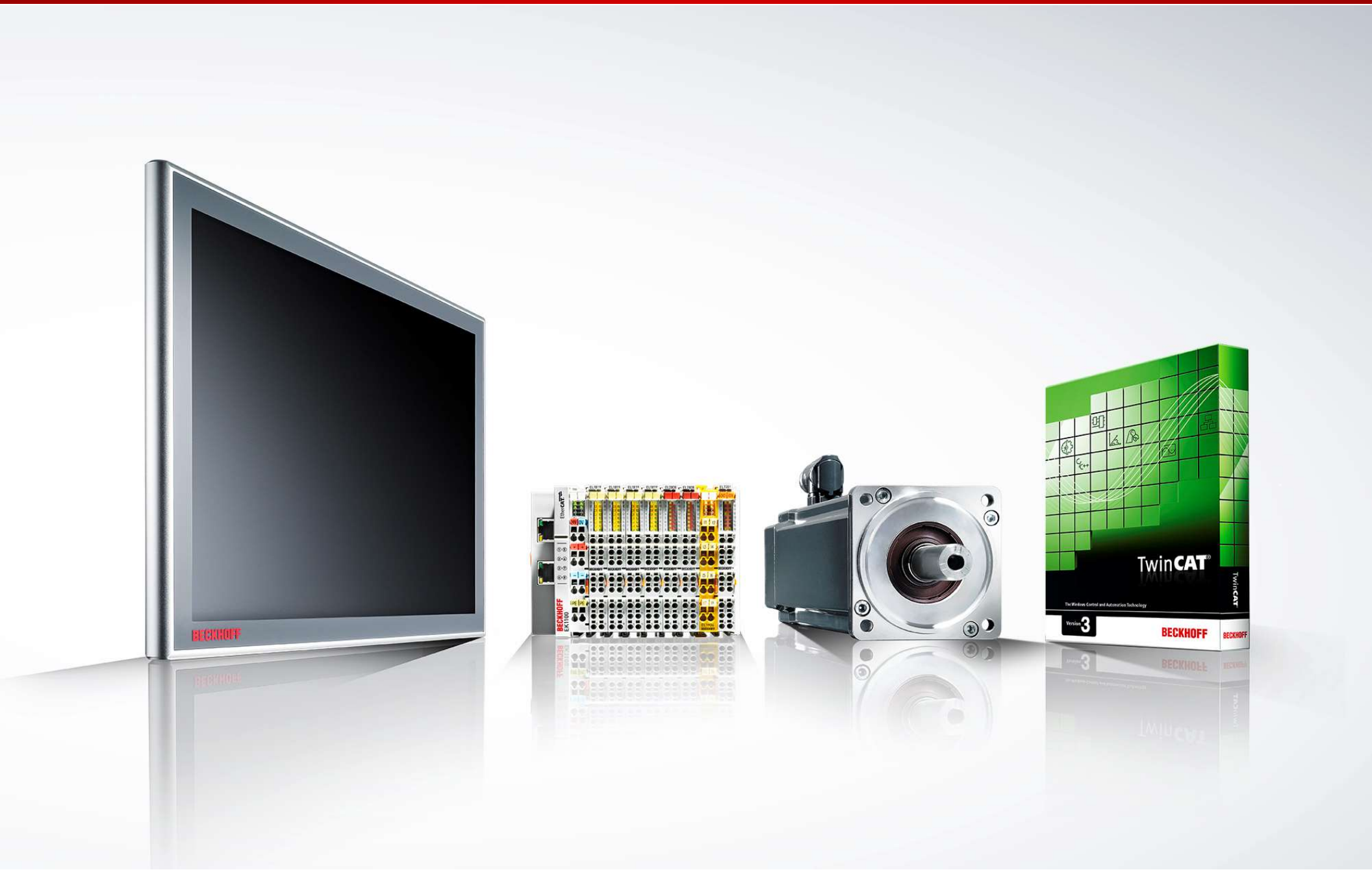
BECKHOFF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EK1100
TwinCAT
Version 3
BECKHOFF
BECKHOFF

Addressing Variables

Addressed Variables

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- Addressed Variables in TwinCAT are freely configurable
- It is allowed that addressed variables can be connected to any hardware point, axis, or other location in the Solution.
- Variables that are assigned an address within the PLC are ‘Linked’ to items outside of the PLC, such as hardware, axes, or other PLC tasks.
- These addressed variables can be defined in either a POU or in a Global Variable List (GVL)

