WEISS ROBOTICS

FLEXGRIP PLUGIN
FOR FANUC CRX

Version 2.0.0
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1 Introduction

The FLEXGRIP plugin enables the seamless integration of Weiss Robotics gripping modules with FLEXGRIP interface, such as GRIPKIT EASY, GRIPKIT LS and INTRAPAL, into the robot program. It provides an interface that is easy to operate from the robot programming environment and enables flexible gripping with adjustable parameters. This means that complex robot applications can be implemented in no time at all with minimal effort.

This manual describes the functions of the FLEXGRIP plug-in for robots of the CRX series from FANUC. For information on installation, commissioning, and operation of the gripping module, please refer to its operating instructions. These can be found online at **www.weiss-robotics.com**.

1.1 Notation and symbols

The following symbols are used in these instructions to provide a better overview:

Functional or safety-relevant information. Failure to observe this may endanger the safety of personnel and the system, damage the appliance, or impair the function of the appliance.

Additional information for a better understanding of the facts described.

Reference to further information.

1.2 Intended use

The FLEXGRIP plug-in is intended for communication between Weiss Robotics gripping systems with a FLEXGRIP interface and a robot controller. The requirements of the applicable directives and the installation and operating instructions in this manual must be observed and complied with. Any other or additional use is considered improper use. The manufacturer is not liable for any resulting damage.

1.3 System requirements

The plugin communicates with the gripping modules via the Modbus RTU interface of the EE interface. The following firmware versions are required:

- GRIPKIT EASY from firmware version 2.1.1
- GRIPKIT LS from firmware version 1.1.0
- INTRAPAL series from firmware version 5.2.0

The device options “OPT-GKEASY-MB” (GRIPKIT EASY) and “OPT-IPL-MB” (INTRAPAL series) enable the Modbus RTU interface on the respective device and must be activated. They are ordered from WEISS ROBOTICS; see the device’s operating instructions for details.

One of the following FANUC robot controllers is required for operation:

- R-30iB plus with software version V9.40P/06 (or higher)
- Option for the Tablet Teach Pendant to use the UI functions, if activated

A robot from the CRX series is required.

The following robot options are required to operate the software:

- R632 KAREL

Contact your FANUC dealer to obtain the robot options.

1.4 License terms

The FLEXGRIP plug-in is protected by copyright. The applicable license terms are included with the software package. By installing the plugin, you accept these license terms.

1.5 Changes from previous versions

Version 2.0.0 extends the plugin to further Weiss Robotics gripping modules with FLEXGRIP interface. The instructions and their parameters are unchanged, so existing robot programs continue to run without modification.
New in version 2.0.0:

- Device profiles per gripper address (GRIPKIT EASY, GRIPKIT LS, INTRAPAL or Custom) limit position and force of GRIP and RELEASE (see section 3.3.2).
- The FLEXGRIP instructions are in the “Plugin” group of the program editor (previously “Motion”).
- With WST, GRIP, RELEASE and HOME wait up to 100 s (previously 10 s); default timeout of the WST instruction 100,000 ms (previously 10,000 ms).
- If the release acceleration override factor cannot be read, RELEASE uses “Reduced” (60 %) and displays an error message.

After an update, all gripper addresses are set to “Not configured”: select the device profile of every gripper address in use, open each GRIP and RELEASE instruction once and check its values, and clear the Tablet TP cache (see section 3.3).

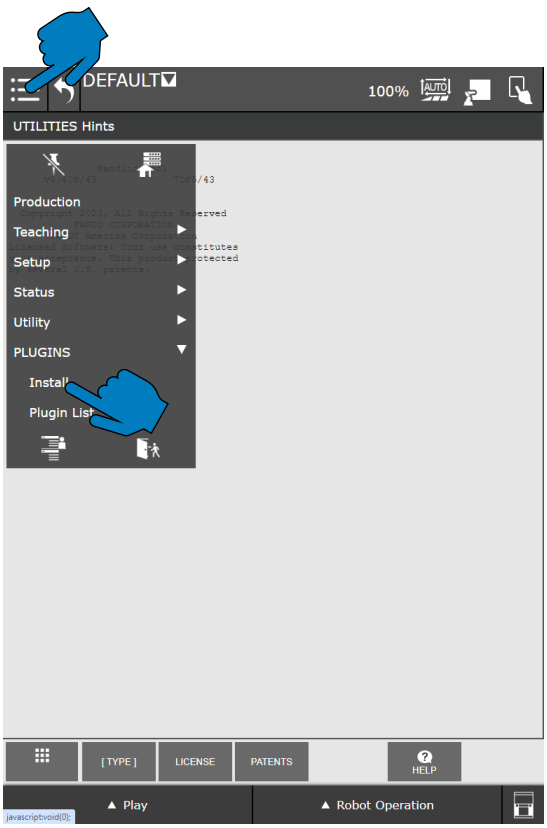
2 Installation

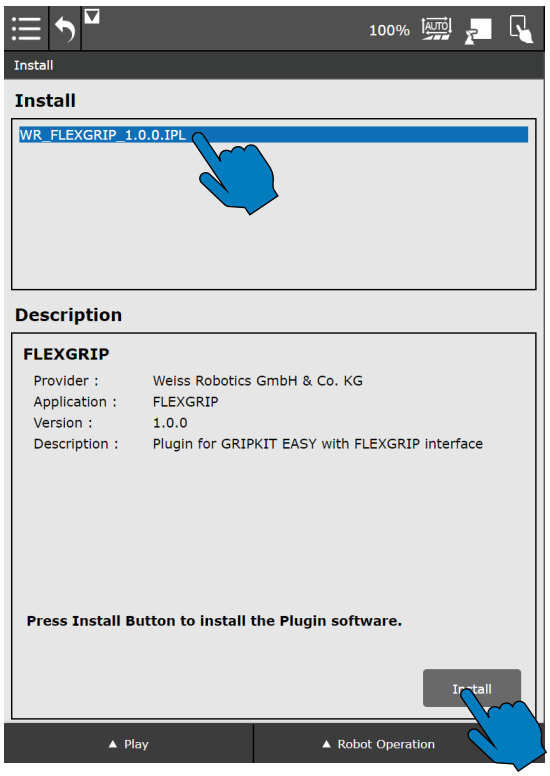
2.1 Installing the FLEXGRIP plugin

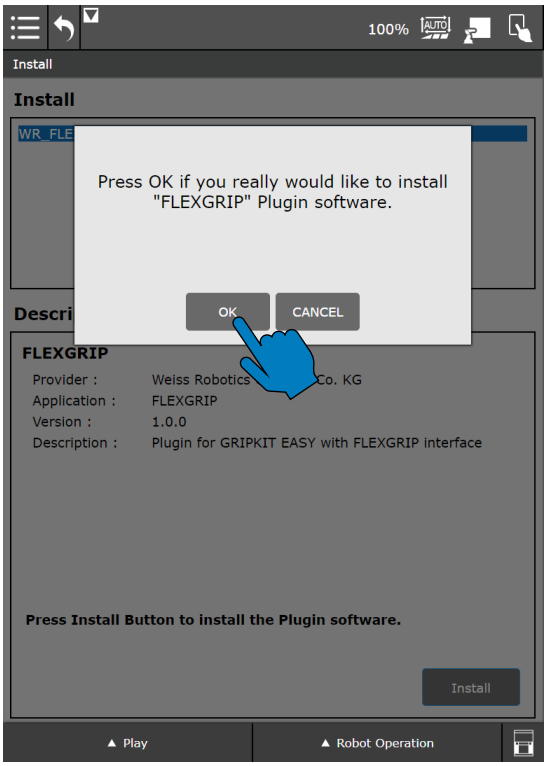
The plugin provides its own instruction blocks for use with the Tablet Teach Pendant. These can be inserted into a robot program using drag & drop.

1. Download the latest plugin file “flexgrip_plugin_fanuc_crx_<version>.zip” from our website.
2. Unpack the previously downloaded ZIP archive with the plug-in into the root directory of a USB stick and insert it into the USB slot of the robot controller (UD1).

To install, first start the robot and switch on the Tablet Teach Pendant. Wait until the Tablet TP app is open and the Teach Pendant has connected to the controller. Then carry out the following steps:







After being prompted to restart the robot controller, switch it off at the main switch and then on again after about ten seconds or use the restart function via the teach pendant (for more information, refer to the instructions for the robot controller). The teach pendant does not need to be restarted. Wait until the teach pendant has reconnected to the robot controller.

2.2 Configuration of the EE interface

The EE interface (End Effector Interface) of the robot is used for communication between robots and gripping modules with a FLEXGRIP interface. This is automatically configured as required when the plugin is installed.

Observe the notes on the EE interface in the operating instructions for the robot!

The supply voltage of the EE interface is automatically set to 24 Volts. Make sure that no devices are connected that do not support this voltage!

2.3 Behavior in the event of an error

If an error occurs that is caused by the plug-in or connected gripper modules, the running robot program is stopped by means of an error. This usually results in the robot's current movements being aborted. The same applies if the addressed device is in the “FAULT” state or changes to this state due to a command.

