

# ECG-A

## Controller



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EJSG

EJSG-G

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Model selection  
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ECG-A

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# Controller

## ECG-A Series

Controller for EJSG/EBR-G



### How to order

**ECG-ANNN30 - NP A 02**

#### A Interface specification

|           |                                      |
|-----------|--------------------------------------|
| <b>NP</b> | Parallel I/O<br>(NPN and PNP common) |
| <b>LK</b> | IO-Link                              |
| <b>CL</b> | CC-Link                              |
| <b>EC</b> | EtherCAT                             |
| <b>EN</b> | EtherNet/IP                          |

#### B Mounting method

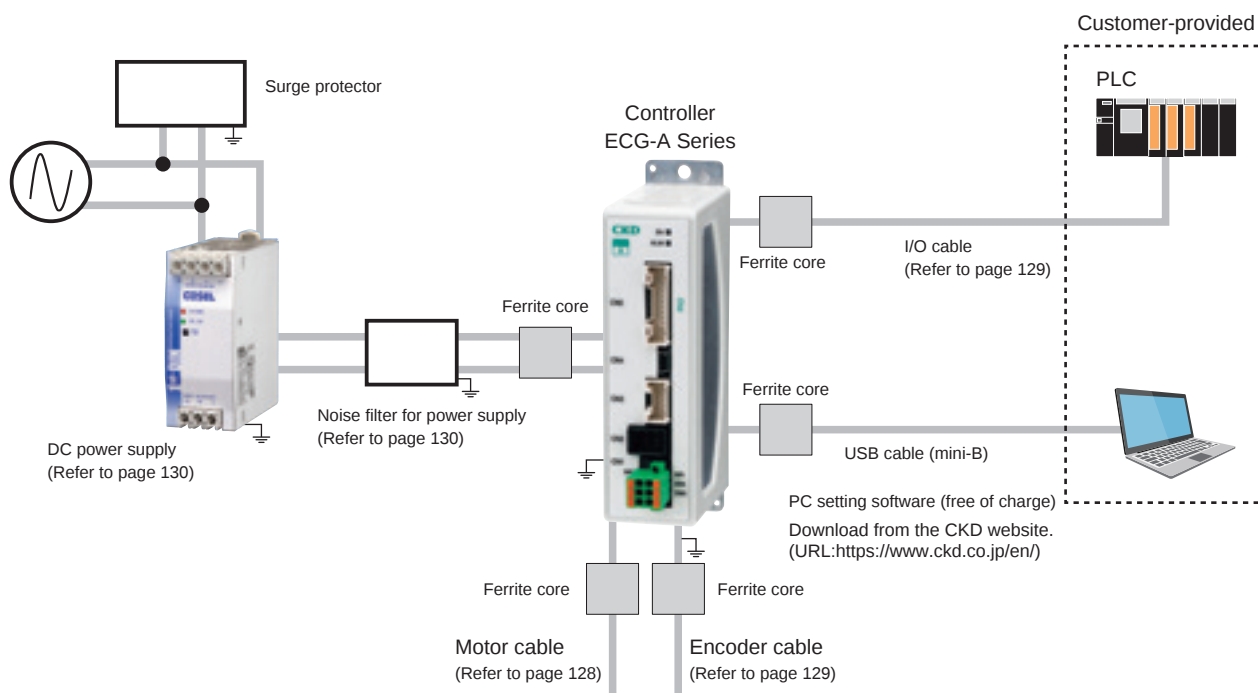
|          |                |
|----------|----------------|
| <b>A</b> | Standard mount |
| <b>D</b> | DIN rail mount |

#### C I/O cable length \*1

|           |      |
|-----------|------|
| <b>00</b> | None |
| <b>02</b> | 2m   |
| <b>03</b> | 3m   |
| <b>05</b> | 5m   |
| <b>10</b> | 10m  |

\*1 Select "None" unless the interface specification "parallel I/O" is selected.

### System configuration



#### Connectable actuators



EJSG Series  
(Page 1)



EBR-G Series  
(Catalog No. CC-1422A)

\* Refer to the Instruction Manual for details about installing and wiring the noise filter, surge protector, and ferrite core.

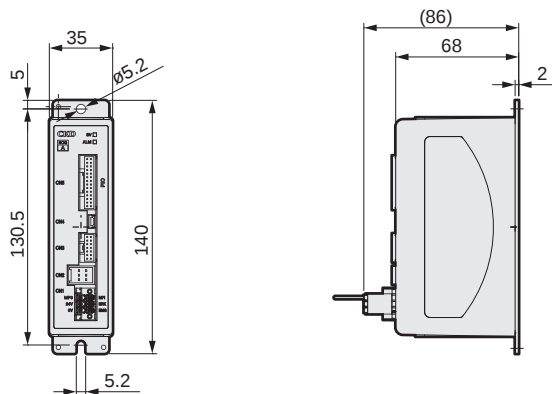
## General specifications

| Item                                     |                             | Description                                                                                        |              |              |
|------------------------------------------|-----------------------------|----------------------------------------------------------------------------------------------------|--------------|--------------|
| Applicable actuators                     |                             | EJSG/EBR-G                                                                                         |              |              |
| Applicable motor sizes                   |                             | □35                                                                                                | □42          | □56          |
| Settings tool                            |                             | PC setting software (S-Tools)<br>Connection cable: USB cable (mini-B)                              |              |              |
| External interface                       | Parallel I/O specification  | DC24V±10%, input/output max. 13 points, cable length max. 10 m                                     |              |              |
|                                          | Field network specification | IO-Link, CC-Link, EtherCAT, EtherNet/IP                                                            |              |              |
| Indicator                                |                             | SV lamp, alarm lamp<br>Communication status check lamp (according to each interface specification) |              |              |
| Power supply voltage                     | Control power               | 24 VDC ±10%                                                                                        |              |              |
|                                          | Power supply                | 24 VDC ±10%                                                                                        |              |              |
| Current consumption                      | Control power               | 0.4A or less                                                                                       |              |              |
|                                          | Power supply                | 1.7A or less                                                                                       | 1.9A or less | 2.8A or less |
| Motor section max. instantaneous current |                             | 2.4A or less                                                                                       | 2.7A or less | 4.0A or less |
| Brake current consumption                |                             | 0.4A or less                                                                                       |              |              |
| Insulation resistance                    |                             | 10 MΩ and over at 500 VDC                                                                          |              |              |
| Withstand voltage                        |                             | 500 VAC for 1 minute                                                                               |              |              |
| Operating ambient temperature            |                             | 0 to 40°C (no freezing)                                                                            |              |              |
| Operating ambient humidity               |                             | 35 to 80% RH (no condensation)                                                                     |              |              |
| Storage ambient temperature              |                             | -10 to 50°C (no freezing)                                                                          |              |              |
| Storage ambient humidity                 |                             | 35 to 80% RH (no condensation)                                                                     |              |              |
| Working atmosphere                       |                             | No corrosive gas, explosive gas, or dust                                                           |              |              |
| Degree of protection                     |                             | IP20                                                                                               |              |              |
| Weight                                   | Parallel I/O specification  | Approx. 180g (standard mount), approx. 210g (DIN rail mount)                                       |              |              |
|                                          | Field network specification | Approx. 310g (standard mount), approx. 340g (DIN rail mount)                                       |              |              |

## Dimensions

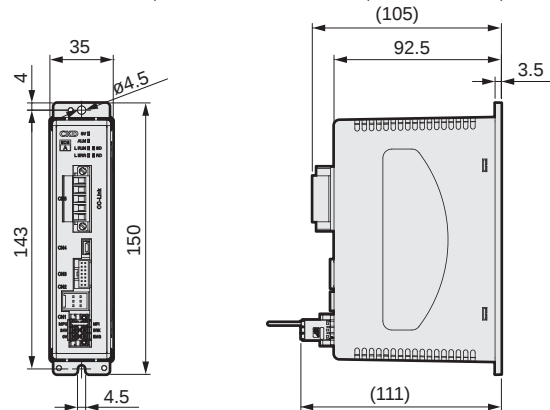
### ● Standard mount

ECG-ANNN30-NPA□□(Parallel I/O specification)



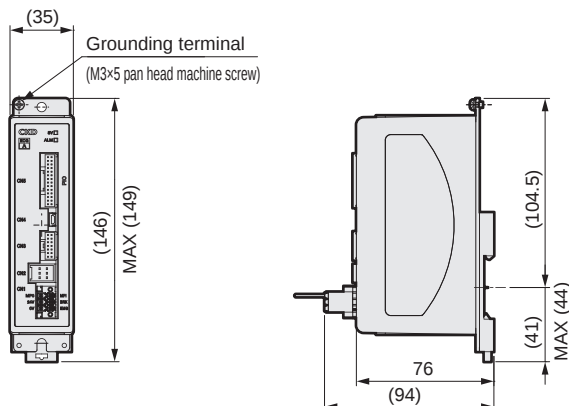
ECG-ANNN30-□□A□□(Others)

\*This figure shows the dimensions for CC-Link specifications. The dimensions of other interface specifications are the same, except for the connector part.



