

Connecting UniOP to Simatic S5

This Technical Note contains the information needed to connect UniOP to the Simatic S5 PLC using different version of hardware and software of HMI.

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1 Introduction

This technical note contains the information required to create a Designer project for connecting UniOP to Simatic S5 controllers, and how to convert existing application running on older hardware when the unit replacement require some project changes.

1.1 Creating a New Designer project

Figure 1 below shows the “Controller Setup...” dialog box for the Simatic S5 communication driver. To Connect UniOP to Simatic S5 PLC you have to use driver "Simatic S5" (D32UPLC002.DLL) like shown in the example.

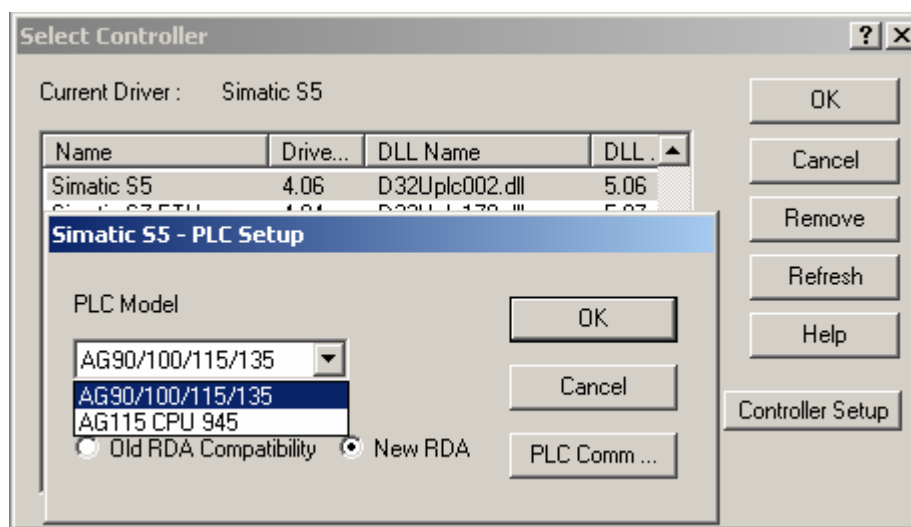


Figure 1

Controller setup allows to select the CPU type according with the controller model.

Note: *the CPU types AG115 CPU 941, 942,943 and 944 are supported under the first available option (AG90/100/115/135); note that AG115 CPU 945 requires instead proper handling and there is appropriate option to be selected in the list of available controllers.*

Figure 2 below shows default setting for communication parameters.

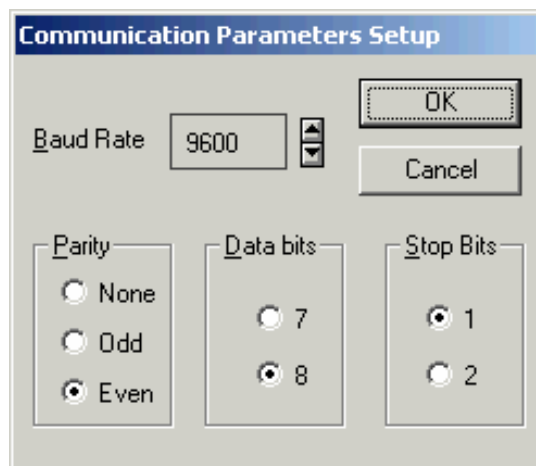


Figure 2

Communication parameters are fixed on the controller's CPU and no changes are required from the default settings.

Communication cable from UniOP PLC port and controller's communication port is CA97.

Note: CA97 is compatible with hardware type -0042 and later; older hardware may need different communication cables; see later for additional details

Note: Simatic controllers use a Current Loop connection that does not support multi-drop.

Claudio, aggiungiamo qualche nota su questioni elettriche relative al current loop?

1.2 UniOP hardware revisions

All UniOP products distributed by Siemens Italy are identified with a special product code (the Part Number); the identifier starts always with the prefix "6ZA" and it has the following format "6ZAxxx-y" where x and y are numbers; the suffix "y" can be not present. This code can be used to clearly identify the hardware version of the UniOP panel and the related procedure to follow for software conversion and hardware adaptation.

