

# **SIPROTEC /DIGSI DNP 3.0 Mapping notes**

This provides a general overview to the process of setting/modifying DNP 3.0 maps in Siemens SIPROTEC 4 series Protection Relays, using DIGSI 4.

DNP 3.0 mapping information is part of the DIGSI ".dex" file information. It is not a separate file. The map is loaded/updated as part of the relay settings.

Mapping is achieved by routing items in the I/O matrix to/from the System Interface. ("System Interface" is Siemens term for the SCADA interface).

🌐 Settings - Masking I/O (Configuration Matrix) - Powerco / Folder / Hawera 372 87L Var/7SD610																								
		Information			Source								Destination											
	Number	Display text	Long text	Туре	BI F			SC		BO LEDS SC				CM										
					1	2	3	4	5 E	7	1		1	2	3	4 5	1	2 3	4	5	6 7	В		
Close Inhibit		Reset LO	Reset Lockout	IntSP							1												Х	
		>87L On	>87L On Input	SP			Η																X	
		>87L Off	>87L Off Input	SP				H															X	
Diff On/Off		87LOn Ctl	87L On SCADA Control	IntSP								X											X	
		87LOff Ctl	87L Off SCADA Control	IntSP								X											1	
		87L Not BI	87L Not Blocked	SP								-	$(\top$										X	
SCADA Alarms												×								×	×		*	
Device												×											×××	

Note that if creating a setting file from a blank template, make sure the selected MLFB for the target relay includes a DNP protocol card, otherwise the points on the Matrix will not be able to be assigned to the DNP interface. [Right click to view the Properties on the setting file, prior to opening the file].

Powerco C:\Siemens\D	igsi4\D4PROJ\Powerco
Powerco	Hawers 372 87L Var         Properties - SIPROTEC 4 variant         General       MLFB         Communication modules       DIGSI Manager         11. System Port for substation control       additional Protocols, see MLFB Ext. L         12. DIGSI/Modem-, Remote relay interface       [see Extension M         II. System Port for substation control       return         II. System Port for substation control       Protocol         II. System Port for substation control       Protocol         II. System Port for substation control       DNP3.0, RS485         Conf       DK         Conf       OK         Conf       OK         OK       Cancel

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## To set/change mapping, use the I/O Matrix

- 1) Ensure the filter is selected to allow you to see Commands, Indications or Measured Values etc as required.
- 2) Right click and assign with "X" the desired items to be routed to the System Interface (S) In the Source Colum for items to be controlled by SCADA, and the in Destination Colum for items to be output to SCADA
- 3) Right hand click in the left had columns (Number, Display text, Long Text, Type) and select Properties to access the dialog to change the DNP index points and scaling etc

JOGSI - [Settings - Masking I/O (Configuration Matrix) - Powerco / Folder / Hawera 372 87L Var/7SD610 ]														
# File Edit Insert Device View Options Window Help														
🔚 👙 🕹 🖻 📽 🖗 🛣 🧏 🐺 Measured and metered values only 💽 No filter														
Information								9	ource	1	Destination			
	Number	Display text	w text Long text Type			BI S C				Measured value	Measured	S	C Metered value	
					1 2	2 3	4 5 6	7			value window		window	
Close Inhibit														
Diff On/Off														
SCADA Alarms														
Device														
P.System Data 1				1	. [									
Osc. Fault Rec.														
P.System Data 2														
Diff. Prot										2				
Intertrip										2				
Remote Signals														
SOTF Overcurr.											N			
Back-Up 0/C														
Measurem.Superv														
TripCirc.Superv						2								
Prot. Interface						ാ								
DiffTopo														
Testing														
Cntrl Authority														
Control Device														
Process Data														
	00601	IL1 =		LMV	<u> </u>				_			X		
	00602	IL2 =	IL2 Insert Into	ormation										
	00603	IL3 =	I L3 Delete Inf	ormation										
	00610	310 =	3IU (zero sequence) Properties			+								
Measurement	00619	1] =	11 (positive sequence)	IVI V	-	+								
	00620	12 =	12 (negative sequence)	MV										

Object properties - IL1 = - MV										
P	rotocol	info-Destination Measured value-Destination								
	Transm	ission via supplementary protocol:								
	No.	Settings	Value							
	1	Scaling index	0							
	1	Zero offset	0.0							
	1	Scaling factor	1.0							
	1	Threshold value	10.0							
	1	Туре	Primary value							
-										
	ОК	Apply Cance	el Help							

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# To print a copy of the DNP map

- 1) Close the I/O Matrix
- 2) Select File/Print, then select "Configuration Short", then "System Interface"

Print Options	×
<ul> <li>Current window</li> <li>Select</li> </ul>	
<ul> <li>All</li> <li>Device Overview</li> <li>Table of Contents</li> <li>Device Configuration</li> <li>Configuration - complete (sorted by line)</li> <li>Configuration - short (column-oriented)</li> <li>Interfaces</li> <li>Passwords</li> <li>General Device Settings</li> <li>Power System Data 1</li> <li>Oscillographic Fault Records</li> <li>Settings groups</li> <li>Time Synchronization</li> <li>Annunciation</li> </ul>	
Configuration - short (column-oriented)	
<ul> <li>Binary inputs</li> <li>Binary outputs</li> <li>LEDs</li> <li>System Interface</li> <li>CFC</li> <li>Function keys</li> <li>Buffer</li> <li>Display</li> </ul>	You may need to click above again to make this lower selection box area appear
ОК	Cancel Help

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### Notes/Warnings:

In the "Interfaces" object (below), the "Additional protocols at device" is used to set general SCADA parameters. Note that below example shows "<see module-specific settings>" which indicates that DNP map has been changed from manufacturers standard. If you change this selection back to "DNP Map Standard.....", all your DNP settings in the I/O matrix will be **lost!** 

While the below appears to be a text report file, you can actually overwrite the settings to change the SCADA baud rate and other settings.

Interface Settings	×
Serial port on PC VD Addresses Operator Interface Service interface Additional protocols at device	ce
Communications module: DNP3.0, RS485	
Mapping file: <a></a>	•
Module-specific settings:	
// 7SD5 7SD6 DNP 3.0 standard mapping 3-1 V01.01.01 //	^
// DNP Slave Address (165532): GlobalSection.Slave_Address = 1;	
// Data link address of the master device GlobalSection.MasterAddress = 100;	
// Baud Rate (9600, 19200) GlobalSection.Baud_Rate = 9600;	
// Data Bit (7, 8) GlobalSection.Data_Bit = 8;	
// Stop Bit (1, 2) GlobalSection.Stop_Bit = 1;	
S	
OK DIGSI -> Device Cancel He	p

#### For further information:

- The SIPROTEC "System Manual" provides information about the common features across the entire SIPROTEC 4 range. This is a useful reference document.
- The Product Specific manual, e.g. 7SD610 Manual, refers to the specific hardware and protection functions of the specific relay variant.
- The Communication Manual, of which there are versions for each of the different Protocols supported, and also different versions for different SIPROTEC relays, gives the specific DNP mapping/protocol information.

All three manuals contain different information about DNP mapping.

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