Errors are also saved in the robot's log file and can be called up via the teach pendant, MENU button → 4 (ALARM) → 4 (Appl Log).
Some messages appear in more detail in the USER log
Please also observe the notes on TELNET output in section 3.7.1

The most common causes of errors and possible solutions are described in section 3.7.

2.4 Uninstalling the plugin

To uninstall the plugin, use the graphical user interface on the tablet teach pendant. In the menu, navigate to the entry “PLUGINS” → “Plugin List”. Select the FLEXGRIP plugin and tap “Uninstall”.

3 Using the plugin

3.1 Hardware commissioning

Connect the gripping modules as described in their operating instructions.

Connecting and disconnecting gripping modules from the robot arm is only permitted when the robot controller is switched off!

Please also observe the instructions for activating the termination resistors on the flange board of the gripping module.

The instructions for activating the termination resistors can be found in the operating instructions for the gripping module.

3.2 Functionality

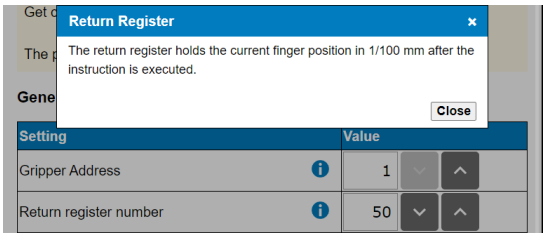
The FLEXGRIP plugin consists of a configuration page and various program instructions with which the robot controller interacts with the connected gripping modules.

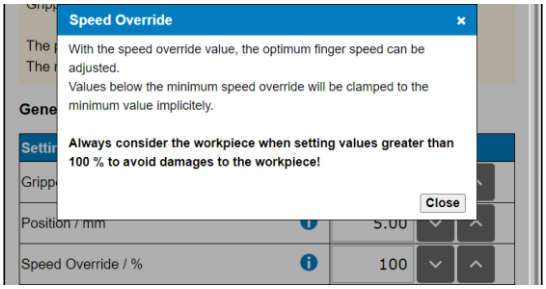
The instructions can be inserted into the HMI editor using drag and drop. If the program is created textually, the functions explained in the following sections must be used.

Instructions that return values write them to predefined numeric registers. The device state registers are set per gripper address on the configuration page of the plugin and apply to all instructions. The register for the finger position is set in the POSITION instruction itself. The device state of a gripper is automatically updated in the assigned Numeric Register if it can be changed by an instruction.

3.2.1 Help menus

The info icon next to an input field displays a help menu. Parameter-specific information is displayed here.





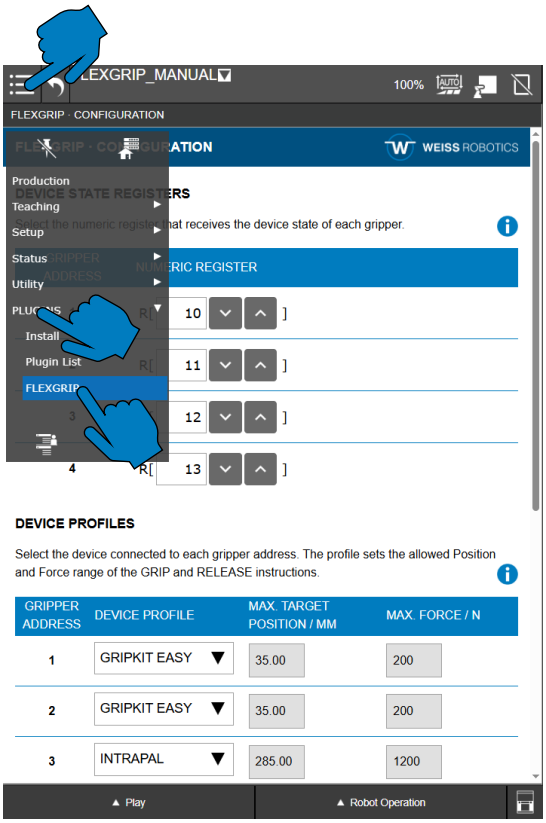
3.3 Preparation of the plugin

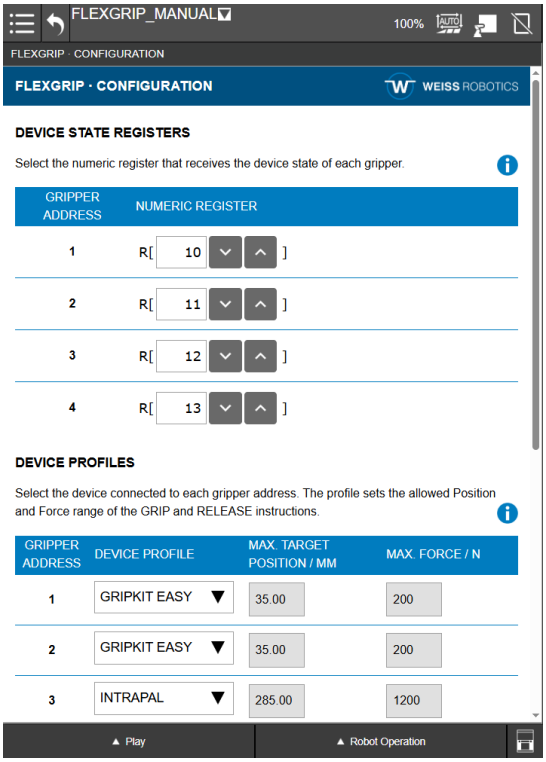
We recommend clearing the Tablet TP cache before setting up the plugin and after every update of the plugin. To do this, slide the left edge of the screen towards the right to open the menu and select “Cache Clear”. Confirm the dialog “Clear the cache and exit the Tablet TP” with “OK”. The Tablet teach pendant then closes.

Clearing the cache prevents display problems on the configuration page and with the graphical instructions that can be caused by cached data.

A detailed description of the cache clear procedure can be found in the FANUC “Tablet UI Operator’s Manual” (document no. B-84274EN/05), section 2.7 “When Tablet TP connect to another controller”.

Open the configuration page by selecting the “Plugins” tab in the menu and tapping on the “FLEXGRIP” entry.





The FLEXGRIP plugin supports the use of four gripping modules. These must be addressed accordingly before use. For GRIPKIT EASY, the address and further device-specific parameters are set with the “GRIPKIT Configurator” application; for the other devices, see their operating instructions.

Each gripping module used requires a unique address! Assigning the same address to several connected gripping modules can lead to incorrect behavior!

The “GRIPKIT Configurator” is available free of charge at **https://weiss-robotics.com/en/gripkit/gripkit-easy/**.

Commands that can influence the gripping state (HOME, GRIP, RELEASE, DISABLE and ENABLE) save the state of the device in a numeric register after the command has been executed. The registers can be set separately for each gripper and are valid for all robot programs.

Further information on the numerical registers can be found in the robot operating instructions.

Further information on the possible gripping states can be found in the operating instructions for the gripping module and in Appendix A.

3.3.1 Release acceleration

The global parameter “Release Acceleration Override Factor” can be used to reduce peak currents when moving the fingers quickly. This occurs in particular when pre-positioning or releasing with several grippers at the same time or over a long distance. Three settings can be specified for the parameter using the selection field:

Value	Description
Minimum	Minimum acceleration
Reduced	Reduced acceleration, around 60 %
Maximum	Maximum acceleration

Only reduce the release acceleration if you experience problems when moving the gripping modules used. Please consult our technical support team!

The release acceleration applies in every RELEASE instruction and also across programs!

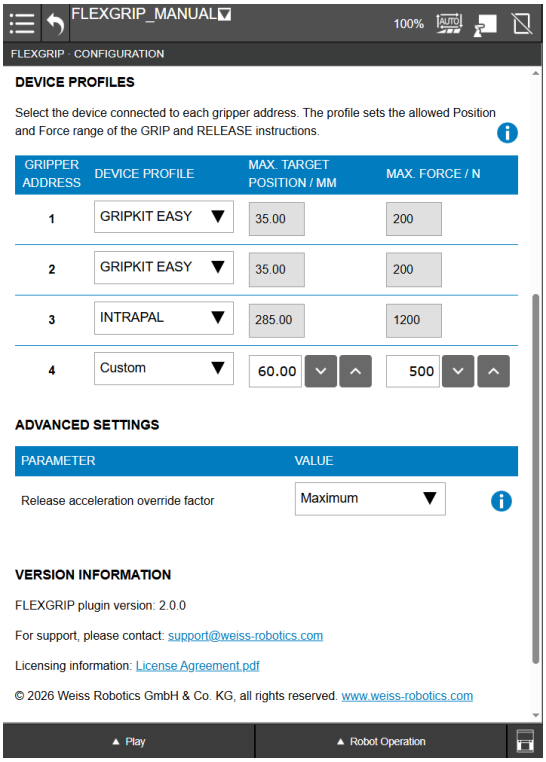
3.3.2 Device profiles

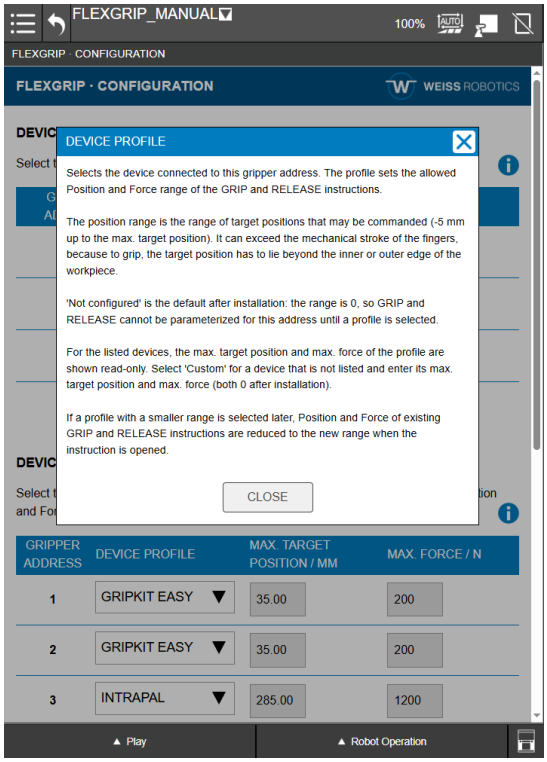
For each gripper address, the device profile defines which device is connected. It sets the allowed range of the position and force parameters of the GRIP and RELEASE instructions.

