Manual

FlexiBowl®

JAKA Robotics Plug-In

ars
automation

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This Plug-In was developed with the aim of facilitating communication between **JAKA robots** and the FlexiBowl® system.
Thanks to this integration,
automation processes can be optimised, providing **a** smooth and reliable
 interface for controlling and managing the FlexiBowl® and its parameters.
The Plug-In offers the possibility of creating a FlexiBowl® management program quickly and smoothly.

FlexiBowl® Plug-In

Feeding Industrial Robotics
www.FlexiBowl.com

Installing the Plug-In

Before you start working with the plug-in, make sure that the **'Jaka zu'** software is installed and configured. Once the software is open, use Wi-Fi or Ethernet cable to connect to the appropriate LAN port.
Do not unzip the zip file called **"FlexiBowl_PlugIn.zip"** and **"FlexiBowl_demo.tar.gz"**.

Step 1.
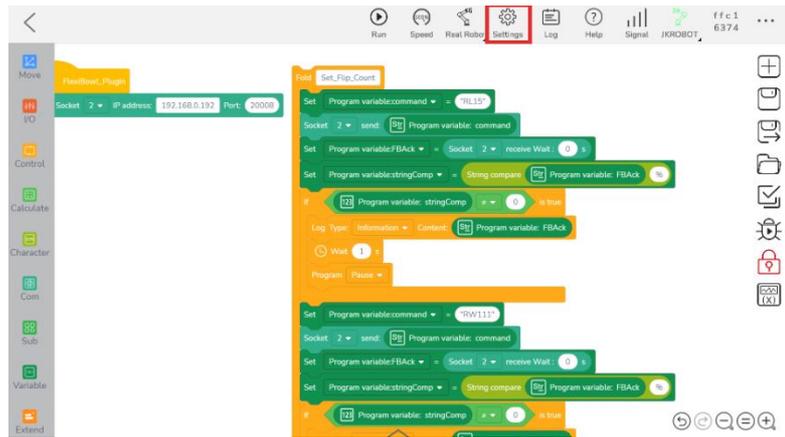
Enter the **'Settings'** sectionby clicking on the gear cog icon.

Step 2.

Enter the **'AddOn'** section.

Step 3.

Press the **'+'** button to add a new **AddOn**.
Select the **'demo.tar.gz'** file after selecting the correct path.

Step 4.

Activate the AddOn called **'Flexibowl_demo'** by pressing the switch button to the right of the AddOn.

Installing the Plug-In

Step 5
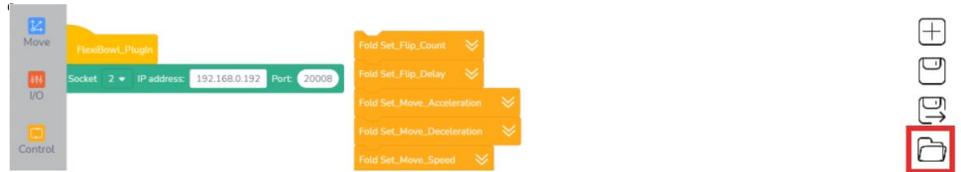
Enter the **'Settings'** sectionby clicking on the gear cog icon.

Step 6.

Enter the **'Import File'** sectionto import the plug-in.
Select the **'FlexiBowl_PlugIn-zip'** file after selecting the correct
path.

Step 7.

Open the **'FlexiBowl_PlugIn'** file from the program list to use and
modify the plug-in as desired
.

Plug-In installation

We will now be working with the file **"zucsettings.tar.gz"**, which is included in the zip folder we sent to you.
Please note that you should not extract or modify this file in any way.
This file contains all the system settings for the robot, which you will need to import into your robot as part of the setup process.

Step 8.

Click on the **Settings icon** on the top-right of the screen.

