

Wiring for Electric Gripper

This document describes signal wiring for connecting an electric gripper to the communication interface flange-A on the VS-*** series of robots.

1. Notes in Wiring

The wiring of an electric gripper consists of motor wires to drive the pulse motor and encoder wires.

As listed below, separately arrange pins for motor wires and those for encoder wires and use the electric gripper within the allowable current.

Internal wiring of this robot assumes that the electric gripper uses a two-phase pulse motor (bipolar) and an incremental encoder.

| Wiring for electric gripper | Pin assignment on CN24 | Wiring on the flange (twisted) | | Allowable current (Allowable voltage) |
|------------------------------|------------------------|--------------------------------|--------|---|
| Motor wires | A | Green/white | Green | Each pin: 1.0 A or below (50 VAC or below) Total of A to M: 6.0 A or below |
| | B | Yellow/white | Yellow | |
| | C | | White | |
| | D | Black/white | Black | |
| | E | | White | |
| | F | Purple/white | Purple | |
| | G | | White | |
| | H | Blue/white | Blue | |
| | J | | White | |
| | K | Red/white | Red | |
| L | White | | | |
| Encoder shield wire | M | Brown/white | Brown | |
| Encoder power & signal wires | N | | White | Each pin: 0.5 A or below (50 VAC or below) Total of N to T: 1.5 A or below |
| | P | Pink/white | Pink | |
| | R | | White | |
| | S | Gray/white | Gray | |
| | T | | White | |

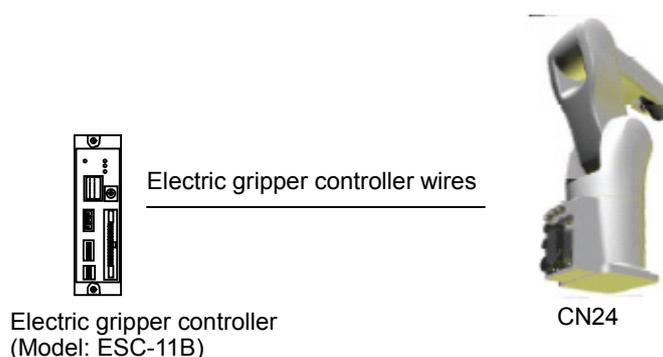
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2. Wiring Examples

This section gives wiring examples for connecting the TAIYO ESG series and KOGANEI Elewave series to the communication interface flange-A.

2.1 Connection to TAIYO ESG Series

2.1.1 Wiring between electric gripper controller and robot unit (CN24)



| Wiring for electric gripper | | Electric gripper controller *1 | CN24 *2 |
|-----------------------------|--------|--------------------------------|---------|
| | | Pin # | Pin # |
| | | | A |
| Motor wires | A | (B5) | B |
| | AN | (B6) | C |
| | B | (A6) | D |
| | BN | (A5) | E |
| | | | F |
| | | | G |
| | | | H |
| | | | J |
| | | | K |
| | | | L |
| Encoder wires | Shield | (B3) | M *3 |
| | 5V | (B2) | N |
| | GND | (A3) | P |
| | EZ | (A2) | R |
| | EB | (B1) | S |
| | EA | (A1) | T |

*1 For pin numbers of the electric gripper controller, refer to the Electric Gripper User's Manual.

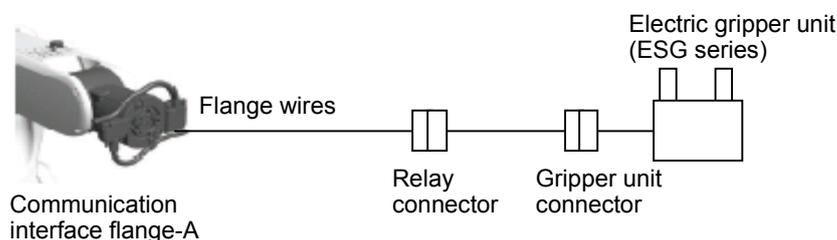
*2 For CN24, use an attached connector set (plug and clamp).

*3 Connect the encoder shield wire to this pin. (Connection to the electric gripper unit is required.)

- The wiring length between the electric gripper controller and the robot unit should be 4.5 m or less.
- The electric gripper controller wires and the robot's motor & encoder cable should be installed as far apart as possible.
- The shield wire of the electric gripper controller should not be connected to the FG of the robot unit.

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2.1.2 Wiring between communication interface flange-A and electric gripper unit



| Electric gripper wires | | Pin assignment on CN24 | Wiring on the flange (twisted) | | Relay connector *1 | Gripper unit connector *2 |
|------------------------|--------|------------------------|--------------------------------|--------|--------------------|---------------------------|
| | | A | Green/white | Green | | |
| Motor wires | A | B | Yellow/white | Yellow | 2 | (B5) |
| | AN | C | | White | 3 | (B6) |
| | B | D | Black/white | Black | 4 | (A6) |
| | BN | E | | White | 5 | (A5) |
| | | F | Purple/white | Purple | | |
| | | G | | White | | |
| | | H | Blue/white | Blue | | |
| | | J | | White | | |
| | | K | Red/white | Red | | |
| | | L | | White | | |
| Encoder wires | Shield | M | Brown/white | Brown | 12 *3 | (B3) |
| | 5V | N | | White | 13 | (B2) |
| | GND | P | Pink/white | Pink | 14 | (A3) |
| | EZ | R | | White | 15 | (A2) |
| | EB | S | Gray/white | Gray | 16 | (B1) |
| | EA | T | | White | 17 | (A1) |

*1 Arrange motor signals and encoder signals on the relay connector as far apart as possible.
Flange cable specifications: Wire diameter AWG#28, External dia. of sheath ϕ 0.6

The following relay connectors are recommended.

