

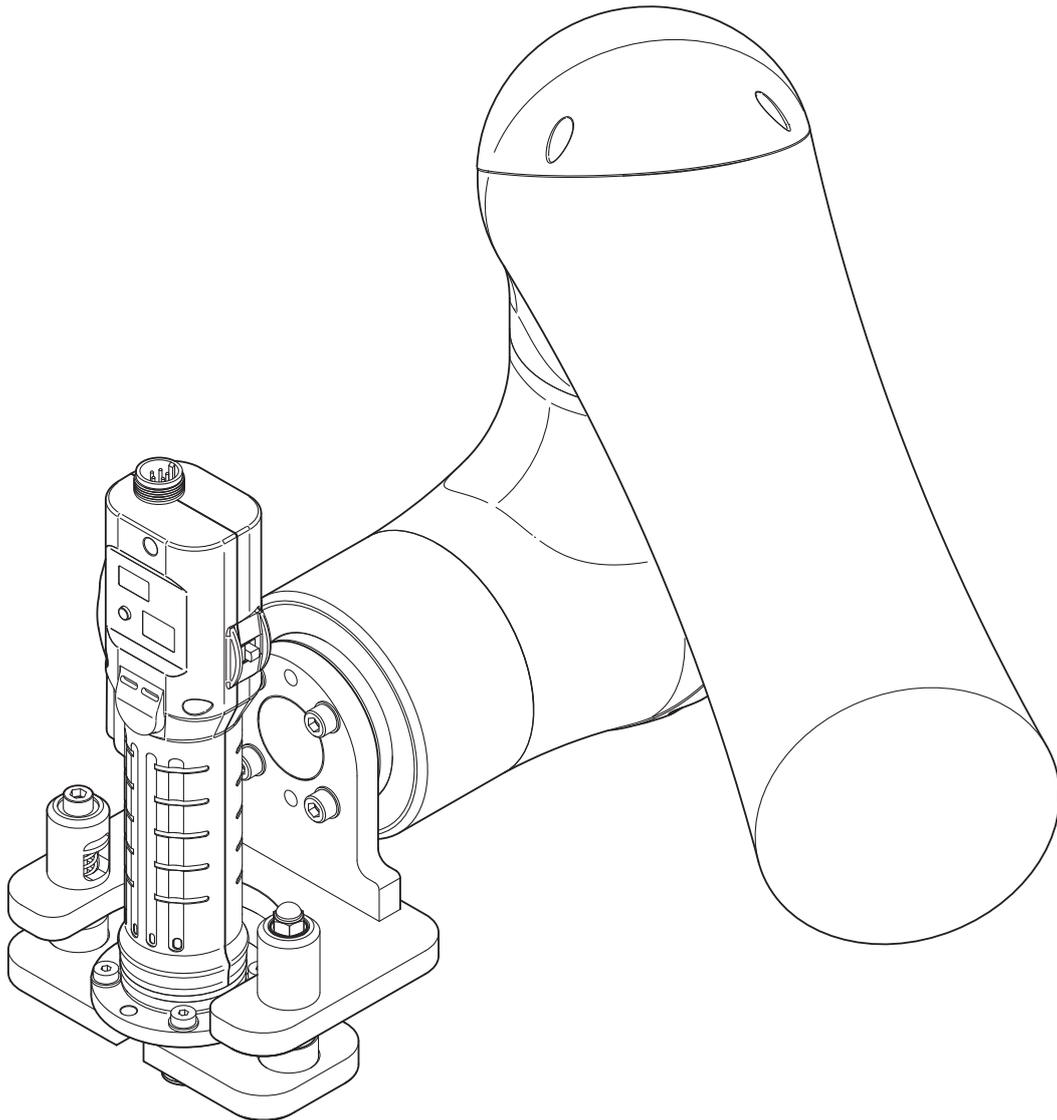
User's Manual

Professional tool

delvo

delvo

Model: DLV45C Series / DCC0241X-AZ



- Please read this user's manual carefully before you attempt to use your tool so that you may use it properly and safely.
- Please keep this user's manual handy so you can use it whenever necessary.

- Due to continuous product development/improvement, the specifications and configurations in this document are subject to change without prior notice.

To order the product,
contact us below.



Manufactured by.

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Instructions

Thank you very much for your purchase of this NITTO KOHKI product.

Before using your tool, please read this user's manual carefully so that you may use it properly to get the most out of it. Please keep this user's manual handy so you can use it whenever necessary.

The following safety notations are used throughout the user's manual to highlight safety precautions for the user and for the tool.

For information on handling the series of FANUC products such as a tablet TP, and an electrical screwdriver and peripheral devices, refer to the instruction manual for each product.

Definitions of Warnings

In this user's manual, the severity of potential damage resulting from incorrect handling disregarding the details indicated is described using the following categories.

WARNING and CAUTION indications provide information essential for the correct and safe operation of the product. They must be observed at all times.

 **CAUTION:** Indicates a potentially hazardous situation which, if not avoided by following the instructions given, could result in injury or material damage.

* Please note, however, that failure to observe safety precautions under the “CAUTION” category could result in a serious occurrence depending on the situation.

Please observe all safety precautions in the manual.

Other handling related precautions are indicated as follows:

Caution

Indicates important precautions for tool setup, operation, and maintenance.

Warning Labels

Warning labels are affixed to this product to prevent accidents involving users.

Make sure you fully understand and strictly observe the information indicated on the warning labels when working.

 **WARNING:** Failure to follow the instructions for handling could cause danger when using the tool.



Using this tool improperly could result in serious injury. Read this user's manual before using the tool.

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Precautions

⚠ CAUTION

- **This plugin runs on FANUC CRX and robot controller software V9.40P/49 or later.**
If the robot controller software is earlier than that, update it to the latest version before installing the plugin software.
- **This plugin requires the optional function “User Socket Message Function” (R648) of the robot controller.**
If the optional function is not loaded, the SCTL-106 (Required options not loaded) alarm will be displayed and the plugin cannot be installed.
- **This plugin only operates on the FANUC tablet TP.**
- **The screen display languages supported by this plugin are Japanese and English.**
The plugin screen display language will be switched depending on the display language of the tablet TP. If other than Japanese or English is selected, the plugin will be displayed in English.
- **For the robot-side settings and I/O ports to use with this plugin, refer to “Robot-side settings and I/O ports” (p. 9) and the DLV45C instruction manual.**
- **If the connection between the robot and controller is lost while a special command of this plugin is being executed, the plugin state may become unstable.**
Turn the power of the robot off and then back on, confirm the connection status, and then execute the command again.
- **Do not modify the TP program and KAREL program installed at the same time as this plugin.**
Correct operation will become no longer possible.
- **Thread tightening failures and system errors are indicated on the controller.**
If they occur, check the indication on the controller and then take the appropriate measure.
- **For how to start and operate the controller, refer to the DLV45C instruction manual.**
- **Connecting the controller to the CRX (LAN and I/O installation) must be done with the CRX powered off.**
- **Do not unplug the LAN cable while this plugin is sending or receiving settings.**
- **Set the controller setting lock to OFF before using this plugin.**
- **Do not change settings on the controller while this plugin is running.**
- **Do not send or read the settings during execution of a robot program.**

Software license agreement

Please read the following terms of use before using CRX Plugin Software for DCC0241X (hereafter referred to as “this plugin”).

By starting to use the software, you are deemed to have agreed to these terms.

- 1) NITTO KOHKI grants you a non-exclusive license to use this plugin in accordance with these terms and conditions.
- 2) The copyright and other intellectual property rights relating to this plugin and its instruction manuals, etc. belong to NITTO KOHKI, and you shall have no rights other than the right of use.
- 3) You are prohibited from engaging in the following acts:
 - Copying this plugin for any purpose other than backup purposes.
 - Modifying, reverse engineering, decompiling or disassembling this plugin.
 - Selling or distributing this plugin to any third party.
- 4) NITTO KOHKI shall not be liable for any damage suffered by you or any third party as a result of using this plugin.

Disclaimers

Please note that the content of this manual or plugin software is subject to change without prior notice.

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1. Product Overview

Application

This is a screw fastening automation system using a current control type electric screwdriver.

Target models

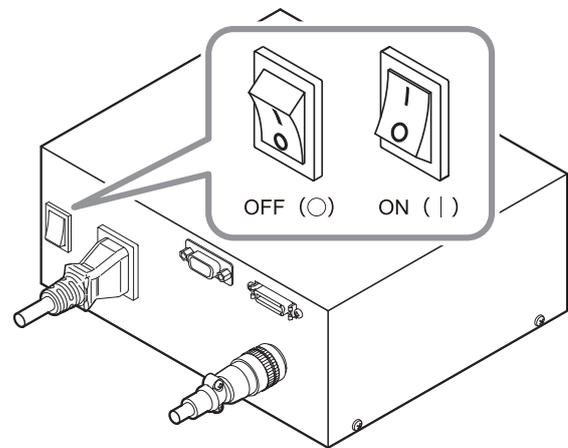
Electric screwdriver	DLV45C12P-A□/DLV45C12L-A□ ● □ is an uppercase letter (A to Z).
Controller	DCC0241X-AZ (Ver. 1.20 or later)

Caution

- **Make sure the controller version is 1.20 or later.**
This system does not operate with a version earlier than 1.20. If you wish to use a version earlier than 1.20, please contact NITTO KOHKI.
- **For details on other usage conditions and product specifications, refer to the instruction manual for the electric screwdriver.**

Version checking method

- 1 Connect the controller and electric screwdriver.**
- 2 Turn ON (I) the power switch of the controller.**
A buzzer sounds and the LED lights up.



Controller version

The electric screwdriver and controller model and the program version are displayed on the LCD screen. There is no requirement for a specific version for the electric screwdriver.

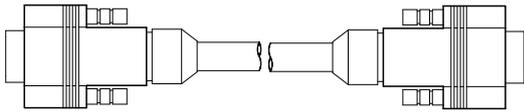
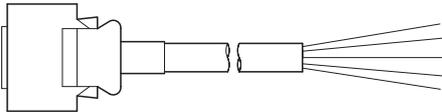
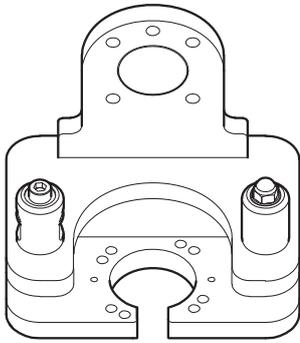
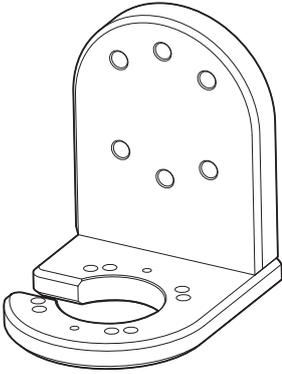
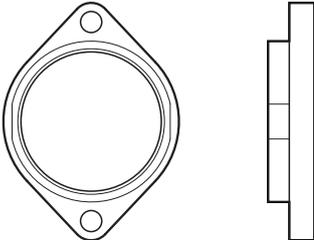
DCC0241X	Ver 1. 20
DLV45C	Ver 1. 01

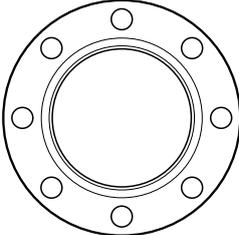
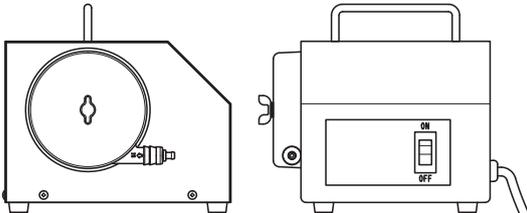
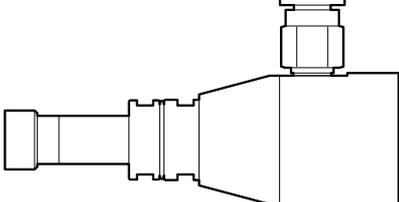
Accessories

The following accessories can be used.