POU Addressed Variables

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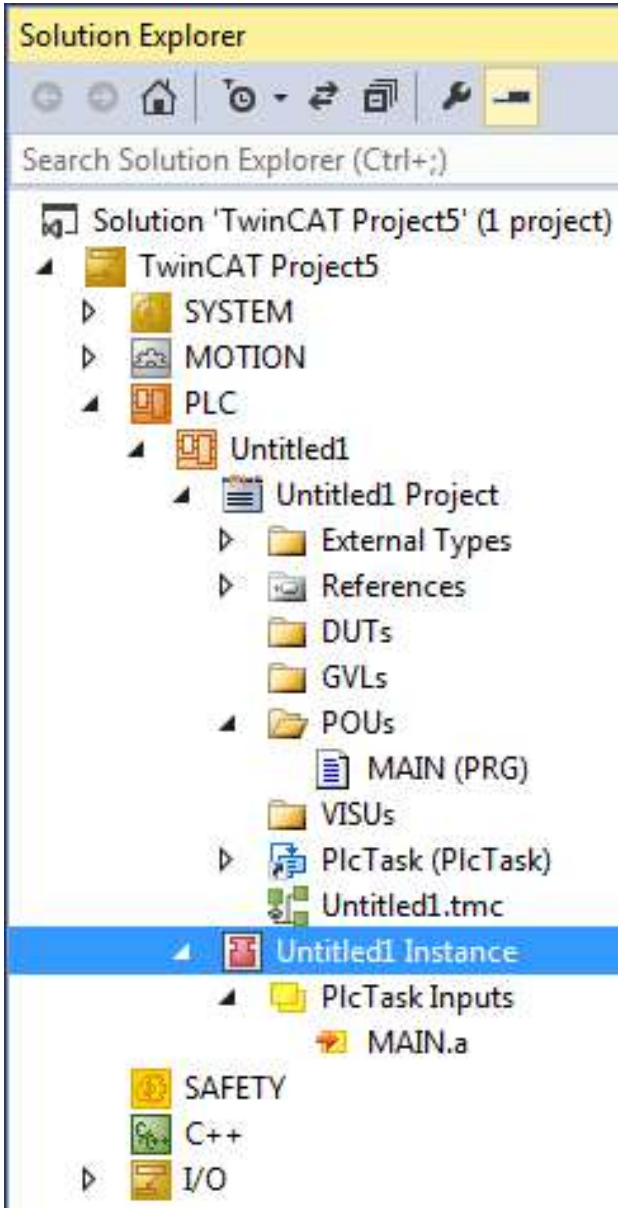
- Once an addressed variable has been declared in the PLC, it will be added to the ‘Instance’

```
MAIN
1  PROGRAM MAIN
2  VAR
3          a AT %I* : INT;
4          b : INT;
5          c : INT;
6  END_VAR
```



GVL Addressed Variables

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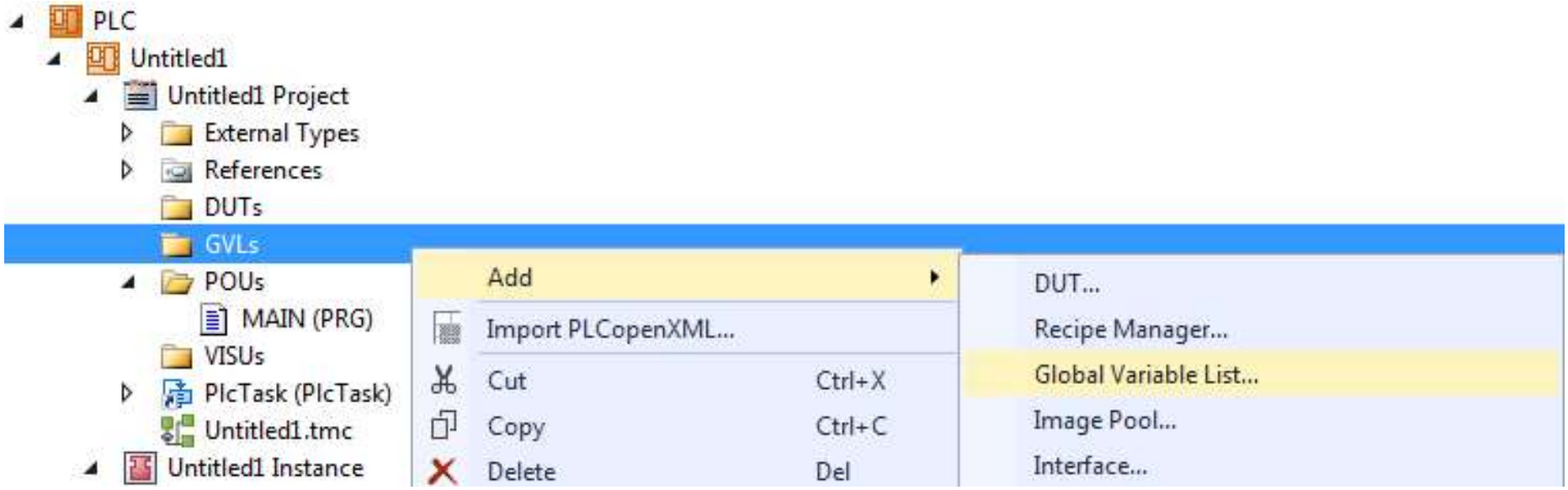
- To add ‘Global’ variables, ‘Right-Click on the GVLs folder
- Select ‘Add’, then click on ‘Global Variable List’