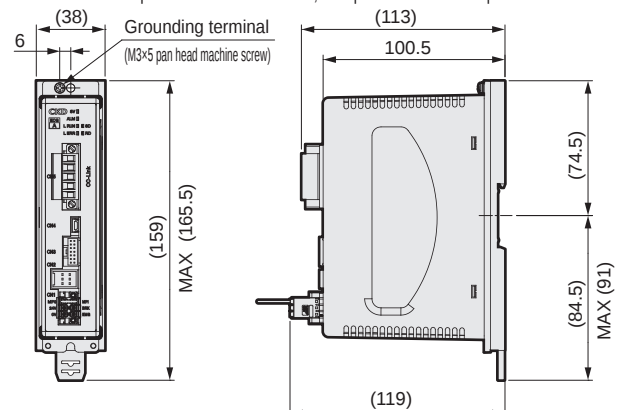
### ● DIN rail mount

ECG-ANNN30-NPD□□(Parallel I/O specification)



ECG-ANNN30-□□D□□(Others)

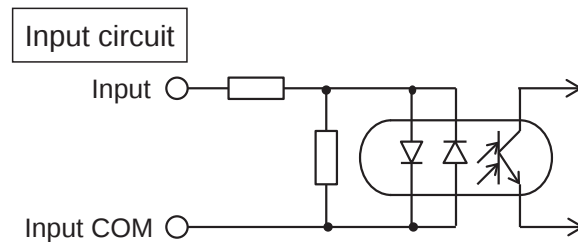
\*This figure shows the dimensions for CC-Link specifications. The dimensions of other interface specifications are the same, except for the connector part.



## Parallel I/O (PIO) input/output circuit

### Input specification

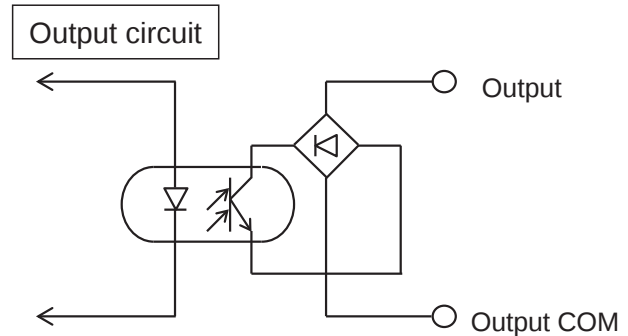
| Item                   | ECG-ANNN30-NP□□ |
|------------------------|-----------------|
| No. of inputs          | 13 points       |
| Input voltage          | 24 VDC ±10%     |
| Input current          | 4 mA/point      |
| Input voltage when ON  | 19 V or higher  |
| Input current when OFF | 0.2 mA or less  |



The input is not polarized.  
(The input COM can be used with either + or -)

### Output specifications

| Item                                    | ECG-ANNN30-NP□□     |
|-----------------------------------------|---------------------|
| No. of output points                    | 13 points           |
| Load voltage                            | 24 VDC ±10%         |
| Load current                            | 20 mA or less/point |
| Internal voltage drop when ON           | 3 V or less         |
| Leakage current when OFF                | 0.1 mA or less      |
| Output short-circuit protection circuit | Yes                 |
| Connecting load                         | PLC, etc.           |



The output is not polarized.  
(The output COM can be used with either + or -)

## Parallel I/O (PIO) operation mode

The controller offers five operation modes.

Use the PC setting software to set the appropriate operation mode. The initial setting is 64-point mode.

| Operation mode                        | Positioning numbers | Overview                                                                                                                                                                                                               |
|---------------------------------------|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 64-point mode                         | 64 points           | <ul style="list-style-type: none"> <li>JOG travel start input</li> <li>Selectable output: 2 points (Point zone, zone 1, zone 2, travel, warning, soft limit over, soft limit over (-), soft limit over (+))</li> </ul> |
| Simple 7-point mode                   | 7 points            | <ul style="list-style-type: none"> <li>JOG travel start input</li> <li>Selectable output: 2 points (Point zone, zone 1, zone 2, travel, warning, soft limit over, soft limit over (-), soft limit over (+))</li> </ul> |
| Solenoid valve mode double 2-position | 2 points            | <ul style="list-style-type: none"> <li>SW output: 2 points</li> <li>Selectable output: 2 points (Point zone, zone 1, zone 2, travel, warning, soft limit over, soft limit over (-), soft limit over (+))</li> </ul>    |
| Solenoid valve mode double 3-position | 2 points            | <ul style="list-style-type: none"> <li>SW output: 2 points</li> <li>Selectable output: 2 points (Point zone, zone 1, zone 2, travel, warning, soft limit over, soft limit over (-), soft limit over (+))</li> </ul>    |
| Solenoid valve mode single            | 2 points            | <ul style="list-style-type: none"> <li>SW output: 2 points</li> <li>Selectable output: 2 points (Point zone, zone 1, zone 2, travel, warning, soft limit over, soft limit over (-), soft limit over (+))</li> </ul>    |

## Parallel I/O (PIO) signal name list

### Input signal

| Abbreviation | Name                        | Abbreviation | Name                                |
|--------------|-----------------------------|--------------|-------------------------------------|
| PST          | Point travel start          | JOGM         | JOG (-) travel start                |
| PSB*         | Point number selection bit* | JOGP         | JOG (+) travel start                |
| OST          | Origin return start         | P*ST         | Point number * travel start         |
| SVON         | Servo ON                    | V1ST         | Solenoid valve travel instruction 1 |
| ALMRST       | Alarm reset                 | V2ST         | Solenoid valve travel instruction 2 |
| STOP         | Stop                        | VST          | Solenoid valve travel instruction   |

### Output signal

| Abbreviation | Name                            | Abbreviation | Name                           |
|--------------|---------------------------------|--------------|--------------------------------|
| PEND         | Point travel complete           | SONS         | Servo ON state                 |
| PCB*         | Point number confirmation bit * | ALM          | Alarm                          |
| ACB*         | Alarm confirmation bit *        | WARN         | Warning                        |
| PZONE        | Point zone                      | READY        | Operation preparation complete |
| MOVE         | Moving                          | P*END        | Point number * travel complete |
| ZONE1        | Zone 1                          | SW1          | Switch 1                       |
| ZONE2        | Zone 2                          | SW2          | Switch 2                       |
| OEND         | Origin return complete          | SLMT         | Soft limit exceeded            |
| SLMTM        | Soft limit over (-)             | SLMTP        | Soft limit over (+)            |

### Parallel I/O (PIO) operation mode and signal assignment

The following figure shows signal assignments in each operation mode.

| Operation mode      |       | 64-point mode                                                      | Simple 7-point mode                                                | Solenoid mode<br>Double 2-position                                 | Solenoid mode<br>Double 3-position                                 | Solenoid mode<br>Single type                                       |
|---------------------|-------|--------------------------------------------------------------------|--------------------------------------------------------------------|--------------------------------------------------------------------|--------------------------------------------------------------------|--------------------------------------------------------------------|
| Positioning numbers |       | 64                                                                 | 7                                                                  | 2                                                                  | 2                                                                  | 2                                                                  |
| Input               | IN0   | PSB0                                                               | P1ST                                                               | V1ST                                                               | V1ST                                                               | -                                                                  |
|                     | IN1   | PSB1                                                               | P2ST                                                               | V2ST                                                               | V2ST                                                               | VST                                                                |
|                     | IN2   | PSB2                                                               | P3ST                                                               | -                                                                  | -                                                                  | -                                                                  |
|                     | IN3   | PSB3                                                               | P4ST                                                               | -                                                                  | -                                                                  | -                                                                  |
|                     | IN4   | PSB4                                                               | P5ST                                                               | -                                                                  | -                                                                  | -                                                                  |
|                     | IN5   | PSB5                                                               | P6ST                                                               | -                                                                  | -                                                                  | -                                                                  |
|                     | IN6   | PST                                                                | P7ST                                                               | -                                                                  | -                                                                  | -                                                                  |
|                     | IN7   | JOGM                                                               | JOGM                                                               | -                                                                  | -                                                                  | -                                                                  |
|                     | IN8   | JOGP                                                               | JOGP                                                               | -                                                                  | -                                                                  | -                                                                  |
|                     | IN9   | OST                                                                | OST                                                                | OST                                                                | OST                                                                | OST                                                                |
|                     | IN10  | SVON                                                               | SVON                                                               | SVON                                                               | SVON                                                               | SVON                                                               |
|                     | IN11  | ALMRST                                                             | ALMRST                                                             | ALMRST                                                             | ALMRST                                                             | ALMRST                                                             |
|                     | IN12  | STOP#                                                              | STOP#                                                              | -                                                                  | -                                                                  | -                                                                  |
| Output              | OUT0  | PCB0/ ACB0                                                         | P1END                                                              | P1END                                                              | P1END                                                              | P1END                                                              |
|                     | OUT1  | PCB1/ ACB1                                                         | P2END                                                              | P2END                                                              | P2END                                                              | P2END                                                              |
|                     | OUT2  | PCB2/ ACB2                                                         | P3END                                                              | -                                                                  | -                                                                  | -                                                                  |
|                     | OUT3  | PCB3/ ACB3                                                         | P4END                                                              | -                                                                  | -                                                                  | -                                                                  |
|                     | OUT4  | PCB4                                                               | P5END                                                              | SW1                                                                | SW1                                                                | SW1                                                                |
|                     | OUT5  | PCB5                                                               | P6END                                                              | SW2                                                                | SW2                                                                | SW2                                                                |
|                     | OUT6  | PEND                                                               | P7END                                                              | -                                                                  | -                                                                  | -                                                                  |
|                     | OUT7  | PZONE/ ZONE1/<br>ZONE2/ MOVE/<br>WARN# SLMT/<br>SLMTM/<br>SLMTP    | PZONE/ ZONE1/<br>ZONE2/ MOVE/<br>WARN#<br>SLMT/<br>SLMTM/<br>SLMTP | PZONE/ ZONE1/<br>ZONE2/ MOVE/<br>WARN# SLMT/<br>SLMTM/<br>SLMTP    | PZONE/ ZONE1/<br>ZONE2/ MOVE/<br>WARN#<br>SLMT/<br>SLMTM/<br>SLMTP | PZONE/ ZONE1/<br>ZONE2/ MOVE/<br>WARN#<br>SLMT/<br>SLMTM/<br>SLMTP |
|                     | OUT8  | PZONE/ ZONE1/<br>ZONE2/ MOVE/<br>WARN#<br>SLMT/<br>SLMTM/<br>SLMTP | PZONE/ ZONE1/<br>ZONE2/ MOVE/<br>WARN#<br>SLMT/<br>SLMTM/<br>SLMTP | PZONE/ ZONE1/<br>ZONE2/ MOVE/<br>WARN#<br>SLMT/<br>SLMTM/<br>SLMTP | PZONE/ ZONE1/<br>ZONE2/ MOVE/<br>WARN#<br>SLMT/<br>SLMTM/<br>SLMTP | PZONE/ ZONE1/<br>ZONE2/ MOVE/<br>WARN#<br>SLMT/<br>SLMTM/<br>SLMTP |
|                     | OUT9  | OEND                                                               | OEND                                                               | OEND                                                               | OEND                                                               | OEND                                                               |
|                     | OUT10 | SONS                                                               | SONS                                                               | SONS                                                               | SONS                                                               | SONS                                                               |
|                     | OUT11 | ALM#                                                               | ALM#                                                               | ALM#                                                               | ALM#                                                               | ALM#                                                               |
|                     | OUT12 | READY                                                              | READY                                                              | READY                                                              | READY                                                              | READY                                                              |

