PENKO Engineering B.V.

Your Partner for Fully Engineered Factory Solutions



How to...

Setup the Hilscher NL 51N-DPL for the Flex controller



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Hardware setup

Connect the device to the Profibus connector of the Flex and connect 24Vdc to the NL 51N-DPL.

For the Flex 2100 you have te make an adapter for Profibus:



Sub D9 female connector



Setup the Flex

To setup the Profibus settings in the Flex, press on System settings – System Setup – Port Setup – Profibus Setup. Set the Channel to value 2 and Format to Integer. Then press OK and Home to return to the Selection menu.



Required software and files

Download and install the program for the Hilscher NL 51N-DPL from the manufacture website:

https://www.hilscher.com/products/product-groups/gateways/for-direct-mounting-plug/nl-51n-dpl/

Download the GSD file for the Flex from the Penko site:

https://penko.com/Support/Software/

The name of the GSD file for the Flex is PFLX053D.GSD.

The PLC used in this how to is a Siemens PLC, the fore Tia Portal is used.



Ethernet Device Configuration (1)

Open the installed program

Ethernet Device Setup

Click on Search Devices, the adapter is found twice. Select the line with the NetIdent protocol and click on Configure. Then click on Set IP Address.

evices Online	Find:			next	previou	s		
MAC Address	Device Type	Device Name	IP Address	Protocol	Devic	Vend	Device role	
0-02-A2-43-E3-4C	NETLINK PROXY	NL51NDPL	0.0.0.0	NetIdent	-	-	-	1
0-02-A2-43-E3-4C	NE5 INDPL	nis Indpi	0.0.0.0	DCP	0X0110	OXUITE	Device	-
							2	
						Sea	rch Devices Configure	
								Signal
								Set IP Address
								Set Device Name

Set an IP address (in your local network) and subnet mask and click on OK.

IP Configuration for	00-02-	A2	-43-	E3-	4C			×
IP Address:	192	•	168	•	151	•	91	
Subnet mask:	255	•	255	•	255	•	0	
			_					_
l	C	Ж			C	anc	el	



vices Online	Find:			next	previou	s		
IAC Address	Device Type	Device Name	IP Address	Protocol	Devic	Vend	Device role	
0-02-A2-43-E3-4C	NETLINK PROXY	NL51NDPL	192.168.151.91	NetIdent	-	-	-	
)-02-A2-43-E3-4C	NL51NDPL	nl51ndpl	0.0.0.0	DCP	0x0110	0x011E	Device	

The set IP address is now shown, you can now close the program.



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SYCON.net

Open the installed program



The default login is Administrator with no password.

SYCON.net User Logir	n	Х
Hilscher SYC	CON.net	
User Name:	Administrator	\sim
Password:		
	OK Cancel	

In the right column, search under Profinet IO – Gateway / Stand-Alone for the NL 51N-DPL device.





F SYCON.net - [Untitled.spj] × -File View Device Network Extras Help | D 📽 🖬 | Q || K K 📾 || 5: 🌚 📑 5; 5; 5; netProject ≜ × 📄 Project: Untitled P NETX 52 RE/PNS V4 A NETX 52 RE/PNS V4 NETX 52 RE/PNS V4 NETX 52 RE/PNS V4 NETX 52 RE/PNS V4 NJ 100XX-RE/PNS \
 NJ 100XX-RE/PNS \ NJ 100XX-RE/PNS \
 NJ 100XX-RE/PNS \
 NJ 100XX-RE/PNS \
 NJ 50X-RE/PNS V3.
 NJ 50X-RE/PNS V3. NJ 50X-RE/PNS V3.
 NJ 50X-RE/PNS V3.
 NJ 50X-RE/PNS V3.
 NJ 50X-RE/PNS V3. NJ 50X-RE/PNS V3.
 NJ 51X-RE/PNS V3.
 NJ 51X-RE/PNS V3.
 NJ 51X-RE/PNS V3.
 NL 51N-DPL

 NRP 51-RE/PNS V3

 NRP 51-RE/PNS V3

 NRP 51-RE/PNS V3

 NRP 52-RE/PNS V3

 NRP 52-RE/PNS V3
 Fieldbus / Vendor / DTM Cl < SYCON.net / netDevice / ۲. Ready Administrator NUM

Drag and drop the NL 51N-DPL onto the empty bus line under netDevice.

The device is now added to the bus line, double click on the device to setup the configuration.





When the dialog is opened click on netX Drive, click the tap TCP Connection. Click on the green + icon, then you can set the assigned IP Address for the NL 51N-DPL and click on Save.

FinetDevice - Proxy netLINK	([NL 51N-DPL]<>(#1)		_	
IO Device: NL 5 Vendor: Hilsd	1N-DPL her GmbH	Device ID: Vendor ID:		FDT
Navigation area	USB/RS232 Connection TCP Connection	Driver	Save	Save All
		ОК С	ancel Apply	Help



Click on Device Assignment and click on Scan, the device should now be visible in the list, check the box in front of the device and click on Apply. Click on Ok to close the dialog.

