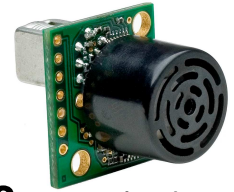


MB1261
MB1361



approximately
actual size

XL- MaxSonar[®] - EZL1[™] (MB1261) XL- MaxSonar[®] - AEL1[™] (MB1361) Sonar Range Finder with High Power Output, Noise Rejection, Auto Calibration & Extra Long-Range (10m) Detection (Hardware gain of 2000)

The MB1261 and MB1361 have a new high power output along with real-time auto calibration for changing conditions (temperature, voltage and acoustic or electrical noise) that ensure you receive the most reliable (in air) ranging data for every reading taken. The MB1261 and MB1361 low power 3.3V to 5V operation provides very short to long-range detection and ranging, in a tiny and compact form factor. The MB1261 and MB1361 detect objects from 0-cm* to 1068-cm (35 feet) and provide sonar range information from 20-cm out to 1068-cm with 1-cm resolution. Objects from 0-cm* to 20-cm typically range as 20-cm. (*Objects from 0-mm to 1-mm may not be detected.) The interface output formats included are pulse width output (MB1261), real-time analog voltage envelope (MB1361), analog voltage output, and serial digital output.

Features	Benefits	Applications and Uses
<ul style="list-style-type: none">• Extended 10m range detection and outputs• High acoustic power output• Real-time auto calibration and noise rejection for every ranging cycle• Calibrated beam angle• Continuously variable gain• Object detection as close as 1-mm from the sensor• 3.3V to 5V supply with very low average current draw• Readings can occur up to every 100mS, (10-Hz rate)• Free run operation can continually measure and output range information• Triggered operation provides the range reading as desired• All interfaces are active simultaneously• Serial, 0 to Vcc, 9600 Baud 81N• Analog, (Vcc/1024) / 2 cm• Pulse Width (MB1261)• Real-time analog envelope (MB1361)• Sensor operates at 42KHz	<ul style="list-style-type: none">• 1067 cm maximum range• Acoustic and electrical noise resistance• Reliable and stable range data• Sensor dead zone virtually gone• Low cost• Quality controlled beam characteristics• Very low power range finder suited for multiple sensor or battery based systems• Ranging can be triggered externally or internally• Sensor reports the range reading directly, frees up user processor• Fast measurement cycle• User can choose any of the sensor outputs• No power up calibration is required• Perfect for when objects may be directly in front of the sensor during power up• Easy mounting	<ul style="list-style-type: none">• UAV blimps, micro planes, and some helicopters• Bin level measurement• People detection• Proximity zone detection• Robot ranging sensor• Autonomous navigation• Environments with acoustic and electrical noise• Multi-sensor arrays• Distance measuring• Long range object detection• Wide beam sensitivity• Users who prefer to process the analog voltage envelope (MB1361)• -40°C to +65°C operation (+85°C limited operation)

MB1261 & MB1361 Real-time Noise Rejection

While the XL-MaxSonar[®] is designed to operate in the presence of noise, best operation is obtained when noise strength is low and desired signal strength is high. Hence, the user is encouraged to mount the sensor in such a way that minimizes outside acoustic noise pickup. In addition, keep the DC power to the sensor free of noise. This will let the sensor deal with noise issues outside of the users direct control (in general, but the sensor will still function well even if these things are ignored). Users are encouraged to test the sensor in their application to verify usability.

