# **PRODUCT DATASHEET**

## APPLICATIONS

- Aerospace analysis
- Amusement ride testing
- Automotive safety
- Biomechanics
- Blast testing
- Embedded monitoring
- Helicopter & aircraft
- Impact testing
- In-dummy
- Injury investigation
- Parachute deployment
- Package testing: truck, air, ship & rail
- Pedestrian head & leg form
- PMHS (cadaveric) testing
- Ride & handling
- Sports & safety equipment
- Vibration testing

# ARS3 PRO High Performance, Triaxial Angular Rate Sensor



Low mass and lightweight, the 3-axis ARS3 PRO is the highest shock and vibration tolerant angular rate sensor available for dynamic testing.

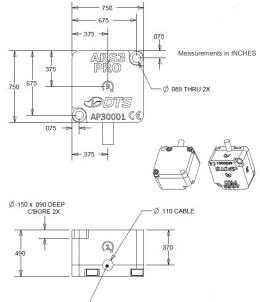
Package size: 0.75 x 0.75 x 0.49" (19 x 19 x 12.5 mm)

#### **Features**

- Ultra-small, low mass 3-axis package
- · Reliable; accurate in high shock and vibration environments
- Standard range options: ±300, 1500, 8K, 18K, 50K deg/sec Variety of bandwidth options, DC response
- 4.9–14.0 VDC excitation
- Shunt check 3000  $\Omega$  equivalent bridge resistance
- Dallas ID standard, user-specified connector options
- IP67 rated for dust protection and immersion in water. The sealed enclosure is also ideal for PMHS work.
- Factory repair of channels available
- ISO 17025 (A2LA Accredited) calibration services available, NIST traceable

The ARS3 PRO is an ultra-small, triaxial gyroscope designed to accurately measure high rates of angular velocity even in excessive shock and vibration environments. Packaged in a rugged aluminum enclosure, the ARS3 PRO is the smallest, high-rate angular rate sensor available with 3 separate sensing elements oriented in the X, Y and Z planes for full pitch, roll and yaw measurements.

Unparalleled performance and reliability make the ARS3 PRO the sensor of choice worldwide for automotive safety crash testing, aerospace, in-dummy instrumentation, biomechanics and blast testing.



ARS SENSOR CABLE

Need a single-axis? Check out the ARS PRO & ARS HG. Looking for 6 degrees of freedom? The DTS 6DX PRO packages 3 angular rate sensors and 3 accelerometers in a 19 x 19 x 14.5 mm rugged enclosure that weighs only 12 g.



### PRODUCTS

Diversified Technical Systems designs and manufactures data acquisition systems and sensors for the experienced test professional.

