PHC Studio & WST pro – Tips & Troubleshooting

Revision 03, June 30th 2021

EDITOR: Andrea Cervi

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1 Tip: Load an old project inside CED400W with last Firmware

It is possible to load an old project made with PHC Studio 2 in a CED400W with the last Firmware installed because the revision 10 (needed for PHC Studio 3) is backward compatible with the previous versions.

The only exception is for the 3 the indexes 0x1008, 1x009 and 1x00a of the "Working Parameters" that are reserved for "Device Name", "HW/FW Version" and "SW_Version" in PHC Studio 3.

Check if in the "Working Parameters" table of the project these indexes are used:

Working Parameters

#	Persistent	Index	SubIndex	Name	Type	Default value	Min	Max	Description	Read only	AccessLevel
1	True	0x1000	0x0	T_rise_A	UINT	0	0	10000	Rise time side A.	False	Normal
2	True	0x1001	0x0	T_fall_A	UINT	0	0	10000	Fall time side A.	False	Normal
3	True	0x1002	0x0	T_rise_B	UINT	0	0	10000	Rise time side B.	False	Normal
4	True	0x1003	0x0	T_fall_B	UINT	0	0	10000	Fall time side B.	False	Normal
5	True	0x1004	0x0	I_min_Out_A	UINT	600	100	2000	Minimum current side A.	False	Normal
6	True	0x1005	0x0	I_max_Out_A	UINT	1000	100	2000	Maximum current side A.	False	Normal
7	True	0x1006	0x0	I_min_Out_B	UINT	600	100	2000	Minimum current side B.	False	Normal
8	True	0x1007	0x0	I_max_Out_B	UINT	1000	100	2000	Maximum current side B.	False	Normal
9	True	0x1008	0x0	Dither_Freq	UINT	150	50	300	Dither frequency.	False	Normal
10	True	0x1009	0x0	Dither_Amplitude	UINT	200	0	500	Dither amplitude.	False	Normal
11	False	0x100a	0x0	Out_Current_Setpoint	INT	0	-2000	2000	Current setpoint.	True	Normal
12	False	0x100b	0x0	Out_Analog	UINT	0	0	1000	Analog output.	True	Normal
13	False	0x100c	0x0		BOOL	False			Force off the ramp function.	False	Normal
14	True	0x100d	0x0		UINT	1023			SW version.	True	Normal

0x1008
0x1009
0x100a

If yes, it is necessary to change these values with different ones.

Working Parameters

#	Persistent	Index	SubIndex	Name	Type	Default value	Min	Max	Description	Read only	AccessLevel
1	True	0x1000	0x0	T_rise_A	UINT	0	0	10000	Rise time side A.	False	Normal
2	True	0x1001	0x0	T_fall_A	UINT	0	0	10000	Fall time side A.	False	Normal
3	True	0x1002	0x0	T_rise_B	UINT	0	0	10000	Rise time side B.	False	Normal
4	True	0x1003	0x0	T_fall_B	UINT	0	0	10000	Fall time side B.	False	Normal
5	True	0x1004	0x0	I_min_Out_A	UINT	600	100	2000	Minimum current side A.	False	Normal
6	True	0x1005	0x0	I_max_Out_A	UINT	1000	100	2000	Maximum current side A.	False	Normal
7	True	0x1006	0x0	I_min_Out_B	UINT	600	100	2000	Minimum current side B.	False	Normal
8	True	0x1007	0x0	I_max_Out_B	UINT	1000	100	2000	Maximum current side B.	False	Normal
9	True	0x100e	0x0	Dither_Freq	UINT	150	50	300	Dither frequency.	False	Normal
10	True	0x100f	0x0	Dither_Amplitude	UINT	200	0	500	Dither amplitude.	False	Normal
11	False	0x1010	0x0	Out_Current_Setpoint	INT	0	-2000	2000	Current setpoint.	True	Normal
12	False	0x100b	0x0	Out_Analog	UINT	0	0	1000	Analog output.	True	Normal
13	False	0x100c	0x0		BOOL	False			Force off the ramp function.	False	Normal
14	True	0x100d	0x0		UINT	1023			SW version.	True	Normal

0x100e
0x100f
0x1010

2 Tip: Upgrade an old project to PHC STUDIO 3

Make a copy of the project made with an older version of PHC STUDIO.
Open PHC STUDIO 3 and load the project.

The tool will ask to update the libraries; push "Yes" (the new ones are backward compatible).

PHC STUDIO

⚠ Found new version of libraries:
c:\program files (x86)\walvoil pc tools 3\catalog\183337037_1p0\..\..\PHC Studio\Libraries\Utility.plclib
c:\program files (x86)\walvoil pc tools 3\catalog\183337037_1p0\..\..\PHC Studio\Libraries\Directional_Control_Valve.plclib
c:\program files (x86)\walvoil pc tools 3\catalog\183337037_1p0\Lib\Output.plclib

Do you want to update them ?

