



# Touch Panel Teaching Pendant TB-02

## Applicable for, ELECYLINDER Position Controller & Program Controller First Step Guide Twelfth Edition

Thank you for purchasing our product.  
Make sure to read the Safety Guide and detailed Instruction Manual as well as this First Step Guide to ensure correct use.  
This Instruction Manual is original.

**Warning :** Read the instruction manual carefully and follow the instruction manual when handling this equipment.  
Please download the user's manual from our website.  
You can download it free of charge. User registration is required for first time users.  
URL: [www.iai-robot.co.jp/data\\_dl/CAD\\_MANUAL/](http://www.iai-robot.co.jp/data_dl/CAD_MANUAL/)  
Keep a printout of the introduction manual near the equipment in which this product is installed so that it can be checked at all times, or display it on your computer, tablet terminal, etc. so that you can check it immediately.  
If you need a bound copy of the instruction manual, order it from the nearest sales office listed in the First Step Guide or at the end of the instruction manual. It will be provided for a fee.

- Using or copying all or part of this Instruction Manual without permission is prohibited.
- The company names, names of products and trademarks of each company shown in the sentences are registered trademarks.

### Request to Users Purchased TB-02E/TB-02P

The teaching pendant TB-02 and the actuator driving power supply unit ADTB should be delivered separately.  
Have them joint together by referring to "5. How to Join Unit" in [Actuator Driving Power Supply Unit for Teaching Pendant].



## Product Check

The standard configuration of this product is comprised of the following parts.  
If you find any fault with the product you have received, or any missing parts, contact us or our distributor.  
1. Parts (The option is excluded)

| No.         | Part Name                               | Model                                                              | Q'ty | Reference                                |
|-------------|-----------------------------------------|--------------------------------------------------------------------|------|------------------------------------------|
| 1           | Main Body (with 5m standard cable)      | Refer to "How to Read model Nameplate", "How to read model Number" | 1    | Standard cable is fixed on main body.    |
| Accessories |                                         |                                                                    |      |                                          |
| 2           | ELECYLINDER / Position controller cable | CB-TB1-C002                                                        | 1    | When model C and SC selected             |
| 3           | Program controller cable                | CB-TB1-X002                                                        | 1    | When model S and SC selected             |
| 4           | Conversion Cable                        | CB-SEL-SJS002                                                      | 1    | When model S and SC selected             |
| 5           | Touch Pen                               | TCH-TB02                                                           | 1    | Provided with the main body φ4.5 x 102mm |
| 6           | Safety Guide                            | M0194                                                              | 1    |                                          |
| 7           | First Step Guide                        | ME0358                                                             | 1    | This guide                               |

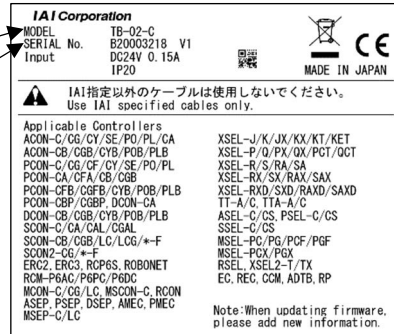
### 2. Instruction manuals related to this product.

| No. | Name                                                                                                   | Manual No.       |
|-----|--------------------------------------------------------------------------------------------------------|------------------|
| 1   | Touch Panel Teaching Pendant TB-02 Applicable for Position Controller / ELECYLINDER Instruction Manual | ME0355           |
| 2   | Touch Panel Teaching Pendant TB-02 Applicable for Program Controller Instruction                       | ME0356           |
| 3   | Actuator with Integrated ERC2 Controller Instruction Manual <PIO type/SIO type>                        | ME0158/0159      |
| 4   | Actuator with Integrated ERC3 Controller Instruction Manual                                            | ME0297           |
| 5   | PCP6S Field Bus Communication Instruction Manual                                                       | ME0349           |
| 6   | ACON-CA/DCON-CA Controller Instruction Manual                                                          | ME0326           |
| 7   | ACON-CB/CGB, DCON-CB/CGB Controller Instruction Manual                                                 | ME0343           |
| 8   | ACON-CYB/PLB/POB, DCON-CYB/PLB/POB Controller Instruction Manual                                       | ME0354           |
| 9   | PCON-CA/CFA Controller Instruction Manual                                                              | ME0289           |
| 10  | PCON-CB/CGB/CFB/CGFB/CBP/CGBP Controller Instruction Manual                                            | ME0342           |
| 11  | PCON-CYB/PLB/POB Controller Instruction Manual                                                         | ME0353           |
| 12  | SCON-CA/CAL/CGAL Controller Instruction Manual                                                         | ME0243           |
| 13  | SCON-CB/CGB/LC/LCG Controller Instruction Manual                                                       | ME0340           |
| 14  | SCON-CB-F/CGB-F/LC-F/LCG-F Controller servo press function Instruction Manual                          | ME0345           |
| 15  | SCON2-CG Controller Instruction Manual                                                                 | ME0458           |
| 16  | SCON2-CG-F Controller servo press function Instruction Manual                                          | ME0470           |
| 17  | ROBONET Instruction Manual                                                                             | ME0208           |
| 18  | ASEP/PSEP/DSEP Controller Instruction Manual                                                           | ME0267           |
| 19  | PMEC/AMEC Controller Instruction Manual                                                                | ME0245           |
| 20  | MSEP-C/LC Controller Instruction Manual                                                                | ME0299           |
| 21  | MCON-C/CG Controller Instruction Manual                                                                | ME0341           |
| 22  | MSCON Controller Instruction Manual                                                                    | ME0306           |
| 23  | RCON System Instruction Manual                                                                         | ME0384           |
| 24  | RSEL System Instruction Manual                                                                         | ME0392           |
| 25  | REC System Instruction Manual                                                                          | ME0394           |
| 26  | ASEL/PSEL/SSEL Controller Instruction Manual                                                           | ME0165/0172/0157 |
| 27  | MSEL-PC/PG/PCF/PGF/PCX/PGX Controller Instruction Manual                                               | ME0336           |
| 28  | XSEL-P/Q/PCT/QCT Controller Instruction Manual                                                         | ME0148           |
| 29  | XSEL-PX/QX Controller Instruction Manual                                                               | ME0152           |
| 30  | XSEL-R/S/RX/SX/RXD/SXD Controller Instruction Manual                                                   | ME0313           |
| 31  | XSEL-RA/SA/RAX/SAX/RAXD/SAXD Controller Instruction Manual                                             | ME0359           |
| 32  | XSEL2 Controller Instruction Manual                                                                    | ME0478           |
| 33  | Tabletop Robot TT/TTA Controller Instruction Manual                                                    | ME0149/0320      |
| 34  | ROBOPUMP Instruction Manual                                                                            | ME3827           |
| 35  | Instruction Manual of Each Model of ELECYLINDER                                                        | ---              |

### 3. How to Read Model Nameplate

Model number

Serial number



### 4. How to Read Model Number

**T B - 0 2 - S C - S W R - E N G**

<Model number>

TB-02 : Standard type  
TB-02D : With deadman switch type (left side)

<Language option>

Not specified : Screens are displayed in Japanese. (Display can be changed to other language)  
ENG : Screens are displayed in English. (Display can be changed to other language)  
CHI : Screens are displayed in Chinese. (Display can be changed to other language)

<Switch specification>

Not specified : Stop switch unit is gray.  
SWR : Stop switch unit is red.

<Cable Type>

SCN : With No Cable (Main body only)  
C : With ELECYLINDER / Position Controller Cable  
S : With Program Controller Cable and Conversion Cable  
SC : With Program Controller Cable, Conversion Cable and ELECYLINDER / Position Controller Cable

Note : It is necessary to provide a special cable (CB-TB1-XJ005) for XSEL-J/JX controller.