Device profile	Max. target position	Max. force
Not configured	0 mm	0 N
GRIPKIT EASY	35 mm	200 N
GRIPKIT LS	45 mm	50 N
INTRAPAL	285 mm	1200 N
Custom	entered on the configuration page	entered on the configuration page

The position can be set from -5 mm up to the max. target position, the force from 0 N up to the max. force. For the listed devices, the limits are shown read-only. For a device that is not listed, select “Custom” and enter its max. target position and max. force.

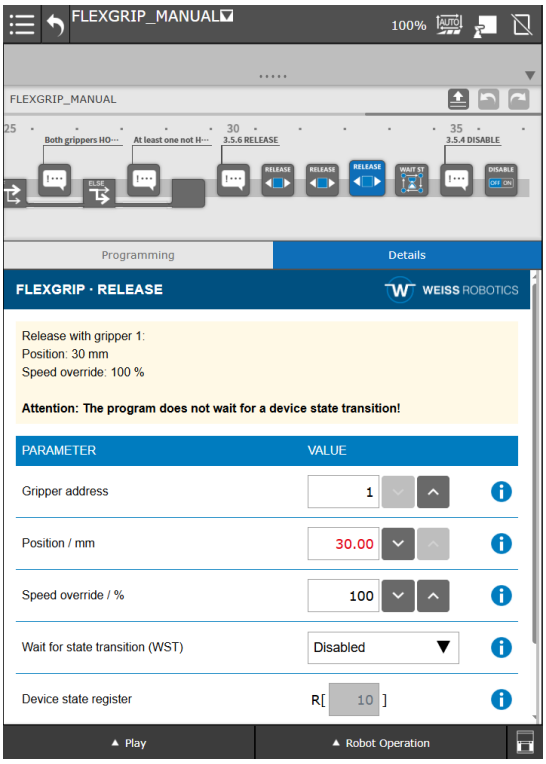
After installation, all gripper addresses are set to “Not configured” and the Custom values are 0 mm / 0 N. Select the device profile of every gripper address in use before programming GRIP and RELEASE instructions.
The max. target position is the largest position value that GRIP and RELEASE accept for this gripper address. It is not the mechanical stroke of the fingers: the position range (−5 mm up to the max. target position) is deliberately slightly larger than the stroke.
For GRIP, the target position must lie beyond the workpiece in the gripping direction: smaller than the workpiece width when gripping from the outside, larger than the inner dimension when gripping from the inside. Close to the end of the stroke, this can mean a value below 0 mm or above the stroke. The fingers never move beyond their end positions; the INTRAPAL 1200-280, for example, always stays within 0 … 280 mm.





Behavior of existing instructions when the profile is changed:

- If a profile with a smaller range is selected, position and force of an existing GRIP or RELEASE instruction are reduced to the new range the next time the instruction is opened in the program editor, and the reduced values are stored in the instruction.
- With “Not configured”, or “Custom” with the values 0 / 0, the stored values are kept and shown in red, because no device limits are known.



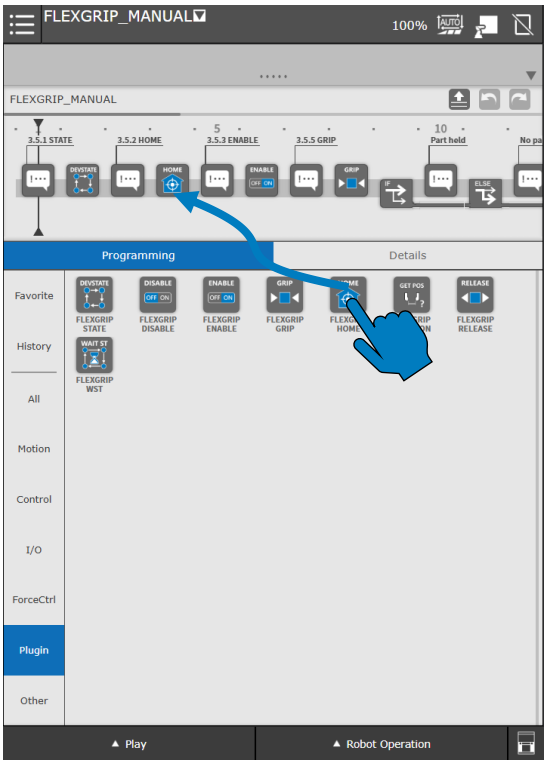
Instructions that are not opened after a profile change keep their previous values and are executed with them. After changing a device profile, open every GRIP and RELEASE instruction of this gripper address and check the values.

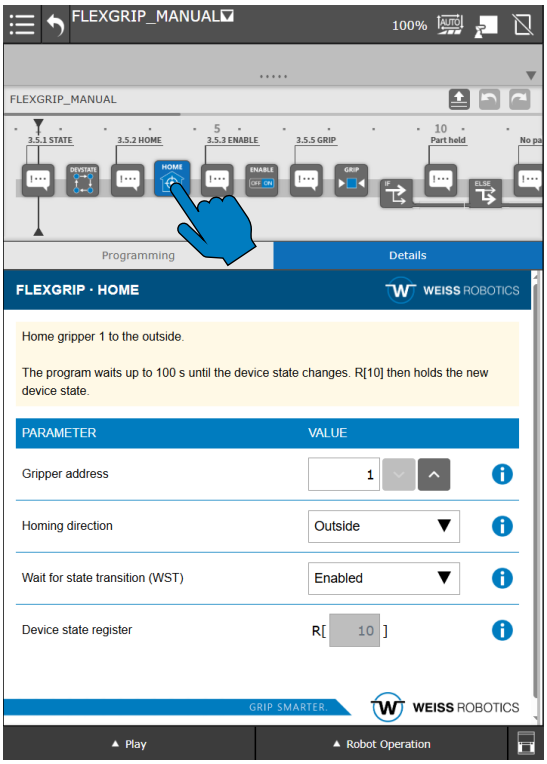
3.4 Use of the instructions

3.4.1 Available commands

To create robot programs quickly and easily, the plugin provides various instructions. These can be dragged and dropped into the program via the program editor of the robot controller. They are located in the “Plugin” group.

When you select an instruction, the “Details” tab takes you to the detailed view of the instruction, where you can make specific settings depending on the instruction.





3.4.2 Waiting for a change of state

Commands that influence the state of the gripping module can wait for a state change of the controlled gripping module.

These commands provide a corresponding parameter. If you do not want to wait for the gripping module to change state after starting the respective command, the “Wait for state transition (WST)” function must be deactivated using the corresponding dropdown field.

With WST enabled, GRIP, RELEASE and HOME wait up to 100 s for the state transition, ENABLE and DISABLE up to 2 s.

If WST is deactivated, collisions with the gripping module and the environment may occur!

Further information on the device statuses can be found in the operating instructions for the gripping module and in Appendix A.

The WST function can be switched off for some commands. To ensure that the program runs safely, the status change must be detected manually. A corresponding instruction is provided for this (see section 3.5.7).

3.4.3 Stack size

Since FLEXGRIP instructions perform additional function calls and data processing internally, a sufficiently large stack size should be configured for the corresponding robot programs. In particular,

with extensive programs or the combination of multiple instructions, an insufficient stack size can lead to runtime errors.
If a “Stack overflow” error occurs during program execution, the program’s stack size must be increased accordingly in the program properties (see section 3.7.2).

3.4.4 Recommended program structure

Programs that use FLEXGRIP instructions should generally have the following structure:

1. Reference the gripper with HOME (once after the gripping module has been switched on)
2. Grip and release workpieces with GRIP and RELEASE, with WST enabled
3. After gripping, evaluate the device state register (e.g. state HOLDING) before the robot continues
4. Optionally, disable the gripper with DISABLE, e.g. at the end of the program

For synchronous gripping with several grippers, disable WST for all but the last GRIP instruction and then wait with the WST instruction (see section 3.5.5.3).