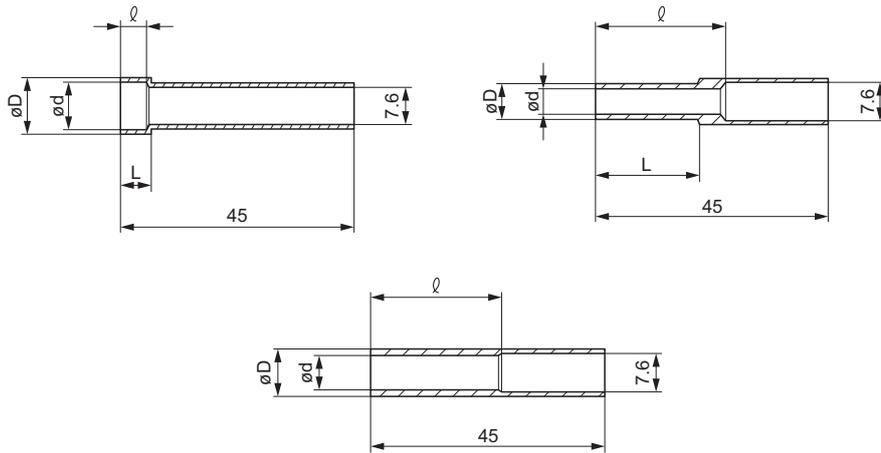
Caution

- For details on the torque measurement method, refer to the instruction manual for the electric screwdriver. An output torque measuring device is required separately.
- Use either DLW9017 or DLW9019 as the coupling.

Product name (model)	Appearance	Specifications, etc.
Communication cable (straight) DLW9092		Connects the controller and interface converter.
External I/O cable DLW9091		Connects the controller and robot controller when using external signals.
Floating unit DLW9510		A unit for installing the electric screwdriver on the robot. Absorbs misalignment in the fastening direction. <ul style="list-style-type: none"> ● Used by mounting the diamond shape flange coupling or flange coupling.
L type flange attachment DLW9520		An attachment for installing the electric screwdriver on the robot. <ul style="list-style-type: none"> ● Used by mounting the diamond shape flange coupling or flange coupling.
Diamond shape flange coupling DLW9017		A coupling for mounting in an automatic screw fastening machine.

Product name (model)	Appearance	Specifications, etc.
Flange coupling DLW9019		A coupling for mounting in an automatic screw fastening machine.
Screw vacuum pump DLP2570		<p>Connect the tube to the vacuum pickup, and use vacuum pressure to adsorb the screw.</p> <ul style="list-style-type: none"> ● Cannot be turned ON/OFF by an external signal. If you wish to do so, please contact NITTO KOHKI.
Vacuum pickup DLP7401-K		<p>An attachment used to vacuum screws.</p> <ul style="list-style-type: none"> ● Attached vacuum sleeve: DLS4220/ DLS4221 ● For details on other separately sold sleeves, refer to p. 6. ● For details on the installation method, refer to the instruction manual for the electric screwdriver.
Extension cord DLW9310		<p>Extends the length between the controller and electric screwdriver.</p> <ul style="list-style-type: none"> ● 3 m long

Separately sold vacuum sleeves for DLP7401-K



Model	$\varnothing d$	$\varnothing D$	ℓ (mm)	L (mm)	Length	Suitable bit* ² (No. x d x L)	Appearance type
DLS4220	9.1	11	5	6	45	No. 2 x 7 x 75	A
DLS4221	10.6	12.5	5.5	7			A
DLS4222 * ¹	8	11	5.3	22		-	A
DLS4223 * ¹	8.2	10	5	6		No. 2 x 7 x 75	A
DLS4224 * ¹	6.8	9	25	-		-	C
DLS4225	4.6	7	25	20		No. 1 x 4 x 75	B
DLS4226	5.1	7	25	20			B
DLS4227	5.6	7	25	20			B
DLS4228	6.1	9	25	-		No. 2 x 4 x 75	C
DLS4229	6.4	9	25	-			C
DLS4230	7.1	9	25	-			C

*1 Made-to-order product

*2 Select the front nominal number that matches the screw.

2. Preparation

Installing on the robot

Install the electric screwdriver on the robot.

Use the separately sold floating unit (DLW9510) or L type flange attachment (DLW9520) and diamond shape flange coupling (DLW9017) or flange coupling (DLW9019).

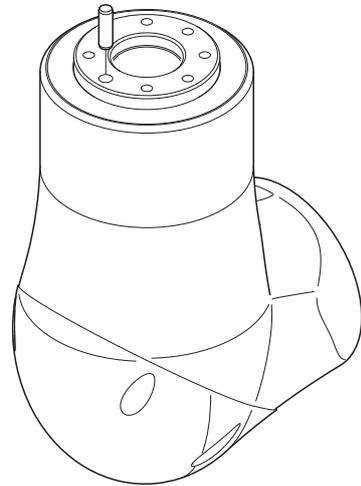
For the installation procedure of the electric screwdriver, refer to the instruction manual for the floating unit or L type flange attachment.

This section describes the installation procedure using the L type flange attachment (DLW9520) and flange coupling (DLW9019).

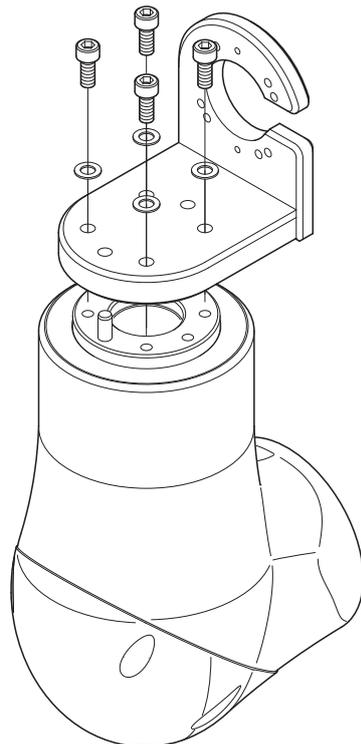
CAUTION

- For safety reasons, install the electric screwdriver on the robot after the bit has been removed.

- 1 Insert the $\text{\O}6$ pin supplied with the L type flange attachment (DLW9520) into the flange part of the robot.



- 2 Mount the L type flange attachment to the flange part of the robot.
Use the M6 × 15 hex socket head bolts (4 pcs) and M6 plain washers (4 pcs) supplied with the DLW9520. (Recommended torque: 8 Nm)
When using screws other than those, use screws of tensile strength class 8.8 or higher.

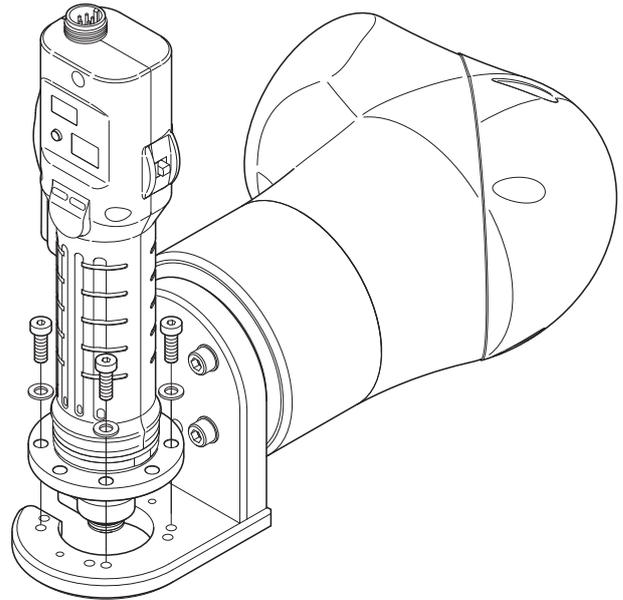


3 Mount the flange coupling (DLW9019) to the electric screwdriver.

Refer to the instruction manual for the electric screwdriver.

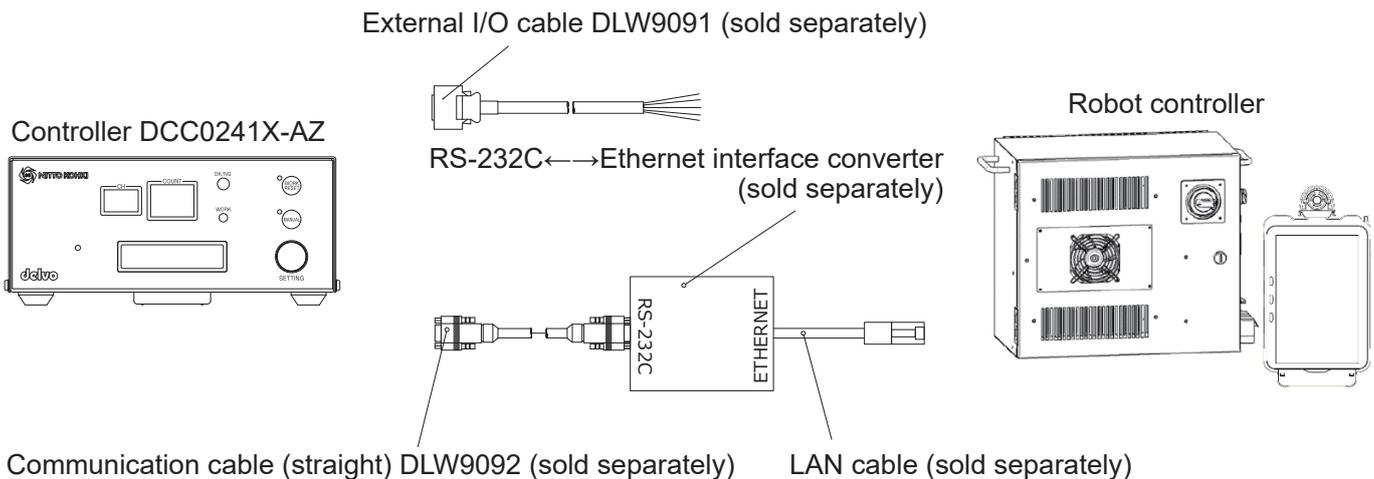
4 Pull out the $\varnothing 6$ pin inserted into the flange part of the robot, and mount the electric screwdriver on the L type flange attachment.

Use the M5 \times 15 hex socket head bolts (4 pcs) and M5 plain washers (4 pcs) supplied with the DLW9520. (Recommended torque: 4.6 Nm)
When using screws other than those, use screws of tensile strength class 8.8 or higher.



5 Connect the cables.

NITTO KOHKI has confirmed connectivity using the LINEEYE SI-60F as an interface converter. (We do not provide support.)