# Specifications

PERFORMANCE         Cross Axis Sensitivity:       <1.0%         Linearity:       <0.5% full scale         Influence of Linear       -SIGNAL         Acceleration:       <0.1 deg/sec/g typical         Drift:       0.1 deg/sec/g typical         Drift:       0.1 deg/sec/sec         CALIBRATION       BLOCK (2)         Calibration Supplied:       NIST traceable         ISO 17025:       ISO 17025 (A2LA Accredited) available         Service Options:       Factory or On-Site, Service Contracts available         OPTIONAL ACCESSORIES       4 trioxial cable assembly with a variable of SIGNAL	
26.2 rad/sec     over rated bandwidth     •NITTEX_specified for FLMSS 202 are SAE J211/ISO 6487 CFC 1000 Meas •SAE J211/ISO 6487 CFC 1000 Meas •SAE J211/ISO 6487 CFC 1000 Meas •SAE J211/ISO 6487 CFC 100 Measure •SAE J211/ISO 6487 CFC 1000 Measure •SAE J211/IS	urements
133.6 radšec     over rated bandwidth     • Whole body motion uning impact.       +48000 deg/sec range     0-600 Hz     <0.20% of full scale	ear impact te
139.6 radisec       over rated bandwidth         +8000 deg/sec range       0-2000 Hz         139.6 radisec       0-2000 Hz         ver rated bandwidth       • Test dummines, headform impacts         • SAE J211/ISO 6487 CFC 1000 Meas       • SAE J211/ISO 6487 CFC 1000 Meas         ARS3 PRO-18K       ±19000 deg/sec range       0-2000 Hz       <0.35% of full scale	urements
139.6 rad/sec       over rated bandwidth       • Test dummies, headform impacts         ARS3 PRO-18K       ±18000 deg/sec range       0-2000 Hz       <0.35% of full scale	igher bandwi
314.2 rad/sec     over rated bandwidth     Biomechanics tests requiring high rat measurements SAE_J211/ISO 6487 CFC 1000 Meas       MODEL     RANGE     BANDWIDTH*     NOISE     APPLICATION NOTES       ARS3 PR0-50K     ±50000 deg/sec range 872.7 rad/sec     0-2000 Hz     <0.15% of full scale over rated bandwidth     •Extreme environments, heavy-duty m       CFC = Channel Frequency Class     •Extreme environments, heavy-duty m     •SAE_J211/ISO 6487 CFC 1000 Meas       CFC = Channel Frequency Class     •Extreme environments, heavy-duty m     •SAE_J211/ISO 6487 CFC 1000 Meas       CFC = Channel Frequency Class     •Extreme environments, heavy-duty m     •SAE_J211/ISO 6487 CFC 1000 Meas       CFC = Channel Frequency Class     •Extreme environments, heavy-duty m     •SAE_J211/ISO 6487 CFC 1000 Meas       CFC = Channel Frequency Class     •Standard: one triax 16-pin Omnel with Dallas ID (23 ft).     Optional: Adapter cable with pigt connectors of choice (2 ft).       Operating Temp:     40 + 85°C (-40 to +185°F) Acceleration:     1000 g. 0.5 ms (survival only)     WIRE COLOR & PIN ASSIGNMEN       PR Rating:     IP67, short-term immersion OK     •SAE J211/ISO 0487 CFC 1000 Meas     •SAE J211/ISO 0407 C       Cutput full scale Output:     ±200 mV     ±200 mV     •SAE J210 m     •SAE J210 m       PEFFORMANCE Full Scale Output:     ±200 mV     •SAE J210 m     •SAE J210 m       PERFORMANCE CALIBRATION     0.1 deg/sec/sec     •SIGNAL <td></td>	
ARS3 PRO-50K       ±50000 deg/sec range 872.7 rad/sec       0-2000 Hz       <0.15% of full scale over rated bandwidth       • Extreme environments, heavy-duty m • SAE J211//SO 6487 CFC 1000 Meas         CFC = Channel Frequency Class       PHYSICAL       • CONNECTORS       • SAE J211//SO 6487 CFC 1000 Meas         Dimensions:       19 x 19 x 12.5 mm (0.75 x 0.75 x 0.49')       • Dimensions:       19 x 19 x 12.5 mm (0.75 x 0.75 x 0.49')         Enclosure:       Anodized aluminum       Wight:       10 g (0.35 oz)       • Dimensions:       19 x 10 x 485°C (.40 to +185°F)         Operating Temp.:       -40 to +85°C (.40 to +185°F)       • Optional: Adapter cable with pigt connectors of choice (2 ft).         Precorting Temp.:       -40 to +85°C (.40 to +185°F)       • Dimension OK         ELECTRICAL       Excitation:       -9.14.0 VDC         Current:       -49.14.0 VDC       Output not proportional to excitation         Care Output:       ± 2.2 V nominal         Shunt Check:       3000 Ω equivalent bridge resistance         PERFORMANCE       -516NAL         Cross Axis Sensitivity:       <1.0 %	