Sì   No

To update manually the Libraries, select "Refresh all libraries" from menu "Project".
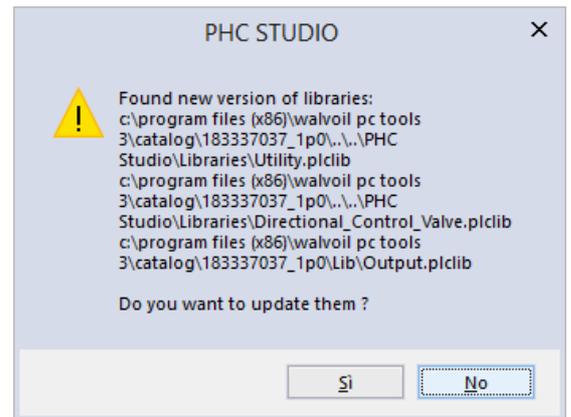
Fill the new parameter fields "Device Name" and "SW Version".
"Resource" tab → "Working Parameters"

Resources

Configuration
  183337037
    Connector PIN-OUT and I/O Mapping
    WST PRO
      Working Parameters
      Menus
        My_menu

Project   Resources
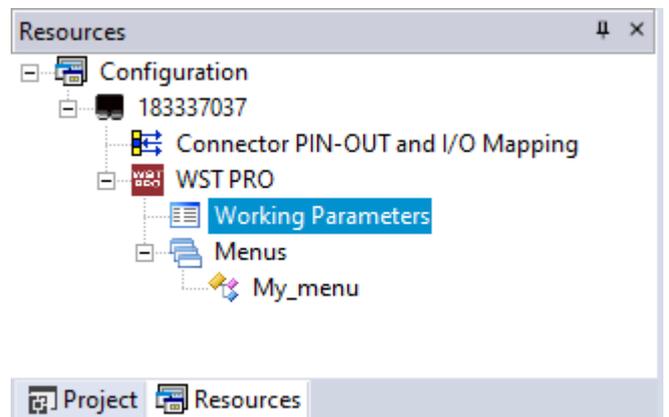
Working Parameters

#	Index	SubIndex	Name	Type	Default value	Major	Minor	Description
1	0x1008	0x0	Device Name	STRING	Project_name			Device / Software name.
2	0x1009	0x0	HW/FW Version	STRING				Hardware and Firmware version; loaded automatically from the ECU
3	0x100a	0x0	SW Version	STRING	01	2	3	Application Software version.

- Device Name
- SW Version
- SW Version Major value
- SW Version Minor value

In PHC Studio 3 the indexes 0x1008, 1x009 and 1x00a are of the "Working Parameters" are reserved for "Device Name", "HW/FW Version" e "SW_Version".

Check if in the "Working Parameters" table of the project this indexes are used:

Working Parameters

⊕ Add   ⊖ Remove   ✎ WST

#	Persistent	Index	SubIndex	Name	Type	Default value	Min	Max	Description	Read only	AccessLevel
1	True	0x1000	0x0	T_rise_A	UINT	0	0	10000	Rise time side A.	False	Normal
2	True	0x1001	0x0	T_fall_A	UINT	0	0	10000	Fall time side A.	False	Normal
3	True	0x1002	0x0	T_rise_B	UINT	0	0	10000	Rise time side B.	False	Normal
4	True	0x1003	0x0	T_fall_B	UINT	0	0	10000	Fall time side B.	False	Normal
5	True	0x1004	0x0	I_min_Out_A	UINT	600	100	2000	Minimum current side A.	False	Normal
6	True	0x1005	0x0	I_max_Out_A	UINT	1000	100	2000	Maximum current side A.	False	Normal
7	True	0x1006	0x0	I_min_Out_B	UINT	600	100	2000	Minimum current side B.	False	Normal
8	True	0x1007	0x0	I_max_Out_B	UINT	1000	100	2000	Maximum current side B.	False	Normal
9	True	0x1008	0x0	Dither_Freq	UINT	150	50	300	Dither frequency.	False	Normal
10	True	0x1009	0x0	Dither_Amplitude	UINT	200	0	500	Dither amplitude.	False	Normal
11	False	0x100a	0x0	Out_Current_Setpoint	INT	0	-2000	2000	Current setpoint.	True	Normal
12	False	0x100b	0x0	Out_Analog	UINT	0	0	1000	Analog output.	True	Normal
13	False	0x100c	0x0	Ramp_Force_Off	BOOL	False			Force off the ramp function.	False	Normal
14	True	0x100d	0x0	SW_Version	UINT	1023			SW version.	True	Normal

0x1008
0x1009
0x100a

If yes, it is necessary to change this values with different ones.

