Application Note

FESTO

PCS7 V10 Compatibility

This application note guides the user to migrate and resolve errors in PCS7 V10.1 SP1 where CTEU_PCS7 and CPX_PCS7 libraries are installed.

CTEU, CPX,
PCS7_V10.1

Title ..... PCS7 V10 Compatibility
Version 1.10
Document no. 100802
Original ..... en
Author ..... Festo

Last saved 20.01.2026

General information:

This document is intended for qualified, trained and instructed professionals. The data provided in this document are no guaranteed specifications, in particular with regard to functionality, condition or quality in the legal sense. The information in this document is intended only as simple indications for the implementation of a specific, hypothetical application, and in no way as a substitute for the operating instructions of the respective manufacturers or the design and testing of the respective application by the user. The respective operating instructions for Festo products can be found under www.festo.com. The user of this document must ensure that each function described herein works properly in his application. The user remains solely responsible for his or her own use of this document, even by studying this document and using the information mentioned therein. This also applies to any software (in source code and/or object code) that is made available to the user as an appendix to this document.

Rights of use of the software:

If software is made available to the user as an appendix to this document, the user is granted a simple and unlimited right of use hereto. This right also includes the processing and distribution of the software to third parties in edited or unedited form. The User is not permitted to use the name "Festo" to endorse or promote products derived from the Software without express prior written permission.

Software is provided to the user "as is". Festo does not assume any warranty or guarantee with regard to software. Festo's liability for damages of any kind arising from the use of the software is limited to intent and gross negligence.

Legal Notices:

©Festo SE & Co. KG, all rights reserved. A change in content and form is only permitted with the express written consent of Festo SE & Co. KG. Festo grants the user the right to reproduce this document in a form that remains unchanged in terms of content and form and to pass it on to third parties.

© (Festo SE & CO. KG, D-73726 Esslingen, 2026)
Internet: http://www.festo.com

Table of contents

1 Introduction

1.1 Summary

The libraries CTEU_PCS7 and CPX_PCS7 integrates CTEU and CPX fieldbus nodes to PCS7 system and gives function blocks and operator messages for diagnostics. The current version of libraries CTEU_PCS7 (V1.0.1.3) and CPX_PCS7 (V2.2.0.4) support PCS7 V9.1SP2. For PCS7 V10 and above, small modifications need to be done if the libraries need to be used in projects. The aim of this application note is to provide steps to user which help in making the small modifications necessary for migrating the existing library to PCS7 V10 and solving compilation errors encountered in the process.

1.2 Affected modules

It is seen that the libraries **work properly for Profinet terminals**.

Ex: for CTEU: CTEU_PN and CTEU_PN_EX1C

for CPX_PCS7: FB 43, 44.

No compilation errors should occur when downloading to AS. Also all OS messages should be working fine.

However, when a **Profibus terminal** is configured, **compilation errors** are found.

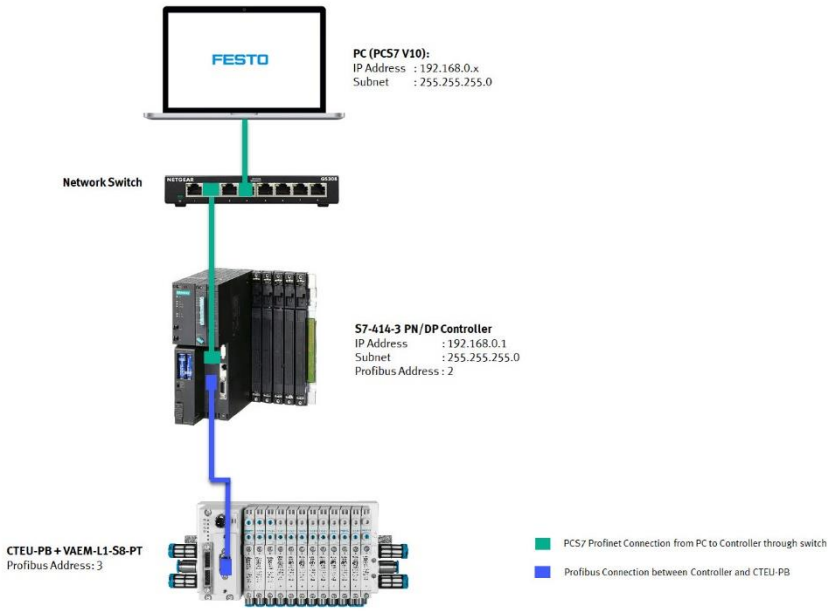
Ex: for CTEU: CTEU_PB and CTEU_PB_EX1C

for CPX_PCS7: FB13.

This application note indicates the steps to be followed to integrate Profibus terminals by clearing compilation errors. The fix to these modules will be released in the upcoming version of individual libraries. This application note provides a temporary workaround.

