

JTEKT

Incremental Rotary Encoder

TRD-SR/SHR

Operation Manual

Thank you for purchasing this series TRD-SR/SHR Incremental Rotary Encoders. Please read this Operation Manual carefully before applying this product.

PLEASE KEEP MANUAL IN A SAFE PLACE!

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JELWX-M8178A-E

Safety Consideration

Warning

Caution

This indicates contents which can cause large accidents leading to loss of life or severe injury when the indication is disregarded and wrong handling is executed.

This indicates contents which can cause injury or material damage when the indication is disregarded and wrong handling is executed.

Explanation of the pictograms

This symbol indicates a general prohibition.

This symbol indicates a compulsory item or an instruction.

Warning

Do not use in a combustible or explosive atmosphere. Otherwise personal injury or fire may be caused.

Do not use this product for applications related to human safety. Use is assumed in an application where an accident or incorrect use will not immediately cause danger to humans.

Operating environment and conditions

Caution

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.

Understand the product first before use it.

Installation and wiring

Warning

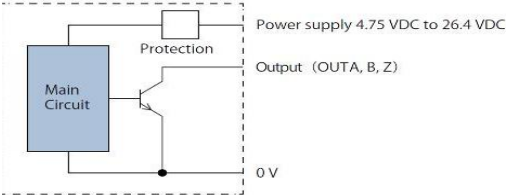
Use only with the power supply voltage listed in the specifications. Otherwise fire, electric shock, or accidents may be caused.

Use only with the wiring and layout specified in the specifications. Otherwise fire, electric shock, or accidents may be caused.

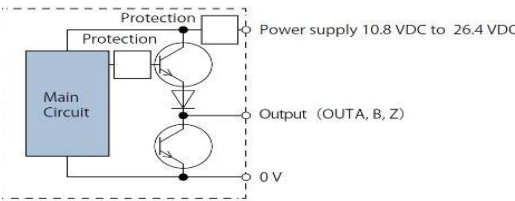
Do not apply any kind of stress to the wires. Otherwise electric shock or fire may be caused.

Output circuit

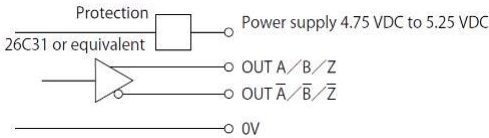
TRD-SR/SHR□A(Open Collector)



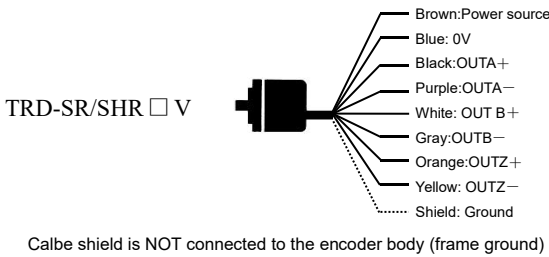
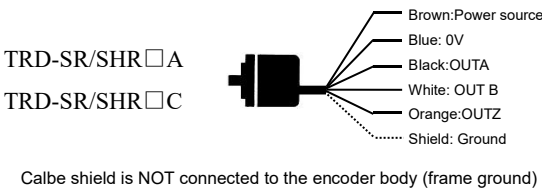
2. TRD-SR/SHR□C (Totem Pole)



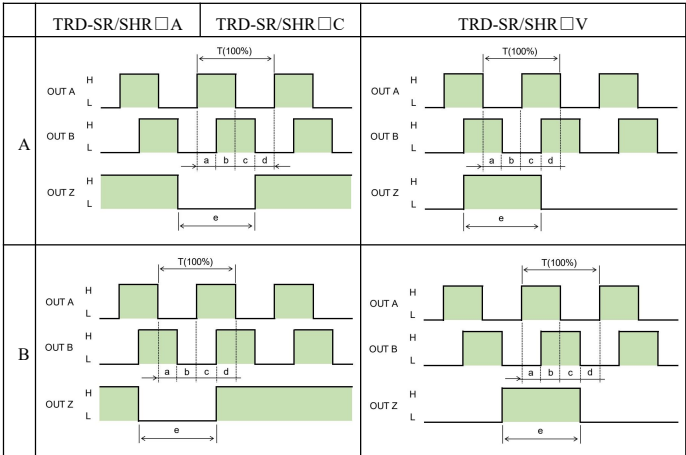
3. TRD-SR/SHR□V (Line Driver)