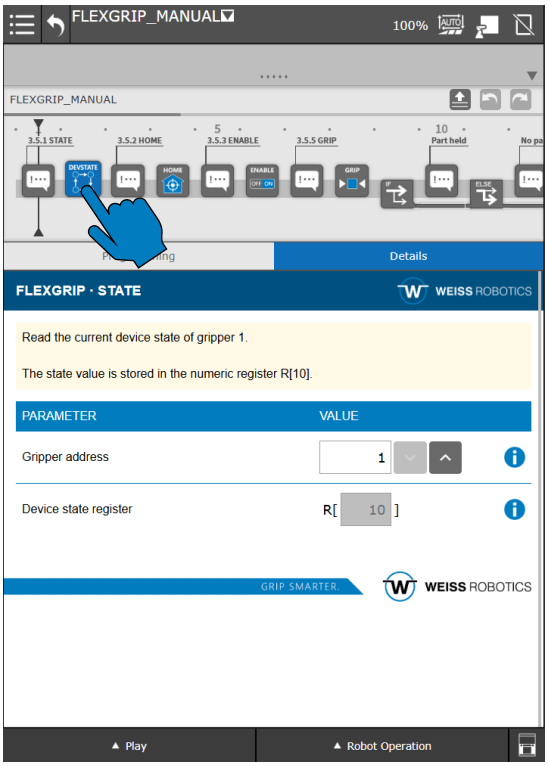
3.5 Command set

The available commands for controlling the gripping modules are explained in more detail in the following sections.

3.5.1 Reading out the device status

The “FLEXGRIP State” instruction can be used to read the device state of a connected gripper at a specific point in the robot program. This queries the state of the selected gripper and saves it in the numeric register, which was set via the plugin configuration page.

Further information on the device statuses can be found in the operating instructions for the gripping module and in Appendix A.



Usage in the text editor

```
CALL IPL_WR_FLEXGRIP_STATE(<Address>)
```

Parameters	Description	Value range
Address	Gripper address	1 .. 4

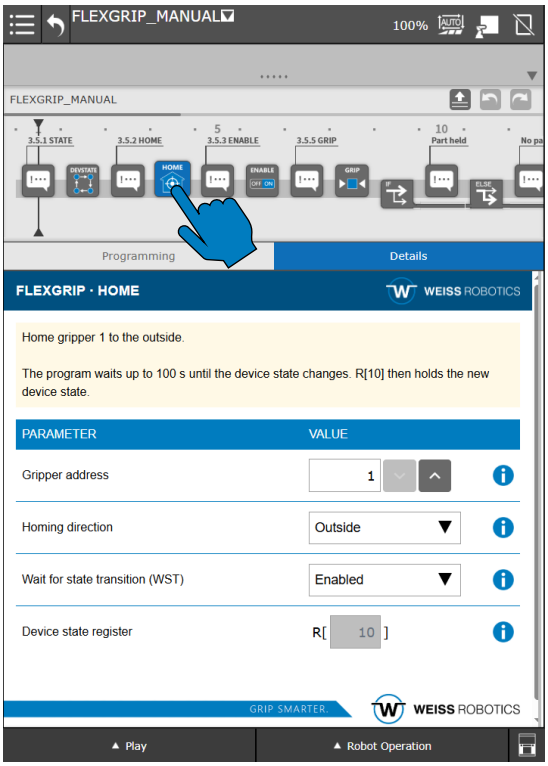
3.5.2 Referencing

Gripping modules require a one-off referencing process, which is started with the “FLEXGRIP Home” instruction, before movement commands are executed.

A gripping module cannot execute any movement commands without having carried out referencing first!

Depending on the gripper finger, it may be necessary to set the homing direction. This can be set in the “Homing direction” selection field.

Incorrectly selected homing direction can cause the gripping module to behave incorrectly!



Usage in the text editor

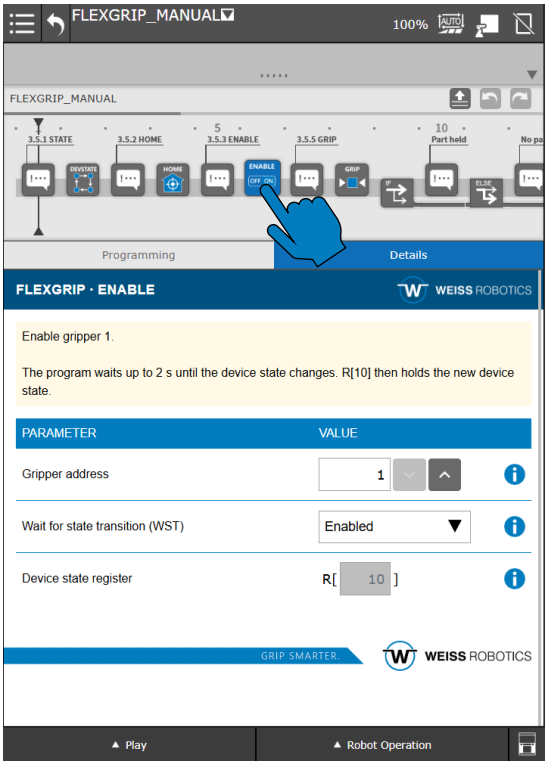
```
CALL IPL_WR_FLEXGRIP_HOME(<Address>,<Direction>,<WST>)
```

Parameters	Description	Value range
Address	Gripper address	1 .. 4
Direction	Homing direction	0: Referencing inwards 1: Referencing outwards
WST	Activating the WST function to wait for a state change	0: WST deactivated 1: WST activated

Caution: Parts may be lost if used in the wrong position in the robot program!

3.5.3 Enable gripper

The “FLEXGRIP Enable” instruction is used to activate gripping modules. When activated, the position control is activated and the current finger position is held.



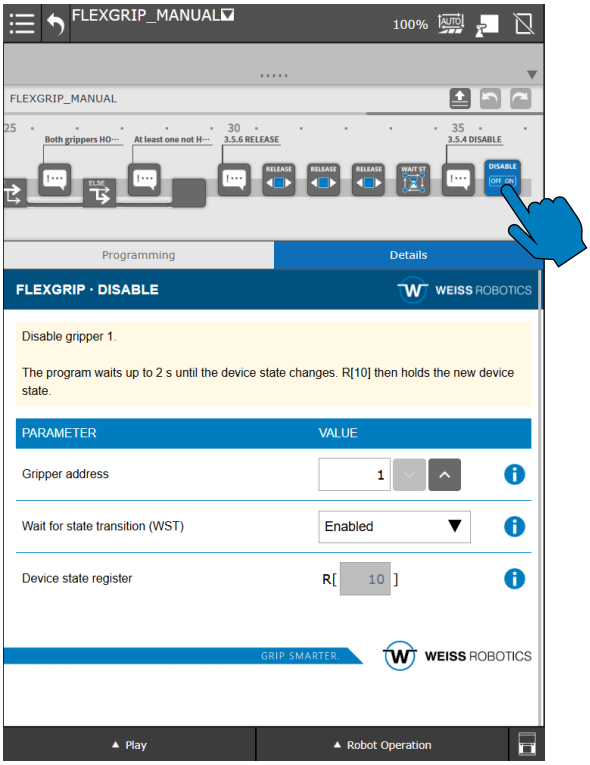
Usage in the text editor

```
CALL IPL_WR_FLEXGRIP_ENABLE(<Address>,<WST>)
```

Parameters	Description	Value range
Address	Gripper address	1 .. 4
WST	Activating the WST function to wait for a state change	0: WST deactivated 1: WST activated

3.5.4 Disable gripper

The “FLEXGRIP Disable” instruction is used to deactivate gripping modules. When deactivated, the drive and position control are deactivated. The fingers can be moved by hand.



Usage in the text editor

```
CALL IPL_WR_FLEXGRIP_DISABLE(<Address>,<WST>)
```

Parameters	Description	Value range
Address	Gripper address	1 .. 4
WST	Activating the WST function to wait for a state change	0: WST deactivated 1: WST activated

Caution: Parts may be lost if used in the wrong position in the robot program!

3.5.5 Grip

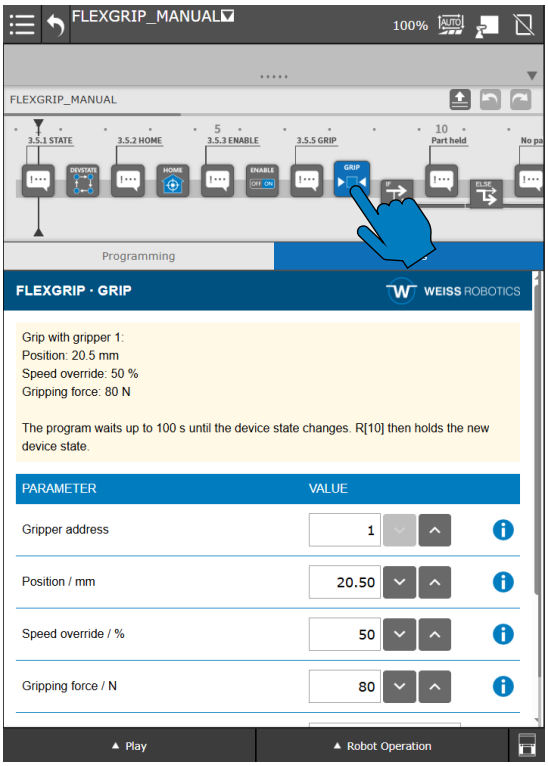
On the details page of the “FLEXGRIP Grip” instruction, you can set the gripper parameters with which the selected gripper should grip a workpiece.