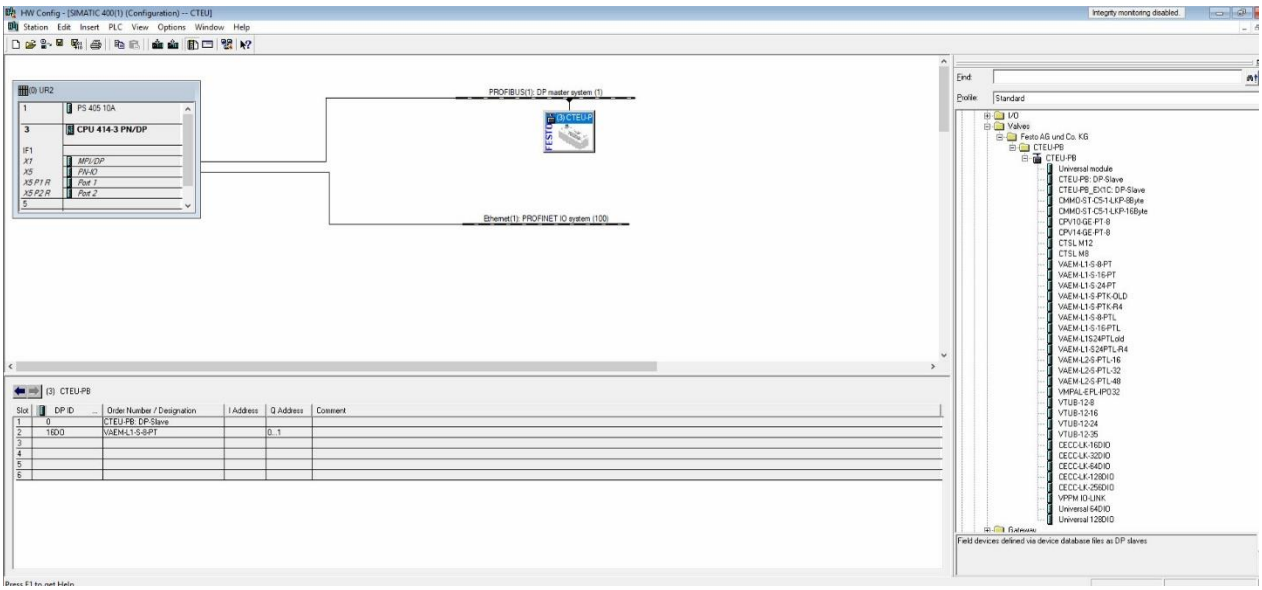
2 CTEU-PB/ CTEU-PB-EX1C

2.1 Topology



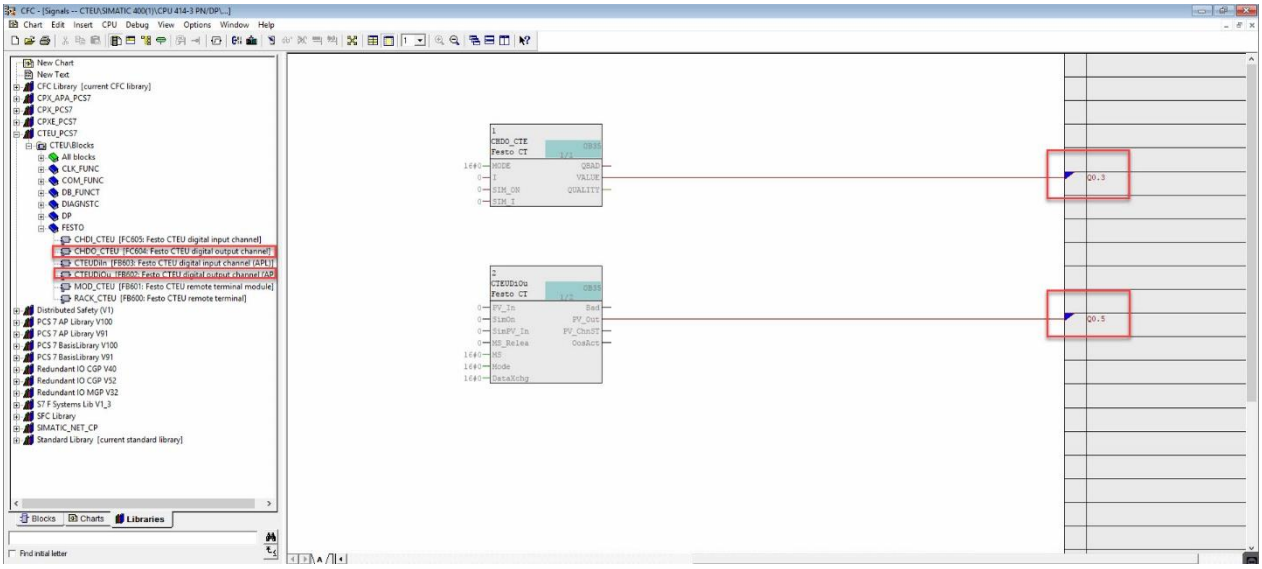
2.2 Hardware Configuration

For this example, we are considering a CTEU-PB connected and a 16 DO (VAEM-L1-S-8-PT) as shown below.

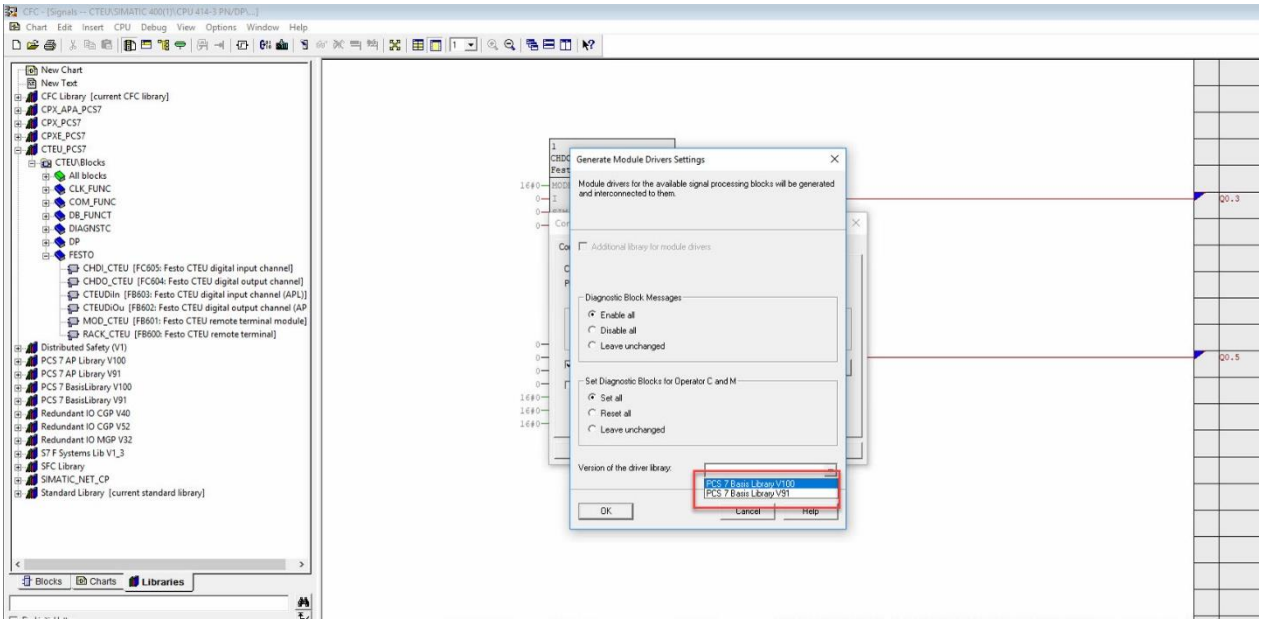


2.3 Software Compilation

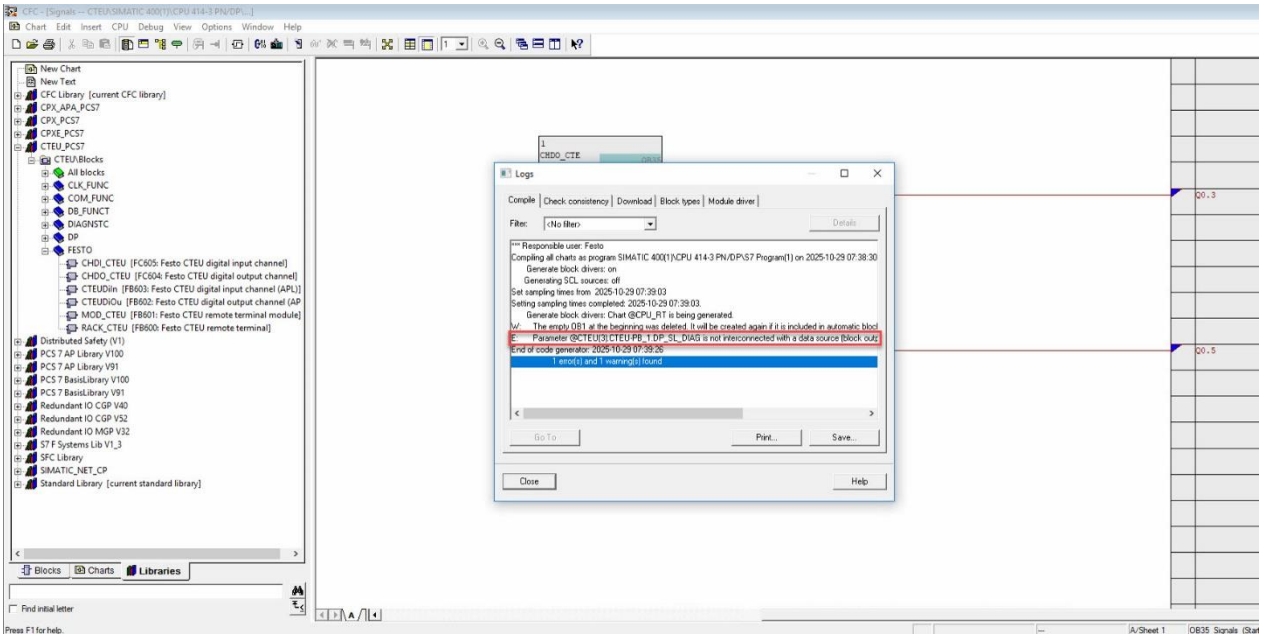
Add channel function blocks from the library and assign output addresses to the correct parameters as shown:



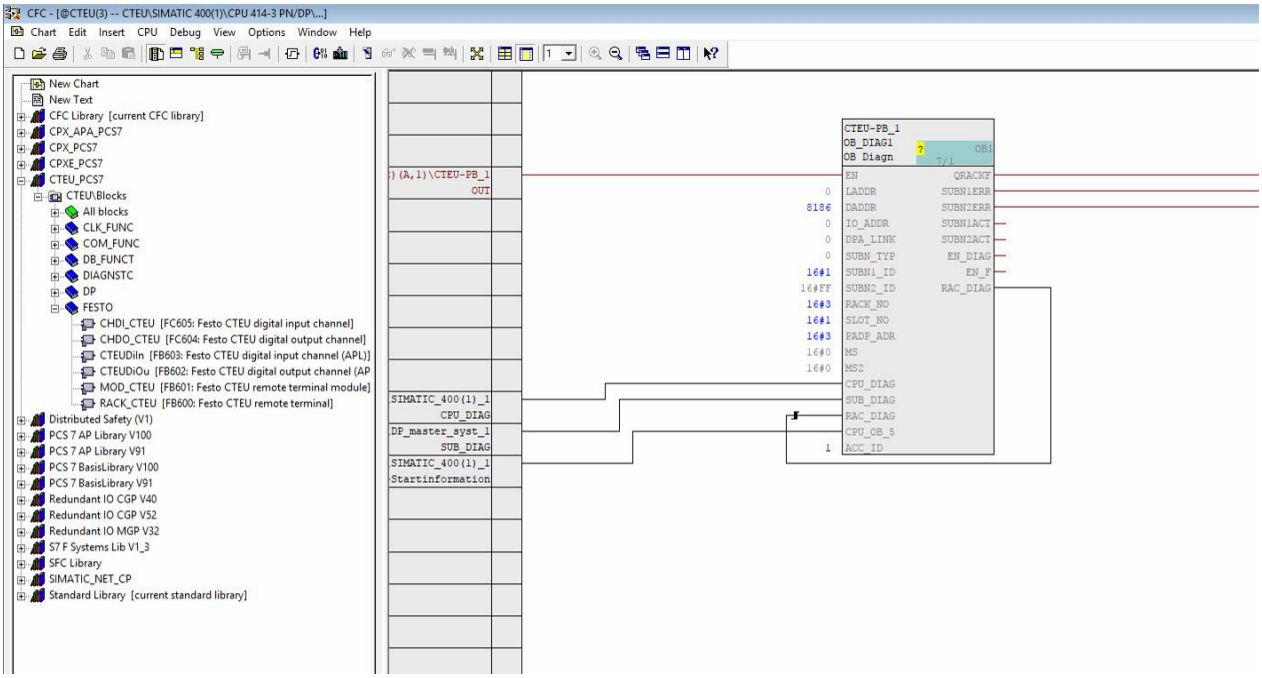
1. Start compilation
2. Set Diagnostic messages as Enable all.
3. Set Diagnostic Blocks for Operator C and M as Set all.
4. Select the PCS7BasisLibraryV100.
5. Select OK.



After compilation, the message below is displayed with an error:

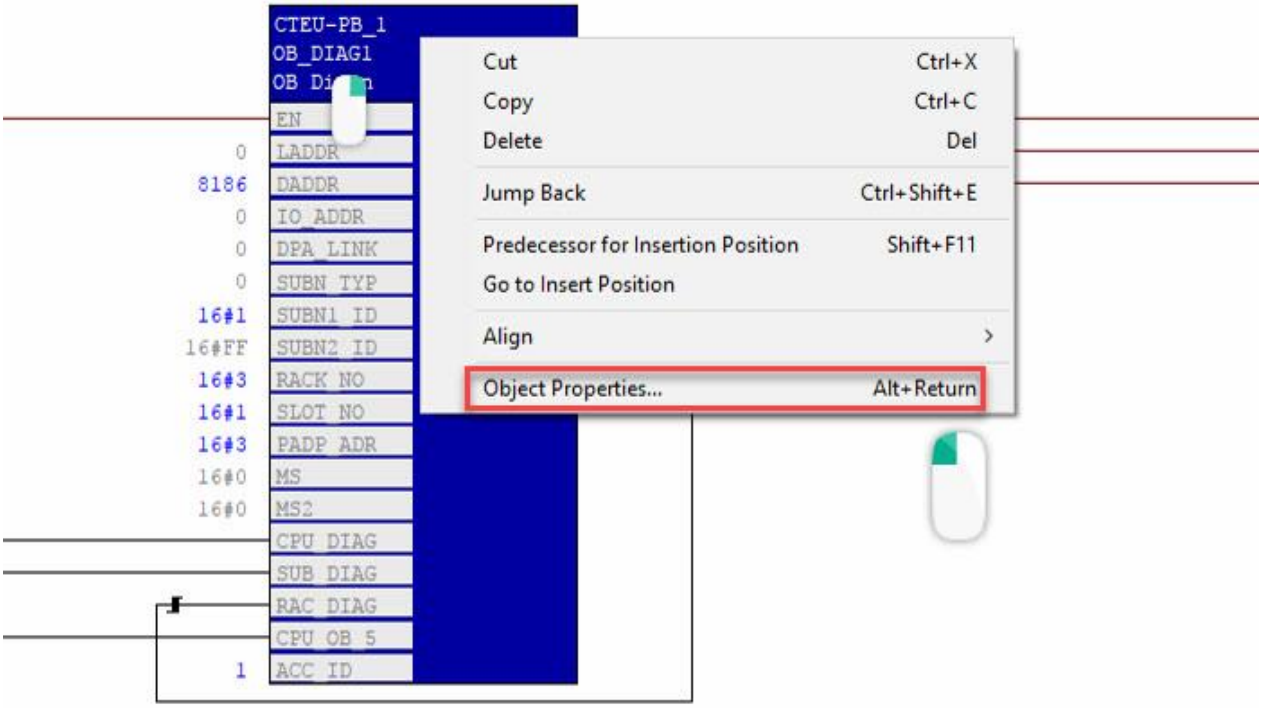


We can see that the source of the error is DP_SL_DIAG from OB_DIAG1 block is not connected with source signal.

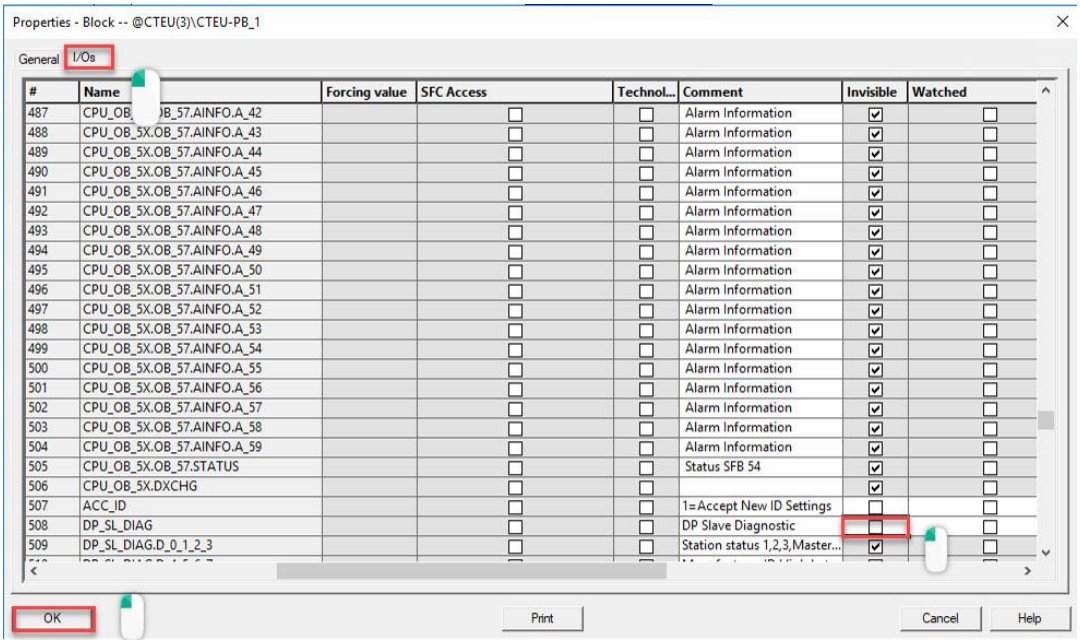


We can also see that the parameter DP_SL_DIAG is not even visible in CFC. The fix is to make DP_SL_DIAG visible and the error cleared follow the steps below:

1. Right click on function block OB_DIAG1
2. Select Object Properties.

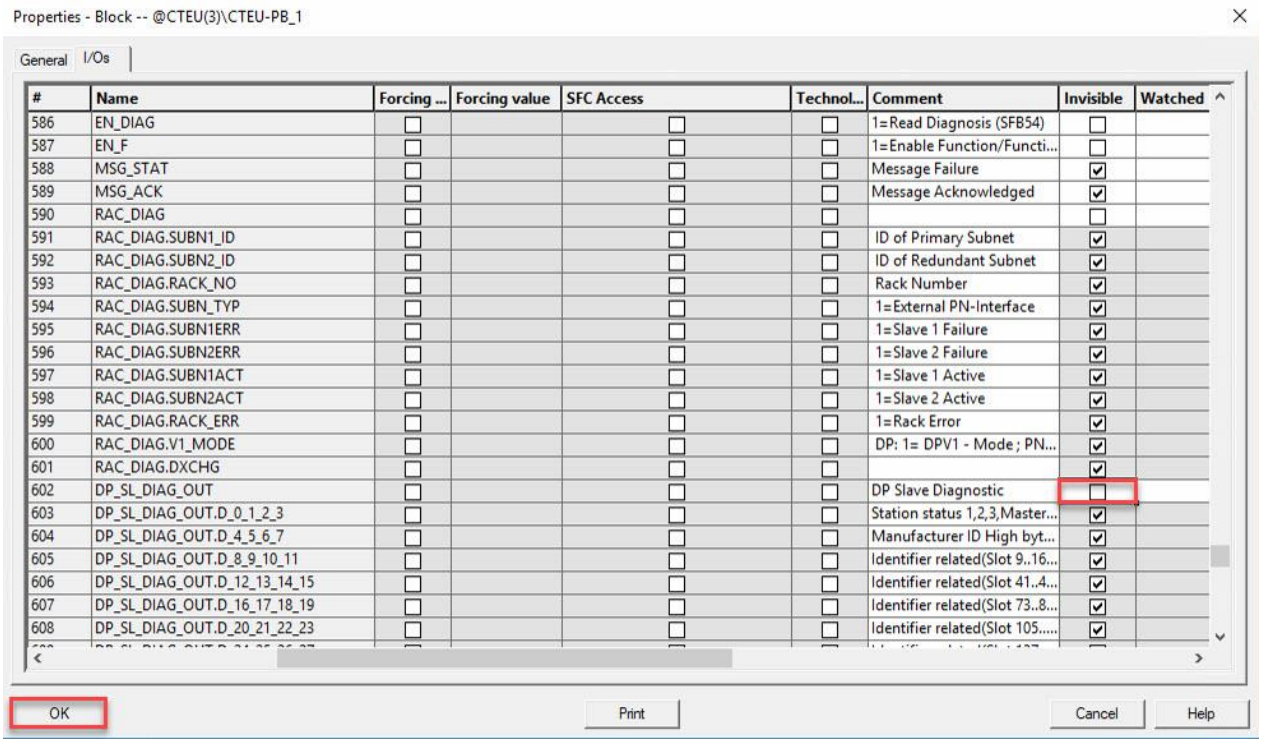


3. Left click on I/Os.
4. Scroll down till we see DP_SL_DIAG.
5. Scroll to Invisible tab and uncheck.
6. Left click on OK.



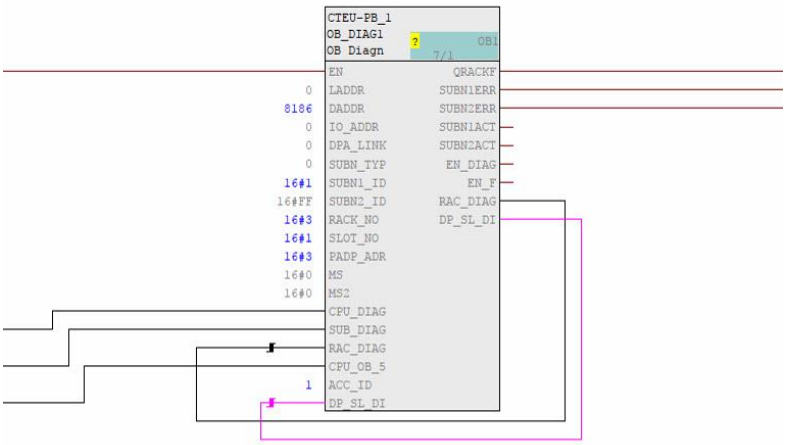
Now the same steps are to be followed for DP_SL_DIAG_OUT to become visible.

1. Right click on function block OB_DIAG1
2. Select Object Properties.
3. Left click on I/Os.
4. Scroll down till we see DP_SL_DIAG_OUT.
5. Scroll to Invisible tab and uncheck.
6. Left click on OK.