Vendor: Hils	ther Gmbł	ł				Ver	ndor ID: -			
avigation area 📃					Device A	ssignment				
Settings	Scan p	progress: 3/3 De	evices (Current device: -)						s	can
netX Driver Device Assignment	Device	e selection:	suitable only \sim						5	Clair
Configuration		Device	Hardware Ports 0/1/	Slot nu	Serial nu	Driver	Channel Protocol	A	ccess pat	h
 Jettings Driver netX Driver → Device Assignment Configuration Settings 		NL 51N-DPL	Ethernet/PROFIBUS	n/a	29026	netX Driver	Undefined Gateway		\192.16	8.1
										_
netX Driver Device Assignment Configuration Device Hardware Ports 0/1/ Solt nu Serial nu Driver Channel Protocol Device Hardware Ports 0/1/ Slot nu Serial nu Driver Channel Protocol Image: Settings Image: Seties Settings Image: Seties										
	_									
	Acces	s path:	{B54C8CC7-F333-413	5-8405-6E12	2FC88EE62}\19	92.168.151.91:501	11\cifX0_Ch2			
										_



F SYCON.net - [Untitled.spj] × -File View Device Network Extras Help 🗅 🚅 🔛 😨 📑 📥 Add Busline netProject **▲ X** netDevice .≜ X Start Project Debug Mode P 👸 netLINK[NL 💿 Stop Project Debug Mode NETX 52 RE/PN
 NI 1000X-RE/PI
 NI 1000X-RE/PI
 NI 1000X-RE/PI
 NI 1000X-RE/PN
 NI 1000X-RE/PN
 NI 50X-RE/PNS
 NI 51X-RE/PNS
 N Device Catalog... Import Device Descriptions • netLINK[NL 51N-DPL]<>(#1) 2 Print Project Data... < >

Fieldbus / Vendor > DTM < SYCON.net / netDevice / ۲. NUM Open a dialog to import device description and icon files Administrator

To install the Flex GSD file, click on Network and Import Device Descriptions.

Go to the folder where the Flex GSD file is saved, select the file and click on Open.

retDevice -	Import Device De	scription			×
Zoeken in:	GDS file Flex	к. ~	G 🤌 📂 🛄		
1	Naam	^	Gewijzigd op		Туре
Snelle toegang	PFLX053D.	GSD	2-4-2015 09:31		GSD-
Bureaublad					
-					
Bibliotheken					
Deze pc					
Netwerk	<				>
	Bestandsnaam:	PFLX053D.GSD	~	Opene	n
	Bestandstypen:	PROFIBUS GSD (*.gs*; *.gsd;*.gse;*.g	gsf) 🗸 🗸	Annuler	ren

Click Yes to update the catalog.

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The catalog will now start updating.

netDevice	
Catalog update NETSLAVEDTM.netSlaveDTM.1 20 % complete (DTM 8 of 40)	
Cancel	

The Flex is now shown under Profibus DPV0 – Slave.





C Company

Right click on the NL 51N-DPL device and click on Network Scan.

SYCON.net - [Untitled.spj]		- U X
File View Device Network Extras Help		
D 🗳 🖬 ② ≝ ≅ 📾 3: ∞ ≝ 5: ₹; 5; 5;		
netProject 🔺 🗴	netDevice	× *
	ImatLike[NL 51H-DPL]<>(=1) Connect Disconnect Download Upload Cut Copy Paste Network Scan Configuration > Measured Value Simulation Diagnosis > Additional Functions > Delete Symbolic Name ig. Erwartet: {x-schema:DTMInformationSchema.xml}DtmDeviceTypes. Source: <fdtverse< td=""></fdtverse<>	DeviceNet EtherKeI/P DeviceNet DeviceNet
		NU IN 4
ready	Administrato	ir NUM

The Profibus network is now scanned and the Flex is shown, click on Create Devices to add the Flex into the Profibus network.

ne following hardware-devices h ease check automatic selection Station Add Device Type I 2	ave been found during network-scan. of corresponding devices found in device D Sub Device Type DTM to Use 3d) n/a Hilscher generic D Hilscher generic D	catalog in column 'DTM Device' Device Class DTM De Not Specified FLEX	before creating devices. Verice Quality (3) Generic fo	Action ou Add	
Station Add Device Type I 2 1341 (0x000005 1341 (0x000005 	D Sub Device Type DTM to Use 3d) n/a Hilscher generic D' Information of ha	Device Class DTM De Not Specified FLEX	levice Quality [3] Generic fo	Action oL Add	
2 1341 (0x000005	3d) n/a Hilscher generic D	Not Specified FLEX	[3] Generic fo	o. Add	
	Information of ha	rdware device	Information from DTM	1	
 Device DTM Progld Station Address	Information of ha	rdware device	Information from DTM	4	
Device DTM Progld Station Address					1
DTM Progld Station Address	-	FLEX			1
Station Address	-	GSDDT	TM.DTMDev.1		
	2	-			
/endor	0 (0x0000000)	Penko	Engineering		
Device Type ID	1341 (0x0000053d)	1341 (0)x0000053d)		
Sub Device Type	n/a	n/a			
Version	n/a	Rev 1(03		1
eation Mode: Use Hi	lscher generic DTMs if available	~	Create Devices	Cancel	