Working Parameters

⊕ Add   ⊖ Remove   ✎ WST

#	Persistent	Index	SubIndex	Name	Type	Default value	Min	Max	Description	Read only	AccessLevel
1	True	0x1000	0x0	T_rise_A	UINT	0	0	10000	Rise time side A.	False	Normal
2	True	0x1001	0x0	T_fall_A	UINT	0	0	10000	Fall time side A.	False	Normal
3	True	0x1002	0x0	T_rise_B	UINT	0	0	10000	Rise time side B.	False	Normal
4	True	0x1003	0x0	T_fall_B	UINT	0	0	10000	Fall time side B.	False	Normal
5	True	0x1004	0x0	I_min_Out_A	UINT	600	100	2000	Minimum current side A.	False	Normal
6	True	0x1005	0x0	I_max_Out_A	UINT	1000	100	2000	Maximum current side A.	False	Normal
7	True	0x1006	0x0	I_min_Out_B	UINT	600	100	2000	Minimum current side B.	False	Normal
8	True	0x1007	0x0	I_max_Out_B	UINT	1000	100	2000	Maximum current side B.	False	Normal
9	True	0x100e	0x0	Dither_Freq	UINT	150	50	300	Dither frequency.	False	Normal
10	True	0x100f	0x0	Dither_Amplitude	UINT	200	0	500	Dither amplitude.	False	Normal
11	False	0x1010	0x0	Out_Current_Setpoint	INT	0	-2000	2000	Current setpoint.	True	Normal
12	False	0x100b	0x0	Out_Analog	UINT	0	0	1000	Analog output.	True	Normal
13	False	0x100c	0x0	Ramp_Force_Off	BOOL	False			Force off the ramp function.	False	Normal
14	True	0x100d	0x0	SW_Version	UINT	1023			SW version.	True	Normal

0x100e
0x100f
0x1010

Update in the project the target.
Menù "Project" → "Refresh current target"

| Project | On-line | Debug | Scheme | Variable |

New object ▸
Copy Object
Paste object
Duplicate object
Delete object   Delete
View PLC Object properties   Alt+Enter
Object Browser
Compile   F7
Recompile all   Ctrl+Alt+F7
Generate redistributable source module
Import objects
Export objects to library
Library manager
Refresh all libraries
Select target...
Refresh current target
Options...
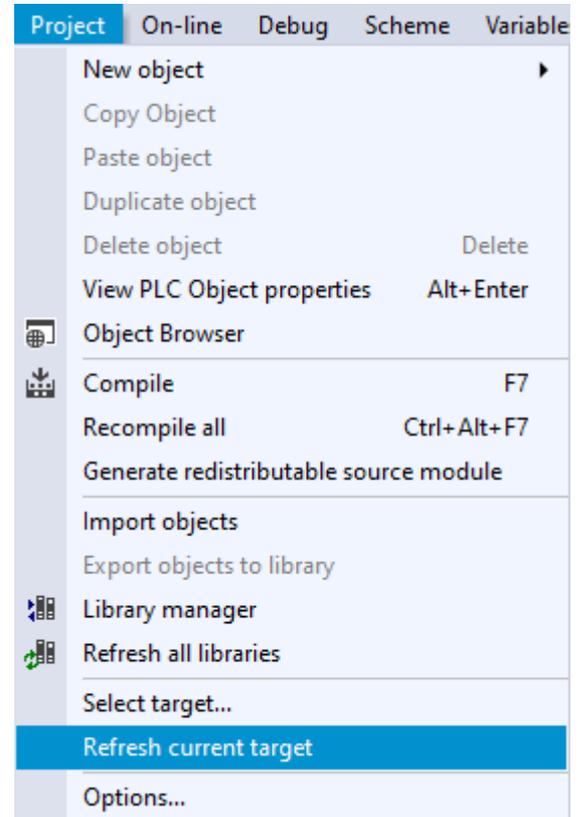
Check the release of the Firmware of the controller.
Connect the PHC STUDIO to the target and check the "Output" window.

If the "Target runtime version" is ".10" the Firmware is updated.

If is less, the Firmware has to be updated in order to work with PHC STUDIO 3.

Output

Preprocessing Input completed.
Preprocessing Output completed.
Preprocessing Directional_Control_Valve completed.
Preprocessing CANbus completed.

0 warnings, 0 errors.

Connected to W183337037_1p0 on DSP56800E.
Target runtime version: 1.37.10

Loading target image .. completed.
File PHC_Example_02_Starter_Kit_IR00.imgx updated.

Build Find in project Debug Resources

If the CED400W used is a model with CANbus (183337026, 183337033, 183337037, 183337046), the firmware can be updated with the Bootloader.

If is a model without CANbus (183337025, 183337055), it is necessary to buy a CED400W with the last firmware release already loaded by Walvoil.

To update the Firmware, open WST PRO, select "BST – Bootloader Canbus" and update the firmware.

BST - Bootloader Canbus

Select "Automatic mode" in the BST window and then the target part number.

Push "Start Capture" button and follow the instructions.

Select "Automatic mode" in the UPDATE SETTING window.

