

ROTARY ENCODERS

TRD-KL Series Absolute Encoders



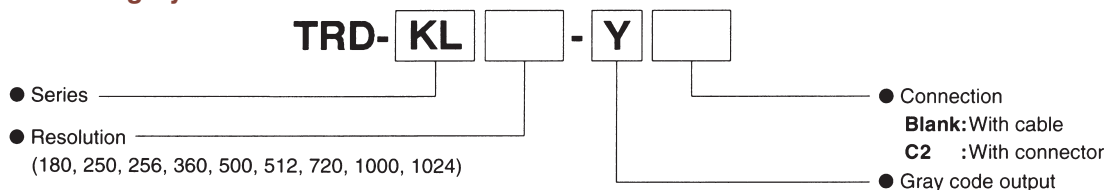
Features

- Side cable and connector for minimum space
- Dust and splash proofed for operation not affected by water or oil
- $\varnothing 10$ mm thick reinforced stainless shaft and aluminum die-cast casing
- Accurate gray code output
- Shock resistant metal slit plate durable at 980 m/s²
- Servo mounting is available for easy installation

List of Model Numbers

With cable			With connector		
Model Number	Resolution	Cable Length	Model Number	Resolution	Cable Length
TRD-KL180-Y	180 (8 bit)	2 m	TRD-KL180-YC2	180 (8 bit)	-
TRD-KL250-Y	250 (8 bit)		TRD-KL250-YC2	250 (8 bit)	
TRD-KL256-Y	256 (8 bit)		TRD-KL256-YC2	256 (8 bit)	
TRD-KL360-Y	360 (9 bit)		TRD-KL360-YC2	360 (9 bit)	
TRD-KL500-Y	500 (9 bit)		TRD-KL500-YC2	500 (9 bit)	
TRD-KL512-Y	512 (9 bit)		TRD-KL512-YC2	512 (9 bit)	
TRD-KL720-Y	720 (10 bit)		TRD-KL720-YC2	720 (10 bit)	
TRD-KL1000-Y	100 (10 bit)		TRD-KL1000-YC2	1000 (10 bit)	
TRD-KL1024-Y	1024 (10 bit)		TRD-KL1024-YC2	1024 (10 bit)	

Model Numbering System



Electrical Specifications

Power source	Power source voltage	10 to 30 VDC
	Allowable ripple	3% rms max.
	Current consumption	70 mA max.
Output code	Gray binary	
Max. response frequency	20 kHz	
Precision	(360 / resolution x 2)°	
Direction	Output code increments in normal direction	
Output	Output type	NPN open collector output
	Output logic	Negative (low active)
	Residual voltage	0.4 V max.
	Inflow current	30 mA max.
	Load power voltage	30 VDC max.
Rise / Fall time	2.0 μ s (at 1 k Ω load resistance) max.	

Mechanical Specifications

Initial torque	0.1N·m (+20°C) max.
Moment of inertia	1 x 10 ⁻⁶ kg·m ²
Allowable load	Radial: 70N
	Thrust: 40N
Maximum allowable speed (Note 1)	5000 rpm
Cable	External diameter $\varnothing 7.8$ mm
	12-core oil-proofed shielded vinyl chloride cable Nominal section area of core: 0.3 mm ²
Weight	With side cable: Approx. 700 g (with 2m cable)
	With connector: Approx. 450 g

Note 1: Highest speed that can support mechanical integrity of the encoder

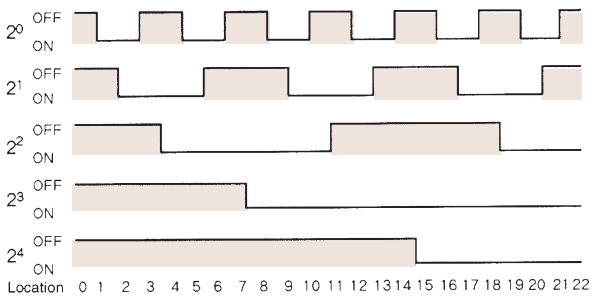
Environmental Requirements

Ambient temperature	-10 to +60°C
Storage temperature	-25 to +80°C
Operating humidity	35 to 85% RH (with no dewing)
Withstand voltage	AC500V at 50/60Hz for 1 minute (between terminals & case)
Insulation resistance	10 M Ω (measured with DC 500 V Megger) min.
Vibration resistance	Durable for 1 hour along 3 axes at 10 to 55 Hz with 0.75mm amplitudes
Shock resistance	11 ms with 980 m/s ² applied 3 times along 3 axes
Protection	IP65: Dust and splash proofed

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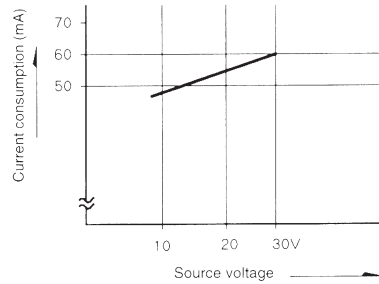
TRD-KL Series

Output Signal Timing Chart



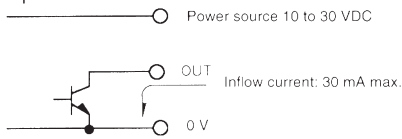
Electrical Characteristics

Current consumption

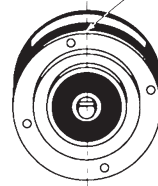


Output Circuit

Open collector



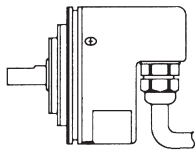
Home Position



Align the upward notch of the shaft with the small screw fixing the cover on the name plate.