Wiring for forced stop

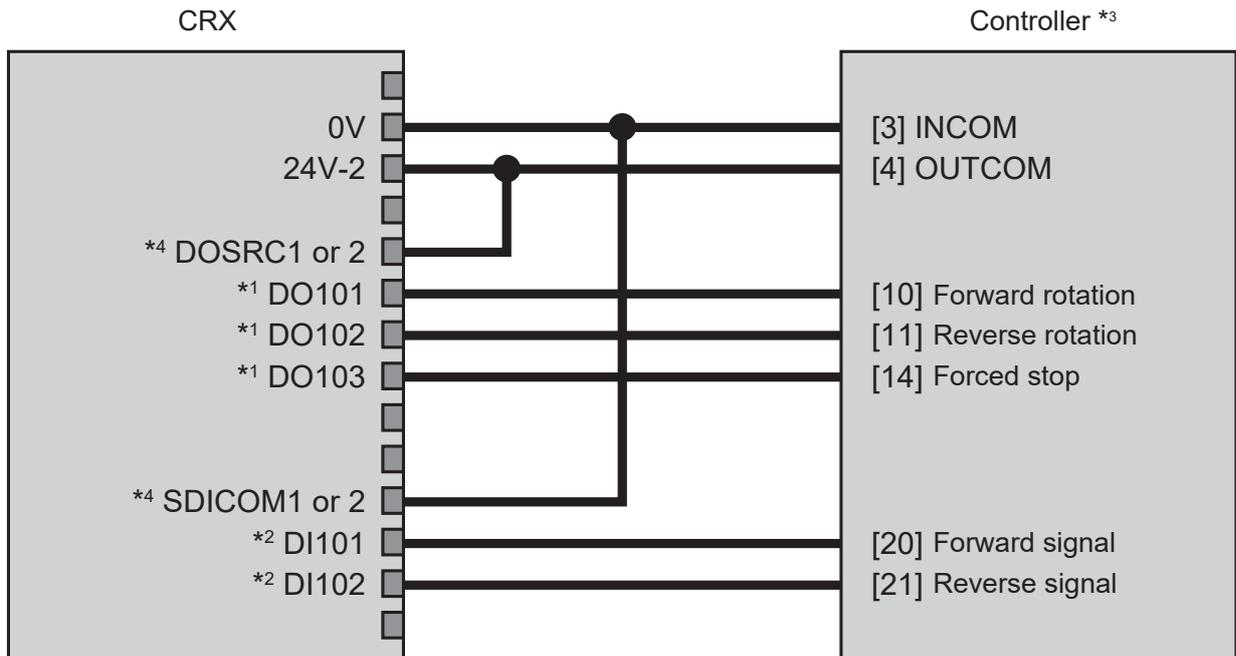
Wire so that the electric screwdriver will be stopped by the forced stop function of the controller when the robot performs an emergency stop or when a forced stop signal connected to a general-purpose signal is turned off. Use a function such as the robot's background calculation function as necessary.

For details on the wiring method and background calculation, refer to each of the instruction manuals.

Robot-side settings and I/O ports

The robot controller settings and I/O ports to use with this plugin are as follows.

Host communication setting Client Tag No.5	Used when communicating from this plugin software by user socket message.
Output signals DO [101] to [112]	Three signals are used as “Forward rotation”, “Reverse rotation”, and “Forced stop”. Select which to use on the Initial Setting screen.
Input signal DI [101] to [112]	Two signals are used as “Forward signal” and “Reverse signal”. Select which to use on the Initial Setting screen.



*1 Connect to any position between DO101 and 112.

*2 Connect to any position between DI101 and 112.

*3 Refer to “Using External Signals” in the DLV45C instruction manual.

*4 For DOSRC and SDICOM, the required signal names (numbers) differ depending on the DI/DO number to be connected.

When connecting to DO101 to 108: Connect DOSRC1 to 24V-2.

When connecting to DO109 to 112: Connect DOSRC2 to 24V-2.

When connecting to DI101 to 108: Connect SDICOM1 to 0V.

When connecting to DI109 to 112: Connect SDICOM2 to 0V.

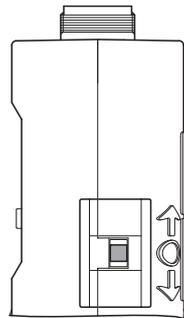
For details, refer to the instruction manual for the robot controller.

Changeover switch

To operate this system, set the changeover switch of the electric screwdriver to neutral.

⚠ CAUTION

- If the changeover switch is in the forward or reverse mode, the electric screwdriver can suddenly start, possibly causing an accident or injury.



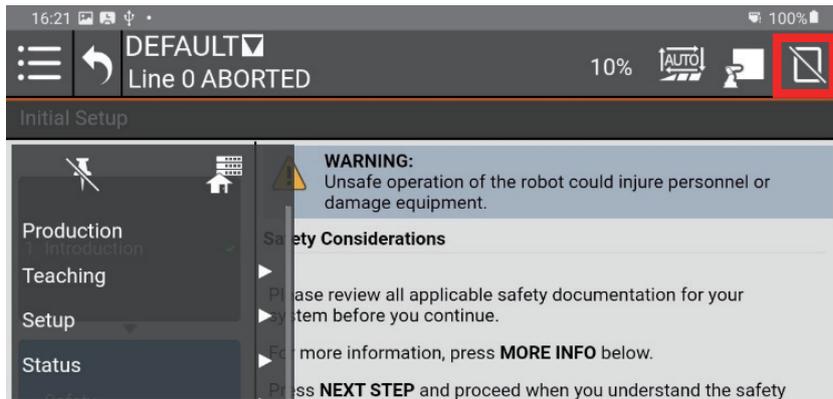
Align the changeover switch to “○”.

3. Using the Software

“CRX Plugin Software for DCC0241X” links a FANUC robot and controller to provide functions to create a program for operating the electric screwdriver and to configure the controller from a teaching pendant.

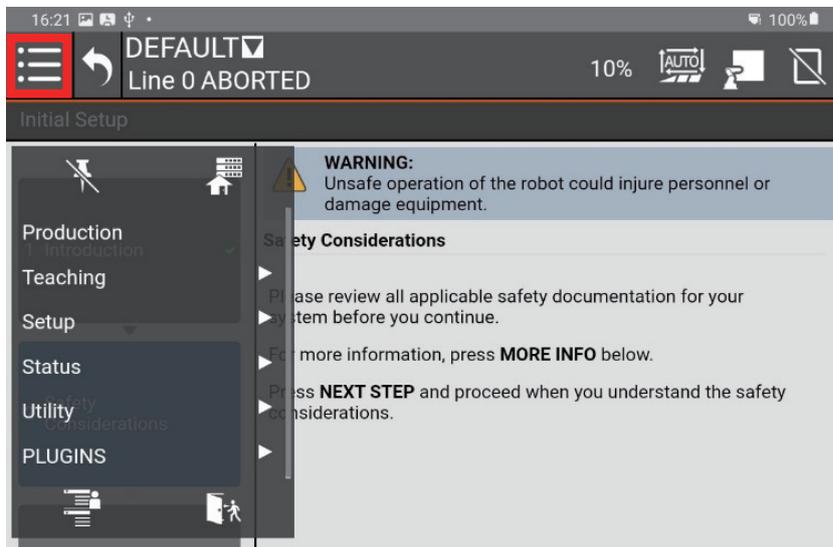
Installing the plugin software

- 1 Download the software from the following URL to your PC, and save it to a USB flash drive.
<https://www.nitto-kohki.co.jp/prd/delvo/software/>
- 2 Insert the USB flash drive into the robot controller.
- 3 Turn on the operation enable key of the tablet TP.

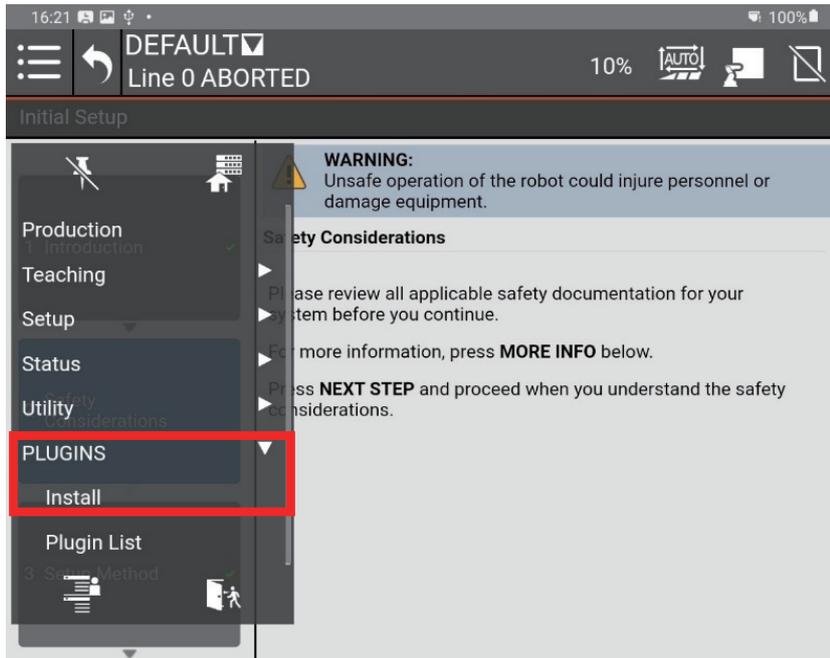


The [Package Management] screen appears.

- 4 Tap the menu icon of the tablet TP.



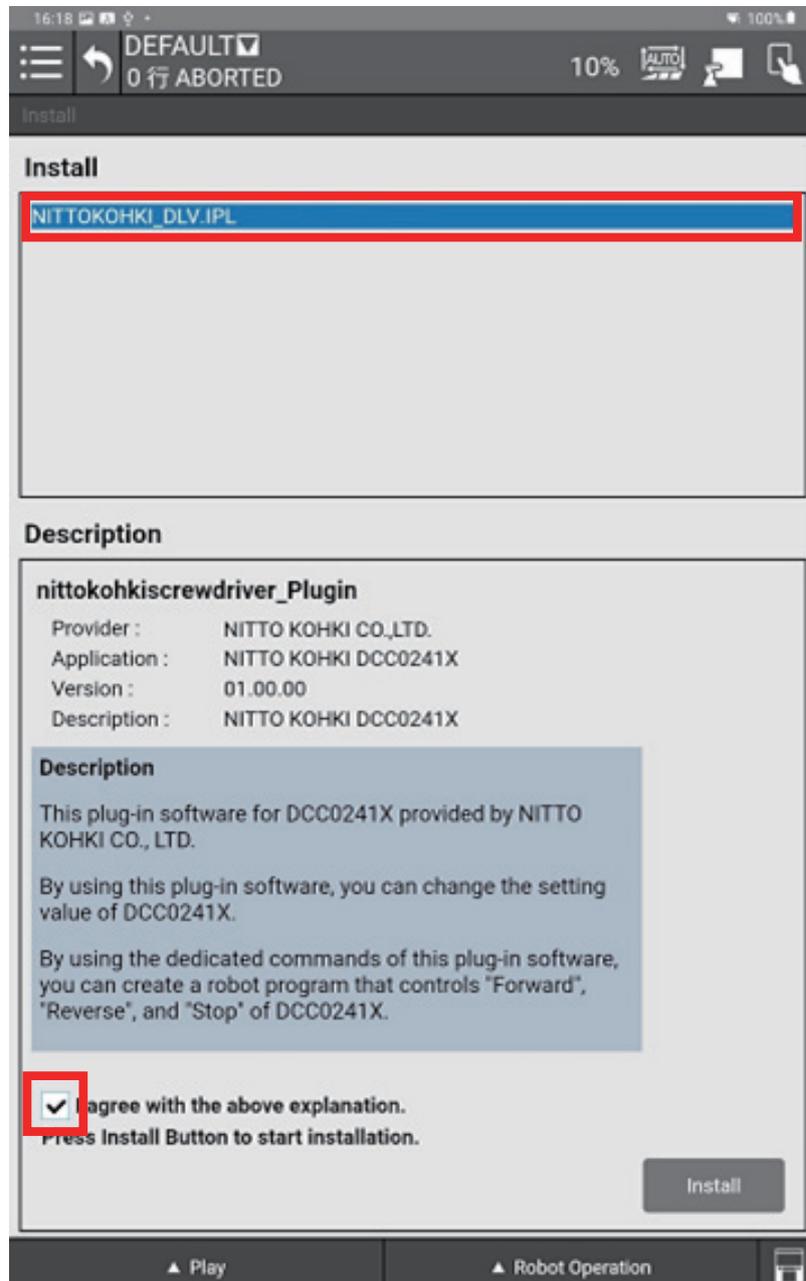
5 Tap [PLUGINS] → [Install].