Push "Start Update" button and follow the instructions.
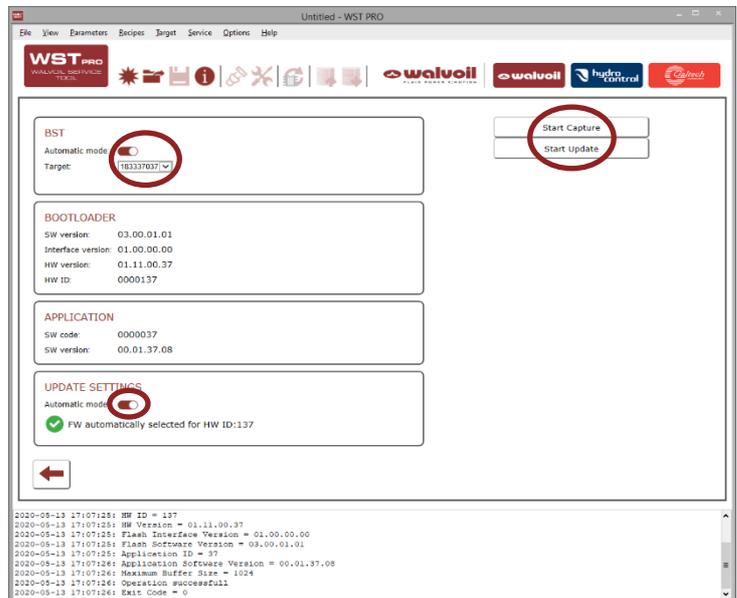
After the update of the project to the new PHC Studio revision, make a check of all the functionality.

In case of problem with some functionality, Delete the block from the project and load again from the Library Tree.
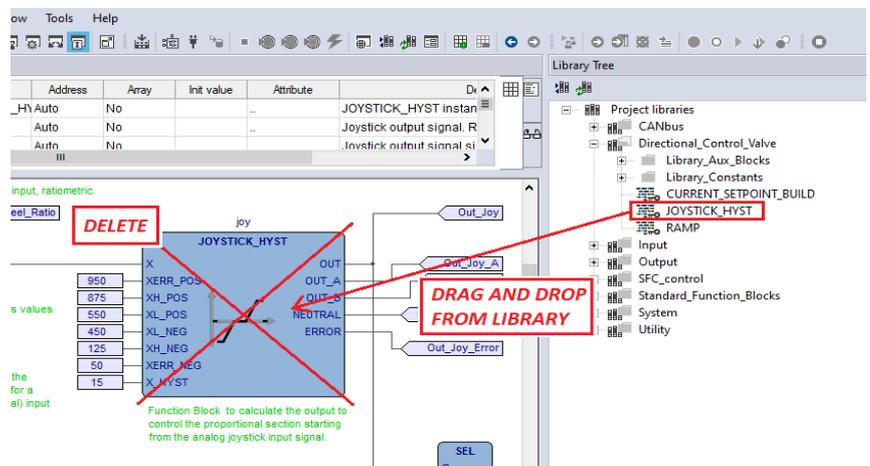
3 Tip: Export a project from PHC Studio to WST pro

To use a project with WST pro it is necessary to Export it from PHC Studio.
Make this export every time there is a modification in the Working Parameters.

From menu "Tools" select "Export to WST PRO".
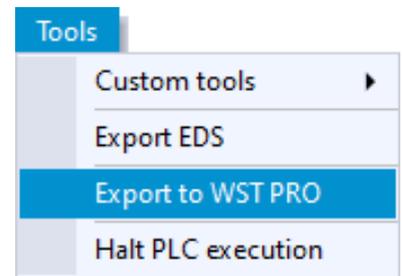
PHC Studio will create the specific folder with all the informations needed by WST pro.
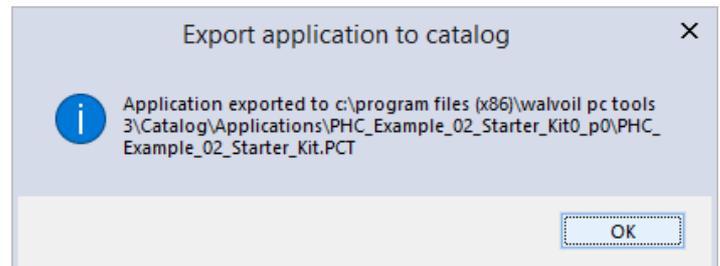
Open WST pro, select "Custom application" to open the page of the custom applications made, and select the specific one.
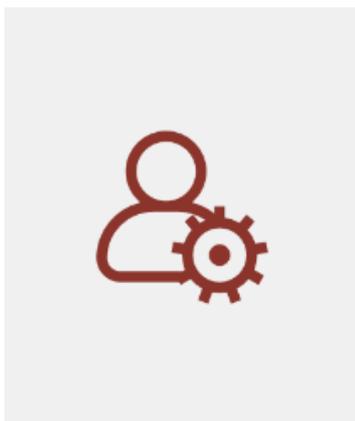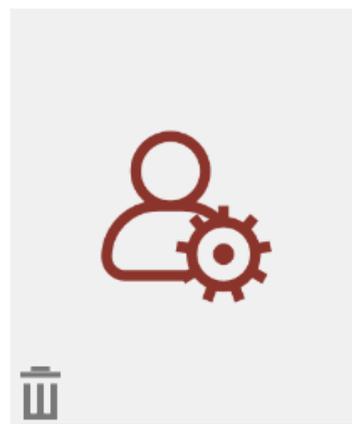
4 Tip: Manual copy of a project in WST pro

To use a custom application with WST pro in a PC without PHC Studio, it is necessary to operate the following manual operations:

In the PC with the original application, search where PHC Studio is installed and open the folder "\Walvoil PC Tools 3\Catalog\Applications".

Copy the complete folder of the project of interest (in this example is "PHC_Example_02_Starter_Kit0_p0") and paste in the same folder of the PC without PHC Studio.