\*The pound sign (#) indicates a negative logic signal.

EJSG

EJSG-G

EJSG-C

EJSG-P4

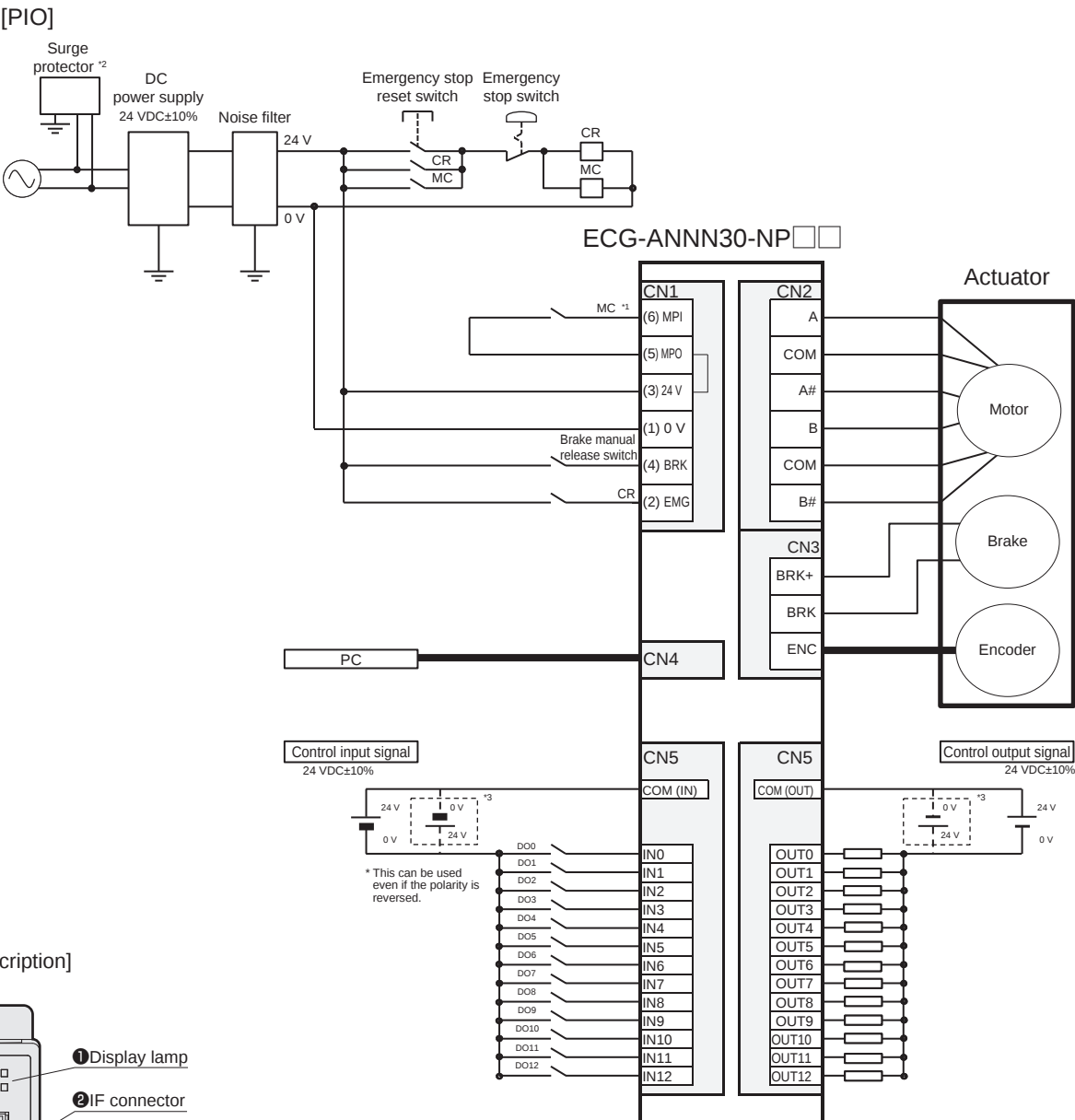
EJSG-FP1

Model selection  
Technical data

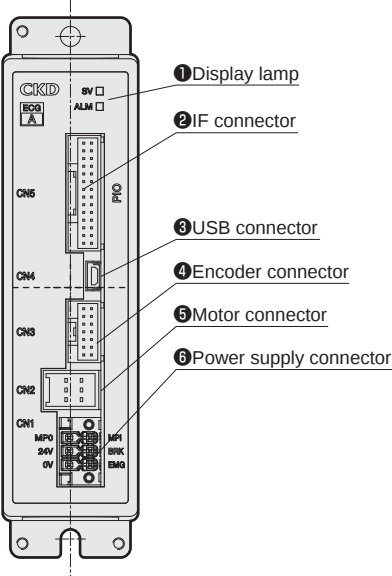
ECG-A

Safety  
precautions

Parallel I/O connection diagram (ECG-ANNN30-NP\*\*)



[Panel description]



\*1 If the motor drive source must be shut off for safety category compatibility, connect a contact such as an electromagnetic switch between the MPI and MPO terminals.  
(Connected with jumper wires at shipment.)  
\*2 A surge protector is required to comply with the CE marking.  
\*3 This can be used even if the polarity is reversed.

Accessories

| Part name              | Manufacturer model | Manufacturer    |
|------------------------|--------------------|-----------------|
| Power supply connector | DFMC1,5/3-STF-3,5  | PHOENIX CONTACT |

### Description of field network operation modes

| Operation mode                       | Overview                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|--------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PIO mode (PIO)                       | Point operation can be used and signal assignment of inputs and outputs can be changed in the operation mode (PIO) in the same way as the parallel I/O specification. However, you cannot select a direct value operation that sets the operating conditions for operation directly from the PLC. In addition, parameters can be read and written, but the monitor function cannot be used. Refer to the table below for details.          |
| Half simple direct value mode (HSDP) | This mode is selectable only with the CC-Link specification controller. Switching the direct travel selection signal enables a target position to be arbitrarily be set by the PLC or 64 point operation. The selected direct travel operation method can then be used. The monitoring function can be used with restrictions. However, reading and writing of parameters are not possible. Refer to the table below for details.          |
| Simple direct value mode (SDP)       | Switching the direct travel selection signal enables a target position to be arbitrarily be set by the PLC or 64 point operation. The selected direct travel operation method can then be used. Reading and writing of parameters are possible, and the monitoring function can be used. Refer to the table below for details.                                                                                                             |
| Half direct value mode (HDP)         | This mode is selectable only with the CC-Link specification controller. Switching the direct travel selection signal enables operating conditions to be arbitrarily be set by the PLC with restrictions or 64 point operations. The selected direct travel operation method can then be used. The monitoring function can also be used. However, reading and writing of parameters are not possible. Refer to the table below for details. |
| Full direct value mode (FDP)         | Switching the direct travel selection signal enables operating conditions to be arbitrarily be set by the PLC or 64 point operation. The selected direct travel operation method can then be used. Reading and writing of parameters are possible, and the monitoring function can be used. Refer to the table below for details.                                                                                                          |