ARS3 PRO-50K $\pm$ 50000 deg/sec range 872.7 rad/sec       0-2000 Hz       <0.15% of full scale over rated bandwidth       • Extreme environments, heavy-duty m • SAE J211//SO 6487 CFC 1000 Meas         CFC = Channel Frequency Class       PHYSICAL       CONNECTORS       • Sandard: one triax 16-pin Omments with Dallas ID (23 ft).         Dimensions:       19 x 19 x 12.5 mm (0.75 x 0.75 x 0.49°)       Type:       Standard: one triax 16-pin Omments with Dallas ID (23 ft).         Connectors       Anodized aluminum Weight:       10 g (0.35 oz)       Wire CoLor & PIN ASSIGNMEN         PRating:       IPE7, short-term immersion OK       Wire CoLor & PIN ASSIGNMEN         ELECTRICAL Excitation:       4.9.14.0 VDC Output not proportional to excitation Zero Output: $\pm$ 2.V nominal Shunt Check:       Standard: one triax 16-pin Ommet with Dallas ID (23 ft).         PERFORMANCE Influence of Linear Acceleration: $4.9.14.0$ VDC Output not proportional to excitation Zero Output: $\pm$ 2.V nominal Shunt Check: $5000 \Omega$ equivalent bridge resistance         PERFORMANCE Calibration Supplied:       NIST traceable Influence of Linear Acceleration: $4.0.1$ deg/sec/g typical Drift: $0.1$ deg/sec/g typical Drift: $0.1$ deg/sec/g typical Drift: $0.1$ deg/sec/g typical Drift: $0.1$ deg/sec/g typical Excitation Supplied:       NIST traceable ISO 17025, ISO 17025 (A2LA Accredited) available Service Options: $0.1$ deg/sec/sec $0.1$ deg/sec/sec $0.10725 (A2LA Accredited) availableService $	
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ENVIRONMENTAL         Operating Temp::       -40 to +85°C (-40 to +185°F)         Acceleration:       10000 g. 0.5 ms (survival only)         IP Rating:       IP67, short-term immersion OK         ELECTRICAL       Excitation:       4.9-14.0 VDC         Output not proportional to excitation       Output not proportional to excitation         Current:       4 mA nominal per axis         Signal Voltages:       Centered 2.4 V above -Excitation         Zero Output:       ±200 mV         Full Scale Output:       ±2 V nominal         Shunt Check:       3000 Q equivalent bridge resistance         PERFORMANCE       -Excitation:         Cross Axis Sensitivity:       <1.0%	
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PERFORMANCE         Cross Axis Sensitivity:       <1.0%	PIN
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Accordition:       0.1 deg/sec/sec         Drift:       0.1 deg/sec/sec         CALIBRATION       BLOCK (2)         Calibration Supplied:       NIST traceable         ISO 17025:       ISO 17025 (A2LA Accredited) available         Service Options:       Factory or On-Site, Service Contracts available         OPTIONAL ACCESSORIES       4 triaxial cable assembly with a variative of	5
CALIBRATION       2       -EXCITATION       BLACK (2)         Calibration Supplied:       NIST traceable       -SIGNAL       BLUE         ISO 17025:       ISO 17025 (A2LA Accredited) available       -SIGNAL       YELLOW         Service Options:       Factory or On-Site, Service Contracts available       +ID       -EXCITATION       ORANGE         OPTIONAL ACCESSORIES       -SIGNAL       GRAY       -SIGNAL       GRAY	2 8
Calibration Supplied:       NIST traceable         ISO 17025:       ISO 17025 (A2LA Accredited) available         Service Options:       Factory or On-Site, Service Contracts available         OPTIONAL ACCESSORIES       + EXGINAL         Advator Cobles:       A triavial cable assembly with a variaty of	13
ISO 17025:       ISO 17025 (A2LA Accredited) available         Service Options:       Factory or On-Site, Service Contracts available         OPTIONAL ACCESSORIES       + travial cable ascombly with a variaty of	4 3
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OPTIONAL ACCESSORIES Adapter Cobles: A triavial cable assembly with a variaty of SIGNAL PURPLE	11 12
Adapter Cables: A triavial cable accombly with a variety of -SIGNAL PURPLE	10
	14 15
connector options is available to connect the ALL -ID / SHIELD SHIELD	16
ARS3 PRO to DTS and other DAS solutions	10
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## SERVICES

24/7 Worldwide Tech Support ISO 17025 (A2LA) Calibration Onsite Calibration & Training Application Support Software Integration OEM/Embedded Applications

## **TECH CENTERS**

Novi, Michigan USA Sydney, Australia Lincoln, United Kingdom Tokyo, Japan

#### **HEADQUARTERS**

Seal Beach, California USA

#### **CONTACT US** Phone: +1 562 493 0158

Email: sales@dtsweb.com

