Vehicle Motion Sensor (VMS III)

ENCODER DATA SHEET
Outline Dwg. No. 122-0022-01

Features:
- VMS Compatible with M119A2 aTALIN
- 32-CPT Forward and Reverse
- Low Power Operation
- High Mechanical Operating Speed
- Integral Shaft Coupling
- Light Weight
- High Reliability
- High Speed Output
- Qualified for Tactical Environments
- Built-In Test

Heritage:
- Vehicle Motion Sensor (VMS-3) for the M119A2
- VMS-2 Korea Chun-ma (Pegasus) and US SLAMRAAM
- VMS-1 US M109 Paladin Howitzer

Description:
The VMS-3 (Vehicle Motion Sensor) Encoder is a modification of BEI's standard military incremental encoder models. The encoder is designed to operate completely enclosed within the axle of the M119A2, 105mm towed Howitzer gun. The VMS provides the aTALIN (Artillery Tactical Advanced Land Inertial Navigator) system with fine position sensed data over a digital differential input/output line using TIA/EIA-422 line drivers and receivers. Feasible modifications for other military programs include mechanical interface, I/O format, parts screening levels, specific environmental qualifications and higher resolution up to 64 CPT.

Approved for general release
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Summary of Specifications:

Mechanical:
- Dimensions: See Outline
- Base Material: Stainless Steel
- Weight: 5.5 lb max.
- Torque: 2.0 oz-in max.

Performance:
- Reliability with INU: 10,000 Hrs
- Operation: Forward and Reverse
- Parts: Extended Temp. Military
- Speed Operating: 1,400 RPM

Design Performance:
- Altitude:
  - Operational: 15,000 ft
  - Non-operational: 40,000 ft
- Humidity, Rain, Dust, Salt Fog, Sand, Water Wash-Down, etc.

Electrical:
- Input Power: 2.5 Watts Max.
- Input Voltage: 28 VDC. Nom.
- Input/Output: Digital Differential Line Drivers/Receivers TIA/EIA-422

Environment:
- Temperature:
  - Operating: -46 to 71 deg. C
  - Nonoperating: -51 to 71 deg. C
- Vibration
  - Random: 7.7 GRMS
- Shock: 3000 Live Fire Events
- Lightning: Near Strike (Cloud to Ground)
- Immersion: 1.5 meters for 30 minutes

Qualification Test Results on File:
- Functional
- Thermal Cycles
- Over/Under Voltage Test

Notes:
1. Specifications are program specific. Consult factory for potential modifications.
2. Additional environmental tests to be conducted by the customer at the next higher level assembly.

Specifications Subject to Change Without Notice

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