In this PC, with WST pro closed, go up of one folder "\Walvoil PC Tools 3\Catalog" and delete the following files:

- AlCatalog.LOG
- AlCatalog.XML
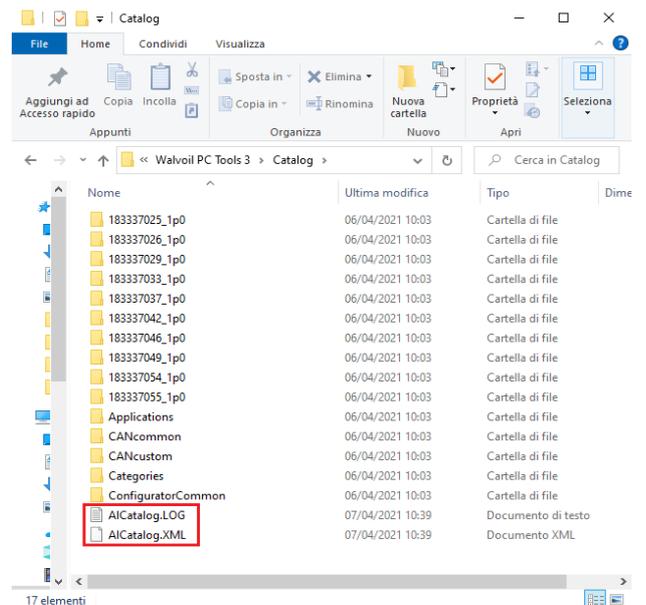
Open WST pro, the project will be available in the "Custom application" list.

5 Tip: Download application SW with BST-Bootloader CANbus

There are two way to download the custom application software in the CED controller:

- with PHC Studio, normally used during the design phase.
- with the BST-Bootloader CANbus, normally used in the field or during the production phase.

When an application is Compiled, the PHC Studio create two binary files of the project in the "Download" folder (inside the project folder):

- PlcCode0.bin   →   loaded automatically with PHC Studio.
- <project_name>.hx1 →   to be used with BST-Bootloader.
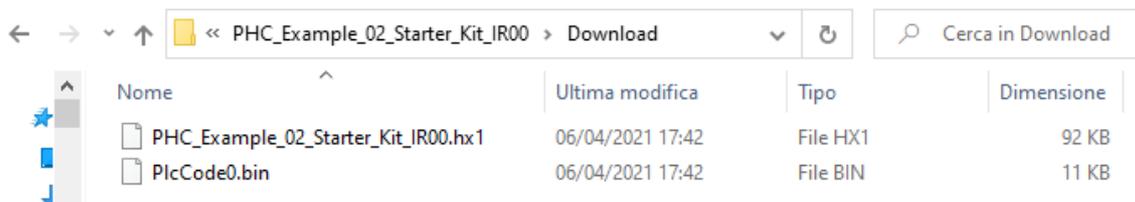
To update the Firmware, open WST PRO and select "BST – Bootloader Canbus".

BST - Bootloader Canbus

Select "Automatic mode" in the BST window and then the target part number.

Push "Start Capture" button and follow the instructions.

Deselect "Automatic mode" in the UPDATE SETTING window and load the ".**hx1**" file.

Push "Start Update" button and follow the instructions.
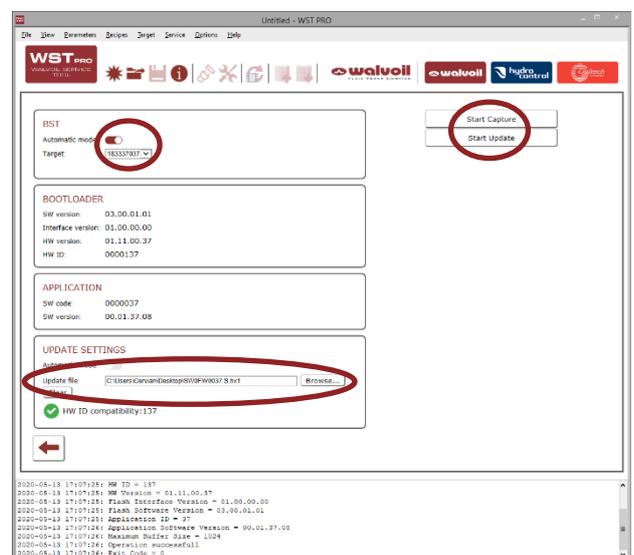
6 Warning A4103: Data block not found (PHC Studio compile phase)
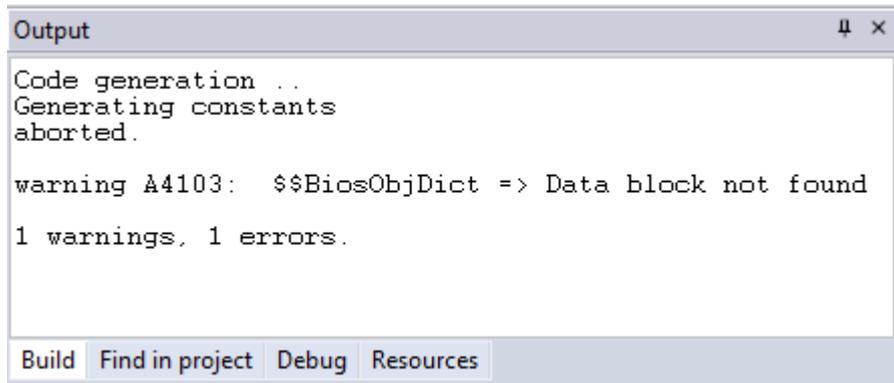
When you open a project made with an older revision of PHC STUDIO and there is a different data block.