Refer to [Actuator Drive Power Supply Unit for Teaching Pendant] for the model code of the teaching pendant equipped with power supply unit TB-02E/TB-02P.

| Controller model        | Supported from version |
|-------------------------|------------------------|
| ERC2 (Note 1) / ERC3    | V1.00                  |
| ACON/DCON/PCON (Note 5) | V1.00                  |
| SCON (Note 3)           | V1.00                  |
| SCON (Servo Press Type) | V1.40                  |
| SCON2                   | V4.10                  |
| MCON (Note 2) / MSCON   | V1.00                  |
| RCON (Note 4)           | V2.10                  |
| RCP6S                   | V1.00                  |
| RCM-P6-C                | V1.50                  |
| RACON/RPCON             | V1.00                  |
| ASEP/DSEP/PSEP/MSEP     | V1.00                  |
| AMEC/PMEC               | V1.00                  |
| REC                     | V2.70                  |
| ADTB-PEC                | V4.40                  |

| Controller model       | Supported from version |
|------------------------|------------------------|
| ASEL/PSEL/SSEL         | V1.00                  |
| TT/TTA                 | V1.00                  |
| MSEL-PC/PG/PCX/PGX     | V1.00                  |
| MSEL-PCF/PGF           | V1.60                  |
| XSEL-J/JX              | V1.00                  |
| XSEL-K/KX/KT/KRT       | V1.00                  |
| XSEL-P/Q/PCT/QCT       | V1.00                  |
| XSEL-PX/QX             | V1.00                  |
| XSEL-R/S/RX/SX/RXD/SXD | V1.00                  |
| XSEL-RA/SA             | V1.30                  |
| XSEL-RAX/SAX/RAXD/SAXD | V1.30                  |
| RSEL                   | V2.70                  |
| XSEL2                  | V4.80                  |
| ROBOPUMP               | V4.70                  |

## Supported Models

### Supported Models of Position Controller

Note 1 Only ERC2 models with 4904 or higher stamped on the Serial No. sticker can be connected.  
However, touch-panel teaching pendants can be connected to ERC2 controllers of SE type via a SIO converter regardless of their version.  
For details, refer to the instruction manual.

Note 2 Applicable in V1.20 and later for SSCNET III/H and MECHATROLINK-III in MCON-C/CG.

Applicable in V3.00 and later for EtherCAT Motion.

Note 3 Applicable in V3.00 and later for EtherCAT Motion in SCON-CB/CGB.

Note 4 Applicable in V3.10 and later for SSCNET III/H, MECHATROLINK-III and EtherCAT Motion in RCON.

Note 5 Applicable for PCON-CBP/CGBP from V3.50 and later.

### Supported Models of Program Controller

### ELECYLINDER Supported Models

Please check our homepage or instruction manual.  
URL : [www.iai-robot.co.jp/knowledge/support/teaching\\_version/EC\\_support/TB02\\_03\\_support.pdf](http://www.iai-robot.co.jp/knowledge/support/teaching_version/EC_support/TB02_03_support.pdf)

### Supported Models of Gateway Parameter Setting Tool

| Controller model   | Supported from version |
|--------------------|------------------------|
| MSEP-C             | V1.00                  |
| MCON-C/CG (Note 6) | V1.00                  |
| REC                | V2.70                  |

| Controller model | Supported from version |
|------------------|------------------------|
| RCP6S Gateway    | V1.00                  |
| RCON (Note 7)    | V2.10                  |

Note 6 SSCNET III/H, MECHATROLINK-III and EtherCAT Motion in MCON-C/CG are not applicable.

Note 7 Applicable in V3.10 and later for SSCNET III/H, MECHATROLINK-III and EtherCAT Motion in RCON-GW/GWG.

Note PLC Feature Equipped Types (MSEP-LC, MCON-LC/LCG and RCON-LC/LCG) are not applicable.

## Confirming the Specifications

### 1. Basic Specification

| Item                       | Basic Specification                                                                                                     |                                                                       |
|----------------------------|-------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|
|                            | Position controller / ELECYLINDER connection                                                                            | Program controller connection                                         |
| Power Supply Voltage Range | 24V DC±10% (Supplied by controller)                                                                                     |                                                                       |
| Power Supply Current       | 150mA or less                                                                                                           |                                                                       |
| Power Consumption          | 3.6W or less                                                                                                            |                                                                       |
| Insulation Resistance      | 500V DC /10MΩ or more between GND and FG                                                                                |                                                                       |
| Grounding                  | -                                                                                                                       | Functional ground (by shield in the connection cable with controller) |
| LC/Backlight               | 7-inch color TFT WVGA (800×480), 65536 colors (16 bits)/White LED backlight                                             |                                                                       |
| Backlight Life             | 15000 hours                                                                                                             |                                                                       |
| Touch Panel                | 4-wire resistive type                                                                                                   |                                                                       |
| Touch Panel Life           | 1 million touches                                                                                                       |                                                                       |
| External Memory            | SD/SDHC memory card interface installed (1G to 32G) (Toshiba-made recommended)                                          |                                                                       |
| Data Storage               | Applicable to have data saved to and read from external Secure Digital card (Position data, parameter, alarm list)      |                                                                       |
| Data Backup Battery Life   | 5 years                                                                                                                 |                                                                       |
| Touch Tone                 | Turned ON/OFF. Volume is adjustable by 3 stages (High/Medium/Low).                                                      |                                                                       |
| Display Adjustment         | Brightness adjustable for contrast and backlight                                                                        |                                                                       |
| Clock Setting              | Clock setting available with real time clock (Backup held with CR2032 button battery)                                   |                                                                       |
| Communication Standard     | Based on RS485                                                                                                          | Based on RS232                                                        |
| Communication Speed        | 115,200bps                                                                                                              | 9,600bps/19,200bps/38,400bps /57,600bps/115,200bps/230,400bps         |
| Cable Length               | Standard 5m/Max. 10m                                                                                                    |                                                                       |
| Wall-mounting Hook         | Hook available to use with M8 hex socket head cap screw                                                                 |                                                                       |
| Time from Power OFF to ON  | 2 sec or more                                                                                                           |                                                                       |
| Air-cooling System         | Natural air-cooling                                                                                                     |                                                                       |
| Languages                  | Japanese/English/Chinese                                                                                                |                                                                       |
| Mass                       | TB-02: Approx. 470g (Main body) + Approx. 330g (cable 5m)<br>TB-02D: Approx. 600g (Main body) + Approx. 330g (cable 5m) |                                                                       |



Secure Digital memory card is a registered trademark for SD-3C, LLC and SDA.

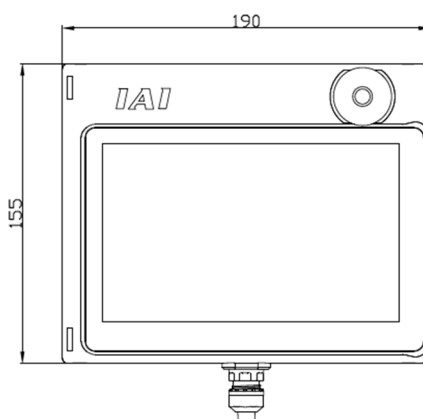
### 2. Environmental Specifications

| Item                                    | Environmental Specifications                                                                                                                                                                                                                           |
|-----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ambient Operating Temperature           | 0 to 40°C                                                                                                                                                                                                                                              |
| Ambient Operating Humidity              | 5%RH to 85%RH (Should be no-condensing or freezing)                                                                                                                                                                                                    |
| Ambient Storage Temperature             | -20 to 70°C                                                                                                                                                                                                                                            |
| Ambient Storage Humidity                | 5%RH to 85%RH (Should be no-condensing or freezing)                                                                                                                                                                                                    |
| Vibration Endurance                     | Vibration 10 - 57Hz/Amplitude: 0.035mm (continuous), 0.075mm (intermittent)<br>Vibration 57 - 150Hz/Acceleration: 4.9m/s <sup>2</sup> (continuous), 9.8m/s <sup>2</sup> (continuous)<br>X/Y/Z direction Sweep time: 10 min. Sweep repetition: 10 times |
| Altitude                                | 1000 meters or less above the sea level                                                                                                                                                                                                                |
| Atmosphere                              | Environment without corrosive and combustible gas.<br>Avoid using the equipment where there is much dust and oil mist/ cutting fluid is sprinkled.                                                                                                     |
| Pollution Level                         | II                                                                                                                                                                                                                                                     |
| Degree of Protection                    | IP20                                                                                                                                                                                                                                                   |
| Protective Class against Electric Shock | III                                                                                                                                                                                                                                                    |