Connection

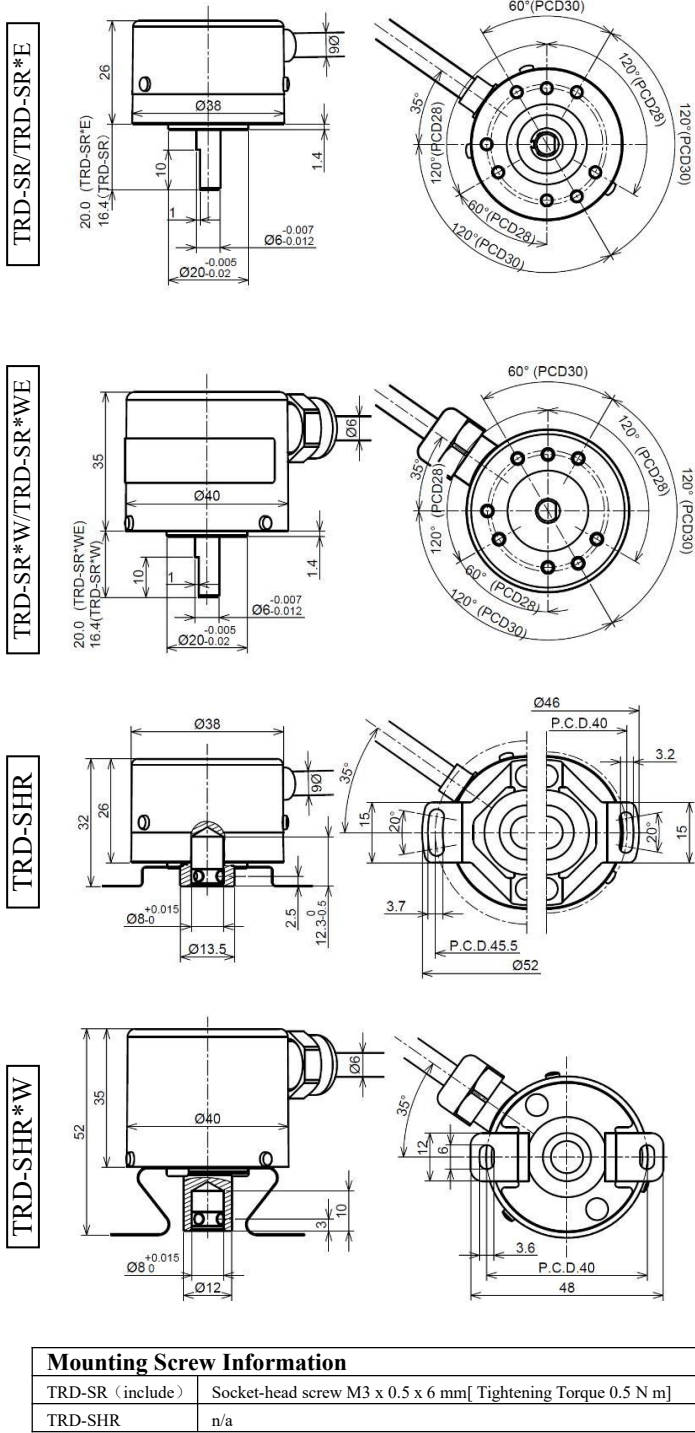


Output Waveform



A:10~60Pulse Number B:100~3600Pulse Number
T = a + b + c + d a, b, c, d = 1 / 4 T ± 1 / 8 T e = 1 ± 1 / 2 T
This Output waveform is Normal revolution (CW). "Normal" means clockwise revolution viewed from the shaft end.