In addition to the gripper address, the following parameters can be set:

Parameters	Description
Position / mm	Target position of the finger movement from which the gripped part detection reports “NO PART” Input in millimeters
Speed override / %	Speed factor with which the fingers move when gripping Input in percent
Gripping force / N	Gripping force with which a workpiece is to be held Input in Newton

Further information on the movement parameters can be found in the operating instructions for the gripping module.

When selecting the gripping parameters, ensure that they are suitable for the workpiece! Damage to the workpiece due to incorrect parameterization or loss of parts possible!



Usage in the text editor

```
CALL IPL_WR_FLEXGRIP_GRIP(<Address>,<Position>,<Speed>,<Force>,
     <WST>)
```

Parameters	Description	Value range
Address	Gripper address	1 .. 4
Position	Target position in 1/100 mm, limited by the device profile (section 3.3.2)	-500 .. 28,500
Speed	Speed factor in %	0 .. 200
Force	Gripping force in 1/10 N, limited by the device profile (section 3.3.2)	0 .. 12,000
WST	Activating the WST function to wait for a state change	0: WST deactivated 1: WST activated

Example:

A workpiece is to be gripped with 80 N by gripper 1. If the fingers are blocked in the direction of movement before 20.5 mm, the system should switch to the “HOLDING” state. The movement should be carried out at reduced speed (factor 50 %). Afterwards, the program should wait for a state transition.

Position 20.5 mm	→ Value 20.5 · 100 = 2,050
Speed factor 50 %	→ Value 50
Gripping force 80 N	→ Value 80 · 10 = 800
Wait for state transition	→ Value 1

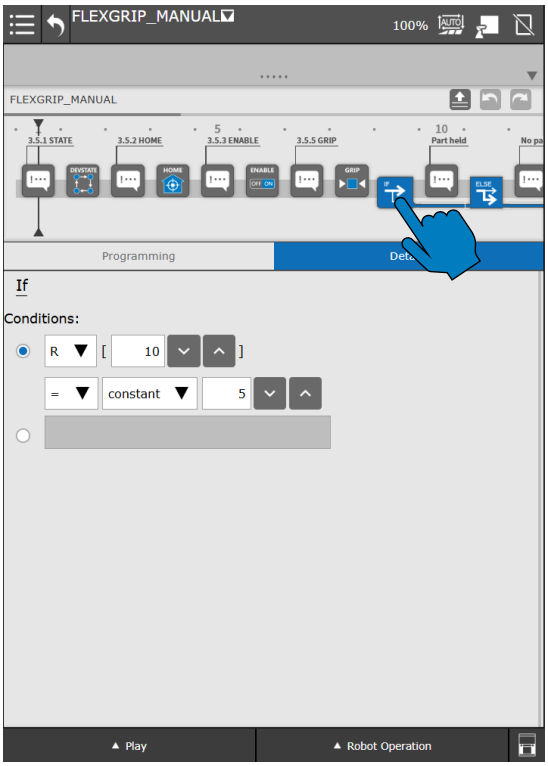
```
CALL IPL_WR_FLEXGRIP_GRIP(1,2050,50,800,1)
```

In standard applications, always use WST to reliably detect the gripping state HOLDING! Otherwise the gripped part may be lost!

3.5.5.1 Evaluation of the gripping state

After gripping a component, the gripping state register can be used to recognize whether a component has been gripped or not. The illustrated program excerpt shows an example.

Here, gripper 1 is used for gripping. Its gripping state is saved in numeric register 10. If the value of the register is 5 (corresponds to the “HOLDING” state), the following program path is executed.



Usage in the text editor

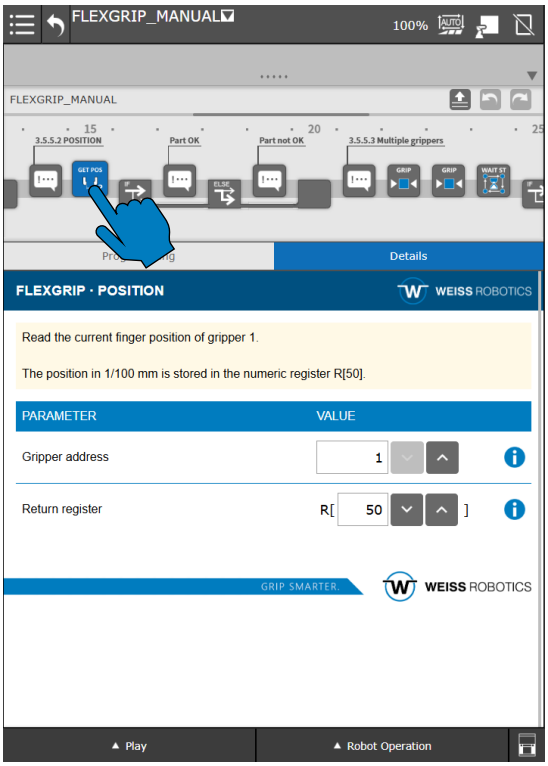
There is no specific program for this function. Use simple register comparisons like this one:

```
IF (R[10]=5) THEN
ELSE
ENDIF
```

3.5.5.2 Evaluation of the finger position

The “FLEXGRIP Position” instruction can be used to read out the position of the finger jaws, for example to check the size of the gripped component. This writes the current position of the finger jaws in 1/100 mm to a numeric register.

When selecting the register, make sure that it is only used for evaluating the gripping width of the gripping module!

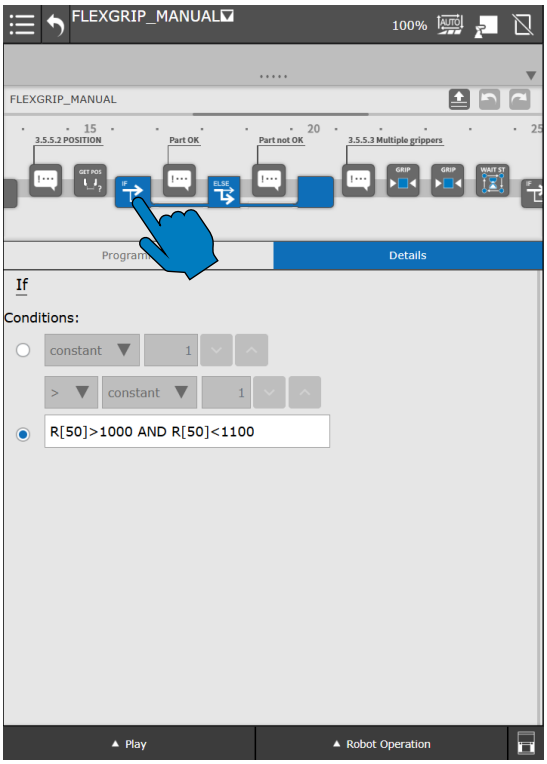


Usage in the text editor

```
CALL IPL_WR_FLEXGRIP_POSITION(<Address>,<Register Index>)
```

Parameters	Description	Value range
Address	Gripper address	1 .. 4
Register Index	Index of the numeric register for saving the read position	1 .. 200

In the section of the previous robot program shown below, the command is used to read out the grip width via “FLEXGRIP Position”. The value is saved in the numeric register with index 50.
The value of the register is checked in the following IF branch. If the grip width is greater than 10 mm and less than 11 mm (i.e. the register value is greater than 1,000 and less than 1,100), the “Part OK” program path is executed. Otherwise, the “Part not OK” program path is executed.



