

Industry Online Support

 NEWS

2

PN/CAN LINK – SDO communication

SIMATIC S7

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https://support.industry.siemens.com/cs/ww/en/view/109751076

Siemens Industry Online Support



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1.0 P 02/2018 Subject to change

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Task

The present application example shows the SDO communication of the PN/CAN LINK. In the process the PN/CAN LINK as a manager accesses the entries of the Object Dictionary (OD) of a PN/CAN LINK configured as a slave.

The application example does not go into detail on the configuration of the PN/CAN LINK. The application examples "CANopen Manager" are provided to this purpose.

This application example is used to illustrate how individual OD entries can be written and read via the control system. The PN/CAN LINK via PROFINET provides multiple data records for the CANopen Manager module that the S7 user program can access with the acyclic PROFINET IO services RDREC (read data record) und WRREC (write data record). Such data records are not available at the configured CANopen slaves.

Note

For the configuration presented below, the associated example program is available for downloading at Internet links (Page 25).

Knowledge required

The following knowledge is required:

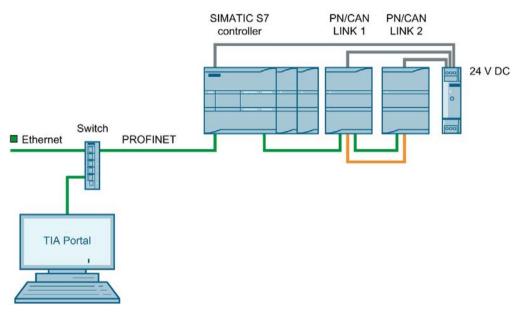
- Knowledge of programming a SIMATIC S7 controller
- · Knowledge in the application of the TIA configuration environment
- Knowledge of working with the PROFINET fieldbus
- In-depth knowledge of the CAN or CANopen communication protocols
- · General knowledge in the field of automation technology
- General knowledge of communication networks

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Solution

2.1 System configuration

For the application example use the following configuration:



The PN/CAN LINKs are connected via PROFINET to the SIMATIC S7 control system. The PN/CAN LINKs are configured as follows:

- PN/CAN LINK 1 in "CANopen Manager" mode
- PN/CAN LINK 2 in "CANopen Slave" mode

The configuration takes place on a PC with installed TIA Portal.

2.2 Hardware and software components

2.2 Hardware and software components

The application example was created with the following components:

Hardware components

Component	Number	Article number	Comment
SIMATIC S7 control system	1	6AG1215-1AG40-5XB0	CPU 1215C
PN/CAN LINK	2	6BK1620-0AA00-0AA0	12 V DC to 24 V DC supply voltage
Power supply SIPLUS S7-1200 PM 1207	1	6AG1332-1SH71-4AA0	For power supply of control system and PN/CAN LINK

Software components

Component	Number	Article number	Comment
SIMATIC STEP 7 BASIC V15.1	1	6ES7822-0AA05-0YA5	-

Example files and projects

File	Comment
109751076_network_transistions_pn_can_link_sdo _communication_en.pdf	The present document
SDO_Kommunikation.zip	The file contains:
	The present document
	The TIA project of the application example

You will find the download link in the section "Internet links (Page 25)".

Configuring / programming

3.1 General procedure

Proceed as follows:

- 1. Create a new project.
- 2. Switch the language of the user interface to English.
- 3. Click "Catalog" ① and insert the devices according to the section "Hardware and software components (Page 6)".
- 4. Connect the CPU and PN/CAN LINK by means of a PROFINET connection.

CPU and PN/CAN LINKs are connected in the "Network view" window via PROFINET ②.

