



CRICKET-S ULTRASONIC SENSOR

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SensComp CRICKET-S electrostatic ultrasonic transducer system provides a complete sensor solution to simplify your product design and packaging.

Features

- 50 KHz Electrostatic Transducer with Integrated SMT Electronic Circuitry
- Ranges from 6" to 20' (*1" to 12")
- Two (2) Independent Push-button Settable Digital Outputs (Outputs are NPN Open Collector)
- Output LED Indications
- Temperature Compensated Switch Point Settings

Part No.

- Cricket Range of 6 inches to 20 feet
PID# 616600 – Cricket-S
- Cricket Range of 1 inch to 12 inches (*special Order)
PID# 616650 – Cricket-S

Benefits

- Self Contained Compact Design
- Excellent Receive Sensitivity
- Push Button Range Settings for Quick and Easy Set-up.

Applications

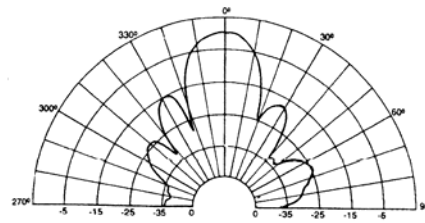
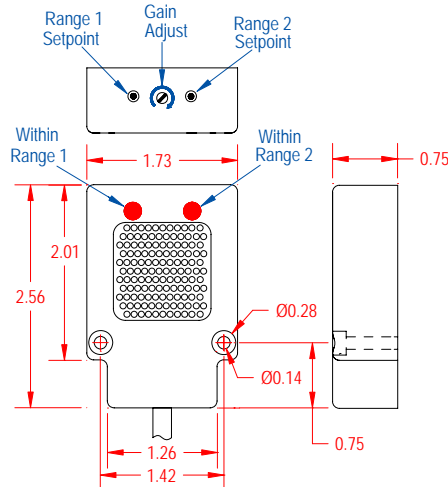
- Level Measurement, Proximity Detection, Presence Detection, Robotics, Educational Products

Specifications



Description

The Cricket-S provides a total system in a compact package, containing an ultra sensitive electrostatic transducer and the supporting circuitry to provide two (2) independent outputs, each output settable to indicate the detection of a target at a distance between *1 inch to 12 inches or from 6 inches to 20 feet away. The Cricket-S is insensitive to temperature, humidity, and pressure changes. It can also withstand high audio and EMI/RFI levels.



Beam Pattern

Cricket-S Specifications

Distance Ranges: 0.15 - 6.10 M (0.5 - 20 feet)
.... [*Special Order: 0.025 - 0.3 M (*1 - 12 inches)]
Accuracy (over entire range) $\pm 0.1\%$
(0.025 – 0.3 M Range = $\pm 1.0\%$)
Beam Pattern See Graph (Typically 17° nominal)
Repetition Rate (astable) 10 Hz
Outputs (NPN Digital Open Collector) 2
Maximum Voltage 40 VDC
Maximum Output Current 600 ma
Maximum Power Dissipation 330 mW
Output Response Time:
On (goes high) three (3) consecutive target hits
Off (goes low) three (3) consecutive misses

Power Requirements 8 to 24 VDC
(Min. Current = 30 mA)
Cable Length 1.8 meter (6 feet)
Operating Temperature -40° to +85° C
(-40° to +185° F)
Weight 83.46 Grams (2.94 oz.)
(Weight with cable)
Dimensions
Height 65 mm (2.56 inch)
Width 44 mm (1.73 inch)
Depth 19 mm (0.75 inch)
Case Material Black ABS Plastic
Specifications subject to change without notice

General Installation Procedures

1. Always mount your Cricket in a suitable dry location. The Cricket is designed to be used indoors or protected environments only. Excessive moisture in the circuit board (and the transducer) will result in damage and improper operation, and will void all warranties.
2. Mount the Cricket as far off the ground as practical, in a location where environmental interference sources are minimized (i.e. EMI sources, air nozzles, excessive air turbulence, etc.)
3. If necessary, adjust the gain to the minimum setting necessary to insure reliable target detection (excessive gain can result in false detections).
4. The two (2) NPN open collector digital outputs require pull-up resistors to an external positive power source of less than 40 VDC (typically 4700 ohms when connected to +5 VDC for interfacing to TTL circuits).

Calibration Procedures

1. Apply DC power (see requirements above) to the Cricket.
2. Allow several minutes warm-up time for the Cricket-S to reach operating temperature before calibrating the unit.
3. **Setting Output 1:** Place the target at the desired detection distance from the face of the Cricket-S. Depress and hold the "RANGE SET 1" push button for 3-5 seconds until a "chirp" sound is heard, then release the button. The Cricket-S is now calibrated to the desired target distance for Output 1.
4. **Setting Output 2:** Place the target at the desired detection distance from the face of the Cricket-S. Depress and hold the "RANGE SET 2" push button for 3-5 seconds until a "chirp" sound is heard, then release the button. The Cricket-S is now calibrated to the desired target distance for Output 2.
5. **Gain Control:** The Cricket-S GAIN was pre-set at the factory for optimum performance. To re-calibrate the GAIN potentiometer setting, place the target at the maximum desired detection distance. Rotate the GAIN potentiometer fully counter-clockwise (CCW). Slowly rotate the GAIN control clockwise (CW) until detection occurs. Rotate the Gain control CW an additional 1/16 turn.
Note: Always calibrate the GAIN control for Minimum gain required for reliable detection. Excessive gain may result in false target detection.

System Wiring Information (Integral Cable) (Optional 4-pin M8 connector)

Brown wire (+) Power Supply
Blue Wire Ground Common Return for DC power supply and analog output.
Black wire Range 1 – NPN Open Collector Output 1
White Wire Range 2 – NPN Open Collector Output 2

NPN open collector outputs are continuously energized during the detection period. The outputs switch on (NPN low output to common) when the sensor detects three consecutive target present at the range control set points. The outputs switch off (open collector output) when the sensor detects three consecutive missing targets at the range control set point.

Indicators (LEDs)

RED₁ – Range 1 Output Active
RED₂ – Range 2 Output Active

- During normal operation, the Range LED's will illuminate to indicate that a target is detected between the sensor face and Range settings. For targets outside this range the LED will be off.