRC On power up only)
Has noise canceling	Some	Yes	Yes Some- (LV-WR)	Yes Some- (LV-WRC)
Resolution	1 inch	1 cm	1 cm- (XL-WR, XL-WRA) 1 inch- (LV-WR)	1 cm- (XL-WRC, XL-WRCA) 1 inch- (LV-WRC)
Maximum Rate Readings are taken	20Hz	10Hz	10Hz- (XL-WR, XL-WRA) 20Hz- (LV-WR)	10Hz- (XL-WRC, XL-WRCA) 20Hz- (LV-WRC)
3.3V Operation, Average Current Draw	1.6mA	2.1mA	2.1mA	2.1mA
5V Operation, Average Current Draw	1.9mA	3.4mA	3.4mA	3.4mA
Acoustic Frequency	42kHz	42kHz	42kHz	42kHz
Minimum Object Detection Distance ⁽²⁾	0 inches	0 cm ⁽¹⁾	0 cm/inches	3 cm/inches
Minimum Reported Distance ⁽²⁾	6 inches	20 cm	20 cm- (XL-WR, XL-WRA) 12 inches- (LV-WR)	20 cm- (XL-WRC, XL-WRCA) 12 inches- (LV-WRC)
Maximum Range	254 inches (6.45 meters)	765 cm ⁽³⁾ (25.1 feet)	765 cm ⁽³⁾ - (XL-WR, XL-WRA) 254 inches- (LV-WR)	645 cm ⁽⁵⁾ - (XL-WRC, XL-WRCA) 254 inches- (LV-WRC)
Semi-custom solution available to meet almost any need	Yes ⁽⁴⁾	Yes ⁽⁴⁾	Yes ⁽⁴⁾	Yes ⁽⁴⁾

Features

Note 1: Objects from 0-mm to 1-mm may not be detected.
Note 2: Objects closer than the minimum-distance-reported*, typically range as this value*.
Note 3: Sensors with a 1068cm maximum range are available.
Note 4: Contact MaxBotix Inc., to have your sensor solution evaluated.
Note 5: Sensors may intermittently detect large objects out 765cm. The maximum reported range is 765cm.