5. Configure the PROFINET interfaces ③ based on the conditions of your PROFINET network.

Project1 > Devices & networ	ks		_ # #×	Hardware catalog	a 10)
	2	Topology view 🔒 Network view	Device view	Options	
Network Connections	MI connection 🖃 📰 🔛				-
		4 IO system: PLC_1.PROFINET I	0-System (100)	✓ Catalog 1	
				<search></search>	init init
PLC_1 CPU 1215C	Link_1 Link_ PN/CAN LINK PN/CA	AN LINK	-	Filter Profile: Alls	
	PLC_1 PLC_1		E SP	Gontrollers HMI	
				Com C	
	2	9	e	The Drives & starters	
		PLC_1.PROFINET IO-Syst	e 2	Network components	
				• 🛅 IE switches	
				• 🛅 IWLAN	
				Industrial Security	
			~	🕶 🧊 Gateways	
III		> 100% -		TIM PN/CAN Link	
OFINET interface [IE1]		🔍 Properties 🛛 🚺 Info 🚯 😵 Dia	mostics	6BK1 620-0AA00-0AA0	
		Truckenses [Tange of Tange		DP/AS-i Link	
	stem constants Texts			E/PB Link PN IO	
Seneral	Ethernet addresses			MLAN/PB Link PN 10	
Ethernet addresses 3				Router	
Hardware identifier	Interface networked with			Im Diagnostics repeater Diagnostics repeater	
hardware identifier	Subnet:	Dube 1		Distributed I/O	
	Subnet:			Power supply and distribution	
		Add new subnet		Field devices	
				Other field devices	
	IP protocol				
	m e deberer				
		192.168.0.2		✓ Information	
	Subnet mask:			Device:	
		Use router			
	Router address:	0.0.0.0		·*	
				10 M	
	* PROFINET				
				PN/CAN LINK	
		Generate PROFINET device name autor	natically		
	PROFINET device name:	link_1		Article no.: 68K1 620-0AA00-0AA0	
	riturinei device name:				
		linlodo17f38		the second se	
	Converted name: Device number:			Version: V1.0	

3.2 Configuring PN/CAN LINK

3.2 Configuring PN/CAN LINK

Configuring the mode

Proceed as follows:

1. Change to the net view and select "Link_1".

				📲 Topology view	h Network view	Device view
Network	Connections	HMI connection	The second secon	🐮 🖽 🛄 🍳 ±		
				뷰 IO sy:	stem: PLC_1.PROFINET IO	-System (100)
PLC_1 CPU 1215C		Link_1 1 PN/CAN LINK PLC_1		Link_2 PN/CAN LINK PLC_1	PLC_1.PROFINET IO-Syst	
K				> 100	%	

2. Change to "Device view" (1) and select "Link_1" (2)

					🚽 Topola	ogy view 🛛 🛔 Ne	twork view 🛛 🛐 Devi	ce view
Dev	vice overview							
	Module	Rack	Slot	I address	Q addr	Туре	Article no.	Firmwar
	▼ Link_1 2	0	0			PN/CAN LINK	6BK1 620-0AA00-0AA0	V1.0
	PROFINET interface	0	0 ×1			PROFINET interface		
4		0	1					
-								
<				III				

3. Select "Properties ① → General → CAN operating mode" and set operating mode "CANopen manager ②".

General	IO tags	Syst	em constants	Texts					
General		Π	C111						
CAN operating mode			CAN operating	g mode					
PROFINET int	terface [X1]								
Hardware id	entifier		Operating mode: CANopen manager 2						

4. Repeat steps 1 to 3 for "Link_2" and set the "CANopen slave" mode.

Inserting CANopen nodes

Proceed as follows:

1. Select "Device view \bigcirc \rightarrow Device overview \rightarrow CANopen manager \bigcirc ".

Devi	ce overview							
	Module	Rack	Slot	I address	Q addr	Туре	Article no.	Firmwa
	▼ Link_1	0	0			PN/CAN LINK	6BK1 620-0AA00-0AA0	V1.0
	PROFINET interface	0	0 X1			PROFINET interface		
	 CANopen manager 	0	1	68	68	CANopen manager		
	CANopen network	0	10	68	68	CANopen manager		
		0	11					
		0	2					
<								

2. Select "Catalog $\bigcirc \rightarrow$ CANopen node".

	🗊 🗉 🕨
Options	2
✓ Catalog 🚺	D.M.G
<search></search>	teal teal
Filter Profile: <all></all>	
CAN process data	g
CANopen node	
I CANopen node universal	6
PN/CAN Link	or online works

3. Insert a "CANopen node universal" ② with a double click.

The CANopen node is inserted under "Device view $(1) \rightarrow$ Device overview" as submodule (2).

