

## **Rotary Encoder Sensor Training System**

### **EZ-SENSR003**



#### **Description:**

This trainer is integrated Motion Controller, Rotary encoder, Sensor, Ball Screw actuator, Power supply, Stepper Driver and Stepper Motor. The student shall be able to interpret, design electrical system interface circuit diagram (signal converter), troubleshooting fault on electrical system from rotary encoder sensor to DAQ module and program single-axis Motion controller, stepper driver and stepper motor, reading encoder feedback.



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### **This trainer complete with:**

Grid panel size 700 mm (W) X 520 mm (H) X 30 mm (D)

Panel with square hole size 5 mm X 5 mm

Material: Aluminum

Detachable for components with brackets

Mechanical ball screw actuator 400 mm with rotary encoder

Stepper motor & Stepper Driver

Rotary encoder, E30S410243N24

Mechanical Ball screw actuator system

Electrical wiring

USB Data acquisition

- Control Easy start channel, channel count, time interval
- 12-bit multifunction module with 150kS/s maximum sampling rate
- Provides 16 single-ended/8 differential AI channels  
along with 2 AO channels.
- 8 TTL DI/O channels for on-off control applications

\*\*The Sensor Trainer Station system able to interface with DAQ data acquisition module  
Which allow the information of the sensor parameter to display as GUI.

### Note:

Control Easy reserves the right to improve the above specification and design without prior notice. The training kit picture shown only for illustration purpose and subject to any change.

## Electrical wiring

### • Input signals

Pin No.	Signal name		Description	Reference
	Controller mode	Driver mode		
7	START	-	Positioning start	p.27
8	ACL/CK*1		ACL: Alarm clear CK: Used to read the current position.	ACL: p.71 CK: p.36
9	FREE		Stops the excitation of the motorized actuator and releases the electromagnetic brake.	p.35
10	STOP	C.OFF	STOP: Operating stop C.OFF: Motor current off	STOP: p.35 C.OFF: p.35
11	M0	HMSTOP	M0 to M5: Selects positioning operating data HMSTOP: Stops return-to-home operation	M0 to M5: p.27 HMSTOP: p.35
12	M1	-		
13	M2	-		
14	M3	-		
15	M4	-		
16	M5	-		
17	HOME/PRESET*2		HOME: Starts return-to-home operation. PRESET: Presets the current position.	HOME: p.25 PRESET: p.27
18	IN-COM1*3*4		Power supply input for input signals	-
19	I/O-GND		Power supply GND for I/O	-
30	REQ		ABS data request	p.36
31	FWD+	FP+	FWD+, FWD-, P24-FWD: Continuous operation in the + coordinate direction FP+, FP-, P24-FP: Pulse input operation in the + coordinate direction	FWD: p.31 FP: p.32
32	FWD-	FP-		
33	P24-FWD	P24-FP		
34	RVS+	RP+	RVS+, RVS-, P24-RVS: Continuous operation in the - coordinate direction RP+, RP-, P24-RP: Pulse input operation in the - coordinate direction	RVS: p.31 RP: p.32
35	RVS-	RP-		
36	P24-RVS	P24-RP		

\*1 If the REQ input is ON, this signal switches to the CK input. If the REQ input is OFF, it switches to the ACL input.

\*2 Switch between the HOME and PRESET using the I/O parameter "HOME/PRESET switching" (factory setting: HOME).

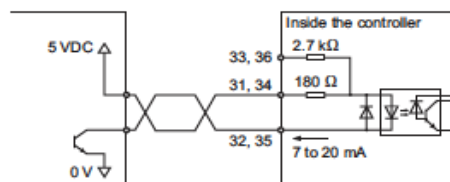
\*3 Connect this signal to 24 VDC if your controller is used in the NPN mode, or connect it to ground if the controller is used in the PNP mode.

\*4 Connect this signal even when only output signals are used.

### • Wiring of pins 31 to 36

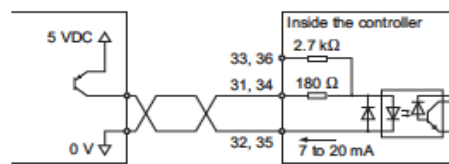
#### • NPN specification (If used at 5 VDC\*)

Sink output circuit connection



#### • PNP specification (If used at 5 VDC\*)

Source output circuit connection



\* If 24 VDC is used, use pin No.33 and 36. Refer to the connection examples shown on pp.17 to 20.

#### • Line driver connection