Click on Yes to apply the configuration.

netDevice		
Network Scan - Creating	Devices	
Creating DTM device: GS	DDTM.DTMDev.1	
40 % complete (DTM 1 of Device: FLEX[FLEX]<2> Starting upload	Question The current module configurat will be read out now. Do you want to apply the read	ion of the connected device -out module configuration?
		Ja Nee
	Cancel	

The Flex is now added to the Profibus network, the green highlighted text shows that the Profibus connection is active.





Right click on the device and click on Disconnect.

SYCON.net - [Untitled.spj]		- 🗆 X
File View Device Network Extras Help		
D 🚅 🖬 Q 😫 🗉 🌚 3: 🚳 -3 , 3 , 3 , 4 ,		
netProject 🔺 🗙	netDevice	×
	Image: Disconnect Download Upload Copy Paste Network Scan Configuration Diagnosis Additional Functions Delete Symbolic Name	DeviceNet DeviceNet Control Contro
Old IT FILD CONTRACT REPEACE		*
Ready	Administrator	NUM:

To generate a GSDML file for Profinet right click on the device and click on Additional Functions – Profinet IO Device – Export GSDML.





Select a fold to save the GSDML file and click Save.

Note: Do not change the file name.

Opslaan als	×
Opslaan in: GSDML file Flex	∽ 🎯 🌶 📂 🛄▼
Naam	 Gewijzigd op
GSDML-V2.2-Hilscher-NL 51N-DPL-2020121.	10-12-2020 16:35
<	>
Bestandsnaam: 2.2-Hilscher-NL 51N-DPL-20201210	-163547.xml Opslaan
Opslaan als: GSDML Files (* xml)	~ Annuleren

Right click on the device and click on Download, now the Profibus connection is saved into the device.



Click Yes to start the download.



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Setup the Hilscher NL 51N-DPL for the Flex controller

The downloading will start.

netDevice
Device: netLINK[NL 51N-DPL]<>(#1)
Download running
85 % complete
85%
Cancel

Right click on the device and click on Disconnect.





Save the project for later use by clicking on Save as.

F SYCON.net - [Untitled.spj]	– 🗆 X
File View Device Network Extras Help	
D New 25 😪 🔩 📾 🗃 🖏 🖷 👼	
□	netDevice 🔺 🗙
Close	
Save U-DPL]<>(#1)	i DeviceNet
Save as (2>	netLINKINL 51N-DPL]<>(#1)
No Project List	Hernet/IP Hordburg RTI
Exit	Gen Modbus/TCP
	FLEX[FLEX]<2>
	🖨 🔲 PROFIBUS DPV 0
	· · · · · · · · · · · · · · · · · · ·
	CB_AB32-DPS
	E CIF50-DPS
	T CIF60-DPS
	COM-C-DPS
	COMX 100XX-E
	COMX 10XX-DF
	Ketwork View / Fieldbus / Vendor / DTM
Upload succeeded from device FLEX[FLEX]<2>.	^
Detected configuration data:6A5F> Device: FLEX[FLEX]<2>	
Download succeeded to device netLink(int 5 int-DrL)<> (#1). Sector 1 (#1) Sector 2 (#1)	
E S Directory enumeration operation timed out -> Device: netLINK[NL 51N-DPL]<>(#1)	
Directory enumeration operation timed out -> Device: netLINK[NL 51N-DPL]<>(#1)	
SYCON.net netDevice	<u>×</u>
Saves the current project whit a new name	Administrator NUM

Give the project a name and click Save.

✤ Opslaan als						×
Opslaan in:	Flex NL 51N	I DPL project	~	G 🤌 📂 🛄		
Snelle toegang	Naam	Ge	en zoekresultate	Gewijzigd op n.		Туре
Bureaublad Bibliotheken						
Deze pc						
Network	<					>
NetWerk	Bestandsnaam:	Flex NL 51N DPL P	oject	~	Opsla	aan
	Opslaan als:	Projekt file (*.spj)		~	Annul	eren



Ethernet Device Configuration (2)

When you open Ethernet Device Configuration and search for Devices, you will notice that the IP Address is set to 0.0.0.0 again after the project is downloaded into the device. This is because the Profinet IO Controller (PLC) will give the device its real IP Address in the Profinet network.

