**CRS39**

Analogue Angular Rate Sensor
High Performance MEMS Gyroscope

**CRS39-03**

CRS39 provides the optimum solution for low angular rate range applications where bias instability, angle random walk and low noise are of critical importance.

The outstanding stability, low noise and size of the CRS39 makes this a viable alternative to fibre-optic and dynamically tuned gyro.

**Applications**

- Platform Stabilization
- Precision, Downhole Surveying, North Finding
- Maritime Guidance and Control
- Gyro-compassing and Heading Control
- Autonomous Vehicles and ROVs
- Rail Track monitoring
- Robotics

**Key features**

- Proven and Robust silicon MEMS vibrating ring structure
- FOG-like performance
- DTG-like size and performance
- Low Bias Instability (0.1°/h)
- Excellent Angle Random Walk (0.015°/√h)
- Ultra-low noise (<0.006°/s rms)
- Optimised for low rate range environments (e.g. North Finding)
- Precision analogue output
- Temperature range from -10°C to +110°C
- High shock and vibration rejection
- Three temperature sensors and MEMS frequency output for precision thermal compensation
- RoHS Compliant

© Silicon Sensing is an Atlantic Inertial Systems, Sumitomo Precision Products joint venture company

Competitive sensor & power supply solutions worldwide

pewatron.com
CRS39
Analogue Angular Rate Sensor
High Performance MEMS Gyroscope

For full technical datasheets please go to our website where the documents can be downloaded

CRS39-03

Typical Data

<table>
<thead>
<tr>
<th>Angular Rate Range</th>
<th>±25º/s</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output</td>
<td>Analogue (non-ratiometric)</td>
</tr>
<tr>
<td>Scale Factor</td>
<td></td>
</tr>
<tr>
<td>Nominal</td>
<td>80mV/º/s</td>
</tr>
<tr>
<td>Setting tolerance (+45ºC)</td>
<td>±0.4mV/º/s</td>
</tr>
<tr>
<td>Variation over temperature</td>
<td>±0.35%</td>
</tr>
<tr>
<td>Non-linearity</td>
<td>±0.02% of full scale</td>
</tr>
<tr>
<td>Bias</td>
<td></td>
</tr>
<tr>
<td>Setting error (+45ºC)</td>
<td>±0.1V</td>
</tr>
<tr>
<td>Variation over temperature</td>
<td>±500º/h</td>
</tr>
<tr>
<td>Angular Random Walk</td>
<td>0.015º/√h</td>
</tr>
<tr>
<td>Bias instability</td>
<td>0.1º/h</td>
</tr>
<tr>
<td>Bandwidth (normal)</td>
<td>25Hz ±10Hz</td>
</tr>
<tr>
<td>Noise to 10Hz</td>
<td>0.006º/s rms</td>
</tr>
<tr>
<td>Wideband Noise</td>
<td>0.03º/s rms</td>
</tr>
<tr>
<td>Environment</td>
<td></td>
</tr>
<tr>
<td>Temperature</td>
<td>-10ºC to +110ºC</td>
</tr>
<tr>
<td>Operational shock</td>
<td>250g</td>
</tr>
<tr>
<td>Non-operational shock</td>
<td>1,000g</td>
</tr>
<tr>
<td>RoHS Compliant</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Pin Connections

<table>
<thead>
<tr>
<th>Pin</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>+5V (4.9 to 5.25)</td>
</tr>
<tr>
<td>2</td>
<td>GND</td>
</tr>
<tr>
<td>3</td>
<td>Rate Output</td>
</tr>
<tr>
<td>4</td>
<td>Reference</td>
</tr>
<tr>
<td>5</td>
<td>TMP1</td>
</tr>
<tr>
<td>6</td>
<td>TMP2</td>
</tr>
<tr>
<td>7</td>
<td>TMP3</td>
</tr>
<tr>
<td>8</td>
<td>FREQ</td>
</tr>
</tbody>
</table>

All dimensions in millimetres

Allan Variance

Silicon Sensing Systems Limited
Cittadford Road, Southway,
Plymouth, Devon
PL6 6DE United Kingdom
T +44 (0)1752 723330
F +44 (0)1752 723331
E sales@siliconsensing.com
W siliconsensing.com

Silicon Sensing Systems Japan Limited
1-10 Fuso-Cho,
Amagasaki,
Hyogo 6600891, Japan
T +81 (0)6 6489 5868
F +81 (0)6 6489 5919
E sssj@spp.co.jp
W siliconsensing.com

Specification subject to change without notice.

© Copyright 2015
Silicon Sensing Systems Limited
All rights reserved. Printed in England 05/15
CRS39-03-0100-131 Rev 1
DCR No. 710009064
We are here for you. Addresses and Contacts.

## Sales Germany & Austria

**Geometrical sensors**
- Kurt Stritzelberger
  - Phone: +49 89 374 288 87 22
  - kurt.stritzelberger@pewatron.com

**Pressure sensors**
- Gerhard Vetter
  - Phone: +49 89 374 288 87 26
  - gerhard.vetter@pewatron.com

**Gas sensors and modules**
- Peter Felder
  - Phone: +41 44 877 35 05
  - peter.felder@pewatron.com

## Sales Switzerland & Liechtenstein

**Postcode 3000 – 9999**
- Basil Frei
  - Phone: +41 44 877 35 18
  - basil.frei@pewatron.com

**Postcode 1000 – 2999**
- Christian Mohrenstecher
  - Phone: +41 76 444 57 93
  - christian.mohrenstecher@pewatron.com

## Sales International Key Accounts

**Postcode 1000 – 4999 / AT / IT / FR**
- Christian Mohrenstecher
  - Phone: +41 76 444 57 93
  - christian.mohrenstecher@pewatron.com

## Sales Other Countries / Product Management

**Pressure Sensors**
- Load Cells
  - Philipp Kistler
    - Phone: +41 44 877 35 03
    - philipp.kistler@pewatron.com

**Power supplies**
- Sebastiano Leggio
  - Phone: +41 44 877 35 06
  - sebastiano.leggio@pewatron.com

**Accelerometers**
- Sensor elements
  - Christoph Kleye
    - Phone: +49 89 374 288 87 61
    - christoph.kleye@pewatron.com
  - Harald Thomas
    - Phone: +49 89 374 288 87 23
    - harald.thomas@pewatron.com

**Gas sensors**
- Gas sensor modules
  - Dr. Thomas Clausen
    - Phone: +41 44 877 35 13
    - thomas.clausen@pewatron.com

**Linear position sensors**
- Angle sensors
  - Eric Letsch
    - Phone: +41 44 877 35 14
    - eric.letsch@pewatron.com

**Current sensors / Power solutions & Turkey**
- Osman Coban
  - Phone: +49 89 374 288 87 65
  - osman.coban@pewatron.com

**Drive technology**
- CH Postcode 5000 – 9999 / DE
  - Roman Homa
    - Phone: +41 76 444 00 86
    - roman.homa@pewatron.com

**Flow / Level / Medical products**
- Dr. Adriano Pittarelli
  - Phone: +49 89 374 288 87 67
  - adriano.pittarelli@pewatron.com

**Drive technology**
- CH Postcode 1000 – 4999 / AT / IT / FR
  - Christian Mohrenstecher
    - Phone: +41 76 444 57 93
    - christian.mohrenstecher@pewatron.com