

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
	TRD-K1024-YS	1,024 (10-bit)		TRD-K1024-YCS	TRD-K1024-YPS
Dustproof and Waterjet-proof Connector Type (with Cables Taken Out from the Back)	TRD-K360-YC2	360 (9-bit)	No		
	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 <input type="text"/> -Y <input type="text"/>
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

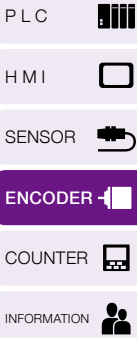
Environmental Requirements

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.

TRD-K Series

Specifications



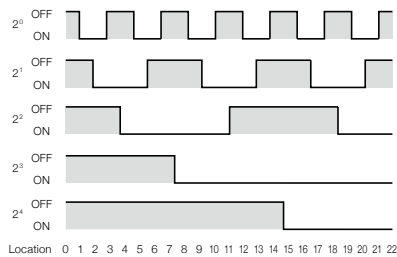
Rotary Encoder
Lineup

Selection Guide

Incremental Type

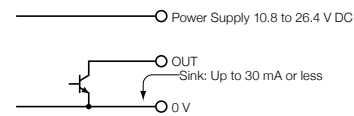
Absolute Type

Output Waveform



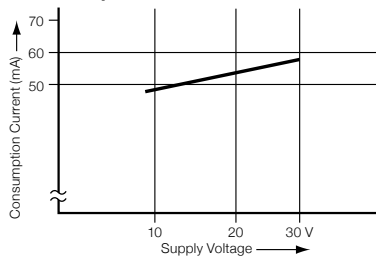
Output Circuit

Open Collector



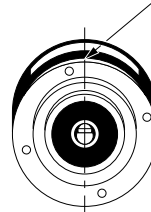
Electrical Characteristics (Typical)

Consumption Current Characteristics



Home Position

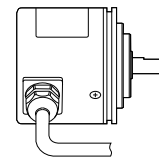
Match the Cover Installation Screw on the Nameplate Side and the Notch of the Shaft (Upward-pointing).



Connection

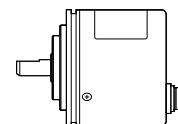
Type with Cable Taken Out from the Side

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)
Shield	GND	←	←

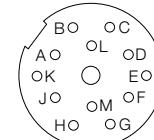


Dustproof and Waterjet-proof Connector Type

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
M	Power supply 0 V	←



Connector
<Pin Assignment Figure>



*Figure Seen from Wiring Side
(Back side)

TRD-NA

TRD-K

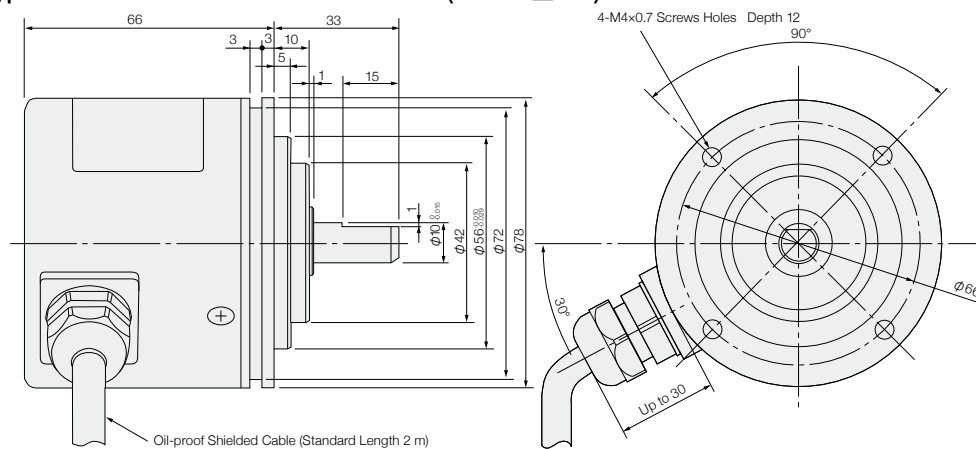
TRD-KL

TRD-K Series

Dimensions

■ Dimensions (Unit: mm)