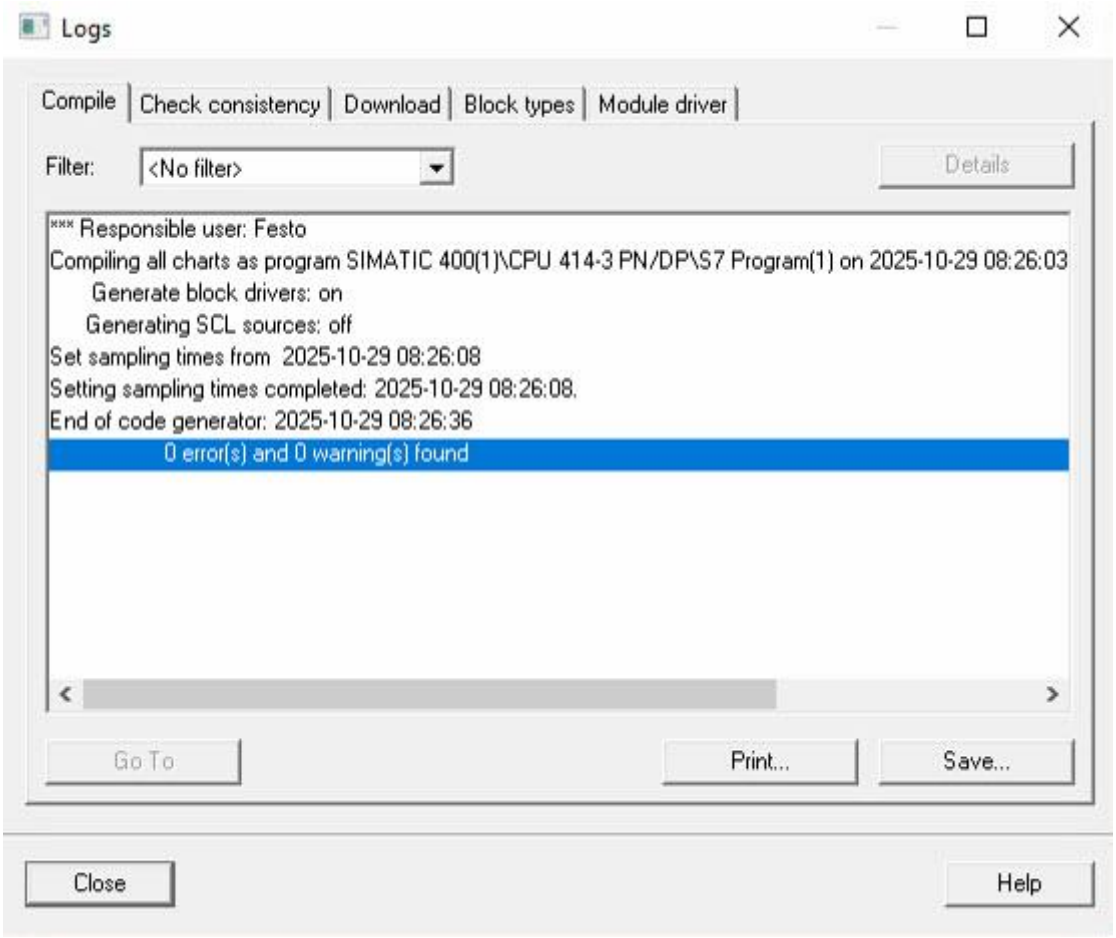


#	Name	Forcing ...	Forcing value	SFC Access	Technol...	Comment	Invisible	Watched
586	EN_DIAG	☐		☐	☐	1=Read Diagnosis (SFB54)	☐	
587	EN_F	☐		☐	☐	1=Enable Function/Functi...	☐	
588	MSG_STAT	☐		☐	☐	Message Failure	☑	
589	MSG_ACK	☐		☐	☐	Message Acknowledged	☑	
590	RAC_DIAG	☐		☐	☐		☐	
591	RAC_DIAG.SUBN1_ID	☐		☐	☐	ID of Primary Subnet	☑	
592	RAC_DIAG.SUBN2_ID	☐		☐	☐	ID of Redundant Subnet	☑	
593	RAC_DIAG.RACK_NO	☐		☐	☐	Rack Number	☑	
594	RAC_DIAG.SUBN_TYP	☐		☐	☐	1=External PN-Interface	☑	
595	RAC_DIAG.SUBN1ERR	☐		☐	☐	1=Slave 1 Failure	☑	
596	RAC_DIAG.SUBN2ERR	☐		☐	☐	1=Slave 2 Failure	☑	
597	RAC_DIAG.SUBN1ACT	☐		☐	☐	1=Slave 1 Active	☑	
598	RAC_DIAG.SUBN2ACT	☐		☐	☐	1=Slave 2 Active	☑	
599	RAC_DIAG.RACK_ERR	☐		☐	☐	1=Rack Error	☑	
600	RAC_DIAG.V1_MODE	☐		☐	☐	DP: 1= DPV1 - Mode ; PN...	☑	
601	RAC_DIAG.DXCHG	☐		☐	☐		☑	
602	DP_SL_DIAG_OUT	☐		☐	☐	DP Slave Diagnostic	☐	
603	DP_SL_DIAG_OUT.D_0_1_2_3	☐		☐	☐	Station status 1,2,3,Master...	☑	
604	DP_SL_DIAG_OUT.D_4_5_6_7	☐		☐	☐	Manufacturer ID High byt...	☑	
605	DP_SL_DIAG_OUT.D_8_9_10_11	☐		☐	☐	Identifier related(Slot 9..16...	☑	
606	DP_SL_DIAG_OUT.D_12_13_14_15	☐		☐	☐	Identifier related(Slot 41..4...	☑	
607	DP_SL_DIAG_OUT.D_16_17_18_19	☐		☐	☐	Identifier related(Slot 73..8...	☑	
608	DP_SL_DIAG_OUT.D_20_21_22_23	☐		☐	☐	Identifier related(Slot 105.....	☑	

After this step DP_SL_DIAG and DP_SL_DIAG_OUT should become visible. The next step is to interconnect these two parameters which will resolve the compilation error.

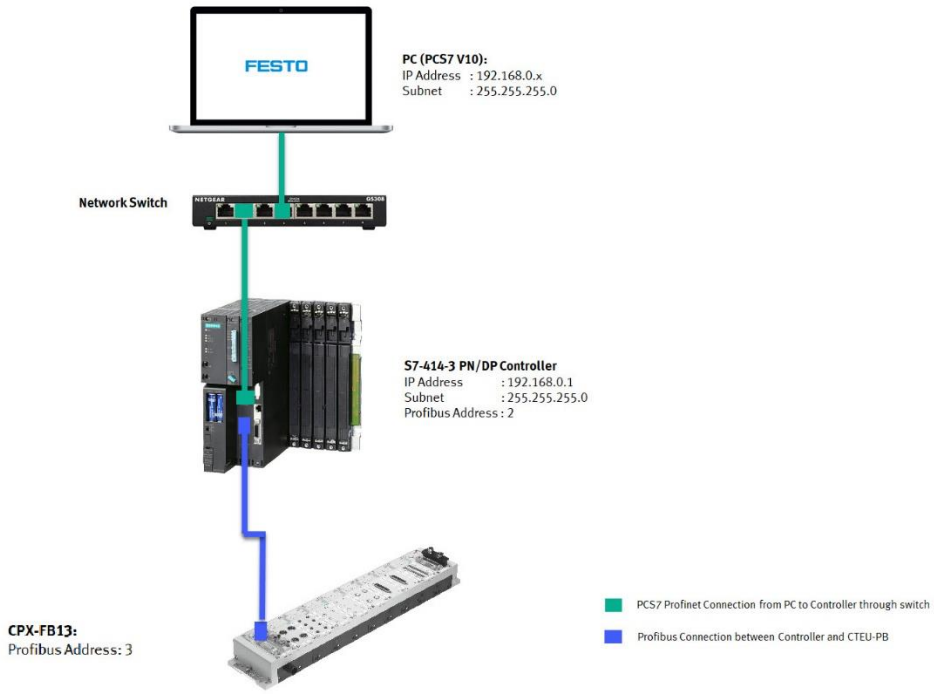


Once the connection is made like the figure shown above, start the compilation once more. After compilation we can see that the errors are resolved and download to AS is possible.



