

MotionPak®

Applications

- Vehicle Instrumentation
- Robotics
- Automotive Testing
- Attitude Reference Systems
- Control Systems
- Dead Reckoning Aiding GPS
- Flight Testing
- Buoy Instrumentation
- Platform Stabilization



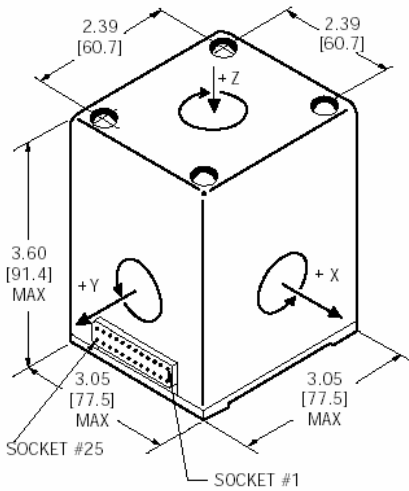
Description

The MotionPak® is a “solid-state” sensor cluster used for measuring linear accelerations and angular rates in instrumentation and control applications. It is a highly reliable, compact, and fully self-contained motion measurement package with analog voltage outputs. It uses three orthogonally mounted “solid-state” micromachined quartz angular rate sensors, and three high performance linear servo accelerometers mounted in a compact, rugged package, with internal power regulation and signal conditioning electronics. MotionPak® is available in a wide range of custom configurations.



Key Performance Features

- “Solid State” Sensors
- Compact, Rugged Package
- Long Operating Life
- Low Cost
- High Level Analog Outputs
- Wide Bandwidth
- Fast Start-Up
- Fully Self-Contained System
- Customized Axis Configurations



| Connector Pin Assignment |
|---------------------------------------------------------------------------------------|
| +Vdc Input |
| -Vdc Input |
| Power Ground |
| Case Ground |
| Rate -X Output |
| Rate -X Return |
| Rate -Y Output |
| Rate -Y Return |
| Rate -Z Output |
| Rate -Z Return |
| Accel - X Output |
| Accel - X Return |
| Accel - Y Output |
| Accel - X Return |
| Accel - Y Output |
| Accel - Y Return |
| Accel - Z Output |
| Accel - Z Return |
| Bit Out X QRS |
| Bit Out Z QRS |
| Bit Out Y QRS |
| Temp Out X Accel |
| Temp Out Y Accel |
| Temp Out Z Accel |
| Typical pin-out shown. Specific model pin-out may vary depending on options selected. |

| | Rate Channels | Acceleration Channels |
|------------------------------------------------------------------|------------------------------------------------|-----------------------|
| Power Requirements | | |
| Input Voltage | + and - 15 Vdc ±10% | |
| Input Current | <270mA (each supply) | |
| Performance | | |
| Standard Range** | ±100°/sec | ±1,2,3,5,10,g's |
| Full Scale Output (Nominal) | ±2.5 Vdc | ±7.5 Vdc |
| Scale Factor, Calibration (at 22°C) | ≤1% of value | |
| Scale Factor, Temperature Sensitivity | <0.03%/°C | |
| Bias Factory Set | ≤2.0°/sec* | <±8 mg |
| Bias Variation over Temperature | | |
| (Max Deviation from 22°C) | ≤2°/sec from 22°C* | ≤70 µg/°C |
| Long Term Bias Stability (1 year) | <0.2°/sec* | <1200 µg |
| G Sensitivity | ≤0.02°/sec/g | -- |
| Start-Up Time | 1.0 sec | |
| Bandwidth (-90°) | >60 Hz | >300 Hz |
| Non-Linearity | ≤0.05% F.R. | <50 µg/g ² |
| Threshold/Resolution | ≤0.004°/sec* | ≤10 µg |
| Output Noise (DC to 100 Hz) | ≤0.01°/sec√Hz* | ≤7.0 mV |
| Environments | | |
| Operating Temperature | -40°C to +80°C | |
| Storage Temperature | -55°C to +100°C | |
| Vibration Survival | 10g rms 20 Hz to 2 kHz random, 5 hour duration | |
| Shock | 200 g | |
| Weight | 900 grams | |
| *Values indicated are for ±100°.sec range | | |
| **Other Acceleration and Rate Ranges Available – Consult Factory | | |

Other Information

1. Part number based on ranges, options and number of channels specified
2. Rate channel options – High Performance, Low Noise, Wide Bandwidth, Special Ranges
3. Acceleration Channel Option – Current output

For more information contact:

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