

PHC Studio & WST pro – Tips & Troubleshooting

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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	Туре	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	0X8	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	0x1008 0x1009 0x100a	UINT	1023			SW version.	True	Normal	

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

							Working P	arameters				
(\cdot)	+ Add Remove WST											
#	Persistent	Index	SubIndex	Name	Туре	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	D E 0#	BOOL	False			Force off the ramp function.	False	Normal	
14	True	0x100d	0x0	0x100a	UINT	1023			SW version.	True	Normal	
				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.

х PHC STUDIO The tool will ask to update the libraries; push "Yes" (the new ones are backward compatible). 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 To update manually the Libraries, select "Refresh 3\catalog\183337037_1p0\Lib\Output.plclib all libraries" from menu "Project". Do you want to update them ? Sì No Resources μ× Fill the new parameter fields "Device Name" and "SW Version". Configuration image: 183337037 "Resource" tab \rightarrow "Working Parameters" Connector PIN-OUT and I/O Mapping WST PRO



	Working Parameters										
#	Index	SubIndex	Name	Туре	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 ECL			
3	0x100a	0x0	SW Version	STEING	01	2) (3	Application Software version.			
	Device NameSW Version										
•	 SW Version Major value SW Version Minor value 										

4



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

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

	Working Parameters												
9	+ Add Remove WST												
#	Persistent	Index	SubIndex	Name	Туре	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	0.00	SW_Version	UINT	1023			SW version.	True	Normal		





Update in the project the target. Menù "Project" \rightarrow "Refresh current target"

Pro	ject	On-line	Debug	Scheme	Variable					
	Nev	v object			•					
	Сор	y Object								
	Past	te object								
	Duplicate object									
	Delete object Delete									
	View PLC Object properties Alt+Enter									
⊕_	Obj	ect Browse	r							
*	Con	npile			F7					
	-			Child						
	Rec	ompile all		Ctri+A	AILT F7					
	Gen	ompile all erate redist	tributable s	source mod	lule					
	Gen Imp	ompile all erate redist ort objects	tributable s	source mod	lule					
	Gen Imp Expe	ompile all erate redist ort objects ort objects	tributable s	ource mod	lule					
	Gen Imp Exp Libr	ompile all erate redist ort objects ort objects ary manag	tributable s to library er	ource mod	lule					
18 #1	Gen Imp Exp Libr Refr	ompile all erate redist ort objects ort objects ary manage resh all libra	tributable s to library er aries	source mod	lule					
18 18	Gen Imp Expe Libr Refr Sele	ompile all erate redist ort objects ort objects ary manage resh all libra	tributable s to library er aries	ctri+4	lule					
18 #8	Reco Gen Imp Expo Libr Refr Sele Refr	ompile all erate redist ort objects ort objects ary manage resh all libra ect target	tributable s to library er aries t target	ctri+4	Jule					

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	μ×
Preprocessing Input completed. Preprocessing Output completed. Preprocessing Directional_Control_Valve completed. Preprocessing CANbus completed.	^
Connected to W183337037_1p0 cr_SP56800E. 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.



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.

Untitled - WST PRO	×
Elle View Barameters Becipes Jarget Service Options Help	
MGT	
	Start Cantura
BST	
Automatic mode:	Start Update
Target: 183337037	
BOOTLOADER	
SW version: 03.00.01.01	
Interface version: 01.00.00.00	
HW Version: 01.11.00.37	
	ר
APPLICATION	
SW code: 0000037	
3W VENUE 00.01.37.00	
	ר
UPDATE SETTINGS	
Automatic mode	
FW automatically selected for HW ID:137	
2020-05-13 17:07:25: HW ID = 137	^
2020-05-13 17:07:25: HW Version = 01.11.00.37 2020-05-13 17:07:25: Flash Interface Version = 01.00.00.00	
2020-05-13 17:07:25: Flash Software Version = 03.00.01.01	
2020-05-13 17:07:26: Application Software Version = 00.01.37.08	
2020-05-13 17:07:26: Maximum Burrer Size = 1024 2020-05-13 17:07:26: Operation successfull	



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".





OK

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".

← -	→ 🕆 📙 → Questo PC → Acer (C:) → Programmi (x86) →	Walvoil PC Tools 3 > C	atalog > Applications
	Nome	Ultima modifica	Тіро
~	1833390521_p0	26/11/2020 11:29	Cartella di file
	application_name1_p0	03/08/2020 11:54	Cartella di file
	CED_1833390521_p0	04/12/2020 10:16	Cartella di file
1	CED400W_1p0	06/04/2021 10:03	Cartella di file
	MY_app_12_p3	03/03/2021 10:28	Cartella di file
	PHC_Example_02_Starter_Kit0_p0	25/05/2020 14:18	Cartella di file
	PHC_Example_09_Parameter_Management0_p0	04/12/2020 15:45	Cartella di file