GVL Addressed Variables

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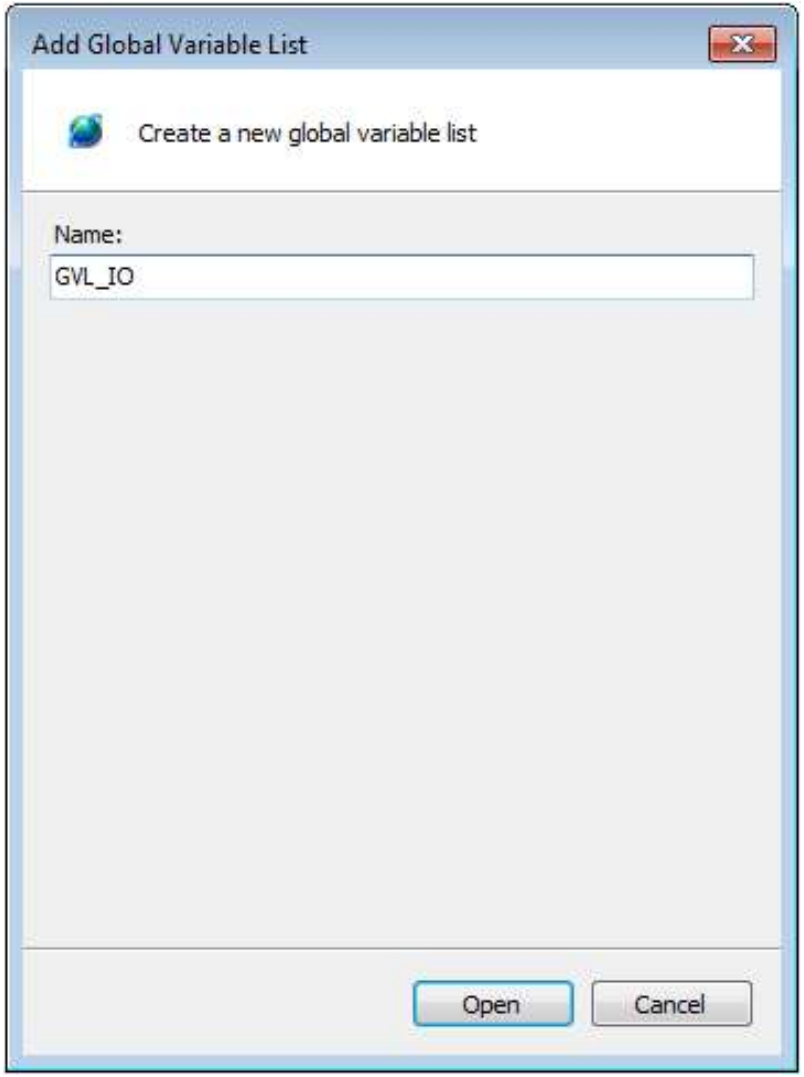
- Provide a unique and descriptive name
- Click ‘Open’



GVL Addressed Variables

BECKHOFF

- Create the variables with their addresses

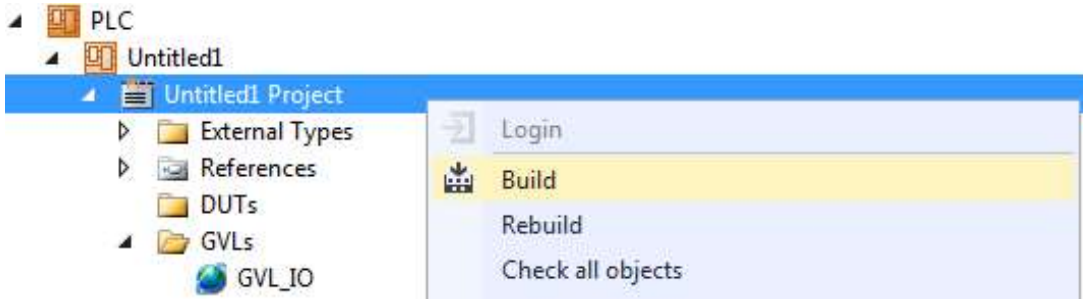
GVL_IO*

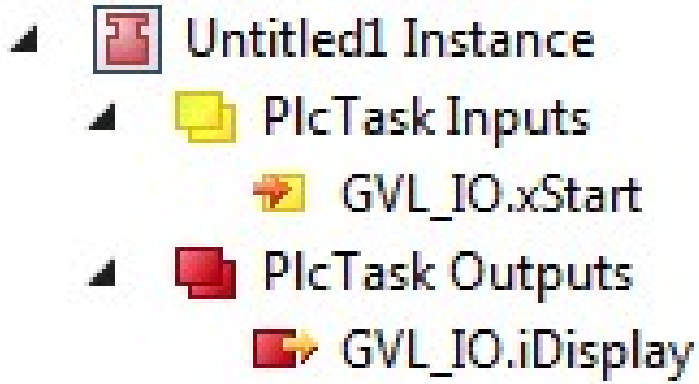
```
1  VAR_GLOBAL
2      xStart      AT %I* : BOOL;
3      iDisplay    AT %Q* : INT;
4  END_VAR
5
```

Addressed Variables ‚Instance‘

BECKHOFF

- To create the ‘Instance’
- In the ‘Solution Explorer’, Right-Click on the ‘Untitled1 Project’ and select ‘Build’
- If there are any Errors a new ‘Instance’ will not be created, or the existing ‘Instance’ will not be changed





Linking Variables

Linking Variables

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- A link is created between two similar variables in two different tasks, so that they may share data.

