ECR

Controller

Controller
ECMG
ECG
ECR
ESC4
Ending

Controller
ECMG
ECG
ECR
ESC4
Ending

CONTENTS

ECR Series

ROBODEX *Pulse*

Common controller regardless of actuator model or size

List of Compatible Actuators

Slider	Rod	Table	Rotary	2-finger gripper
EBS-M	EBR-M	FLCR	FGRC	FLSH

ECR

Compatible Interface

CC-Link EtherCAT IO-Link

PLC ⟷ I/O

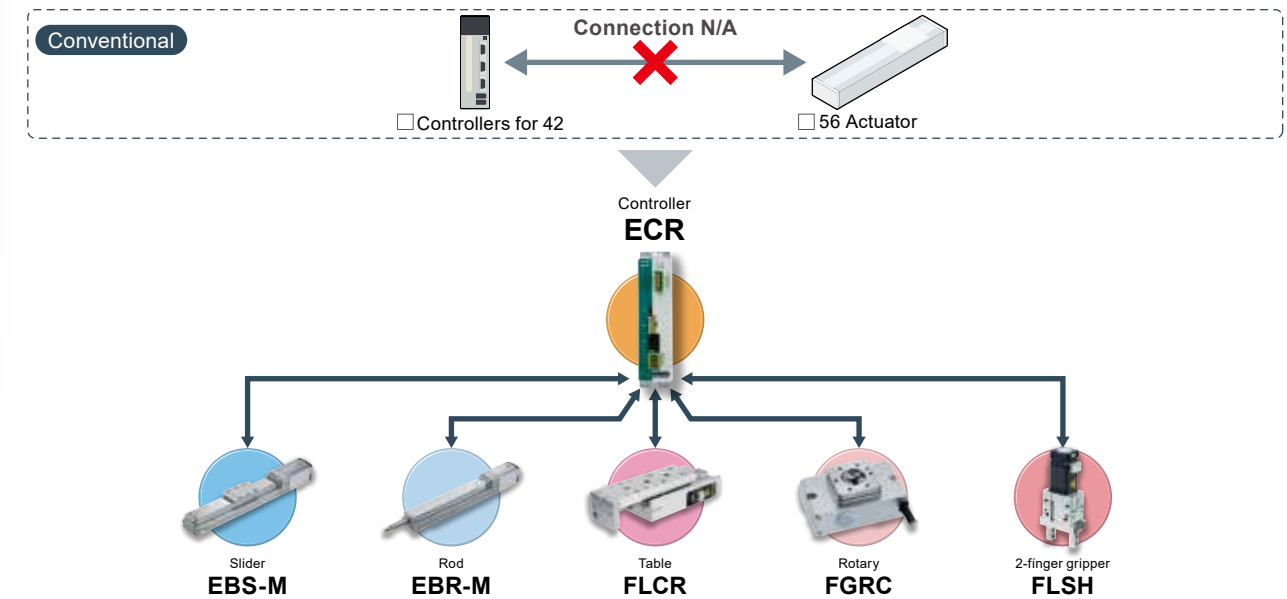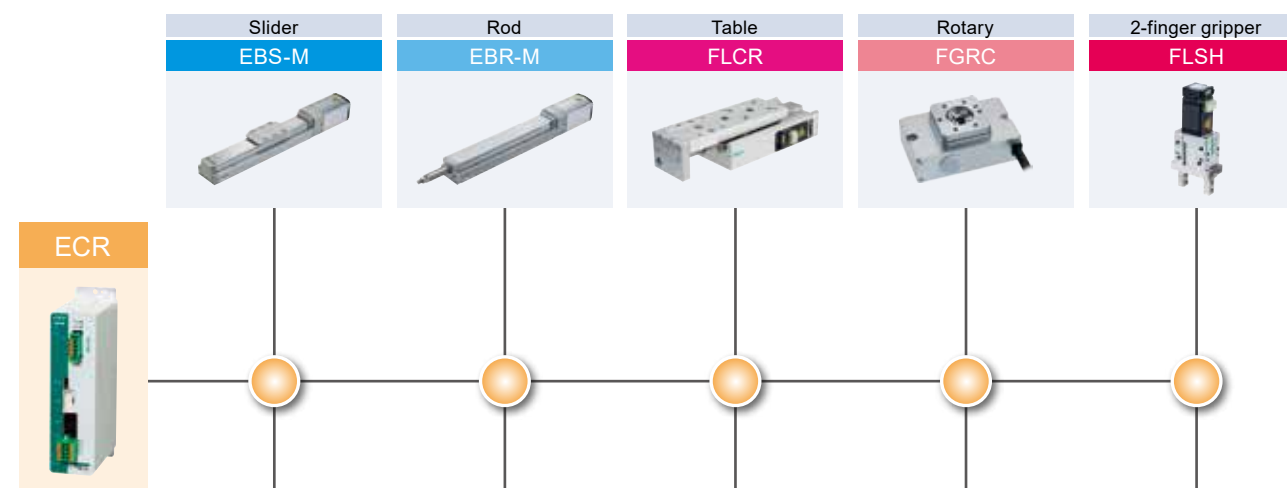## Commonization of controllers

Even actuators with different models, sizes, leads, and strokes can be operated with the same controller. It is possible to significantly reduce the man-hours for selection and ordering, as well as inventory. Since it is equipped with an automatic recognition function that reads actuator information, the initial setting man-hours can also be reduced.

Conventional — Connection N/A ✕ — □Controllers for 42 / □56 Actuator

Controller **ECR**

Slider	Rod	Table	Rotary	2-finger gripper
EBS-M	**EBR-M**	**FLCR**	**FGRC**	**FLSH**

