PRODUCT DATASHEET

NEW!

ARS3 PRO

High Performance, Triaxial Angular Rate Sensor

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

PRODUCTS

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

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

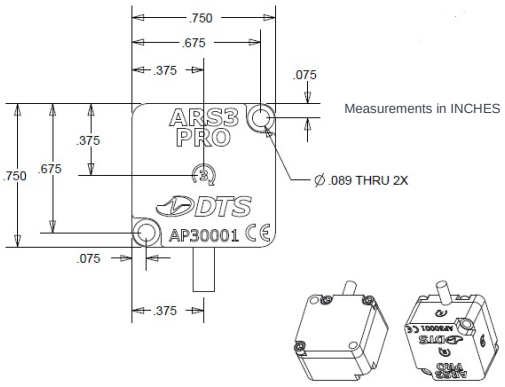
Package size: 0.75 x 0.75 x 0.49" (19 x 19 x 12.5 mm)

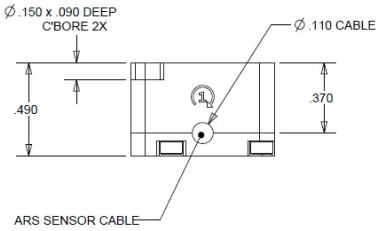
Features

- 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 Ω 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.





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.

DTS

www.dtsweb.com

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

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Specifications

MODEL	RANGE	BANDWIDTH	NOISE	APPLICATION NOTES
ARS3 PRO-300	±300 deg/sec range 5.2 rad/sec	0-300 Hz	<0.6% of full scale over rated bandwidth	• Lower rate dynamic measurements • Vehicle handling, NVH • SAE J211/ISO 6487 CFC 180 Measurements
ARS3 PRO-1500	±1500 deg/sec range 26.2 rad/sec	0-2000 Hz	<0.15% of full scale over rated bandwidth	• Medium range dynamic measurements • NHTSA-specified for FMVSS 202a rear impact test • SAE J211/ISO 6487 CFC 1000 Measurements
ARS3 PRO-8K	±8000 deg/sec range 139.6 rad/sec	0-300 Hz	<0.15% of full scale over rated bandwidth	• High rate dynamic studies • Whole body motion during impact • Vehicle crash, sled testing • SAE J211/ISO 6487 CFC 180 Measurements
	±8000 deg/sec range 139.6 rad/sec	0-600 Hz	<0.20% of full scale over rated bandwidth	• High rate measurements requiring higher bandwidth
	±8000 deg/sec range 139.6 rad/sec	0-2000 Hz	<0.30% of full scale over rated bandwidth	• High range measurements and highest bandwidth • Test dummies, headform impacts • SAE J211/ISO 6487 CFC 1000 Measurements
ARS3 PRO-18K	±18000 deg/sec range 314.2 rad/sec	0-2000 Hz	<0.35% of full scale over rated bandwidth	• High rate dynamic measurements • Biomechanics tests requiring high rate measurements • SAE J211/ISO 6487 CFC 1000 Measurements
MODEL	RANGE	BANDWIDTH*	NOISE	APPLICATION NOTES
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 mounting • SAE J211/ISO 6487 CFC 1000 Measurements

CFC = Channel Frequency Class

PHYSICAL

Dimensions:	19 x 19 x 12.5 mm (0.75 x 0.75 x 0.49")
Enclosure:	Anodized aluminum
Weight:	10 g (0.35 oz)

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
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 Ω equivalent bridge resistance

PERFORMANCE

Cross Axis Sensitivity:	<1.0%
Linearity:	<0.5% full scale
Influence of Linear Acceleration:	<0.1 deg/sec/g typical
Drift:	0.1 deg/sec/sec

CALIBRATION

Calibration Supplied:	NIST traceable
ISO 17025:	ISO 17025 (A2LA Accredited) available
Service Options:	Factory or On-Site, Service Contracts available

OPTIONAL ACCESSORIES

Adaptor Cables: A triaxial cable assembly with a variety of connector options is available to connect the ARS3 PRO to DTS and other DAS solutions

CONNECTORS

Type:	Standard: one triax 16-pin Omnetics connector with Dallas ID (23 ft). Optional: Adapter cable with pigtails or connectors of choice (2 ft).

WIRE COLOR & PIN ASSIGNMENTS

AXIS	FUNCTION	COLOR	PIN
1	+EXCITATION	RED	6
	-EXCITATION	BLACK (1)	7
	+SIGNAL	GREEN	1
	-SIGNAL	WHITE	5
	+ID		2
2	+EXCITATION	BROWN	8
	-EXCITATION	BLACK (2)	13
	+SIGNAL	BLUE	4
	-SIGNAL	YELLOW	3
	+ID		9
3	+EXCITATION	ORANGE	11
	-EXCITATION	BLACK (3)	12
	+SIGNAL	GRAY	10
	-SIGNAL	PURPLE	14
	+ID		15
ALL	-ID / SHIELD	SHIELD	16

DTS
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