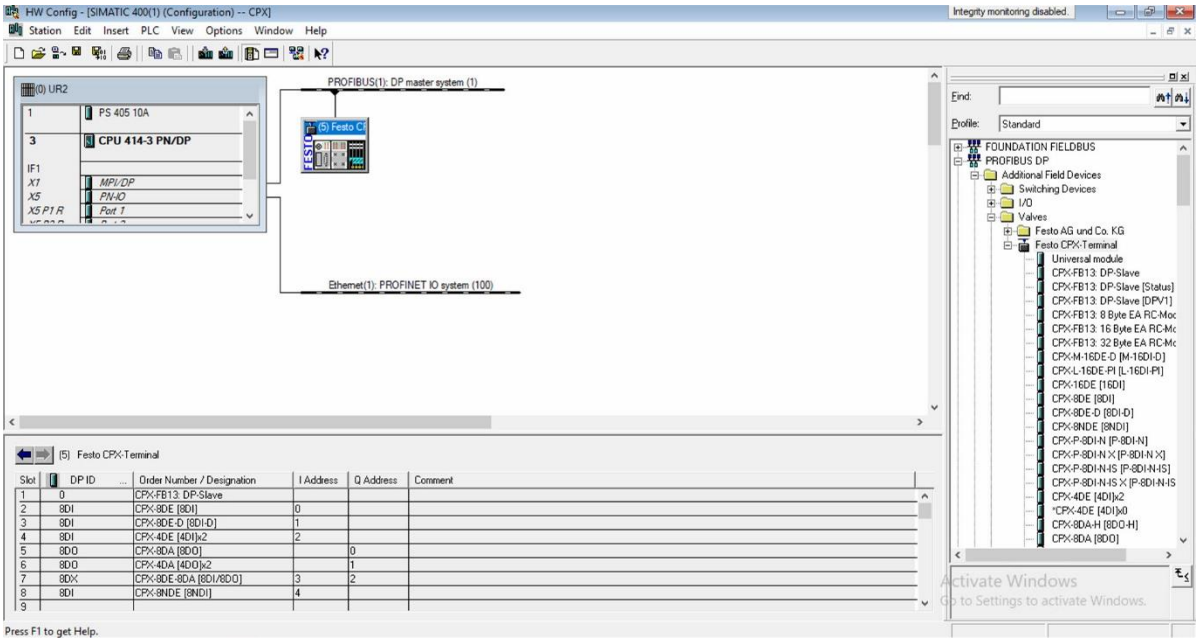
3 CPX-FB13

3.1 Topology



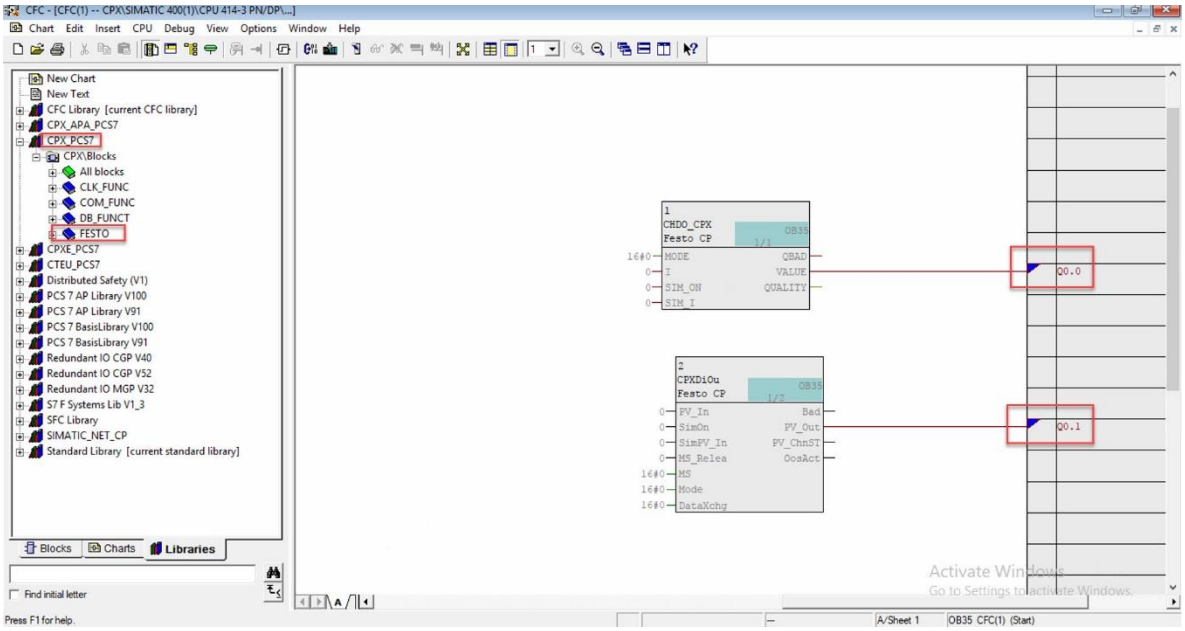
3.2 Hardware Configuration

For this example, we are considering a CPX-FB13 connected as shown below.

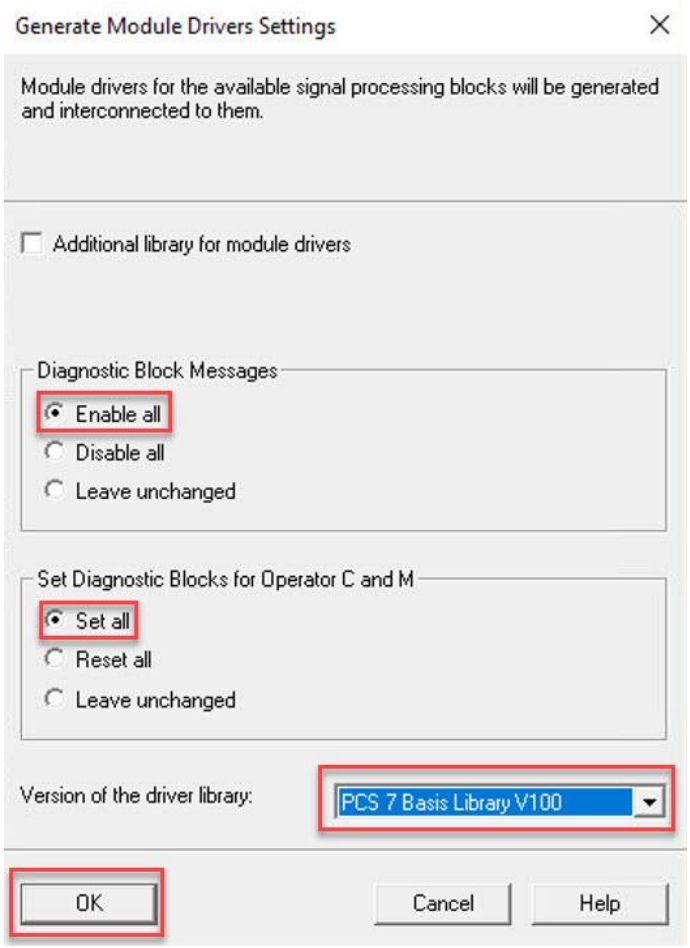


3.3 Software Compilation

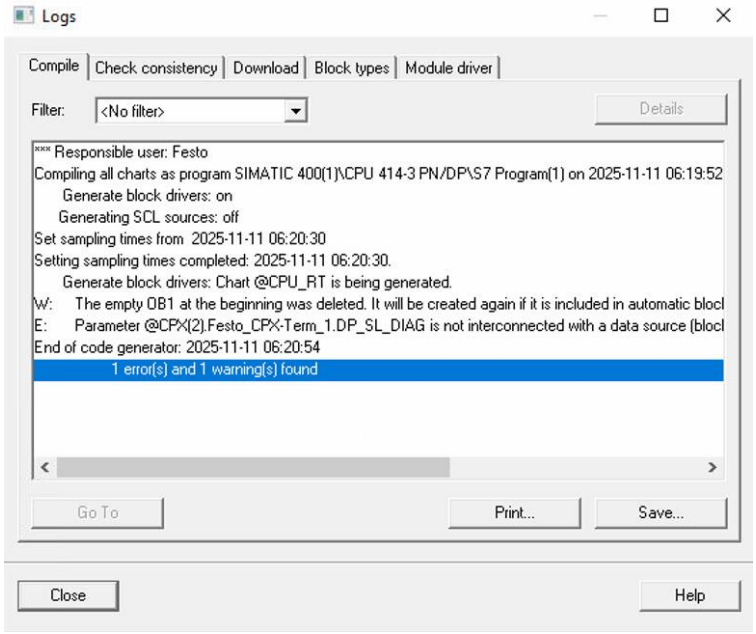
Add channel function blocks from the library and assign output addresses to the correct parameters as shown:



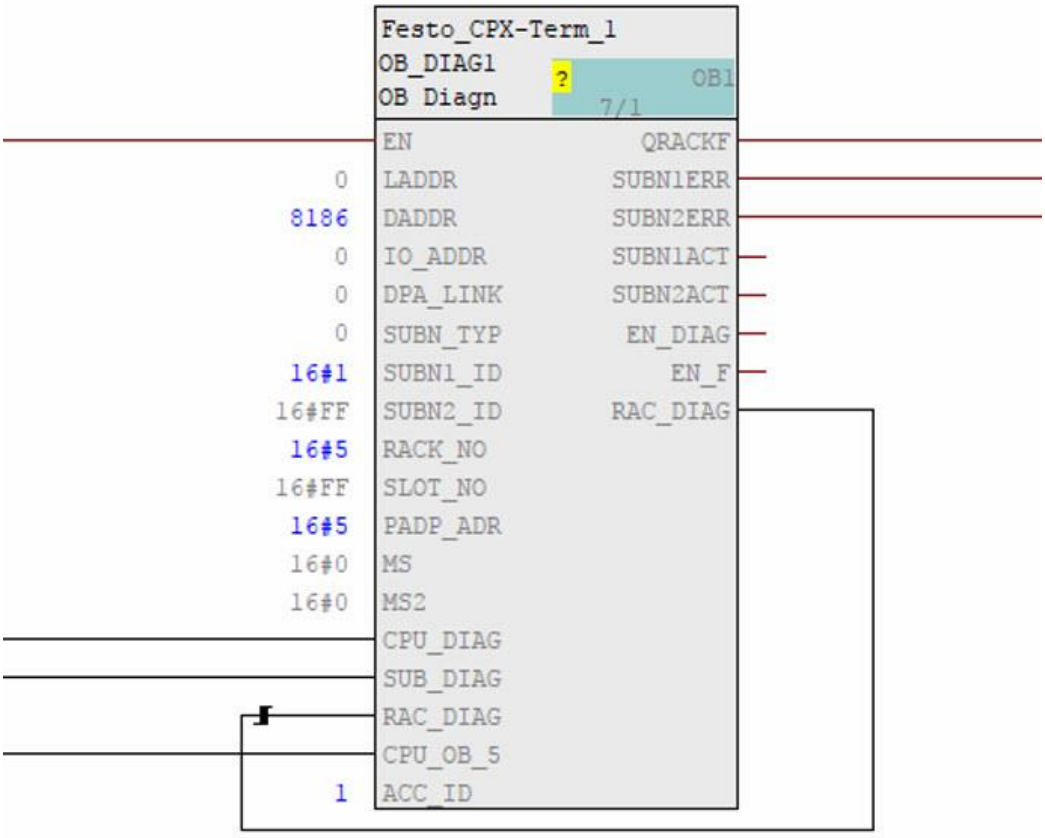
1. Start compilation
2. Set Diagnostic messages as Enable all.
3. Set Diagnostic Blocks for Operator C and M as Set all.
4. Select the PCS7BasisLibraryV100.
5. Select OK.