The [Install] window appears.

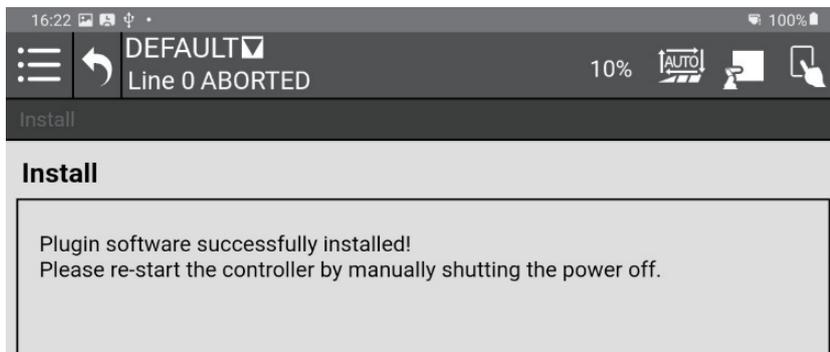
6 Select the installation package file and then select the “I agree with the above explanation” checkbox.

The version is displayed for x.x.x.



7 Tap [Install].

When installation is complete, the following screen appears.



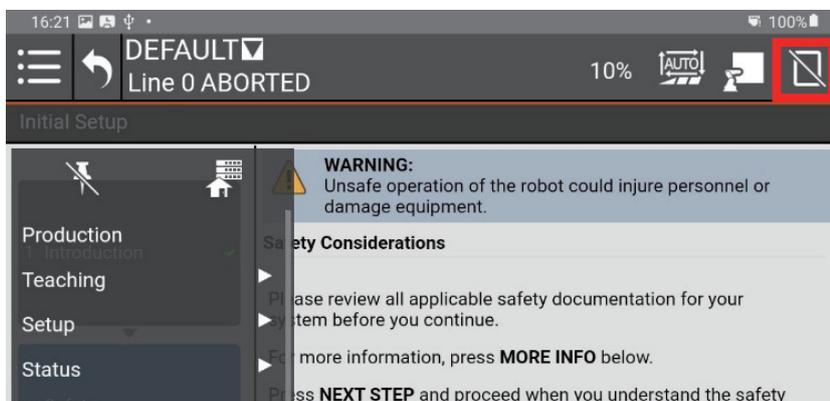
8 Turn the power of the robot controller off and then back on.

Uninstalling the plugin software

Caution

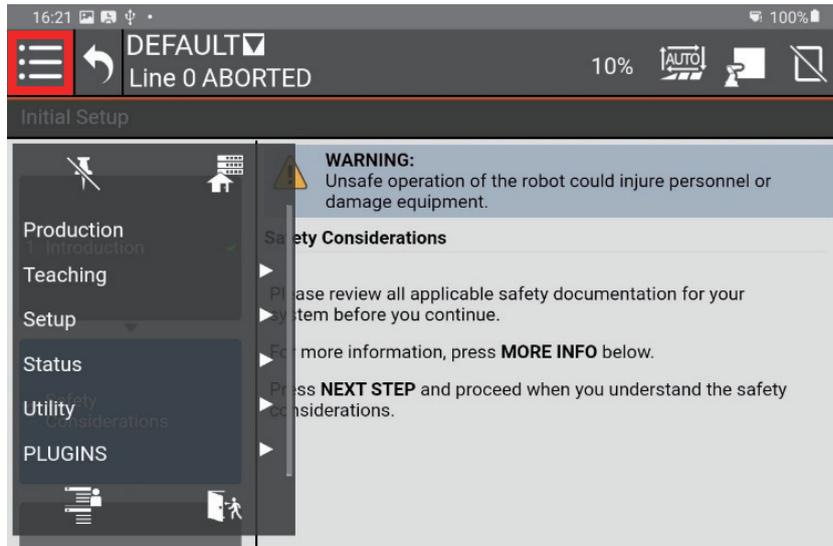
- When this plugin is uninstalled, the settings will be erased. If necessary, make a note of the settings before uninstalling.

1 Turn on the operation enable key of the tablet TP.

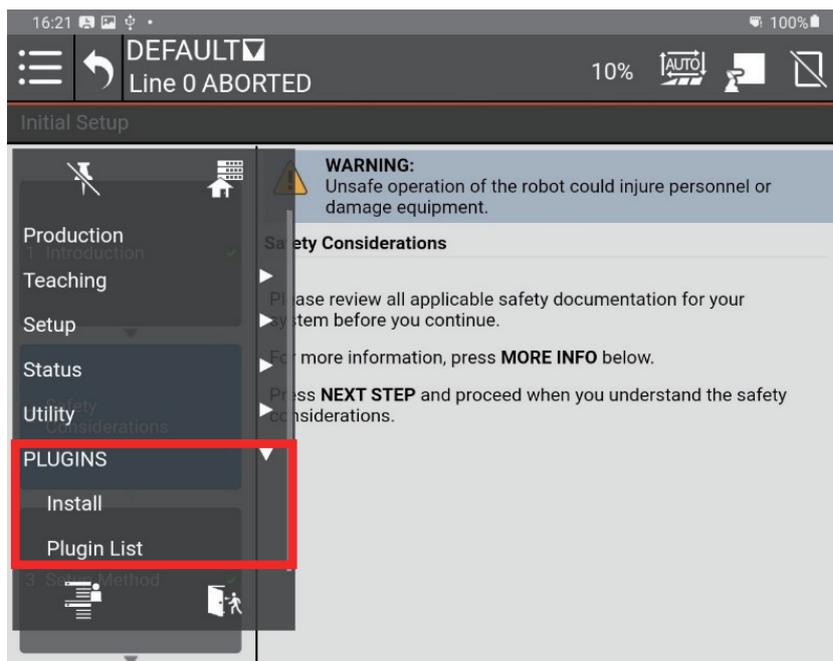


The [Package Management] screen appears.

2 Tap the menu icon.



3 Tap [PLUGINS] → [Plugin List].



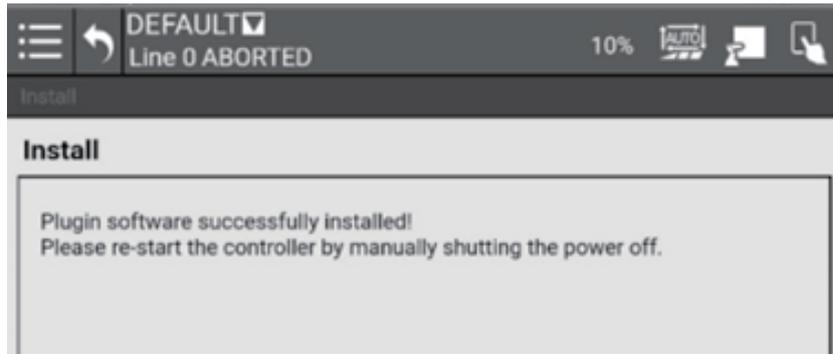
The [Plugin List] screen appears.

- 4 Select the plugin, and tap the [Uninstall] button.



Uninstallation is performed.

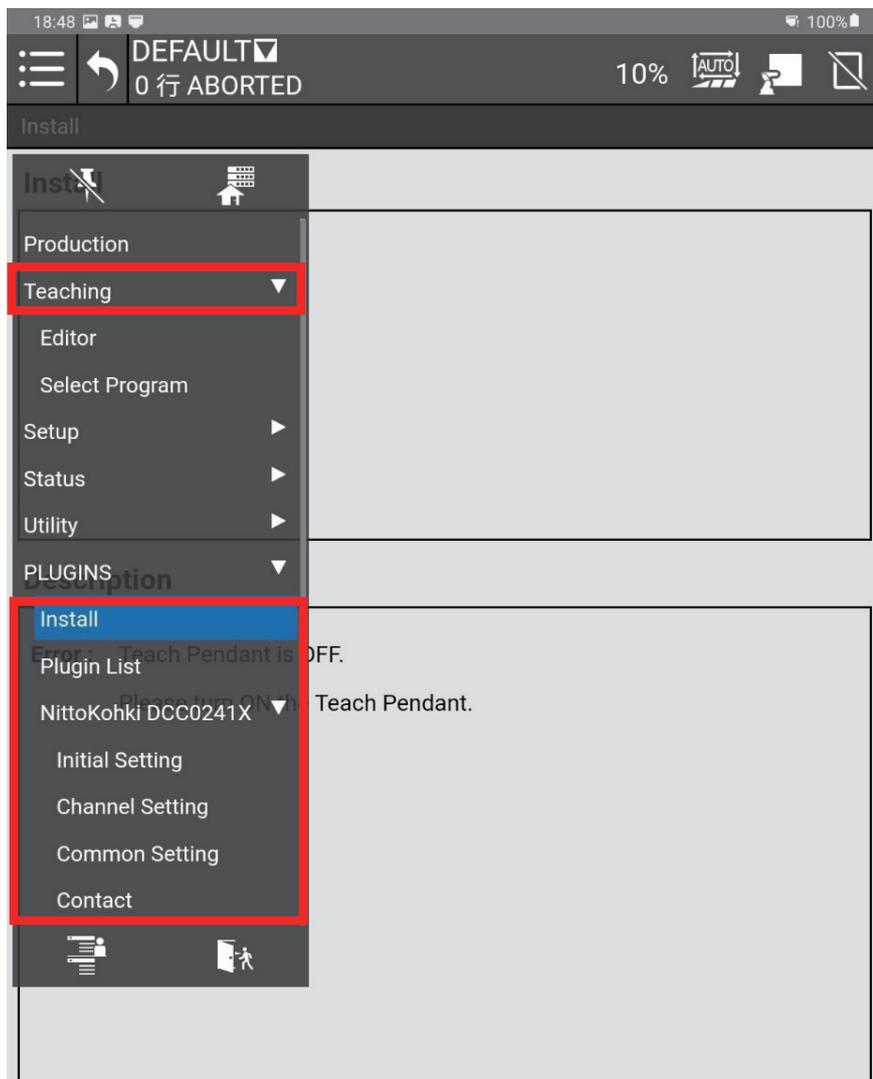
When uninstallation is complete, a confirmation screen appears.



