



Dynamic Measurement System

DMS-E604

Description:

Originally developed to meet the needs of automotive testing professionals, the Dynamic Measurement System (DMS) was designed for instrumenting the drive and handling characteristics of vehicles. The DMS may be used in almost any application where triaxial angular rate and acceleration data is required. The sensor provides both angular rate and acceleration outputs in analog and digital formats. The DMS features six accelerometer outputs. The X, Y, and Z axis outputs represent the accelerations in the plane of the vehicle body, while the second set of three outputs measure the acceleration aligned with an earth-level coordinate system. This allows forward and lateral acceleration measurements that are essentially free of gravity influences. The triaxial sensor set allows software alignment of sensors, greatly reducing any alignment errors. The serial interface is highly configurable and provides access to almost all operational parameters.



This is a microprocessor-based system using a 16 bit A/D converter, a 12 bit D/A converter and an RS-232 interface. The analog angular rate outputs have a range of $\pm 100^\circ/\text{sec.}$, and a response better than 25Hz. The analog acceleration outputs provide a range of ± 10 g's and can accommodate a maximum pitch angle of $\pm 75^\circ$, while accommodating all roll angles.

The DMS uses an input of forward velocity to compensate the long term references, allowing the error correction system to work continuously. Other companies manufacture systems which turn off their corrections during high dynamic conditions causing a drift in accuracy over time. The DMS-E604 is much more useable in highly dynamic conditions, and has been designed to provide the best possible combination of reliable data and low cost.

- Solid State, Strap Down System
- Six Accelerometer Outputs
- Low Cost, Low Power
- Rugged, High Reliability
- Analog and RS-232 Serial Outputs
- Interface Software
- Display Software
- Two Year Limited Warranty
- Engineering Support

Applications:

The DMS has been used in automotive testing, pipeline maintenance telemetry, and vehicle dynamics applications.



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DMS-E604 Specifications

Attitude

Range: Bank	±180°	
Range: Elevation	±75°	
Resolution:	0.02°	Binary mode (14 bit)
Analog Scale Factor:	18°/V	±10V Output
Accuracy: Static	±0.25°	
* Accuracy: Dynamic	±2%	

Angular Rate

Range: Roll, Pitch, Yaw	±100°/sec	
Resolution:	0.01°/sec	Binary mode (14 bit)
Analog Scale Factor:	10°/sec/V	±10V Output
Scale Factor Accuracy:	1%	
Bias: Roll, Pitch, Yaw	< 0.1°/sec (Analog)	< ±0.02°/sec Binary mode (14 bits)
Non-Linearity	< 0.03%	Full scale range
Bandwidth	20 Hz	
Noise:	< 0.02°/sec rms	

Acceleration

Range: X, Y, Z	±10g	
Range: Forward, Lateral, Vertical	±10g	
Resolution:	4mg	
Analog Scale Factor:	1g/V	±10V Output
Scale Factor Accuracy:	1%	
Bias: X, Y, Z	< ±5mg	
Non-Linearity:	< 1%	Full scale range
Bandwidth:	20 Hz	

Environmental

Temperature: Operating	-30°C to +60°C	
Temperature: Storage	-55°C to +85°C	
Vibration: Operating	5g rms	20 Hz to 2 kHz
Vibration: Survival	10g rms	20 Hz to 2 kHz
Shock: Survival	500g	10ms ½ sine wave

Electrical

Frame Rate	71.1 Hz	Maximum
Startup Time: Data	5 sec	
Startup Time: Fully operational	10 sec	
Input Power:	10 to 30VDC	3.0W
Input Current:	225mA @ 12VDC	120mA @ 24VDC
Input Velocity: (Optional)	±10VDC	Full scale (±400kph)
Digital Output	RS-232	
Analog Output	±10VDC	
Analog Output Impedance:	300 Ohm	Per line

Physical

Axis Alignment:	< 0.1°	
Size: Including Mounting Flanges	6.5"W x 6.5"L x 3.00"H	16.5 x 16.5 x 7.6 (cm)
Weight:	45oz (2.8lb)	1280g (1.3kg)
Connection: Digital	9 pin female "D" subminiature	
Connection: Power	25 pin male "D" subminiature	

* Assumes accurate velocity data.

Actual accuracy can be calculated as the listed percentage multiplied by the change in value over the entire dynamic maneuver.

- Specifications are subject to change without notice.
- This product may be subject to export restrictions. Please consult the factory.