## External Dimensions

### Front

Standard Specification  
Deadman Switch Specification

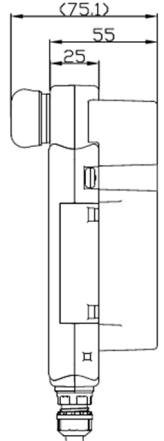


### Side

Standard Specification  
(without Deadman Switch)



Deadman Switch Specification

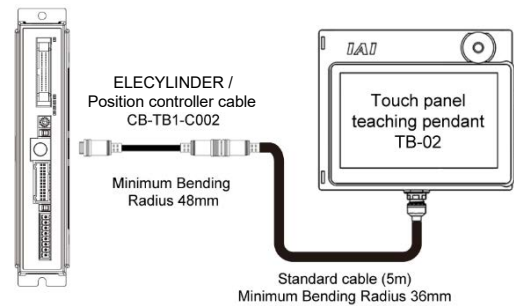


## Wiring Diagram

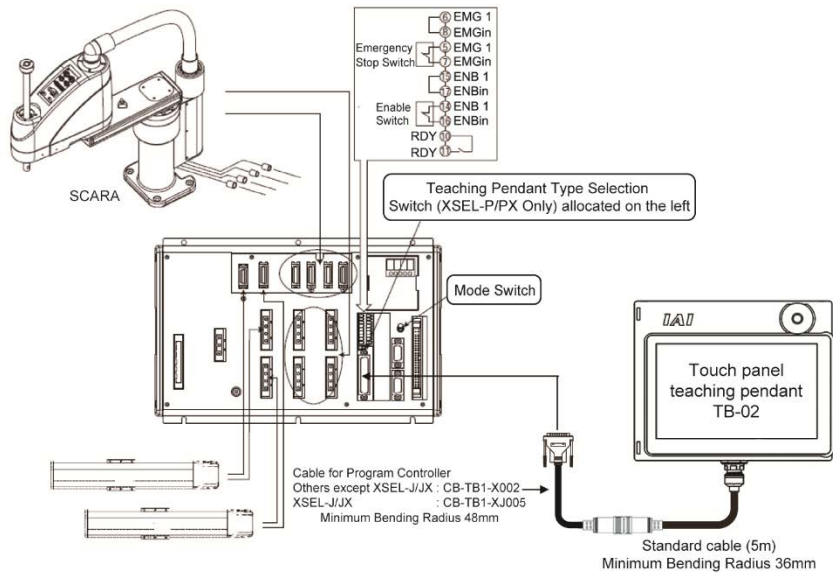
The standard cable (5m) is connected to the TB-02 main body. Connect each controller cable to this standard cable for use.

**Caution:** Turn the controller power OFF before connecting or disconnecting the touch panel teaching pendant TB-02.

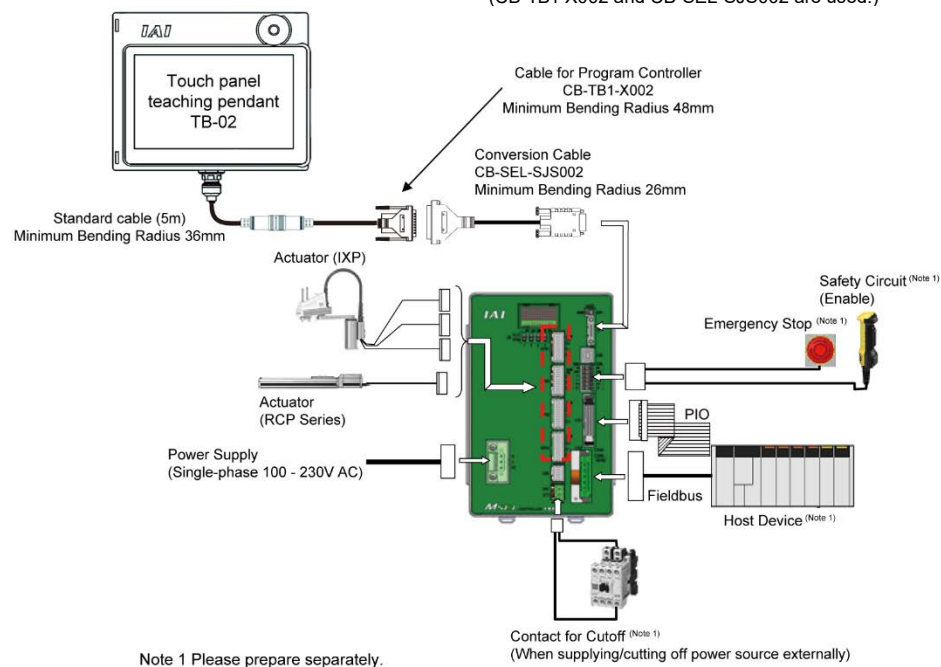
- (1) Position controller ERC2, ERC3, RCP6S, RCM-P6□C, ACON, PCON, SCON, SCON2, DCON, MCON, MCON, RACON, RACON, RACON, RACON, ASEP, PSEP, DSEP, MSEP, AMEC, P MEC, REC, ELECYLINDER, ROBOPUMP (CB-TB1-C002 is used.)



- (2) Program controller XSEL-J/JX (CB-TB1-XJ005 is used.)  
Program controller XSEL-K/KX/KT/KET/P/PX/PCT/Q/QX/QCT/R/RX/RXD/S/SX/SXD /RA/RAX/RAXD/SA/SAX/SAXD, XSEL2, TT/TTA (CB-TB1-X002 is used.)



- (3) Program controller MSEL-PC/PCF/PG/PGF/PCX/PGX, SSEL, ASEL, PSEL, RSEL (CB-TB1-X002 and CB-SEL-SJS002 are used.)

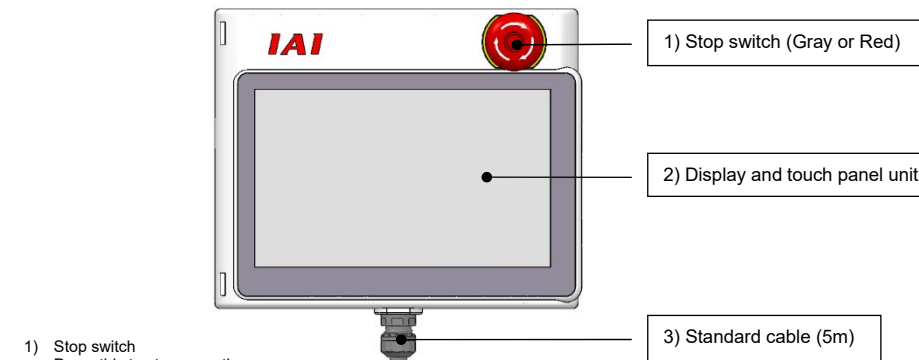


Note 1 Please prepare separately.

(Note) For other wiring except connection with Touch Panel Teaching Pendant TB-02, refer to the first step guide or instruction manual of each controller.