Device	e overview							
	Module	Rack	Slot	I address	Q addr	Туре	Article no.	Firmwar
	 Link_1 	0	0			PN/CAN LINK	6BK1 620-0AA00-0AA0	V1.0
	PROFINET interface	0	0 X1			PROFINET interface		
	▼ CANopen manager	0	1	68	68	CANopen manager		
	CANopen network	0	10	68	68	CANopen manager		
		0	11					
	Node 2	0	2			CANopen node uni		
<								

3.2 Configuring PN/CAN LINK

Importing the EDS file

Proceed as follows:

1. Select "Properties $(1) \rightarrow \text{General} \rightarrow \text{CANopen node universal"}$.

Knoten [CAP	lopen Node]			🔍 Properties 🚺 🕵 Info	😨 Diagnostics	
General	IO tags	System constants	Texts			
► CANopen no	" de universal		node universal Data Sheet (EDS)	Import EDS file	2	

2. Click "Import EDS file" 2.

The "Import EDS file" window is displayed.

- 3. Select the EDS file to import.
- 4. Confirm the import with "OK".

Setting the node ID

Proceed as follows:

1. Select "Device view $(1) \rightarrow$ Device overview \rightarrow CANopen manager (2)".

Device	overview							
**	Module	Rack	Slot	I address	Q addr	Туре	Article no.	Firmwar
	▼ Link_1	0	0			PN/CAN LINK	6BK1 620-0AA00-0AA0	V1.0
	PROFINET interface	0	0 X1			PROFINET interface		
	▼ CANopen manager 2	0	1	68	68	CANopen manager		
	CANopen network	0	10	68	68	CANopen manager		
		0	11					
	Node	0	2			CANopen node uni		

2. Select "Properties \bigcirc \rightarrow General \rightarrow CANopen manager \rightarrow Communication".

CANopen Ma	anager [CANo	open Manager]				🔍 🔍 Properties 🤇	i, Info	追 🗓 Diagnostics	
General	IO tags	System const	ants	Texts]				
 General Project in 	formation	Commu	nication	-					
and the second se	nformation								
 CANopen ma 	-			Noc	de ID:	1 2			
Communication			Transmission rate: 125					kbps 💌	
	to failure of a m e to EMCY mess		Vendor device name:			e: PN/CAN Link Manager			
	trol (heartbeat / of heartbeat	Sta	tup che	cks					
Heartbea	at	E.			E	Device type ID			
SYNC		2			ſ	Vendor ID			
I/O addre	sses								
Hardware	e identifier					Product code			
Transmit dat	ta object diction	n			E	Revision number			
Receive data	a object diction	a							
Transmit pro	ocess data obje	c							
Receive proc	cess data objec	ts (
<		>							

- 3. Enter the following node IDs 2:
 - CANopen slave, "Node ID" 10
 - CANopen manager, "Node ID" 1

Inserting a transmit OD and receive OD entry

The OD entries are required in order to transmit and receive user-defined data. No data is exchanged via the OD entries in this application example. At least one OD entry needs to be configured for successful compilation of the project.

Creation is effected in the device view of the respective PN/CAN LINK. Insert the corresponding modules for a transmit data and receive data OD entry from the HW catalog as a submodule into the respective PN/CAN LINK.

3.2 Configuring PN/CAN LINK

Proceed as follows:

1. Select "Hardware catalog $\bigcirc \rightarrow$ CAN process data \bigcirc ".

Hardware catalog 🛛 🗖 🔳 🕨	2
Options	💾 На
✓ Catalog 1	rdwar
<search></search>	e ca
Filter Profile: All-	Hardware catalog
Transmit data object dictionary Tansmit data object dictionary CANopen node Tan PN/CAN Link	online tools
	Tasks
	Libraries
> Information	

- 2. Add the following object dictionary as a submodule by double-clicking:
 - Transmit data object dictionary

To transmit data, a transmit OD entry is required to which the transmitted data is written.

- Receive data object dictionary

To receive data, a receive OD entry is required to which the received data is written.

```
🔥 Network view
                                                        🚝 Topology view
                                                                                                Device view
Device overview
 🖬 ... Module
                                  Rack
                                        Slot
                                                laddress Qaddr... Type
                                                                                    Article no.
                                                                                                           Firmw.

    Link_1

                                          0
                                                                   PN/CAN LINK
                                                                                     6BK1 620-0AA00-0AA0
                                                                                                           V1.0
                                  0
          PROFINET interface
                                  0
                                         0 X1
                                                                   PROFINET interface
         CANopen manager
                                  0
                                         1
                                                                   CANopen manager
                            2
            CANopen network
                                  0
                                         10
                                                 68
                                                          68
                                                                   CANopen manager
            Transmit OD_1
                                  0
                                          11
                                                          70
                                                                   Transmit data obje
                                  0
            Receive OD_1
                                         12
                                                 70
                                                                   Receive data objec.
                                  0
                                          13
                                  0
                                          2
                                                                   CANopen node uni...
          Node
 <
```

In "Device view $(1) \rightarrow CAN$ open manager (2)", the submodules (3) are displayed.