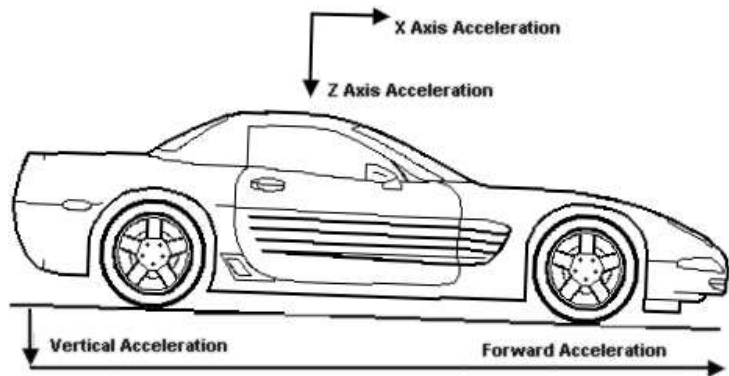
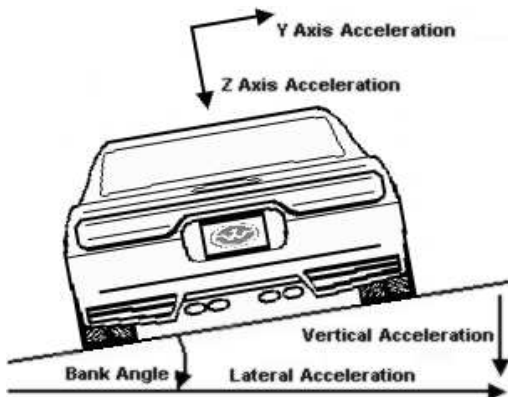
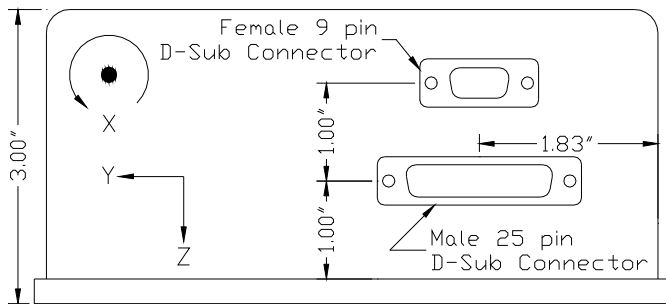
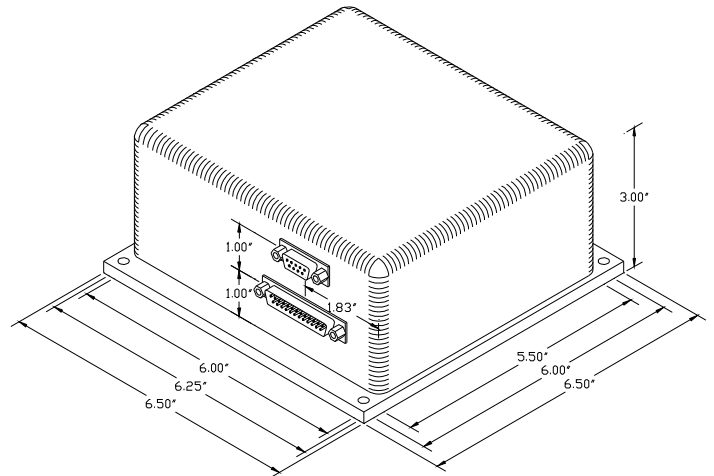
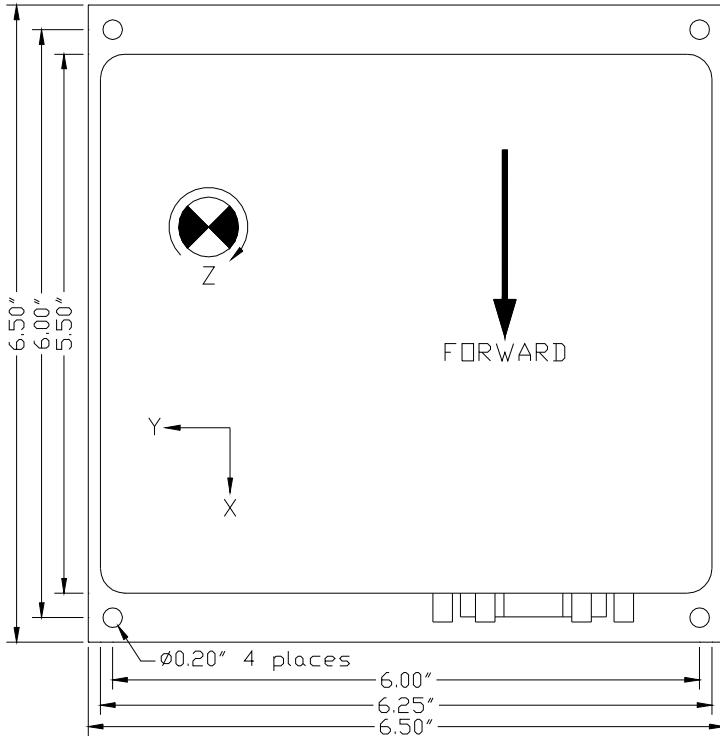


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Dimensions:

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