💣 Ethernet Device (Configuration						_	×
File Options ?								
Devices Online	Find:			next	previo	us		
MAC Address	Device Type	Device Name	IP Address	Protocol	Devic	Vend	Device role	
00-02-A2-43-E3-4C 00-02-A2-43-E3-4C	NETLINK PROXY NL51NDPL	NL51NDPL nl51ndpl	0.0.0.0 0.0.0.0	NetIdent DCP	- 0x0110	- 0x011E	- Device	
<								>
					Sea	arch Device	s <u>C</u> onfigu	re 🕨



Tia Portal

Open Tia Portal and create a new project, give the project a name and click on Create.

Kiemens				L	×
				Totally Integrated Automation PORTAL	
Start			Create new project		_
Devices &		Open existing project	Project name:	Hilscher NL 51N-DPL with Flex	
networks		-	Path:	C:\Users\mrossum\Documents\Automation	
DLC.		Create new project	Version:	V15.1	-
programming		Migrate project	Author:	mrossum	-
Motion & technology		Close project	Comment:		\sim
		Welcome Tour		Create	
Visualization		First stans			-
Online & Diagnostics	10				
		Installed software			
		Help			
		Over interface language			
Project view					

To import the generated GSDML file into Tia Portal, click on Options – Manage general station description files (GSD). Open the folder where the GSDML file is saved and open the file.

The file is now shown but not installed yet, check the box in front of the file and click on Install.

Manage gener	al station description Ds GSDs in the p	n files project			>		
Source path: C:\Users\mrossum\Desktop\Hilscher NL 51N-DPL Profibus naar Profinet adapter\GSDM							
Content of in	nported path						
File		Version	Language	Status	Info		
GSDML-V2.2	2-Hilscher-NL 51N-DPL	V2.2	English	Not yet installed	PROFINET I		
<					>		
				Delete	Cancel		



The GSDML file will now install.

an ETC Company



When installed, click on Close, the hardware catalog will start updating.

istallation result	
Message	
Installation was completed successfully.	

Double click on Add new device, select your PLC and click on OK.



Set the IP Address of the PLC.

PLC_1 [CPU 1212C AC/E	C/Rly]				
General IO tags	Sys	tem constants	Texts		
General	^	Ethomotic dalama			
Ethernet addresses		Ethemet address	ses		
 Advanced options 		Interface net	worked wit	h	
Interface options					
Real time settings			Sub	onet:	Not networked
Port [X1 P1]					Add new subnet
Time synchronization					
DI 8/DQ 6	=	IP protocol			
Al 2	4	ii protocor			
High speed counters (HSC)	.)				 Set IP address in the project
 Pulse generators (PTO/PW 	VI) 🕨				Raddress 102 108 151 05
PTO1/PWM1					192 . 168 . 151 . 95
PTO2/PWM2					Subnet mask: 255 . 255 . 255 . 0
PTO3/PWM3					Use router
▶ PTO4/PWM4					Router address: 0 , 0 , 0 , 0
Startup					O IP address is set directly at the device
Cycle					On address is seconcedy at the device

Double click on Devices & networks, open the Hardware catalog and double click on the NL 51N-DPL.

K Siemens - C:\Users\mrossum\Documents\Automation\Hilscher NL 51N-E	PL with Flex\Hilscher NL 51N-DPL with Flex		_ • ×
Project Edit View Insert Online Options Tools Window Help		Totally Integrated Automation	
📑 🎦 🔒 Save project 🚇 🐰 🗎 🖆 🗙 🍤 🛨 (주 🗄 🔃 🌆 🖳	🛃 🕼 🕼 🕼 🕼 🕼 🖉 🚽 🛄 😒 🖂 🛄 🕹	PORT	AL
Project tree	Hilscher NL 51N-DPL with Flex Devices & networks	Hardware catalog 🗖 🛙	
Devices		Options	
· · · · · · · · · · · · · · · · · · ·	📸 💦 Network 🔢 Connections 🛛 HMI connection 🔍 🕎 👯 🔛 🛄 🍳 🛨		클
sk.		✓ Catalog	dwa
🚆 💌 📑 Hilscher NL 51N-DPL with Flex			a Tel
🚆 🎽 Add new device			<u> </u>
😤 💼 Devices & networks	PLC_1	Filter Profile: All>	. 응
🔮 🔻 🛅 PLC_1 [CPU 1212C AC/DC/Rly]		Controllers	9
Device configuration		▶ <u>■</u> HM	
🗧 🖳 Online & diagnostics		PC systems	<u>v</u>
🕨 🙀 Program blocks		Drives & starters	9
Technology objects		Image: Network components	5
External source files		Detecting & Monitoring	et
🕨 🌄 PLC tags		Distributed I/O	0
E PLC data types		Power supply and distribution	S S
Watch and force tables		Field devices	-
🕨 🙀 Online backups		Other field devices	- -
Device proxy data		Additional Ethernet devices	as
Program info		✓ Im PROFINET IO	ks
PLC alarm text lists		Drives	_
Local modules		Encoders	
Ungrouped devices		🔻 🛅 Gateway	듣
Security settings		🕶 🛅 Hilscher GmbH	rar
Common data		VL51NDPL	les
Documentation settings		NL 51N-DPL	
Languages & resources		Image: Siemens ag	
Online access		▶ [j] 1/0	
Card Reader/USB memory		Sensors	
	Canada	PROFIBUS DP	



The device is now added into the project.