The next chapters contain the procedure description for all the available hardware revisions.

1.2.1 Hardware revision 6Zaxxx (or -0020)

The first generation of UniOP panels (part number for instance like "6ZA983") were designed with communication protocol integrated and part of the firmware. The driver "Simatic S5 - Old", corresponding to UPLC1.DLL, is the one required by these UniOP units.

Note: Communication with Designer requires to set the speed at 9600 baud and to use CA2 communication cable; starting from Designer 5.01 it is also required to previously set the Simatic S5 Old communication driver in the currently opened project before attempting to connect to the panel

A project made to run on this UniOP revision requires to be converted for installation on units with hardware revision -0042 or later. Refer to chapter "Converting a 'Simatic S5 - Old' project to 'Simatic S5'" for the project conversion procedure.

Note: *this hardware revision requires the CA5 communication cable for connection with the Simatic controller.*

1.2.2 Hardware revision 6ZAxxx-2 (or -0040)

This UniOP panels (having for instance code type 6ZA983-2) work with the downloadable protocol from Programming software. The version of this protocol is called "Simatic S5" and it corresponds to the Designer file Uplc002.dll.

Note: *Communication with Designer requires to set the speed at 9600 baud and to use CA2 communication cable; starting from Designer 5.01 it is also required to previously set the Simatic S5 Old communication driver in the currently opened project before attempting to connect to the panel*

A project made to run on this UniOP hardware revision does not require any conversion for use with the latest hardware types.

Note: *this hardware revision requires the CA5 communication cable for connection with the Simatic controller.*

1.2.3 Hardware revision 6Zaxxx-3 and 6Zaxxx-7 (or -0042, -0044, -0045)

The more recent panel series (having for instance code type 6ZA983-3 or 6ZA983-7) respect the criterion explained in the previous point. Communication with Designer software does not require special settings. Both CA2 and CA114 communication cables can be used.

A project made to run on this UniOP hardware revision does not require any conversion for use with the latest hardware types.

Note: *this hardware revision requires CA97 communication cable for connection to the Simatic controllers*

2 Converting a 'Simatic S5 - Old' project to 'Simatic S5'

This chapter contains all the information required to convert an old application for use with the recent UniOP hardware revisions.

Project conversion can be done with any Designer version until 6.05. Designer 6.06 and later does not support any more the reading of projects made using Simatic S5 – old driver (Uplc001).

Please, check in your Designer 6.xx version to have the properly driver for PLC S5 called **“Simatic S5 FW Ver. 4.06 / Dll Ver. 5.06 (D32Uplc002.dll)”**

Note: *Some of the current UniOP models do not support connection to Simatic controllers because they do not have the Current Loop interface. They are: ePAD03, ePAD04, ePAD05, ePAD06, eTOP02 and eTOP03.*

Old existing projects made for “Simatic S5 – Old” (Uplc001) can be converted for use with “Simatic S5” (Uplc002) following the steps below:

- Open the Designer project
- Select “Project\RDA setup” to take note of the existing RDA configuration; RDA will need to be re-configured manually.
- Open the menu ”Project\Change controller driver” (the Driver “Simatic S5 – old” is set)
- Select the driver “Simatic S5”
- The project is now converted and can be saved as a new file. If required, the RDA compatibility flag has to be set in “Project\Controller Setup”

2.1.1 Format of the Reserved Data Block

The most recent versions of the Simatic S5 communication driver, introduces a different RDA handling in compare with the “Simatic S5 – old” driver. As described in the User Manual, the keys area is working with inverted bytes order. To make the converted project fully compatible with the old RDA handling, the option “Old RDA Compatibility” must be set in “Project\Controller Setup”.