| Operation mode                   |                                  | PIO                | HSDP          | SDP       | HDP           | FDP       |
|----------------------------------|----------------------------------|--------------------|---------------|-----------|---------------|-----------|
| Parameter reading/writing        |                                  | Available          | Not available | Available | Not available | Available |
| Direct value travel selection *1 |                                  | Cannot be selected | 1             | 1         | 1             | 1         |
| Positioning numbers              |                                  | 64                 | No limit      | No limit  | No limit      | No limit  |
| Direct value travel Item *2      | Target position                  | -                  | ○             | ○         | ○             | ○         |
|                                  | Positioning width                | -                  | -             | -         | ○             | ○         |
|                                  | Speed                            | -                  | -             | -         | ○             | ○         |
|                                  | Acceleration                     | -                  | -             | -         | ●             | ○         |
|                                  | Deceleration                     | -                  | -             | -         | ●             | ○         |
|                                  | Pressing rate                    | -                  | -             | -         | ○             | ○         |
|                                  | Pressing distance                | -                  | -             | -         | ○             | ○         |
|                                  | Pressing speed                   | -                  | -             | -         | -             | ○         |
|                                  | Position designation method      | -                  | -             | -         | ○             | ○         |
|                                  | Operation mode                   | -                  | -             | -         | ○             | ○         |
|                                  | Stop method                      | -                  | -             | -         | ○             | ○         |
|                                  | Acceleration/deceleration method | -                  | -             | -         | ○             | ○         |
| Monitor Item *3                  | Position                         | -                  | ○             | ○         | ○             | ○         |
|                                  | Speed                            | -                  | ○             | ▲         | ○             | ○         |
|                                  | Current                          | -                  | ○             | ▲         | ○             | ○         |
|                                  | Alarm                            | -                  | -             | ▲         | ○             | ○         |

\*1: When direct value travel selection is 0, operation uses the value set in the point data. This enables up to 64 positioning points.

\*2: "○" indicates Item operating with value set by PLC. "-" indicates operation with the value set by the point data.

"●" indicates Items operated with the value set by the PLC, but only the same values can be set.

\*3: "○" indicates Items that can be monitored. "-" indicates Items that cannot be monitored. Only one selected Item can be monitored from "▲".

"▲" indicates which Items can be monitored when selected as monitor values (one at a time for CC-Link and IO-Link, three values at a time for the others).

EJSG

EJSG-G

EJSG-C

EJSG-P4

EJSG-FP1

Model selection  
Technical data

ECG-A

Safety  
precautions

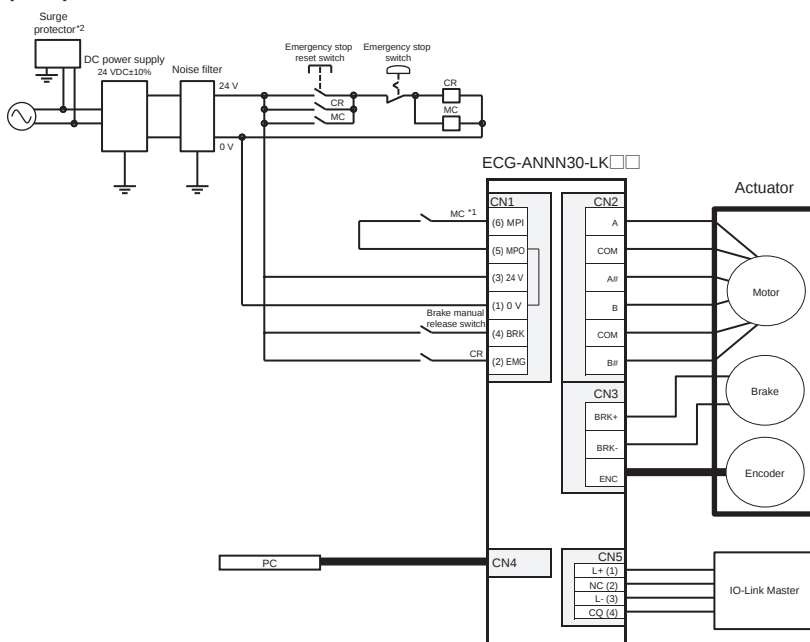
## IO-Link specifications and connection diagram (ECG-ANNN30-LK\*\*)

### [Communication specifications]

| Item                           | Specifications                    |
|--------------------------------|-----------------------------------|
| Communication protocol version | V1.1                              |
| Transmission bit rate          | COM3(230.4kbps)                   |
| Port                           | Class A                           |
| Process data length (input)    | PIO mode: 2 bytes                 |
| PD (in) data length            | Simple direct value mode: 9 bytes |
|                                | Full direct value mode: 12 bytes  |
| Process data length (output)   | PIO mode: 2 bytes                 |
| PD (out) data length           | Simple direct value mode: 7 bytes |
|                                | Full direct value mode: 22 bytes  |
| Minimum cycle time             | PIO mode: 1 ms                    |
|                                | Simple direct value mode: 1.5 ms  |
|                                | Full direct value mode: 2.5 ms    |
| Monitor function               | Position, speed, current, alarm   |

\* The available monitoring items depend on the operation mode.  
Refer to page 123 for details.

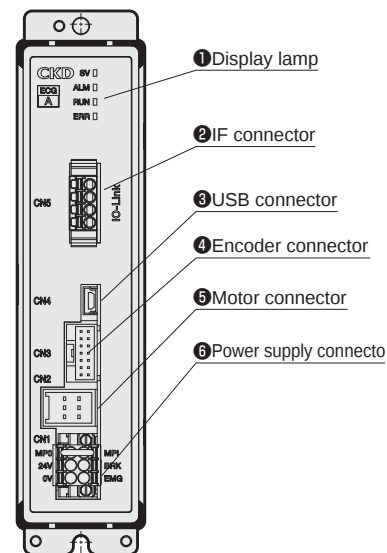
### [IO-Link]



\*1 If the motor drive source must be shut off for safety category compatibility, connect a contact such as an electromagnetic switch between the MPI and MPO terminals.  
(Connected with jumper wires at shipment.)

\*2 A surge protector is required to comply with the CE marking.

### [Panel description]



### Cyclic data from master

| PD (out) | bit      | Full direct value mode<br>Signal name                  |
|----------|----------|--------------------------------------------------------|
| 0        | 7        | Pause#                                                 |
|          | 6        | Stop#                                                  |
|          | 5        | Alarm reset                                            |
|          | 4        | Servo ON                                               |
|          | 3        | Origin return start                                    |
|          | 2        | Point travel start                                     |
|          | 1        | JOG/INCH (+) travel start                              |
| 1        | 0        | JOG/INCH (-) Travel start                              |
|          | 7        | INCH selection                                         |
|          | 6        | -                                                      |
|          | 5 to 0   | Point number selection bit 5 to 0                      |
|          | 7 to 4   | -                                                      |
|          | 3 to 1   | Rotation direction (direct value travel)               |
|          | 0        | Direct value travel selection                          |
| 2        | 3 to 6   | 7 to 0 Position (direct value travel)                  |
|          | 7 to 8   | 7 to 0 Positioning width (direct value travel)         |
|          | 9 to 10  | 7 to 0 Speed (direct value travel)                     |
|          | 11       | 7 to 0 Acceleration (direct value travel)              |
|          | 12       | 7 to 0 Deceleration (direct value travel)              |
|          | 13       | 7 to 0 Pressing rate (Direct value travel)             |
|          | 14       | 7 to 0 Pressing speed (direct value travel)            |
| 21       | 15 to 18 | 7 to 0 Pressing distance (direct value travel)         |
|          | 19 to 20 | 7 to 0 Gain magnification (direct value travel)        |
|          | 7        | Position specification method (direct value travel)    |
|          | 6 to 5   | Operation method (direct value travel)                 |
|          | 4 to 3   | Acceleration/deceleration method (direct value travel) |
|          | 2 to 0   | Stop method (direct value travel)                      |

### Cyclic data from controller

| PD (in)  | bit    | Full direct value mode<br>Signal name |
|----------|--------|---------------------------------------|
| 0        | 7      | Operation preparation complete        |
|          | 6      | Warning#                              |
|          | 5      | Alarm#                                |
|          | 4      | Servo ON state                        |
|          | 3      | Origin return complete                |
|          | 2      | Point travel complete                 |
|          | 1 to 0 | -                                     |
| 1        | 7 to 6 | -                                     |
|          | 5 to 0 | Point number confirmation bit 5 to 0  |
|          | 7      | Soft limit over (+)                   |
|          | 6      | Soft limit over (-)                   |
|          | 5      | Soft limit exceeded                   |
|          | 4      | Zone 2                                |
|          | 3      | Zone 1                                |
| 2        | 2      | Moving                                |
|          | 1      | Point zone                            |
|          | 0      | Direct travel status                  |
| 3 to 6   | 7 to 0 | Position (monitor value)              |
| 7 to 8   | 7 to 0 | Speed (monitor value)                 |
| 9        | 7 to 0 | Current (monitor value)               |
| 10 to 11 | 7 to 0 | Alarm (monitor value)                 |

\* Refer to the instruction manual for other operation modes.