- 5** Turn the power of the robot controller off and then back on.

Configuration of plugin

You can navigate to each screen from the menu icons.



Menu	Details
Teaching	To set the details of the [Switch CH], [Forward], [Reverse], and [Stop] special commands. (p. 30)
Install	To install this plugin. (p. 11)
Plugin List	To display detailed explanation about this plugin.
Initial Setting	To configure the initial settings for communication with the controller. (p. 19)
Channel Setting	To check or change the channel settings of the controller. (p. 26)
Common Setting	To check or change the common settings of the controller. (p. 22)
Contact	To display the contact information for inquiries about this plugin. (p. 35)

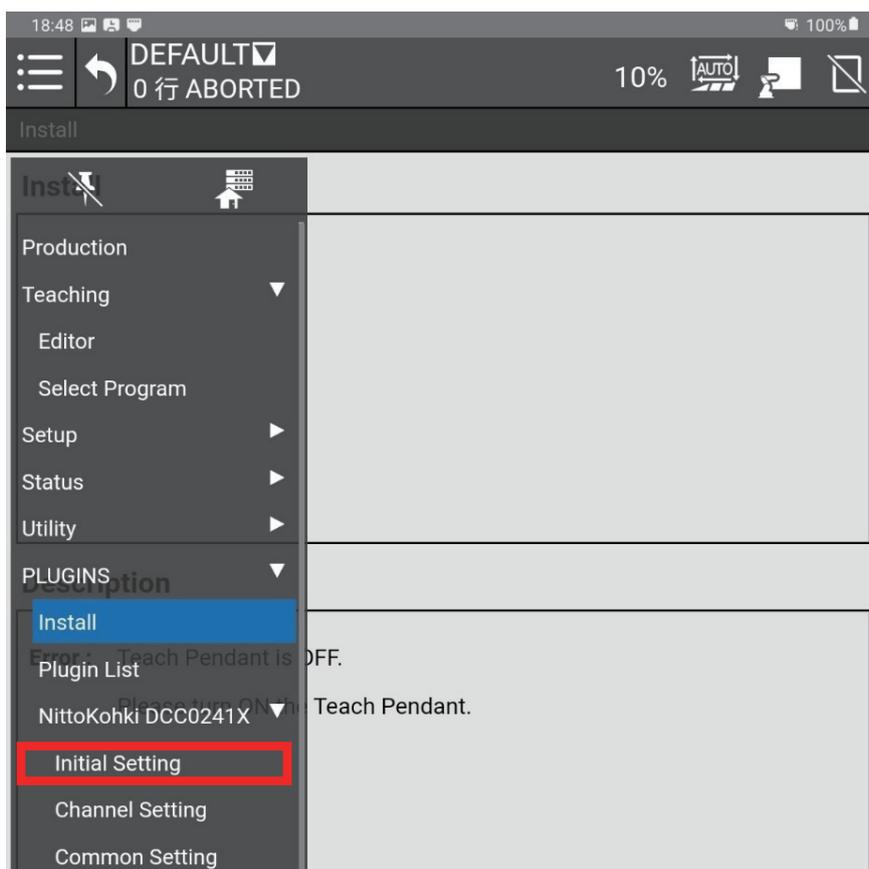
Initial settings

When you start the DCC0241X plugin for the first time, you must configure the IP address and other basic settings of the controller.

A connection will be established automatically according to the following conditions when it is started from the second time.

- Communication settings when the [Connect] button was tapped last time
- Last set tightening selection channel

1 Tap [Initial Setting] from the [PLUGINS] menu.



Communication with the controller is performed and then an error message appears.
The Initial Setting screen appears.

2 Make the following settings.

17:07 100%
 DEFAULT
 Line 0 ABORTED
 10% AUTO

Initial Setting

Initial Setting

[Controller] [Electric Screwdriver]
 Model: DCC0241X-AZ Model: DLV45C
 Ver: 1.30 Ver: 1.10

IP Address Setting

IP Address 169 . 254 . 25 . 233
 PORT 10001

Connect Disconnect Connection status: Connect

Delvo external signal assignment setting

FW boot DO 103 ▼ FW signal DI 103 ▼
 REV boot DO 104 ▼ REV signal DI 104 ▼
 Force stop DO 105 ▼

Save Undo

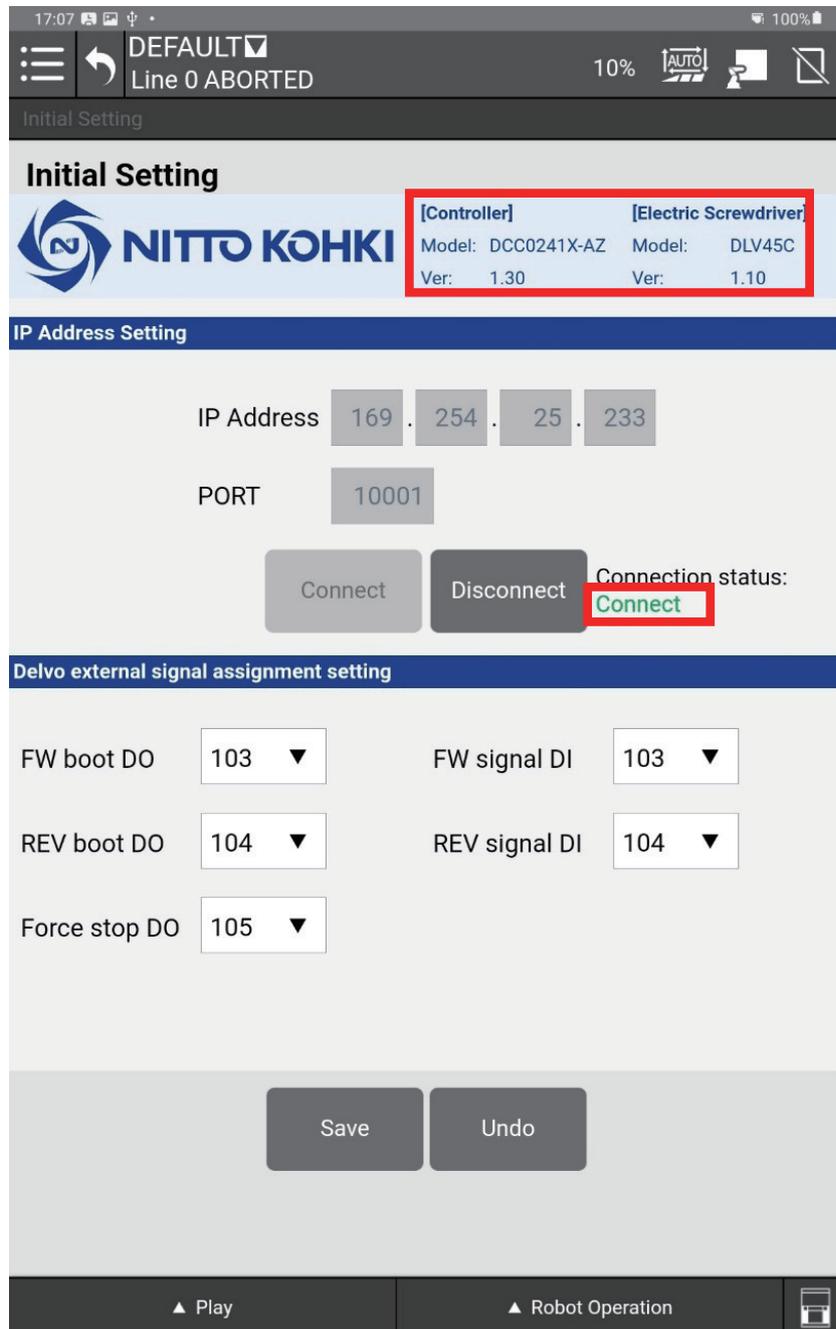
▲ Play ▲ Robot Operation

IP Address	IP address of the controller		
PORT	Port number used to communicate with the controller		
Delvo external signal assignment setting	Signal number used for each operation		
		Settable range	Initial value
	FW boot DO	101 to 112	101
	REV boot DO		102
	Force stop DO		103
	FW signal DI		101
REV signal DI	102		

When the initial settings are complete, this screen will no longer be displayed.

3 Tap [Connect].

If the connection is successful, the model and version information of the controller and the electric screwdriver will be displayed, and the connection status will be [Connect].

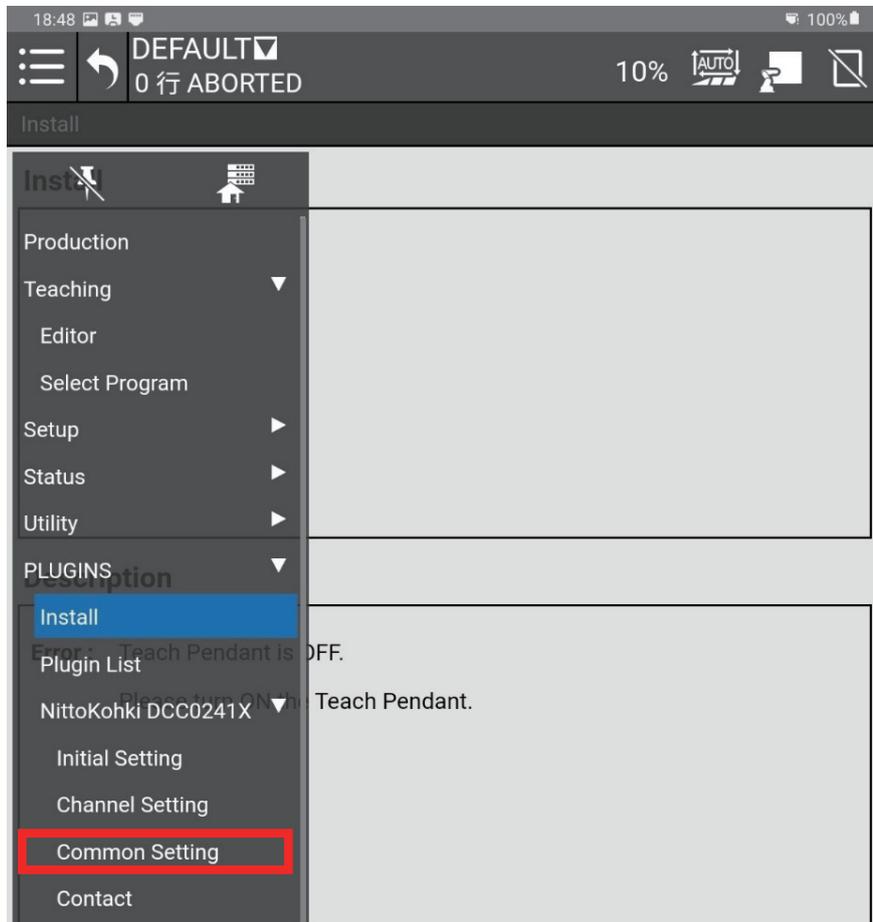


Common settings

To check or change the parameters of the common settings.