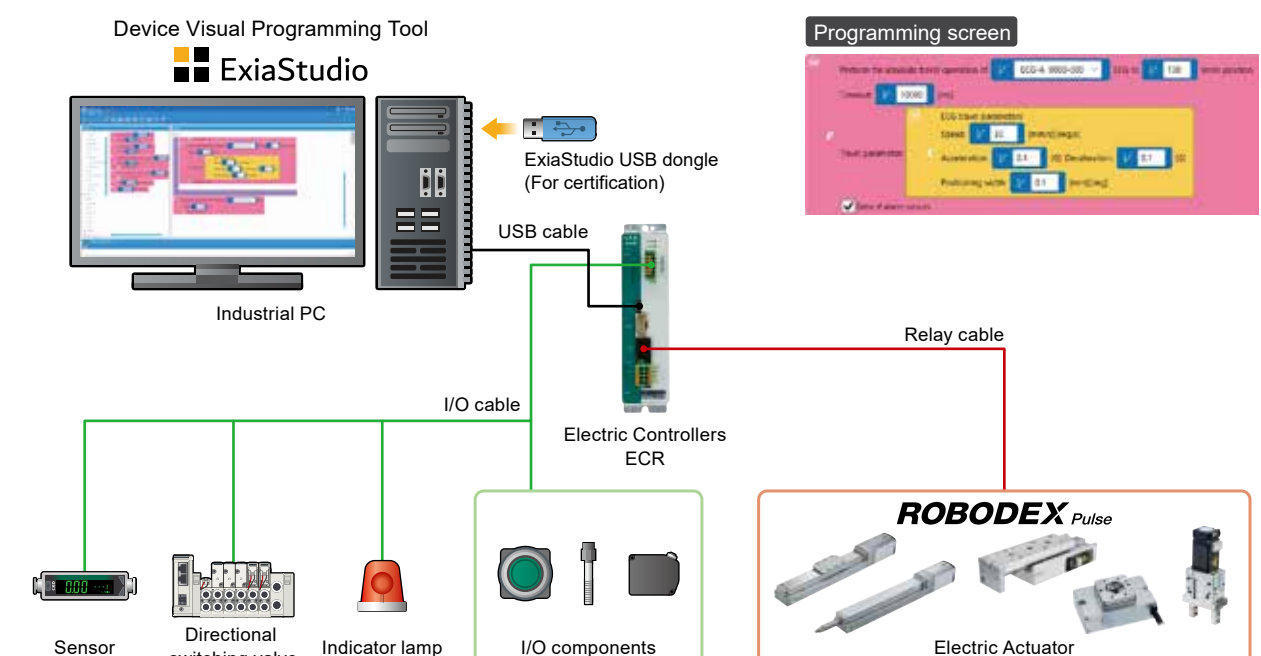## Compatible with Device Visual Programming Tool "ExiaStudio"

Compatible with "ExiaStudio", which allows for easy programming with intuitive operation without requiring specialized knowledge. Electric actuators can be easily controlled with direct values on a PC. The controller ECR can also be used as a digital I/O terminal.

Device Visual Programming Tool **ExiaStudio**
Programming screen
ExiaStudio USB dongle (For certification)
Industrial PC — USB cable
I/O cable
Electric Controllers ECR
Relay cable
Sensor · Directional switching valve · Indicator lamp · I/O components · Electric Actuator
ROBODEX *Pulse*

ECR Series

Controller for EBS-M, EBR-M, FLCR, FLSH, FGRC

CE UK CA RoHS

Model No. Notation Method

ECR-MNNN3B - NP A 02
❶ ❷ ❸

❶Interface Specifications	
NP	Parallel I/O (NPN, PNP common)
LK	IO-Link
CL	CC-Link
EC	EtherCAT

❷Mounting Method	
A	Standard mount
D	DIN rail mounting

❸IO Cable Length *1	
00	None
02	2 m
03	3 m
05	5 m
10	10 m

*1 Except when selecting "Parallel I/O" for the interface specification, please select "None".

EAR-Subject Item (product incorporating EAR99)

System Configuration

Surge protector

Controller ECR Series

PLC

Ferrite core

I/O cable (See P. 607)

Ferrite core

Ferrite core

Noise filter for power supply (See P. 608)

USB cable (mini-B)

PC

DC power supply (See P. 608)

PC setting software (free of charge)
Download from the CKD website.
(URL:https://www.ckd.co.jp/en/)

Ferrite core

Ferrite core Ferrite core

Motor cable (See P. 607)

Encoder cable (See P. 607)

Connectable actuators

EBS-M Series (P. 101)	EBR-M Series (P. 159)	FLCR Series (P. 225)	FGRC Series (P. 247)	FLSH Series (P. 271)

* For installation of noise filters, surge protectors, ferrite cores, and wiring methods, please refer to the instruction manual.
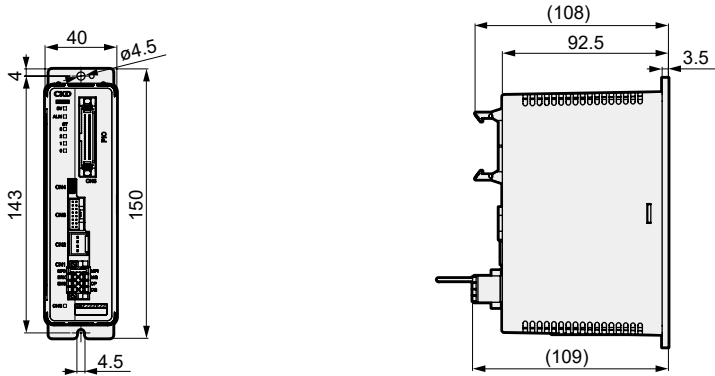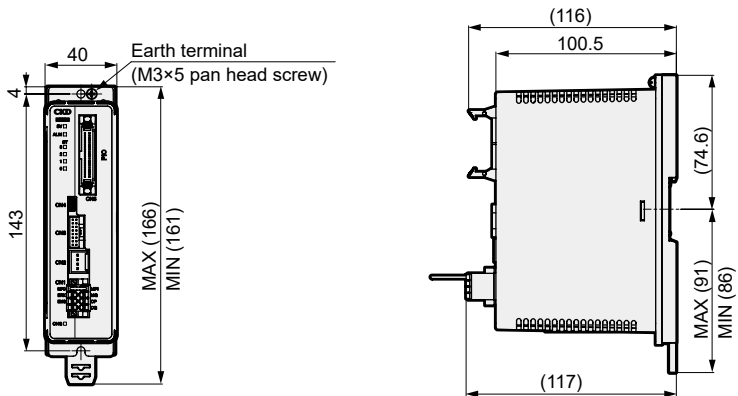
General Specifications

Item		Content							
Applicable Actuators		EBS-M, EBR-M			FLCR, FGRC, FLSH				
Applicable Motor Size		□35	□42	□56	□20	□25	□25L	□35	
Configuration Tool		PC configuration software (S-Tools) Connection cable: USB cable (mini-B)							
External Interface	Parallel I/O specifications	24 VDC ±10%, max. 16 I/O points each, max. cable length 10 m							
	Field network specifications	IO-Link, CC-Link, EtherCAT							
Indicator light		Servo ON/OFF confirmation LED, alarm status confirmation LED Status confirmation LED, communication status confirmation LED (depends on each interface specification)							
Power supply voltage	Control power supply	24 VDC ±10% or 48 VDC ±10%							
	Motive power supply	24 VDC ±10% or 48 VDC ±10%							
Current Consumption	Control power supply	0.6 A or less							
	Motive power supply	2.8 A or less	3.7 A or less	6.1 A or less	1.1 A or less	2.1 A or less	3.2 A or less	3.0 A or less	
Motor Max. Instantaneous Current		4.0 A or less	5.2 A or less	8.6 A or less	1.5 A or less	3.0 A or less	4.5 A or less	4.2 A or less	
Brake current consumption		0.4 A or less							
Insulation Resistance		10 MΩ or more at 500 VDC							
Dielectric Strength		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							
Operating atmosphere		No corrosive gas, explosive gas, or dust							
Protection Structure		IP20							
Weight		Approx. 400 g (standard mounting) Approx. 430 g (DIN rail mounting)							

