

■ Checklist Before Inquiry

When specifying Encoders, please take advantage of our standard products for better price and delivery. Please provide the following items before ordering.

Checklist				
Common	C-1	Inquiry purpose		New use, Modification, Others()
	C-2	Modification	Current supplier	
			Current Part No.	
			Purpose	
	C-3	Application	Equipment	
			Environment	Indoor/Outdoor use, Stationary/Portable set, High humidity, SO ₂ , NaCl
			Temperature	(°C) to (°C)
			Operation	General use, Edge drive, Low torque, High torque
	C-4	Adjustment	Method	Manual, Automatic
	C-5	Mounting	Method	Manual, Automatic
Mounter			Panasert(Model:), Other mounter(Maker/Model:),Parts feeder Magazine	
C-6	Soldering	Method	Manual soldering, Flow soldering, Reflow soldering	
		Conditions	Temp. (°C), Time (s), Dipping times()	
		Washing	Machine, Soaking, Applied solvent()	
Electrical	E-1	Application	Circuit	Volume, Tone, Balance, Circuit regulation, Others()
	E-2	Conditions	Rating	Max. operating power(W), Operating voltage(V)
			Applied current	Small current use, Applying current(mA)
	E-3	Encoders	Output Signal	2 phase system(Phase A or B), Others()
			Resolution	8, 9, 12, 15, 16, 20, 24, Pulse, Others/360 °
E-4	Other requirements			
Shapes/Dimensions	M-1	Shape	Type	Rotary, Others()
			Size	10.0 mm, 11.0 mm, 12.0 mm, 16.0 mm, 18 mm, Others()
			Shape*	Side Adjustment, Top Adjustment
	M-2	Shaft	Shape	Metal Shaft(F type, S type, P type), Insulated Shaft(F type, S type)
	M-3	Mounting	Type	Bushing, Soldering
			(Type with bushing)	Screw dia.: M7, M9, Screw pitch: 0.75 mm, Bushing length: 5.0 mm, 7.0 mm, 10.0 mm
	M-4	Terminals	Type	Solder lug, PWB
			(PWB terminals)	Length from mounting surface(mm), Layout pattern()
	M-5	Additional function		
	M-6	Switch	Type	Push-On, Others()
Poles & Throws			1 pole 1 throw	
Rating			Voltage:(V), Current:(A), Inrush current:(A)	
Terminal Type			PWB terminal, Others()	
M-7	Detents	16 points, 18 points, 20 points, 24 points, 30 points, 32 points, Others(point)		
Others	L-1	Special requirements for endurance		
	L-2	Other questionnaires		

Notes:

- When you specify custom types (custom-made), new tooling and jigs, and/or equipment may be required. It will be necessary to confirm your estimates of quantity and development schedule as accurately as possible.
- Please inform us if you designate your own part number.

* Previous notations for potentiometer shape "Stand-up type" (Shaft is parallel to PWB.) and "Lay-down type" (Shaft is vertical to PWB.) – have been changed in this edition to "Horizontal type" or "Side-adjust type" (Shaft or knob is parallel to PWB.) and "Vertical type" or "Top-adjust type" (Shaft or knob is vertical to PWB.).

■ Application Notes

When using our Encoders, please observe the following cautionary items to prevent dangerous accidents and deterioration of performance.

1. Prohibited items and notes in design stage

1. Soldering conditions

When performing solder dipping, check the soldering conditions according to the Individual "Product Specifications," because the conditions vary from product to product.

Do not wash an encoder after solder dipping because flux may invade the encoder, resulting in contact failure. Avoid use of jumper cables near the encoders because flux may get to them.

2. Shaft rotation wobble

If the shaft is long, the rotation wobble increases in proportion to its length. To secure the quality of a set, we recommend use of the types with a bushing.

3. Operating temperature conditions

Tactile feeling in operation is given serious consideration, and rotation torque increases under low temperatures (below -10°C) depending on the product. If an encoder is expected to be used under low temperatures, specify this in advance.

2. Prohibited items and notes on handling

1. Chemical resistance

Polycarbonate is used for the shaft in the encoders with a insulated shaft. Check the reactivity of the polycarbonate material with any chemicals to be used.

2. Storage conditions

Do not store the encoders under high temperatures and/or high humidity, or in a location where corrosive gas may be generated. Store the encoders at room temperature and room humidity in a packed condition. Use them within a maximum of 6 months. Check the date of manufacture on the package box and apply the "first-in-first-out" rule. If unpacked encoders must be stored as inventory, store them in a polyethylene bag to keep out air.

3. Prohibited items on fire and smoking

1. Absolutely avoid use of an encoder beyond its rated range because it may cause a fire.

If misuse or abnormal use may result in conditions in which the encoder is used out of its rated range, take proper measures such as current interruption using a protective circuit.

2. The grade of nonflammability for resin used in encoders is "94HB," which is based on UL94 Standards (flammability test for plastic materials). Prohibit use in a location where a spreading fire may be generated or prepare against a spreading fire.

4. For use in equipment for which safety is requested

Although care is taken to ensure encoder quality, inferior characteristics, short circuits, and open circuits are some problems that might be generated. To design a set which places maximum emphasis on safety, review the affect of any single fault of an encoder in advance and perform virtually fail-safe design to ensure maximum safety by:

1. preparing a protective circuit or a protective device to improve system safety, and
2. preparing a redundant circuit to improve system safety so that the single fault of an encoder does not cause a dangerous situation.

5. For actual use, be sure to refer to "Product Specifications for information."