CRICKET-A ULTRASONIC SENSOR

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SensComp CRICKET-A 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' (optional 1" to 12")
Analog Output from 0 to 5 VDC or from 0 to 10 VDC
Independent Push-Button Settable Zero and Span Adjustment of Analog Output
Range Window LED Indication
Power ON LED Indication
Analog Output Temperature Compensated

Part No.

Cricket Range of 6 inches to 20 feet
PID# 616400 – Cricket-A – 5 VDC output
PID# 616475 – Cricket-A – 10 VDC output

Cricket Range of 1 inch to 12 inches (special Order)
PID# 616425 – Cricket-A – 5 VDC output
PID# 616450 – Cricket-A – 10 VDC output

Benefits

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

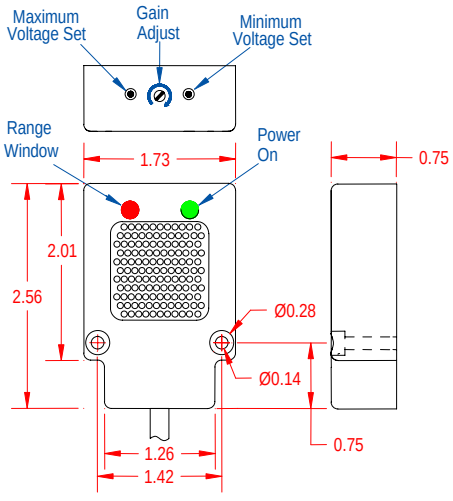
Specifications

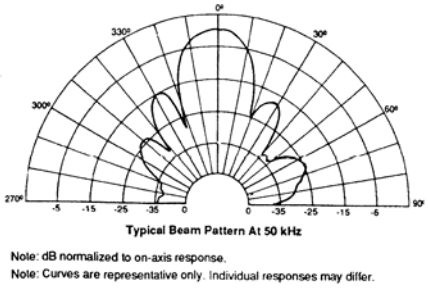
Applications

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

Description

The Cricket-A provides a total system in a compact package, containing an ultra sensitive electrostatic transducer and the supporting circuitry to provide a 0 to +5 VDC (or 0 to +10 VDC) output with fully independent zero and span adjustments over the entire operating range of detecting a target from 1-12 inches or from 6 " - 20' away.





Beam Pattern

For more information, visit our website: www.senscomp.com

Cricket-A 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) ..... ± 0.1%
(0.025 – 0.3 M Range = ± 1.0%)
Beam Pattern ..... See Graph (Typically 17° nominal)
Repetition Rate (astable) ..... 10 Hz
Output Voltage (Analog) ..(0 to 5 VDC) or (0 to 10 VDC)
Output Current (maximum)..... 5 ma
Output Response Time:
Analog output is filtered to the approximate formula:
$V_{OUT} = 0.9\ (V_{new\ value}) + 0.1(V_{past\ avg.\ value})$

Specifications subject to change without notice

Power Requirements .....+8 to +24 VDC (for 5V output)
+12 to +24 VDC (for 10V output)
(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)
(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

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 on 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. As supplied the MINI-A has been calibrated and should function without further calibration. See manual for factory settings.

Range/Gain Set-up (if required)

1. Apply DC power (see requirements above) to the Cricket-A
2. Allow several minutes warm-up time for the Cricket-A to reach operating temperature before calibrating the unit.
3. Connect a DC voltmeter (DVM) plus (+) lead to the Analog Output (Black wire) and the minus (-) lead to Ground (Blue wire).
4. Place the target at the desired distance for the full scale voltage output. This can be either the minimum range or the maximum range between the sensor and the target. Depress and hold the "MAX" RANGE SET push button for 3-5 seconds until a "chirp" sound is heard, then release the button. The Cricket-A is now calibrated to your desired target distance for full scale analog voltage output.
5. Place the target at the desired distance for the zero voltage output. This can be either the minimum range or the maximum range between the sensor and the target. Depress and hold the "MIN" RANGE SET push button for 3-5 seconds until a "Chirp" sound is heard, then release the button. The Cricket-A is now calibrated to your desired target distance for zero analog voltage output.

***Note:* You CANNOT set both RANGES MIN/MAX settings at the same analog scale (i.e. 5=MIN, 5=MAX). One must be MIN and the other MAX. Reversing the range settings will result in a reverse slope. (i.e. 0=MIN, 5=MAX or 5=MIN, 0=MAX,)**

6. Gain Control: The gain of the Cricket-A was pre-set at the factory for optimum performance. To re-calibrate the "GAIN" potentiometer, 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)

Brown wire..... (+) Power Supply
Blue Wire..... Ground.....Common Return for DC power supply and analog output.
Black wire..... Analog Output..... (0 to +5 VDC) or (0 to +10 VDC) analog output voltage.
White Wire.....N.C.

Indicators (LEDs)

GREEN – Power ON.
RED –Target detected in Range Window.
- During Push Button Setup, the Range LED will flash as the set-up values are programmed into the Sensor.
- During normal operation, the Range LED will illuminate to indicate that a target is detected between the MIN and MAX Range settings. For targets outside this range the LED will be off.

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