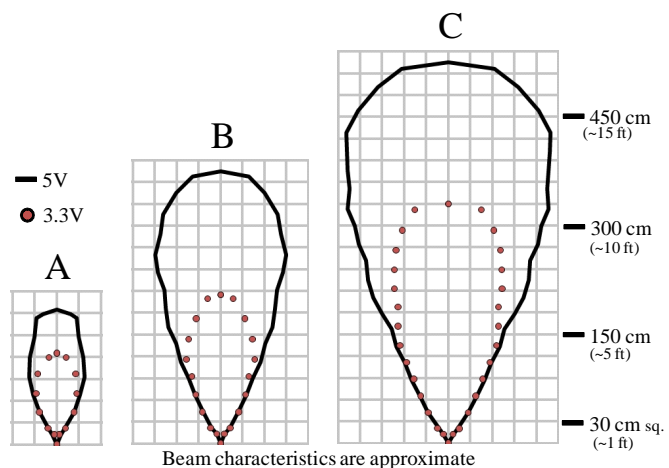
For every ranging cycle, individual filtering for that specific cycle is applied. In general, noise from regularly occurring periodic noise sources such as motors, fans, vibration, etc., will not falsely be detected as an object. This holds true even if the periodic noise increases or decreases (such as might occur in engine throttling or an increase/decrease of wind movement over the sensor). Even so, it is possible for sharp non-periodic noise sources to cause false target detection. In addition, *(because of dynamic range and signal to noise physics,) as the noise level increases, at first only small targets might be missed, but if noise increases to very high levels, it is likely that even large targets will be missed.

*In high noise environments, if needed, use 5V power to keep acoustic signal power high. In addition, a high acoustic noise environment may use some of the dynamic range of the sensor, so consider a part with less gain.

MB1261 & MB1361 Beam Characteristics

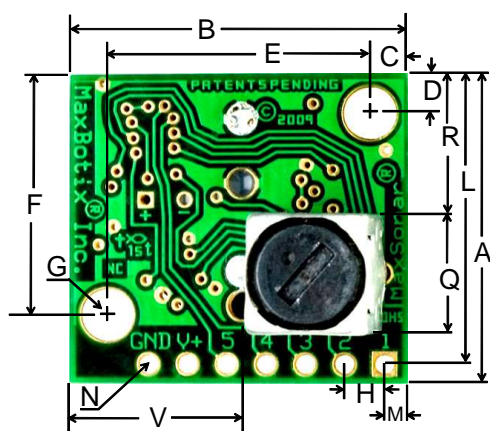
The MB1261 and MB1361 have a wide and long sensitive beam that offers excellent detection of objects and people. The MB1261 and MB1361 balances the detection of objects and people with minimal side-lobes. Sample results for measured beam patterns are shown to the right on a 30-cm grid. The detection pattern is shown for dowels of varying diameters that are placed in front of the sensor;

- (A) 6.1-mm (0.25-inch) diameter dowel,
- (B) 2.54-cm (1-inch) diameter dowel,
- (C) 8.89-cm (3.5-inch) diameter dowel,

