ASC 271 (Uniaxial) / ASC 273 (Triaxial)

ASC Angular Rate Sensors

SPECIFICATIONS

- Uniaxial / Triaxial
- Anodised Aluminium Housing
- Made in Germany

FEATURES

- ±75°/s, ±150°/s, ±300°/s and ±900°/s Rate Ranges
- Low Bias Instability (12°/hr)
- Low Angular Random Walk (0.2°/√hr)
- Low Power Consumption
- High Shock Rejection
- Low g-Sensitivity
- Wide Bandwidth

OPTIONS

- Customised Cable Length
- Customised Connector

APPLICATIONS

- Precision Navigation and Pointing
- Automotive in-car Navigation
- Precision GPS Vehicle and Personal Navigation Aiding (Dead Reckoning Navigation)
- Vehicle Yaw, Pitch and Roll Rate Sensing
- Gesture Sensing
- Motion Tracking
- Precision Agriculture
- Camera / Antenna / Plattform Stabilisation
- Industrial and Robotics

ASC 271 (Uniaxial)

ASC 273 (Triaxial)

MEMS VIBRATING RING TECHNOLOGY

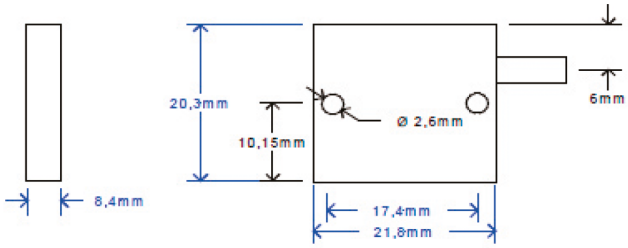
ASC's precision navigation and pointing gyroscopes are made of robust silicon MEMS vibrating ring elements. The gyro detects the magnitude and direction of angular velocity by using the coriolis force effect. As the gyro is rotated, coriolis forces acting on the silicon ring cause radial movement at the ring perimeter, the magnitude of which is proportional to the angular velocity of rotation. The gyro thus produces an analog voltage signal, which is linearly proportional to angular rate. The balanced ring design results in excellent shock and vibration insensitivity.

DESCRIPTION

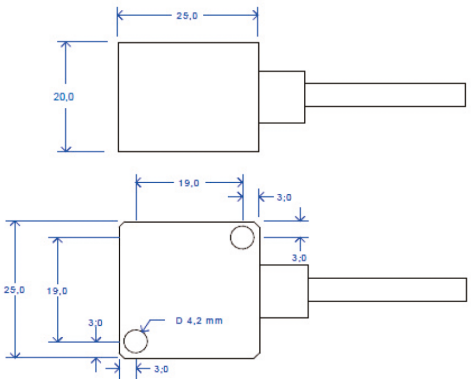
ASC's precision navigation and pointing gyros are used typically in industrial environments due to their excellent shock and vibration rejection. ASC's gyroscopes, 271 and 273, feature an anodised aluminium housing, which is light-weight and provides case isolation against ground loops. The sensor sensitivity and bias is extremely stable over a wide temperature range from -40°C to +85°C.

ASC's precision navigation and pointing gyros are available in two versions: 271 (uniaxial) and 273 (triaxial).

ASC 271 (Unaxial)



ASC 273 (Triaxial)



Version | 10.2019

TYPICAL SPECIFICATIONS

MODEL NUMBER: ASC 271 (UNIAXIAL) / ASC 273 (TRIAXIAL)

Type: Industrial Grade Gyros					
DYNAMIC					
Measurements Range	°/s	75	150	300	900
Sensitivity	mV/°/s	13.2	6.6	3.3	1.1
Sensitivity Variation at 25°C	%	typ. ±0.3, max. ±1			
Bandwidth (max.)	Hz	150			
Non-Linearity	%	typ. 0.06, max. ±0.15			
Shock Limit	g	500 (1ms, operating) , 10000 (0.1ms, survival)			
g-Sensitivity (Linear Acceleration)	°/s/g	typ. 0.08, max. 0.2			

ELECTRICAL

Excitation Voltage	V DC	5 to 40
Current Consumption	mA	ASC 271: 6 in operation, 13 during start-up ASC 273: 18 in operation, 40 during start-up
Bias	V	1.65 ± 0.08
Bias Variation with Temperature	°/s	typ. 1, max. 3
(referred to the value at +25°C)		
Bias Instability	°/hr	12
Isolation		Case Isolated
Rate Noise Density	°/s/√Hz	typ. 0.018, max. 0.025
Angular Random Walk	°/√hr	0.2 (Allan Deviation; τ=1s)
Vibration Induced Noise	°/s/g²	typ. 0.06, max. 0.072

ENVIRONMENTAL

Sensitivity Variation over Temperature (referred to the value at +25°C)	%	typ. ±0.5, max. ±1.5
Operating Temperature Range	°C	-40 to +85
Storage Temperature Range	°C	-40 to +100
Protection Class		ASC 271: IP65 ; ASC 273: IP67

PHYSICAL

Sensing Element		MEMS vibrating ring
Case Material		Anodised Aluminium
Connector		Cable Gland
Mounting		M2.5 / M4 screws
Weight (without cable)	gram	ASC 271: 10 ASC 273: 35
Cable		ASC 271:Shielded PUR, AWG 30, Diameter: 3.0 ± 0.1 mm ASC 273:Shielded PUR, AWG 30, Diameter: 4.35 ± 0.15 mm

Note: All values are typical at +25°C, unless otherwise specified

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CALIBRATION

A factory calibration certificate is provided with each sensor. A DAkkS certified (Deutsche Akkreditierungsstelle, DAkkS, to DIN EN ISO / IEC 17025) calibration can be provided upon request.

Pin Configuration

ASC 271
Uniaxial, 3-Wire

Supply +: red
Supply - (GND): black
Signal: green

ASC 273
Triaxial, 9-Wire, with cable switch, 3 fingers

	X	*Y*	*Z*
Supply +:	*red/violet*	*red/grey*	*red*
Supply - (GND):	*black/violet*	*black/grey*	*black*
Signal:	*green/violet*	*green/grey*	*green*

ORDERING INFORMATION

ASC 271	XXX	Y	A: open-ended cable
(Uniaxial)			(no connector at the DAQ end)
	075: ±75°/s	2: 2m (supplied	
	150: ±150°/s	with the sensor)	
ASC 273	300: ±300°/s		
(Triaxial)	900: ±900°/s	4: 4m	
		6: 6m	
		10: 10m	