



Precision *AutoResearch*

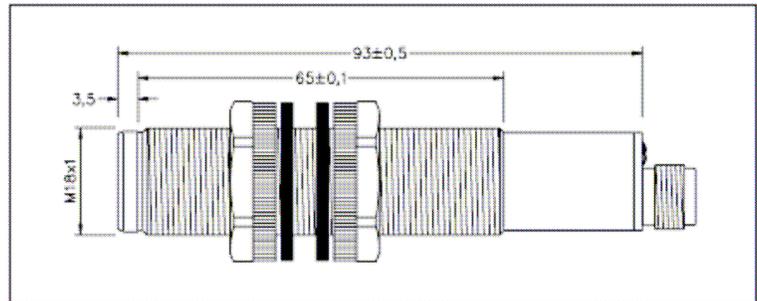
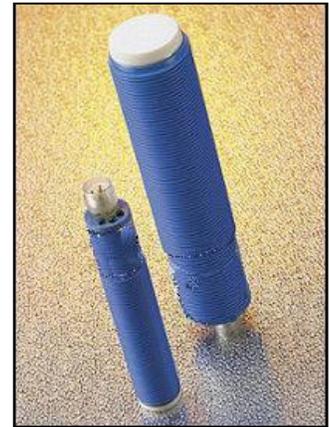
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Black DiamondTM **Ultrasonic Distance Sensor**

This sensor is ideal for dynamic height measurement, where physical sensor contact is impossible. The sensor operates at ultrasonic frequencies (20-100kHz), permitting an economical alternative to laser distance sensors. Typical use is real-time ride height for racing cars, bikes, and boats.

Specifications

Dimensions: 18mm Dia. X 90mm Length
Measurement Range: 30mm-210mm (from sensor face)
Analog Output Response: 26.4 mV/mm
Output Offset: 0mV at 30mm distance
Response (90% of change): 25mS
Power Supply: 12-30vdc
Operating Temp. Range: 0-160 °F
Linear Accuracy: 0.3% FS (0.6mm abs)
Current Consumption: 35mA (max)
Housing/Sealing: M18x1, IP67



Installation Notes

The sensor should be perpendicular to the reference surface ($\pm 8^\circ$ angularity is acceptable).

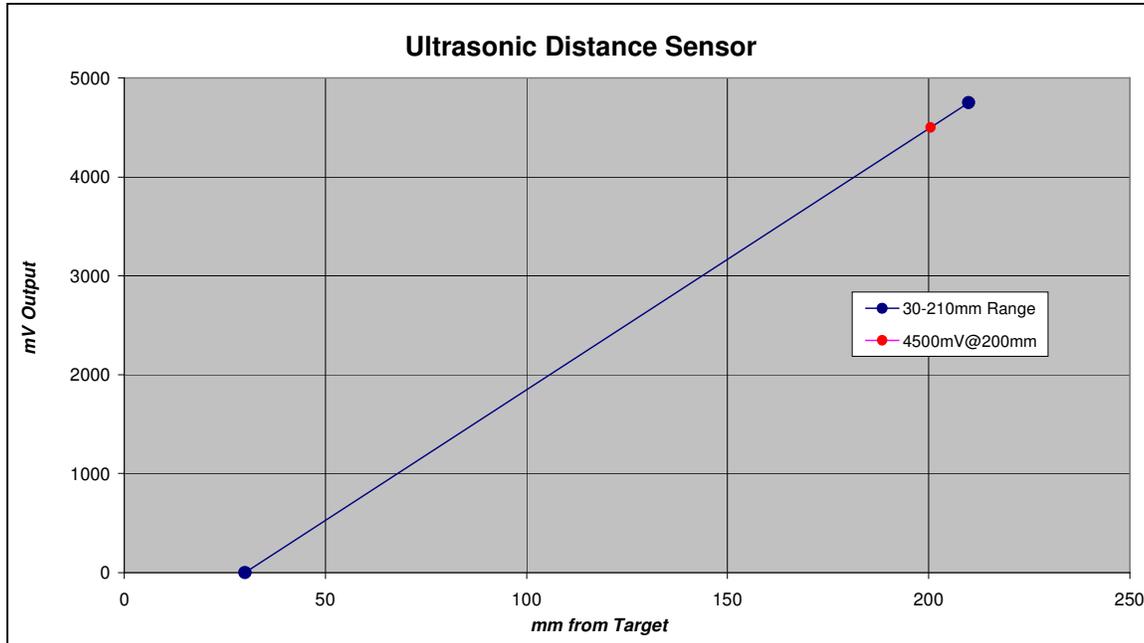
Reference surface may be any solid or liquid surface (asphalt, concrete, wood, water, oil, etc).

Avoid hot ($>140^\circ\text{F}$) water or oil contact with sensor face.

Do not let any surface (opaque or transparent) interfere with the region between sensor and reference surface. Recall, this is an audible sensor, not an optical sensor, so no protective lenses are permissible.

Mount sensor face at least 30mm from reference surface. If sensor is within operating range, the **Echo LED (GREEN)** will be lit. If the P1 or P2 LED (**YELLOW**) are on, then the sensor is out of range of the reference surface.





For use with AIM loggers using RaceStudio2/ software (setup option 1):

- Select Sensor Type: Linear Potentiometer Distance
- Specify Graphing Range: (user preference)
- Select Units: use inch (.01) or mm (.1) within Race Studio2
- Set Distance Parameter: use 6.712" or 170.5mm
- Transmit configuration to logger
- Be sure to ZERO CALIBRATE after installation. This will fix the zero point to the static ride height, with (-) values being lower height and (+) values being greater height. If you prefer to measure absolute height, then use setup option 2.

For use with AIM loggers using RaceStudio2/ software (setup option 2):

- Select Sensor Type: Custom Sensor (*BD UltrasonicHeight30-210*)
(Table values as follows: (0mV=30mm, 4750mV=210mm))
- Specify Graphing Range: 0 (min) to 250 (max)
- Select Units: use inch (.01) or mm (.1) within Race Studio2
- Transmit configuration to logger
- This setup give absolute difference from ground to base of sensor. If you'd like to re-index the distance to another reference point, then change the lookup table by the appropriate offset. Alternatively, you may use a Math Channel within RS2.

To see accurate "real time" readings, access the ONLINE view from within the System Manager screen of RaceStudio2.

As always, please call us with any questions! We're here to help!