



Technical Specifications

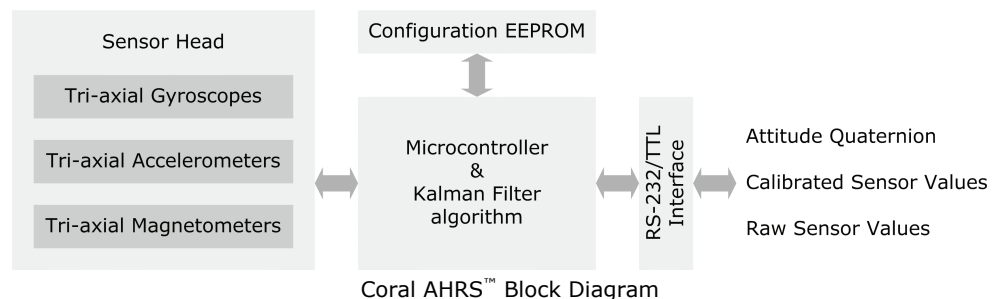
Revision 1.1 (4/20/2005)

The Coral AHRS™ provides a stabilized attitude solution by fusing data from gyroscopes, accelerometers, and magnetometers with an innovative real time algorithm. Quaternion output or individual sensor values are available at up to 100Hz over a standard serial port. Even in the presence of dynamic movements, it measures the full range of orientation in roll, pitch, and heading.

It's remarkably easy to integrate into your system, with its royalty-free source licensed LibCoral SDK for data acquisition (available for Windows, Linux/UNIX, and MacOS X), shielded enclosure with threaded mounting holes, and readily available DB9 connector. Starter kits make getting set up fast and easy.

Units are factory calibrated for optimum performance out of the box, but can be user-calibrated for specific needs, such as correction for "hard iron" distortions, using the included user-friendly utility software. Factory calibration values can be restored at any time.

Visit our web site for more information on making Coral AHRS™ part of your system.



Output

Output Data Modes	One filtered output (Euler Angles, Quaternion, or Rotation Matrix) and one sensor values output (Calibrated Values or Raw Values)
Output Data Rate	100Hz, software configurable to lower rates with integer divisors.
Data Format	Proprietary binary with checksum, see Manual
Turn-on Time	<2.5 seconds
Serial Protocol	RS-232
Serial Baud Rate	4800, 9600, 19200, 38400, 57600, 115200, 230400, 460800, configurable
Serial Port Settings	8 data bits, no parity, 1 stop bit, no handshaking.

Orientation

Range	Roll ± 180 , Pitch ± 90 , Heading 0-360
Static Accuracy, Roll & Pitch	1 degree
Static Accuracy, Heading	2 degrees
Dynamic Accuracy, Roll & Pitch	2 degrees rms
Dynamic Accuracy, Heading	3 degrees rms
Repeatability	0.2 degrees
Resolution	0.1 degrees

Sensors

Gyroscopes	± 300 degrees/s, other configurations available up to ± 1200 degrees/s
Accelerometers	± 1.7 g standard, ± 10 g configuration available
Magnetometers	± 10 Gauss
ADC Resolution	12 bits
ADC Sample Rate	100 Hz (sensors filtered to 40Hz bandwidth prior to acquisition)

Electrical

Input Voltage	9-28 VDC
Input Current	72.5mA at 12 VDC
Power Consumption	870mW typical at 12 VDC

Physical

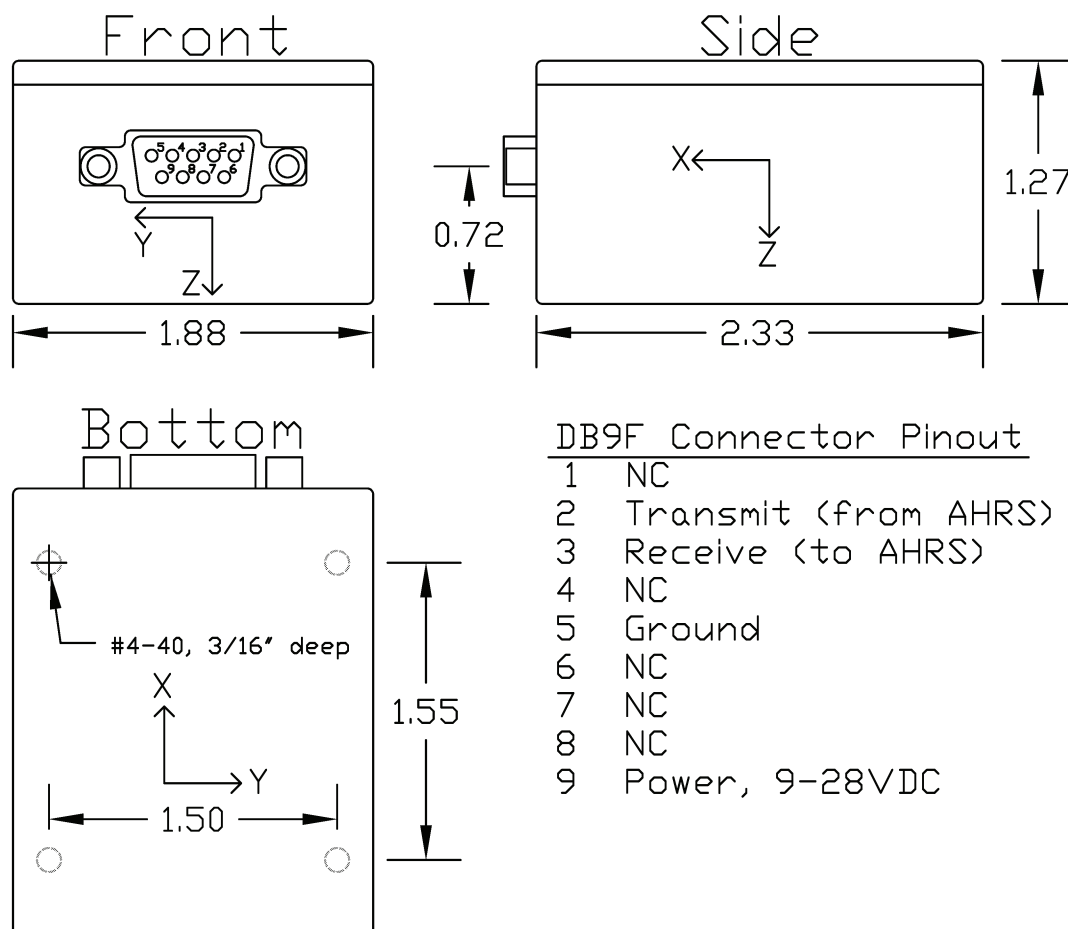
Size (L x W x H)	2.33" (2.5" incl. connector) x 1.88" x 1.27" / 59mm (63.5mm) x 48mm x 32mm
Mounting Hole Thread	#4-40
Mount Hole Depth	3/16", 4.8mm
Mounting Hole Pattern	1.55" x 1.50"
Weight	3.74 oz, 106 grams
Case Material	7075 Aluminum, hard anodized
Connector	9 pin "D" sub-miniature female (DB9F)

Environmental

Operating Temperature	-20 to +70 °C
Non-operating Temperature	-40 to +85 °C

Warranty

180 days against defects in workmanship, 30 day return policy, see Manual



Coral AHRS™ Mechanical Drawing

All quantities specified to ± 0.005 " tolerance