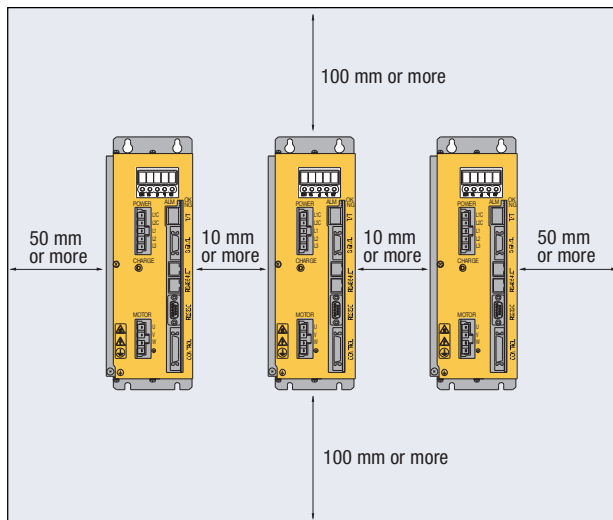


### Installation of Control Unit

- 1) Always connect the protective ground terminal of the control unit and the protective ground terminal of the control panel to prevent electric shock. Use one-point class 3 grounding (100 Ω or lower).
- 2) Do not use the same power supply for control I/O control and electromagnetic contactors etc. This can cause erroneous operation and system errors because of noise.
- 3) Leave a free space of 100 mm or more above the top and below the bottom of the control unit and do not inhibit air circulation.
- 4) Install a heat exchanger or a panel cooler for uniform temperature in the control panel.
- 5) Under consideration of heat dissipation and maintainability it is recommended to install with a space of at least 10 mm between units.

### Installation of the Control Unit



### Cable Management

- 1) Wiring in a flexible tube or wiring on a cable conveyor is recommended for the Nutrunner moving parts. To prevent wire breaks, pay attention to the following points for routing of cable bundles.

a) Especially in case of multiple axes, instead of bundling and bending, separate bundling and flat bundling should be used to avoid stress from cable weight and repeated flexing.

b) As the cable weight acts even at non-moving places, take care that machine corners are not in direct contact with the cables. be used to avoid stress from cable weight and repeated flexing.

c) Take care that there is no flexing or excessive force at places where cable bundles are clamped. The cable bending radius should be 100 mm or more.

- 2) The wiring method for transducer, encoder, and motor cables should be so that no forces act onto the connector part.
- 3) When Nutrunner cables are laid within the same flexible conduit (in case of multiple units etc.), the distance should be kept as short as possible and laying in the same flexible conduit with power cables should be avoided.
- 4) Basically it is recommended to wire transducer and encoder cables separate from motor cables. (Distance between cables: 30 cm or more)

# Master/Axis Control Unit and Field Bus Interface Unit

## System outline

### Axis Control Unit Specifications

Model	ENRZ-AU40-10	ENRZ-AU40-20	ENRZ-AU40-40
Applicable motor	100W	200W	400W
Control power supply voltage	Single phase AC 200 to 230 V $\pm$ 10%, 50/60 Hz		
Main power supply voltage	Single phase AC 200 to 230 V $\pm$ 10%, 50/60 Hz	Three phases AC 200 to 230 V $\pm$ 10%, 50/60 Hz	
Main power supply capacity	0.4KVA	1.2KVA	1.7KVA
Use environment	No corrosive gases, dust, metal powder, oil mist, or explosive gases.		
Ambient temperature	0 to 55°C (no condensation)		
Ambient humidity	35% to 90% RH (no condensation)		
Noise tolerance	Power supply line: No abnormalities with 1500 Vp-p, 1 $\mu$ S rectangular wave (noise simulator)		
Mass	2.5kg	3.2kg	3.4kg
Display part	5 character x 1 line, 7 segment LED display part, function keys (5 keys), display lamps (OK/ALM/NG)		
Max. programs/steps	31ch		
NET max. connected stations	31 stations (including the own station)		
Control input	12 points, DC 24 V (intake current: 6 mA/point), photo-coupler isolation		
Control output	22 points, photo-coupler open collector output (max. 50 mA/point at the time of DC 24 V output)		
Communication functions	RS-232C x 1 port (9600 bps to 115.2 kbps, variable)		
Memory backup function	System parameters, fastening parameters, system error history, fastening history (flash ROM), calendar function (battery backup)		
Self-diagnosis function	Memory, torque transducer, encoder, amplifier, tool, ID collation, various communication set values, zero point voltage		