Usage in the text editor

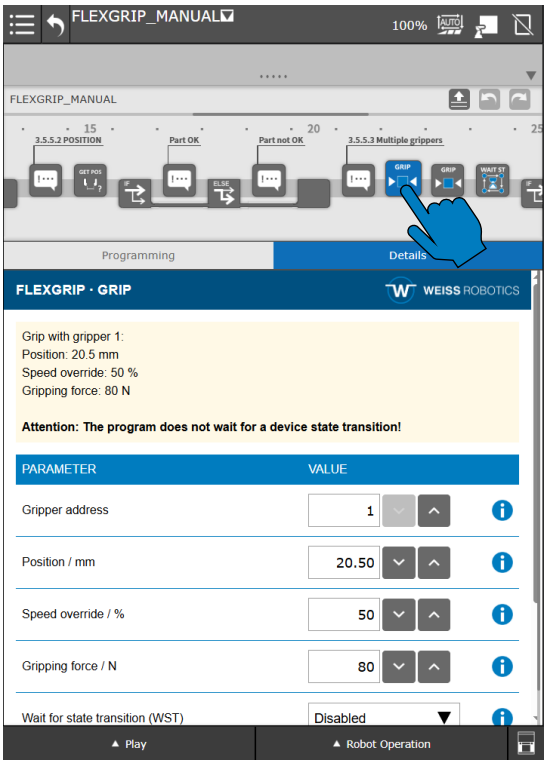
There is no specific program for this function. Use simple register comparisons like the one below:

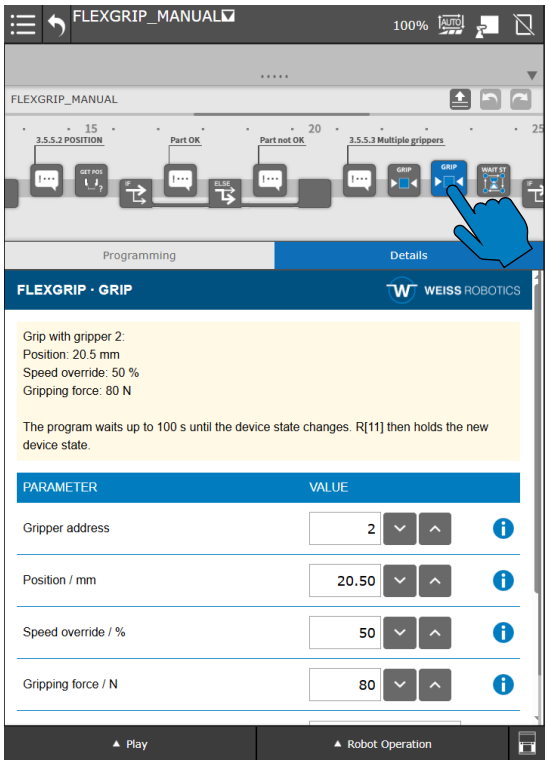
```
IF (R[50]>1000 AND R[50]<1100) THEN
      !Part OK
ELSE
      !Part not OK
ENDIF
```

3.5.5.3 Grip with multiple grippers

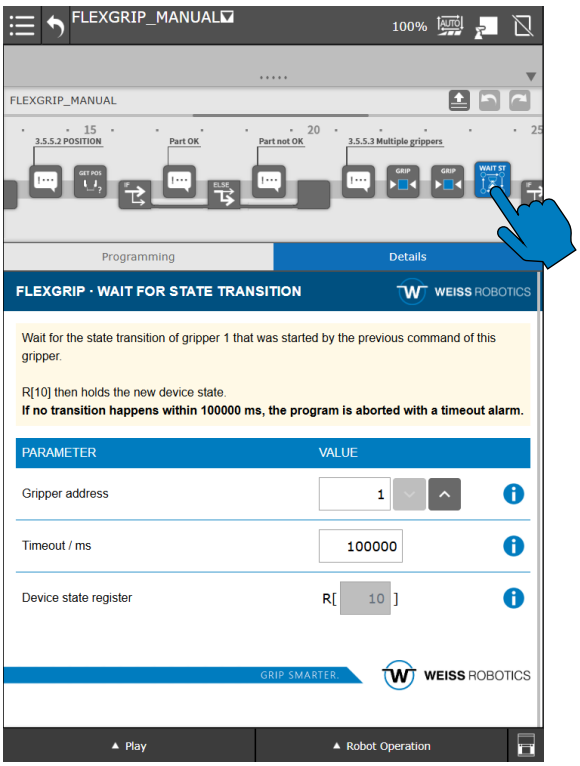
If gripping is to be performed synchronously with several grippers, WST must be deactivated for all but the last GRIP command called.

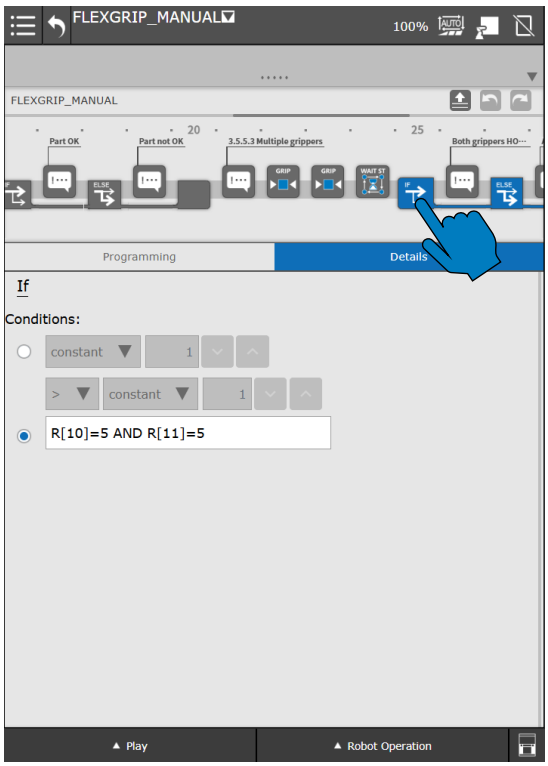
The WST instruction can then be used to wait separately for the other gripper modules to change state.





Once the GRIP commands have been executed and the status has changed, the corresponding status registers of the grippers can be used to check whether they are in the HOLDING state (refer to section 3.5.5.1).





Usage in the text editor

```
!Perform GRIP commands
CALL IPL_WR_FLEXGRIP_GRIP(1,2050,50,800,0)
CALL IPL_WR_FLEXGRIP_GRIP(2,2050,50,800,1)

!Wait for state transition of gripper 1
CALL IPL_WR_FLEXGRIP_WST(1,100000)

!Check device states of both grippers
IF (R[10]=5 AND R[11]=5) THEN
      !Both grippers in state HOLDING
ELSE
      !At least one gripper not in state HOLDING
ENDIF
```

3.5.6 Releasing and pre-positioning

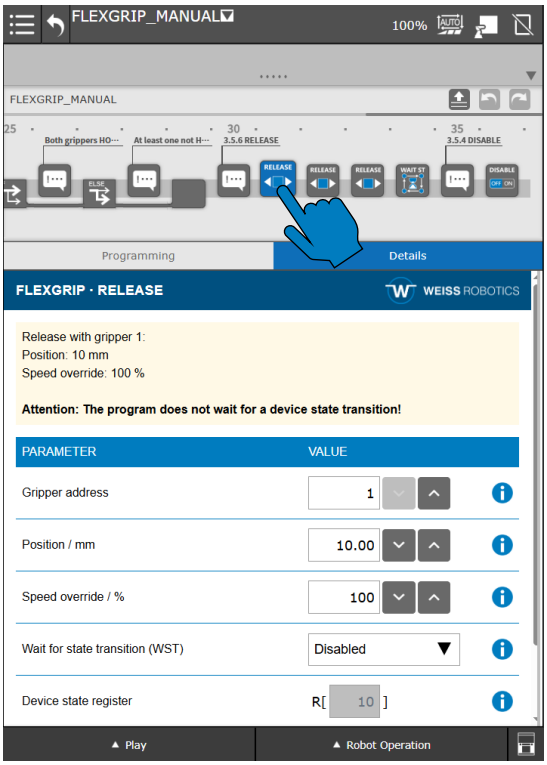
With the “FLEXGRIP Release” instruction, the selected gripper module can be pre-positioned if no workpiece has been gripped, in order to grip a workpiece in the next step. This is particularly helpful for optimizing cycle times when the WST function is deactivated.
A gripped workpiece can be released at the deposit position with the same instruction.

In addition to the gripper address, the following parameters can be set:

Parameters	Description
Position / mm	Target position of the finger movement Input in millimeters
Speed override / %	Speed factor with which the fingers move when releasing Input in percent

Further information on the movement parameters can be found in the operating instructions for the gripping module.

Caution: Parts may be lost if used in the wrong position in the robot program!



Usage in the text editor

```
CALL IPL_WR_FLEXGRIP_RELEASE(<Address>,<Position>,<Speed>,<WST>)
```

Parameters	Description	Value range
Address	Gripper address	1 .. 4
Position	Target position in 1/100 mm, limited by the device profile (section 3.3.2)	-500 .. 28,500
Speed	Speed factor in %	0 .. 200
WST	Activating the WST function to wait for a state change	0: WST deactivated 1: WST activated

Example 1 (pre-positioning):
During the movement to the pick-up position, gripper 1 should be pre-positioned to 10 mm. The robot program should not be blocked (WST deactivated). It should be pre-positioned at full speed (100%).

Position 10.0 mm → Value 10 · 100 = 1,000
Speed factor 100 % → Value 100

```
CALL IPL_WR_FLEXGRIP_RELEASE(1,1000,100,0)
```

Example 2 (releasing and pre-positioning):
The workpiece gripped with gripper 1 should first be released at a reduced speed (30 %) to 5 mm and the gripper should then be opened to 30 mm at full speed (100 %) while the robot is moving (WST deactivated).