Hilscher NL 51N	N-DPL with F	ilex Devices & n	ietworks	
PLC_1 CPU 1212C		ni51ndpl NL 51N-DPL <u>Not assigned</u>	DP-NORM	

Click on Not assigned and select the PLC.

Hilscher NL 51N-DPL with Flex Devices & networks							
Network	HMI connection 🔽 👯 🏥 🛄 🔍 ±						
PLC_1	nl51ndpl						
	Not assigned						
	Select IO controller						
	PLC_1.PROFINET in terface_1						

The device is now connected to the PLC.





Select the Profinet connection and click on the Name icon.



Set the correct interface settings and click on Update list, at least two devices should be found, the PLC and the device.

Assign PROFINET device	name.		_		_	×
		Configured PRO	FINET dev	ice		
		PROFINET devic	e name:	plc_1		-
		Dev	ice type:	CPU 1212C AC/DC/Rly		
		Online access				
		Type of the PG/PC i	nterface:	🖳 PN/IE		•
		PG/PC i	nterface:	💹 Intel(R) Ethernet Conn	ection I217-LM	- 🖲 🖸
		Device filter				
		🛃 Only show	devices of th	ie same type		
		Only show	devices with	bad parameter settings		
		Only show	devices with	outnames		
	Accessible device	s in the network:				
	IP address	MAC address	Device	PROFINET device name	Status	
	192.168.151.95	00-1C-06-19-FB-E2	\$7-1200	plc_1	💙 ок	
Elseis LED.						
					indate list	Assign name
					public list	Assignmente
Online status information:						
Search completed.	1 of 2 devices were	e found.				
<						>
						Close



Select the Profinet name nl51ndpl, select the name and click on Assign name. Then click on Close.

Assign PROFINET device	name.						>
		Configured PRO	FINET dev	ice			
		PROFINET devic	e name:	nl51ndpl		-	
		Dev	/ice type:	NL 51N-DPL			
		Online access					
		Type of the PG/PC i	nterface:	PN/IE		-	
		PG/PC i	nterface:	📟 Intel(R) Ethernet Conn	ection I217-LM	• 🖲 🖸	
		Device filter					
		🛃 Only show	devices of th	ie same type			
		Only show	devices with	bad parameter settings			
		Only show	devices with	outnames			
	Accessible dev	vices in the network:					
	IP address	MAC address	Device	PROFINET device name	Status		
-	0.0.0.0	00-02-A2-43-E3-4C	NL51NDPL	nl51ndpl	💙 ОК		
Flash LED							
	<						>
				U	pdate list	Assign name	
Online status information	:						
Search completed	. 1 of 2 devices w	vere found.					
J Search completed	I. I ot∠devices v	vere tound.					
<							
						C class	
						Close	

Download the setup into the PLC, click on the Download to device icon.

渦	Siemens - C:\Users\mrossum\Documents\Automation\Hi	lscher NL 51N-DPL w	ith Flex\Hilsch	ner NL 51N-DPL	with Flex	
Pr	oject Edit View Insert Online Options Tools Win 🗄 🎦 🔒 Save project 📕 🐰 🗐 🗊 🗙 🏷 🛨 🍽 🗄	dow Help	Go online 🖉	Go offline		Search in project
	Project tree	Download to device	Hilscher NL	51N-DPL with F	Flex ► Devices &	networks
	Devices					
			📲 Network	Connections	HMI connection	
twork	Hilscher NL 51N-DPL with Flex					
s ne	Add new device		DLC 1	_	al£1adal	
es	Devices & networks		CPU 1212C		NL 51N-DPL	DP-NORM
evic	Device configuration				PLC_1	
	😧 Online & diagnostics					
	🕨 🚘 Program blocks			PL	C 1.PROFINETIO-Svs	te
	🕨 🦕 Technology objects					



	Configured acce	ss nodes of "PLC_1"						
	Device	Device type	Slot	Interface type	Address	Subnet		
4	PLC_1	CPU 1212C AC/D	1 X1	PN/IE	192.168.151.95	PN/IE_1		
		Type of the PG/PC inte	face:	PN/IE				
		PG/PC inter	nace:	Intel(R) Ether	net Connection I217-L			
		Connection to interface/su	bnet: eway:	Direct at slot '1 X1'				
	Select target dev	vice:			Show all compatible	devices 🔻		
	Device	Device type	Interfa	ace type Ad	dress	Target device		
	PLC_1	CPU 1212C AC/D	PN/IE	19	2.168.151.95	PLC_1		
<u>ہ</u> ۳		-	PN/IE	Ac	cess address	-		
📄 Flash LED								
					— ———————————————————————————————————	<u>S</u> tart search		
Online status inf	ormation:				Display only error i	messages		
 Found acce Scan compl Scan and in Patriaving d 	ssible device nl51ndpl eted. 1 compatible devices formation retrieval complet evice information	of 3 accessible devices fou ed.	nd.					