External Dimension Drawing

● Standard mount (ECR-MNNN3B-□A□)

(108)
40 ø4.5
4
143 150
4.5
92.5 3.5
(109)

● DIN rail mounting (ECR-MNNN3B-□D□)

40 Earth terminal (M3×5 pan head screw)
4
143 MAX (166) MIN (161)
(116)
100.5
(74.6)
MAX (91) MIN (86)
(117)

Parallel I/O (PIO) input/output circuit

Input Specifications

Item	ECR-MNNN3B-NP□□
Number of input points	16 points
Input voltage	24 VDC ±10%
Input current	3.7 mA/point
ON-state input voltage	19 V or more
OFF-state input current	0.2 mA or less

Input circuit

Input

Input COM

The input is non-polar.
(Input COM can be used for both+and -)
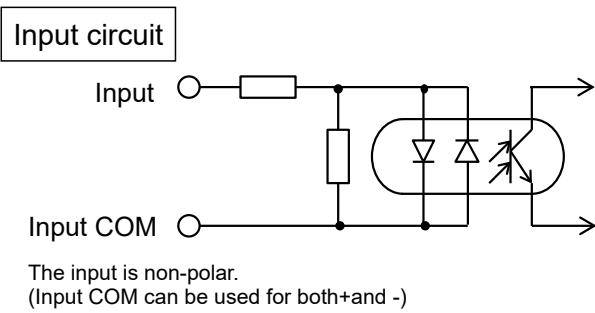
Output Specifications

Item	ECR-MNNN3B-NP□□
Number of output points	16 points
Load voltage	24 VDC ±10%
Load current	20 mA or less/point
ON-state internal voltage drop	3 V or less
OFF-state leakage current	0.1 mA or less
Output short-circuit protection circuit	Yes
Connected load	PLC, etc.

Output circuit

Output

Output COM

The output is non-polar.
(Output COM can be used for both+and -)
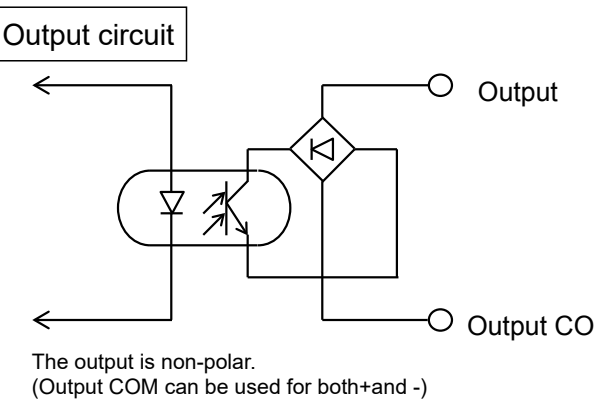
Parallel I/O (PIO) operation mode

The controller has 9 types of operation modes. Please set the appropriate operation mode for your application using the PC configuration software. The initial setting is "64-point mode".

Operation Mode	Number of positioning points	Overview
64-point mode	64 points	· Moving output · point zone output: 1 point · Zone output: 2 points
128-point mode	128 points	· Moving output · Select output: · 2 points (Point zone, Zone 1, Zone 2, Moving)
256-point mode	256 points	· Select output: · 2 points (Point zone, Zone 1, Zone 2, Moving)
512-point mode	512 points	· Select output: · 1 point (Point zone, Zone 1, Zone 2, Moving)
Teach 64-point mode	64 points	· JOG (INCH) move start input · Moving output · Select output: · 2 points (Point zone, Zone 1, Zone 2, Moving)
Simple 7-point mode	7 points	· Moving output · Zone output: 2 points
Solenoid valve mode Double 2-position type	2 points	· SW output: · 2 points · Point zone output: 1 point · Moving output · Zone output: 2 points
Solenoid valve mode Double 3-position type	2 points	· SW output: · 2 points · Point zone output: 1 point · Moving output · Zone output: 2 points
Solenoid valve mode Single type	2 points	· SW output: · 2 points · Point zone output: 1 point · Moving output · Zone output: 2 points

Parallel I/O (PIO) Signal Abbreviation List

Input signal

Abbreviation	Name	Abbreviation	Name
PST	Point move start	JIM	JOG/INCH (-) move start
PSB*	Point number selection bit *	JIP	JOG/INCH (+) move start
OST	Homing Start	INCH	INCH Selection
SVON	Servo ON	P*ST	Point number * move start
ALMRST	Alarm Reset	V1ST	Solenoid valve move command 1
STOP	Stop	V2ST	Solenoid valve move command 2
PAUSE	Pause	VST	Solenoid valve move command
WRST	Start writing		
TEACH	Teach selection		