Release position 5 mm → Value 5 · 100 = 500
Speed factor 30 % → Value 30
WST activated → Value 1

```
CALL IPL_WR_FLEXGRIP_RELEASE(1,500,30,1)
```

Pre-positioning 30 mm → Value 30 · 100 = 3,000
Speed factor 100 % → Value 100
WST deactivated → Value 0

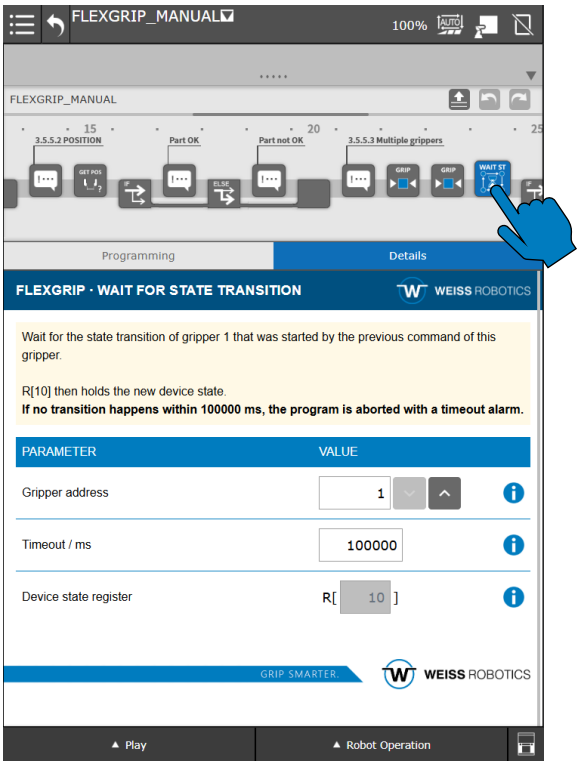
```
CALL IPL_WR_FLEXGRIP_RELEASE(1,3000,100,0)
```

3.5.7 Wait for state transition (WST)

The “FLEXGRIP WST” instruction is used if the previously executed command should not wait directly for a change of state.
Applications for this include synchronous gripping with several grippers (see section 3.5.5.3) or pre-positioning during a robot movement (refer to section 3.5.6).

If WST is executed before a command with an expected state change has been executed, an error message appears.
This must be avoided at all costs!

Generally, you should always wait directly for a state change if skipping is not absolutely necessary!



Usage in the text editor

```
CALL IPL_WR_FLEXGRIP_WST(<Address>,<Timeout>)
```

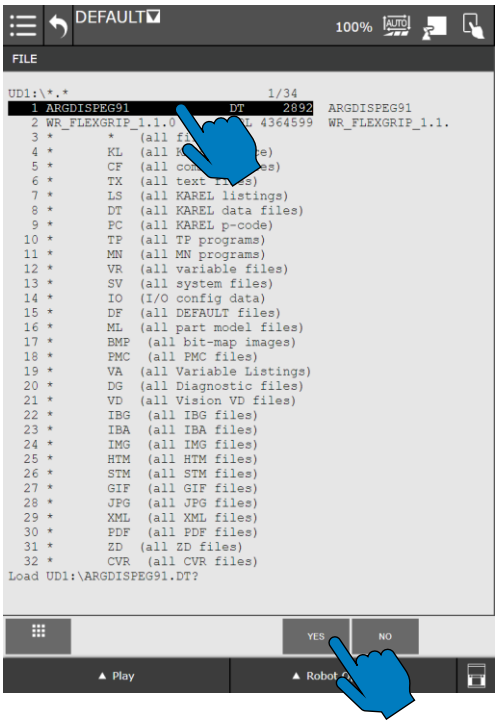
Parameters	Description	Value range
Address	Gripper address	1 .. 4
Timeout	Maximum waiting time in ms	1 .. 100,000

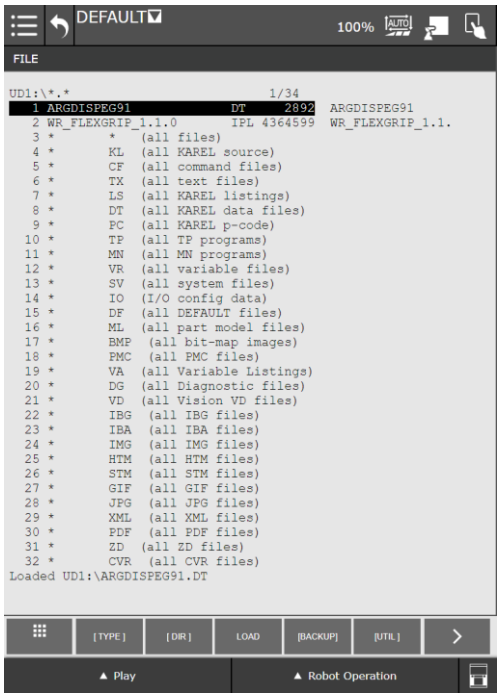
3.6 KAREL Plug-in

When the CRX plug-in is installed, a KAREL program is also installed, which can be used to control FLEXGRIP-capable gripping modules in addition to the graphical instructions.

The argument wizard can be configured for easy use in the program editor of the teach pendant.

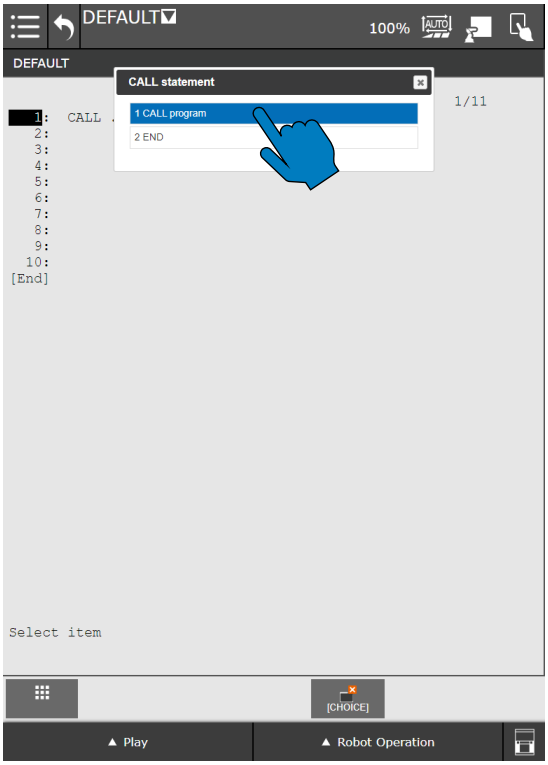
1) Load the file “ARGDISPEG91.DT” from the zip archive (refer to section 2.1) onto the USB stick and insert it into the USB slot of the robot controller.
2) In the file explorer, navigate to the “UD1” directory and select the file. Then click on “LOAD” and confirm with “YES”

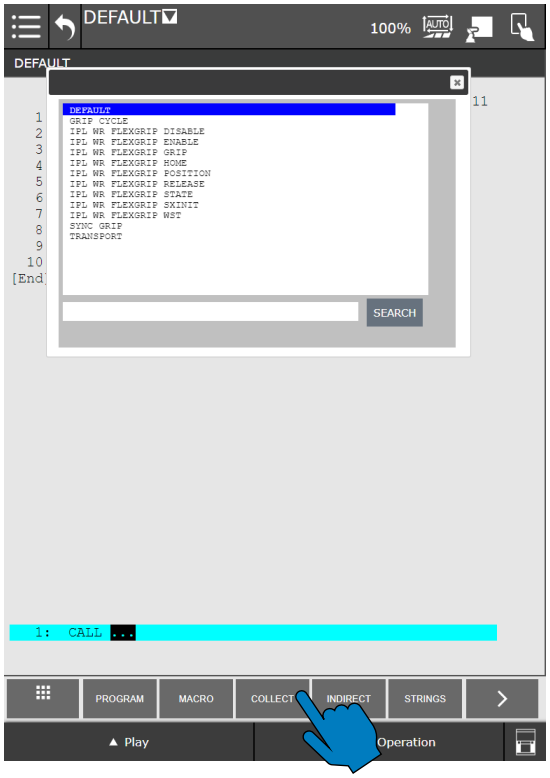




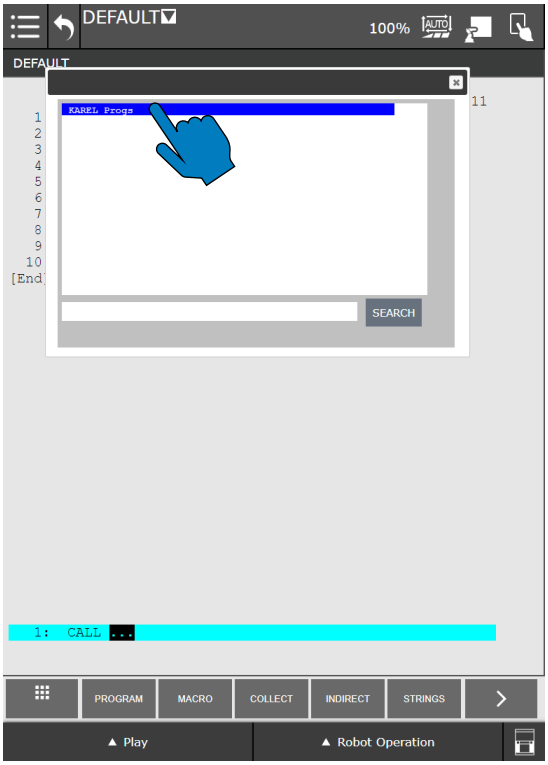
You can now use the “FLEXGRIP” program with argument wizard support in the program editor. The “CALL PROGRAM” function is used for this.

