

Operation checker for controllers

EAK-NP EAK-PN

OWNER'S MANUAL

Ver. 2.0

Thank you for purchasing the operation checker for controllers. This OWNER'S MANUAL describes the features of and how to operate this product. Please read the manual carefully and use the product in the correct manner. Furthermore, keep this manual handy.

This equipment is specifically for controllers of Electric Auto Hand Changers/ Electric Compliance module. This equipment can do lock and unlock operations.

1. Safety Precautions

1-1 Safety

Always observe the safety instructions and precautions listed in this manual. Neglect of necessary safety measures or improper handling could result in product breakdown or damage, or in accidents that lead to injury to the users (people who set up, operate, or adjust and check, etc.).

1-2 Precautions

- Operation not allowed in ambient atmospheres containing flammable gases, etc.
The product is not built to explosion-proof specifications. Do not use in ambient atmospheres containing flammable gases, flammable dust, or flammable liquids, etc. It could result in ignitions or explosions.
- Operation not allowed in locations subject to electromagnetic interference, etc.
Do not use in locations subject to electromagnetic interference, static electric discharge, or radio frequency interference. There is a risk of erratic operations.
- Safety measures for end effectors
If there is a danger that items held by the end effector could pop out or fall, take appropriate safety measures that take into consideration the size, mass, temperature, and chemical properties of the items.
- Response to a damaged or defective main unit
If any of the damage or defects listed below have been found, continuing use of the main unit is dangerous. Immediately stop operation and contact us.

Description of damage or defect	Type of danger
Damage to motor wiring	Electric shock, malfunction of main unit
Damage to exterior casing of main unit	Damaged parts flying off during operation

- Fasten the cables so that large loads, such as from pulling or twisting, are not applied to the connectors.

2. Product set contents

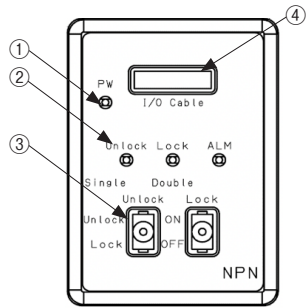
Before using the product when it is delivered, inspect whether any of the package's contents are missing or have been deformed or damaged during shipping. If they are damaged or do not operate correctly, contact your reseller (agent) or the nearest Koganei sales office.

Name	Model	Quantity
Operation checker	EAK-NP/EAK-PN	1 unit
I/O cable	EKIA	1 pc.

3. Controller

3-1 Appearance and functions

- POWER LED**
LED lights when power (rated 24 VDC) is supplied. (Refer to table 1)
- Operation status display LED**
(Refer to table 1)
- Operation switch**
(Refer to table 2 and table 3)
- I/O connector**
Connect the supplied I/O cable to connect the controller.



[Table 1]

Status	Display			
	Green (PW)	Red 1 (UNLOCK)	Red 2 (LOCK)	Red 3 (ALM)
No current is flowing (power is OFF)	○	○	○	○
Current is flowing (power is ON)	●	○	○	○
Stopped in unlock position	●	●	○	○
Reached unlock position	●	○	○	○
Motor is operating	●	○	○	○
Stopped in lock position	●	○	●	○
Reached lock position	●	○	○	○
Controller alarm occurring	●	○	○	●

●: Light on ○: Light off

[Table 2]

SW position	SW position	
	ON	OFF
Status	ON	OFF

[Table 3]

<When controller SW1: OFF state>

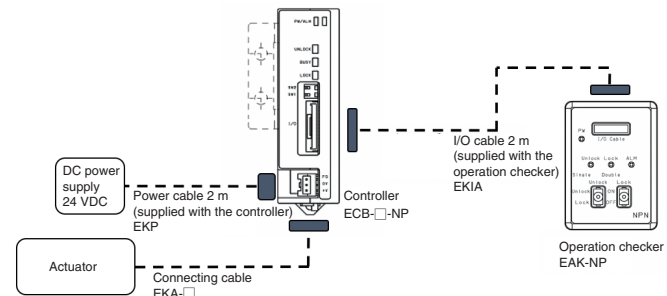
Operation switch state	UNLOCK switch	LOCK switch
SW ON	Unlock command (Always while in ON state)	-
SW OFF	Lock command (Always while in OFF state)	-

<When controller SW1: ON state>

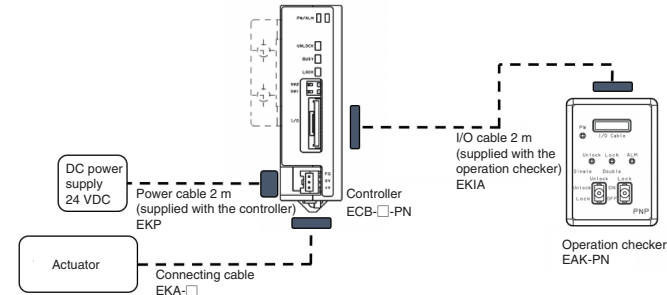
Operation switch state	UNLOCK switch	LOCK switch
SW ON	Unlock command (Startup)	Lock command (Startup)
SW OFF	-	-

3-2 System configuration

● EAK-NP (NPN specifications)



● EAK-PN (PNP specifications)



3-3 Connecting to the controller

Connect to the I/O connector on the front of the controller. Do connections while the power to the controller is cut off. Also, be sure to push the I/O cable firmly into the connectors. Do not connect to an inappropriate model of controller.