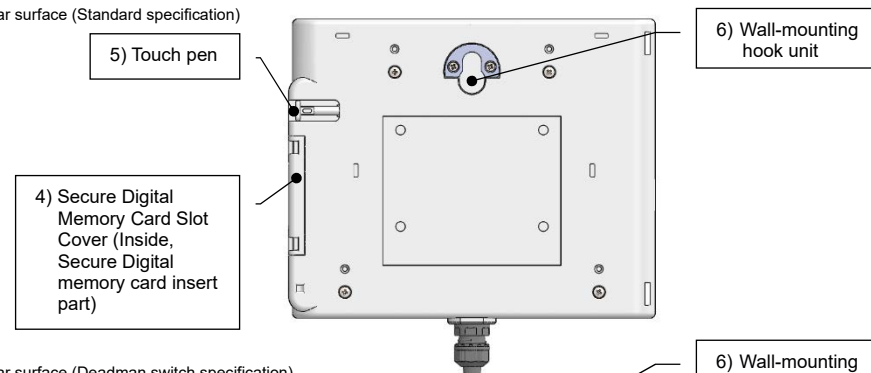
## Each Part Name

Front surface (Standard specification/(Deadman switch specification))

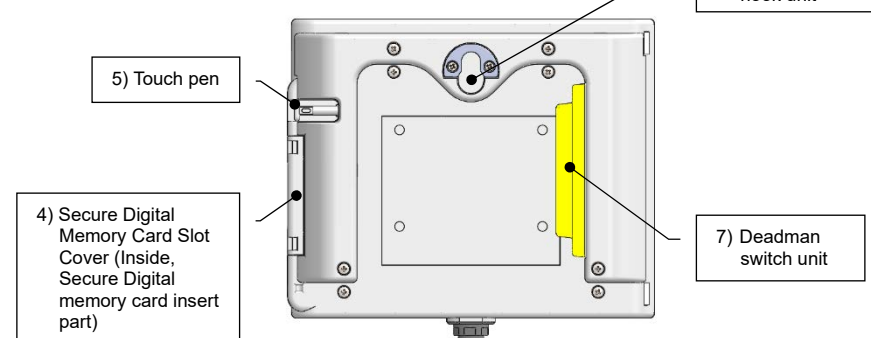


- 1) Stop switch  
Press this to stop operation.  
To cancel the stop status, turn this switch in the clockwise direction.
- 2) Display and touch panel unit  
The screen consists of a TFT Color LCD Type and a touch panel.  
Various settings that have been edited or taught are displayed.  
To operate the screen, use a finger or the touch pen to touch desired parts of the touch panel.  
  - \*1 In a use of the LCD display for a long time, the brightness may drop. In order to extend the product life of the LCD display, it is recommended to set the turn-off time in the environmental setting to have the automatic turn-off activated or take it off the controller when it is not in use.
  - \*2 This touch panel is of analog resistance membrane type, so do not touch two or more locations on the screen at the same time.  
If two or more locations are touched at the same time, the centers of all touched locations may respond and trigger multiple operations.
  - \*3 When operating the touch panel, do not apply a force exceeding 0.5 N.  
If any greater force is applied, the touch panel may be damaged.
  - \*4 The life of touch panel is approx. 1 million touches at the same location. (Assuming a use environment of 25°C)
- 3) Standard cable  
The cable of 5m is connected to the main body.

Rear surface (Standard specification)



Rear surface (Deadman switch specification)



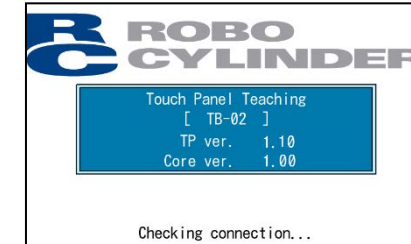
- 4) Secure Digital Memory Card Slot Cover  
There is the SD memory card insertion unit inside this cover.  
Insert and remove the SD memory card by referring to the instruction manual.
- 5) Touch pen  
This touch pen is used to touch the touch-panel operation display screen.
- 6) Wall-mounting hook unit  
This hook is used to mount the touch panel on a wall. The hook is available to hang with an M8 hex socket head cap screw.
- 7) Deadman switch unit (This is not provided in standard specification.)  
The dead man switch has three conditions corresponding to three levels. The meaning of ON/OFF in each condition is explained below.

| Level   | Switch     | Condition                                                                     |
|---------|------------|-------------------------------------------------------------------------------|
| Level 1 | Switch OFF | The hand is off the switch, or the switch is pressed with a very small force. |
| Level 2 | Switch ON  | The switch is pressed with an appropriate force.                              |
| Level 3 | Switch OFF | The switch is pressed with a strong force.                                    |

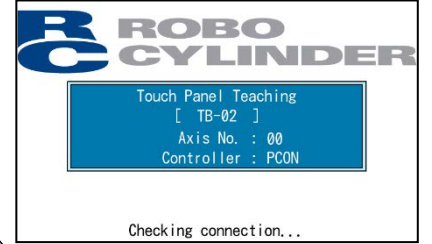
When the switch is ON, the servo can be turned ON.  
When the switch is OFF, the drive source is cut off and the servo remains OFF.  
Even when the switch is OFF, operation is still possible in modes where the servo need not be ON (such as in the edit mode).

## Operation Menu for Position Controller (CON System)

Screen when position controller starts



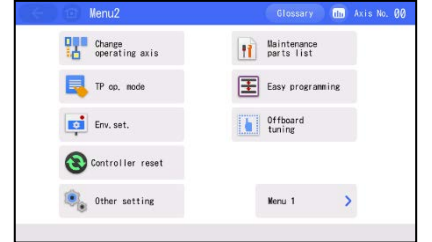
Screen at CON System Controller Startup



Menu 1 screen



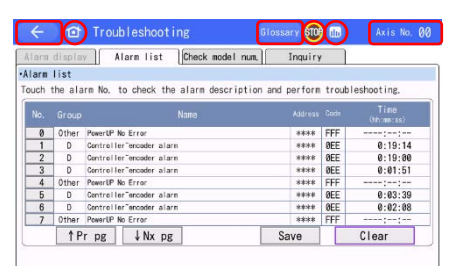
Menu 2 screen



- Position Edit Guide  
Explains the position data input and trial operation according to the real position data editing screen in interactive mode.
- I/O Control Guide  
Explains the positioning action by I/O control under the "PIO pattern:0" condition in interactive mode as the user operates the equipment according to instructions.
- Simple Program Set  
Sets the data necessary for a desired action from the sample program and performs trial operation in order in interactive mode.
- Monitor  
Displays the actuator status, I/O signal status, maintenance information and production information.
- Edit Position  
Sets the position, velocity, acceleration, deceleration, etc. to operate actuators. It is available to manual mode.
- Edit Parameter  
Adjusts parameters when adjusting the system and using the attendant functions.
- SD Memory Card  
Reads and saves the position data, parameters and alarm list. Updates the TB-02 software.
- Servo Monitor  
Displays the real operating status of actuator with waveforms. It is possible to record data.
- Trial Operation  
Performs manual operation and I/O test by specifying jog, inching and numerical values.
- Alarm List  
Displays an alarm and the time of its occurrence.
- Information  
Shows the software version, network information, production information, maintenance information and connectable model information.
- Trouble Shooting  
Displays the alarm contents and remedial measure when an alarm occurs.
- Change Axis  
Selects an axis to be displayed when the controller can be connected with two or more axes.
- TP Op. Mode  
Prohibits/permits PIO operation and validates/invalidates safety velocity.
- Environment Set  
Conduct settings for display language, Touch tone, DimDispTime, Data input warning, Disp Axis Name, Ripple compensation, password, display, time and Startup screen setting.
- Controller Reset  
Restarts the controller.
- Others  
Conduct parameter initialization and change axis No., load cell calibration, load cell inactivation, I/O customize, encoder cable length setting.
- Maintenance Parts List  
Displays the maintenance parts information.
- Simple Program  
It is possible to set the movement between positions, timer and repeat of specified times. This screen is used for manual continuous operation.
- Off-board Tuning  
Sets the off-board tuning.
- Pulse Train Control Mode  
Sets for performing the pulse train control.

(Note)For details of operation, refer to the screen display or instruction manual.

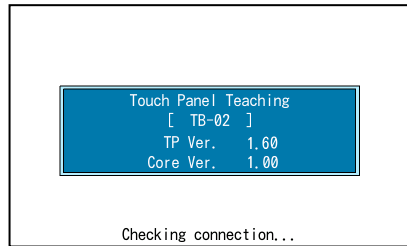
- ← : Returns to the preceding screen.
- ⏮ : Returns to the "Menu 1" screen.
- Glossary : Displays the "Glossary" screen.
- STOP : Stop Status Icon (\*1)  
[Refer to next column]
- ⏮ : Displays the "Monitor" screen.
- Axis No. 00 : Displays the "Change Axis" screen.