Solution:
Menù "Project" → "Refresh current target"
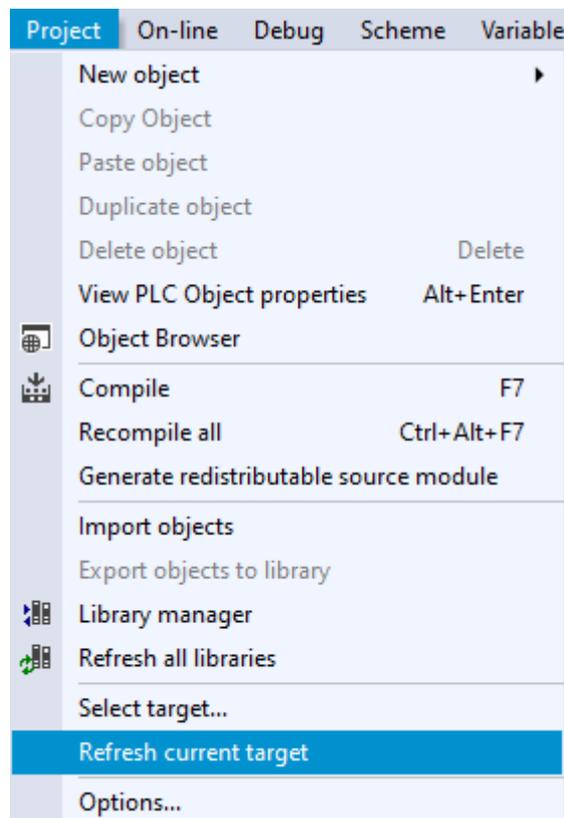
7 Warning A4103: Data block not found (PHC Studio download phase)

When you download a project made with the last revision of PHC STUDIO and the Firmware is not aligned.

Solution:
Open WST PRO, select "BST – Bootloader Canbus" and update the firmware.
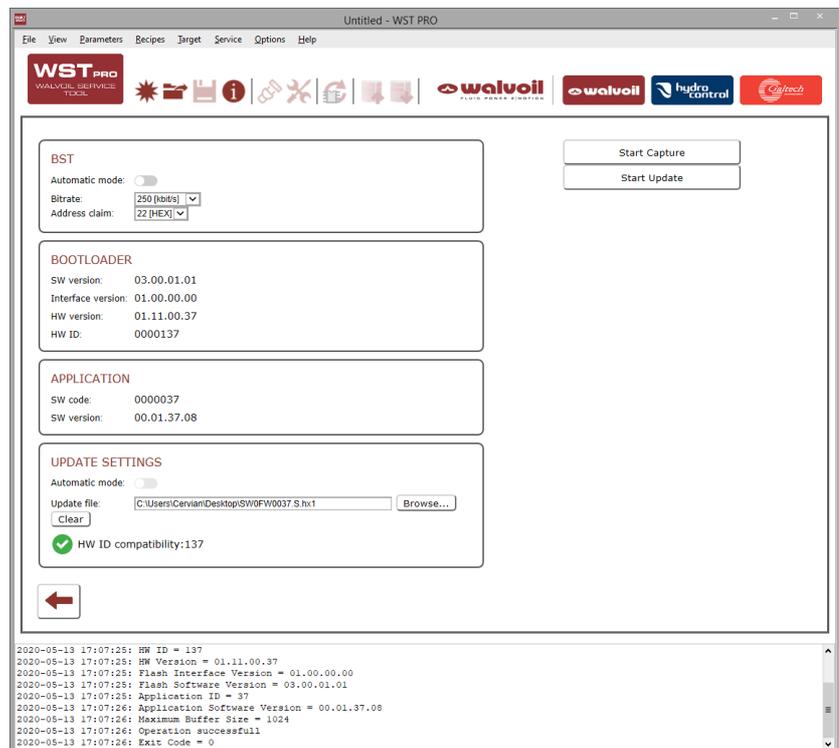
8 Error: (Validate) Error empty value: Device Name / SW Version (PHC Studio)
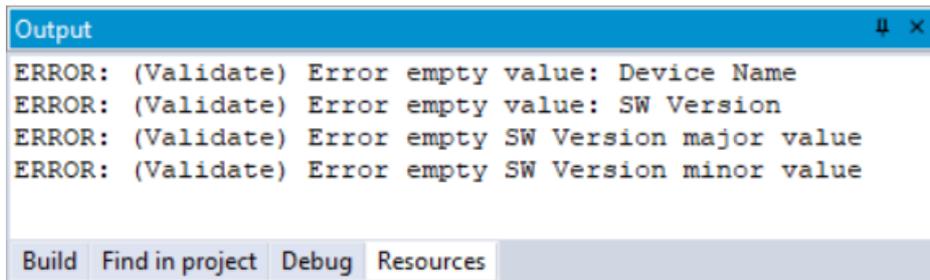
The "Device Name" and / or the "SW Version" fields are not filled.

