

# FEATURES

- High resolution of 256 P/R and fine setting
- Lower consumption of electric power (15 mA maximum) due to magnetic method
- Long life for 10^5 times continuous run due to contactless & magnetic method
- Square wave output (with Amp.)
- Smooth rotation for setting
- RoHS compliant

# PART NUMBER DESIGNATION

- **Series name**: RMS20
- **Resolution (P/R)**: 100, 250, 256
- **Output connection**: Cable wire
- **Output phase**: A & B

# LIST OF PART NUMBERS

<table>
<thead>
<tr>
<th>Resolution (P/R)</th>
<th>Item</th>
<th>Input voltage</th>
<th>Part number</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 (P/R)</td>
<td></td>
<td>5 V</td>
<td>RMS20-100-201-1</td>
</tr>
<tr>
<td>250 (P/R)</td>
<td></td>
<td></td>
<td>RMS20-250-201-1</td>
</tr>
<tr>
<td>256 (P/R)</td>
<td></td>
<td></td>
<td>RMS20-256-201-1</td>
</tr>
</tbody>
</table>

*Verify the above part numbers when placing orders.*

# STANDARD SPECIFICATIONS

**Electrical characteristics**

- **Input voltage**: DC5 V ± 5 %
- **Input current**: 15 mA maximum (No load)
- **Output wave form**: Square wave
- **Output phases**: A, B
- **(P/R) Resolution**: 100, 250, 256
- **Phase difference of outputs A & B**: 90° ± 45°
- **Maximum frequency response**: 5 kHz
- **Output signal**:
  - "1 (High)" + 4.5 V minimum
  - "0 (Low)" + 0.5 V maximum
- **Sensor**: Magnetoresistive element

**Mechanical characteristics**

- **Rotational torque**: 4.90 mN·m (50 gf·cm) maximum
- **Inertia**: 3 g·cm² maximum
- **Shaft loading (When mounting)**:
  - Radial: 9.81 N (1 kgf) maximum
  - Axial: 9.81 N (1 kgf) maximum
- **Rotational life**: 10° revolution
- **Net weight**: Approx. 20 g
- **Strength of tighten screw**: 0.49 N·m (5 kgf-cm) maximum

**Environmental characteristics**

- **Operating temp. range**: −10 ~ 60 °C
- **Storage temp. range**: −40 ~ 70 °C
- **Protection grade**: IP40
### RELIABILITY TEST

The output shall satisfy the criteria below after the following tests.

<table>
<thead>
<tr>
<th>Test item</th>
<th>Test conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vibration</td>
<td>Power OFF&lt;br&gt;Amplitude: 1.52 mm or 98.1 m/s² (10 G) whichever is smaller.&lt;br&gt;10 - 500 Hz excursion 15 min/cycle, 8 cycles each for X, Y, Z, directions.</td>
</tr>
<tr>
<td>Shock</td>
<td>Power OFF&lt;br&gt;3 times each in directions (X, Z) at 490 m/s² (50 G), 11 ms.</td>
</tr>
<tr>
<td>High temperature exposure</td>
<td>Power OFF&lt;br&gt;70 °C 96 h&lt;br&gt;Power ON&lt;br&gt;60 °C 96 h&lt;br&gt;(To be measured after leaving samples for 1 h at normal temperature and humidity after the test.)</td>
</tr>
<tr>
<td>Low temperature exposure</td>
<td>Power OFF&lt;br&gt;–40 °C 96 h</td>
</tr>
<tr>
<td>Humidity</td>
<td>Power OFF&lt;br&gt;40 °C Relative humidity 90 ~ 95 % 96 h&lt;br&gt;(To be measured after wiping out moisture and leaving samples for 1 h at normal temperature and humidity after the test.)</td>
</tr>
<tr>
<td>Thermal shock</td>
<td>Power OFF&lt;br&gt;To be done 10 cycles with the following condition&lt;br&gt;(To be measured after leaving samples for 1 h at normal temperature and humidity after the test.)&lt;br&gt;70 °C 0.5 h, –40 °C 0.5 h</td>
</tr>
</tbody>
</table>

### OUTLINE DIMENSIONS

Unless otherwise specified, tolerance: ± 0.4 (Unit: mm)

<Accessories>

1. Nut

2. Washer
### OUTPUT

- **CW**
- **CCW**

Output "A"<br>Output "B"

\[ a, b, c, d = T/4 \pm T/8 \]
\[ \Delta T = \pm T/8 \]

### ELECTRICAL WIRING

<table>
<thead>
<tr>
<th>Color</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red</td>
<td>Power (+)</td>
</tr>
<tr>
<td>Brown</td>
<td>Output “B”</td>
</tr>
<tr>
<td>White</td>
<td>Output “A”</td>
</tr>
<tr>
<td>Black</td>
<td>Power 0 (V)</td>
</tr>
</tbody>
</table>

### OUTPUT CIRCUIT

- **Vcc 5 V (Red)**
- **10 kΩ**
- **Output “A” (White)**
- **Output “B” (Brown)**
- **0 V (Black)**

Sink current 1 mA maximum (at 25 °C)