# **JTEKT**

# **Incremental Encoder** TRD-2E/2EH

# **Operation Manual**

Thank you for purchasing series TRD-2E and TRD-2EH Incremental Encoder. Please read this Operation Manual carefully before applying this product.

## JTEKT ELECTRONICS (WUXI) CO.,LTD.

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JELWX-M8161D-E

#### **Safety Consideration**

This indicates contents which can cause large accidents Warning 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 !\Caution 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.

#### [Operating environment and conditions]

## ∕ !**∖Warnin**g

- 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

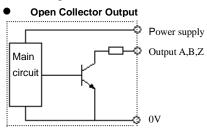
- Use and store the equipment within the scope of the environment(vibrations,impact,temperature,humidity,etc.) specified in the specifications.
- Otherwise fire or product damage may be caused.
- Understand the product first before use it.

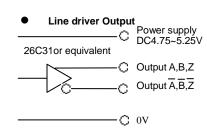
#### [Installation and wiring ]

## 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**





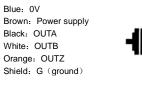
#### Connection

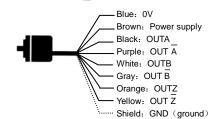
The shield wire (GND) is not connected to the encoder body.

TRD-2EH□A/B

TRD-2E□A/B

TRD-2E□V TRD-2EH□V



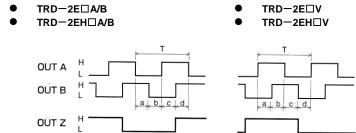


#### **Electrial specifications**

Type No.			TRD-2E□A/B/TRD-2EH□A/B	TRD-2E□V/TRD-2EH□V	
	Operating voltage		A: DC4.75V∼13.2V	DC4.75V~5.25V	
Power			B: DC10.8V~26.4V		
supply	Allowable ripple		3%rms Max.	3%rms Max.	
	Current consumption		50mA Max.	50mA Max.	
	Signal format		Quadrature output	Quadrature output	
	Max. response frequency		200kHz	200kHz	
Output	Operating speed		(Maximum response frequency/Pulse)×60	(Maximum response frequency/Pulse)×60	
waveform	Symmentry		50±25%	50±25%	
	Quadrature phasing		25±12.5%	25±12.5%	
	Index signal width		100±50%	100±50%	
	Rising/falling time		≤1µs (with a cable of 1m)	_	
	Output configuration		NPN open collector	Line driver(26C31 or equivalent)	
	Output logic		Negative logic (active low)	Positive logic(active high)	
	Output current	Inflow	30mA Max. —		
Output		Outflow			
	Output voltage	"H"	_	2.5V Min.	
		"L"	0.4V Max. 0.5V Max.		
	Load power supply voltage		DC30V Max.	_	
	Short-circuit protection		Between output and power supply	_	

#### **Output signal timing chart**

(CW rotation viewed from input-shaft of encoder)



 $a,b,c,d=(25\pm12.5\%)$  T

### **Mechanical specifications**

Startin	Max. 0.01N • m (+20°C)		
Shaft mome	$0.3\times10^{-6}\mathrm{kg}\bullet\mathrm{m}^2$		
Mary allowable about to a	Radial	30N	
Max. allowable shaft load	Thrust	20N	
Max.allow	5000rpm		
	Material	Oil-resistant PVC*1	
Cable	Nominal core cross section	0.14mm <sup>2</sup>	
	External diameter	Φ5mm	
We	Approx.200g (with 1m cable)		

\*1 2E A/B 2EH A/B: 5-core shielded cable (AWG26) 2E□V、2EH□V : 8-core shidlded cable (AWG26)

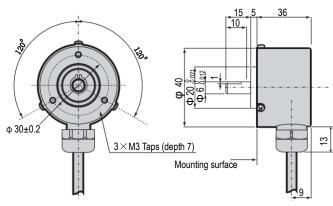
#### **Environmental requirements**

	Operation	-10∼+70°C		
Ambient temperature	Store	<b>−25</b> ~+85°C		
Ambient humic	dity	$35{\sim}85\%$ RH (non-condensing)		
Withstand volta	age	AC500V (50/60Hz) for 1 min.		
Insulation resista	ance	50MΩ min.		
Vibration resista	nce	$10{\sim}55$ Hz with 0.75mm amplitude $^{^{*2}}$		
Shock resistar	ice	11ms with 490m/s <sup>2 *3</sup>		
Protection constru	uction	IP54 (IEC529)		

- \*2: Durable for 1h along 3 axes
- \*3: Applied 3 times 3 axes

### **External dimensions**

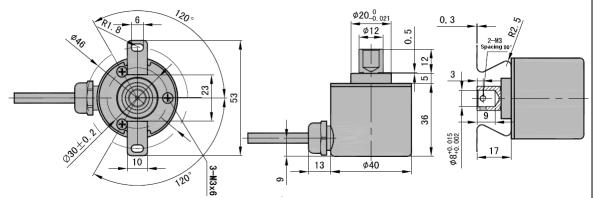
### TRD-2E□A/B/V

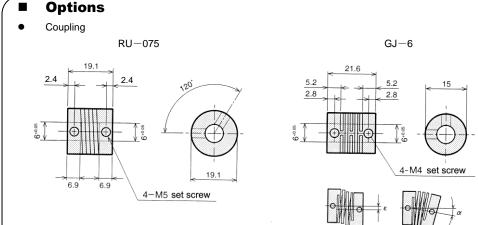


## **Cautions for use**

- 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.

## TRD-2EH□A/B/V





Type No.	Material	α	ε	S
RU-075	Aluminum alloy (7075)	5° MAX	0.25mmMAX	0.12mmMAX
GJ-6	Glass-fiber reinforced polyacetal resin	5° MAX	0.5mmMAX	0.12mmMAX