

TRD-K Series

Features

φ78 Absolute Type

- Resolutions up to 10 bits (1,024) are available.
- High axial load due to strengthened spindle (Radial 100 N / thrust 50 N)
- Robust type using a φ10 mm stainless steel shaft
- Gray code output that eliminates reading errors
- Use of a metal slit board delivers an impact resistance of 980m/s².
- Installation using a servo mount convenient for origin adjustment is possible.



Model Number List

| Type | Model Number | Resolution | Cable Length | Remarks | |
|---|---------------|----------------|--------------|--|--|
| Dustproof and waterjet-proof Type with Cables Taken Out from the Side | TRD-K180-YS | 180 (8-bit) | 2 m | Provided with an FC-21 dedicated connector | Provided with a cable expansion connection connector |
| | TRD-K256-YS | 256 (8-bit) | | | |
| | TRD-K360-YS | 360 (9-bit) | | TRD-K360-YCS | TRD-K360-YPS |
| | TRD-K512-YS | 512 (9-bit) | | TRD-K512-YCS | TRD-K512-YPS |
| | TRD-K720-YS | 720 (10-bit) | | TRD-K720-YCS | TRD-K720-YPS |
| Dustproof and Waterjet-proof Connector Type (with Cables Taken Out from the Back) | TRD-K1024-YS | 1,024 (10-bit) | No | TRD-K1024-YCS | TRD-K1024-YPS |
| | TRD-K360-YC2 | 360 (9-bit) | | | |
| | TRD-K512-YC2 | 512 (9-bit) | | | |
| | TRD-K720-YC2 | 720 (10-bit) | | | |
| | TRD-K1024-YC2 | 1,024 (10-bit) | | | |

TRD-K □ - Y C S

- Series classification
- Resolution
- Gray code output
- Connection form
- C : Provided with an FC-21 dedicated connector
- P : Provided with a cable expansion connection connector
- C2: Dustproof and waterjet-proof connector type (with cables taken out from the back)
- With cables taken out from the side

Electrical Specifications

| | | |
|----------------------------|--|-----------------------------|
| Model Number | TRD-K□-Y□ | |
| Power Supply | Supply Voltage | 10.8 to 26.4 V DC |
| | Allowable Ripple | 3% rms or less |
| | Consumption Current | 70 mA or lower (No load) |
| Output Code | Gray binary | |
| Maximum Response Frequency | 20 kHz | |
| Precision | (360 / (Resolution x 2))° | |
| Rotation Direction | Increase of output code in clockwise rotation (CW) | |
| Output | Output Form | NPN open collector output |
| | Output Logic | Negative logic (Active low) |
| | Residual Voltage | 0.4 V or lower |
| | Sink Current | 30 mA or lower |
| | Load Supply Voltage | 30 V DC or lower |
| Rise / Fall Time* | Not larger than 2.0 μs (Load resistance 1 kΩ) | |

*Cable length 2 m, maximum load

Mechanical Specifications

| | |
|--|--|
| Starting Torque | 0.1 N·m or less (+20°C) |
| Moment of Inertia | 1 x 10 ⁻⁵ kg·m ² |
| Shaft Allowable Load | Radial: 100 N |
| | Thrust: 50 N |
| Maximum Allowable Number of Revolutions (Note 1) | 5,000 rpm |
| Cable | Outside diameter φ7.8 mm 12-core shielded oil-resistant vinyl chloride cable Core wire nominal cross-sectional area: 0.3 mm ² |
| Weight | Type with cable taken out from the side: Approx. 750 g (With 2 m cable) Connector type: Approx. 500 g |

Note 1: Maximum number of revolutions that can be mechanically endured

Environmental Requirements

| | |
|----------------------------------|--|
| Use Ambient Temperature | -10 to +50°C |
| Storage Ambient Humidity | -25 to +80°C |
| Use Ambient Humidity | 35 to 85% RH (No condensation) |
| Withstand Voltage | 500 V AC 50/60 Hz 1 minute* |
| Insulation Resistance | 10 MΩ or higher (500 V DC mega) |
| Vibration Resistance (Endurance) | Displacement half amplitude: 0.75 mm, 10 to 55 Hz, 3 axial directions, each 1 h |
| Impact Resistance (Endurance) | 980 m/s ² 11 ms, each 3 times in 3 axial directions |
| Protective Structure | IP65 (Dustproof and waterjet-proof type) |

* The power supply, signal lines, and shield between the cases are excluded.