\* # indicates a negative logic signal.

### ● Accessories

| Part name              | Manufacturer model | Manufacturer    |
|------------------------|--------------------|-----------------|
| Power supply connector | DFMC 1,5/3-STF-3,5 | PHOENIX CONTACT |
| IO-Link connector      | FMC1,5/4-ST-3,5-RF | PHOENIX CONTACT |

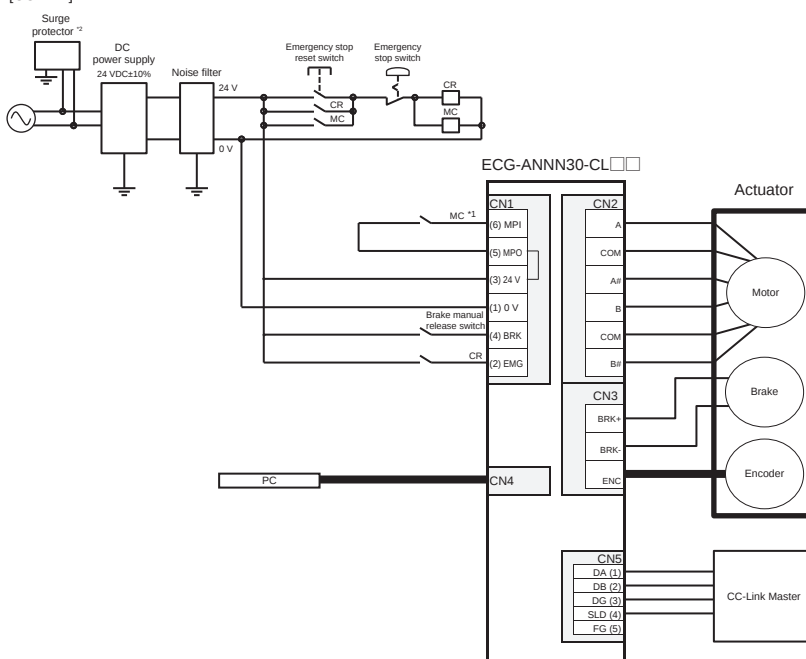
### CC-Link specifications and connection diagram (ECG-ANNN30-CL\*\*)

#### [Communication specifications]

| Item                                           | Specifications                                                                    |
|------------------------------------------------|-----------------------------------------------------------------------------------|
| CC-Link Version                                | Ver. 1.10                                                                         |
| Station                                        | Remote device station                                                             |
| Remote station No.                             | 1 to 64 (set by parameter setting)                                                |
| Operation mode and number of occupied stations | PIO mode (1 station occupied)                                                     |
|                                                | Half simple direct value mode (1 station occupied)                                |
|                                                | Simple direct value mode (2 stations occupied)                                    |
|                                                | Half direct value mode (2 stations occupied)                                      |
|                                                | Full direct value mode (4 stations occupied)                                      |
| Remote input/output points                     | 32 points × occupied stations                                                     |
| Remote Register input/output                   | 4-word × occupied stations                                                        |
| Communication speed                            | 10M/5M/2.5M/625k/156kbps<br>(Selected by parameter setting)                       |
| Connection cable                               | CC-Link Ver. 1.10 compliant cable<br>(3-conductor twisted pair cable with shield) |
| Number of connected units                      | 42 max. when only remote device stations are connected                            |
| Monitor function                               | Position, speed, current, alarm                                                   |

\* The available monitoring items depend on the operation mode.  
Refer to page 123 for details.

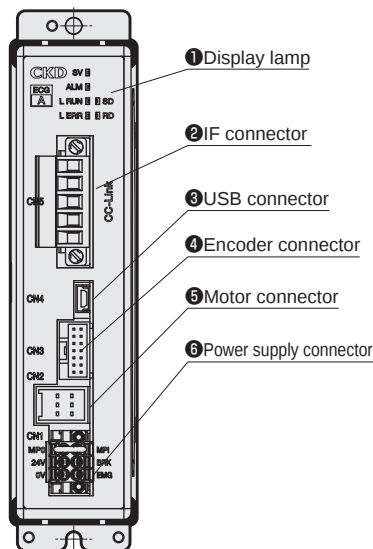
#### [CC-Link]



\*1 If the motor drive source must be shut off for safety category compatibility, connect a contact such as an electromagnetic switch between the MPI and MPO terminals.  
(Connected with jumper wires at shipment.)

\*2 A surge protector is required to comply with the CE marking.

#### [Panel description]



#### Cyclic data from master

| Device No.           | Half simple direct value mode<br>Signal name |
|----------------------|----------------------------------------------|
| RYn0                 | Point number selection bit 0                 |
| RYn1                 | Point number selection bit 1                 |
| RYn2                 | Point number selection bit 2                 |
| RYn3                 | Point number selection bit 3                 |
| RYn4                 | Point number selection bit 4                 |
| RYn5                 | Point number selection bit 5                 |
| RYn6                 | Direct value travel selection                |
| RYn7                 | JOG/INCH(-)Travel start                      |
| RYn8                 | JOG/INCH(+)Travel start                      |
| RYn9                 | INCH selection                               |
| RYnA                 | Point travel start                           |
| RYnB                 | Origin return start                          |
| RYnC                 | Servo ON                                     |
| RYnD                 | Alarm reset                                  |
| RYnE                 | Stop#                                        |
| RYnF                 | Pause#                                       |
| RY(n+1)0 to RY(n+1)F | Vacant                                       |

| Device No. | Half simple direct value mode<br>Signal name |
|------------|----------------------------------------------|
| RWw0       | Position (direct value travel)               |
| RWw1       |                                              |
| RWw2       | -                                            |
| RWw3       | -                                            |

\* Refer to the instruction manual for other operation modes.  
\* # indicates a negative logic signal.

#### Cyclic data from controller

| Device No.           | Half simple direct value mode<br>Signal name |
|----------------------|----------------------------------------------|
| RXn0                 | Point number confirmation bit 0              |
| RXn1                 | Point number confirmation bit 1              |
| RXn2                 | Point number confirmation bit 2              |
| RXn3                 | Point number confirmation bit 3              |
| RXn4                 | Point number confirmation bit 4              |
| RXn5                 | Point number confirmation bit 5              |
| RXn6                 | Direct value travel status                   |
| RXn7                 | Selectable output 1                          |
| RXn8                 | Selectable output 2                          |
| RXn9                 | -                                            |
| RXnA                 | Point travel complete                        |
| RXnB                 | Origin return complete                       |
| RXnC                 | Servo ON state                               |
| RXnD                 | Alarm#                                       |
| RXnE                 | Warning#                                     |
| RXnF                 | Operation preparation complete               |
| RX(n+1)0 to RX(n+1)F | Vacant                                       |

| Device No. | Half simple direct value mode<br>Signal name |
|------------|----------------------------------------------|
| RWr0       | Position (monitor value)                     |
| RWr1       |                                              |
| RWr2       | Speed (monitor value)                        |
| RWr3       | Current (monitor value)                      |

#### ● Accessories

| Part name              | Manufacturer model       | Manufacturer    |
|------------------------|--------------------------|-----------------|
| Power supply connector | DFMC1,5/3-STF-3,5        | PHOENIX CONTACT |
| CC-Link connector      | MSTB2,5/5-STF-5,08ABGYAU | PHOENIX CONTACT |

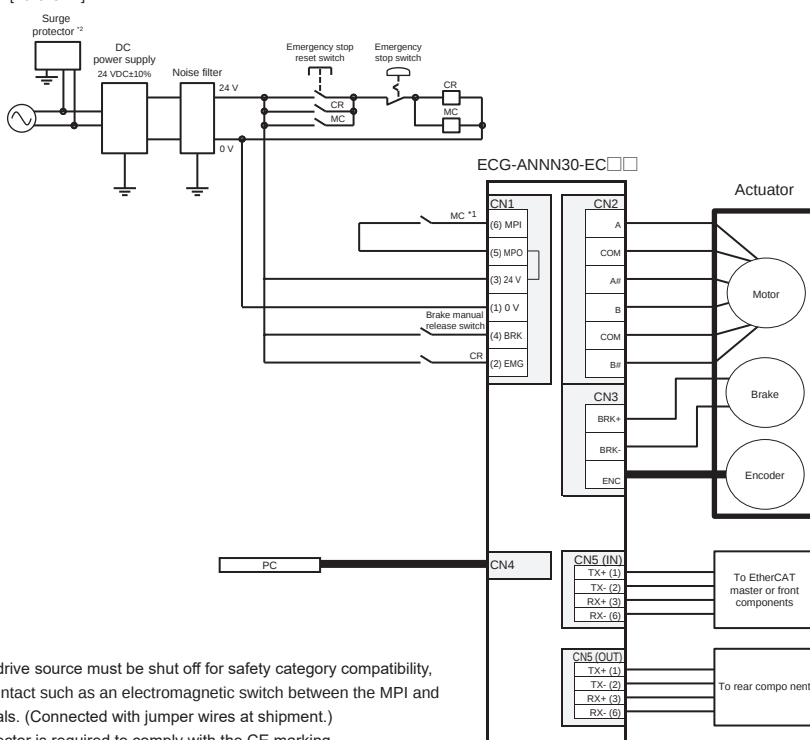
## EtherCAT specifications and connection diagram (ECG-ANNN30-EC\*\*)

### [Communication specifications]

| Item                 | Specifications                                                                                                                |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------|
| Communication speed  | 100Mbps (fast Ethernet, full duplex)                                                                                          |
| Process data         | Variable PDO mapping                                                                                                          |
| Max. PDO Data length | RxPDO:64 bytes/<br>TxPDO:64 bytes                                                                                             |
| Station Alias        | 0 - 65535 (Set by a parameter)                                                                                                |
| Connection cable     | EtherCAT compliant cable (Twisted pair cable of CAT5e or higher (Double shield with aluminum tape and braid) is recommended.) |
| Node address         | Automatic allocation by master                                                                                                |
| Monitor function     | Position, speed, current, alarm                                                                                               |

\* The available monitoring Items depend on the operation mode.  
Refer to page 123 for details.

