Ultrasonic Rangefinders Feature Custom Beam Width

Users of ultrasonic rangefinders have found that the beam widths of low cost ultrasonic sensors do not always match their application. Wider beam width (and more sensitivity) is better suited for obstacle detection, people detection, collision avoidance, detecting small objects, and more robust detection in the central beam area. Narrower beam width (and less sensitivity) is useful for clutter rejection, high acoustic noise environments, directional ranging, room mapping, or using an ultrasonic sensor to locate an opening such as a door. Some users require very long long detection and ranging, while others only care about performance only out to one meter. In addition, users of ultrasonic sensors, even sensors that have a narrow beam width, still desire detection of small objects within the central beam, stable range measurements (even when ranging moving objects), small size, low power, and the sensor must be easy to use. Both narrow or wide beam sensors can be useful for all of the mentioned uses but in general a specific beam width will perform better, than another, for a given user application.

The beam width of the LV-MaxSonar® sensor line up is factory calibrated and precisely controlled. This allows the precision beam angles that users of the EZ1™ have come to depend on. The beam width of the LV-MaxSonar®-EZ1™ balances robust people detection ability with a narrow beam width. This compromise does not fit all users as some users have reported that, for their application, they desire either a wider or narrower beam. To address this, MaxBotix® Inc., has added four additional ultrasonic rangefinders to the LV-MaxSonar® sensor lineup, each calibrated to a specific beam width. This allows users to select the sensor that provides the beam width of choice. Beam plots or each sensor type are shown in Figure 1 on a one-foot grid background. Detection distance for 5V operation is shown in black lines, and distance for 3.3V operation is shown with red dots. The sensor beam width is widest for the EZ0™ where it is well suited to users desiring a high sensitivity or a wide beam width. Each sensor, the EZ1™, EZ2™, EZ3™ and EZ4™ is progressively narrower. For example, the EZ4™ provides users with a narrow beam width for much better clutter or acoustic noise rejection.

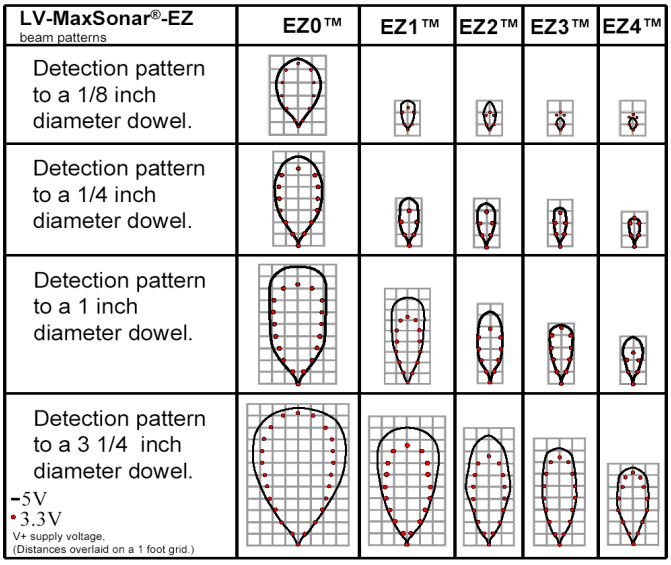

Figure 1: Range shown on 1-foot grid to various diameter dowels. (Beam plots are approximate.)

The LV-MaxSonar ultrasonic rangefinders operate over the voltage range of 2.5V to 5.5V (2mA typical), provide three simultaneous user outputs (analog voltage, pulse width, and serial), fill a volume less than one cubic inch, and weigh only 4.3 grams. Sells for $29.95. RoHS compliant. For more information please visit the MaxBotix® Inc., web site www.maxbotix.com, or email info@maxbotix.com.

MaxBotix® Inc., would like to also introduce the MaxSonar®-UT, the ultrasonic transducer used in the the MaxSonar® product line. The sensor beam pattern is shown in Figure 2. The MaxSonar®-UT sells for $5.95. RoHS compliant. For more information please visit the MaxBotix® Inc., web site www.maxbotix.com, or email info@maxbotix.com.

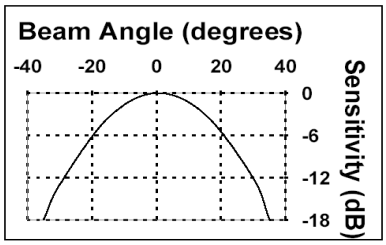

Figure 2

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