Click on Start search, when the PLC is found select the PLC and click on Load.

Go Offline, double click on Devices & networks and double click on the nl51ndpl module.

K Siemens - C:\Users\mrossum\Documents\Automation\Hilscher NL 51N-DPL with Flex\Hilscher NL 51N-DPL with Flex							
Project Edit View Insert Online Options Tools Window Help							
📑 🖻 🖬 Save project 📕 🐰 🗉 👔 🗙 🍤 ± 🤍 ± 🖥 🛄 🖬	▋ਯੋ	Go online 🖉 Go offline 🛛 👫 🖪 🖪 🗭 🚽 🔄 Search in project> 🆓					
Project tree		Hilscher NL 51N-DPL with Flex → Devices & networks					
Devices							
		💦 Network 🔛 Connections 🔣 HMI connection 💌 🖭 🖽 🛄 🔍 🛨					
💈 🔻 🗋 Hilscher NL 51N-DPL with Flex							
🚆 🎽 Add new device							
🚆 📩 Devices & networks		PLC_1 nl51ndpl					
🖁 🔻 📊 PLC_1 [CPU 1212C AC/DC/Rly]		CPU1212C NL 51N-DPL DP-NORM					
Device configuration		PLC_1					
Conline & diagnostics							
🕨 📴 Program blocks		DLC 1 DROFINET IO Switz					
Technology objects		PLC_1.PROFINE110-Syste					
🕨 🖬 External source files							



In the device overview you can see the I addresses and Q addresses. These are the addresses where the data can be read or write to the Flex.

Hilscher NL 51N-DPL with Flex + Ungrouped devices + nl51ndpl [NL 51N-DPL] _ 🖉 🖬										
							🚝 Topolo	gy view 🔒 Netw	ork view	Y Device view
🏕 [nl51ndpl [NL 51N-DPL] 🔍 🖽 🔛 🛃 🖽 🛄 🍳 ±	🛊 [nl51ndp][NL51N-DPL] 💌 🔤 📅 🦾 🖽 🛄 @ 🛳 📑 🛛 Device overview									
	<u>^</u>	Module	Rack	Slot	I address	Q address	Туре	Article no.	Firmware	Comment
		 nl51ndpl 	0	0			NL 51N-DPL	NL 51N-DPL		
si li		Interface 1	0	0 Inte			nl51ndpl			
5100	-	NL51N (PROFIBUS-DP)_1	0	1			NL51N (PROFIBUS	MasterOrderNumber		
*		FLEX_1	0	2	6899	6485	FLEX	SlaveOrderNumber		
DP-NORM										
1										

Go to PLC tags and add two new tag tables, name them 'Read data from the Penko Flex' and 'Read data from the Penko Flex'.





Open the Read data form the Penko Flex, below you can see the tag list to read all the data form the Flex.