- Connector: BM12B-GHS-TB (JST Mfg. Co., Ltd.)
- Connector pin number table

Controller side			Main unit side		
NO.	Name	Color	NO.	Name	Color
1	ILK	Brown	1	OutLock	Brown
2	IULK	Red	2	OutUnlock	Red
3	N.C.	Orange	3	N.C.	Orange
4	N.C.	Yellow	4	N.C.	Yellow
5	OLK	Green	5	InLock	Green
6	OULK	Blue	6	InUnlock	Blue
7	ALARM	Purple	7	InALM	Purple
8	N.C.	Gray	8	N.C.	Gray
9	24VIN	White	9	24VIN	White
10	24GIN	Black	10	24GIN	Black
11	24VOUT	Brown	11	24VIN	Brown
12	24GOUT	Red	12	24GIN	Red

3-4 Connecting the power supply

Supply power (24 VDC) to the controller.

(From the controller, 24 VDC is supplied to the operation checker)

If the PW LED on the operation checker lights, then power is being supplied normally.

3-5 I/O interface

3-5-1 Connector signal table

NO.	Wire color	Signal name	Input/output	Description
01	Brown	OutLock	Output	Not connected (lock signal)
02	Red	OutUnlock	Output	Control signal (unlock signal)
03	Orange	N.C.	-	Not connected
04	Yellow	N.C.	-	Not connected
05	Green	InLock	Input	Lock sensor input
06	Blue	InUnlock	Input	Unlock sensor input
07	Purple	InALM	Input	Alarm input
08	Gray	N.C.	-	Not connected
09	White	24VIN	-	24-V input
10	Black	24GIN	-	24GND input
11	Brown	24VIN	-	24-V input
12	Red	24GIN	-	24GND input

* No. 01 and 02 function when "Controller SW1: OFF state". The function when "Controller SW1: ON state", is in parentheses ().

* No. 09-11 and No. 10-12 are internally common.

3-5-2 Details of input signals

There are 3 input signals.

○ Dedicated inputs

Dedicated inputs are inputs to the LEDs to display the status of the controller's output signal.

■ Lock sensor input (InLock)

This signal is ON when the lock side is reached.

■ Unlock sensor input (InUnlock)

This signal is ON when the unlock side is reached.

■ Alarm input (InALM)

This output is ON when abnormality occurs in the system of the controller. Refer to the owner's manual for the controller.

3-5-3 Details of output signals

There are 2 output signals.

○ Dedicated outputs

Dedicated outputs are outputs for signal interaction with the controller.

■ Operation output (OutLock, OutUnlock)

Operates according to controller SW1. Regarding the operations, see table 3 in section 3-1.

4. Troubleshooting

When PW LED does not turn ON, and there is no operation even if the switch is turned on, then an alarm is determined to have been issued. Turn the power OFF temporarily, eliminate the cause of the alarm, and then turn ON the power again.

Symptom	Main source of trouble	Correction process
Power does not turn ON	Power not ON	Check whether I/O cable is connected. Check that power is being input to the controller.
	Wiring not inserted	Check whether I/O cable is connected.
	Wiring chart	Check whether I/O cable wiring is correct.
	Method is different	Check the operating procedure of the controller and operate the switches according to the operating method.
Actuator does not operate	Connecting cable is disconnected	Check the troubleshooting in the owner's manual for the controller.
	Actuator malfunction	Check the troubleshooting in the owner's manual for the controller.
	Controller malfunction	Check the troubleshooting in the owner's manual for the controller.
	Insufficient current	Check the capacity of the power supply being used.
Output signal is not shown by LED	Controller malfunction	Check the troubleshooting in the owner's manual for the controller.

5. Specifications

Model		EAK-NP	EAK-PN
Item	Control input	3 points (InLock, InUnlock, InALM)	
	Control output	2 points (OutLock, OutUnlock)	
General specifications	Mass	40 g	
	Power supply voltage	(24 VDC supplied from the controller)	
	Consumed current	40mA MAX	
	Power supply indicator	When the power is turned ON, the LED lights	
	Operating temperature range	0 to 40°C	
	Operating humidity range	35 to 85% RH (no condensation)	
	Storage temperature range	-10 to 65°C	
	Accessories	I/O cable	
Applicable controller model		ECB-□-NP	ECB-□-PN

If you have questions about the contents of this manual, or about other technical issues, please consult the KOGANEI overseas group shown below.

<<Contact information>>

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