### Master Control Unit Specifications

Model	ENRZ-MU40A	ENRZ-MU40D	ENRZ-MU40F
Applicable manufacturer	MELSEC Series made by Mitsubishi Electric	SYSMAC CS1 Series made by Omron	JW30 Series made by Sharp
Power supply	DC24V $\pm$ 10%		
Power supply capacity	10 W/shaft		
Use environment	No corrosive gases, dust, metal powder, oil mist, or explosive gases.		
Ambient temperature	0~45°C		
Ambient humidity	90% RH or lower (no condensation)		
Noise tolerance	Power supply line: No abnormalities with 1500 Vp-p, 1 $\mu$ S rectangular wave (noise simulator)		
Mass	1.4kg		
Display part	6 characters x 2 lines, 2 characters x 1 line, 7 segment LED		
Max. programs/steps	31 programs/20 steps each		
NETNET max. connected stations	31 stations (including the own station)		
Control input	21 points photo-coupler isolation (DC 24 V intake current: 10 mA/point)		
Control output	38 points, photo-coupler open collector output (max. 50 mA/point at the time of DC 24 V output)		
Communication functions	RS-232C connector (for PLC) x 1, RS-232C connector (for PC) x 1, printer connector (conforming to Centronics) x 1		
Memory backup function	Sequence program (flash ROM) System parameters, system error history (EEP-ROM backup)		
Self-diagnosis function	Memory, local station trouble, local station response, PLC communication, program yes/no		

### Field Bus Interface Unit

Model	ENRZ-BU40-D	ENRZ-BU40-P
Built-in port	AnyBus-S, DeviceNet (made by HMS)	AnyBus-S, Profibus-DP (made by HMS)
Power supply	DC24V $\pm$ 10%	
Power supply capacity	6 W/shaft	
Use environment	No corrosive gases, dust, metal powder, oil mist, or explosive gases.	
Ambient temperature	0~45°C	
Ambient humidity	90% RH or lower (no condensation)	
External I/O support	RS-232C connector x 1	
	DeviceNet connector (for PLC) x 1	Profibus-DP connector (for PLC) x 1
Mass	1.2kg	

# External Dimension and Description

## Axis Control Unit

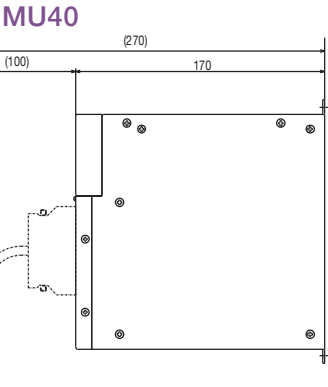
- ① Display and operation panel
- ② T/T connection connector
- ③ Encoder connection connector
- ④ Network connection connector
- ⑤ RS-232C connector
- ⑥ Control connector
- ⑦ Motor connection connector
- ⑧ Power supply connector

**AU40 (100W)**

**AU40 (200W, 400W)**

## Master Control Unit

- ① Display and operation panel
- ② RS-232C connector
- ③ Printer connection connector
- ④ Network connection connector
- ⑤ Display unit connection connector
- ⑥ Control connector
- ⑦ Power supply connector



## Field Bus Interface Unit

- ① Status display LED
- ② MU connection connector
- ③ Expansion serial connector
- ④ Power supply connector
- ⑤ DeviceNet status display LED
- ⑥ DeviceNet setting switches
- ⑦ DeviceNet connection connector

This unit has a built-in DeviceNet port. Please inquire separately for units with built-in Profibus.