Settings

Step 9.
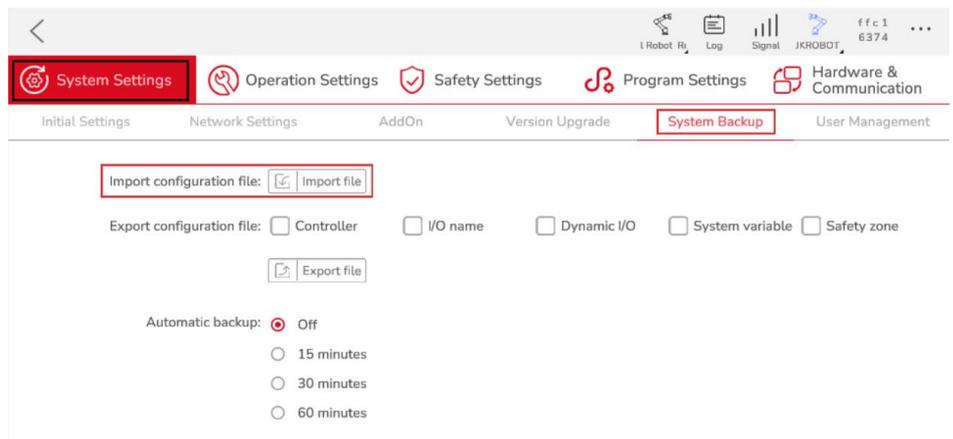
Enter the **"System Settings"** section, than go in the **"System Backup"** section and click on **"Import file"**

Step 10.

Please navigate to the correct directory on your computer, then select the correct file to successfully import it into the robot.

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Using the Plug-in

GUI explanation and use of commands.
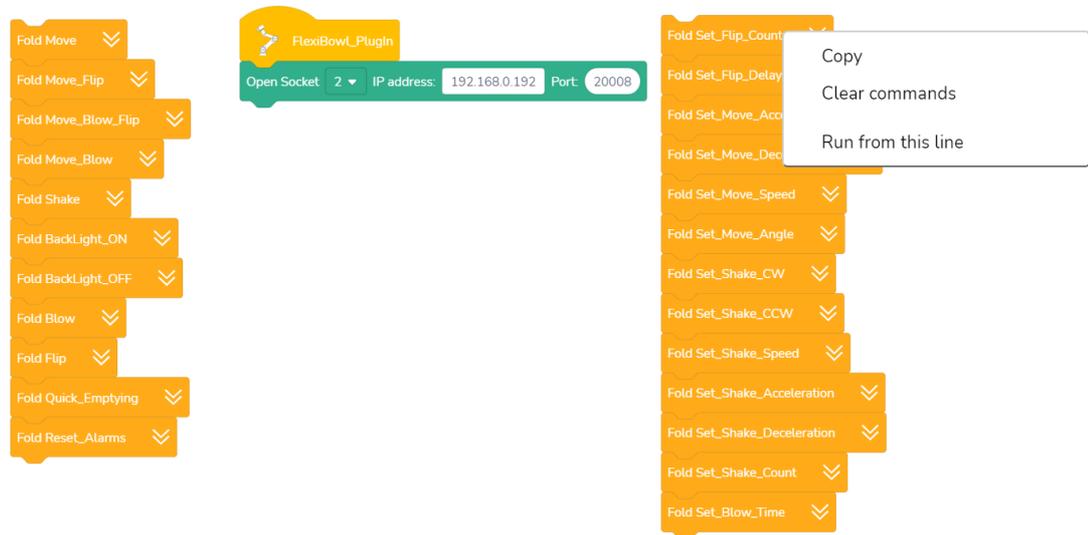
The interface is presented in a simple manner, on the right we have the **'set'** commands, i.e. those used to modify the parameters used during the movement sequences, while on the left we have the movement sequences themselves.

To use one of these commands, right click on the command we want to use and then press **'Copy'** to copy the command.

If unnecessary code is also copied by this process, delete it by dragging it to the recycle bin icon at the bottom or right-click and press **'Clear commands'**.

For a thorough understanding of the operation of the various commands, refer to the next section of the documentation.

To use the **'set'** commands correctly, change the numeric parameter after **'RL1'.**
In the above example, we will set the number of flips (**'Flip_Count')** to 5.

Plug-In Functions

1. Procedure Functions

1.1 FlexiBowl – Back-Light ON

The Back-Light ON function activates the LED lights in the robot's pick area.

1.2 FlexiBowl – Back-Light OFF

The Back-Light OFF function switches off the LED lights in the robot's pick area.

1.3 FlexiBowl – Quick Emptying

The Quick Emptying function makes it possible, through quick movements, to remove pieces that are on the surface of the FlexiBowl without having to do it manually.

1.4 FlexiBowl –Reset Alarms

The Reset alarms function resets all alarms within the FlexiBowl.

Plug-In Functions

2. Movement Functions

2.1 FlexiBowl – Move

The Move function moves the surface of the FLexiBowl according to the parameters set using the 'set' commands.

2.2 FlexiBowl – Shake

The Shake function makes the surface of the FlexiBowl move in a sequence of rapid clockwise and anticlockwise movements while respecting the parameters set with the 'set' commands.