Solution:

"Resource" tab → "Working Parameters"

Fill the "Device Name" and "SW Version" fields.

#	Index	SubIndex	Name	Type	Default value	Major	Minor	Description
1	0x1008	0x0	Device Name	STRING	Project_name			Device / Software name.
2	0x1009	0x0	HW/FW Version	STRING				Hardware and Firmware version; loaded automatically from the ECU
3	0x100a	0x0	SW Version	STRING	01	2	3	Application Software version.

- Device Name
- SW Version
- SW Version Major value
- SW Version Minor value

9 Warning: found new version of libraries (PHC Studio)
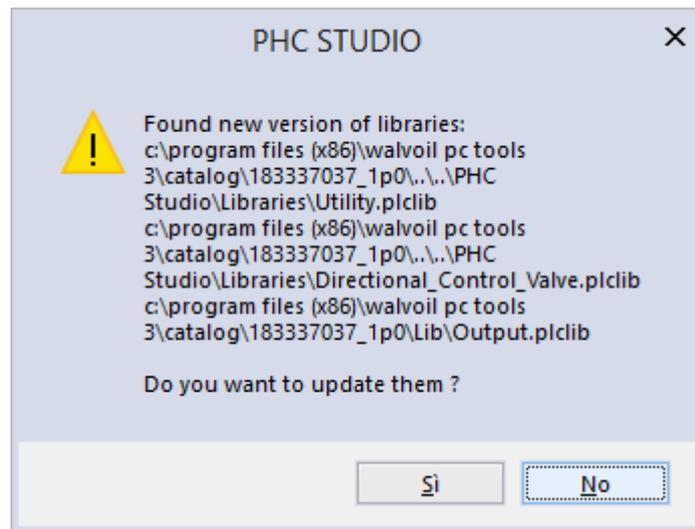
When you open a project made with an older revision of PHC STUDIO and the libraries are not updated.

Solution:
Push "Yes" to update the libraries.
The new ones are backward compatible.

See "*Tip: Upgrade an old project to PHC STUDIO 3*" for more details.

10 Error: unable to start the communication (PHC Studio)

Missing of the RS232 adapter or driver or wrong COM port setted.

Solution:
Check the presence of the RS232 adapter.

Check the COM port in the "Device Manager" and if the driver is installed.