-	Weight	Dint	%ID68		Marker_401	Bool	%181.0
-	Status_Hardware_Overload	Bool	%173.0		Marker_402	Bool	%181.1
-	Status_Above_Max_Load	Bool	%173.1		Marker_403	Bool	%181.2
-	Status_Stable_Signal	Bool	%173.2		Marker_404	Bool	%181.3
-	Status_In_Stable_Range	Bool	%173.3		Marker_405	Bool	%181.4
	Status_Zero_Corrected	Bool	%173.4		Marker_406	Bool	%181.5
	Status_Center_of_Zero	Bool	%173.5		Marker_407	Bool	%181.6
	Status_In_Zero_Range	Bool	%173.6		Marker_408	Bool	%181.7
	Status_Zero_Tracking_Possible	Bool	%173.7		Marker_409	Bool	%180.0
	Status_lare_Active	BOOL	%1/2.0		Marker_410	Bool	%180.1
	Status_Preset_lare_Active	Bool	%1/2.1	-	Marker_411	Bool	%180.2
	Status_New_Sample_Available	Bool	%172.2		Marker_412	Bool	%180.3
	Status_Calibration_Invalid	Bool	%172.3		Marker_413	Bool	%180.4
	Status_Calibration_Enabled	Bool	%172.4		Marker_414	Bool	%180.5
	Status_certified_Mode	Bool	%172.5		Marker_415	Bool	%180.5
-400	Status Register Function active	Bool	%172.7		Marker_410	Bool	76160.7
-50	Read Command Zero Reset	Bool	%174.0		Marker_417	Bool	%183.1
-571	Read Command Zero Set	Bool	%174.1		Marker 419	Bool	%183.1 %183.2
-67	Read Command Tare Off	Bool	%174.2		Marker 470	Bool	%183.3
-60	Read Command Tare On	Bool	%174.3		Marker 420	Bool	%183.4
-	Read Command Reserved	Bool	%174.4	-60	Marker 422	Bool	%183.5
-	Read Command Freeze Weight	Bool	%174.5	-60	Marker 423	Bool	%183.6
	Read Command IND Channel 2^0	Bool	%174.6	-671	Marker 424	Bool	%183.7
	Read_Command_IND_Channel_2^1	Bool	%174.7	-	Marker 425	Bool	% 82.0
-	Read_Weight_Select_register	Byte	%IB75	-	Marker 426	Bool	%182.1
-	Input_1	Bool	%177.0	-	Marker 427	Bool	%182.2
-	Input_2	Bool	%177.1	-00	Marker_428	Bool	%182.3
-	Input_3	Bool	%177.2	-00	Marker_429	Bool	%182.4
	Input_4	Bool	%177.3		Marker_430	Bool	%182.5
-00	Input_5	Bool	%177.4		Marker_431	Bool	%182.6
	Input_6	Bool	%177.5		Marker_432	Bool	%182.7
	Input_7	Bool	%177.6		Register_1	DInt	%ID84
-00	Input_8	Bool	%177.7	-00	Register_2	DInt	%ID88
-	Input_9	Bool	%176.0		Register_3	DInt	%ID92
-	Input_10	Bool	%176.1		Register_4	DInt	%ID96
-	Input_11	Bool	%176.2		<add new=""></add>		
	Input_12	Bool	%176.3				
-	Input_13	Bool	%176.4				
	Input_14	Bool	%176.5				
	Input_15	Bool	%1/6.6				
	Input_16	Bool	%1/0./				
	Output_1	Bool	%179.0				
	Output_2	Bool	%179.1				
	Output_3	Bool	%179.2				
	Output_4	Bool	%179.4				
-400		Bool	%179.5				
-	Output 7	Bool	%179.6				
-	Output 8	Bool	%179.7				
-	Output 9	Bool	%178.0				
-	Output 10	Bool	%178.1				
-	Output_11	Bool	%178.2				
-	Output_12	Bool	%178.3				
-	Output_13	Bool	%178.4				
	Output_14	Bool	%178.5				
-00	Output_15	Bool	%178.6				

%178.7

Bool



Output_16

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Open the Write data to the Penko Flex, below you can see the tag list to write all the data to the Flex.

-00	Write_Command_Zero_Reset	Bool	%Q64.0	\checkmark
-00	Write_Command_Zero_Set	Bool	%Q64.1	
-	Write_Command_Tare_Off	Bool	%Q64.2	
-	Write_Command_Tare_On	Bool	%Q64.3	
-	Write_Command_Reserved	Bool	%Q64.4	
-	Write_Command_Freeze_Weight	Bool	%Q64.5	
-	Write_CommandIND_Chann	Bool	%Q64.6	
-	Write_CommandIND_Chann	Bool	%Q64.7	\checkmark
-	Write_Weight_Select_register	Byte	%QB65	\checkmark
-	Marker_969	Bool	%Q67.0	\checkmark
-	Marker_970	Bool	%Q67.1	\checkmark
-	Marker_971	Bool	%Q67.2	\checkmark
-	Marker_972	Bool	%Q67.3	\checkmark
-	Marker_973	Bool	%Q67.4	\checkmark
-	Marker_974	Bool	%Q67.5	\checkmark
-	Marker_975	Bool	%Q67.6	\checkmark
-	Marker_976	Bool	%Q67.7	\checkmark
-	Marker_977	Bool	%Q66.0	\checkmark
-	Marker_978	Bool	%Q66.1	\checkmark
-	Marker_979	Bool	%Q66.2	\checkmark
-	Marker_980	Bool	%Q66.3	\checkmark
-	Marker_981	Bool	%Q66.4	\checkmark
-	Marker_982	Bool	%Q66.5	\checkmark
-	Marker_983	Bool	%Q66.6	\checkmark
-	Marker_984	Bool	%Q66.7	\checkmark
-	Marker_985	Bool	%Q69.0	\checkmark
-	Marker_986	Bool	%Q69.1	\checkmark
-	Marker_987	Bool	%Q69.2	\checkmark
-	Marker_988	Bool	%Q69.3	
-	Marker_989	Bool	%Q69.4	
-	Marker_990	Bool	%Q69.5	
-	Marker_991	Bool	%Q69.6	
-	Marker_992	Bool	%Q69.7	
	Marker_993	Bool	%Q68.0	
-	Marker_994	Bool	%Q68.1	
-	Marker_995	Bool	%Q68.2	
	Marker_996	Bool	%Q68.3	
-	Marker_997	Bool	%Q68.4	
	Marker_998	Bool	%Q68.5	
-	Marker_999	Bool	%Q68.6	
-	Marker_1000	Bool	%Q68.7	
	Register_97	Dint	%QD70	
	Register_98	Dint	%QD74	
	Register_99	Dint	%QD78	
-	Register_100	Dint	%QD82	
	<add new=""></add>			\checkmark



You can also add a Watch table to write data to the Flex.