Output signal

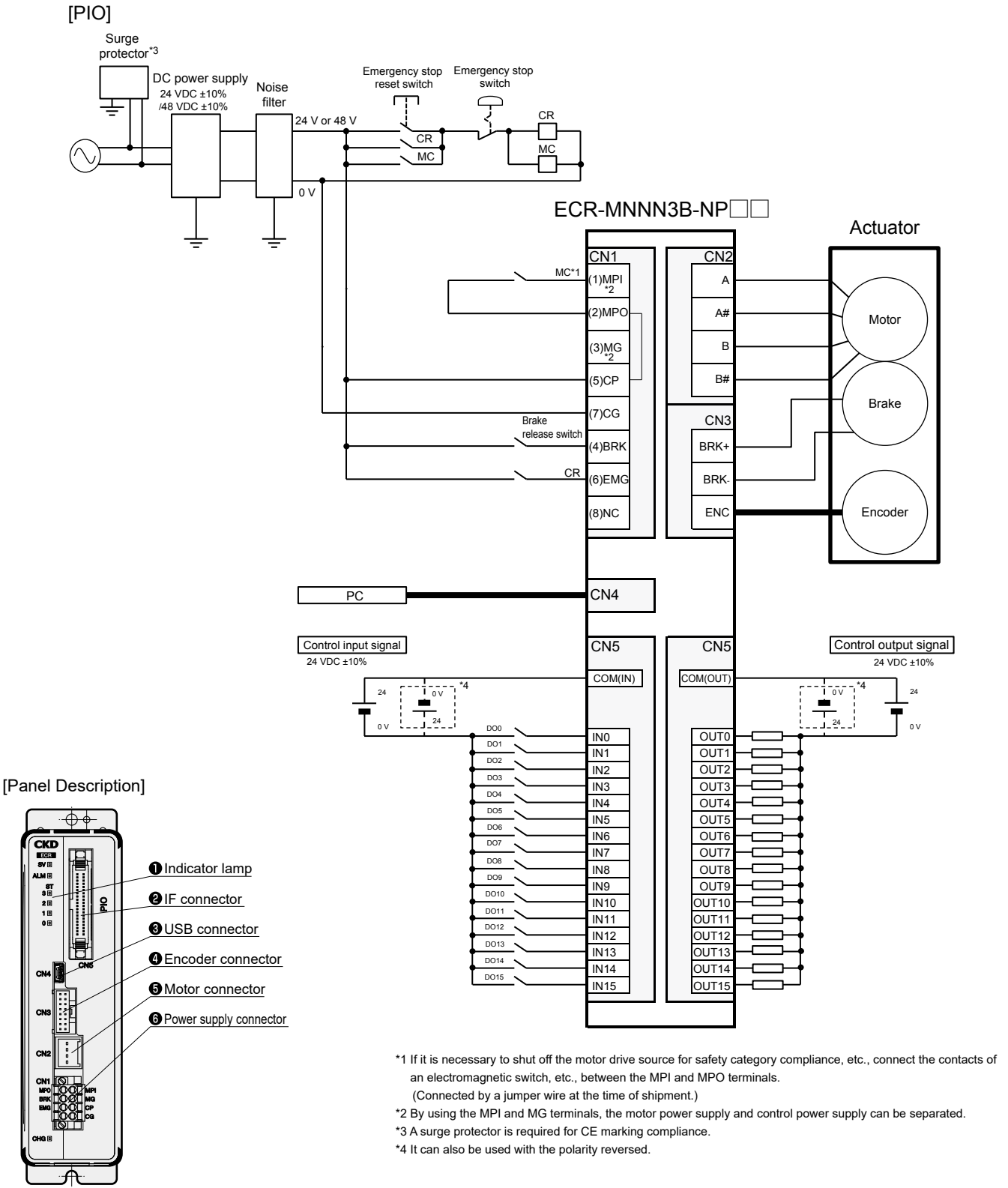| Abbreviation	Name	Abbreviation	Name
PEND	Point move complete	ALM	Alarm
PCB*	Point number confirmation bit *	WARN	Warning
ACB*	Alarm confirmation bit *	READY	Ready to operate
PZONE	Point zone	WREND	Write complete
MOVE	Moving	TEACHS	Teach status
ZONE1	Zone 1	P*END	Point number *Move complete
ZONE2	Zone 2	SW1	Switch 1
OEND	Homing complete	SW2	Switch 2
SONS	Servo ON state		

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

The signal assignment by operation mode is as shown in the figure below.

Operation Mode		64-point mode	128-point mode	256-point mode	512-point mode	Teach 64-point mode	Simple 7-point mode	Solenoid valve mode Double 2-position type	Solenoid valve mode Double 3-position type	Solenoid valve mode Single type
Number of positioning points		64	128	256	512	64	7	2	2	2
Input	IN0	PSB0	PSB0	PSB0	PSB0	PSB0	P1ST	V1ST	V1ST	-
	IN1	PSB1	PSB1	PSB1	PSB1	PSB1	P2ST	V2ST	V2ST	-
	IN2	PSB2	PSB2	PSB2	PSB2	PSB2	P3ST	-	-	VST
	IN3	PSB3	PSB3	PSB3	PSB3	PSB3	P4ST	-	-	-
	IN4	PSB4	PSB4	PSB4	PSB4	PSB4	P5ST	-	-	-
	IN5	PSB5	PSB5	PSB5	PSB5	PSB5	P6ST	-	-	-
	IN6	-	PSB6	PSB6	PSB6	TEACH	P7ST	-	-	-
	IN7	-	-	PSB7	PSB7	JIM	-	-	-	-
	IN8	-	-	-	PSB8	JIP	-	-	-	-
	IN9	-	-	-	-	INCH	-	-	-	-
	IN10	PST	PST	PST	PST	PST/WRST	-	-	-	-
	IN11	OST	OST	OST	OST	OST	OST	OST	OST	OST
	IN12	SVON	SVON	SVON	SVON	SVON	SVON	SVON	SVON	SVON
	IN13	ALMRST	ALMRST	ALMRST	ALMRST	ALMRST	ALMRST	ALMRST	ALMRST	ALMRST
	IN14	STOP #	STOP #	STOP #	STOP #	STOP #	STOP #	-	-	-
	IN15	PAUSE #	PAUSE #	PAUSE #	PAUSE #	PAUSE #	PAUSE #	-	-	-
Output	OUT0	PCB0/ACB0	PCB0/ACB0	PCB0/ACB0	PCB0/ACB0	PCB0/ACB0	P1END	P1END	P1END	P1END
	OUT1	PCB1/ACB1	PCB1/ACB1	PCB1/ACB1	PCB1/ACB1	PCB1/ACB1	P2END	P2END	P2END	P2END
	OUT2	PCB2/ACB2	PCB2/ACB2	PCB2/ACB2	PCB2/ACB2	PCB2/ACB2	P3END	-	-	-
	OUT3	PCB3/ACB3	PCB3/ACB3	PCB3/ACB3	PCB3/ACB3	PCB3/ACB3	P4END	-	-	-
	OUT4	PCB4	PCB4	PCB4	PCB4	PCB4	P5END	SW1	SW1	SW1
	OUT5	PCB5	PCB5	PCB5	PCB5	PCB5	P6END	SW2	SW2	SW2
	OUT6	PZONE	PCB6	PCB6	PCB6	TEACHS	P7END	-	-	-
	OUT7	MOVE	MOVE	PCB7	PCB7	MOVE	MOVE	MOVE	MOVE	MOVE
	OUT8	ZONE1	PZONE/ZONE1/ZONE2/MOVE	PZONE/ZONE1/ZONE2/MOVE	PCB8	PZONE/ZONE1/ZONE2/MOVE	ZONE1	ZONE1	ZONE1	ZONE1
	OUT9	ZONE2	PZONE/ZONE1/ZONE2/MOVE	PZONE/ZONE1/ZONE2/MOVE	PZONE/ZONE1/ZONE2/MOVE	PZONE/ZONE1/ZONE2/MOVE	ZONE2	ZONE2	ZONE2	ZONE2
	OUT10	PEND	PEND	PEND	PEND	PEND/WREND	PZONE	PZONE	PZONE	PZONE
	OUT11	OEND	OEND	OEND	OEND	OEND	OEND	OEND	OEND	OEND
	OUT12	SONS	SONS	SONS	SONS	SONS	SONS	SONS	SONS	SONS
	OUT13	ALM#	ALM#	ALM#	ALM#	ALM#	ALM#	ALM#	ALM#	ALM#
	OUT14	WARN#	WARN#	WARN#	WARN#	WARN#	WARN#	WARN#	WARN#	WARN#
	OUT15	READY	READY	READY	READY	READY	READY	READY	READY	READY

* # is a negative logic signal.