Linking Variables

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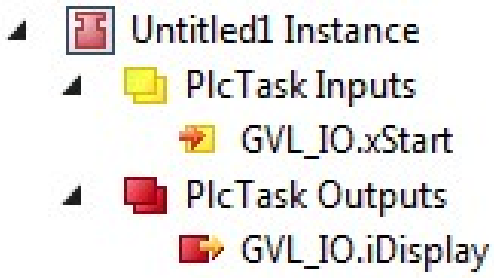
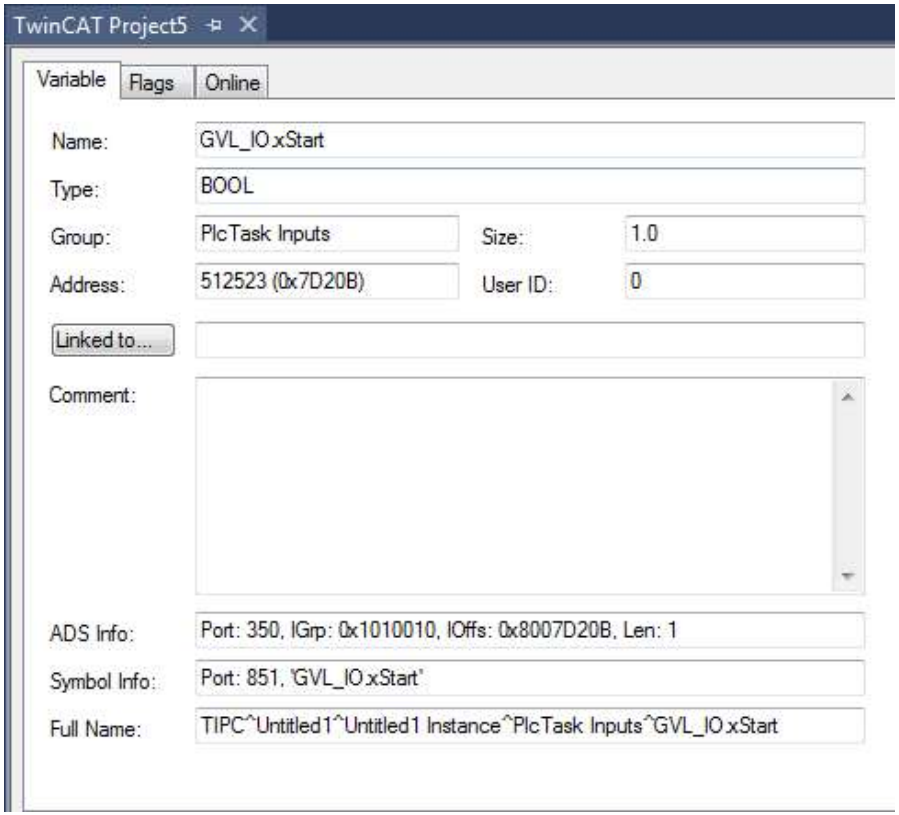
- Double click on GVL_IO.xStart
- On the ‘Variable’ tab click ‘Linked to…’ to open the Attach Variable window





Note: If the Variable window was already open, the Attach Variable window will open instead.

Linking Variables

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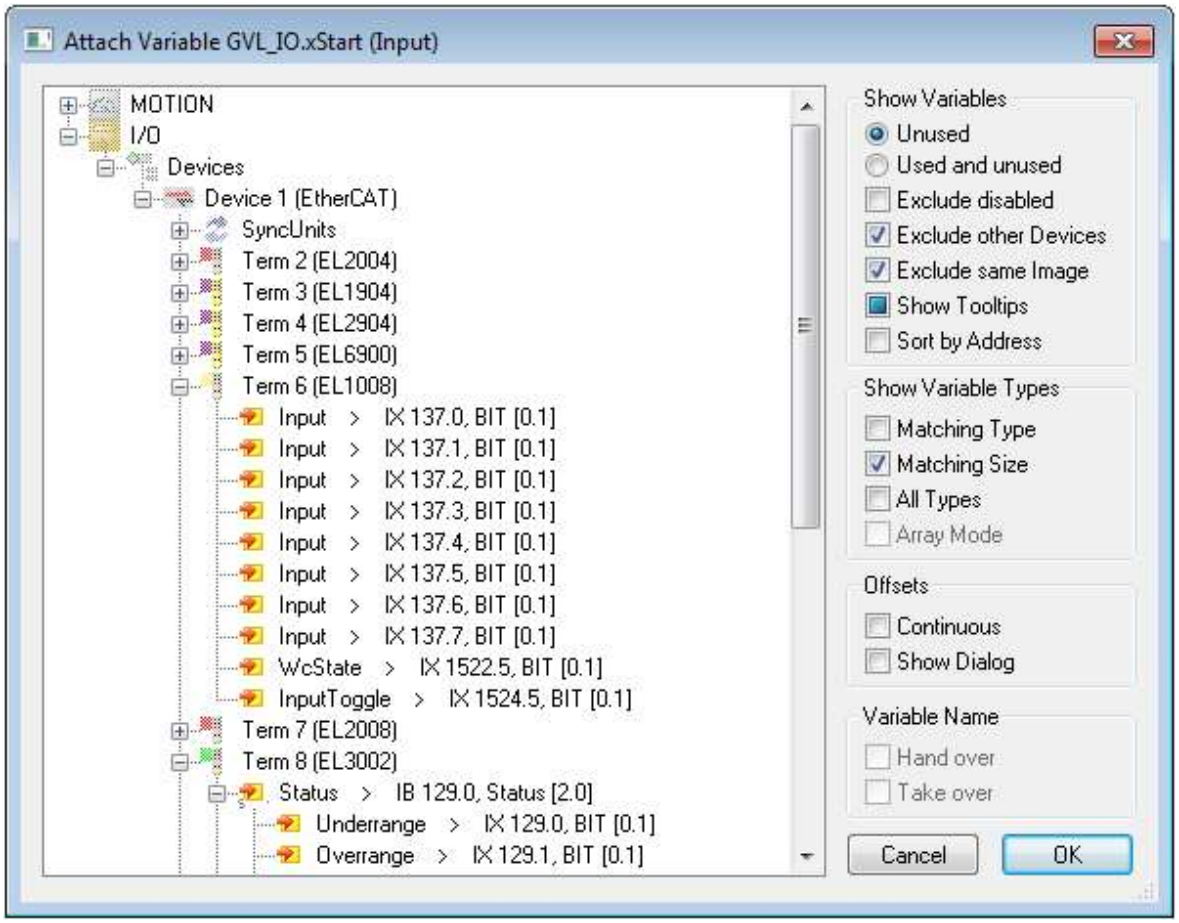
- The ‘Attach Variable’ window displays all possible locations that the variable could be linked to.