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<p>LV-MaxSonar-EZ Some Features:</p> <ul style="list-style-type: none"> • Easy to use interface • 1 inch resolution • Various calibrated beam widths • Size is less than 1 cubic inch 	<p>XL-MaxSonar-EZ XL-MaxSonar-AE Some Features:</p> <ul style="list-style-type: none"> • Easy to use interface • 1 cm resolution • Various calibrated beam widths • Size is less than 1 cubic inch • Real-time auto calibration • Real-time noise rejection • High acoustic power 	<p>LV-MaxSonar-WR XL-MaxSonar-WR XL-MaxSonar-WRA Some Features:</p> <ul style="list-style-type: none"> • Easy to use interface • IP67 rated • 1 cm (or 1 inch LV-WR) resolution • Calibrated beam width • Small size • High acoustic power 	<p>LV-MaxSonar-WRC XL-MaxSonar-WRC XL-MaxSonar-WRCA Some Features:</p> <ul style="list-style-type: none"> • Easy to use interface • Smallest compact IP67 rated size available • 1 cm (or 1 inch LV-WRC) resolution • Calibrated beam width • Real-time auto calibration • Real-time noise rejection • High acoustic power
<p>Possible Applications:</p> <ul style="list-style-type: none"> • Educational and hobby robots • Distance measuring • UAV • Some industrial uses* • Autonomous navigation 	<p>FOR THE ANALOG ENVELOPE (AE)</p> <ul style="list-style-type: none"> • Real-time analog envelope 	<p>FOR THE WRA (ANALOG ENVELOPE)</p> <ul style="list-style-type: none"> • Real-time analog envelope 	<p>FOR THE WRCA (ANALOG ENVELOPE)</p> <ul style="list-style-type: none"> • Real-time analog envelope
<p>Comments:</p> <ul style="list-style-type: none"> • Power up calibration compensates for various mounting arrangements and environments. • * For best operation, must be clear of objects for 14 inches during power up calibration. • NOTE: Requires user to cycle the power to recalibrate sensor if the voltage, temperature or humidity change during operation. 	<p>Possible Applications:</p> <ul style="list-style-type: none"> • Robots • Distance measuring • UAV • Industrial uses • Autonomous navigation • Bin levels • Changing environment conditions <p>FOR THE ANALOG ENVELOPE (AE)</p> <ul style="list-style-type: none"> • Troubleshooting and sensor integration • User signal processing • recommended for sensor integration process into systems 	<p>Possible Applications:</p> <ul style="list-style-type: none"> • Robots • Distance measuring • Industrial uses • UAV • Autonomous navigation • Bin levels • Changing environment conditions • Tank levels • Proximity zone detection <p>FOR THE WRA (ANALOG ENVELOPE)</p> <ul style="list-style-type: none"> • Troubleshooting and sensor integration • User signal processing • recommended for sensor integration process into systems 	<p>Possible Applications:</p> <ul style="list-style-type: none"> • Robots • Distance measuring • Industrial uses • UAV • Autonomous navigation • Bin levels • Changing environment conditions • Tank levels • Proximity zone detection <p>FOR THE WRCA (ANALOG ENVELOPE)</p> <ul style="list-style-type: none"> • Troubleshooting and sensor integration • User signal processing • recommended for sensor integration process into systems
<p>Comments:</p> <ul style="list-style-type: none"> • Automatically compensates for noisy and changing environmental conditions (temperature, voltage or humidity). • Auto calibration will compensate for and detect up close objects. <p>FOR THE ANALOG ENVELOPE (AE)</p> <ul style="list-style-type: none"> • Allows easy identification of troubleshooting issues using the real-time analog envelope. 	<p>Comments:</p> <ul style="list-style-type: none"> • Auto calibration will compensate for and detect up close objects. • 10 meter part detect larger targets to the long 10 meter range <p>FOR THE WRA (ANALOG ENVELOPE)</p> <ul style="list-style-type: none"> • allows easy identification of troubleshooting issues using the real-time analog 	<p>Comments:</p> <ul style="list-style-type: none"> • Auto calibration will compensate for and detect up close objects. • 10 meter part detect larger targets to the long 10 meter range <p>FOR THE WRCA (ANALOG ENVELOPE)</p> <ul style="list-style-type: none"> • allows easy identification of troubleshooting issues using the real-time analog 	<p>Comments:</p> <ul style="list-style-type: none"> • Automatically compensates for noisy and changing environmental conditions (temperature, voltage or humidity). • Auto calibration will compensate for and detect up close objects. <p>FOR THE WRCA (ANALOG ENVELOPE)</p> <ul style="list-style-type: none"> • allows easy identification of troubleshooting issues using the real-time analog

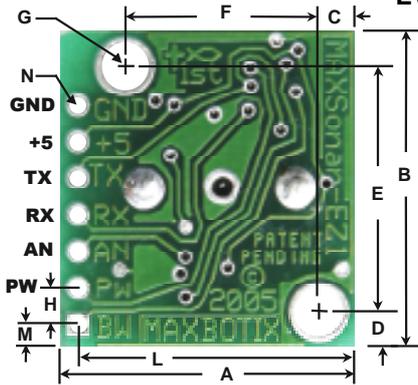
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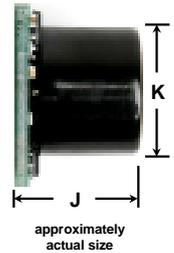
LV-MaxSonar-EZ Mechanical Dimensions



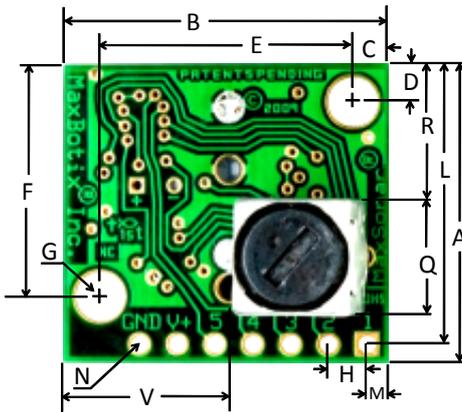
A	0.785"	19.9 mm
B	0.870"	22.1 mm
C	0.100"	2.54 mm
D	0.100"	2.54 mm
E	0.670"	17.0 mm
F	0.510"	12.6 mm
G	0.124" dia.	3.1 mm dia.