Controller
ECMG
ECG
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Ending
600
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Controller
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CKD 601

Parallel I/O connection diagram (ECR-MNNN3B-NP**)

[PIO]

ECR-MNNN3B-NP☐☐

Actuator

CN1
- (1)MPI *2
- (2)MPO
- (3)MG *2
- (5)CP
- (7)CG
- (4)BRK
- (6)EMG
- (8)NC

CN2
- A
- A#
- B
- B#

CN3
- BRK+
- BRK-
- ENC

Motor / Brake / Encoder

PC → CN4

CN5
COM(IN)

Control input signal 24 VDC ±10%

| IN0 | IN1 | IN2 | IN3 | IN4 | IN5 | IN6 | IN7 | IN8 | IN9 | IN10 | IN11 | IN12 | IN13 | IN14 | IN15 |

DO0–DO15

CN5
COM(OUT)

Control output signal 24 VDC ±10%

| OUT0 | OUT1 | OUT2 | OUT3 | OUT4 | OUT5 | OUT6 | OUT7 | OUT8 | OUT9 | OUT10 | OUT11 | OUT12 | OUT13 | OUT14 | OUT15 |

[Panel Description]

- ❶ Indicator lamp
- ❷ IF connector
- ❸ USB connector
- ❹ Encoder connector
- ❺ Motor connector
- ❻ Power supply connector

*1 If it is necessary to shut off the motor drive source for safety category compliance, etc., connect the contacts of an electromagnetic switch, etc., between the MPI and MPO terminals.
  (Connected by a jumper wire at the time of shipment.)
*2 By using the MPI and MG terminals, the motor power supply and control power supply can be separated.
*3 A surge protector is required for CE marking compliance.
*4 It can also be used with the polarity reversed.

● Attached items

Product Name	Manufacturer model number	Manufacturer name
Power connector	DFMC1,5/4-STF-3,5	PHOENIX CONTACT

Description of field network operation modes

Operation Mode	Overview
PIO mode: (PIO)	Point operation can be used, and the I/O signal assignment can be changed in operation mode (PIO), similar to the parallel I/O specification. However, direct value operation, which sets the operating conditions during operation directly from the PLC, cannot be selected. In addition, parameters cannot be read or written, and the monitor function cannot be used. For detailed items, please refer to the table below.
Simple direct value mode: (SDP)	By switching the direct value travel selection, you can select and use either the 512-point operation or the direct value operation, in which the target position is arbitrarily set from the PLC and operated. In addition, parameters can be read and written, and the monitor function can also be used. For detailed items, please refer to the table below.
Full Direct Value Mode (FDP)	By switching the direct value travel selection, you can select and use either the 512-point operation or the direct value operation, in which the operating conditions are arbitrarily set from the PLC and operated. In addition, parameters can be read and written, and the monitor function can also be used. For detailed items, please refer to the table below.

Operation Mode		PIO	SDP	FDP
Read/Write parameters		Not available	Available	Available
Direct Value Travel Selection *1		Not selectable	1	1
Number of positioning points		512	Unlimited	Unlimited
Direct Value Travel Item *2	Target Position	-	○	○
	Positioning Width	-	-	○
	Speed	-	-	○
	Acceleration	-	-	○
	Deceleration	-	-	○
	Pushing Rate	-	-	○
	Pushing Distance	-	-	○
	Pushing Speed	-	-	○
	Positioning Method	-	-	○
	Operation Method	-	-	○
	Stopping Method	-	-	○
	Acceleration/ Deceleration Method	-	-	○
Monitor Item *3	Position	-	○	○
	Speed	-	△	▲
	Current	-	△	▲
	Alarm	-	△	▲

*1: If the direct value travel selection is 0, it will operate with the value set in the point data. Therefore, the number of positioning points is up to 512.
*2: ○ indicates the Item operated with the value set by the PLC. - operates with the value set in the point data.
*3: ○ indicates items that can always be monitored on all networks. - indicates items that cannot be monitored.
  △ indicates items that can be monitored by selecting from △ (only one item) for IO-Link and CC-Link, and simultaneously for EtherCAT.
  ▲ indicates items that can be monitored by selecting from ▲ (only one item) for IO-Link, and simultaneously for CC-Link and EtherCAT.

Controller ECMG ECG ECR ESC4 Ending

602

CKD

CKD

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Controller ECMG ECG ECR ESC4 Ending

IO-Link specifications and connection diagram (ECR-MNNN3B-LK□□)

[Communication Specifications]

Item	Specifications
Communication protocol version	V1.1
Transmission speed	COM3 (230.4kbps)
Port	Class A
Process data length Input PD (in) data length	PIO mode: 2 bytes
	Simple direct value mode: 9 bytes
	Full Direct Value Mode: 9 bytes
Process data length (Output) PD (out) data length	PIO mode: 2 bytes
	Simple direct value mode: 7 bytes
	Full Direct Value Mode: 22 bytes
Minimum cycle time	PIO mode: 1 ms
	Simple direct value mode: 2 ms
	Full Direct Value Mode: 2.5 ms
Monitor function	Position, speed, current, alarm

* The items that can be monitored vary depending on the mode. For details, please refer to P. 603.

[IO-Link]
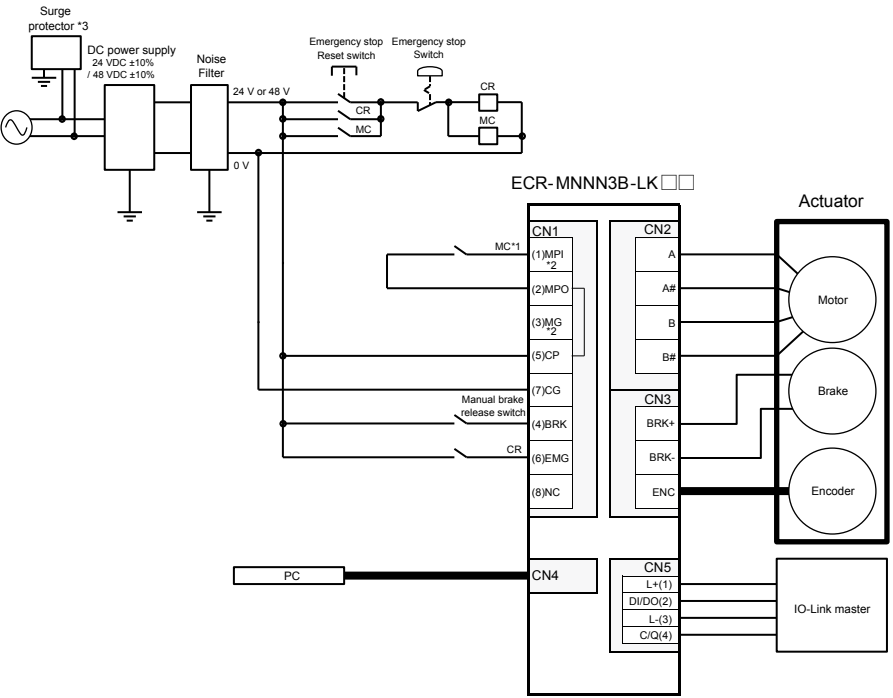
ECR-MNNN3B-LK□□

*1 If it is necessary to shut off the motor drive source for safety category compliance, etc., connect the contacts of an electromagnetic switch, etc., between the MPI and MPO terminals. (Connected by a jumper wire at the time of shipment.)
*2 By using the MPI and MG terminals, the motor power supply and control power supply can be separated.
*3 A surge protector is required for CE marking compliance.