6. After compilation, the message below is displayed with an error:

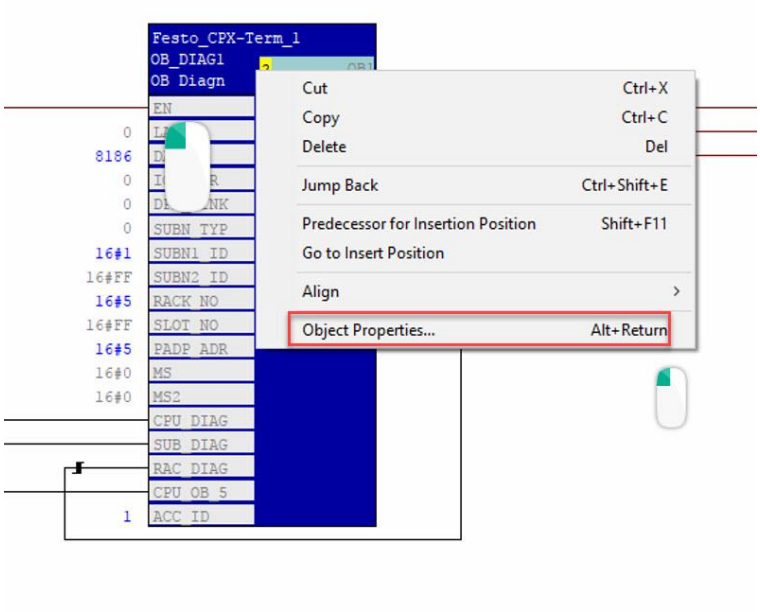


We can see that the source of the error is DP_SL_DIAG from OB_DIAG1 block is not connected with source signal.

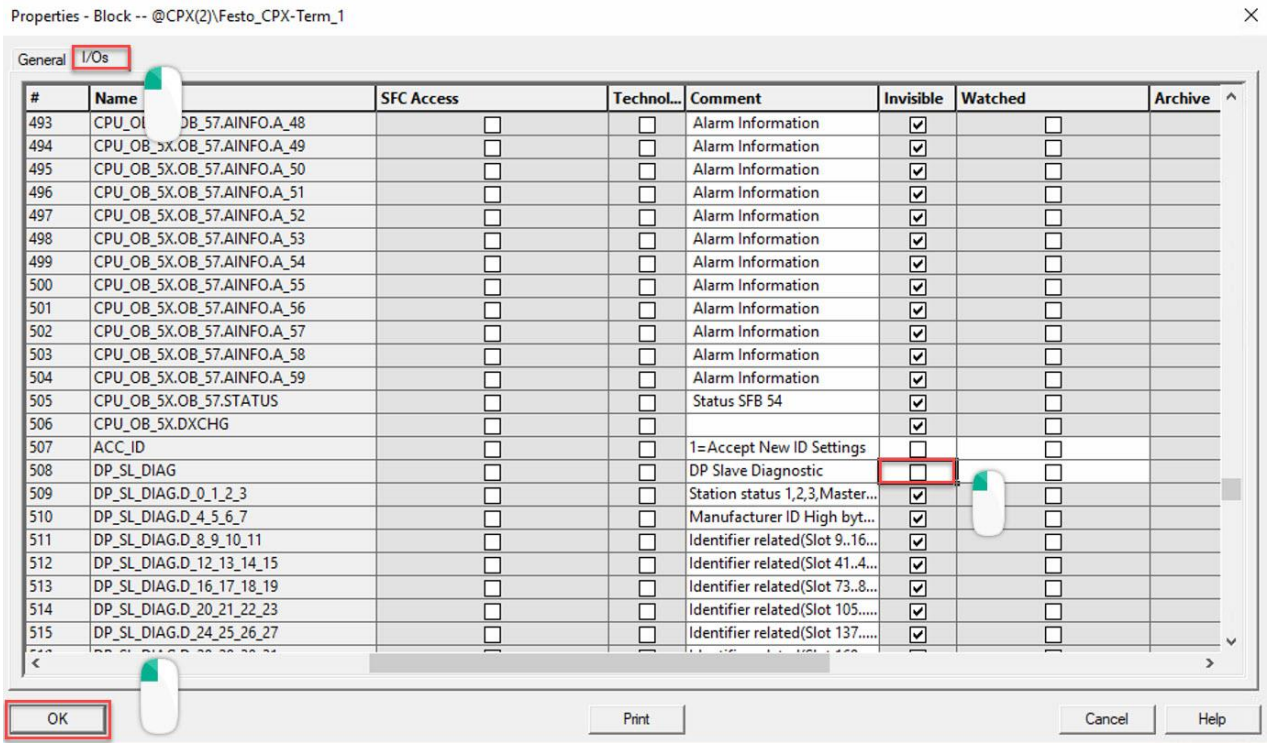


We can also see that the parameter DP_SL_DIAG is not even visible in CFC. The fix is to make DP_SL_DIAG visible and the error cleared follow the steps below:

1. Right click on function block OB_DIAG1
2. Select Object Properties.



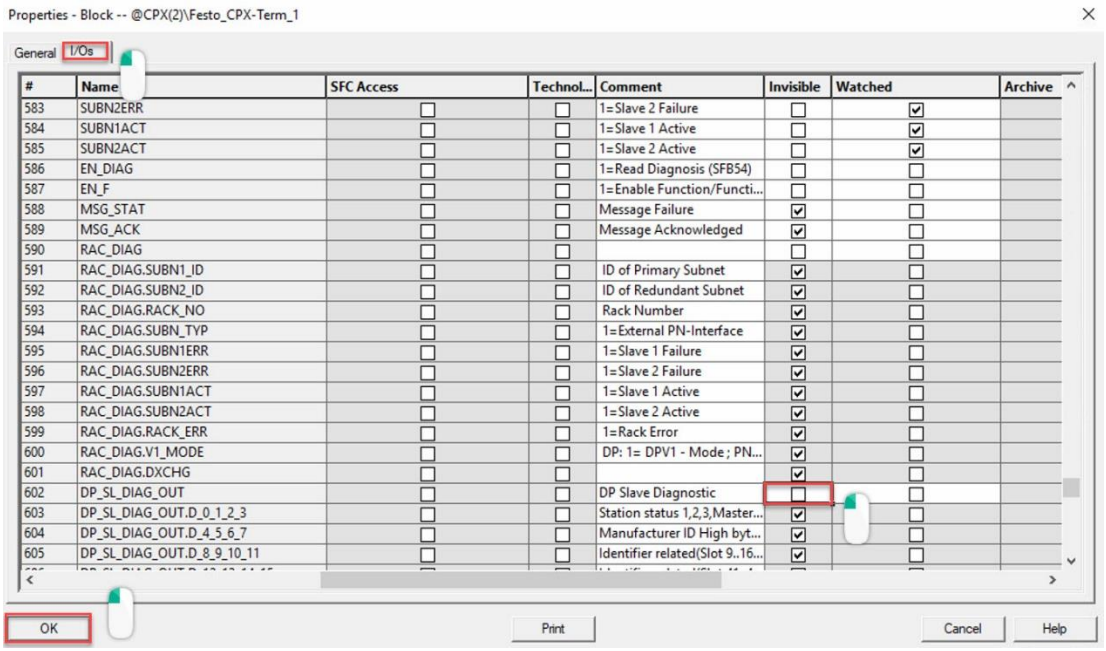
3. Left click on I/Os.
4. Scroll down till we see DP_SL_DIAG.
5. Scroll to Invisible tab and uncheck.
6. Left click on OK.