H	0.100"	2.54 mm
J	0.610"	15.5mm
K	0.645"	16.4mm
L	0.735"	18.7 mm
M	0.065"	1.7 mm
N	0.038" dia.	1.0 mm dia.
weight, 4.3 grams		

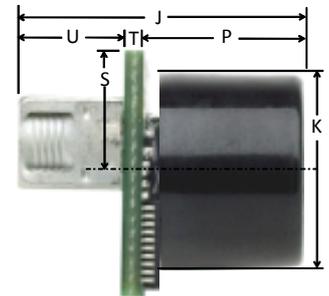
values are nominal



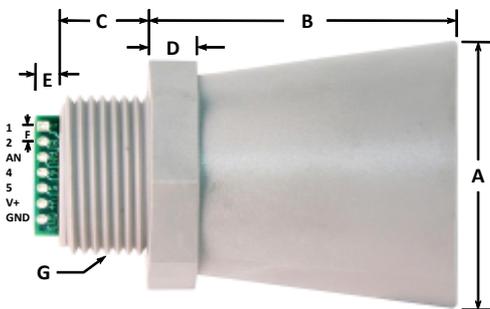
XL-MaxSonar-EZ & AE Mechanical Dimensions



A	0.785"	19.9mm	L	0.735"	18.7mm
B	0.870"	22.1mm	M	0.065"	1.7mm
C	0.100"	2.54mm	N	0.038" dia.	1.0mm dia.
D	0.100"	2.54mm	P	0.537"	13.64mm
E	0.670"	17.0mm	Q	0.304"	7.72mm
F	0.610"	15.5mm	R	0.351"	8.92mm
G	0.124" dia.	3.1mm dia.	S	0.413"	10.5mm
H	0.100"	2.54mm	T	0.063"	1.6mm
J	0.989"	25.11mm	U	0.368"	9.36mm
K	0.645"	16.4mm	V	0.492"	12.5mm
values are nominal			Weight, 5.9 grams		

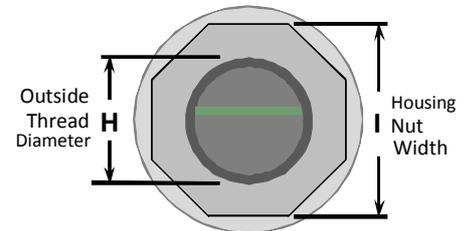


MaxSonar-WR & WRA Mechanical Dimensions

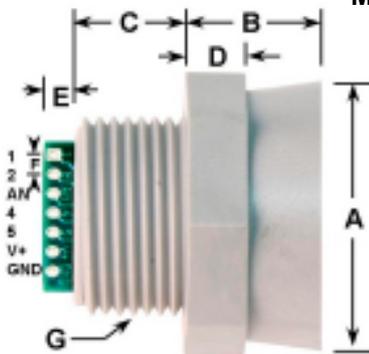


A	1.72" dia.	43.8 mm dia.
B	2.00"	50.7 mm
C	0.58"	14.4 mm
D	0.31"	7.9 mm
E	0.23"	5.8 mm
F	0.1"	2.54 mm
G	3/4"-14 National Pipe Thread Straight	
H	1.032" dia.	26.2 mm dia.
I	1.37"	34.8 mm
weight, 1.76 oz., 50 grams		

values are nominal



MaxSonar-WRC & WRCA Mechanical Dimensions



A	1.37" dia.	34.7 mm dia.
B	0.70"	17.9 mm
C	0.57"	14.4 mm
D	0.31"	7.9 mm
E	0.23"	5.8 mm
F	0.1"	2.54 mm
G	3/4"-14 National Pipe Thread Straight	
H	1.032" dia.	26.2 mm dia.
I	1.37"	34.8 mm
weight, 1.23 oz., 32 grams		

values are nominal

