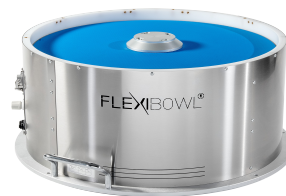




ROCKWELL FLEXIBOWL PLUGIN



This Plugin was developed with the idea of communicating quickly and safely with FlexiBowl® through PLC Rockwell Series CompactLogix and ControlLogix with onboard ethernet using the instructions in LD language.

The Plugin developed in Studio 5000 Logix Designer version 32.02 does not require an additional licence and is developed to communicate through the integrated Ethernet card of Rockwell PLCs.

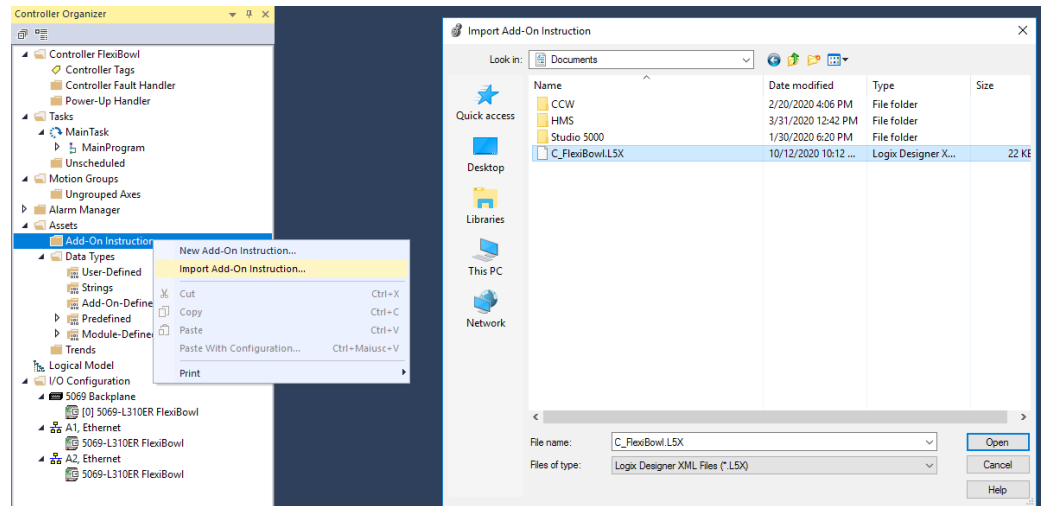
Requires firmware version 32.02 or higher.

FlexiBowl®



STEP 1:

Import the C_FlexiBowl.L5X Add-On Instruction (AOI).



In addition to creating the C_FlexiBowl AOI, the User-Defined Data Types used by the Add-On Instruction will also be created automatically.

STEP 2:

Define an instance of the AOI as soon as C_FlexiBowl and the tags are passed to it as parameter.

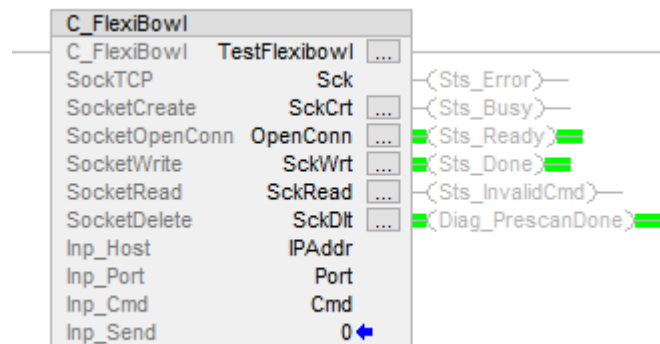
Name	Usage	Value	Force Mask	Style	Data Type	Description	External Access	Constant
Cmd	Local	'OX2'		(...)	STRING		Read/Write	<input type="checkbox"/>
IPAddr	Local	'169.254.75.15'		(...)	STRING		Read/Write	<input type="checkbox"/>
OpenConn	Local			(...)	MESSAGE	Open Connection	Read/Write	<input type="checkbox"/>
Port	Local	'7776'		(...)	STRING		Read/Write	<input type="checkbox"/>
Sck	Local			(...)	SCK_TCP		None	<input type="checkbox"/>
SckCrt	Local			(...)	MESSAGE	Create Socket	Read/Write	<input type="checkbox"/>
SckDlt	Local			(...)	MESSAGE	Delete Socket	Read/Write	<input type="checkbox"/>
SckRead	Local			(...)	MESSAGE	Read Socket	Read/Write	<input type="checkbox"/>
SckWrt	Local			(...)	MESSAGE	Send Data	Read/Write	<input type="checkbox"/>
TestFlexibowl	Local			(...)	C_FlexiBowl		None	<input type="checkbox"/>

Specifically we will have:

- Cmd is the string representing the command to be sent to the FlexiBowl (for the command list, see the table further on)
- IPAddr and Port are the strings which respectively identify FlexiBowl's IP address and communication port.
- Sck is a SCK_TCP tool that contains all of the configuration parameters for communication with TCP/IP socket.
- SckCrt, OpenConn, SckWrt, SckRead and SckDlt are the MESSAGES respectively to create a TCP socket, to establish a connection, to write and read a socket and to delete it.