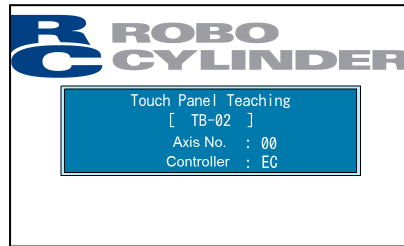


## Operation Menu for ELECYLINDER (EC)

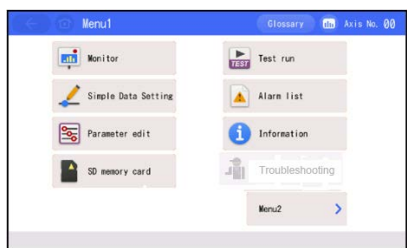
Screen at ELECYLINDER Startup (1)



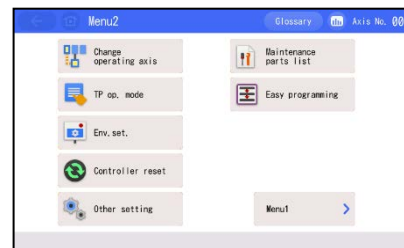
Screen at ELECYLINDER Startup (2)



Menu 1 screen



Menu 2 screen



- **Monitor**  
Displays the actuator status, I/O signal status, maintenance information and production information.
- **Simple Data Setting**  
Setting can be established for position, acceleration (A), velocity (V), deceleration (D) and pressing force to operate an actuator.  
Display of the current position and cycle time, and the changing history of AVD settings can be displayed. Manual operation is also available.
- **Setting of ROBOPUMP**  
Adsorption, desorption, monitor display and setting of ROBOPUMP should be conducted.
- **Parameter edit**  
Conduct settings such as to adjust operation range or home position, or to change the direction of home-return operation.
- **SD memory card**  
Reads and saves the position data, parameters and alarm list. Updates the TB-02 software.
- **Test run**  
Performs manual operation and I/O test by specifying jog, inching and numerical values.
- **Alarm list**  
Displays an alarm and the time of its occurrence.
- **Information**  
Shows the software version, production information, maintenance information and connectable model information.
- **Troubleshooting**  
Displays the alarm contents and remedial measure when an alarm occurs.
- **Change operating axis**  
An axis subject to display can be selected when multiple axes are connected.
- **TP op. mode**  
Prohibits/permits PIO operation and validates/invalidates safety velocity.
- **Env. set.**  
Conduct settings for display language, Touch tone, DimDispTime, Data input warning, Disp Axis Name, Ripple compensation, password, display, time and Startup screen setting.
- **Controller reset**  
Restarts the controller.
- **Other setting**  
Initializing of parameters, changing axis numbers and tuning operation volume can be conducted.
- **Maintenance parts list**  
Displays the maintenance parts information.
- **Easy programming**  
It is a screen to set up a manual continuous operation, and movement to the forward end and backward end and setting of timer and repeat setting with number indication are available.

(Note) For details of operation, refer to the screen display or instruction manual.

← : Returns to the preceding screen.

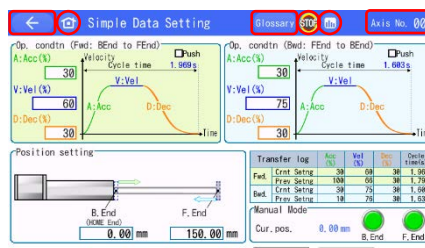
🏠 : Returns to the "Menu 1" screen.

Glossary : Displays the "Glossary" screen.

🛑 : Stop Status Icon (\*1)

📊 : Displays the "Monitor" screen.

Axis No. 00 : Displays the "Change Axis" screen.

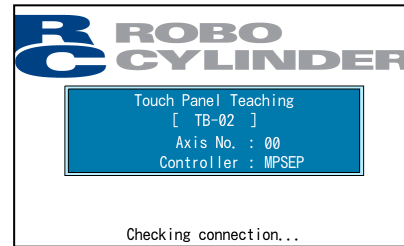


\*1 Stop Status Icon: The icon blinks in the following conditions.

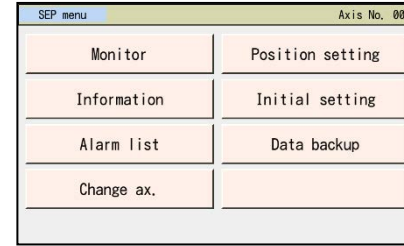


## Operation Menu for Position Controller (SEP System)

Screen at SEP System Controller Startup



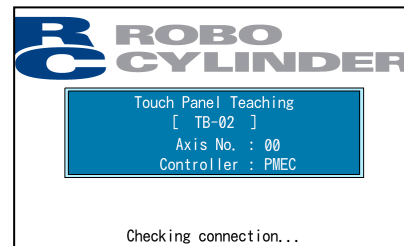
SEP Menu screen



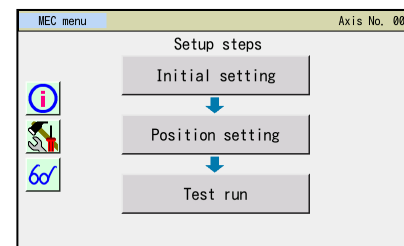
- **Monitor**  
Current position, speed, current and system status I/O of the controller is displayed.
- **Information**  
Information such as operation pattern and software version is displayed.
- **Alarm list**  
List of alarms, duration of occurrence and occurred time is displayed.
- **Change ax.**  
Axes to be displayed for a controller available for multiple axes connection can be selected.
- **Position setting**  
Settings related to position such as position, speed, acceleration, push power and push band in order to drive an actuator can be conducted. Also, JOG / Inching movement can be performed.
- **Initial setting**  
Setting of operation patterns and operation modes, parameter edit, operation test for I/O and axes and environment setting can be conducted.
- **Data backup**  
Reading out and saving of data such as position data, parameters and alarm lists can be conducted.

## Operation Menu for Position Controller (MEC System)

Screen at MEC System Controller Startup



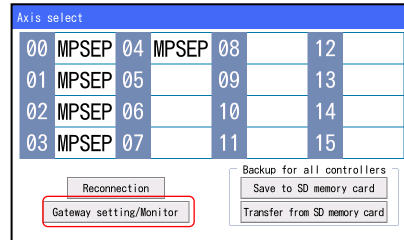
MEC Menu screen



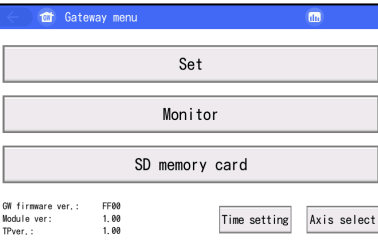
- **Initial setting**  
Setting for the operation patterns (2-point stop, 3-point stop) can be conducted.
- **Position setting**  
Setting of such as position, pressing force and pressing band, and manual axis operation can be conducted.
- **Test run**  
Operation test for axis movement can be conducted.
- **(Information)**  
Information such as operation patterns, software version and manufacturing information is displayed.
- **(Maintenance)**  
Parameter edit, I/O test, alarm list display, data backup, environment setting and axis operation change can be conducted.
- **(Monitor)**  
Current position, speed, current and system status I/O of the controller is displayed.

## Gateway Parameter Setting Tool

Axis Select Screen



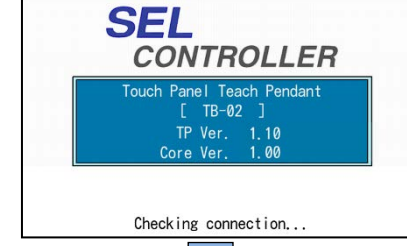
Gateway Menu screen



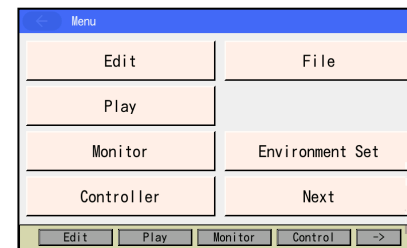
- **Set**  
Network setting can be conducted.
- **Monitor**  
Data monitor, diagnosis information and alarm list are displayed.
- **Secure Digital Memory Card**  
Storage of the gateway setting data to the Secure Digital memory card and reading out from the Secure Digital memory card are to be conducted.