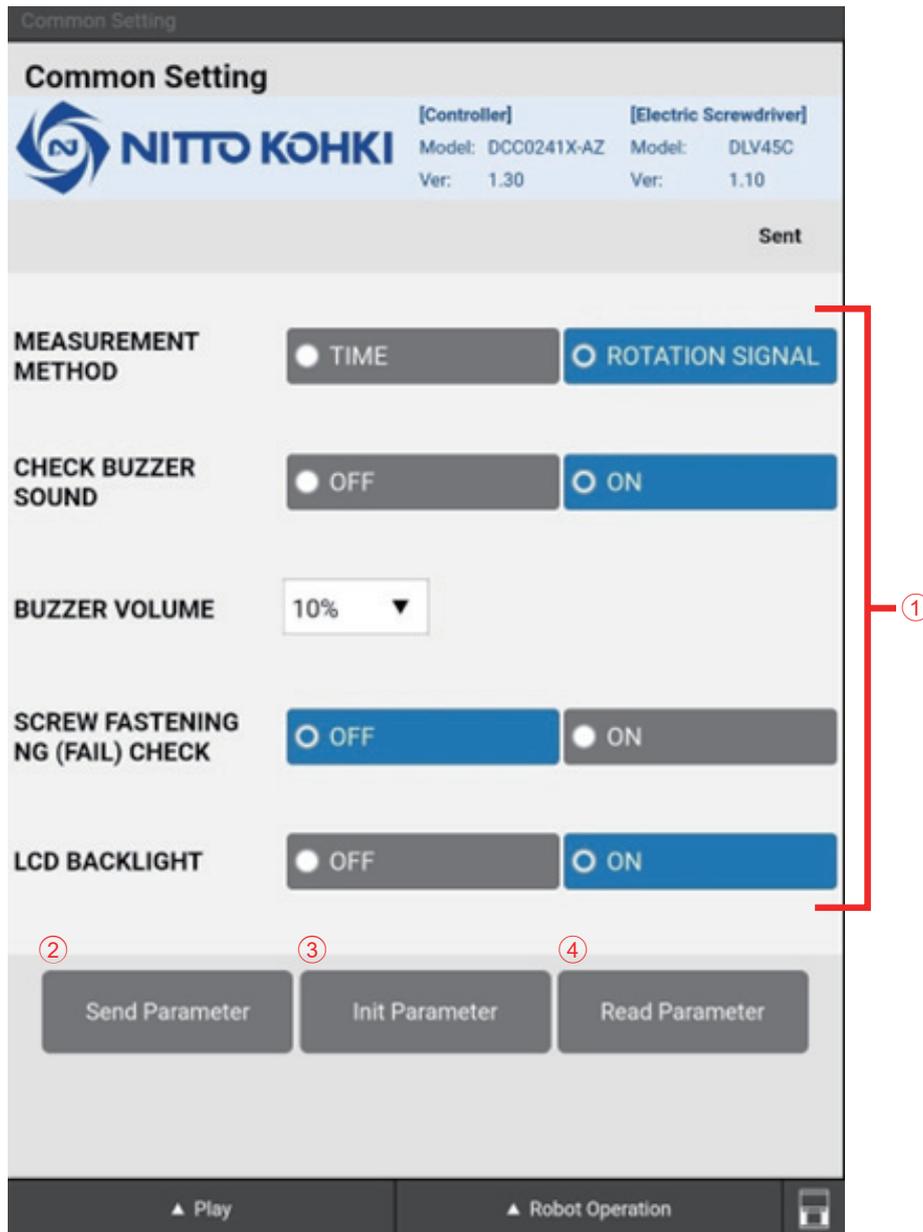
A connection is established with the controller using the IP address set in the [Initial Setting] screen. If connecting with the controller is not possible, all controls will be disabled.

- 1 Tap [Common Setting] from the [PLUGINS] menu.



The [Common Setting] screen appears.

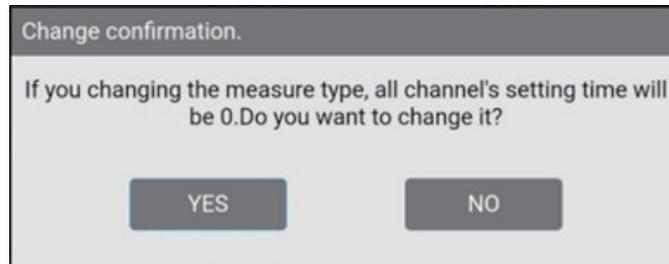
2 Make the following settings.



①	Displays common setting parameters for editing. When [MEASUREMENT METHOD] is changed, "INITIAL SPEED TIME", "MIDTERM SPEED TIME", "REVERSE TIME", "SCREW FASTENING MEASUREMENT UPPER LIMIT", and "SCREW FASTENING MEASUREMENT LOWER LIMIT" for all channels are set to OFF (0).
②	Sends the set values to the controller.
③	Sends the initial values to the controller.
④	Reads the setting values from the controller.

Changing the measurement method

- 1 Change [MEASUREMENT METHOD] to [TIME] or [ROTATION SIGNAL].
A confirmation screen appears.

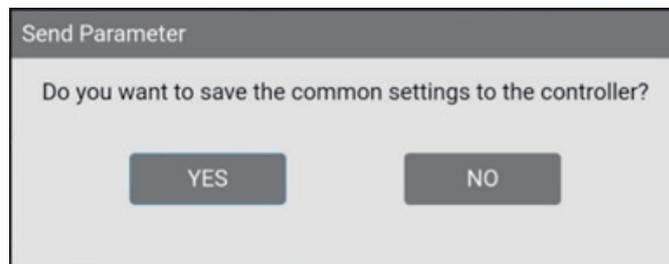


- 2 Tap [YES].
The measurement method is switched, and "INITIAL SPEED TIME", "MIDTERM SPEED TIME", "REVERSE TIME", "SCREW FASTENING MEASUREMENT UPPER LIMIT", and "SCREW FASTENING MEASUREMENT LOWER LIMIT" for all channels are set to OFF (0).
If you tap [NO], the operation will be canceled.

Sending the setting values

Sends the set values to the controller.

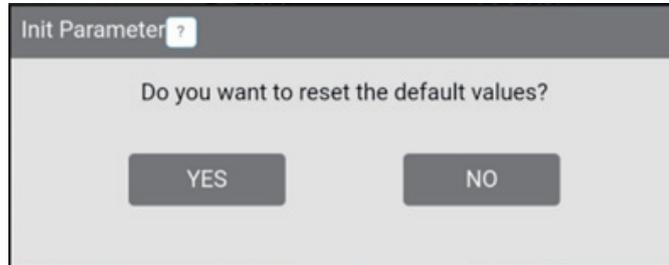
- 1 Change the parameters of [Common Setting].
- 2 Tap [Send Parameter].
A confirmation screen appears.



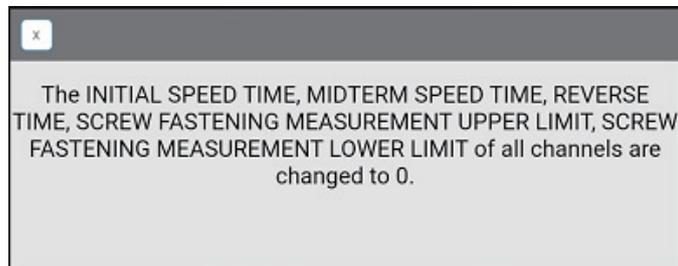
- 3 Tap [YES].
The set values will be sent to the controller.

Initializing the setting values

- 1 **Tap [Init Parameter].**
A confirmation screen appears.



If you tap [?], an explanation appears. After confirming the explanation, tap [x].

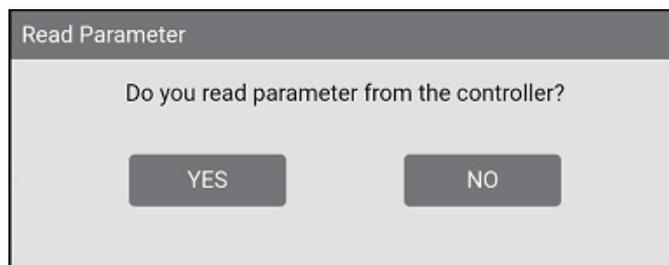


- 2 **Tap [YES].**
The initial values will be sent to the controller.

Reading the setting values

Reads the setting values from the controller.

- 1 **Tap [Read Parameter].**
A confirmation screen appears.



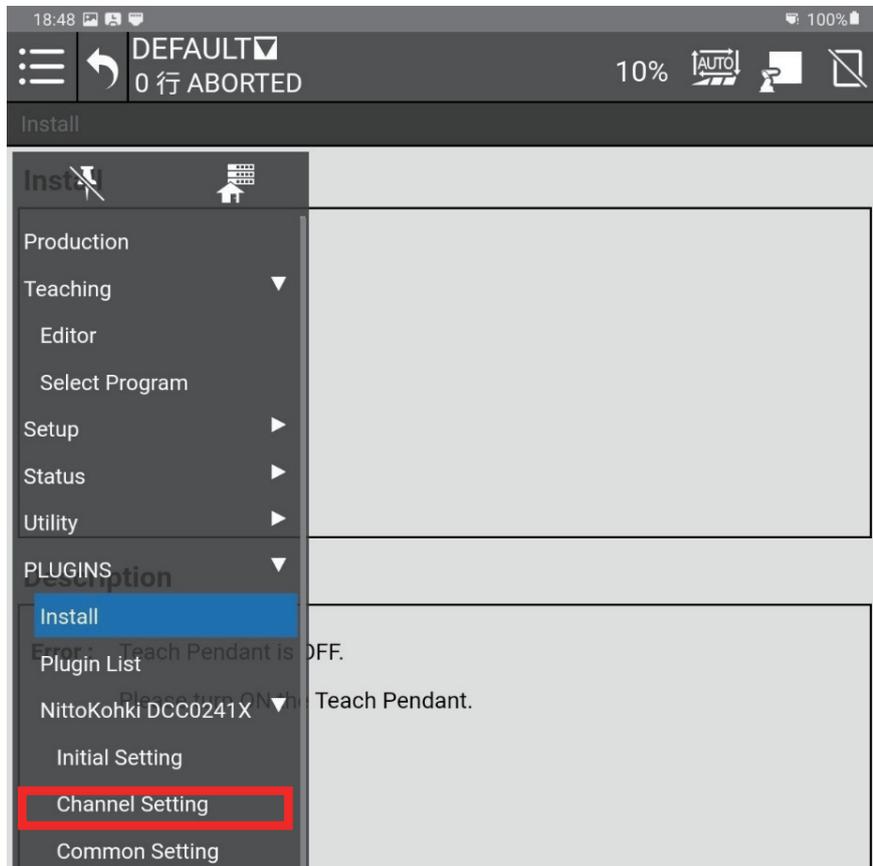
- 2 **Tap [YES].**
The values set on the controller will be read.

Channel settings

Check and change the parameters of the channel settings.

The controller is connected using the IP address configured on the [Initial Setting] screen. If the connection to the controller fails, all controls will be disabled.

- 1 Tap [Channel Setting] from the [PLUGINS] menu.



The [Channel Setting] screen appears.