Flange cable end

Socket: DF11-18DS-2C (HIROSE)

Terminal: DF11-2428SCA (HIROSE)

Electric gripper wire end

Plug: DF11-18DEP-2C (HIROSE)

Terminal: DF11-EP2428PCA (HIROSE)

*2 For pin numbers of the electric gripper unit connector, refer to the Electric Gripper User's Manual.

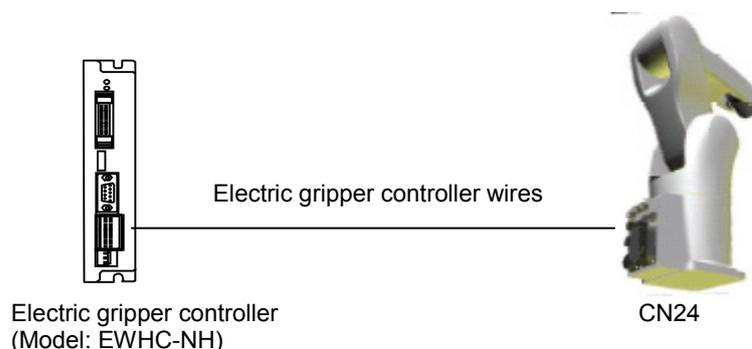
*3 Connect the encoder shield wire to this pin. (Connection to the electric gripper unit is required.)

- The cable length between the communication interface flange and the electric gripper unit should be 0.6 m or less.

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2.2 Connection to KOGANEI Elewave Series

2.2.1 Wiring between electric gripper controller and robot unit (CN24)



| Wiring for electric gripper | | Electric gripper controller *1 | CN24 *2 |
|-----------------------------|-----------|--------------------------------|---------|
| | | Pin # | Pin # |
| Motor wires | FG | (A3) | A |
| | A+ | (A1) | B |
| | A- | (A2) | C |
| | B+ | (B1) | D |
| | B- | (B2) | E |
| | | | F |
| | | | G |
| | | | H |
| | | | J |
| | | | K |
| | | | L |
| Encoder wires | GND_5V | (B6) | M *3 |
| | DV+ (5V) | (A7) | N |
| | DV- (GND) | (B7) | P |
| | EC- | (B10) | R |
| | EB- | (B9) | S |
| | EA- | (B8) | T |

*1 For pin numbers of the electric gripper controller, refer to the Electric Gripper User's Manual.

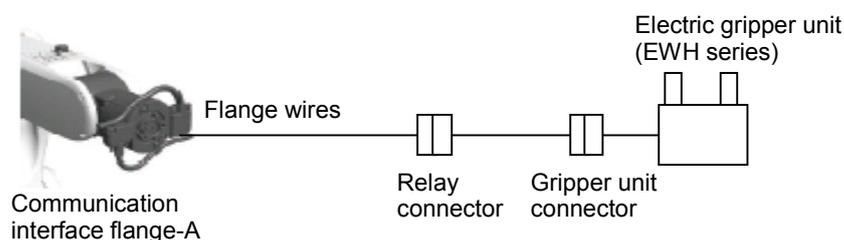
*2 For CN24, use an attached connector set (plug and clamp).

*3 Connect the encoder shield wire to this pin. (Connection to the electric gripper unit is required.)

- The wiring length between the electric gripper controller and the robot unit should be 4.5 m or less.
- The electric gripper controller wires and the robot's motor & encoder cable should be installed as far apart as possible.
- The shield wire of the electric gripper controller should not be connected to the FG of the robot unit.

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2.2.2 Wiring between communication interface flange-A and electric gripper unit



| Wiring for electric gripper | | Pin assignment on CN24 | Wiring on the flange (twisted) | | Relay connector *1 | Gripper unit connector *2 |
|-----------------------------|-----------|------------------------|--------------------------------|--------|--------------------|---------------------------|
| Motor wires | FG | A | Green/white | Green | 1 | (A1) |
| | A+ | B | Yellow/white | Yellow | 2 | (A2) |
| | A- | C | | White | 3 | (A3) |
| | B+ | D | Black/white | Black | 4 | (A4) |
| | B- | E | | White | 5 | (A5) |
| | | F | Purple/white | Purple | | |
| | | G | | White | | |
| | | H | Blue/white | Blue | | |
| | | J | | White | | |
| | | K | Red/white | Red | | |
| | | L | | White | | |
| Encoder wires | GND_5V | M | Brown/white | Brown | 12 *3 | (B1) |
| | DV+ (5V) | N | | White | 13 | (B3) |
| | DV- (GND) | P | Pink/white | Pink | 14 | (B2) |
| | EC | R | | White | 15 | (B6) |
| | EB | S | Gray/white | Gray | 16 | (B5) |
| | EA | T | | White | 17 | (B4) |

*1 Arrange motor signals and encoder signals on the relay connector as far apart as possible.
Flange cable specifications: Wire diameter AWG#28, External dia. of sheath ϕ 0.6

The following relay connectors are recommended.

Flange cable end

Socket: DF11-18DS-2C (HIROSE)

Terminal: DF11-2428SCA (HIROSE)

Electric gripper wire end

Plug: DF11-18DEP-2C (HIROSE)

Terminal: DF11-EP2428PCA (HIROSE)

*2 For pin numbers of the electric gripper unit connector, refer to the Electric Gripper User's Manual.

*3 Connect the encoder shield wire to this pin. (Connection to the electric gripper unit is required.)

- The cable length between the communication interface flange and the electric gripper unit should be 0.6 m or less.