[Panel Description]

❶ Indicator lamp
❷ IF connector
❸ USB connector
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❺ Motor connector
❻ Power supply connector
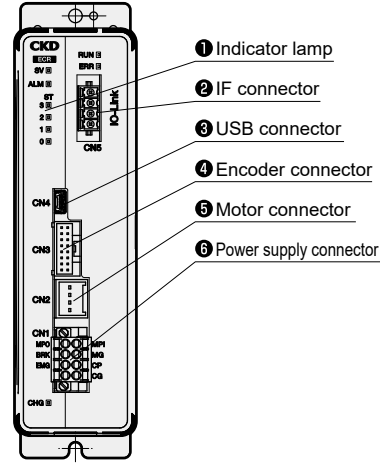
Cyclic data from master

PD (OUT)	bit	Full Direct Value Mode Signal name
0	7	Pause #
	6	Stop #
	5	Alarm Reset
	4	Servo ON
	3	Homing Start
	2	Point move start
	1	-
	0	Point number selection bit 8
1	7 to 0	Point number selection bits 7 to 0
2	7	-
	6	-
	5 to 4	Direction of rotation
	3 to 1	Monitor number
	0	Direct Value Travel Selection
3 to 6	7 to 0	Position
7 to 8	7 to 0	Positioning Width
9 to 10	7 to 0	Speed
11	7 to 0	Acceleration
12	7 to 0	Deceleration
13	7 to 0	Pushing Rate
14	7 to 0	Pushing Speed
15 to 18	7 to 0	Pushing Distance
19 to 20	7 to 0	Gain magnification
21	7	Positioning Method
	6 to 5	Operation Method
	4 to 3	Acceleration/Deceleration Method
	2 to 0	Stopping Method

Cyclic data from controller

PD (IN)	bit	Full Direct Value Mode Signal name
0	7	Ready to operate
	6	Warning #
	5	Alarm #
	4	Servo ON state
	3	Homing complete
	2	Point move complete
	1	-
	0	Point number confirmation bit 8
1	7 to 0	Point number confirmation bits 7 to 0
2	7 to 5	-
	4	Zone 2
	3	Zone 1
	2	Moving
	1	Point zone
	0	Direct move state
3 to 6	7 to 0	Position (monitor value)
7 to 8	7 to 0	Monitor value

* For other operation modes, please refer to the instruction manual.
* # represents a negative logic signal.

● Attached items

Product Name	Manufacturer model number	Manufacturer name
Power connector	DFMC1,5/4-STF-3,5	PHOENIX CONTACT
IO-Link Connector	FMC1,5/4-ST-3,5-RF	PHOENIX CONTACT

CC-Link specifications and connection diagram (ECR-MNNN3B-CL□□)

[Communication Specifications]

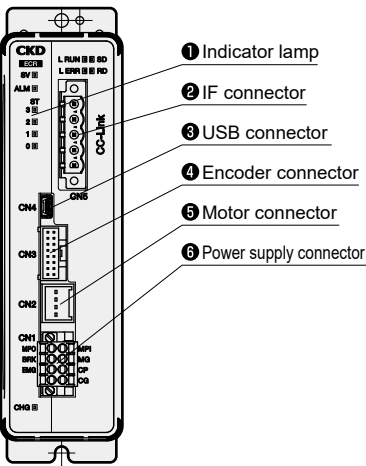| Item	Specifications
CC-Link Version	ver. 1.10
Station type	Remote device station
Remote station number	1 to 64 (set by parameter setting)
Operation mode and number of occupied stations	PIO mode (1 station occupied)
	Simple direct value mode (2 stations occupied)
	Full direct value mode (4 stations occupied)
Number of remote I/O points	PIO mode: 32 points
	Simple direct value mode: 64 points each
	Full Direct Value Mode: 128 points each
Remote register I/O	PIO mode: 4 words each
	Simple direct value mode: 8 words each
	Full Direct Value Mode: 16 words each
Communication speed	10M/5M/2.5M/625k/156kbps (Select by parameter setting)
Connection cable	CC-Link Ver. 1.10 compatible cable (Shielded 3-core twisted pair cable)
Number of connected units	Up to 42 units when only remote device stations are connected
Monitor function	Position, speed, current, alarm

* The items that can be monitored vary depending on the mode. For details, please refer to P. 603.

[CC-Link]
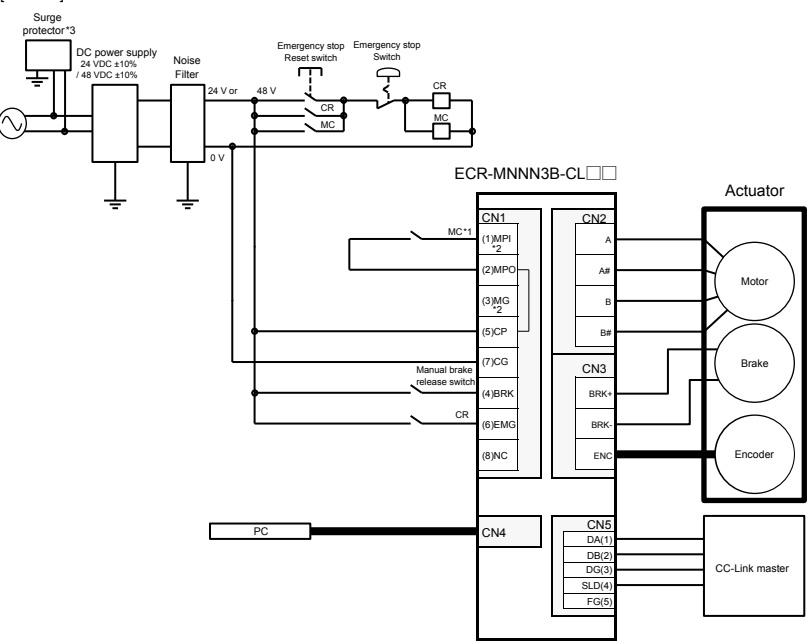
ECR-MNNN3B-CL□□

*1 If it is necessary to shut off the motor drive source for safety category compliance, etc., connect the contacts of an electromagnetic switch, etc., between the MPI and MPO terminals. (Connected by a jumper wire at the time of shipment.)
*2 By using the MPI and MG terminals, the motor power supply and control power supply can be separated.
*3 A surge protector is required for CE marking compliance.