2 Make the following settings.

Channel Setting

Channel Setting

NITTO KOHKI

[Controller] Model: DCC0241X-AZ Ver: 1.30 [Electric Screwdriver] Model: DLV45C Ver: 1.10

Sent

SELECT CH CH1: ▾

CH NAME

PITCH 0.00 mm

COMMENT

SCREW FASTENING TYPE SOFT HARD

SCREW FASTENING SPEED 155min⁻¹ (Around)

TORQUE 10 % 0.95N·m (Around)

Send Parameter Init Parameter Read Parameter

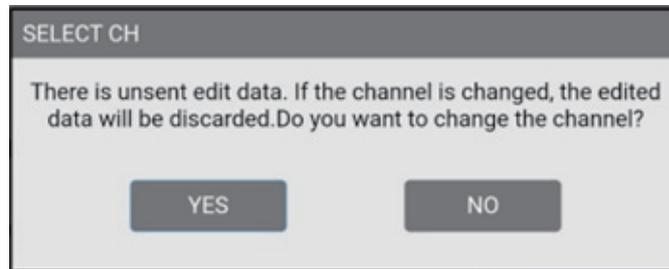
▲ Play ▲ Robot Operation

①	Displays parameters related to the channel settings for editing. Up to 100 single-byte alphanumeric characters (excluding some symbols) can be entered for [CH NAME] and [COMMENT] (up to 50 characters can be displayed).
②	Sends the set values to the controller.
③	Sends the initial values to the controller.
④	Reads the setting values from the controller.

Changing the channel selection

1 Change the channel in [SELECT CH].

If there is unsent data, a confirmation screen appears.



If you tap [YES], the channel will change to the selected channel and the parameters of the new channel will be read.

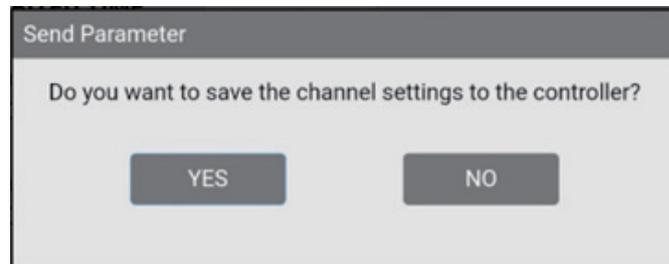
Sending the setting values

Sends the set values to the controller.

1 Change the parameters of [Channel Setting].

2 Tap [Send Parameter].

A confirmation screen appears.

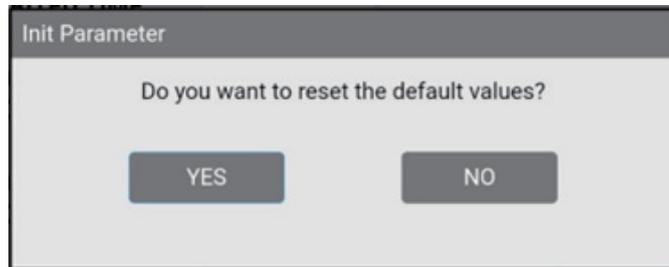


3 Tap [YES].

The set values will be sent to the controller.

Initializing the setting values

- 1 **Tap [Init Parameter].**
A confirmation screen appears.

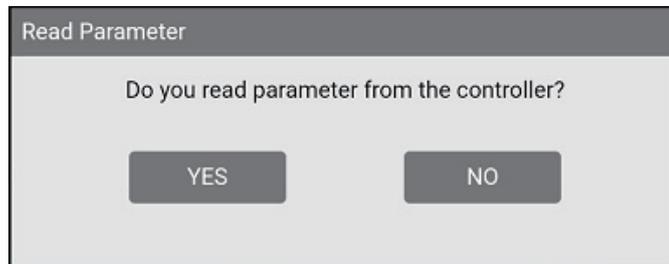


- 2 **Tap [YES].**
The initial values will be sent to the controller.

Reading the setting values

Reads the setting values from the controller.

- 1 **Tap [Read Parameter].**
A confirmation screen appears.



- 2 **Tap [YES].**
The values set on the controller will be read.

Special commands

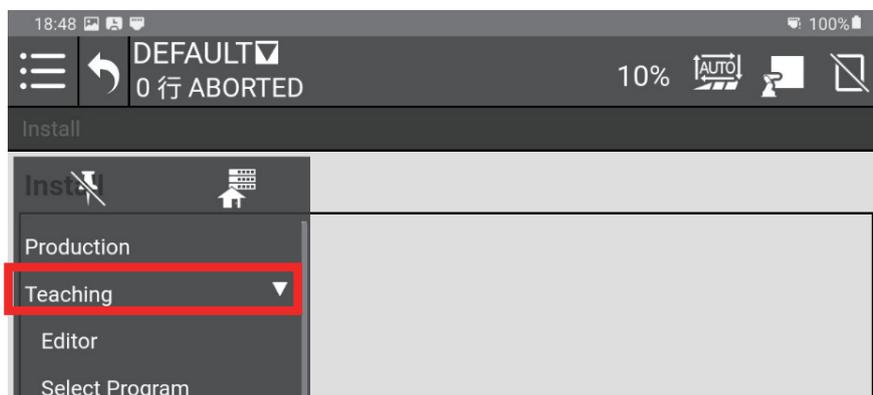
Create a program for operating the electric screwdriver.
The following commands are available.

 Switch CH	Switches the operating channel of the controller. (p. 32) Select the channel to switch to on the [Details] tab.
 Forward	Drives the electric screwdriver in forward rotation. (p. 33)
 Reverse	Drives the electric screwdriver in reverse rotation. (p. 33)
 Stop	Stops the electric screwdriver. (p. 34)

Caution

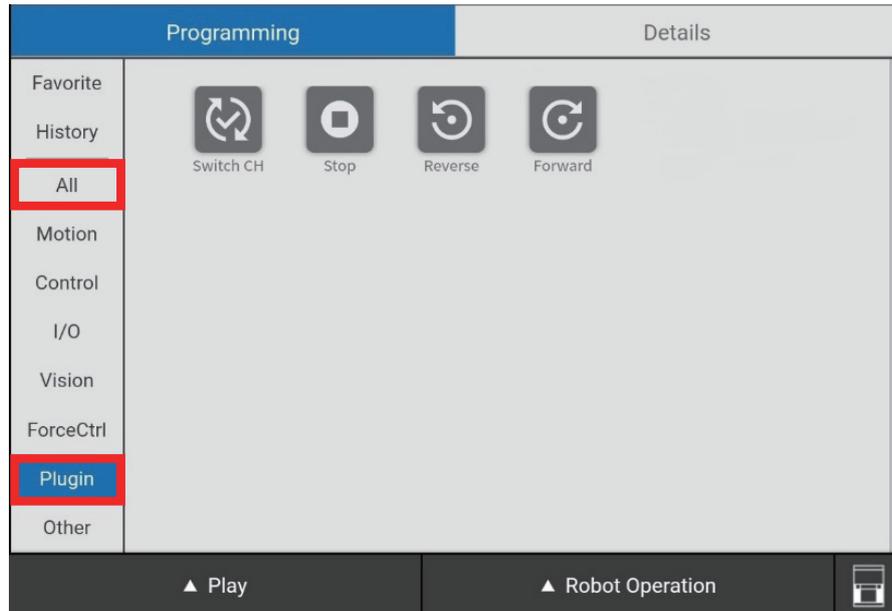
- Plugin alarm No.1 “Failed to connect to controller” is displayed when a command is executed while not connected to the controller.

1 Tap [Teaching] → [Editor] from the menu icon.



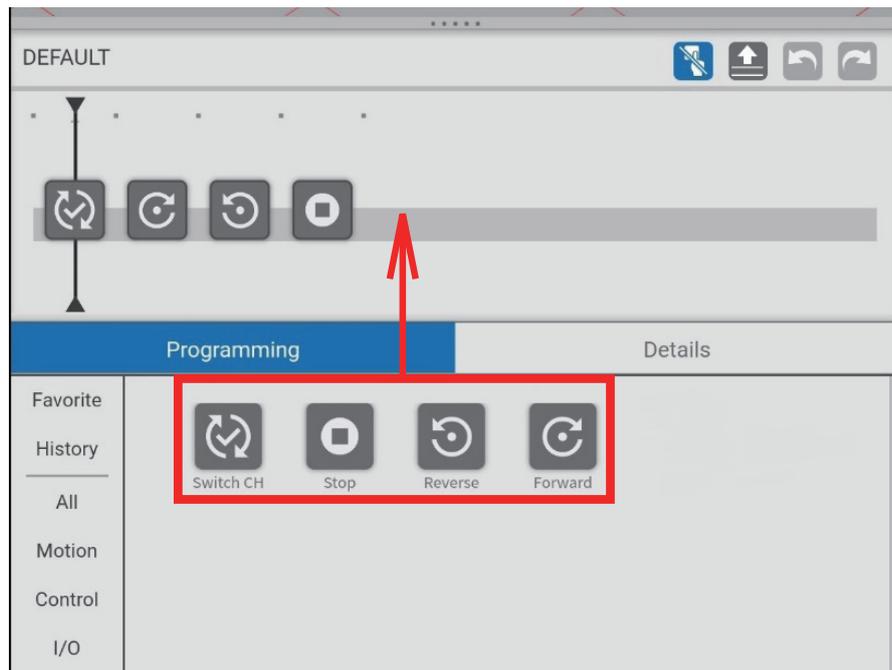
The [Editor] screen appears.

2 Tap [All] or [Plugin] on the [Programming] tab.



The icons for the installed commands are displayed.

3 Drag and drop icons onto the timeline.



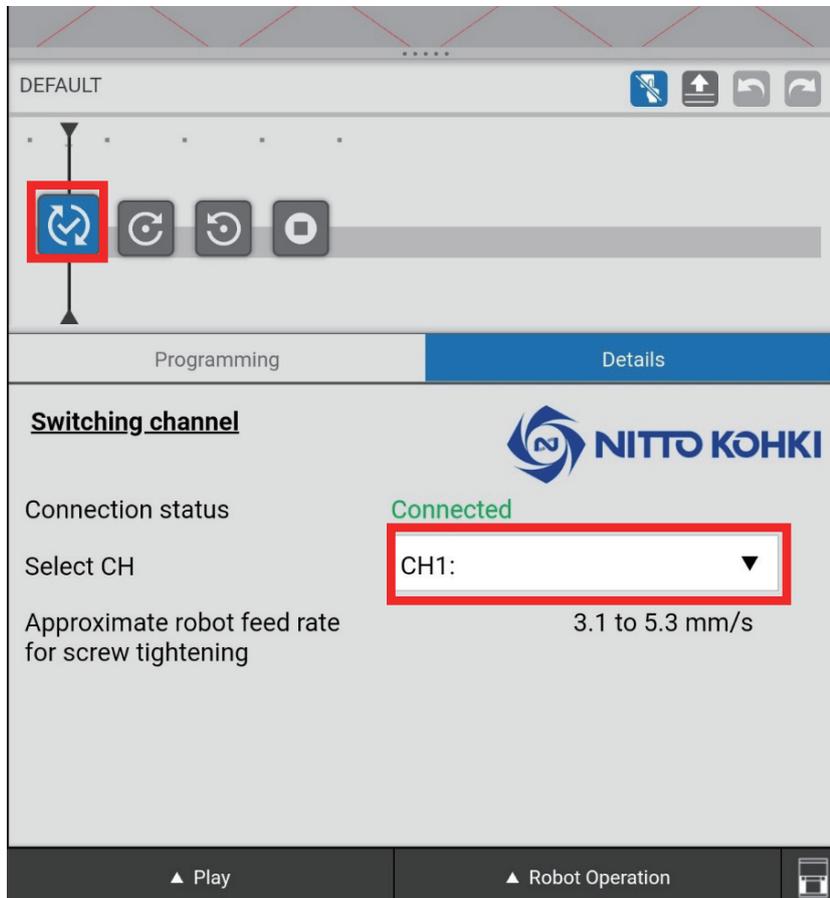
The commands will be added.