## Operation Menu for Program Controller (SEL System)

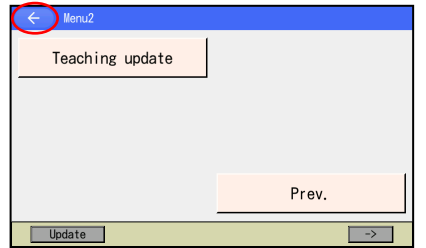
Screen when program controller starts



Menu 1 screen



Menu 2 screen



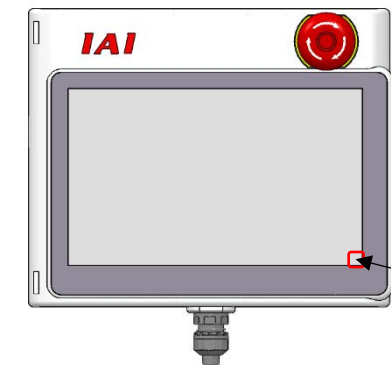
- **Edit**  
Edits position data, programs, symbols, parameters and coordinate system data. Displays the actuator status and performs manual operation (teaching).
- **Play**  
Performs program operation and checks the task status.
- **Monitor**  
Displays I/O port, global flag, global variable, error list, version information, maintenance information, axis status, system status, etc.
- **Controller**  
Sets and outputs operation commands for "Flash ROM Writing", "Software Reset", "Error Reset", "Memory Clear", "Re-connection", "Baud Rate Change", "Request Power Recovery", "Request Release Pause", "Absolute Reset", "Safety Velocity", "Multi Task", etc.
- **File**  
Reads and saves position data, programs, parameters, symbols, error list and global data.
- **Environment Set**  
Sets the language, touch tone, turn-off time, display and time.
- **Update**  
Updates the TB-02 software.

← : Returns to the preceding screen.

(Note) The displayed screens and executable functions are different between the controller models. For details, refer to the instruction manual.

## Screenshot

It is possible to save the image on the current screen (screenshot) into SD memory card. When you want to capture a screenshot, press the lower right portion on the screen for about 2 seconds longer than usual on condition that SD memory card is inserted. After a short sound is heard, saving the screenshot starts. (If the touch tone is set to "OFF", the sound is not heard.) When saving is completed, the save file name is displayed for 3 seconds on the screen.



File name : IMG\_YYMMDDHHMMSS.bmp  
Example : When the save processing starts at 12:34:56 on Mar. 8, 2016, the file name is "IMG\_160308123456.bmp".

Insert SD memory card beforehand.

Press this portion longer than usual.

[Cautions]

1. The saving process takes approximately 10 seconds at the maximum.
2. During the saving process, the monitor display (such as the current position) on the screen does not get updated.
3. There are some screens that you cannot get screenshots.

**Warning:** As keys do not work on the screen during saving process, emergency stop will not work. Do not attempt to use this feature when an actuator is operated (continuous movement, simple program, etc.) from the teaching.

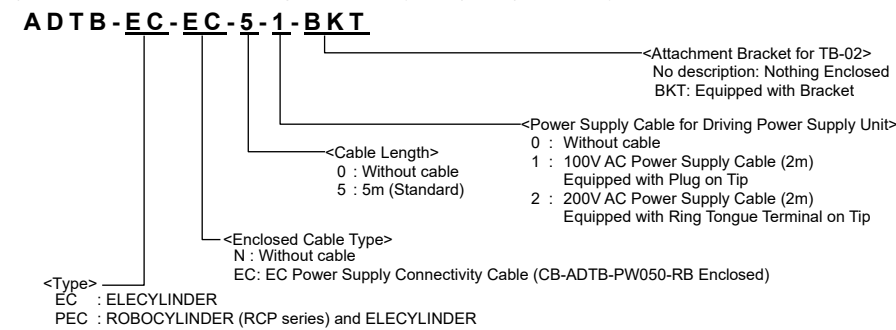
# Actuator Driving Power Supply Unit for Teaching Pendant

## 1. Basic Specification

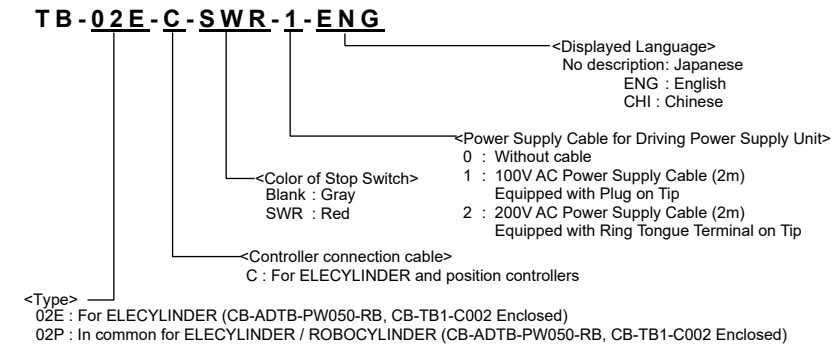
| Item                                |               |                                                     | Specification                                                                                                                                                     |
|-------------------------------------|---------------|-----------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Rated Input Voltage                 |               |                                                     | Single-Phase AC100 to 230V ±10%                                                                                                                                   |
| Input Current                       |               |                                                     | 1.4A typ. (AC100V), 0.6A typ. (AC230V)                                                                                                                            |
| Frequency Range                     |               |                                                     | 50/60Hz±5%                                                                                                                                                        |
| Power Capacity                      |               |                                                     | 141VA (AC100V), 145VA (AC230V)                                                                                                                                    |
| Output Voltage                      |               |                                                     | DC24V ±10%                                                                                                                                                        |
| Load Current                        | ELE CYLINDER  | Standard, High-Stiffness, Dustproof and splashproof | When Power Saving Setting Invalid: Rating 3.5A, Max. 4.2A<br>When Power Saving Setting Valid: Rating 2.2A, Max. 4.2A                                              |
|                                     |               | Slim and Small                                      | Max. 2.0A                                                                                                                                                         |
|                                     | ROBO CYLINDER | 20P, 20SP, 28P, 35P, 42P, 42SP, 56P                 | When High Output Setting Invalid: Max. 2.2A<br>When High Output Setting Valid: Rating 3.5A, Max. 4.2A                                                             |
|                                     |               | 56SP, 60P, 86P                                      | Max. 6.0A                                                                                                                                                         |
| Output Capacity (ELECYLINDER)       |               |                                                     | When Power Saving Disabled: Rated 84W, Max. 98.4W<br>When Power Saving Enabled: Rated 52.8W                                                                       |
| Heat Radiation (ROBOCYLINDER)       |               | 20P, 20SP, 28P, 35P, 42P, 42SP, 56P                 | RCP2, RCP3 : 5W<br>RCP4, RCP5, RCP6 : 8W                                                                                                                          |
|                                     |               | 56SP, 60P, 86P                                      | 19.2W                                                                                                                                                             |
| Ambient Operating Temperature       |               |                                                     | 0 to 40°C (Should be no-condensing or freezing)                                                                                                                   |
| Ambient Operating Humidity          |               |                                                     | 5%RH to 85%RH (Should be no-condensing or freezing)                                                                                                               |
| Ambient Storage Temperature         |               |                                                     | -20 to 70°C                                                                                                                                                       |
| Ambient Storage Humidity            |               |                                                     | 5%RH to 85%RH (Should be no-condensing or freezing)                                                                                                               |
| Atmosphere                          |               |                                                     | There should be no corrosive gas around, especially be mindful of dust                                                                                            |
| Altitude                            |               |                                                     | 1000 meters or less above the sea level                                                                                                                           |
| Vibration Endurance                 |               |                                                     | Vibration 10 - 57Hz/Amplitude: 0.075mm<br>Vibration 57 - 150Hz/Acceleration: 9.8m/s <sup>2</sup><br>X/Y/Z directionSweep time: 10 min. Sweep repetition: 10 times |
| Drop in Package                     |               |                                                     | Dropping Height 800mm, 1 corner + 3 edges + 6 surfaces                                                                                                            |
| Overvoltage Category                |               |                                                     | II                                                                                                                                                                |
| Pollution Level                     |               |                                                     | 2                                                                                                                                                                 |
| Protection Class for Electric Shock |               |                                                     | II                                                                                                                                                                |
| Degree of Protection                |               |                                                     | IP30                                                                                                                                                              |
| Mass                                |               |                                                     | ADTB-EC : Approx. 740g / ADTB-PEC : Approx. 825g                                                                                                                  |
| Air-cooling System                  |               |                                                     | TB-02E : Natural cooling / TB-02P : Forced air cooling with internal fan                                                                                          |

