Incremental Encoder
Series TRD-S/SH
Operation Manual

Thank you for purchasing this Series TRD-S/SH Incremental Encoder. Please read this Operation Manual carefully before applying this product. KEEP MANUAL IN A SAFE PLACE.

Sales: 800-633-0405  Tech Support: 770-844-4200

■ Electrical specifications

<table>
<thead>
<tr>
<th>Type No.</th>
<th>TRD-S/SH/AD/BD</th>
<th>TRD-S/SH/AD/BD (encoder revolution)</th>
<th>TRD-S/SH/AD/BD (encoder revolution)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power supply</td>
<td>Operating voltage</td>
<td>50 V to 120 V DC</td>
<td>24 V to 48 V DC</td>
</tr>
<tr>
<td>Allowable ripple</td>
<td>±3% of max.</td>
<td>±3% of max.</td>
<td>±3% of max.</td>
</tr>
<tr>
<td>Current consumption</td>
<td>5 mA or less</td>
<td>1 mA or less</td>
<td>1 mA or less</td>
</tr>
<tr>
<td>Signal output</td>
<td>Input capacitance</td>
<td>25 pF or less</td>
<td>25 pF or less</td>
</tr>
<tr>
<td>Operating speed</td>
<td>Max. speed (rpm)</td>
<td>3000 rpm</td>
<td>3000 rpm</td>
</tr>
<tr>
<td>Symmetry</td>
<td>±5%</td>
<td>±5%</td>
<td>±5%</td>
</tr>
<tr>
<td>Repeatability</td>
<td>±0.001%</td>
<td>±0.001%</td>
<td>±0.001%</td>
</tr>
<tr>
<td>Output configuration</td>
<td>N channel Mos FET.</td>
<td>Open drain output</td>
<td>Open drain output</td>
</tr>
<tr>
<td>Output current</td>
<td>30 mA max.</td>
<td>30 mA max.</td>
<td>30 mA max.</td>
</tr>
<tr>
<td>Output voltage</td>
<td>15 V or more</td>
<td>15 V or more</td>
<td>15 V or more</td>
</tr>
<tr>
<td>Last power supply voltage</td>
<td>DC 36 V or less</td>
<td>DC 36 V or less</td>
<td>DC 36 V or less</td>
</tr>
</tbody>
</table>

1) To be supplied by the machine. 2) With a cable of 2m.

■ Cautions for use

- Do not wire the cable in parallel with other power lines and do not share a duct with other cables.
- Use capacitors or surge absorption elements to remove the sparks caused by relays and switches in the control panel as far as possible.
- Be sure to connect all wires properly, as wrong wiring can damage the internal circuitry.
- Erroneous pulses may be caused at the time of power ON and power OFF. After power ON, wait for at least 0.5 sec before use.
- Do not disassemble the product.
- As the rotary encoder is composed of precision parts, its function will be impaired when it is subjected to shocks. Use sufficient care for handling and mounting.

■ External dimensions

- TRD-S/SH/AD/BD/VD

■ Mounting

- TRD-S/SH/AD/BD/VD

■ Mating shaft requirements

- TRD-S/SH/AD/BD/VD

Dimensions of the mating part

Tolerance in shaft direction

Tolerance at a right angle to the shaft

Rectangularity of the mounting surface in regard to the shaft

■ Options

- Coupling

RU-075D

GJ-6D

■ Setting Index position

- TRD-S/SH/AD/BD/VD

Adjustment is made by the shaft wash being down.

Output when the set index are in the positions shown in the figure.

■ Operating environment and conditions

- Use and store the equipment within the scope of the environment (vibrations, impact, temperature, humidity etc.) specified in the specifications. Otherwise fire or product damage may be caused.

■ Installation and wiring

- Use only with the power supply voltage listed in the specifications. Otherwise fire, electric shock, or accidents may be caused.
- Do not apply any kind of stress to the wires. Otherwise electric shock or fire may be caused.

■ Mechanical specifications

- Starting torque | Max. 1.17Nm (+20°C) |
- Shaft moment of inertia | 0.3 x 10^(-7) kgm^2 |
- Max. allowable load | Radial: 20 N |
- Axial: 10 N |
- Max. allowable speed | 10000 (6000 rpm) |
- Wire size | AWG32 |
- Weight | Approx. 15g (with 2m cable) |

■ Environmental conditions

- Ambient temperature | Use temperature: -10°C to 70°C, storage temperature: -20°C to 85°C |
- Ambient humidity | 25 to 85% RH (no condensation) |
- Protection construction | IP65 (Dust-proof type: Simple dust-proof type) |

■ Connection

The shield wire (GND) is not connected to the encoder body.

- TRD-S/SH/AD/BD/VD
- TRD-S/SH/AD/BD/VD

■ Output circuit

- Power supply: 24V/50Hz or equivalent
- Output A+, B+, Z+ |
- Output A-, B-, Z- |
- 0V |

For installation with 3 screws

For installation with 2 screws

ES-M0222-1