ARS PRO & ARS HG
High Performance, Single-Axis Angular Rate Sensors

The ARS PRO and ARS HG angular rate sensors are engineered to measure high rates of angular velocity. Packaged in rugged aluminum enclosures, the ARS PRO and ARS HG are available in multiple range and bandwidth options. For extreme test environments, the ARS HG offers unparalleled performance up to ±50k deg/sec and is shock rated to 10,000 g survivability. Performance and reliability make DTS sensors the preferred choice worldwide for automotive safety, aerospace, biomechanics and blast testing.

Features

- Ultra-small, low mass single-axis package
- Advanced vibration and shock tolerance
- Multiple range options: ±300, 1500, 8k, 18k, 50k deg/sec
- Variety of bandwidth options, DC response
- Shunt check 3000 $\Omega$ equivalent bridge resistance
- Optional Dallas ID and/or user-specified connector
- ISO 17025 (A2LA Accredited) calibration services available, NIST traceable
- IP67 rated for dust protection and immersion in water

DTS mounting blocks offer an easy triaxial solution. Add three Endevco 7264 or MSI 64 accelerometers to create a complete six degrees of freedom package.

DTS also offers the ultra-small 6DX PRO six degrees of freedom with a triaxial angular rate sensor & triaxial accelerometer.

ARS PRO & ARS HG are the world’s smallest, high shock tolerant angular rate sensors available. Designed to measure high rates of angular velocity, DTS offers multiple sensor ranges and bandwidths to support a variety of dynamic test applications.
Specifications

**PHYSICAL**

**ARS PRO:**
- Model: 7.6 x 10.2 x 14.6 mm (0.3 x 0.4 x 0.6”)
- Weight: 2.2 g (0.078 oz)
- Enclosure: Anodized aluminum

**ARS HG:**
- Model: 7.6 x 16.5 x 14.6 mm (0.3 x 0.7 x 0.6”)
- Weight: 2.5 g (0.081 oz)
- Enclosure: Anodized aluminum

**Triaxial Aluminum Mounting Block**
- ARS PRO Block: 21.6 x 21.6 x 10.9 mm (0.85 x 0.85 x 0.43”)
- Weight: 9.9 g (0.35 oz)
- ARS HG Block: 21.6 x 21.6 x 16.8 mm (0.85 x 0.85 x 0.66”)
- Weight: 15.2 g (0.54 oz)

**ENVIRONMENTAL**
- Operating Temp.: -40 to +85°C (-40 to +185°F)
- Acceleration: 10000 g, 0.5 ms (survival only)
- IP Rating: IP67

**CONNECTORS**
- Type: LEMO typical, options available on request
- Dallas ID: Installed in connector
- Options: Add connector
- CID: Add connector and Dallas ID

**CABLE**
- Type: Four conductor with overall shield, 30 AWG
- Element and shield isolated from enclosure
- Length: 25 ft (7.6 m) standard
- Termination: Pigtail termination standard
- Color Code:
  - Black: −Excitation
  - Red: +Excitation
  - Green: +Signal
  - White: −Signal

**ELECTRICAL**
- Excitation: 4.9-14.0 VDC
  - Output not proportional to excitation
- Current: 4 mA nominal
- Signal Voltages: Centered 2.4 V above −Excitation
- Zero Output: ±200 mV
- Full Scale Output: ±2 V nominal
- Shunt Check: 3000 Ω equivalent bridge resistance

**PERFORMANCE**
- Cross Axis Sensitivity: <1.0%
- Non-Linearity: <0.5% full scale
- Influence of Linear Acceleration: <0.1 deg/sec/g typical
- Thermal Drift: <0.045°C/°C
- Zero: ±1 deg/sec (±5 deg/sec for 18k & 50k)
- Sensitivity: ±2% (±5% for 1500 & 8k)

**CALIBRATION**
- Calibration Supplied: NIST traceable
- ISO 17025: ISO 17025 (A2LA Accredited) available
- Service Options: Factory, On-site & Service Contracts available

**APPLICATION NOTES**

**ARS PRO-300**
- ±300 deg/sec range 5.2 rad/sec
- Bandwidth: 0-300 Hz
- Noise: <0.6% of full scale over rated bandwidth
- Application Notes:
  - Lower rate dynamic measurements
  - Vehicle handling, NVH
  - SAE J211/ISO 6487 CFC 180 measurements

**ARS PRO-1500**
- ±1500 deg/sec range 26.2 rad/sec
- Bandwidth: 0-2000 Hz
- Noise: <0.15% of full scale over rated bandwidth
- Application Notes:
  - Medium range dynamic measurements
  - Meets NHTSA specs for FMVSS 202a rear impact test
  - SAE J211/ISO 6487 CFC 1000 Measurements

**ARS PRO-8K**
- ±8000 deg/sec range 139.6 rad/sec
- Bandwidth: 0-300 Hz
- Noise: <0.20% of full scale over rated bandwidth
- Application Notes:
  - High rate dynamic measurements
  - Whole body motion during impact
  - Vehicle crash, sled testing
  - SAE J211/ISO 6487 CFC 180 measurements

**ARS PRO-18K**
- ±18000 deg/sec range 314.2 rad/sec
- Bandwidth: 0-2000 Hz
- Noise: <0.35% of full scale over rated bandwidth
- Application Notes:
  - High rate dynamic measurements
  - Biomechanics tests requiring high rate measurements
  - SAE J211/ISO 6487 CFC 1000 measurements

**ARS HG-50K**
- ±50000 deg/sec range 872.7 rad/sec
- Bandwidth: 0-2000 Hz
- Noise: <0.15% of full scale over rated bandwidth
- Application Notes:
  - Extreme environments, heavy-duty mounting
  - SAE J211/ISO 6487 CFC 1000 measurements

**CFC = Channel Frequency Class**