Switching to "Operational" operating state

Proceed as follows:

- 1. Create CPU variables for the control bits of the links:
 - For the CANopen Manager the Bits 0 and 2 of the output byte of the CANopen network submodule.
 - For the CANopen Slave Bit 0 of the same byte.

The CPU variables are necessary for the S7 connection. Additional information is available in the SIMATIC PN/CAN LINK operating instructions in the section "4.1.2.2 Control and status information". You will find the link to the document in the section "Internet links (Page 25)".

- 2. Compile and download the project.
- 3. After starting the CPU set all bits to 1, so that the links go to the "Operational" operating state.

You can find more detailed information in section "Checking and compiling a configuration in the TIA Portal (Page 22)".

3.3 SDO communication

For the SDO communication use the program blocks DoSdoRead and DoSdoWrite.

Reading out within the program blocks is effected via the acyclic services WRREC and RDREC of the S7 control system.

- First the WRREC is performed The SDO data of a node in the network is read or written.
- After that the RDREC is performed In the process the result of the PN/CAN LINK is collected.

3.3 SDO communication

3.3.1 Function blocks and libraries

The following section described how to create a cyclic interrupt and the associated function block and to import it into the library. Create a cyclic interrupt that is called up every 100 ms.

Procedure

Proceed as follows:

1. Switch to the project navigation and click "Devices $\bigcirc \rightarrow PLC_1 \rightarrow Program blocks"$.



2. Double-click "Add new block" 2.

The following dialog window is displayed.

Cyclic interrupt				
Function Function Data block	 Program cycle Startup Time delay interrupt Cyclic interrupt Hardware interrupt Hardware interrupt Diagnostic error interrupt Pull or plug of modules Rack or station failure Time of day Status Update Profile MC-Interpolator MC-ProstServo MC-PostServo 	programs at perio independently of c	yclic program execu e defined in this die	ution.
		more		
Additional inform	nation			

This interrupt calls up a function block that reads or writes data from or to Link_2 via SDOs.

3. Click "Cyclic interrupt" ①.

The cyclic interrupt is used to change the transmit OD entry. The transmit OD entry is increased by the value "1" with each call.

4. Check if (2) and (3) are set as seen in the figure.

5. Click "Function block" ①.

The following dialog window is displayed.

Add new block					×
Name: RW_SDOs 2			_		
NW_SDOS Z		X			
	Language:	SCL 3	•		
OB	Number:	1	\$		
Organization block		O Manual			
		 Automatic 			
0					
FB	Description:			and a second of the second of a large later.	alua
Function block	so that they rem	are code blocks that s ain available after the	block has been e	ermanently in instance data blo xecuted.	скз,
1					
-FC					
Function					
DB					
Data block					
	more				
> Additional inform	nation				_
Add new and open				OK Cano	cel

- 6. Change "Name" (2) and "Language" (3) as specified.
- 7. Confirm your entries with OK.

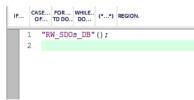
8. The function blocks DoSdoRead and DoSdoWrite are called up in the function block RW_SDO.

These can be imported as a library. The library is included in the ZIP file in accordance with section "Internet links (Page 25)".

Libraries 📑 🔳 🕨	
Options	
Library view	Inst
✓ Project library	ructions
All 🕨	ons
🕨 💭 Project library	
	⇒ Testing
 ✓ Global libraries ☞ 및 및 및 및 및 및 및 및 및 및 > 및 Buttons-and-Switches 	Tasks
Long Functions Monitoring-and-control-objects Documentation templates WinAC_MP	🗄 Libraries

9. To ensure that the RW_SDOs function block is called in the interrupt, drag-and-drop the function block into the interrupt.

A data block is then created. The interrupt changes as follows:



3.3 SDO communication

3.3.2 Writing SDO parameters

Procedure

Proceed as follows:

- 1. Drag the function block "RW_SDOs" ① into the interrupt.
- 2. Confirm the creation of the associated data block.

