

## Rate Gyroscope CRS03

is an angular velocity sensor.

With the supply voltage of 5Vdc, it outputs analog DC voltage proportional to the angular velocity, centered at approx. 2.5V dc.



CRS03

Sensors Expo Award Winner

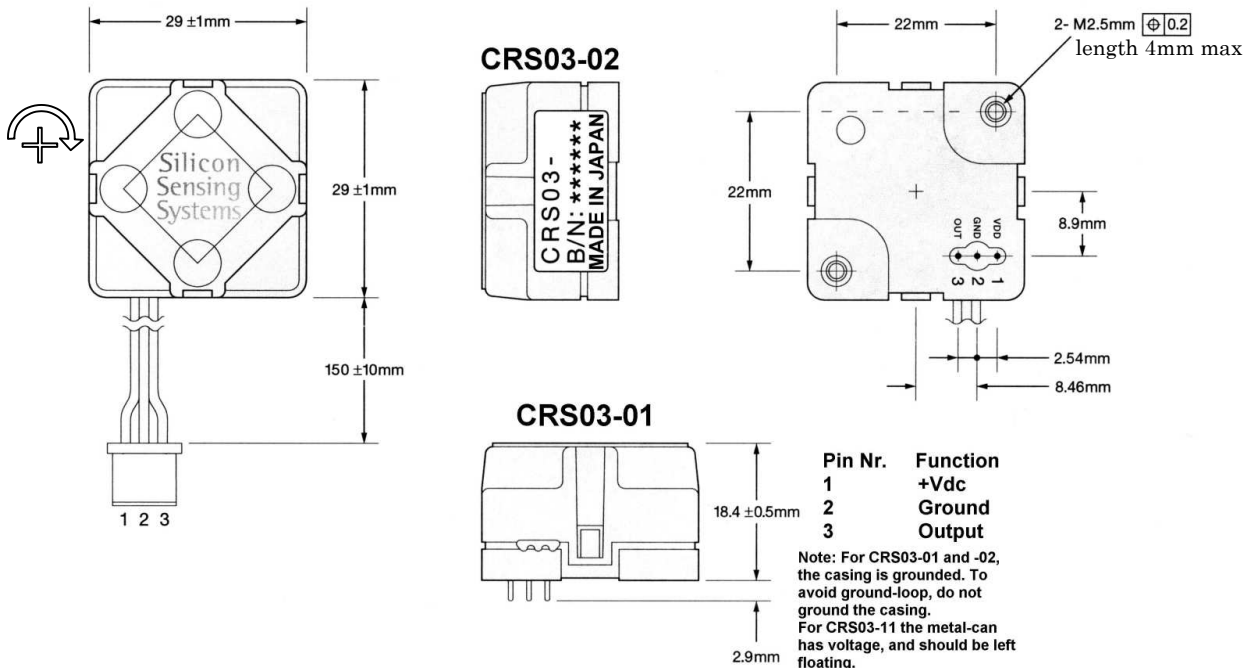
The CRS03 is known for its good performance under severe vibration/shock and temperature change. This product uses Silicon MEMs technology.

### Why do customers choose CRS03 ?

- While using another type of gyro (quartz tuning fork), a customer encountered problems when the engine was running. Our CRS03 was not affected.
- A competitor's gyro would occasionally give mysterious outputs on board of vessels; later found out it was the vessel horn that put the gyro into erroneous resonance. Using the CRS03 instead removed the problem.
- Temperature compensation of another brand gyro was difficult due to large temperature drifts and inconsistency. The CRS03, because of its small temperature drift and good repeatability, solved the problem.
- A Fiber-Optic-Gyro was used in a robot, creating a cost burden. Replacing with the CRS03 solved the problem.

### Current Users:

- Automotive Vehicle Stability Control (ESP)
- GPS aided direction controllers
- Antenna Stabilizers (3 mfrs in U.S., 2 mfrs in Japan)
- RC helicopter (major market share as ActiVe Control System)
- Autonomous Guided Vehicles
- Marine auto-pilots
- Inertial (Control) Units
- Bipedal robots
- Telematics



**CRS03 Version Table**

	Unit	CRS03-01	CRS03-02	CRS03-04	CRS03-11	Notes
Rate range	deg/sec	0 to +/-100	0 to +/-100	0 to +/-200	0 to +/-573	
Scale Factor (SF)	mV/(deg/sec)	20	20	10	3.49	when Vdd=5.00V
Supply Voltage (Vdd)	V DC	5.00+/-0.25	5.00+/-0.25	5.00+/-0.25	5.00+/-0.25	
Bias	% of Vdd	50	50	50	50	Ratiometric, appr.
Bias initial error	mV	+/- 60	+/- 60	+/- 60	+/- 100	
Bias variation w/ temp.	mV	+/- 60	+/- 60	+/- 60	+/- 100	
SF variation with temp	%	+/- 3	+/- 3	+/- 3	+/- 5	
Initial SF accuracy	%	+/- 1	+/- 1	+/- 1	+/- 5	
Non linearity	% of FS	< 0.5	< 0.5	< 0.5	< 0.5	
Quiescent noise	mVrms	< 1	< 1	< 1	< 1	Upto 10Hz 1 sigma
Operating Temp	Deg Celsius	-40~+85	-40~+85	-40~+85	-20~+60	
Bandwidth	Hz	> 10	> 10	> 10	> 50	-3dB, -90 deg
Power up time	sec	< 0.5	< 0.5	< 0.5	< 0.5	From Vdd = 4.50V
Current dissipation	mA	< 50	< 50	< 50	< 50	100mA at power-on
Output Impedance	ohm	100	100	100	100	
Max output current	mA	> 0.5	> 0.5	> 0.5	> 0.5	
Cross axis sensitivity	%	<1	<1	<1	<1	
Dimensions	mm	29 x 29 x 18.4	29 x 29 x 18.4	29 x 29 x 18.4	27 x 27 x 13	
Appearance		Case enclosed	Case enclosed	Case enclosed	PC board	
Connector		bottom pins	wire&connector	wire&connector	PCB pads	
Spec sheet Nr.		SST-0011A	SST-0011A	SST-0016	SST-0014	
Performance docu Nr.		DEM99-044	DEM99-044	DTR01-001	DTR99-066	
Shock resistance	G	99	99	99	99	
Origin		Japan	Japan	Japan	Japan	

Values and information are typical as of publishing, and are subject to change without notice or obligation. For precise values, see spec sheet. Non-linearity is the deviation from a best fit straight line at full scale. Brands and trademarks belong to their respective owners. Applications for human/valuable hazardous use not intended.

**Tips:**

On the gyro output, a hardware low-pass filter is recommended to attenuate the noise of the internal transistor amplifier, i.e. for anti-aliasing.

Scale Factor (Sensitivity) and Bias (Neutral) are ratiometric, meaning they are proportional to the supply voltage. Make sure to supply well-regulated smooth DC, and make it common voltage with AD converter.

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