#	Name	SFC Access	Technol...	Comment	Invisible	Watched	Archive
493	CPU_OB_5X.OB_57.AINFO.A_48	☐	☐	Alarm Information	☑	☐	
494	CPU_OB_5X.OB_57.AINFO.A_49	☐	☐	Alarm Information	☑	☐	
495	CPU_OB_5X.OB_57.AINFO.A_50	☐	☐	Alarm Information	☑	☐	
496	CPU_OB_5X.OB_57.AINFO.A_51	☐	☐	Alarm Information	☑	☐	
497	CPU_OB_5X.OB_57.AINFO.A_52	☐	☐	Alarm Information	☑	☐	
498	CPU_OB_5X.OB_57.AINFO.A_53	☐	☐	Alarm Information	☑	☐	
499	CPU_OB_5X.OB_57.AINFO.A_54	☐	☐	Alarm Information	☑	☐	
500	CPU_OB_5X.OB_57.AINFO.A_55	☐	☐	Alarm Information	☑	☐	
501	CPU_OB_5X.OB_57.AINFO.A_56	☐	☐	Alarm Information	☑	☐	
502	CPU_OB_5X.OB_57.AINFO.A_57	☐	☐	Alarm Information	☑	☐	
503	CPU_OB_5X.OB_57.AINFO.A_58	☐	☐	Alarm Information	☑	☐	
504	CPU_OB_5X.OB_57.AINFO.A_59	☐	☐	Alarm Information	☑	☐	
505	CPU_OB_5X.OB_57.STATUS	☐	☐	Status SFB 54	☑	☐	
506	CPU_OB_5X.DXCHG	☐	☐		☑	☐	
507	ACC_ID	☐	☐	1=Accept New ID Settings	☐	☐	
508	DP_SL_DIAG	☐	☐	DP Slave Diagnostic	☐	☐	
509	DP_SL_DIAG.D_0_1_2_3	☐	☐	Station status 1,2,3,Master...	☑	☐	
510	DP_SL_DIAG.D_4_5_6_7	☐	☐	Manufacturer ID High byt...	☑	☐	
511	DP_SL_DIAG.D_8_9_10_11	☐	☐	Identifier related(Slot 9..16...	☑	☐	
512	DP_SL_DIAG.D_12_13_14_15	☐	☐	Identifier related(Slot 41..4...	☑	☐	
513	DP_SL_DIAG.D_16_17_18_19	☐	☐	Identifier related(Slot 73..8...	☑	☐	
514	DP_SL_DIAG.D_20_21_22_23	☐	☐	Identifier related(Slot 105.....	☑	☐	
515	DP_SL_DIAG.D_24_25_26_27	☐	☐	Identifier related(Slot 137.....	☑	☐	

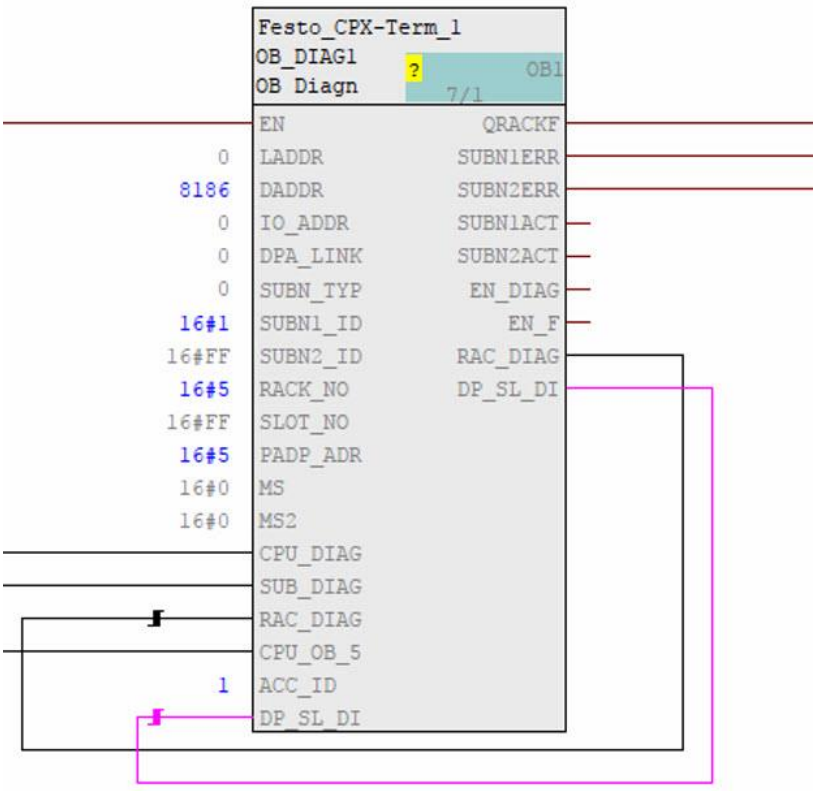
Same steps are to be followed for DP_SL_DIAG_OUT to become visible.

1. Right click on function block OB_DIAG1
2. Select Object Properties.
3. Left click on I/Os.
4. Scroll down till we see DP_SL_DIAG_OUT.
5. Scroll to Invisible tab and uncheck.
6. Left click on OK.



#	Name	SFC Access	Technol...	Comment	Invisible	Watched	Archive
583	SUBN2ERR	☐	☐	1=Slave 2 Failure	☐	☑	
584	SUBN1ACT	☐	☐	1=Slave 1 Active	☐	☑	
585	SUBN2ACT	☐	☐	1=Slave 2 Active	☐	☑	
586	EN_DIAG	☐	☐	1=Read Diagnosis (SFB54)	☐	☐	
587	EN_F	☐	☐	1=Enable Function/Functi...	☐	☐	
588	MSG_STAT	☐	☐	Message Failure	☑	☐	
589	MSG_ACK	☐	☐	Message Acknowledged	☑	☐	
590	RAC_DIAG	☐	☐		☐	☐	
591	RAC_DIAG.SUBN1_ID	☐	☐	ID of Primary Subnet	☑	☐	
592	RAC_DIAG.SUBN2_ID	☐	☐	ID of Redundant Subnet	☑	☐	
593	RAC_DIAG.RACK_NO	☐	☐	Rack Number	☑	☐	
594	RAC_DIAG.SUBN_TYP	☐	☐	1=External PN-Interface	☑	☐	
595	RAC_DIAG.SUBN1ERR	☐	☐	1=Slave 1 Failure	☑	☐	
596	RAC_DIAG.SUBN2ERR	☐	☐	1=Slave 2 Failure	☑	☐	
597	RAC_DIAG.SUBN1ACT	☐	☐	1=Slave 1 Active	☑	☐	
598	RAC_DIAG.SUBN2ACT	☐	☐	1=Slave 2 Active	☑	☐	
599	RAC_DIAG.RACK_ERR	☐	☐	1=Rack Error	☑	☐	
600	RAC_DIAG.V1_MODE	☐	☐	DP: 1= DPV1 - Mode ; PN...	☑	☐	
601	RAC_DIAG.DXCHG	☐	☐		☑	☐	
602	DP_SL_DIAG_OUT	☐	☐	DP Slave Diagnostic	☐	☐	
603	DP_SL_DIAG_OUT.D_0_1_2_3	☐	☐	Station status 1,2,3,Master...	☑	☐	
604	DP_SL_DIAG_OUT.D_4_5_6_7	☐	☐	Manufacturer ID High byt...	☑	☐	
605	DP_SL_DIAG_OUT.D_8_9_10_11	☐	☐	Identifier related(Slot 9..16...	☑	☐	

After this step DP_SL_DIAG and DP_SL_DIAG_OUT should become visible. The next step is to interconnect these two parameters which will resolve the compilation error.



Once the connection is made like the figure shown above, start the compilation once more. After compilation we can see that the errors are resolved and download to AS is possible.