[Panel Description]

❶ Indicator lamp
❷ IF connector
❸ USB connector
❹ Encoder connector
❺ Motor connector
❻ Power supply connector

Cyclic data from master

Device No.	Full Direct Value Mode Signal name	
RYn0 to RYnF	PIO input signal (Compliant with parallel I/O signal assignment)	
RY (n+1) 0 to RY (n+1) 3	-	
RY (n+1) 4	Data request	
RY (n+1) 5	Data R/W selection	
RY (n+1) 6 to RY (n+1) B	-	
RY (n+1) C	Monitor request	
RY (n+1) D	-	
RY (n+1) E	-	
RY (n+1) F	Direct Value Travel Selection	
RY (n+2) 0 to RY (n+7) 9	-	
RY (n+7) A	Error reset request flag	
RY (n+7) B to RY (n+7) F	-	

Cyclic data from controller

Device No.	Full Direct Value Mode Signal name	
RXn0 to RXnF	PIO output signal (Compliant with parallel I/O signal assignment)	
RX (n+1) 0 to RX (n+1) 3	Data response	
RX (n+1) 4	Data complete	
RX (n+1) 5	Data write status	
RX (n+1) 6 RX (n+1) 7	-	
RX (n+1) 8 to RX (n+1) B	Monitor response	
RX (n+1) C	Monitor complete	
RX (n+1) D RX (n+1) E	-	
RX (n+1) F	Direct value travel state	
RX (n+2) 0	Point zone	
RX (n+2) 1	Moving	
RX (n+2) 2	Zone 1	
RX (n+2) 3	Zone 2	
RX (n+2) 4 to RX (n+7) 9	-	
RX (n+7) A	Error status flag	
RX (n+7) B	Remote Ready flag	
RX (n+7) C to RX (n+7) F	-	

* For other operation modes, please refer to the instruction manual.

● Attached items

Product Name	Manufacturer model number	Manufacturer name
Power connector	DFMC1,5/4-STF-3,5	PHOENIX CONTACT
CC-Link Connector	MSTB2,5/5-STF-5,08ABGYAU	PHOENIX CONTACT

Controller

ECMG
ECG
ECR
ESC4

Ending

EtherCAT specifications and connection diagram (ECR-MNNN3B-EC□□)

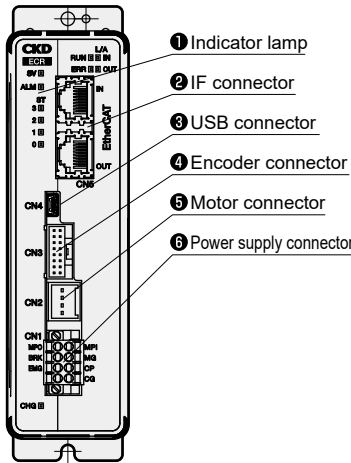[Communication Specifications]

Item	Specifications
Communication speed	100 Mbps (Fast Ethernet, full-duplex)
Process data	Variable PDO mapping
Max. PDO data length	RxPDO: 64 bytes / TxPDO: 64 bytes
Station alias	0 to 65535 (set by parameter)
Connection cable	EtherCAT compatible cable (CAT5e or higher twisted pair cable (double shielded with aluminum tape and braid) is recommended)
Node address	Master automatically assigns
Monitor function	Position, speed, current, alarm

* The items that can be monitored vary depending on the mode. For details, please refer to P. 603.

[EtherCAT]

*1 If it is necessary to shut off the motor drive source for safety category compliance, etc., connect the contacts of an electromagnetic switch, etc., between the MPI and MPO terminals. (Connected by a jumper wire at the time of shipment.)
*2 By using the MPI and MG terminals, the motor power supply and control power supply can be separated.
*3 A surge protector is required for CE marking compliance.

[Panel Description]

❶ Indicator lamp
❷ IF connector
❸ USB connector
❹ Encoder connector
❺ Motor connector
❻ Power supply connector

Process data from master

INDEX	Sub Index	bit	Full Direct Value Mode
			Signal name
0x01		0 to 15	PIO input signal (Compliant with parallel I/O signal assignment)
		16 to 31	-
0x2001	0x02	0 to 3	-
		4	Data request
		5	Data R/W selection
		6 to 11	-
		12	Monitor request
		13	-
		14	-
		15	Direct Value Travel Selection
		16 to 31	-

* For other operation modes, please refer to the instruction manual.

Process data from controller

INDEX	Sub Index	bit	Full Direct Value Mode
			Signal name
0x01		0 to 15	PIO output signal (Compliant with parallel I/O signal assignment)
		16 to 31	-
0x2005	0x02	0 to 3	Data response
		4	Data complete
		5	Data write status
		6	-
		7	-
		8 to 11	Monitor response
		12	Monitor complete
		13	-
		14	-
		15	Direct value travel state
		16	Point zone
		17	Moving
		18	Zone 1
		19	Zone 2
		20 to 31	-

● Attached items

Product Name	Manufacturer model number	Manufacturer name
Power connector	DFMC1,5/4-STF-3,5	PHOENIX CONTACT

Relay Cable

● Motor cable (fixed/flexible)

* Also selectable by actuator model

Fixed: ø6
Flexible: ø6.5

* Please use all cables with a bending radius of 63 mm or more.

EA-CBLM1 - S 01
❶ ❷
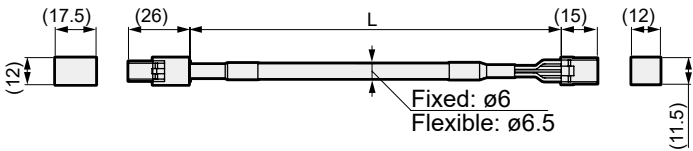
❶Cable Type	
S	Fixed cable
R	Flexible cable

❷Cable length	
01	1 m
03	3 m
05	5 m
10	10 m

● Encoder cable (fixed/flexible)
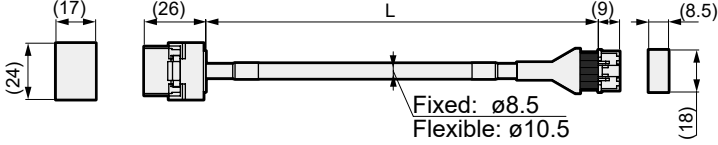
* Also selectable by actuator model

Fixed: ø8.5
Flexible: ø10.5

* Please use all cables with a bending radius of 63 mm or more.