## 2. How to read the model No.

### 1) Model Code for Actuator Driving Power Supply Unit (ADTB) Individually



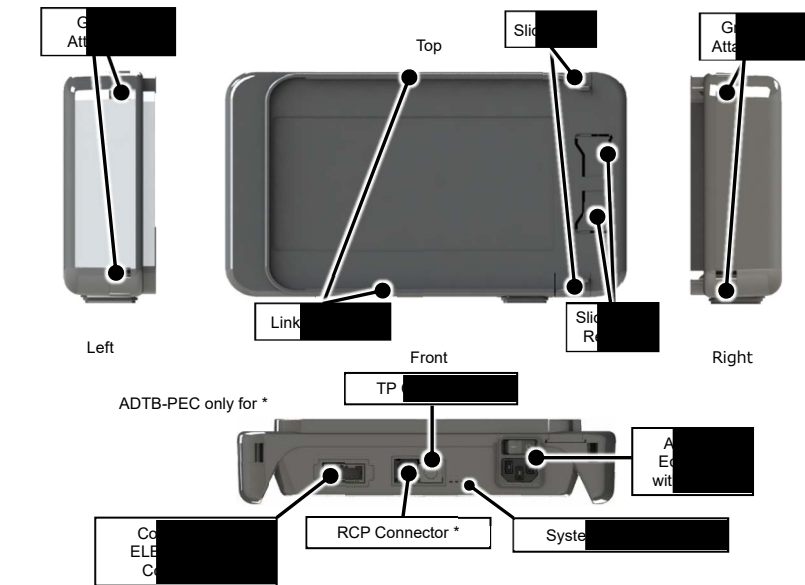
### 2) Teaching Pendant Equipped with Power Supply Unit (TB-02 + Drive Power Supply Unit ADTB Set Model Code)



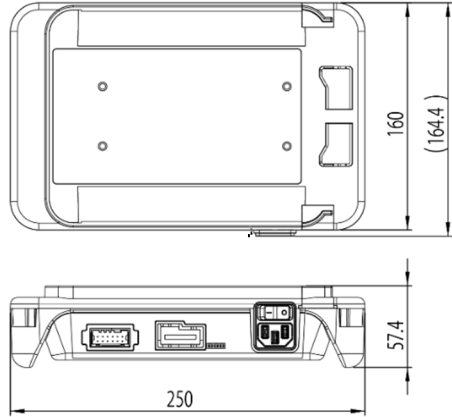
### 3) Model Code for Enclosed Cables Individually

- 100V AC Power Supply Cable: KWD-UJ-2MBS (Cable length should be 2mm)
- 200V AC Power Supply Cable: CB-APMEC-PW020-TM (Cable length should be 2mm)

## 3. Name of Each Part



## 4. External Dimensions

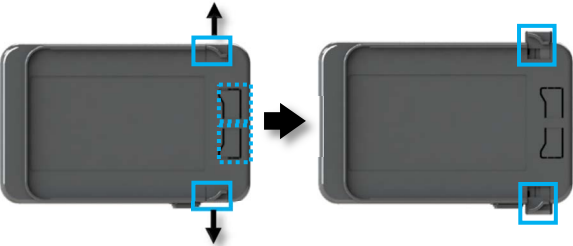


## 5. How to Join Unit

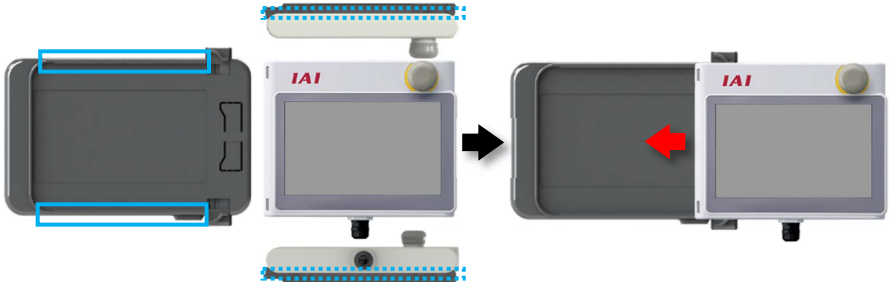
(1) Attach the attachment bracket on the back of a teaching pendant.



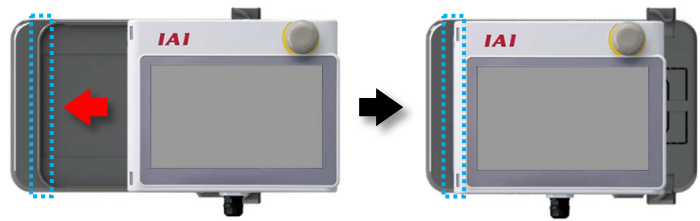
(2) While pressing the slide lock release (broken line areas) on the driving power supply unit, slide the slide locks (solid line areas) outside to make them open.



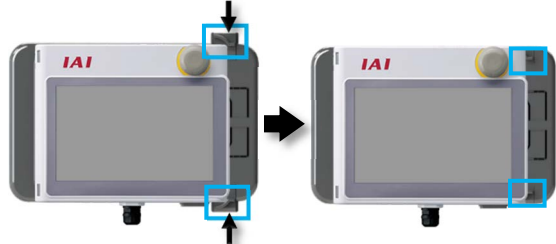
(3) Insert the slots (broken line areas) formed between the teaching pendant and the attachment bracket to the linkage guides (solid line areas) on the actuator driving power supply unit from the right side.



(4) Insert the teaching pendant along the linkage guides on the actuator driving power supply unit till the teaching pendant reaches the area marked with the broken line.

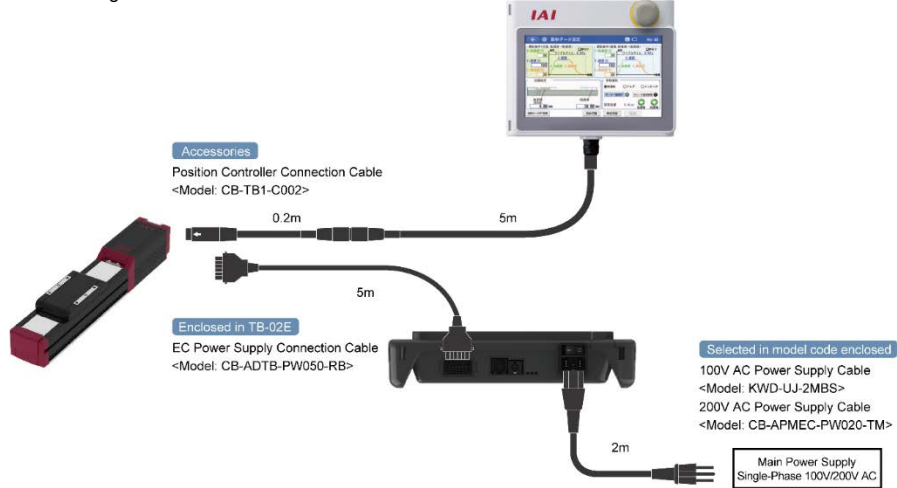


(5) Slide the slide locks till it gets locked in order to lock the teaching pendant.