Type with Cable Taken Out from the Side (TRD-K□-YS)

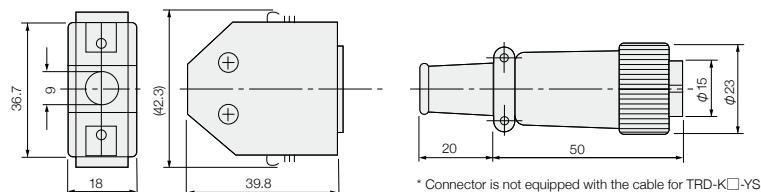


FC-21 dedicated connector
(TRD-K□-YCS)

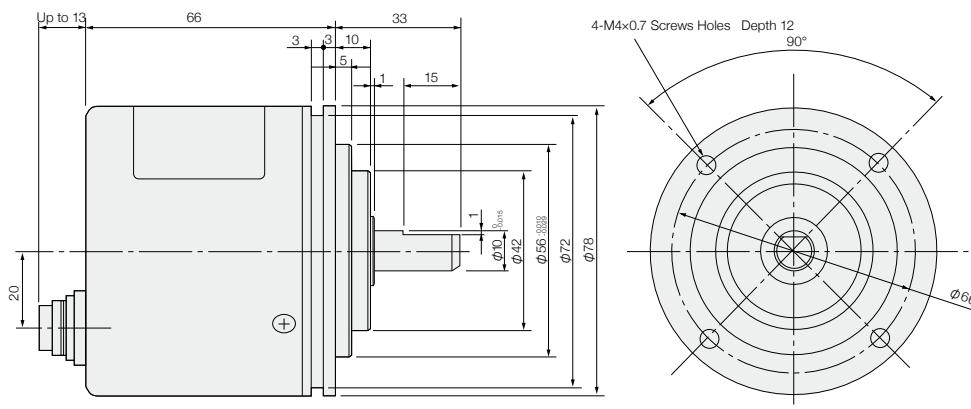
Model: Made by Honda MR-16L/MR-16M

Cable expansion connection connector
(TRD-K□-YPS)

Model: Made by Hirose RM15TPD-12P



Dustproof and Waterjet-proof Connector Type (TRD-K□-YC2)

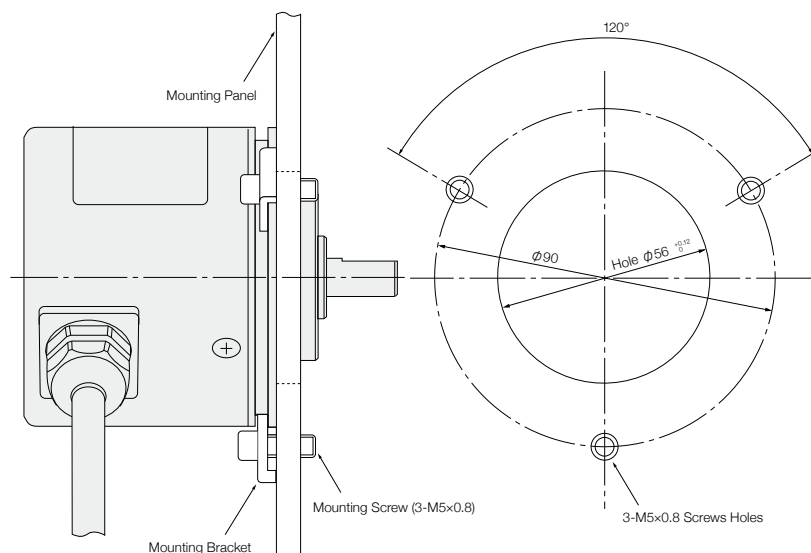


Model numbers of connectors
(Option)

- Straight: BMCC-12
- Angular: BAFC-12

* For details, see the page on options.

Servo Mount Metal Mounting State Diagram



Servo mount metal fixture KM-9
(Accessories)