When online you can set command or Markers, and write values into register 97 – 100.

"Write_Command_Zero_Reset"	%Q64.0	Bool	FALSE		
"Write_Command_Zero_Set"	%Q64.1	Bool	FALSE		
"Write_Command_Tare_Off"	%Q64.2	Bool	FALSE	FALSE	M 📐
"Write_Command_Tare_On"	%Q64.3	Bool	TRUE	TRUE	M 📐
"Write_Command_Reserved"	%Q64.4	Bool	FALSE		
"Write_Command_Freeze_Weight"	%Q64.5	Bool	FALSE		
"Write_CommandIND_Channel_2^0"	%Q64.6	Bool	FALSE		
"Write_CommandIND_Channel_2^1"	%Q64.7	Bool	FALSE		
"Marker_969"	%Q67.0	Bool	TRUE	TRUE	M 📐
"Marker_970"	%Q67.1	Bool	FALSE		
"Marker_971"	%Q67.2	Bool	FALSE		
"Marker_972"	%Q67.3	Bool	FALSE		
"Marker_973"	%Q67.4	Bool	FALSE		
"Marker_974"	%Q67.5	Bool	FALSE		
"Marker_975"	%Q67.6	Bool	FALSE		
"Marker_976"	%Q67.7	Bool	FALSE		
"Marker_977"	%Q66.0	Bool	TRUE	TRUE	🗹 🔔
"Marker_978"	%Q66.1	Bool	FALSE		
"Marker_979"	%Q66.2	Bool	FALSE		
"Marker_980"	%Q66.3	Bool	FALSE		
"Marker_981"	%Q66.4	Bool	FALSE		
"Marker_982"	%Q66.5	Bool	FALSE		
"Marker_983"	%Q66.6	Bool	FALSE		
"Marker_984"	%Q66.7	Bool	FALSE		
"Marker_985"	%Q69.0	Bool	TRUE	TRUE	
"Marker_986"	%Q69.1	Bool	FALSE		
"Marker_987"	%Q69.2	Bool	FALSE		
"Marker_988"	%Q69.3	Bool	FALSE		
"Marker_989"	%Q69.4	Bool	FALSE		
"Marker_990"	%Q69.5	Bool	FALSE		
"Marker_991"	%Q69.6	Bool	FALSE		
"Marker_992"	%Q69.7	Bool	FALSE		
"Marker_993"	%Q68.0	Bool	TRUE	TRUE	M 📐
"Marker_994"	%Q68.1	Bool 💌	FALSE		
"Marker_995"	%Q68.2	Bool	FALSE		
"Marker_996"	%Q68.3	Bool	FALSE		
"Marker_997"	%Q68.4	Bool	FALSE		
"Marker_998"	%Q68.5	Bool	FALSE		
"Marker_999"	%Q68.6	Bool	FALSE		
"Marker_1000"	%Q68.7	Bool	FALSE		
"Register_97"	%QD70	DEC+/-	97	97	
"Register_98"	%QD74	DEC+/-	98	98	
"Register_99"	%QD78	DEC+/-	99	99	
"Register_100"	%QD82	DEC+/-	100	100	





About PENKO

Our design expertise include systems for manufacturing plants, bulk weighing, check weighing, force measuring and process control. For over 35 years, PENKO Engineering B.V. has been at the forefront of development and production of high-accuracy, high-speed weighing systems and our solutions continue to help cut costs, increase ROI and drive profits for some of the largest global brands, such as Cargill, Sara Lee, Heinz, Kraft Foods and Unilever to name but a few.

Whether you are looking for a simple stand-alone weighing system or a high-speed weighing and dosing controller for a complex automated production line, PENKO has a comprehensive range of standard solutions you can rely on.

Certifications

PENKO sets high standards for its products and product performance which are tested, certified and approved by independent expert and government organizations to ensure they meet – and even – exceed metrology industry guidelines. A library of testing certificates is available for reference on:

http://penko.com/nl/publications_certificates.html

PENKO Professional Services

PENKO is committed to ensuring every system is installed, tested, programmed, commissioned and operational to client specifications. Our engineers, at our weighing center in Ede, Netherlands, as well as our distributors around the world, strive to solve most weighing-system issues within the same day. On a monthly basis PENKO offers free training classes to anyone interested in exploring modern, high-speed weighing instruments and solutions. A schedule of training sessions is found on: www.penko.com/training

PENKO Alliances

PENKO's worldwide network: Australia, Belgium, Brazil, China, Denmark, Germany, Egypt, Finland, France, India, Italy, Netherlands, Norway, Poland, Portugal, Slovakia, Spain, Syria, Turkey, United Kingdom, South Africa, Slovakia Sweden, Switzerland and Singapore. A complete overview you will find on: www.penko.com/dealers