Terminal Assignment

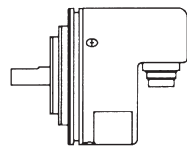
● With cable



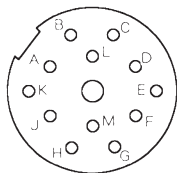
Shielded cable is not connected to the encoder body.

Model Number	TRD-KL1024-Y TRD-KL1000-Y TRD-KL720-Y	TRD-KL512-Y TRD-KL500-Y TRD-KL360-Y	TRD-KL256-Y TRD-KL250-Y TRD-KL180-Y
Color of core table			
Red	Power source +12/24 V	←	←
Black	Power source 0 V	←	←
Brown	Outputs	←	←
Orange		←	←
Yellow		←	←
Green		←	←
Blue		←	←
Purple		←	←
Gray		←	←
White		←	←
Pink		←	←
Light Blue	←	←	Not connected
Shield	GND	←	←

● With connector



Pin out of connector



* Rear view

Model Number	TRD-KL1024-YC2 TRD-KL1000-YC2 TRD-KL720-YC2	TRD-KL512-YC2 TRD-KL500-YC2 TRD-KL360-YC2	TRD-KL256-YC2 TRD-KL250-YC2 TRD-KL180-YC2
Pin Number			
A	Power source +12/24 V	←	←
B	Outputs	←	←
C		←	←
D		←	←
E		←	←
F		←	←
G		←	←
H		←	←
J		←	←
K		←	←
L	←	←	Not connected
M	Power source 0 V	←	←

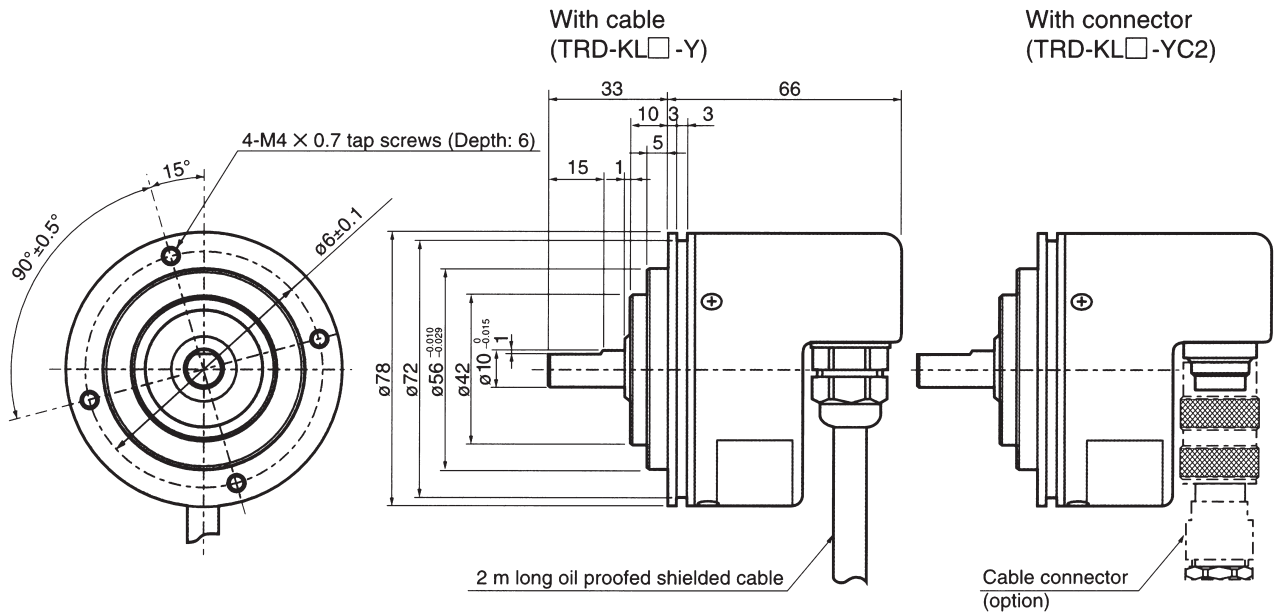


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External Dimensions

(in mm)



Servo Mount Metal Fixture