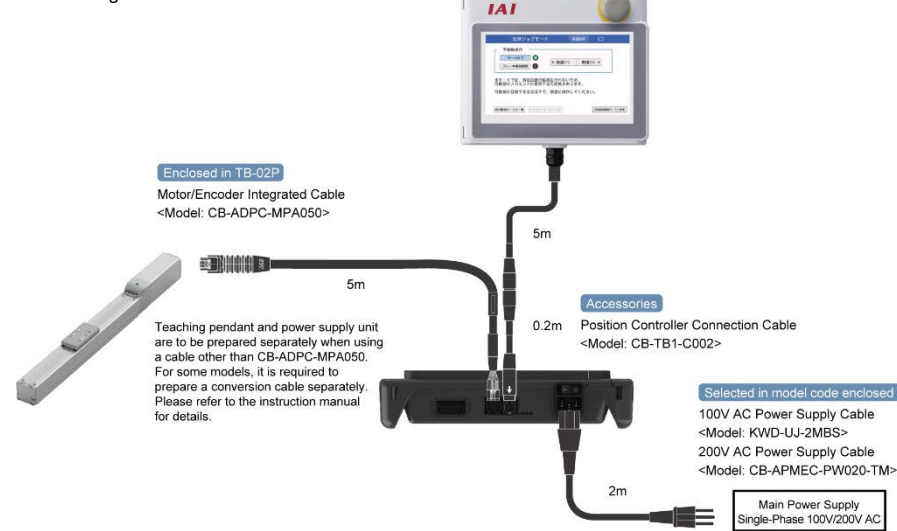


## 6. Connection

### Connecting with ELECYLINDER



### Connecting with ROBOCYLINDER





7. Applicable Actuators

There are EC Type (ADTB-EC) that capable of operation of ELECYLINDER only and PEC Type (ADTB-PEC) that is capable of operation of ELECYLINDER and pulse motor mounted ROBOCYLINDER.

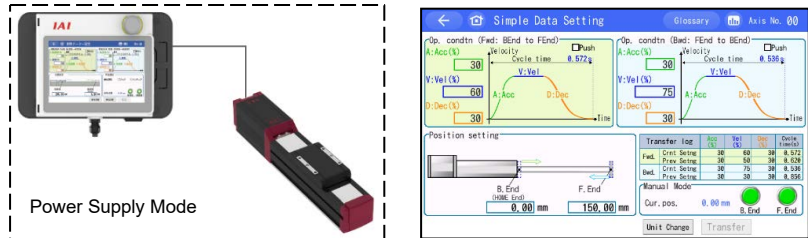
EC Type ..... Trial run of ELECYLINDER (24V pulse motor type) is capable.

PEC Type ... Trial run of ROBOCYLINDER (pulse motor type: RCP2 Series and later) and ELECYLINDER (24V pulse motor type).

8. Trial operation

(1) ELECYLINDER operation

When having a trial run of ELECYLINDER, as an actuator is operated by the controller built in ELECYLINDER, ADTB is to be used only for power supply to ELECYLINDER.



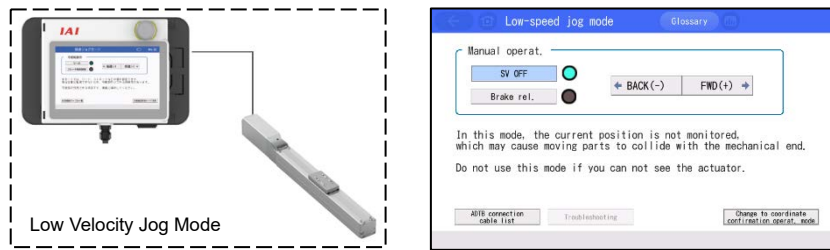
Supply power to ELECYLINDER and ELECYLINDER can operate in normal condition.

(2) ROBOCYLINDER operation

When having a trial run on ROBOCYLINDER, ADTB can be a simple controller.

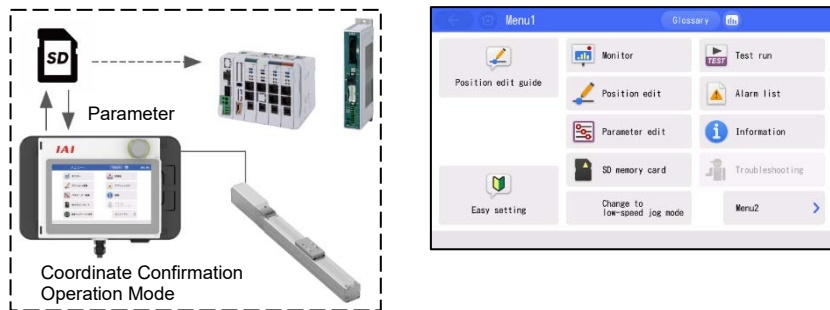
Operation such as jog operation in low velocity without using parameters and operation with parameters applicable for a position controller installed separately read from a Secure Digital card to ADTB is capable.

**ADTB Power on** It should start up in the low velocity jog mode after the power gets turned on.



Jog operation in low velocity should be made without using parameters.

**Mode switchover** Read in the ADTB-PEC parameter to transfer it to the coordinate confirmation mode.



Operation should be made with parameters for ADTB-PEC read in. Editing positions and position data operation are capable.

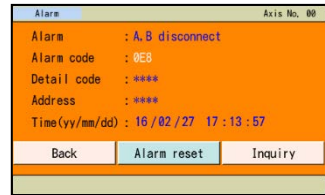
[About Parameter File for ADTB-PEC]

The parameter file for ADTB-PEC is necessary in order to switch over to the coordinate confirmation operation mode.  
A parameter file for ADTB-PEC cannot be created by a user.  
If a parameter file is required, confirm the model code of an actuator and the serial number described on the model code nameplate sticker attached on the side of the main unit, and request to a sales person in charge.

## Treatment in an Emergency

For SEP System / MEC System Controllers

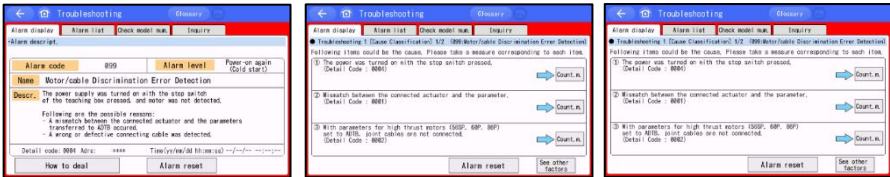
If an alarm occurs, the alarm screen appears. In alarms, there are those generated in a controller and those generated in a touch panel teaching. In response to the alarm code occurred, check in the instruction manual of the controller or instruction manual of the touch panel teaching.



| Error No. (HEX) | Reference                                           |
|-----------------|-----------------------------------------------------|
| 000 to 0FF      | Refer to Instruction Manual of Controller           |
| 100 to 3FF      | Refer to Instruction Manual of Touch Panel Teaching |

For ELECYLINDER, CON System / SEL System Controllers

If an alarm occurs, the troubleshooting screen appears. Touch [How to deal] to confirm the cause, touch [Count.m.] to confirm the countermeasures, conduct the measures and touch [Alarm reset].



## IAI Corporation

Head Office: 1210 Iharacho Shimizu-KU Shizuoka City Shizuoka 424-0114, Japan  
TEL +81-54-364-5105 FAX +81-54-364-2589  
website: www.iai-robot.co.jp/

## IAI America, Inc.

Head Office: 2690 W. 237th Street, Torrance, CA 90505  
TEL +1-310-891-6015 FAX +1-310-891-0815  
Chicago Office: 110 East State Parkway, Schaumburg, IL 60173  
TEL +1-847-908-1400 FAX +1-847-908-1399  
Atlanta Office: 1220 Kennestone Circle, Suite 108, Marietta, GA 30066  
TEL +1-678-354-9470 FAX +1-678-354-9471  
website: www.intelligentactuator.com

Technical Support available in Europe

## IAI Industrieroboter GmbH

Ober der R6th 4, D-65824 Schwalbach am Taunus, Germany  
TEL +49(0)6196-88950 FAX +49(0)6196-889524  
website: www.iai-automation.com

Technical Support available in Great Britain



Duttons Way, Shadsworth Business Park, Blackburn, Lancashire, BB1 2QR, United Kingdom  
TEL +44(0)1254-685900  
website: www.lcautomation.com

## IAI (Shanghai) Co., Ltd.

SHANGHAI JIAHUA BUSINESS CENTER A8-303, 808, Hongqiao Rd. Shanghai 200030, China  
TEL +86-21-6448-4753 FAX +86-21-6448-3992  
website: www.iai-robot.com

## IAI Robot (Thailand) Co., Ltd.

825 PhairojKijja Tower 7th Floor, Debaratana RD., Bangna-Nuea, Bangna, Bangkok 10260, Thailand  
TEL +66-2-361-4458 FAX +66-2-361-4456  
website: www.iai-robot.co.th