### [EtherCAT]



\*1 If the motor drive source must be shut off for safety category compatibility, connect a contact such as an electromagnetic switch between the MPI and MPO terminals. (Connected with jumper wires at shipment.)

\*2 A surge protector is required to comply with the CE marking.

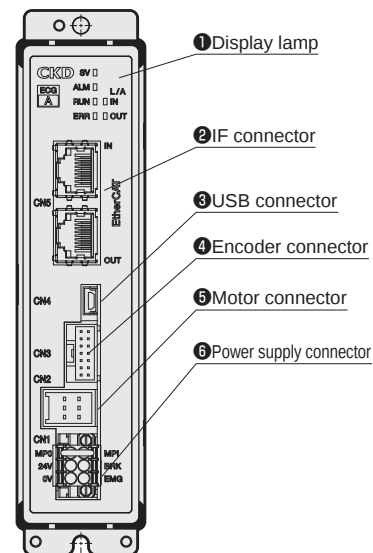
### Cyclic data from master

| Index    | Sub Index | bit      | Full direct value mode<br>Signal name    |
|----------|-----------|----------|------------------------------------------|
| 0 x 2001 | 0x 01     | 0 to 5   | Point number selection bit 0 to 5        |
|          |           | 6        | -                                        |
|          |           | 7        | JOG/INCH (-) travel start                |
|          |           | 8        | JOG/INCH (+) travel start                |
|          |           | 9        | INCH selection                           |
|          |           | 10       | Point travel start                       |
|          |           | 11       | Origin return start                      |
|          |           | 12       | Servo ON                                 |
|          |           | 13       | Alarm reset                              |
|          |           | 14       | Stop#                                    |
|          |           | 15       | Pause#                                   |
|          |           | 16 to 31 | -                                        |
|          | 0x 02     | 0 to 3   | -                                        |
|          |           | 4        | Data request                             |
|          |           | 5        | Data R/W selection                       |
|          |           | 6 to 11  | -                                        |
|          |           | 12       | Monitor request                          |
|          |           | 13 to 14 | -                                        |
|          |           | 15       | Direct value travel selection            |
| 0 x 2003 | 0x 01     | 0 to 31  | Position (direct value travel)           |
|          | 0x 02     | 0 to 31  | Positioning width (direct value travel)  |
|          | 0x 03     | 0 to 31  | Speed (direct value travel)              |
|          | 0x 04     | 0 to 31  | Acceleration (direct value travel)       |
|          | 0x 05     | 0 to 31  | Deceleration (direct value travel)       |
|          | 0x 06     | 0 to 31  | Pressing ratio (direct value travel)     |
|          | 0x 07     | 0 to 31  | Pressing speed (direct value travel)     |
|          | 0x 08     | 0 to 31  | Pressing distance (direct value travel)  |
|          | 0x 09     | 0 to 31  | Mode (direct value travel)               |
|          | 0x0A      | 0 to 31  | Gain magnification (direct value travel) |
|          | 0x0B      | 0 to 31  | Writing data                             |
|          | 0x0C      | 0 to 31  | Data number                              |
|          | 0x0D      | 0 to 31  | Monitor number 1                         |
|          | 0x0E      | 0 to 31  | Monitor number 2                         |

### Cyclic data from controller

| Index    | Sub Index           | bit      | Full direct value mode               |
|----------|---------------------|----------|--------------------------------------|
|          |                     |          | Signal name                          |
| 0 x 2005 | 0x 01               | 0 to 5   | Point number confirmation bit 0 to 5 |
|          |                     | 6 to 9   | -                                    |
|          |                     | 10       | Point travel complete                |
|          |                     | 11       | Origin return complete               |
|          |                     | 12       | Servo ON state                       |
|          |                     | 13       | Alarm#                               |
|          |                     | 14       | Warning#                             |
|          |                     | 15       | Operation preparation complete       |
|          |                     | 16 to 31 | -                                    |
|          | 0x 02               | 0 to 3   | Data response                        |
|          |                     | 4        | Data complete                        |
|          |                     | 5        | Data write status                    |
|          |                     | 6 to 7   | -                                    |
|          |                     | 8 to 11  | Monitor response                     |
|          |                     | 12       | Monitor complete                     |
|          |                     | 13 to 14 | -                                    |
|          |                     | 15       | Direct value travel status           |
|          |                     | 16       | Point zone                           |
|          |                     | 17       | Moving                               |
|          |                     | 18       | Zone 1                               |
|          |                     | 19       | Zone 2                               |
|          |                     | 20       | Soft limit exceeded                  |
|          |                     | 21       | Soft limit over (-)                  |
| 22       | Soft limit over (+) |          |                                      |
| 23 to 31 | -                   |          |                                      |
| 0x 2007  | 0x 01               | 0 to 31  | Position (monitor value)             |
|          | 0x 02               | 0 to 31  | Speed (monitor value)                |
|          | 0x 03               | 0 to 31  | Current (monitor value)              |
|          | 0x 04               | 0 to 31  | -                                    |
|          | 0x 05               | 0 to 31  | Alarm (monitor value)                |
|          | 0x 06to 0x0A        | 0 to 31  | -                                    |
|          | 0x0 B               | 0 to 31  | Read data                            |
|          | 0x0C                | 0 to 31  | Data (alarm)                         |
|          | 0x0D                | 0 to 31  | Monitor value 1                      |
|          | 0x0E                | 0 to 31  | Monitor value 2                      |

### [Panel description]



### ● Accessories

| Part name              | Manufacturer model | Manufacturer    |
|------------------------|--------------------|-----------------|
| Power supply connector | DFMC 1,5/3-STF-3,5 | PHOENIX CONTACT |

\* Refer to the instruction manual for other operation modes.

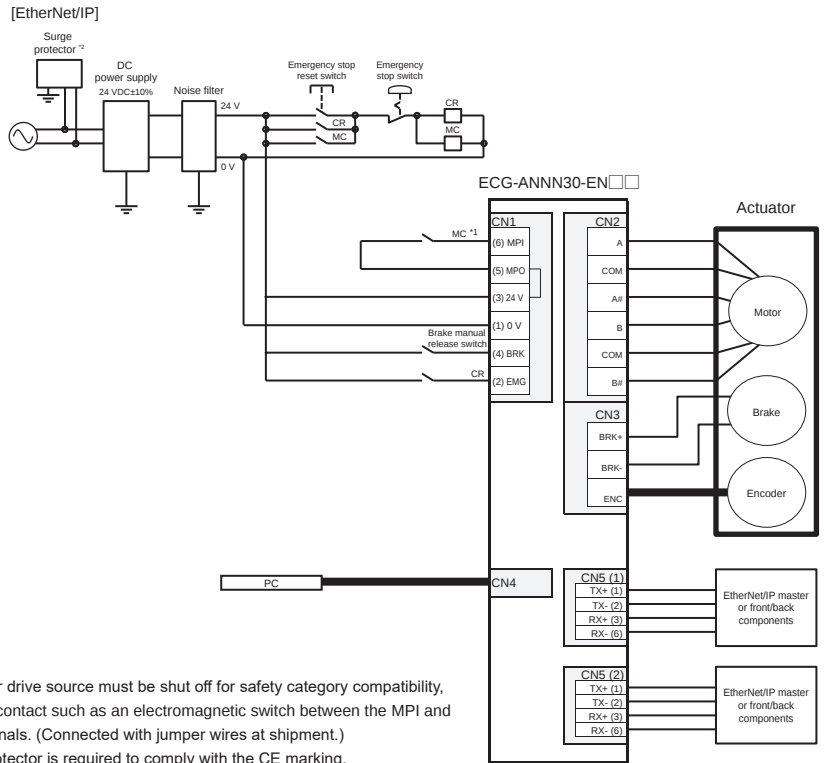
\* # indicates a negative logic signal.

