

**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 (cadaver) testing
- Ride & handling
- Sports & safety equipment
- Vibration testing



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



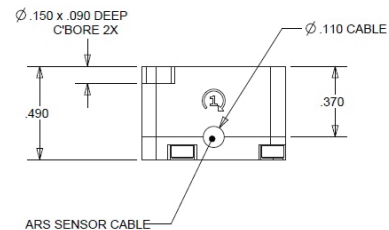
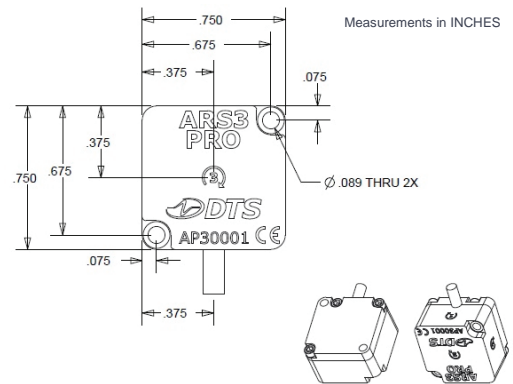
Package size:  
0.75 x 0.75 x 0.49"  
(19 x 19 x 12.5 mm)

### Features

- Ultra-small, low mass 3-axis package
- Reliable; accurate in high shock and vibration environments
- Standard range options:  $\pm 300$ , 1500, 8k, 18k, 50k deg/sec  
Multiple bandwidth options available; DC response
- 5.0–14.0 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
- Meets latest US Government dynamic performance requirements

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.



### PRODUCTS

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

Only need a single axis?  
Check out the DTS ARS PRO

Need 6 degrees of freedom?  
DTS 6DX PRO is the smallest,  
most reliable sensor available  
for high shock environments



## 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

## 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	<ul style="list-style-type: none"> <li>Lower rate dynamic measurements</li> <li>Vehicle handling, NVH</li> <li>SAE J211/ISO 6487 CFC 180 measurements</li> </ul>
		0-2000 Hz		<ul style="list-style-type: none"> <li>Low rate measurements requiring higher bandwidth</li> </ul>
ARS3 PRO-1500	±1500 deg/sec range 26.2 rad/sec	0-2000 Hz	<0.15% of full scale over rated bandwidth	<ul style="list-style-type: none"> <li>Medium range dynamic measurements</li> <li>NHTSA-specified for FMVSS 202a rear impact test</li> <li>SAE J211/ISO 6487 CFC 1000 measurements</li> </ul>
		0-600 Hz	<0.15% of full scale over rated bandwidth	<ul style="list-style-type: none"> <li>High rate dynamic studies</li> <li>Whole body motion during impact</li> <li>Vehicle crash, sled testing</li> <li>SAE J211/ISO 6487 CFC 180 measurements</li> </ul>
ARS3 PRO-8K	±8000 deg/sec range 139.6 rad/sec	0-300 Hz	<0.15% of full scale over rated bandwidth	<ul style="list-style-type: none"> <li>High rate dynamic studies</li> <li>Whole body motion during impact</li> <li>Vehicle crash, sled testing</li> <li>SAE J211/ISO 6487 CFC 180 measurements</li> </ul>
		0-600 Hz	<0.20% of full scale over rated bandwidth	<ul style="list-style-type: none"> <li>High rate measurements requiring higher bandwidth</li> </ul>
		0-2000 Hz	<0.30% of full scale over rated bandwidth	<ul style="list-style-type: none"> <li>High range measurements and highest bandwidth</li> <li>Test dummies, headform impacts</li> <li>SAE J211/ISO 6487 CFC 1000 measurements</li> </ul>
ARS3 PRO-18K	±18000 deg/sec range 314.2 rad/sec	0-2000 Hz	<0.35% of full scale over rated bandwidth	<ul style="list-style-type: none"> <li>High rate dynamic measurements</li> <li>Biomechanics tests requiring high rate measurements</li> <li>SAE J211/ISO 6487 CFC 1000 measurements</li> </ul>
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	<ul style="list-style-type: none"> <li>Extreme environments, heavy-duty mounting</li> <li>SAE J211/ISO 6487 CFC 1000 measurements</li> </ul>

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: 5.0-14.0 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%  
Non-Linearity: <0.5% full scale  
Influence of Linear Acceleration: <0.1 deg/sec/g typical  
Thermal Drift: -40 to +85C  
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 or on-site, Service Contracts available

### CONNECTORS

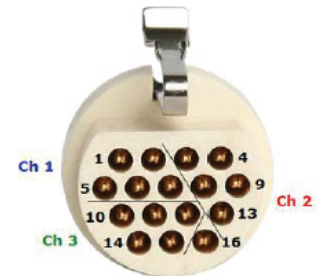
Type: Standard: one triax 16-pin Omnetics connector with Dallas ID (23 ft). Optional: Adapter cable with pigtailed or connectors of choice (2 ft).

### 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



## 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



Specifications subject to change without notice.  
© Diversified Technical Systems, Inc.