

Application of SmartWire-DT®

How to use SmartWire-DT on PROFIBUS® DP using a Siemens® S7-300 PLC

Application

This application note will describe how to initialize a Siemens S7-300 PLC to communicate to a SmartWire-DT system using the EU5C-SWD-DP SmartWire-DT PROFIBUS DP gateway. This will detail the steps needed to set up the PLC using Simatic® S7 PLC programming software.

Beginning a New Project

Do not use the Wizard tool for this but follow the instructions below instead. Give project a name and click **Insert->Station-> SIMATIC 300 Station**. Highlight the name of the project, and double-click on the PLC under the tree.



Click on "Hardware" to bring up the hardware configuration Manager.

Setting up New Hardware Configuration

In Hardware Configuration Window, make sure you can view the catalog with **View->Catalog**.

In the catalog, select **SIMATIC 300->RACK-300** and drag the Rail element onto the configuration window. With Rail in place, select PLC by clicking through **SIMATIC-300-> CPU-300->CPU315-2-PN/DP->6ES7 315-2EH13-0AB0->V2.6**

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Double click on V2.6 to add. This will bring up the box below. For this example, please note that IP address of the sample PLC used is 192.168.0.1.

Properties - Ethernet interface PN-10 (R0/S2.2)	
General Parameters	
If a subnet is the next ava	: selected, ilable addresses are suggested.
IP address: [192.168.0.1] Gateway Gateway © Do not	use router
Subnet mask: 255.255.255.0	uter
Address	x 192.168.0.1
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	Delete
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Right click on Slot 2 X1 of the new PLC on the rail and select Object Properties.

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In Object properties, change the interface type to PROFIBUS. This will pop up a new window.

In the PROFIBUS interface window, Parameters tab, select NEW and press OK in the window that opens. Set the address in this window to designate the master address on the PROFIBUS network. Usually this is set to "1" if nothing is hooked upstream of this PLC.

Properties - PROFIBUS interface MPI/DP (R0/S2.1)		
General Parameters		
Address:		
Highest address: 126		
Transmission rate: 1.5 Mbps		
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In the Properties MPI/DP window, make sure that under the Operating Mode tab DP master is checked.

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• DP m	aster					
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	est, commis	sioning, routing				
Mast	er: 9 h F	Station Module Rack (R) / slot Receptacle for	(S) interface mo	dule		
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Addr	ess for ''slot'	' 2:				

Also, set a time interval for Synchronization under the Clock tab. Hit OK to close out of properties.

Properties - MPI/DP - (R0/S2.1) 🛛 🔀
General Addresses Operating Mo	de Configuration Clock
Synchronization type	<u>⊺</u> ime interval
As master	1 minute
	CancelHelp

Click on **Options-> Configure Network** to open network configuration. S7 will ask if you want to write this data to the PLC, click OK. It will ask about Message Number Assignment, use "Assign CPU-oriented unique message numbers"

Homer - Message Number Assignment Selection	
Settings for the current project / library If you create a new project or library, you have to select one of the following options:	
 Assign CPU-oriented unique message numbers (as of WinCC V6, ProTool V6 or STEP 7 V5.2 (t is no longer possible to convert to project-oriented or STEP 7 V5.1) 	
 Assign project-oriented unique message numbers (Previous method) 	
	Options >>
ОК	Help

Setting up Networking and Connecting to Gateway

As with Hardware, make sure you can view the Catalog with View-> Catalog. Click on the MPI/DP division of the PLC representation on the screen.

In the Catalog, select: **PROFIBUS DP-> Additional Field Devices-> SWD-Assist -> the GSD that you created in SWD-Assist**. It should bring up a window asking what address you want this to be. (See MN05013002Z for instructions on exporting GSD fields from SWD-Assist)

Select **Network-> Save and Compile** from the menu and choose "Assign CPUoriented unique message numbers" if it did not come up before.

Downloading the Program

Select **PLC->Download to Current Project->Selected Stations** and click Yes when it tells you it will overwrite the existing configuration data. The Download to Module window may pop up at this point telling you that the PLC name has been changed. This is okay, so press "Ok"



Note: If in Network Manager, this is all you need to do. The program can also be downloaded using the hardware manager. Instructions for this are on the next page.

Perform steps as before, but now it will ask the node you want to download to. Select the target module (it should be the only one of the list) and when the "Select Node Address" window comes up, press the "View" button so the IP address of the PLC comes up in the Accessible Nodes window. Highlight this and press OK.

Select Node Addr	ess			X
Over which station a PN/DP?	ddress is the programming d	evice connec	ted to the modu	le CPU 315-2
<u>B</u> ack:				
<u>S</u> lot:	2 🕂			
Target Station:	🖸 Local			
	C Can be reached by me	ans of gatewa	3h	
Enter connection to	o target station:			
IP address	MAC address N	Aodule type	Station name	Module name P
192.168.0.1	00-0E-8C-87-58-11 C	IPU 315	Bart	CPU 315-2
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If all goes well, the DC5V and Run lights on the S7-300 CPU should be green with nothing else lit. If the BF1 and SF lights are flashing, there is something wrong with the networking. Check the GSD file you loaded against the hardware and make sure the address DIP switches on the adapter are set correctly.

Supporting Documentation

Manual Name	Reference Number
SmartWire-DT Gateway Manual	MN05013002Z
SmartWire-DT System Manual	MN05006002Z
SmartWire-DT Units Manual	MN05006001Z

Additional Help

In the event additional help is needed, please contact the Technical Resource Center at 1-877-ETN-CARE or 1-877-326-2273.

All other supporting documentation is located on the Eaton web site at <u>www.eaton.com/smartwiredt</u>

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