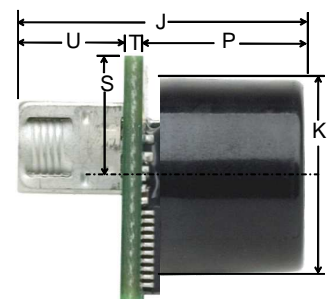


Beam characteristics are approximate

MB1261 & MB1361 Mechanical Dimensions

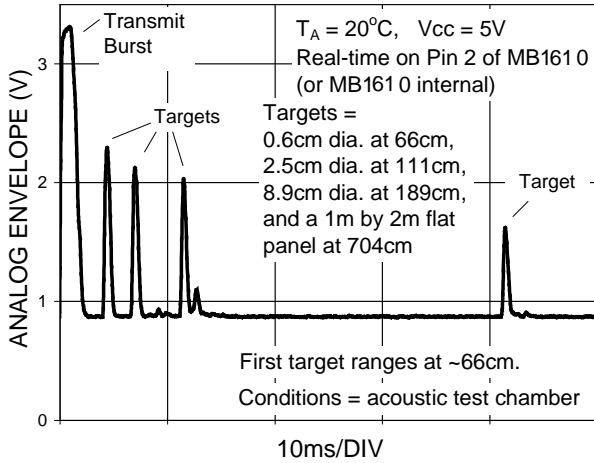


A	0.785"	19.9mm	L	0.735"	18.7mm
B	0.870"	22.1mm	M	0.065"	1.7mm
C	0.100"	2.54mm	N	0.038" dia.	1.0mm dia.
D	0.100"	2.54mm	P	0.537"	13.64mm
E	0.670"	17.0mm	Q	0.304"	7.72mm
F	0.610"	15.5mm	R	0.351"	8.92mm
G	0.124" dia.	3.1mm dia.	S	0.413"	10.5mm
H	0.100"	2.54mm	T	0.063"	1.6mm
J	0.989"	25.11mm	U	0.368"	9.36mm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

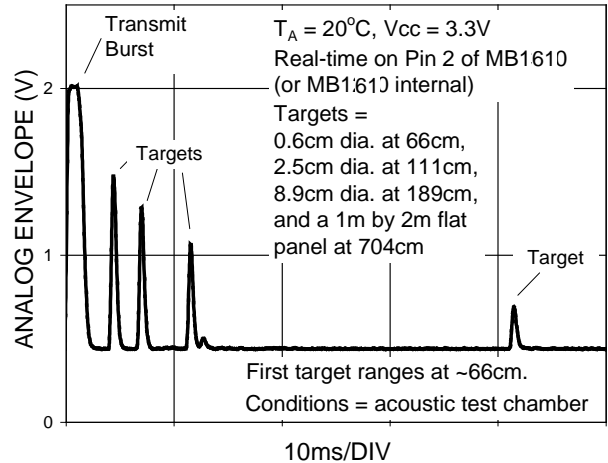


Typical Performance to Targets

Analog Envelope Output (Dowels, 5V)

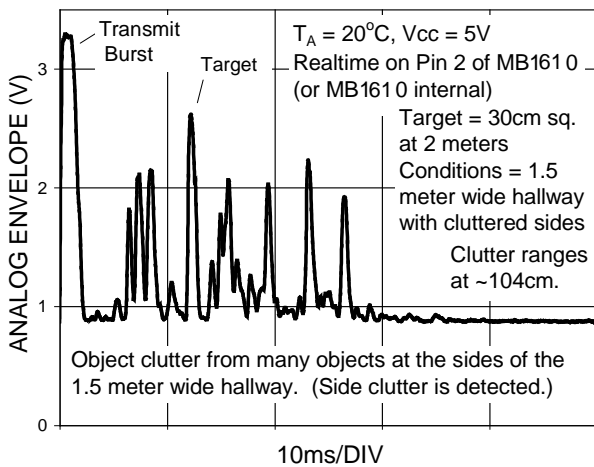


Analog Envelope Output (Dowels, 3.3V)

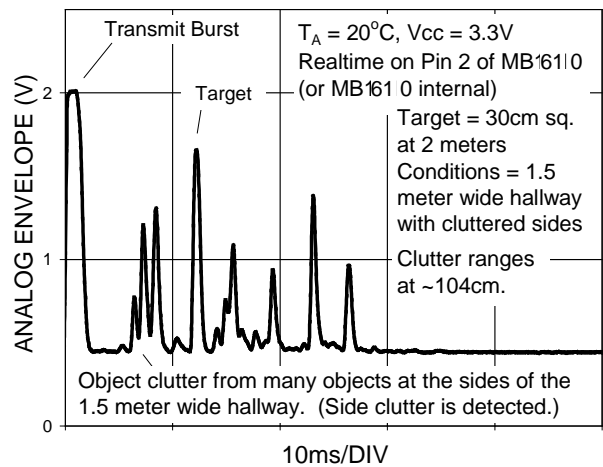


Typical Performance in Clutter

Analog Envelope Output (Clutter, 5V)



Analog Envelope Output (Clutter, 3.3V)



Product / specifications subject to change without notice. For more info visit www.maxbotix.com