Menù "On-line" → "Set up communication…" → select "GDB" protocol → push "Properties" and set the correct COM port.
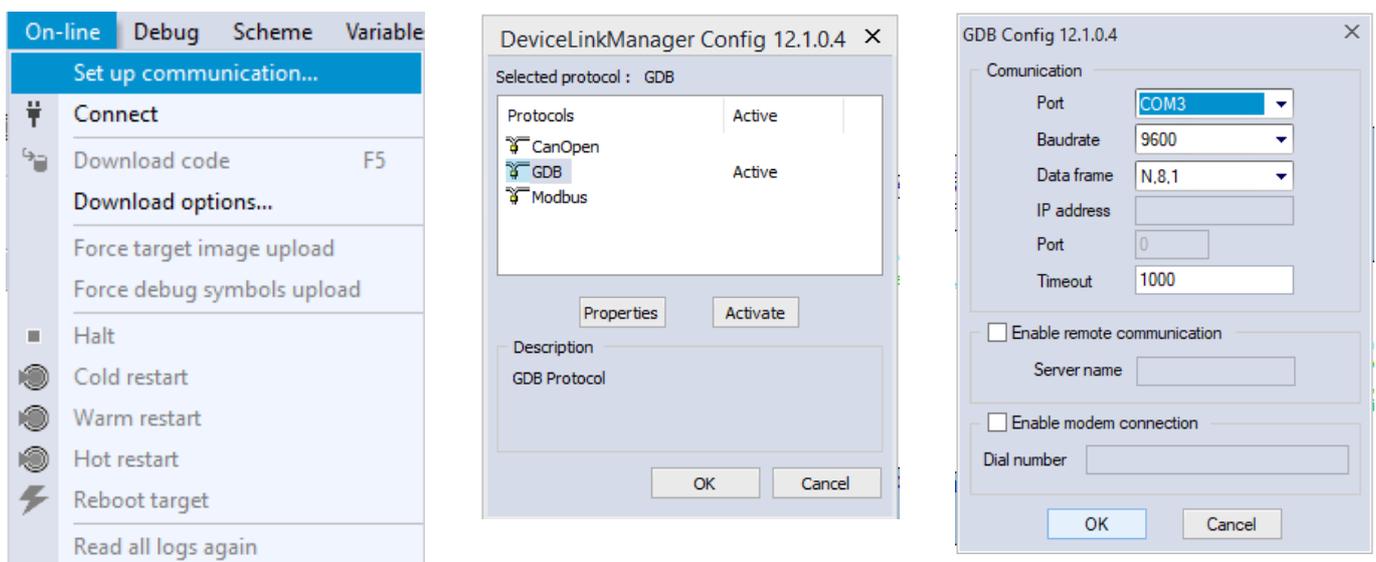
11 Error: Cannot connect to target (PHC Studio)
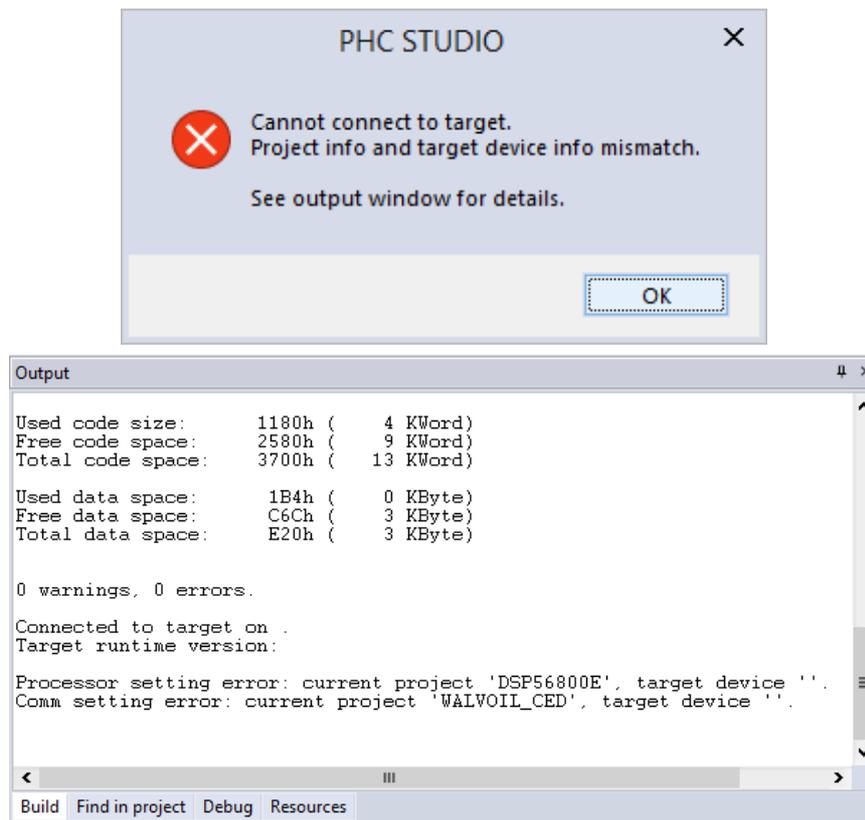
Communication problem.

Solution:
Make a power cycle and connect again.

12 Error T0000: description not found (PHC Studio)
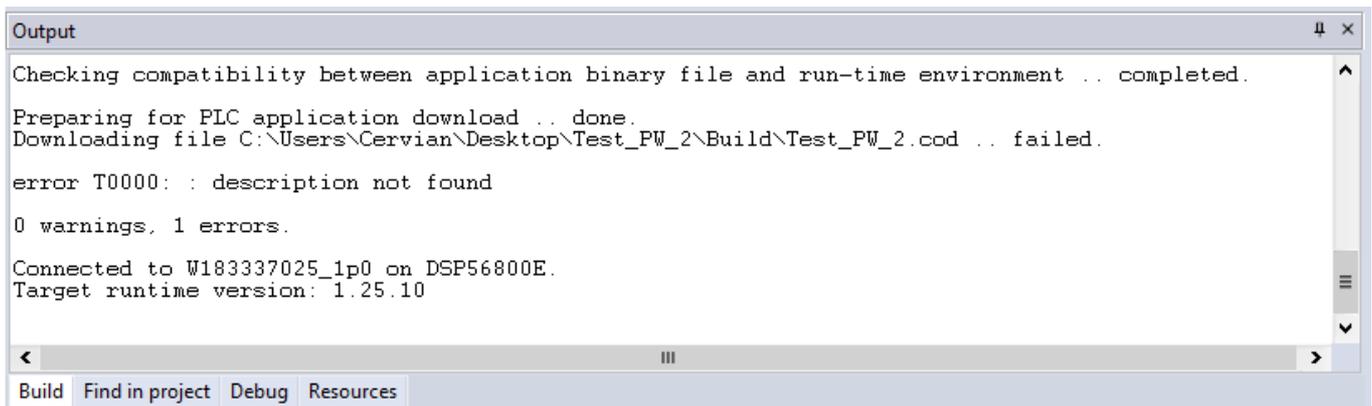
```
Output                                                                    ⇩ ✕
Checking compatibility between application binary file and run-time environment .. completed.

Preparing for PLC application download .. done.
Downloading file C:\Users\Cervian\Desktop\Test_PW_2\Build\Test_PW_2.cod .. failed.

error T0000: : description not found

0 warnings, 1 errors.

Connected to W183337025_1p0 on DSP56800E.
Target runtime version: 1.25.10
```
Build Find in project Debug Resources

In PHC Studio this error appears when during the download of the application in the controller the WST pro is in the "Online mode".

Solution:
Exit from "Online mode" in WST pro.