Linking Variables

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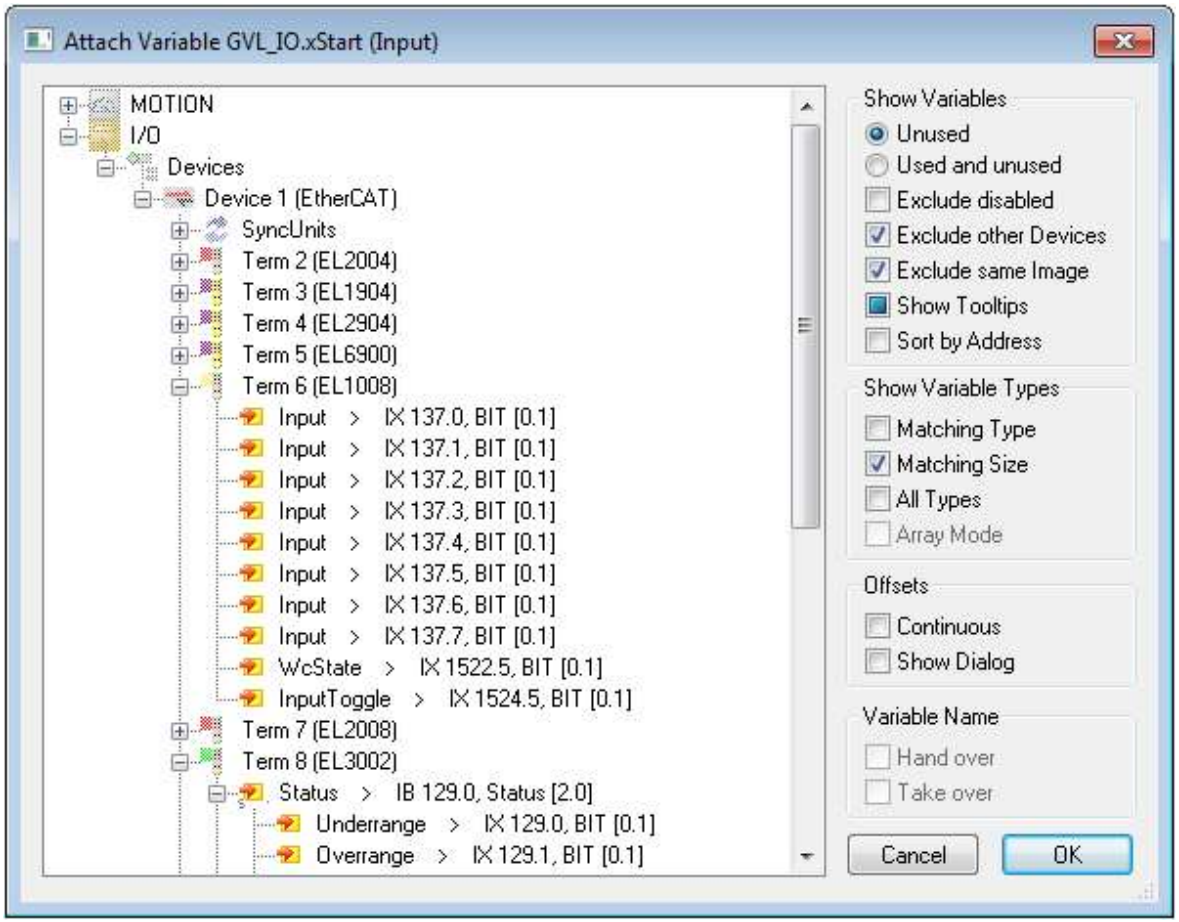
- The filter settings on the right side will narrow the results