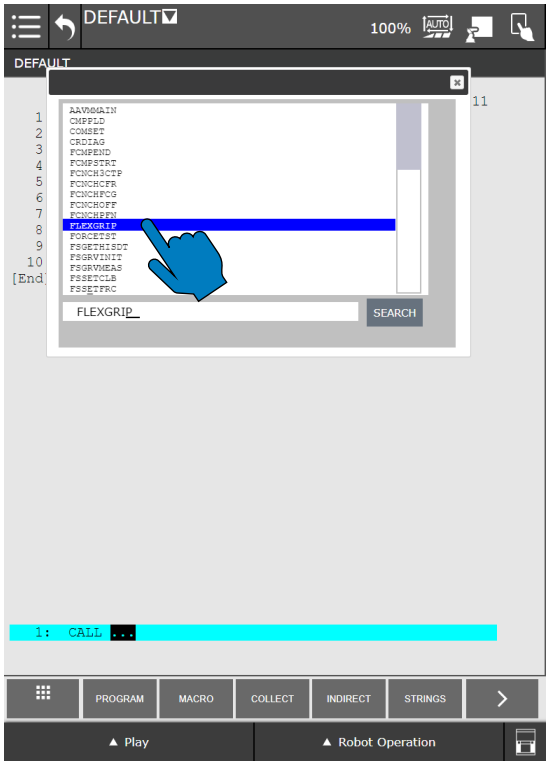
Insert a “CALL program” statement. Select “COLLECT” from the bottom menu.





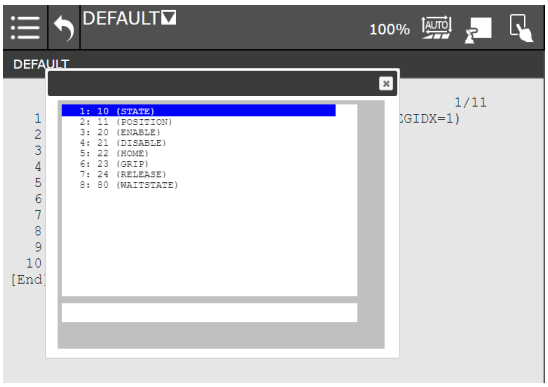
Select “KAREL Progs” and search for “FLEXGRIP”. Select the FLEXGRIP entry.



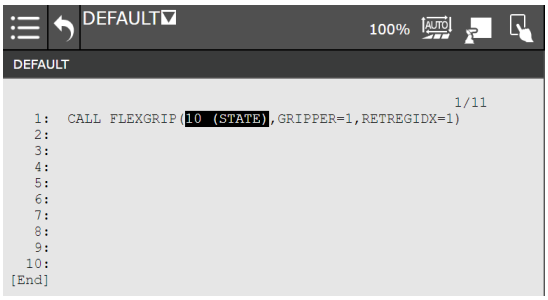


The “FLEXGRIP” program has a number of additional function arguments depending on the command selected. The command can be set via the first argument using a selection list:

Command selection



Command “STATE”



Command “GRIP”

3.7 Troubleshooting

The FLEXGRIP plug-in issues error messages during operation. Important messages and solutions are explained below.

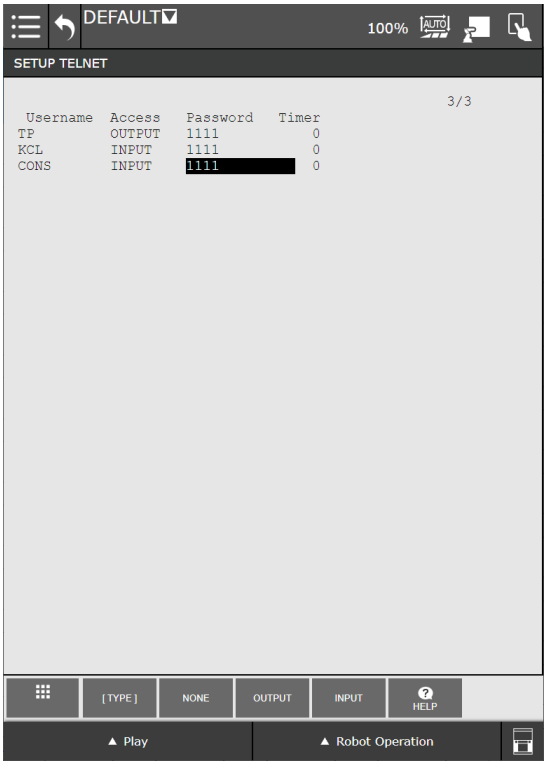
Gripper modules cannot be controlled from RoboGuide with the plugin!

The prefix "FLEXGRIP" is used for the error output.

3.7.1 TELNET output

To analyze errors during operation, you can activate the TELNET output. Navigate to the corresponding setup menu via SETUP - Host Comm - 2 TELNET. Click in the "Password" field in the "CONS" line and enter a password (e.g. 1111).

Note for RoboGuide: The password must be entered using the keypad of the emulated old teach pendant. Use the numeric keypad and the "ENTER" keys to enter and confirm the password.



Now you can connect to the robot controller via TELNET using a terminal program (e.g. PuTTY). This also works with RoboGuide.

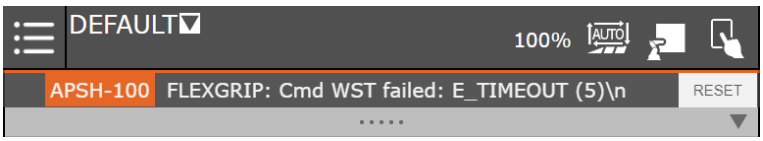
3.7.2 Error messages

3.7.2.1 Message “Invalid gripper address: <address>”

Possible cause	Remedy
The gripper address used in the command is invalid	• Check the program sequence • The gripper address must be in the range [1 ... 4].

3.7.2.2 Message “Cmd <command name> failed: <status> (<status code>)”

This error message also appears on the display of the teach pendant:



Possible cause	Remedy
The executed command has failed	• Check the program sequence • Check the displayed status code • Check the system log on the gripping module with the “GRIPKIT Configurator” software (GRIPKIT EASY)

Errors due to timeout (E_TIMEOUT, status code 5) usually occur if the gripper has not changed to one of the target states permitted for the command after a command.

The status diagram with permissible status transitions can be found in the operating instructions for the gripping module.

3.7.2.3 Message “APSH-100 FLEXGRIP: Cmd <command name> failed: E_READ_ERR (13)”

Possible cause	Remedy
A command (e.g. STATE) was executed, but the gripping module did not answer via the EE interface (End Effector Interface). The electrical connection between the EE interface and the gripping module is interrupted or faulty.	• Check that the cable supplied by the manufacturer is attached correctly • Make sure that the cabling is not damaged

3.7.2.4 Message “Gripper <address> in FAULT state after command <command name>”

Possible cause	Remedy
The executed command has set the gripping module to the error state	• Check the program sequence • Ensure that the gripper fingers do not collide with the environment • Check the system log on the gripping module with the “GRIPKIT Configurator” software (GRIPKIT EASY)

3.7.2.5 Message “WST not allowed. Perform a command first with gripper <address>”

Possible cause	Remedy
The WST command was executed for a gripping module that has not yet received a command that leads to a state change. The program is then stopped with “Cmd WST failed: E_CONFLICT (19)”.	• Check the sequence of your robot program • Make sure that a command with a change of state is executed before calling WST

3.7.2.6 Message “(FLEXGRIP, 211) Uninitialized data is used”

Possible cause	Remedy
The WST command was executed for a gripping module that has not yet received a command that leads to a state change	• Check the sequence of your robot program • Make sure that a command with a change of state is executed before calling WST

3.7.2.7 Message “Failed to set R[<Index>]. Status: <StatusCode> (<status text>)”

Possible cause	Remedy
Internal error on the part of the robot controller	• Restarting the robot controller • If the error persists, contact your FANUC support

3.7.2.8 Message “Stack overflow”

Possible cause	Remedy
The size of the stack in the current program is insufficiently large	• Increase stack size via the program settings

3.7.2.9 Message “The timeout argument must be greater than 0 (given <value>)”

Possible cause	Remedy
WST was called with a timeout of 0 or less	• Check the timeout parameter of the WST instruction (1 .. 100000 ms)

3.7.2.10 Message “Release acceleration override not readable, using 60 % (Reduced)”

Possible cause	Remedy
The release acceleration override factor could not be read from the configuration. RELEASE runs with 60 %.	• Open the configuration page and select the release acceleration override factor again. If the message persists, reinstall the plugin.

Appendix A Device status

Device status	Code	Description
NOT CONNECTED	0	Gripper module not connected
NOT INITIALIZED	1	Gripper module not initialized
DISABLED	2	Ready for operation, drive inactive
RELEASED	3	Workpiece released
NO PART	4	No workpiece found
HOLDING	5	Workpiece is held
OPERATING	6	Ready for operation, drive active
FAULT	7	Error state

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