### EtherNet/IP specifications and connection diagram (ECG-ANNN30-EN\*\*)

#### [Communication specifications]

| Item                     | Specifications                                                                                                                            |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| Communication protocol   | EtherNet/IP                                                                                                                               |
| Communication speed      | Automatic setting<br>(100Mbps/10Mbps, full duplex/<br>half duplex)                                                                        |
| Occupied bytes           | Input: 64 bytes/Output: 64 bytes                                                                                                          |
| IP address               | Setting with parameters<br>(0.0.0.0 to 255.255.255.255)<br>Via DHCP server (arbitrary address)                                            |
| RPI<br>(Packet interval) | 4ms to 10000ms                                                                                                                            |
| Connection cable         | EtherNet/IP compliant cable<br>(Twisted pair cable of CAT5e or higher<br>(Double shield with aluminum tape<br>and braid) is recommended.) |
| Monitor function         | Position, speed, current, alarm                                                                                                           |

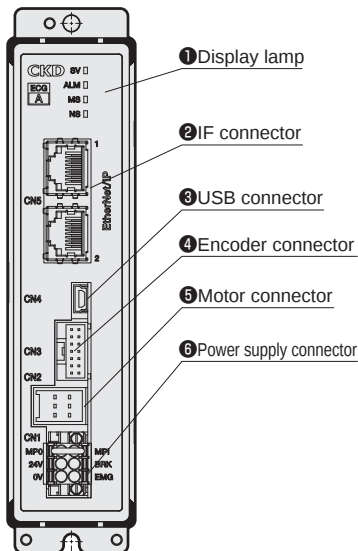
\* The available monitoring items depend on the operation mode.  
Refer to page 123 for details.



\*1 If the motor drive source must be shut off for safety category compatibility,  
connect a contact such as an electromagnetic switch between the MPI and  
MPO terminals. (Connected with jumper wires at shipment.)

\*2 A surge protector is required to comply with the CE marking.

#### [Panel description]



#### Cyclic data from master

| Byte     | bit    | Full direct value mode<br>Signal name    |
|----------|--------|------------------------------------------|
| 0        | 0 to 5 | Point number selection bit 0 to 5        |
|          | 6      | -                                        |
|          | 7      | JOG/INCH (-) travel start                |
| 1        | 0      | JOG/INCH (+) travel start                |
|          | 1      | INCH selection                           |
|          | 2      | Point travel start                       |
|          | 3      | Origin return start                      |
|          | 4      | Servo ON                                 |
|          | 5      | Alarm reset                              |
|          | 6      | Stop#                                    |
|          | 7      | Pause#                                   |
| 2 to 3   | 0 to 7 | -                                        |
|          | 0 to 3 | -                                        |
| 4        | 4      | Data request                             |
|          | 5      | Data R/W selection                       |
| 5        | 6 to 7 | -                                        |
|          | 0 to 3 | -                                        |
|          | 4      | Monitor request                          |
|          | 5 to 6 | -                                        |
| 6 to 7   | 0 to 7 | -                                        |
|          | 7      | Direct value travel selection            |
| 8 to 11  | 0 to 7 | Position (direct value travel)           |
| 12 to 15 | 0 to 7 | Positioning width (direct value travel)  |
| 16 to 19 | 0 to 7 | Speed (direct value travel)              |
| 20 to 23 | 0 to 7 | Acceleration (direct value travel)       |
| 24 to 27 | 0 to 7 | Deceleration (direct value travel)       |
| 28 to 31 | 0 to 7 | Pressing ratio (direct value travel)     |
| 32 to 35 | 0 to 7 | Pressing speed (direct value travel)     |
| 36 to 39 | 0 to 7 | Pressing distance (direct value travel)  |
| 40 to 43 | 0 to 7 | Mode (direct value travel)               |
| 44 to 47 | 0 to 7 | Gain magnification (direct value travel) |
| 48 to 51 | 0 to 7 | Writing data                             |
| 52 to 55 | 0 to 7 | Data number                              |
| 56 to 59 | 0 to 7 | Monitor number 1                         |
| 60 to 63 | 0 to 7 | Monitor number 2                         |

#### Cyclic data from controller

| Byte     | bit    | Full direct value mode<br>Signal name |
|----------|--------|---------------------------------------|
| 0        | 0 to 5 | Point number confirmation bit 0 to 5  |
|          | 6 to 7 | -                                     |
| 1        | 0 to 1 | -                                     |
|          | 2      | Point travel complete                 |
|          | 3      | Origin return complete                |
|          | 4      | Servo ON state                        |
|          | 5      | Alarm#                                |
|          | 6      | Warning#                              |
|          | 7      | Operation preparation complete        |
| 2 to 3   | 0 to 7 | -                                     |
|          | 0 to 3 | Data response                         |
|          | 4      | Data complete                         |
| 4        | 5      | Data write status                     |
|          | 6 to 7 | -                                     |
| 5        | 0 to 3 | Monitor response                      |
|          | 4      | Monitor complete                      |
|          | 5 to 6 | -                                     |
| 6        | 7      | Direct value travel status            |
|          | 0      | Point zone                            |
|          | 1      | Moving                                |
|          | 2      | Zone 1                                |
|          | 3      | Zone 2                                |
|          | 4      | Soft limit exceeded                   |
|          | 5      | Soft limit over (-)                   |
|          | 6      | Soft limit over (+)                   |
| 7        | 0 to 7 | -                                     |
|          | 7      | -                                     |
| 8 to 11  | 0 to 7 | Position (monitor value)              |
| 12 to 15 | 0 to 7 | Speed (monitor value)                 |
| 16 to 19 | 0 to 7 | Current (monitor value)               |
| 20 to 23 | 0 to 7 | -                                     |
| 24 to 27 | 0 to 7 | Alarm (monitor value)                 |
| 28 to 47 | 0 to 7 | -                                     |
| 48 to 51 | 0 to 7 | Read data                             |
| 52 to 55 | 0 to 7 | Data (alarm)                          |
| 56 to 59 | 0 to 7 | Monitor value 1                       |
| 60 to 63 | 0 to 7 | Monitor value 2                       |

\* Refer to the instruction manual for other operation modes.

\* # indicates a negative logic signal.

#### Accessories

| Part name              | Manufacturer model | Manufacturer    |
|------------------------|--------------------|-----------------|
| Power supply connector | DFMC 1,5/3-STF-3,5 | PHOENIX CONTACT |

Relay cable

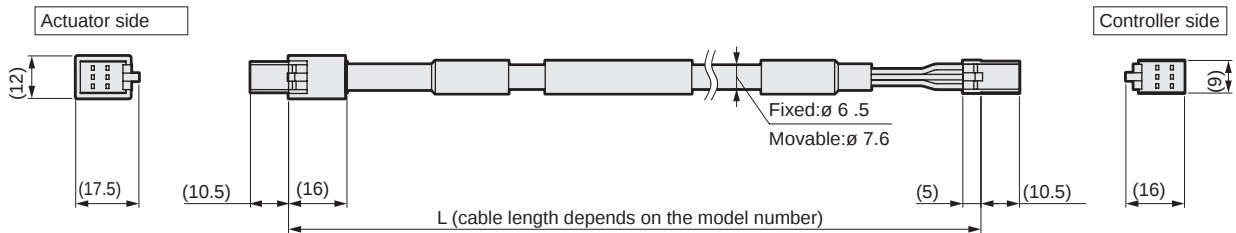
Motor cable model No. system (ECG-A Series)

EA-CBLM 4 - S 01

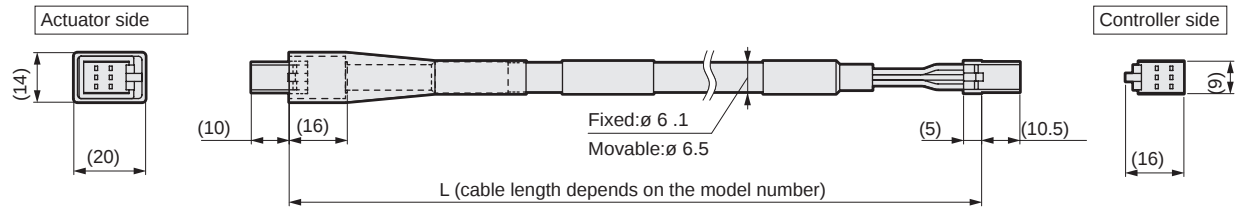
| Cable specifications            | Cable type         | Cable length |
|---------------------------------|--------------------|--------------|
| 4<br>EJSG<br>EJSG-FP1<br>EJSG-C | S<br>Fixed cable   | 01<br>1m     |
| 3<br>EJSG-P4                    | R<br>Movable cable | 03<br>3m     |
| 5<br>EJSG-G                     |                    | 05<br>5m     |
|                                 |                    | 10<br>10m    |

Motor cable Dimensions (ECG-A Series)

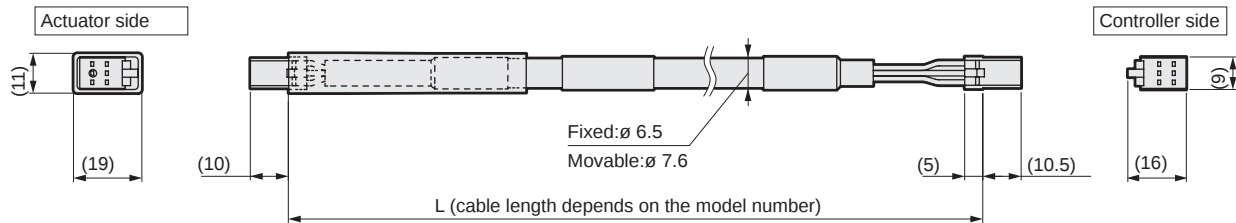
EA-CBLM4 (for EJSG, EJSG-FP1, and EJSG-C)



EA-CBLM3 (for EJSG-P4)



EA-CBLM5 (for EJSG-G)



\* Use with a total cable bending radius of 51mm or more.