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

📙 🛃 📒 🖛 Catalog			- 🗆 ×
File Home Condividi	/isualizza		~ ?
Aggiungi ad Accesso rapido Appunti	Ger Sposta in ↔ Krimina ↔ Elimina ↔ Elimina ↔ Elimina ↔ Elimina ↔ Corganizza	Nuova cartella Nuovo	Proprietà Constantia Seleziona Apri
← → ∽ ↑ 📙 « Walvoil PC 1	fools 3 → Catalog →	5 v	
^ Nome ^	Ultima	modifica	Tipo Dime
183337025_1p0	06/04/2	021 10:03	Cartella di file
183337026_1p0	06/04/2	021 10:03	Cartella di file
183337029_1p0	06/04/2	021 10:03	Cartella di file
183337033_1p0	06/04/2	2021 10:03	Cartella di file
183337037_1p0	06/04/2	2021 10:03	Cartella di file
183337042_1p0	06/04/2	021 10:03	Cartella di file
183337046_1p0	06/04/2	021 10:03	Cartella di file
183337049_1p0	06/04/2	2021 10:03	Cartella di file
183337054_1p0	06/04/2	021 10:03	Cartella di file
183337055_1p0	06/04/2	021 10:03	Cartella di file
Applications	06/04/2	021 10:03	Cartella di file
CANcommon	06/04/2	021 10:03	Cartella di file
CANcustom	06/04/2	021 10:03	Cartella di file
Categories	06/04/2	021 10:03	Cartella di file
ConfiguratorCommo	n 06/04/2	021 10:03	Cartella di file
AlCatalog.LOG	07/04/2	021 10:39	Documento di testo
 AlCatalog.XML 	07/04/2	021 10:39	Documento XML
4			
			>
17 elementi			::== E

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 \rightarrow loaded automatically with PHC Studio.
- <project_name>.hx1 \rightarrow to be used with BST-Bootloader.



To update the Firmware, open WST PRO and select "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"

Pro	ject	On-line	Debug	Scheme	Variable					
	Nev	v object			•					
	Сор	y Object								
	Paste object									
	Duplicate object									
	Delete object Delete									
	View PLC Object properties Alt+Enter									
⊕_	Obj	Object Browser								
*	Con	npile			F7					
	Recompile all Ctrl+Alt+F7									
	Gen	erate redist	ributable s	source mod	lule					
	Imp	ort objects								
	Exp	ort objects	to library							
	Libr	ary manag	er							
#	Refr	resh all libra	aries							
	Sele	ct target								
	Refr	resh curren	t target							
	Opt	ions								



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:

BST - Bootloader Canbus

Open WST PRO, select "BST – Bootloader Canbus" and update the firmware.





8 Error: (Validate) Error empty value: Device Name / SW Version (PHC Studio)

Output	ņ	×
ERROR: (Validate) Error empty value: Device Name ERROR: (Validate) Error empty value: SW Version ERROR: (Validate) Error empty SW Version major value ERROR: (Validate) Error empty SW Version minor value	2	
Build Find in project Debug Resources		

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.

Working Parameters									
#	Index	SubIndex	Name	Туре	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 ECL	
3	0x100a	0x0	SW Version	STRING	01	2)	3	Application Software version.	
Device NameSW Version									
•	SW SW	Versio	n Major val	ue					
	500	v ei Siu							



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.



10Error: 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" \rightarrow "Set up communication..." \rightarrow select "GDB" protocol \rightarrow push "Properties" and set the correct COM port.

On	line Debug Scheme Variable	DeviceLinkManager Config 12.1.0.4 × GDB Config 12.1.0.4	×
	Set up communication	Selected protocol : GDB	
Ψ	Connect	Protocols Active Port COM3	
45	Download code E5	GanOpen Baudrate 9600 -	
		GDB Active Data frame N,8,1	
	Download options	IP address	
	Force target image upload	Port	
	Force debug symbols upload	Timeout 1000	
		Properties Activate Enable remote communication	
_		Description	
	Cold restart	GDB Protocol	
۲	Warm restart	Enable modem connection	
	Hot restart	Dial number	
Ŧ	Reboot target	OK Cancel	
	Read all logs again	OK	



11 Error: Cannot connect to target (PHC Studio)

				Pł	HC	STUDI	0						×	(
	e	S P	annot roject i see outj	cor info put	one o an wir	tt to targ d target ndow fo	get. dev r de	vice in tails.	nfo i	mis	mat	ch.					
											ОК						
Output																Ļ	
Used code Free code Total code	size: space: e space		1180h (2580h (3700h ((((4 9 13	KWord) KWord) KWord)											•
Used data Free data Total dat	space: space: a space	:	1B4h (C6Ch (E20h ((((0 3 3	KByte) KByte) KByte)											
0 warning	s, 0 er	rors.															
Connected Target ru:	to tar ntime v	get or ersion	n . n:														
Processor Comm sett	settin ing err	gerro or: cu	or: cui irrent	rre: pr(nt I Djeo	project ct 'WALV	'D9	SP568 L_CEI	800E)', 1	' tár	tar get	get de	de vic	vic e '	e'' '.	'.	
																	•
<					III											>	
Build Find in	n project	Debug	Resourc	es													

Communication problem.

Solution:

Make a power cycle and connect again.



12Error T0000: description not found (PHC Studio)

Output	ņ	×					
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							
		¥					
< III	>						
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.