HMI

SENSOR

ENCODER

COUNTER

INFORMATION

Rotary Encoder Lineup

Selection Guide

Incremental Type

Absolute Type

TRD-NA

TRD-K

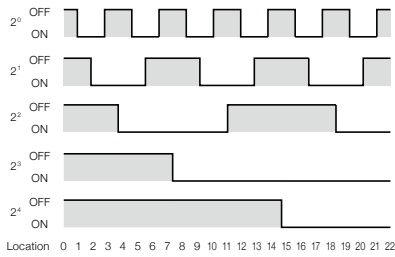
TRD-K Series

Specifications

- PLC
- HMI
- SENSOR
- ENCODER**
- COUNTER
- INFORMATION

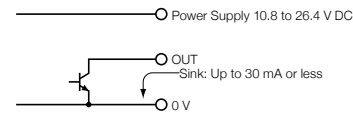
- Rotary Encoder Lineup
- Selection Guide
- Incremental Type
- Absolute Type**

Output Waveform



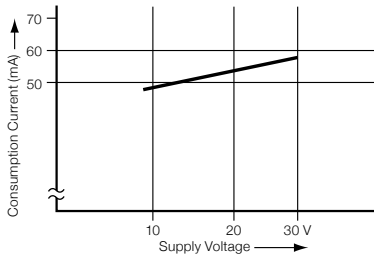
Output Circuit

Open Collector



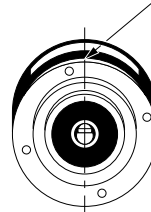
Electrical Characteristics (Typical)

Consumption Current Characteristics



Home Position

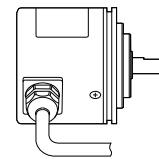
Match the Cover Installation Screw on the Nameplate Side and the Notch of the Shaft (Upward-pointing).



Connection

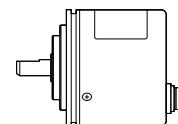
Type with Cable Taken Out from the Side

| Line Color | Model Number | TRD-K1024-□ TRD-K720-□ | TRD-K360-□ TRD-K512-□ | TRD-K180-□ TRD-K256-□ |
|------------|--------------|---------------------------|--------------------------|--------------------------|
| Red | | Power supply +12/24 V | ← | ← |
| Black | | Power supply 0 V | ← | ← |
| Brown | Output | 2 ⁰ | ← | ← |
| Orange | | 2 ¹ | ← | ← |
| Yellow | | 2 ² | ← | ← |
| Green | | 2 ³ | ← | ← |
| Blue | | 2 ⁴ | ← | ← |
| Purple | | 2 ⁵ | ← | ← |
| Gray | | 2 ⁶ | ← | ← |
| White | | 2 ⁷ | ← | ← |
| Pink | | 2 ⁸ | ← | (Not connected) |
| Light Blue | | 2 ⁹ | (Not connected) | (Not connected) |
| Shield | | GND | ← | ← |

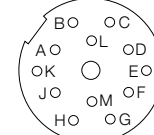


Dustproof and Waterjet-proof Connector Type

| Pin No. | Model Number | TRD-K1024-□ TRD-K720-□ | TRD-K360-□ TRD-K512-□ |
|---------|----------------|---------------------------|--------------------------|
| A | | Power supply +12/24 V | ← |
| B | Output | 2 ⁰ | ← |
| C | | 2 ¹ | ← |
| D | | 2 ² | ← |
| E | | 2 ³ | ← |
| F | | 2 ⁴ | ← |
| G | | 2 ⁵ | ← |
| H | | 2 ⁶ | ← |
| J | | 2 ⁷ | ← |
| K | | 2 ⁸ | ← |
| L | 2 ⁹ | (Not connected) | |
| M | | Power supply 0 V | ← |



Connector
<Pin Assignment Figure>



*Figure Seen from Wiring Side (Back side)