EA-CBLE1 - S 01
❶ ❷

❶Cable Type	
S	Fixed cable
R	Flexible cable

❷Cable length	
01	1 m
03	3 m
05	5 m
10	10 m

I/O cable

● I/O cable

* Also selectable by parallel I/O specification controller model

Fusion-spliced part
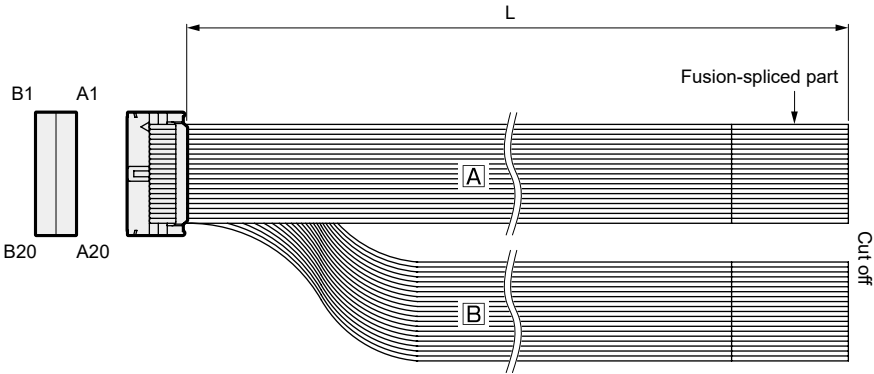
EA-CBLNP1 - 02
❶

❶Cable length	
02	2 m
03	3 m
05	5 m
10	10 m

Controller
ECMG
ECG
ECR
ESC4
Ending

Controller
ECMG
ECG
ECR
ESC4
Ending

Related parts model number table
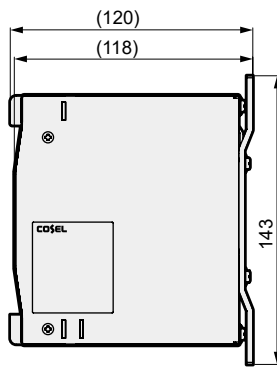
MEMO

● DC Power Supply

Item \ Model No.		EA-PWR-KHNA240F-24-N2 (screw mounting) EA-PWR-KHNA240F-24 (DIN rail mounting)	EA-PWR-KHNA480F-48-N2 (screw mounting) EA-PWR-KHNA480F-48 (DIN rail mounting)
Manufacturer		Cosel Co., Ltd.	
Manufacturer model number	Screw mounting	KHNA240F-24-N2	KHNA480F-48-N2
	DIN rail mounting	KHNA240F-24	KHNA480F-48
Input voltage		85 to 264 VAC ø1 or 88 to 370 VDC	85 to 264 VAC ø1 or 88 to 350 VDC
Output	Power	240 W	480 W
	Voltage/Current	24 V 10 A	48 V 10 A
	Variable voltage range	22.5 to 28.5 V	45.0 to 55.2 V
Attached functions	Overcurrent protection	Operates at 101% min of peak current	
	Overvoltage protection	30.0 to 36.0 V	57.6 to 67.2 V
	Remote control	Possible	
	Remote sensing	-	
	Other	DC_OK display, ALARM display	
Operating temperature/humidity		-25 to +70°C, 20 to 90%RH (no condensation), -40°C Bootable *	
Applicable Standards	Safety standards	AC input	UL60950-1, C-UL(CSA60950-1), EN62368-1
			UL508, ANSI/ISA 12.12.01, ATEX certified, PSE compliant*
		DC input	UL60950-1, C-UL(CSA60950-1), EN62368-1
	Noise terminal voltage	Compliant with FCC-B, VCCI-B, CISPR22-B, EN55011-B, EN55022-B	
	Harmonic current	IEC61000-3-2 (Class A) compliant*	
Structure	External dimensions (W×H×D)	50×124×117 mm	70×124×117 mm
	Weight	900 g max	1,200 g max
	Cooling method	Natural air cooling	

* For details, please refer to the manufacturer's website.
* CE marking and RoHS are obtained by manufacturer model number.
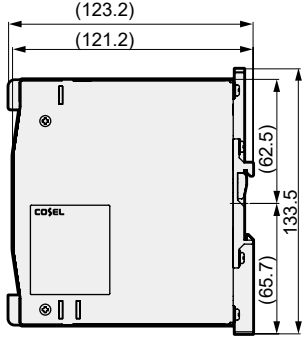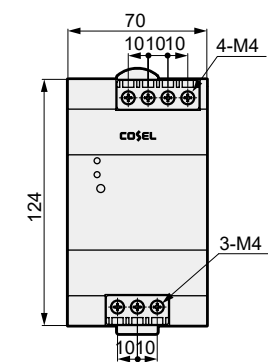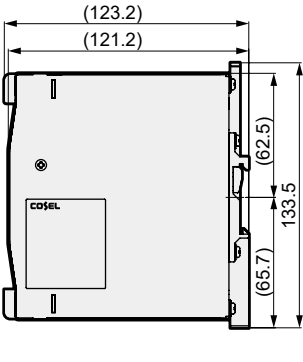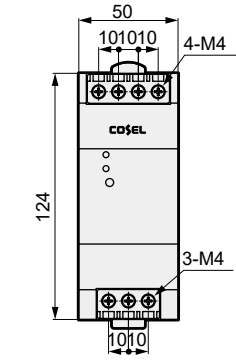
Names of Parts and External Dimension Drawings

● EA-PWR-KHNA240F-24-N2 (for 24 V screw mounting)

● EA-PWR-KHNA480F-48-N2 (for 48 V screw mounting)
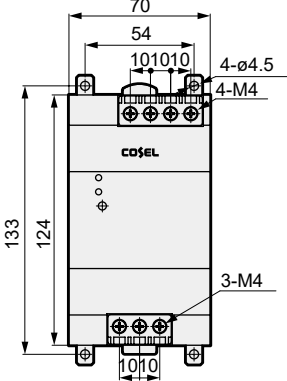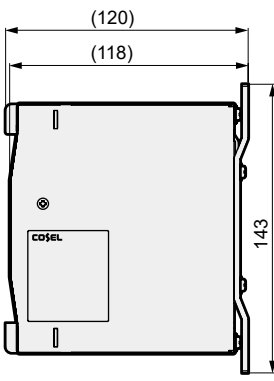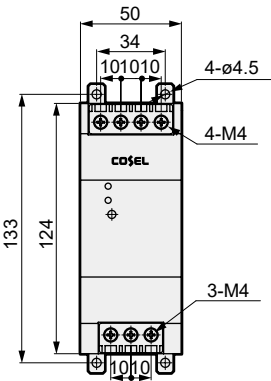
● EA-PWR-KHNA240F-24 (for 24 V DIN rail mounting)

● EA-PWR-KHNA480F-48 (for 48 V DIN rail mounting)

● Other parts

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

* For the ferrite core to be used, please refer to the instruction manual.