			DOS 1	Data type	Default value	Retain	Accessible	Write	Visible in	Setpoint	Co.
1	-00	•	Input								
2			-Add news-								
3	-0	•	Output								
4			<add news<="" td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></add>								
5	-0	•	InOut								
6			<add new=""></add>		1	.*					
7	-		Static								
в	-		Temp								
9	-		data	Array[0127] of Byte							
10	-		Constant								

Parameter description "DoSdoWrite_DB"



Parameter	Description
execute	Determines whether the block is executed (TRUE/FALSE). With this parameter the value of the CPU variable "Trigger" that points to a free output ad- dress is transferred. This CPU variable is required because the block is not executed again until "Execute" is reset from 1 to 0.
	This allows the execution of the block simply by triggering it via a watch table.
hwloOfManagerMod	Hardware ID of the CANopen Manager This is located in the "Device overview" and is marked in the following figure.
accessSlot	Channel through which the acyclic service is performed. 16 channels with the numbers 0 to 15 are available.
nodeld	Node ID of the node, whose SDO information is to be written.
odIndex	Object Dictionary Index that is to be written - in this example the Producer Heartbeat Time (Index 0x1017).
odSubindex	Sub index that is to be written - in this example the value "0".
wrDataSize	Quantity in bytes of the data to be written, with a maximum of 128.

The parameters of the example are described below.

Displaying the Hardware identifier

The following figure shows at which point in the HSP the "Hardware identifier" that is required for the parameter "hwloOfManagerMod" is required.

Proceed as follows:

- 1. In the network view, double-click "Link_1".
- 2. Select "Device view \bigcirc \rightarrow Device overview \rightarrow CANopen network \bigcirc ".

	Device	e overview							
	**	Module	Rack	Slot	Iaddress	Q addr	Туре	Article no.	Firmw.
		▼ Link_1	0	0			PN/CAN LINK	6BK1 620-0AA00-0AA0	V1.0
		PROFINET interface	0	0 ×1			PROFINET interface		
4		 CANopen manager 	0	1			CANopen manager		
		CANopen network 2	0	10	68	68	CANopen manager		
		Transmit OD_1	0	11		70	Transmit data obje		
		Receive OD_1	0	12	70		Receive data objec		
			0	13					
E		Node	0	2			CANopen node uni		
	1								1

3. Select "Properties \bigcirc \rightarrow System constants".

The "Hardware identifier" is displayed at 2.

interpentine	enone fermio	pen Manager]		🧟 Properties	3000		ignostics
General	IO tags	System constants	Texts				
Show hardwa	are system con	stant 🕶					
Name			Туре	Hardw	/are iden	Used by	Comment
🔎 Link_1-	-CANopen_ma	nager~CANopen_network	Hw_SubM	odule 278	2	PLC_1	

3.3 SDO communication

PLC variables for the watch table

The following parameters are output values. These are written by the function block into the parameters. These parameters are PLC variables that can be made visible in a watch table.

Parameter	Description
busy	Shows whether the acyclic service is still busy.
done	Shows whether the acyclic service is finished.
error	Shows if an error occurred.
status	Shows the status of the acyclic service. This is displayed when an error occurs in the SDO communication during the RDREC. The meaning of the individual status codes can be found in the SIMATIC PN/CAN LINK operating instructions in the section "4.1.2.3 Acyclic data exchange between controller and PN/CAN LINK". You will find the link to the document in the section "Internet links (Page 25)".
statusErrDetail	 Shows the error code: CAN-specific code The error occurs for example if the transferred CAN parameters are not correct. The meaning of the individual status codes can be found in the SIMATIC PN/CAN LINK operating instructions in the section "4.1.2.3 Acyclic data exchange between controller and PN/CAN LINK". You will find the link to the document in the section "Internet links (Page 25)". PROFINET error
	 The error occurs if the WRREC/RDREC already fails. You can read up on the meaning of the PROFINET error code in the help of the TIA Portal under WRREC or RDREC. Note A CAN-specific error code that is not described in the operating instructions can also be entered here. This id due to the fact that the SDO communication has not functioned (see "Status"). If "Status" is not 0, the error code is specified in the CiA301 norm.
wrData	The data to be written in the format "Little Endian" where the most significant bit is located at the highest address.

3.3.3 Reading SDO parameters

The DoSdoRead function block is required in order to read SDO parameters.