⚠ CAUTION

- If you pause the program during driving of the electric screwdriver, the electric screwdriver also stops. In this case, even if you resume the program, the electric screwdriver does not resume driving for safety reasons.

Switching channel command

This command switches the operating channel of the controller. Select a channel in [Select CH] on the [Details] tab. [Approximate robot feed rate for screw tightening] is displayed when connected to the electric screwdriver. When not connected, [Connect to the controller] is displayed.



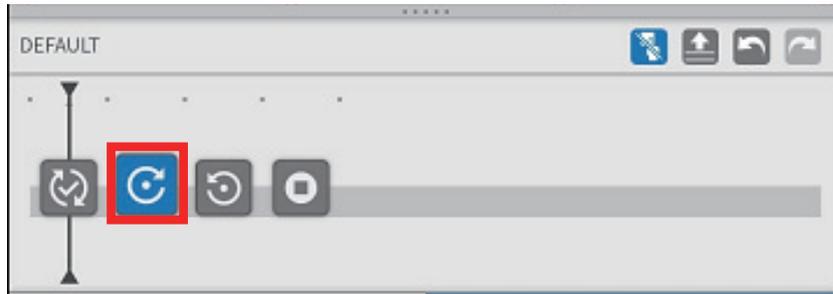
Operation during execution

- (1) If [FW boot DO] or [REV boot DO] is set to ON, it is turned OFF.
- (2) It is switched to the channel selected on the [Details] tab.

The channel of the controller is switched.

Forward rotation drive command

This command drives the electric screwdriver in forward rotation.



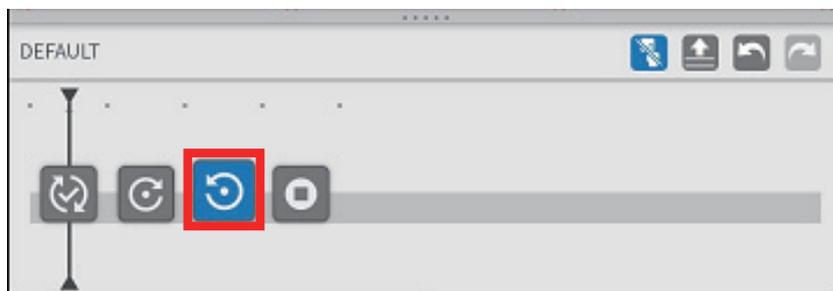
Operation during execution

A check of the forced stop function is performed before execution.

- (1) If [FW boot DO] or [REV boot DO] is set to ON, it is turned OFF.
- (2) [Force stop DO] is turned OFF.
It awaits notification (FSP) that the forced stop function is enabled.
- (3) [Force stop DO] is turned ON.
It awaits notification (FSC) that the forced stop function is disabled.
- (4) [FW boot DO] is turned ON.

Reverse rotation drive command

This command drives the electric screwdriver in reverse rotation.



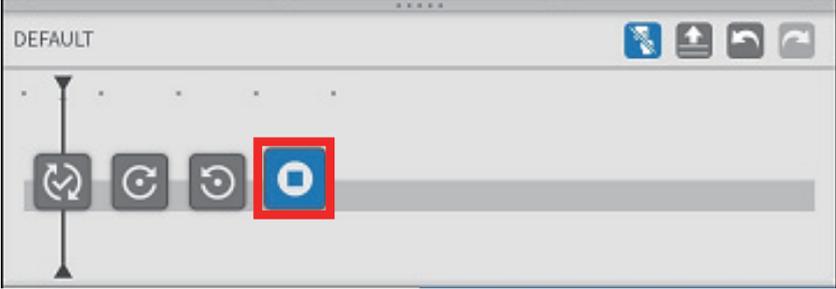
Operation during execution

A check of the forced stop function is performed before execution.

- (1) If [FW boot DO] or [REV boot DO] is set to ON, it is turned OFF.
- (2) [Force stop DO] is turned OFF.
It awaits notification (FSP) that the forced stop function is enabled.
- (3) [Force stop DO] is turned ON.
It awaits notification (FSC) that the forced stop function is disabled.
- (4) [REV boot DO] is turned ON.

Drive stop command

This command stops the electric screwdriver.

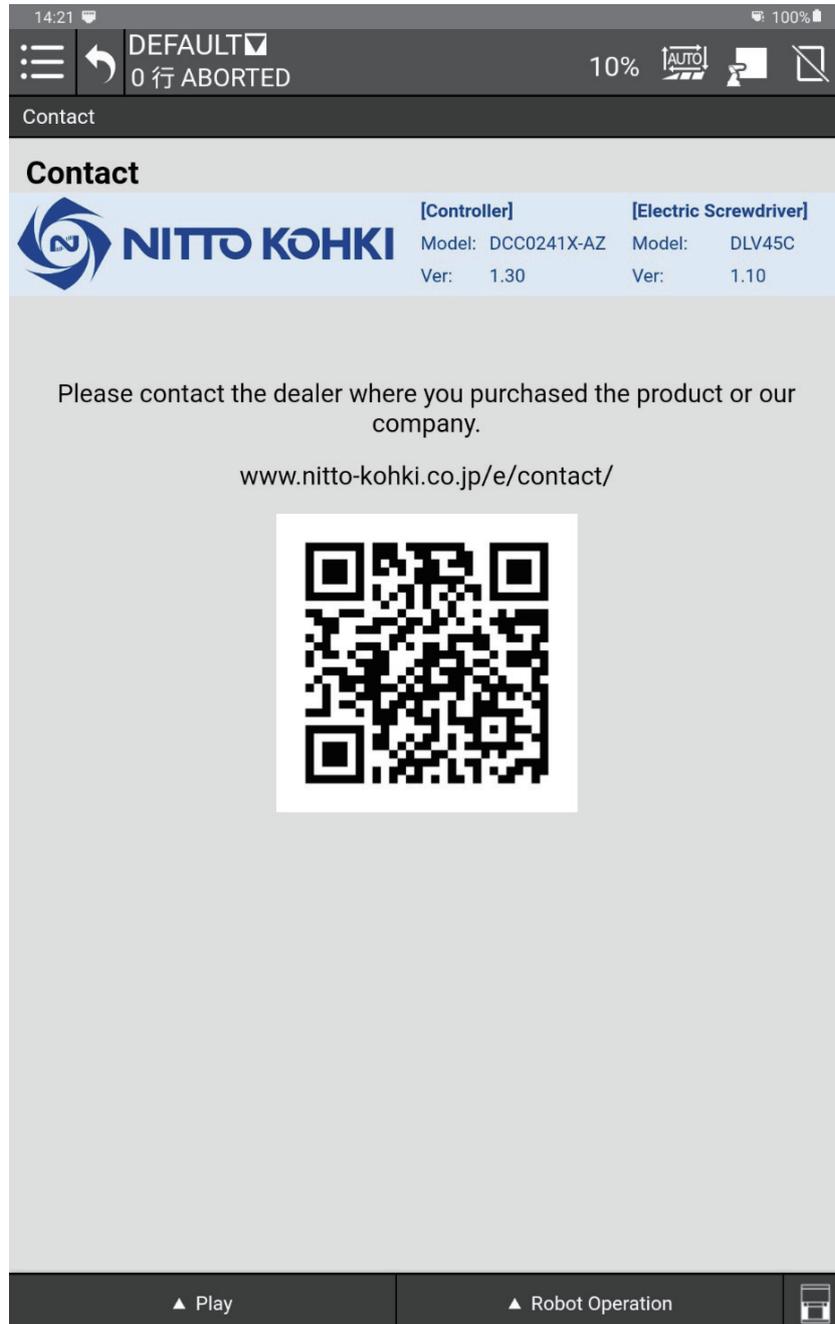


Operation during execution

- (1) [FW boot DO] and [REV boot DO] are turned OFF.

Inquiries about the software

If you tap [Contact] on the settings screen, the contact information for NITTO KOHKI will be displayed.



4. Appendix

Plugin alarm list

Plugin alarms displayed during the execution of this plugin's special commands.

CAUTION

- **If an alarm is displayed, the robot program will be forcibly terminated.**
The command may need to be re-executed from the beginning.

No.	Details
01	Failed to connect to the controller. Check the connection between the controller and the robot.
02	Failed to execute the command, and the response timed out. Check the connection and settings of the controller and the robot.
03	This occurs if a special command is executed while there is unsent data on the [Common Setting] screen or the [Channel Setting] screen. Check the settings.
04	This occurs if the forward signal does not turn ON and a timeout occurs when the [Forward] special command is executed.
05	This occurs if the reverse signal does not turn ON and a timeout occurs when the [Reverse] special command is executed.
06	This occurs if "FSP" could not be received when the forced stop function is turned ON, or if "FSC" could not be received when the forced stop function is turned OFF.
07	This occurs if the drive signal DI was not turned OFF when the [Stop] special command is executed. When this alarm occurs, the forced stop function is activated for safety.

Error list

Caution

- If an error is displayed frequently, please contact NITTO KOHKI.

No.	Details
01	The setting value is out of range. Set the input value within the range of the respective setting item.
02	The setting value is abnormal. This is displayed if the controller returns a setting value error (CER) when [Send Parameter] is executed.
03	Operation is not performed with a controller version earlier than 1.20. This is displayed if CER is returned while getting the version (VER command) or when the version is earlier than 1.20.
04	This operation is not possible during program operation. This is displayed if a prohibited operation is performed during program operation (during execution of a special command of the DCC0241X).
05	Connect to the controller. This is displayed if a communication operation (such as sending settings) is performed while disconnected.
06	Connection to an electric screwdriver other than DLV45C is not possible.
10	Failed to connect to the controller.
11	Failed to disconnect from the controller. Please contact us if this error occurs frequently.
12	Failed to save the initial settings. Please contact us if this error occurs frequently.
13	Failed to load the initial settings. Please contact us if this error occurs frequently.
14	Failed to save channel settings. Check the connections of the controller's power cable and communication cable.
15	Failed to load channel settings. Check the connections of the controller's power cable and communication cable.
16	Failed to save common settings. Check the connections of the controller's power cable and communication cable.
17	Failed to load common settings. Check the connections of the controller's power cable and communication cable.
18	Failed to initialize channel settings. Check the connections of the controller's power cable and communication cable.
19	Failed to initialize common settings. Check the connections of the controller's power cable and communication cable.

Product information

Please refer to the following website for information on NITTO KOHKI products, accessories, dimensional drawings, and other publicly available information.

Japanese: <https://www.nitto-kohki.co.jp/>

English: <https://www.nitto-kohki.co.jp/e/>

