AR5
Analog Rocker

Introduction
The AR5 Analog Rocker has been developed to provide the reliability required in demanding environments - such as dashboards or armrest controls - for heavy duty industrial and off-road applications. The unique design makes the rocker module an ideal proportional function solution for off-road machinery for cost-effective custom designs. The AR5 has been designed to simplify the customization of fingertip rockers in an off-road vehicle application.

Main Features
- Contactless sensing – Hall effect
- Rocker life > 2 million cycles
- Optional:
  - detent, life > 200K cycles
  - latching, life > 100K cycles
- Single sensor – optional second sensor for redundancy
- Integrated temperature compensation
- Short circuit protection
- Ideal solution for fingertip rocker designs
- Potted electronics

Custom Modifications
- Deflection angle
- Detent / Latching detent
- Lever design allows for usage of longer levers
- Connector / Harness

SPECIFICATIONS

### Electrical

<table>
<thead>
<tr>
<th>Supply Ratings</th>
<th>Voltage range DC current</th>
<th>9V … 30V or 5.0 V ± 5% 50 mA at 24V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage Output</td>
<td>Output 1</td>
<td>0.5V … 4.5V at 5Vcc</td>
</tr>
<tr>
<td></td>
<td>Output 2 [A]</td>
<td>4.5V … 0.5V at 5Vcc</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Output proportional to Vcc</td>
</tr>
<tr>
<td>Pull-down resistor</td>
<td>Recommendation</td>
<td>4.7 kΩ</td>
</tr>
<tr>
<td>Output current</td>
<td></td>
<td>max. 1 mA</td>
</tr>
<tr>
<td>Other electrical Characteristics</td>
<td>EMI</td>
<td>&gt; 100 V/m</td>
</tr>
</tbody>
</table>

[A]: Pull-down resistor is optional.
## Mechanical

<table>
<thead>
<tr>
<th>Life</th>
<th>&gt; 10 million cycles (equivalent &gt; 20 million movements)</th>
</tr>
</thead>
<tbody>
<tr>
<td>- rocker</td>
<td>&gt; 200k cycles</td>
</tr>
<tr>
<td>- detent</td>
<td>&gt; 100k cycles</td>
</tr>
<tr>
<td>- latching</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Operating temperature</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>- Storage</td>
<td>-40°C to 85°C</td>
</tr>
<tr>
<td>- Working</td>
<td>-40°C to 85°C</td>
</tr>
</tbody>
</table>

| Operating force       | 4-6 N                                                 |
| Vertical load maximum | 30 N                                                  |
| Protection Level      | IP 67                                                 |
| Rocker deflection angle | ± 40° max.                                          |

## DIMENSIONS

![Dimensions Diagram]
### BLOCK SCHEMATIC

- **Power Supply**: 8.5 – 30V\(^{(c)}\) / 5V
- **GND**: 5V
- **Out1**: OUTPUT SIGNAL
- **Out2\(^{(d)}\)**: OPTIONAL REDUNDANT OUTPUT SIGNAL

### PIN ASSIGNMENT

<table>
<thead>
<tr>
<th>PIN</th>
<th>SIGNAL</th>
<th>FUNCTION (9-30V)</th>
<th>FUNCTION (5V)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>U1(^{(a-b)})</td>
<td>SUPPLY VOLTAGE</td>
<td>NOT CONNECTED</td>
</tr>
<tr>
<td>2</td>
<td>GND</td>
<td>REFERENCE GROUND</td>
<td>REFERENCE GROUND</td>
</tr>
<tr>
<td>3</td>
<td>VCC(^{(a)})</td>
<td>NOT CONNECTED</td>
<td>SUPPLY VOLTAGE</td>
</tr>
<tr>
<td>4</td>
<td>OUT</td>
<td>OUTPUT SIGNAL</td>
<td>OUTPUT SIGNAL</td>
</tr>
<tr>
<td>5</td>
<td>OUT(^{(a)})</td>
<td>OPTIONAL REDUNDANT OUTPUT SIGNAL</td>
<td>OPTIONAL REDUNDANT OUTPUT SIGNAL</td>
</tr>
</tbody>
</table>

\(^{(a)}\) For design and installation purposes.
\(^{(b)}\) Please refer to the technical specifications for detailed information.
\(^{(c)}\) Voltage range for safe operation.
\(^{(d)}\) Recommended for increased reliability.
## Ordering Options

**Example:** AR5-S-40/40-xN-D26/26-L32/32-1-V-2-00

### Family
- **AR3:** analog rocker 5
- **S:** customized lever
- **40/40:** standard ± 40° latching
- **xN:** operation force depends on lever
- **D26/26:** standard ± 26° detent
- **L32/32:** customized ± x° latching
- **1:** no detent
- **V:** no latching
- **2:** detent ± 2° latching
- **00:** output 1 / 0.5V ... 4.5V; 1mA

### Lever
- **C:** customized lever
- **S:** standard lever

### Deflection Angle
- **40/40:** ± 40° (left/right)
- **xN:** customized ± 0-40° (left/right)

### Operation Force
- **xN:** operation force depends on lever

### Detent (C)
- **D26/26:** standard ± 26° detent
- **Dx/x:** customized ± x° detent

### Latching (C)
- **Lx/x:** customized ± x° latching

### Electrical Supply
- **0:** voltage 9 ... 30 V
- **1:** 5 V ± 5%

### Output Voltage Code (D)
- **00:** output 1 / 0.5V ... 4.5V; 1mA
- **02:** output 1 / 0.5V ... 4.5V; 1mA
- **03:** output 1 / 4.5V ... 0.5V; 1mA

### Output
- **V:** voltage

### Sensors
- **1:** 1 sensor
- **2:** 2 sensors (for redundancy)

### General Notes
- (A) for redundant version
- (B) optional
- (C) detent and latching positions must be taught-in in application
- (D) ratiometric to 5V supply

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