STEP 3:

Create a C_FlexiBowl AOI and apply the instance previously created to it. Populate the instance with the tags created in the previous step.



The Inp_Send input is used to send Flexibowl, on its rising edge, the command defined by the Cmd string.

STEP 4:

Define the MESSAGES passed to the AOI as parameter in the following way:

- SckCrt (Creation of TCP socket)

Message Configuration - SckCrt

Configuration Communication Tag

Message Type: CIP Generic

Service Type: Socket Create

Source Element: Sck.Create

Source Length: 12 (Bytes)

Service Code: 4b (Hex) Class: 342 (Hex)

Destination Element: Sck.Socket

Instance: 0 Attribute: 0 (Hex)

New Tag...

Enable Enable Waiting Start Done Done Length: 0

Error Code: Extended Error Code: Timed Out

Error Path: THIS

Error Text:

OK Cancel Apply Help

- OpenConn (Opening of the TCP connection)

Message Configuration - OpenConn

Configuration Communication Tag

Message Type: CIP Generic

Service Type: OpenConnection

Service Code: 4c (Hex) Class: 342 (Hex) Instance: 20177 Attribute: 0 (Hex)

Source Element: Sck.OpenConn

Source Length: 30 (Bytes)

Destination Element:

New Tag...

☐ Enable
 ☐ Enable Waiting
 ☐ Start
 ☐ Done
 Done Length: 0

☐ Error Code:
 Extended Error Code:
 ☐ Timed Out

Error Path: THIS

Error Text:

OK Cancel Apply Help

- SckWrt (Socket writing)

Message Configuration - SckWrt

Configuration Communication Tag

Message Type: CIP Generic

Service Type: WriteSocket

Service Code: 4e (Hex) Class: 342 (Hex) Instance: 20177 Attribute: 0 (Hex)

Source Element: Sck.Write

Source Length: 17 (Bytes)

Destination Element: Sck.WrittenLen

New Tag...

☐ Enable
 ☐ Enable Waiting
 ☐ Start
 ☐ Done
 Done Length: 0

☐ Error Code:
 Extended Error Code:
 ☐ Timed Out

Error Path: THIS

Error Text:

OK Cancel Apply Help

- SckRead (Socket reading)

Message Configuration - SckRead

Configuration Communication Tag

Message Type: CIP Generic

Service Type: ReadSocket

Source Element: Sck.ReadPar

Source Length: 8 (Bytes)

Service Code: 4d (Hex) Class: 342 (Hex)

Destination Element: Sck.Read

Instance: 20177 Attribute: 0 (Hex)

New Tag...

☐ Enable
 ☐ Enable Waiting
 ☐ Start
 ☐ Done
 Done Length: 0

☐ Error Code:
 Extended Error Code:
 ☐ Timed Out

Error Path: THIS

Error Text:

OK Cancel Apply Help

- SckDlt (Socket deletion)

Message Configuration - SckDlt

Configuration Communication Tag

Message Type: CIP Generic

Service Type: DeleteSocket

Source Element:

Source Length: 0 (Bytes)

Service Code: 4f (Hex) Class: 342 (Hex)

Destination Element:

Instance: 20177 Attribute: 0 (Hex)

New Tag...

☐ Enable
 ☐ Enable Waiting
 ☐ Start
 ☐ Done
 Done Length: 0

☐ Error Code:
 Extended Error Code:
 ☐ Timed Out

Error Path: THIS

Error Text:

OK Cancel Apply Help

Lastly for each MESSAGE, in the Communication section, specify the Path or select the ethernet module by clicking the Browse button.

STEP 5:

Output statuses

TAG	Type	Description
Sts_Error	OUT (Bool)	This bit is set to TRUE for every communication error and reset every time communication is restored.
Sts_Busy	OUT (Bool)	Device busy: execution of a QX command in progress, therefore it is not possible to send a new command.
Sts_Ready	OUT (Bool)	Device ready to receive a new command.
Sts_Done	OUT (Bool)	The command sent has been recognised and run properly.
Sts_InvalidCmd	OUT (Bool)	The command sent was not recognised.



COMMAND LIST:

Commands	Description
QX2	Move
QX3	Move-Flip
QX4	Move-Flip-Blow
QX5	Move-Blow
QX6	Shake
QX7	Light on
QX8	Light off
QX9	Blow
QX10	Flip
QX11	Quick Emptying Option
QX12	Reset Alarm