ASC Angular Rate Sensors

ASC 281 (Uniaxial)

- Uniaxial
- Tactical Grade
- Analog Voltage Output
- Detachable Cable
- Aluminium Housing
- Made in Germany

ASC 281 (Uniaxial)

Features

- Rotation Rate: ±100°/s and ±200°/s
- Excellent Bias and Scale Factor Stability
- Very Low Bias Instability
- Excellent Angular Random Walk
- FOG-like Performance
- Protection Class IP 67

Options

- Customised Cable Length
- Customised Connector

Applications

- Automated Guided Vehicles
- Autonomous Driving Systems
- Mid-Term Navigation
- Gyro-Compassing
- Ship Guidance and Control
- Platform Stabilisation
- AHRS, Flight Instruments
- AUV and ROV Guidance

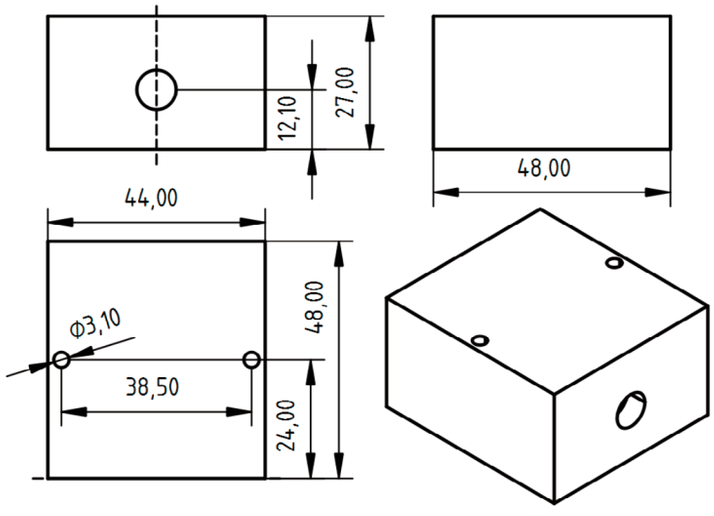
MEMS Vibrating Ring Technology

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.

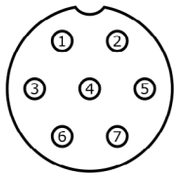
Description

ASC's uniaxial tactical grade gyroscope ASC 281 can be powered by a DC power supply (+6V to +30V) where the output voltage is independent of the supply. The excellent long-term bias and scale factor repeatability with low noise allows avccurate operation of the angular rate sensor. The MEMS vibrating ring gyroscopes are available with rate ranges of ±100°/s and ±200°/s. The gyroscope features also a very low bias instability of 0.12°/hr and an excellent angular random walk of 0.017°/√hr leading to a FOG-like performance. The gyroscope sensors are made of lightweight anodised aluminium housing and feature a 4-pin Comtronic connector and a detachable cable.

ASC's precision navigation and pointing gyros are available in two versions: 281 (uniaxial) and 283 (triaxial).



ASC 281 (Uniaxial)



Pin-Assignment
1: GND
2: VCC / Supply+
3: Signal
4: REF
5: Temperature

Typical Specifications

Model Number: ASC 281 (Uniaxial)

Type: Tactical Grade Gyros

DYNAMIC			
Measurement Range	°/s	±100	±200
Sensitivity	mV/°/s	20	10
Bandwidth (max.)	Hz	100	
Non-Linearity	%	typ. 0.02, max. ±0.05	
Bias Instability	°/hr	0.12	
Angular Random Walk	°/√hr	0.017 (Allan Deviation; τ=1s)	
Vibration Induced Noise	°/s/g²	0.01	
Shock Limit	g	Operating: 95g x 6ms half-sine	Powered Survival: 1000g x 1ms half-sine
g-Sensitivity (Linear Acceleration)	°/s/g	0.02	

ELECTRICAL		
Excitation Voltage	V DC	8 to 30
Current Consumption	mA	75
Bias (Signal-Ref)	mV	±10
Isolation		Case Isolated

ENVIRONMENTAL		
Bias Variation with Temperature (referred to the value at +25°C)	°/s	typ. ±0.15, max. ±0.25
Sensitivity Variation over Temperature (referred to the value at +25°C)	%	typ. ±15, max. ±0.5
Operating Temperature Range	°C	-40 to +85
Storage Temperature Range	°C	-40 to +100
Protection Class		IP67

PHYSICAL		
Sensing Element		MEMS Vibrating Ring
Case Material		Anodised Aluminium
Connector		7-pin Comtronic
Mounting		M3 screws
Weight (without cable)	gram	250
Cable		Shielded PUR, AWG 30, Diameter: 3.0 ± 0.1 mm

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

Model Number: ASC 281 (uniaxial)

Type: Tactical Grade Gyros

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.

ORDERING INFORMATION

Model Number	Range	Cable Length	Connector & Pinout
ASC 281	XXX	Y	A: open-ended cable
(Uniaxial)			(no connector at the DAQ end)
	100: ±100°/s2: 2m (supplied with the sensor)		
	200: ±200°/s		
ASC 283			
		4: 4m	
		6: 6m	
		10: 10m	

Example: ASC 281-100-2-A

QUALITY

- *ASC GmbH is ISO 9001:2015 certified.*
- *The Deutsche Akkreditierungsstelle GmbH (DAkkS) has awarded to our calibration laboratory the DIN EN ISO/IEC 17025:2018 accreditation for calibrations and has confirmed our competence to perform calibrations in the field of mechanical acceleration measurements. The pictured DAkkS-ILAC logo refers exclusively to the accredited service.*
- *All ASC products are CE-compliant.*

ASC GmbH

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DAkkS Deutsche Akkreditierungsstelle D-K-18110-01-00