Procedure

Proceed as follows:

1. Extend the function block used for writing RW_SDOs by the reading of an object as follows:

17	F"DoSdoRead_DB" (execute:="Trigger",
18	1	hwIoOfManagerMod:=278,
19		accessSlot := 1,
20		nodeId:=10,
21		odIndex:=16#1018,
22		odSubindex:=16#04,
23		maxDataSize:=4,
24	1	busy=>"Busy",
25		done=>"Done",
26		error=>"Error",
27		status=>"Status",
28		statusErrDetail=>"StatusDetail",
29	1	numBytesRead=>"BytesRead",
30		rdData:=#recData);
31	"SerialNumber"	:= #recData[0] OR BYTE_TO_UDINT(IN := #recData[1]) * 256 OR BYTE_TO_UDINT(IN := #recData[2]) * 256 * 256;
32		

The parameters of the example are described in the following section.

Parameter description

Parameter	Description
execute, hwloOfManagerMod, accessSlot, nodeld, odIndex, odSubindex	See section Writing SDO parameters (Page 18)
maxDataSize	The maximum number of data which is to be read in bytes. A maximum of 128 Bytes is possible.
busy, done, error, status, statusErrDetail	See section Writing SDO parameters (Page 18)
numBytesRead	Actual number of read bytes. A CPU variable was created for this purpose to check the value in a watch table.
rdData	The read data in the format "Little Endian" where the most significant bit is located at the highest address.
	In the current example the serial number of the PN/CAN LINK Link_2 is read out via the spec- ified index/sub-index. The serial number has a length of 4 bytes. The serial number is created in the last line of the single byte in the return array.

3.4 Checking and compiling a configuration in the TIA Portal

3.4 Checking and compiling a configuration in the TIA Portal

Adapting I/O addresses

If necessary, you must adapt the I/O addresses assigned automatically by the TIA Portal. This is possible, for example, in the "Device overview" window. There you can also find the I/O addresses used by the slots. In particular, the addresses assigned to slot 1, that is the CANopen Manager, are important. The control and status information is exchanged with the S7 program via the slot.

It is important for startup of the PN/CAN LINK that the transmitted control information from the S7 program is set correctly.

Checking the data consistency

You can check the consistency of the assignments for the receive data and transmit data as well as the data types used with a compilation. Corresponding messages are output in the process.

PLC and PN/CAN LINK connection status

The correct behavior is displayed after the successful downloading of the application example:

Component	LED	Status	Operating state
PLC	RUN		Green, On
PN/CAN Link 1 (CANopen manager)	PN RUN	•	Green, On
PN/CAN Link 1 (CANopen manager)	CAN RUN	汖	Green, flashing for "Preoperational" operating state
PN/CAN Link 2 (CANopen slave)	PN RUN	•	Green, On
PN/CAN Link 2 (CANopen slave)	CAN RUN	汖	Green, flashing for "Preoperational" operating state

3.4 Checking and compiling a configuration in the TIA Portal

The display changes after you have set the following bits:

- CANopen manager bit 0 and 2 to TRUE
- CANopen slave bit 0 to TRUE

Component	LED	Status	Operating state
PLC	RUN		Green, On
PN/CAN Link 1 (CANopen manager)	PN RUN	•	Green, On
PN/CAN Link 1 (CANopen manager)	CAN RUN	•	Green, on for "Operational" operating state
PN/CAN Link 2 (CANopen slave)	PN RUN	•	Green, On
PN/CAN Link 2 (CANopen slave)	CAN RUN		Green, on for "Operational" operating state

3.4 Checking and compiling a configuration in the TIA Portal

Appendix



A.1 Internet links

No.	Торіс
1	Entry (https://support.industry.siemens.com/cs/products?search=109751076&mfn=ps&o=DefaultRa nkingDesc&lc=de-WW)
2	SIMATIC gateways SIMATIC PN/CAN LINK (<u>https://support.industry.siemens.com/cs/document/109746744/simatic-network-transitions-</u> simatic-pn-can-link?dti=0&lc=en-US)
3	Industry Online Support (https://support.industry.siemens.com/cs/start?lc=en-WW)
4	Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10140445?activeTab=Productlnformation&tree=CatalogTree)
5	Industrial communication (http://w3.siemens.com/mcms/automation/en/industrial-communications/Pages/Default.aspx)
6	Contact person for the database (<u>http://w3.siemens.com/aspa_app/</u>)

A.2 History

Edition	Comment
02/2018	First edition

A.3 List of abbreviations

CAN	Controller Area Network
CPU	Central Processor Unit
I/O	Input/output
OD	Object dictionary
PN	PROFINET
SDO	Service Data Object