Linking Variables

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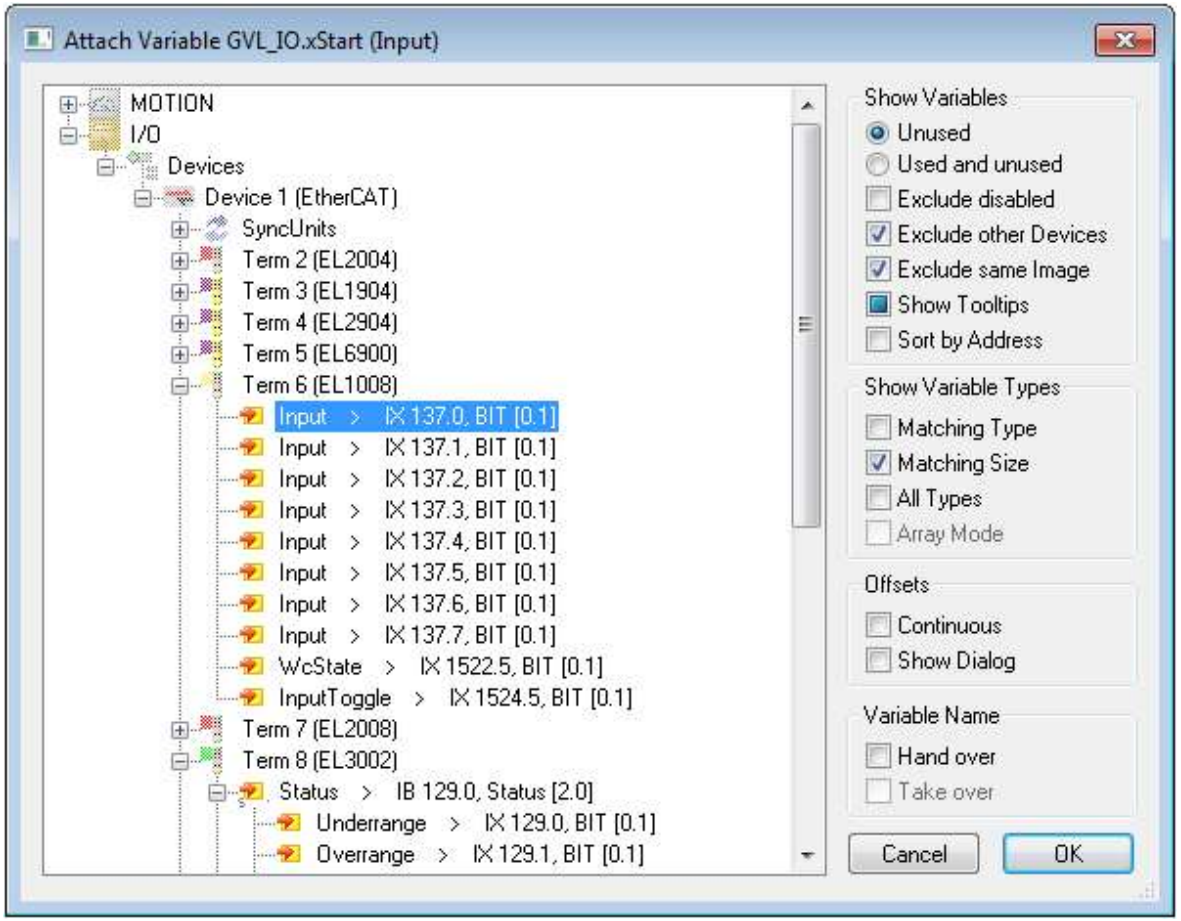
- Select the first Input under the EL1008 and click ‘OK’



Linking Variables

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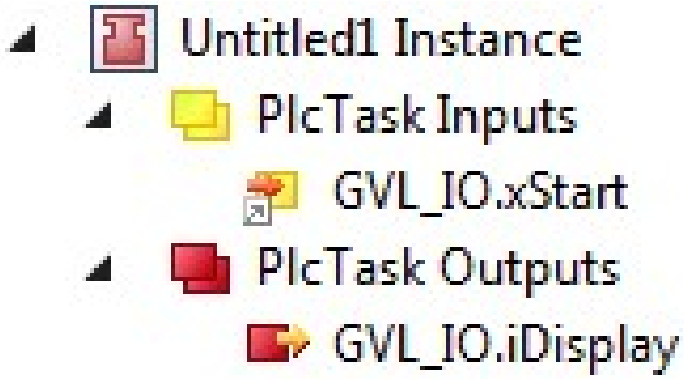
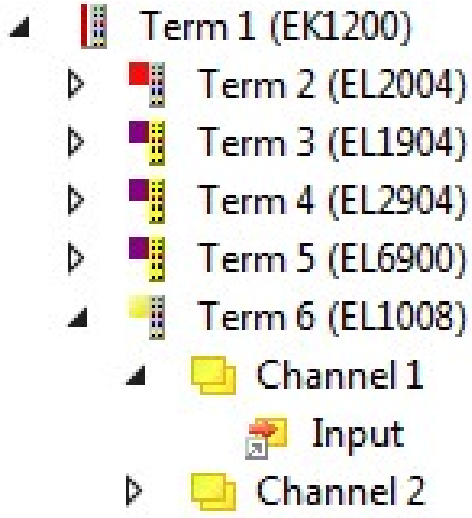
- The icons of both variables now show the ‘Link’ symbol





