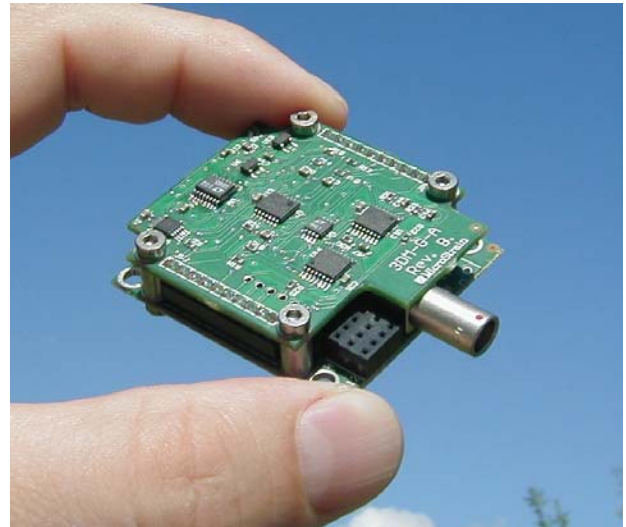


3DM-GX1 combines three angular rate gyros with three orthogonal DC accelerometers, three orthogonal magnetometers, multiplexer, 16 bit A/D converter, and embedded microcontroller, to output its orientation in dynamic and static environments.

Operating over the full 360 degrees of angular motion on all three axes, 3DM-GX1 provides orientation in matrix, quaternion, and Euler formats. The digital serial output can also provide temperature compensated, calibrated data from all nine orthogonal sensors at update rates of 350 Hz.

APPLICATIONS

- ▲ unmanned aerial /underwater vehicles, robotics
navigation, artificial horizon
- ▲ computer science, biomedical
animation, linkage free tracking/control
- ▲ mobile cameras, sonar scanners
image reconstruction
- ▲ mobile radio antennas
aiming optimization, dynamic correction, antenna shaping
- ▲ manufacturing
container handling, hydraulic lift systems, machine tools



Networks of 3DM-GX1 nodes can be deployed by using the built-in RS-485 network protocol. Embedded microcontrollers relieve the host system from the burden of orientation calculations, allowing deployment of dozens of 3DM-GX1 nodes with no significant decrease in system throughput.

Output modes and software filter parameters are user programmable. Programmed parameters and calibration data are stored in nonvolatile memory.

As with all MicroStrain products, every module is carefully tested prior to shipment, and calibration data are included with each order.

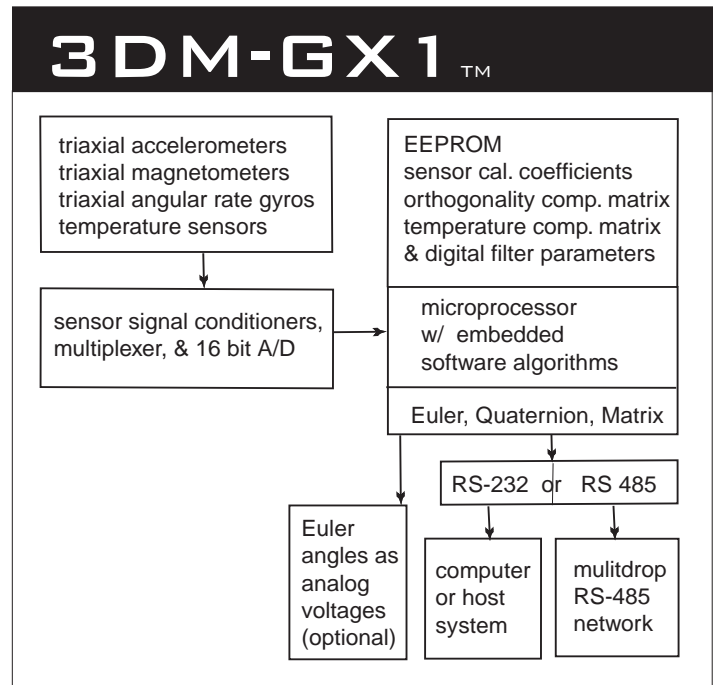
To place an order, or for more information, call us today at 800-449-3878.

How it works

3DM-GX1 utilizes the triaxial gyros to track dynamic orientation and the triaxial DC accelerometers along with the triaxial magnetometers to track static orientation. The embedded microprocessor contains a unique programmable filter algorithm, which blends these static & dynamic responses in real-time.

This provides a fast response in the face of vibration and quick movements, while eliminating drift. The stabilized output is provided in an easy to use digital format. Analog output voltages proportional to the Euler angles can be ordered as an option.

Full temperature compensation is provided for all nine orthogonal sensors to insure performance over a wide operating temperature range.



Patents Pending

SPECIFICATIONS

▲ Orientation Range	360 deg. full scale (FS), all axes (Matrix, Quaternion modes)	▲ Output Modes	matrix, quaternion, Euler angles, & nine scaled sensors w/ temperature
▲ Sensor Range	gyros: +/- 300 deg./sec FS accelerometers: +/- 5 G's FS magnetometers: +/- 1.2 Gauss FS	▲ Digital Outputs	serial RS-232 & RS-485 optional with software programming
▲ A/D Resolution	16 bits	▲ Analog Output Option	0-5 volts full scale for Euler angles (pitch +/-90 , roll +/- 180, yaw 360 deg.)
▲ Accel. Nonlinearity Accel. Bias Stability*	0.2% 0.010 G's	▲ Digital Output Rates	100 Hz for Euler, Matrix, Quaternion 350 Hz for nine orthogonal sensors only
▲ Gyro Nonlinearity Gyro Bias Stability*	0.2% 0.7 degrees/sec	▲ Serial Data Rate	19.2/38.4/115.2 kbaud, software prog.
▲ Magnetom. Nonlinearity Magnetom. Bias Stability*	0.4% .010 Gauss	▲ Supply Voltage	5.2 VDC min., 12 VDC max.
▲ Orientation Resolution	< 0.1 degrees minimum	▲ Supply Current	65 milliamps
▲ Repeatability	0.20 degrees	▲ Connectors	one keyed LEMO, two for RS-485 option
▲ Accuracy*	+/- 0.5 degrees typical for static test conditions, ±2 degrees typical for dynamic (cyclic) test conditions & for arbitrary orientation angles	▲ Operating Temp.	- 40 to +70 deg C with enclosure -40 to +85 deg C w/o enclosure
		▲ Enclosure (w / tabs)	64 mm by 90 mm by 25 mm
		▲ Weight	75 gr. with encl., 30 gr. without
		▲ Shock limit	1000g (unpowered), 500g (powered)

* Accuracy & stability specs. obtained over operating temperatures of -40 to 70 degrees C with known sine and step inputs, including angular rates of +/- 300 degrees per second.