Dimensions



Mounting Screw Information	
TRD-SR (include)	Socket-head screw M3 x 0.5 x 6 mm[Tightening Torque 0.5 N m]
TRD-SHR	n/a

Electrical specifications

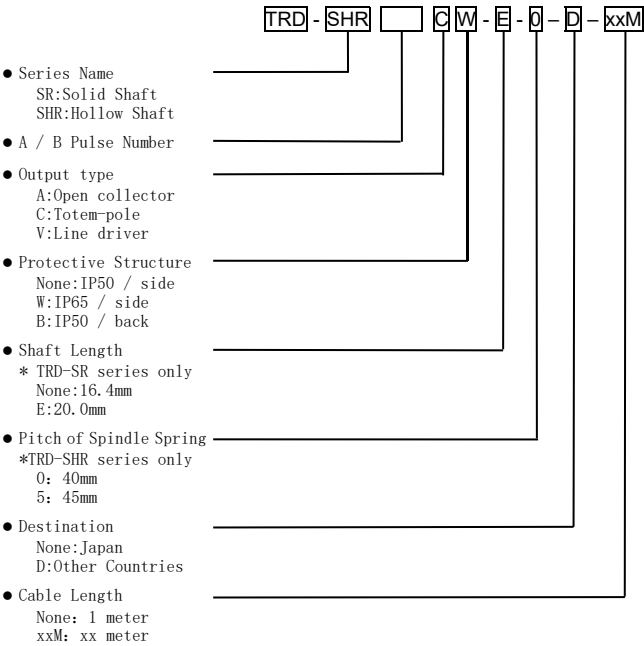
Models		TRD-SR□A TRD-SHR□A	TRD-SR□C TRD-SHR□C	TRD-SR/□V TRD-SHR/□V
Power Supply	Operating voltage *1	4.5 VDC to 26.4 VDC	10.8VDC to 26.4 VDC	4.75 VDC to 5.25 VDC
	Allowable ripple	3% rms max		
	Current consumption *2	Less than 90mA (50mA or less with no load)		
	Signal wave form	Quadrature output + home position		
Output	Max response frequency *3	200kHz	100kHz	200kHz
	Duty ratio(Symmetry)	50% ± 25%		
	Index signal width	100% ± 50%		
	Rising/falling time *4	1μs max	3μs max	1μs max
Output	Output configuration	NPN Open Collector Output	Totem Pole Output	Line Driver Output *5
	Output voltage	"H"	—	[(Power supply voltage) - 2.5V] min
	Output voltage	"L"	0.4V max	0.4V max
	Output current	Outflow	—	Negative 10mA max
Load power supply voltage	Inflow	Positive 30mA max	Positive 30mA max	Positive 20mA max
		30 VDC max	30 VDC max	—

*1 To be supplied by Class II source.
*2 Maximum load
*3 When the operating speed is exceeded, the signal will not follow up electrically. Maximum operating speed = (Maximum response frequency / Resolution) x 60
*4 With 1m cable, Maximum load *5 26C31 or equivalent.

Environmental requirements

Ambient Temperature	−10℃~+80℃ (Operation) −25℃~+85℃ (Store)
Ambient Humidity	35% to 85% RH (non-condensing)
Withstand Voltage	Grounded through capacitor
Insulation Resistance	50MΩ min
Vibration Resistance	Half amplitude 0.75 mm 10~55Hz 1hour along 3axes.
Shock Resistance	490m/s 11ms 3 times 3 axes.
Protective Construction	IP50 / IP65 (Not scope of UL/cUL certification)

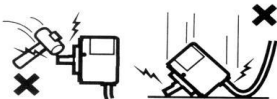
Model Numbering System



Mechanical specifications

Starting Torque	0.001N·m max (+20℃)
Shaft Moment of Inertia	0.6×10 ⁻⁶ kg·m ²
Max Allowable	Radial 30N
Shaft Load	Axia 20N
Max Allowable Speed *6	6000 min ⁻¹
Cable	External diameter φ6 mm with 1m Oil-resistant PVC , AWG 26 5-conductor shielded cable (TRD-SR/SHR□V : 8-conductor cable)
Weight	IP50: Approximately 100g IP65: Approximately 150g (With 1m cable)

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.
- The service life of the bearing is largely affected by the amount of load to the shaft. Try to reduce the load as much as possible.
- 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.
- Avoid using this product in the following places: the place where there is excessive vibration and shock, the encoder may be damaged; the place where there are devices with strong magnetic and strong electrical interference; the place where there is flammable, corrosive gases, splashing water, oil and dusty; the place where the temperature and humidity exceeds the standard; the place where strong alkali and strong acid materials nearby; the place where receives direct sunlight.