Linking Variables

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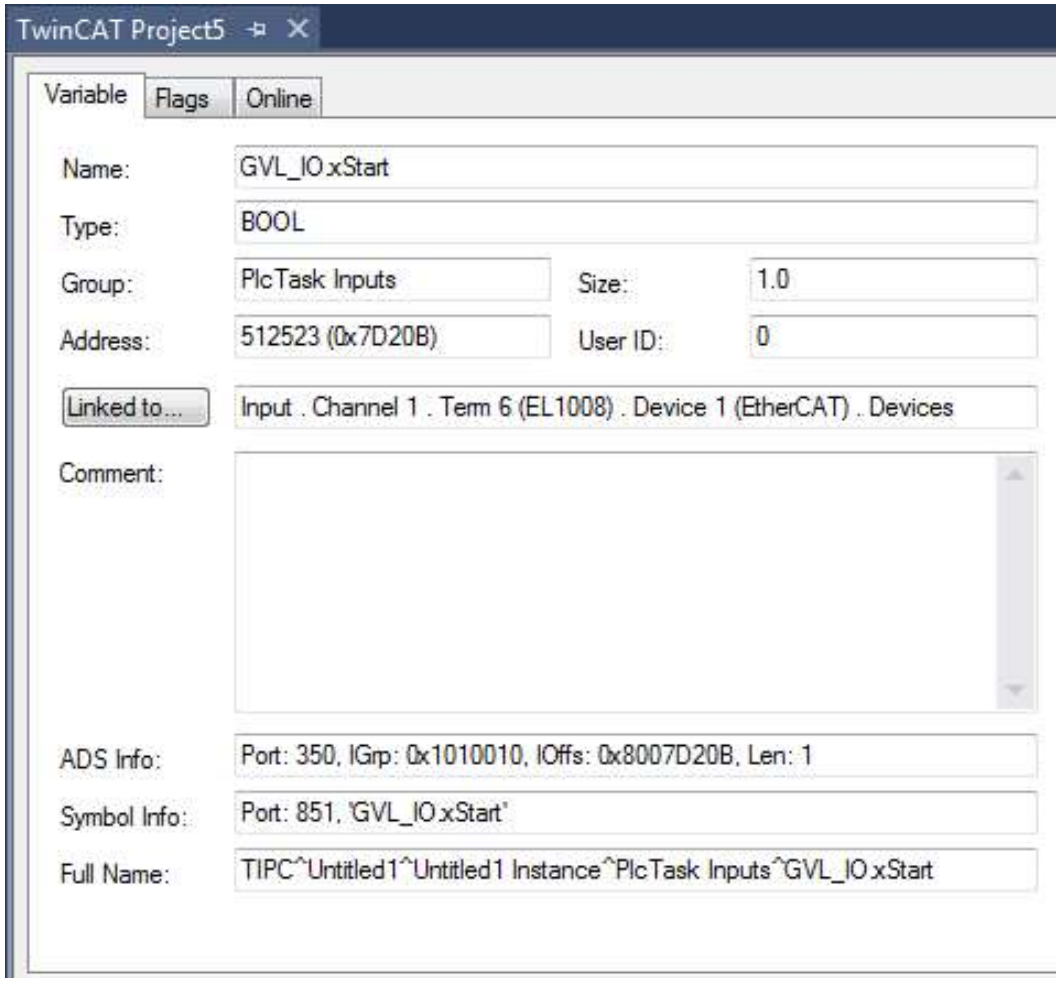
- The ‘Variable’ Tab now shows the linking information in the ‘Linked to…’ box



Linking Variables

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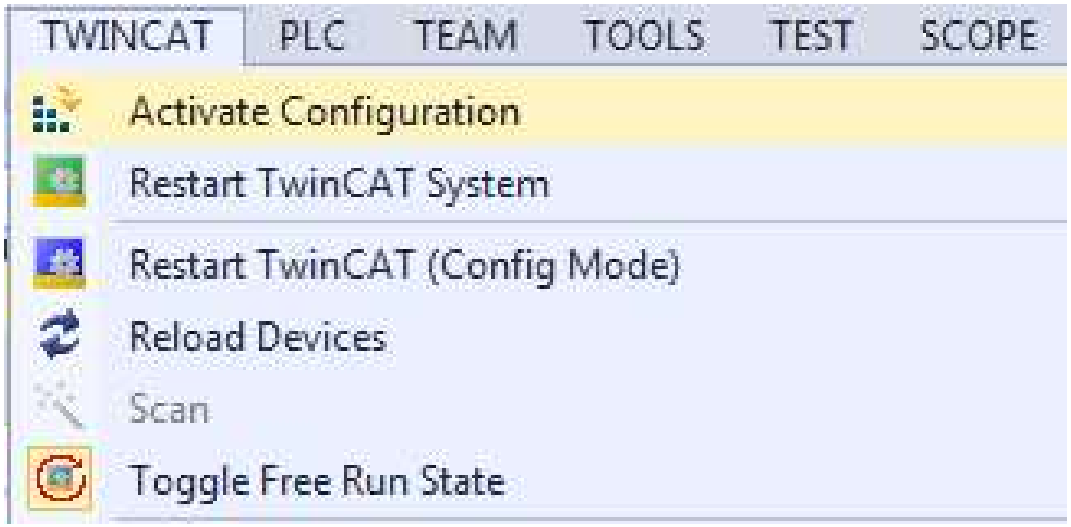
- The variable links are not implemented until an ‘Activate Configuration’ command is executed.
- From the ‘TwinCAT’ menu select ‘Activate Configuration’



Linking Variables

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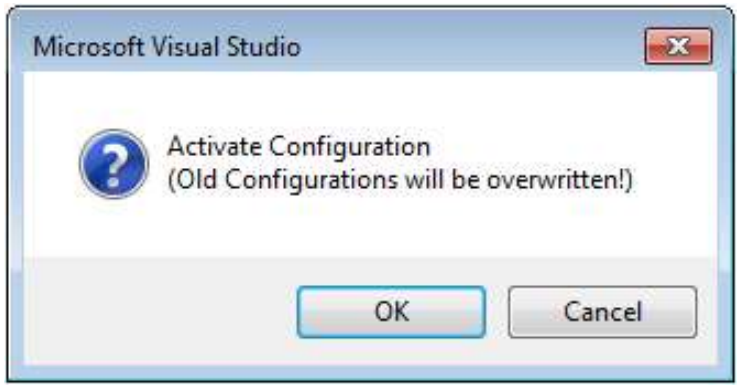
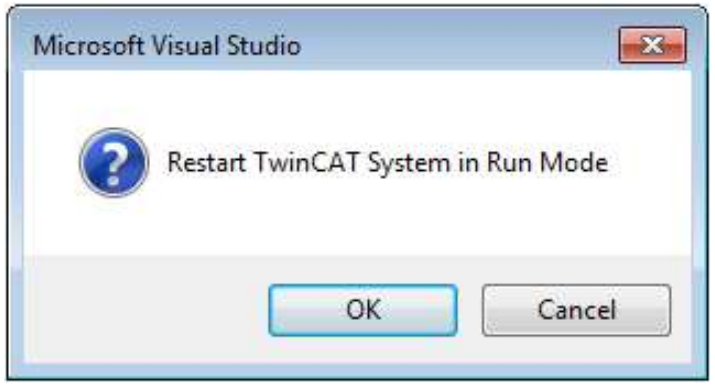
- Click ‘OK’ to proceed



