11 mm Square GS Encoders

Type: **EVER/EVEU/EVEV/EVEY**

- **Features**
  - Low Profile: Reflow Type 3.5 mm, Wave Soldering Type 4 mm
  - Minimized shaft wobble type is also available
  - The reflow type allows the product to be automatically mounted and reflow-soldered

- **Recommended Applications**
  - Car audio, car navigation, car air conditioners

- **Explanation of Part Numbers**

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>E</td>
<td>V</td>
<td>E</td>
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</table>

<table>
<thead>
<tr>
<th>Specifications</th>
<th>Shaft Trims &amp; Dimensions</th>
<th>Output(Pulses)</th>
</tr>
</thead>
</table>

- **Mechanical**
  - Rotation Angle 360 ° (Endless)
  - Shaft Pull/Push Strength 100 N min.
  - Shaft Wobble 0.6xL/30 (mm) max., 0.35xL/30 (mm) max.
  - Rotation Torque 3 mN·m to 20 mN·m
  - Detents 16 points, 32 points
  - Shaft Length Range L=15 to 20 mm, L=15 to 30 mm, L=16 to 20 mm

- **Electrical**
  - Output Signals Phase A and B
  - Resolution 8, 16 pulses/360 °
  - Rating 1 mA 10 Vdc (at each bit)
  - Contact Resistance 1 Ω max.
  - Chattering 3 ms max.
  - Insulation Resistance 50 MΩ min. (at 250 Vdc)
  - Dielectric Withstanding Voltage 300 Vac for 1 minute
  - Bouncing 5 ms max.

- **Switch Part**
  - Type SPST Push-on
  - Rating 20 mA 16 Vdc
  - Contact Resistance 100 mΩ max.
  - Operating Force 0.4 mm travel type: 3 N, 4 N, 6 N, 1.5 mm travel type: 4 N
  - Travel 0.4 mm, 1.5 mm

- **Endurance**
  - Rotation Life (Encoder) 30000 cycles min.
  - Operating Life (Switch) 30000 cycles min.

<table>
<thead>
<tr>
<th>Minimum Quantity/Packing Unit</th>
<th>Quantity/Carton</th>
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</thead>
<tbody>
<tr>
<td>50 pcs. (Tray Pack)</td>
<td>250 pcs. or 300 pcs.</td>
</tr>
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Jan. 2006
- Dimensions in mm (not to scale)

### No. 1

**EVER**
(Reflow Type)

- **Mounting Surface**
- **Shaft shape and dimension**
- **Switch circuit diagram.**
- **S.P.S.T.**
- **(Notice) Commonness of encoder.**

#### Bushing length

<table>
<thead>
<tr>
<th>B</th>
<th>L’</th>
<th>L”</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.0 mm</td>
<td>15.0 mm to 17.0 mm</td>
<td>11.5 mm to 13.5 mm</td>
</tr>
<tr>
<td>7.0 mm</td>
<td>17.0 mm to 20.0 mm</td>
<td>13.5 mm to 16.5 mm</td>
</tr>
</tbody>
</table>

### No. 2

**EVEU**
(Minimized Shaft Wobble Reflow Type)

- **Mounting Surface**
- **Shaft shape and dimension**
- **Switch circuit diagram.**
- **S.P.S.T.**
- **(Notice) Commonness of encoder.**

#### Bushing length

<table>
<thead>
<tr>
<th>L’</th>
<th>L”</th>
<th>L”’</th>
</tr>
</thead>
<tbody>
<tr>
<td>16.0 mm to 20.0 mm</td>
<td>12.5 mm to 16.5 mm</td>
<td>6.5 mm to 10.5 mm</td>
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</tbody>
</table>

### No. 3

**EVEV**
(Wave Soldering Type)

- **Mounting Surface**
- **Shaft shape and dimension**
- **Switch circuit diagram.**
- **S.P.S.T.**
- **(Notice) Commonness of encoder.**

#### Bushing length

<table>
<thead>
<tr>
<th>B</th>
<th>L’</th>
<th>L”</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.0 mm</td>
<td>15.0 mm to 17.0 mm</td>
<td>11.0 mm to 13.0 mm</td>
</tr>
<tr>
<td>7.0 mm</td>
<td>17.0 mm to 30.0 mm</td>
<td>13.0 mm to 26.0 mm</td>
</tr>
</tbody>
</table>

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Jan. 2006
**Dimensions in mm (not to scale)**

<table>
<thead>
<tr>
<th>No. 4</th>
<th>EVEY (Minimized Shaft Wobble Wave Soldering Type)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>L1</strong></td>
<td><strong>L2</strong></td>
</tr>
<tr>
<td>16.0 mm to 20.0 mm</td>
<td>12.0 mm to 16.0 mm</td>
</tr>
</tbody>
</table>

**Phase Difference**

- Signal A: OFF
- Signal B: OFF

Detent steady point

Phase difference T1, T2, T3, T4

(At rotational speed 60 r/min.)

Initial: 4 ms ± 0.8 ms

After life: 2.5 ms ± 0.8 ms

**Test Circuit Diagram**

- 5 Vdc
- 10 kΩ
- 10 kΩ
- 10 kΩ
- Term A
- Term B
- Term C
- Encoder
- 0.01 µF
- 0.01 µF

Material: Zinc alloy for die casting

Mounting Surface: Center of shaft

Recommended PWB piercing plan.

(Pitch tolerance: ±0.1)

View from mounting side

PWB thickness t=1.6