Relay cable

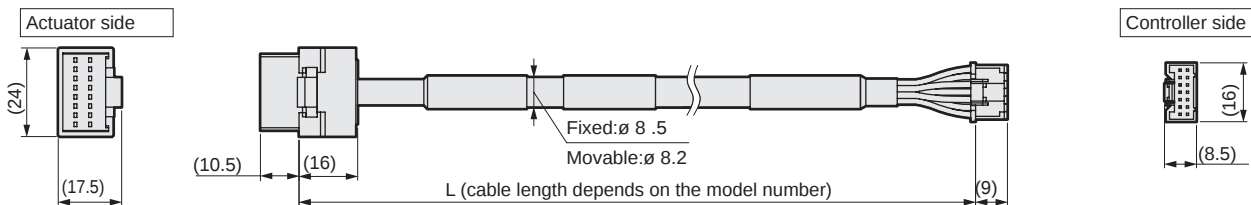
Encoder cable model No. system (ECG-A Series)

EA-CBLE 4 - S 01

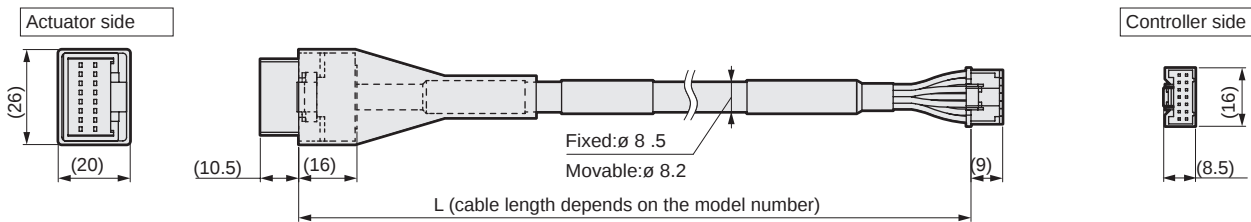
| Cable specifications         | Cable type                       | Cable length                      |
|------------------------------|----------------------------------|-----------------------------------|
| 4 EJSG<br>EJSG-FP1<br>EJSG-C | S Fixed cable<br>R Movable cable | 01 1m<br>03 3m<br>05 5m<br>10 10m |
| 3 EJSG-P4                    |                                  |                                   |
| 5 EJSG-G                     |                                  |                                   |

Encoder cable Dimensions (ECG-A Series)

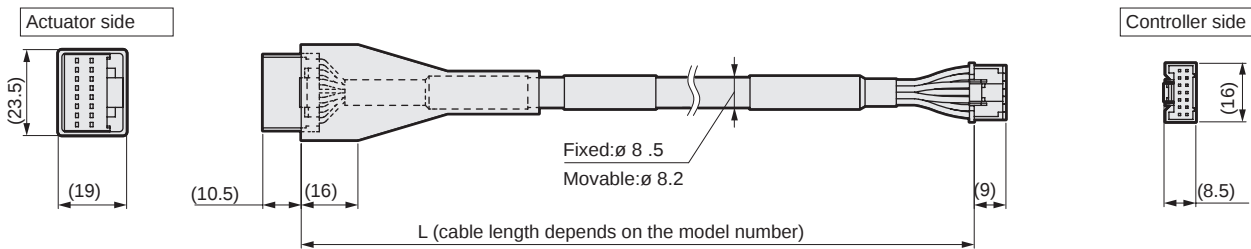
- EA-CBLE4 (for EJSG, EJSG-FP1, and EJSG-C)



- EA-CBLE3 (for EJSG-P4)



- EA-CBLE5 (for EJSG-G)



\* Use with a total cable bending radius of 51mm or more.

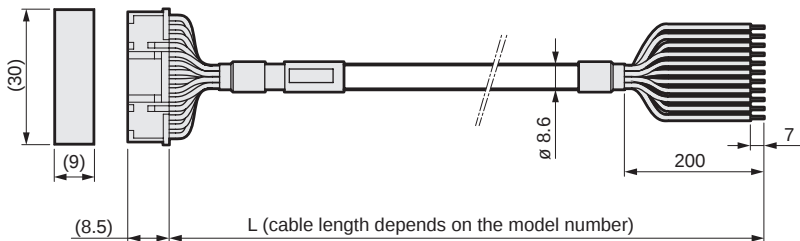
I/O cable

I/O cable

\* Parallel I/O specification controller also available

EA-CBLNP2 - 02

A



| A Cable length |     |
|----------------|-----|
| 02             | 2m  |
| 03             | 3m  |
| 05             | 5m  |
| 10             | 10m |

### ● DC power supply



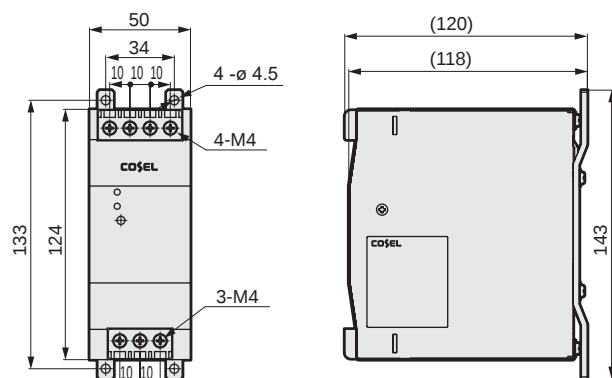
| Model No.                      |                        |                                                               | EA-PWR-KHNA240F-24-N2 (screw mounted)<br>EA-PWR-KHNA240F-24 (DIN rail mount)                  |
|--------------------------------|------------------------|---------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| Item                           |                        |                                                               |                                                                                               |
| Manufacturer                   |                        |                                                               | COSEL Co., Ltd.                                                                               |
| Manufacturer model No.         | Mounting screw         | KHNA240F-24-N2                                                |                                                                                               |
|                                | DIN rail mount         | KHNA240F-24                                                   |                                                                                               |
| Input voltage                  |                        |                                                               | AC85 to 264V 1ø or DC88 to 370V                                                               |
| Output                         | Power                  | 240 W                                                         |                                                                                               |
|                                | Voltage/current        | 24V10A                                                        |                                                                                               |
|                                | Variable voltage range | 22.5 to 28.5V                                                 |                                                                                               |
| Included functions             | Overcurrent protection | Operating at 101% min of peak current                         |                                                                                               |
|                                | Overvoltage protection | 30.0 to 36.0V                                                 |                                                                                               |
|                                | Remote control         | Available                                                     |                                                                                               |
|                                | Remote sensing         | -                                                             |                                                                                               |
| Other                          |                        |                                                               | DC_OK display, ALARM display                                                                  |
| Operating temperature/humidity |                        |                                                               | -25 to +70°C, 20 to 90% RH (no condensation), startup possible at -40°C*                      |
| Applicable standards           | Safety standards       | AC input                                                      | AC input: UL60950-1, C-UL (CSA60950-1), EN60950-1                                             |
|                                |                        | DC input                                                      | UL508, ANSI / ISA12.12.01, and ATEX; Electrical Appliances and Material Safety Act compliant* |
|                                | Noise terminal voltage | Compliant with FCC-B, VCCI-B, CISPR22-B, EN55011-B, EN55022-B |                                                                                               |
|                                | Harmonic current       | Compliant with IEC61000-3-2 (class A)*                        |                                                                                               |
| Structure                      | Dimensions (W x H x D) | 50×124×117mm                                                  |                                                                                               |
|                                | Weight                 | 900g max                                                      |                                                                                               |
|                                | Cooling method         | Natural air cooling                                           |                                                                                               |

\* Refer to the manufacturer's website for details.

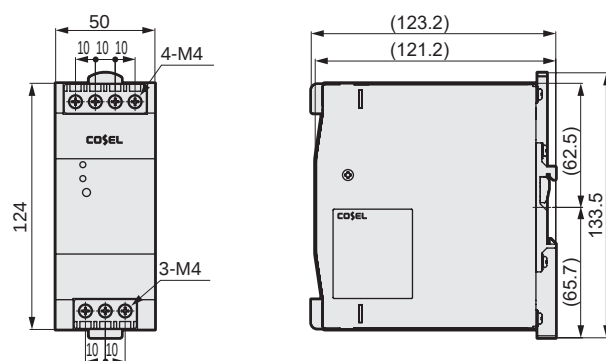
\* The CE marking and ROHS are obtained with the manufacturer model No.

### Part names and dimensions

#### ● EA-PWR-KHNA240F-24-N2 (24 V screw mounted)



#### ● EA-PWR-KHNA240F-24 (24 V DIN rail mounted)



### ● Other components

| Part name                                          | Model No.         |
|----------------------------------------------------|-------------------|
| Noise filter for power supply (single phase, 15 A) | AX-NSF-NF2015A-OD |

\* Refer to the instruction manual for the ferrite core to be used.