Honeywell

Stability Control Sensing Modules

Automotive Yaw/Lat and Yaw/Lat/Long with CAN or Analog Output

Advanced Automotive Sensor Technology

Honeywell's 2 and 3 Degree of Freedom (2DF and 3DF) Inertial Measurement Units are automotive sensing modules that measure yaw, angular rate, and lateral and longitudinal accelerations for automotive safety applications. They provide excellent performance over a large temperature range and in high vibration environments.

The 2DF and 3DF sensing modules include a MEMS rotational rate sensor, a MEMS single or dual axis accelerometer, and a CAN or analog interface. The CAN devices include advanced self testing for protection against misleading information. All 2DF and 3DF units have factory programmable operating ranges and output bandwidths to meet a broad range of customer requirements.

The critical technology for these inertial sensing modules is contained in the Honeywell MEMS rotation rate sensor, fabricated from bulk silicon using proprietary deep reactive ion etching processes. This device uses the physical properties of the Coriolis Effect and a capacitive sensing mechanism. Honeywell provides GG1178 sensors in a variety of physical configurations with interfaces tailored to the customer's stability control requirements.

Features

- Broad Dynamic Range
- Low Noise, High Resolution
- Excellent Temperature Performance
- Patented Self-test Function
- User-defined Low-pass Filter
- Safety Critical Integrity

Applications

- Rotation Rate Sensor
- Vehicle Stability Control
- Vehicle Roll Detection
- Adaptive Cruise Control
- Automotive Control Systems

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Specifications

Characteristic Yaw Rate Sensor	Min	Nom	Max	Unit
Measurement Range	-75		75	°/sec
Overload Range (<60 ms recovery)	-1000		1000	°/sec
Sensitivity Error	-4		4	%
Linearity	-1		1	%
Offset (total)	-2.5		2.5	°/sec
Offset Drift (over temp range)	-1		1	°/sec
Offset Drift Speed (t > 3 min)	-0.2		0.2	°/sec/min
Resolution (10 ms samples)			0.1	°/sec (RMS)
Noise			0.2	°/sec
Cross Axis Sensitivity	2		2	%
Turn On Time			750	ms

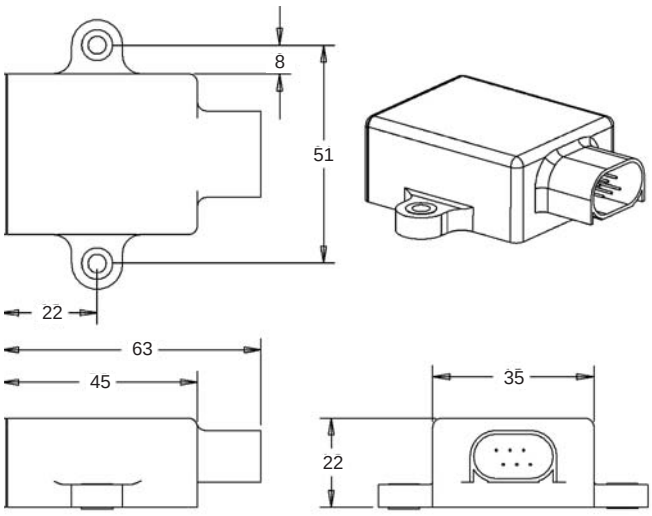
Characteristic Lat/Long Accel	Min	Nom	Max	Unit
Measurement Range	-17		17	m/s^2
Overload Range (<60 ms recovery)	-100		100	m/s^2
Sensitivity Error	-5		5	%
Linearity	-4		4	%
Offset (entire)	-1		1	m/s^2
Offset Drift (over temp)	-0.35		0.35	m/s^2
Offset Drift (over 60K interval)	-0.2		0.2	m/s^2
Offset Drift Speed	-0.1		0.1	$m/s^{2/}$min
Resolution			0.05	m/s^2
Noise			0.1	m/s^2 (RMS)
Cross Axis Sensitivity	-5		5	%
Turn On Time			250	ms

** Higher performance and custom ranges available by request*

Operational Conditions

	Low	High	Low
Power	8	16	Vdc
Current		200	mA
Temperature	–40	+85	°C
Vibration		>3.2	gRMS

Mechanical Package



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