- Click ‘OK’ to Restart TwinCAT in ‘Run Mode’



Linking Variables

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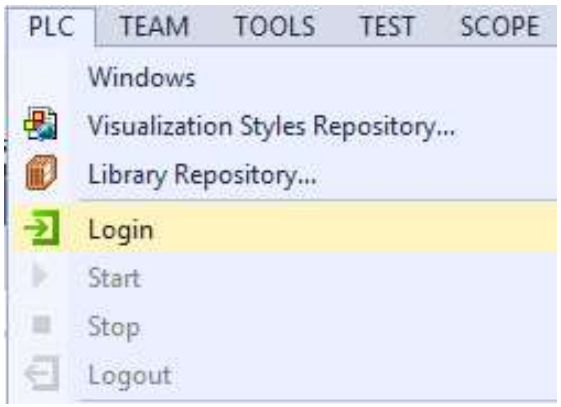
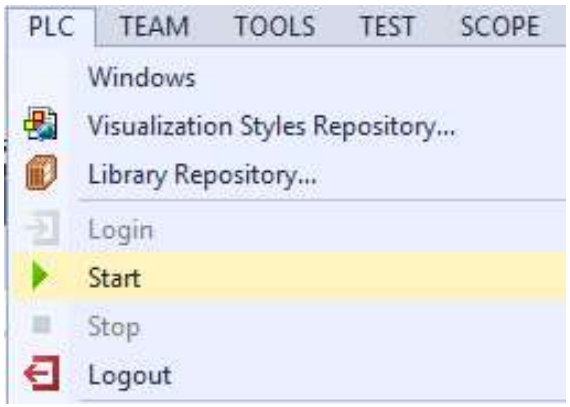
- Now that the hardware variable is linked to the PLC variable, the PLC must be running for the hardware to update
- Login and Run the PLC





Linking Variables

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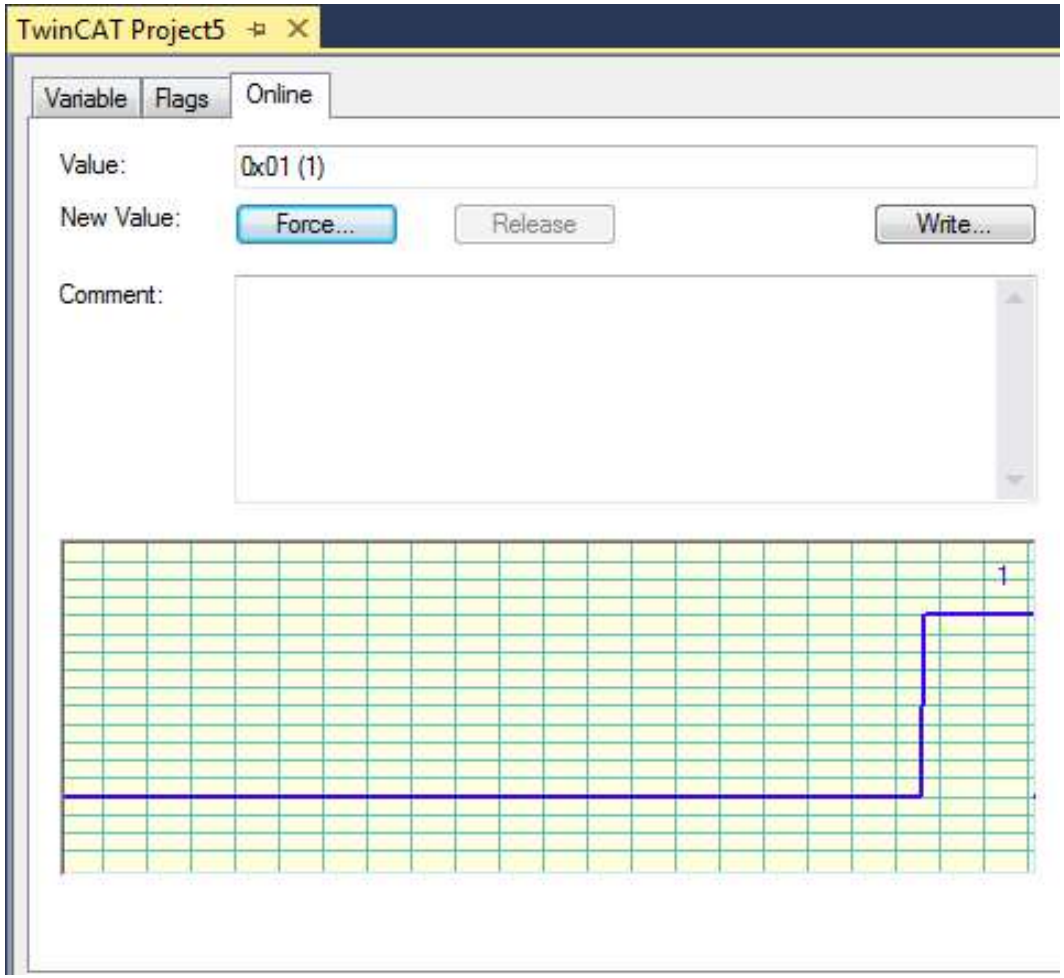
- Select the PLC or the hardware variable and go to the ‘Online’ tab

- You can now watch the value change



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