Note: *For all the cases where it is required to replace the old CA5 communication with the newer CA97 but it is not easy or possible to remove the installed wiring we suggest to use a simple adapter CA89 between the existing CA5 and the UniOP PLC port.*

2.1.2 Alarms

Old Designer project that works with driver “Simatic S5 – Old” that uses Alarms features can present this dialog during conversion:

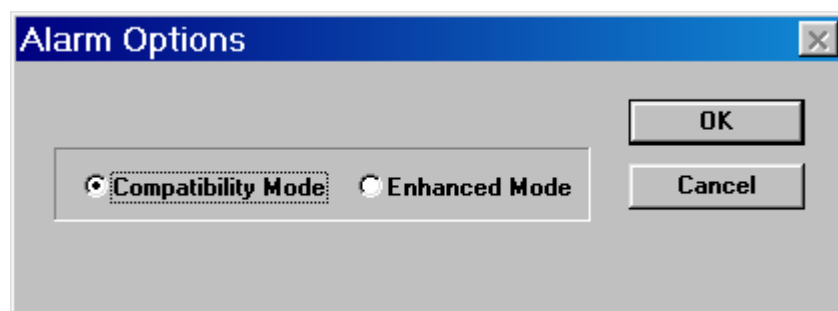


Figure 3

It is important to evidence that old hardware unit 6ZAxX (-0020) work with maximum 256 alarms Called Compatibility Mode. Instead with next hardware 6Zaxx-2 (-0040) and software (driver “Simatic S5”) generation it was implemented maximum 1024 alarms called Enhanced Mode.

3 Uploading and converting a 'Simatic S5 - Old' project from OLD

This chapter contains all the information required to upload an application from old UniOP panel with hardware revisions 6Zaxxx (or -0020) and converting for a new.

Project uploading can be done with any Designer version until 5.08.10

Procedure can be resume following the steps below:

- Connect the panel to PC with programming cable CA2
- Turn Power on the UniOP and put it in CONFIGURATION MODE
- By Designer software program pre-set the driver name called “Simatic S5 – Old”
- Check and set the program baudrate at 9600,N,8,1 and the properly COM port used
- Launch the command “Upload” from Designer
- After Designer finished this operation save this project on disk
- Select “Project\RDA setup” to take note of the existing RDA configuration; RDA will need to be re-configured manually.
- Open the menu ”Project\Change controller driver” (the Driver “Simatic S5 – old” is set)
- Select the driver “Simatic S5”
- The project is now converted and can be saved as a new file. If required, the RDA compatibility flag has to be set in “Project\Controller Setup”

- If you need to download this application in a NEW panel (hardware 6Zaxxx-7 or -0045) you have to use any Designer version 6.xx with PLC driver version “**Simatic S5 FW Ver. 4.06 / Dll Ver. 5.06 (D32Uplc002.dll)**”

Appendix A. Communication Error Codes

Current communication status is displayed in the System Menu of the UniOP.

A message and a numeric error code describe the error status.

The message reports the current communication status. The number shows the code of the current communication error or, if the communication is correct, the code of the last error encountered. When the error code 0 is shown, it means there have been no communication errors since this system start-up.

Code	Description	Notes
00	No error	There are no communication errors and there have been no errors since start-up.
04	Negative ACK	NAK returned by the controller
05	Time out (receiving)	No response received from the controller within the timeout period (wrong communication parameter, cable, port, hardware, etc.).
06	Response error	Error reported in the response frame by the controller.
07	General communication error	General un-known communication error. Please contact technical support.
11	Line error	Communication parameters not matching with controller's settings
12	Ill formed response	Requested resource may not be present in the controller's memory; check data block and memory boundaries.

Appendix B. Designer Compatibility

Designer Version 5.07 is a 16 bit software that can run with follow operating system:

- Windows 95 ©
- Windows 98 ©

Designer Version 5.08 is a 16 bit software that can run with follow operating system:

- Windows 95 ©
- Windows 98 ©
- Windows 2000 ©
- Windows Me ©

Designer Version 6.0x is a 32 bit software that can run with follow operating system:

- Windows 98 ©, Second Edition Only
- Windows 2000 ©
- Windows Me ©
- Windows XP ©
- Windows Vista ©