2.3 FlexiBowl – Flip

The Flip function activates and deactivates the pneumatic Flip mechanism within the FlexiBowl according to the parameters set by the 'set' commands.

2.4 FlexiBowl – Blow

The Blow function activates the blowers mounted on the FlexiBowl according to the parameters set with the 'set' commands.

2.5 FlexiBowl – Move-Flip

The Move-Flip function simultaneously activates the 'Move' movement of the FlexiBowl and the Flip mechanism respecting the parameters set by the 'set' commands.

2.6 FlexiBowl – Move-Flip-Blow

The Move-Flip-Blow function simultaneously activates the 'Move' movement of the FlexiBowl and the Flip and Blow mechanism respecting the parameters set by the 'set' commands.

3. Setting Functions
   ## (FLIP PARAMETERS)

3.1 FlexiBowl – Set Flip Count

The Set Flip Count function allows you to change the number of ON-OFF cycles that the flip mechanism executes when used in the program in the 'Flip', 'Move-Flip' and 'Move-Flip-Blow' commands.

3.2 FlexiBowl – Set Flip Delay

The Set Flip Delay function allows you to change the pause time for which the slide of the flip mechanism remains raised when the command is used in the program in the 'Flip', 'Move-Flip' and 'Move-Flip-Blow' commands.

Plug-In Functions

(MOVE PARAMETERS)

3.3 FlexiBowl – Set Move Acceleration

The Set Move Acceleration function allows you to change the acceleration of the FlexiBowl that will be used as a parameter in the 'Move', 'Move-Flip' and 'Move-Flip-Blow' commands.

3.4 FlexiBowl – Set Move Deceleration

The Set Move Deceleration function allows you to change the deceleration of the FlexiBowl that will be used as a parameter in the 'Move', 'Move-Flip' and 'Move-Flip-Blow' commands.

3.5 FlexiBowl – Set Move Speed

The Set Move Speed function allows you to change the Speed of the FlexiBowl that will be used as a parameter in the 'Move', 'Move-Flip' and 'Move-Flip-Blow' commands.

3.6 FlexiBowl – Set Move Angle

The Set Move Angle function allows you to change the movement angle of the FlexiBowl, which will be used as a parameter in the 'Move', 'Move-Flip' and 'Move-Flip-Blow' commands.

Plug-In Functions

(SHAKE PARAMETERS)

3.7 FlexiBowl – Set Shake CW

The Set Shake CW function allows you to change the clockwise angle that will be used as a parameter in the 'Shake' command.

3.8 FlexiBowl – Set Shake CCW

The Set Shake CCW function allows you to change the counterclockwise angle that will be used as a parameter in the 'Shake' command.

3.9 FlexiBowl – Set Shake Speed

The Set Shake Speed function allows you to change the speed of the FlexiBowl that will be used as a parameter in the 'Shake' command.

3.10 FlexiBowl – Set Shake Acceleration

The Set Shake Acceleration function allows you to change the speed that will be used as a parameter in the 'Shake' command.

3.11 FlexiBowl – Set Shake Deceleration

The Set Shake Deceleration function allows you to change the deceleration that will be used as a parameter in the 'Shake' command.

3.12 FlexiBowl – Set Shake Count

The Set Shake Count function allows you to change the number of sequences that will be executed when the 'Shake' command is used.

(BLOW PARAMETERS)

3.13 FlexiBowl – Set Blow Time

The Set Blow Time function allows you to change the time for which the blow is active used as a parameter in the 'Shake' command.

FlexiBowl command List

List of commands and descriptions to be sent to the Flexibowl:

Correct syntax for each packet			
Header		**Command**	**Footer**
Chr(0)	Chr(7)	Command	Chr(13)

Action	Description
MOVE	Moves the feeder the current parameters.
MOVE-FLIP	Moves the feeder and activates Flip simultaneously
MOVE-BLOW- FLIP	Moves the feeder and activates Flip and blow simultaneously
MOVE-BLOW	Moves the feeder and activates Flip simultaneously
SHAKE	Shakes the feeder with the current parameters
LIGHT ON	Light on
LIGHT OFF	Light off
FLIP	Flip
BLOW	Blow
QUICK_EMPTYING	Quick Emptying Option
RESET_ALARM	Reset Alarm and enable the motor

Command	Description
QX2	Move
QX3	Move - Flip
QX4	Move - Blow - Flip
QX5	Move - Blow
QX5	Shake
QX7	Light on
QX8	Light off
QX9	Blow
QX10	Flip
QX11	Quick Emptying Option
QX12	Reset Alarm