NEF-Profibus communication board User Guide

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Control Techniques China

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1. Product Overview

1.1 **Product description**

This communication board converts Modbus-RTU to Profibus-DP for NE300/600, the RS485 interface is Modbus Master, and Profibus-DP is slave. When using this module, engineers must also read NE300/600 user guides, specially the Modbus protocol part.

1.2 Basic technical data

- 1. Supported Modbus function codes:03/06
- 2. Support Profibus-DP V0
- 3. Profibus-DP communication rates: adaptive(9.6Kbps-12Mbps)
- 4. DP data area: 76 bytes input

14 bytes output

The output and input here are relative to PLC, the output 14 bytes(7 words)are outputs from PLC to drive registers, including 0001H~0004H(communication control word, communication reference, digital output setting, analog output setting) and EEPROM operation of address, data, enable bit, EEPROM operation can be used to write drive parameters like acceleration and deceleration time and maximum frequency with non-cycle mode.

Input 76 bytes are inputs from drive registers to PLC including 0001H~0004H,0020H~002FH,0030H~0039H, 8 bytes of DP communication error codes, and EEPROM operation (address, data, status, and error code).

- 5. Modbus slave address:1(not modifiable)
- 6. Modbus baud rate:19200bps (not modifiable)
- 7. 8 data bits, even parity check,1 stop bit (not modifiable)
- 8. Working supply:24VDC,5VDC
- 9. Ambient temperature: -40~85°C, humidity: 5~95% (no condensing)
- 10. Storage temperature: -55~125°C
- 11. Installation: fixed to CN3 of NE300/600 control board with 2 screws.
- 12. Dimension: 90.37*22*182(Length*Width*Height, unit: mm)
- 13. Protect level: IP20
- 14. Certification: CE

Note: Drive parameters should be set before using this communication board, see below for details:

3

Parameters	Name	Value
F0.02	Run command control mode	2
F0.03	Frequency reference 1	4
Fd.00	485 communication enable	1
Fd.01	Communication address	1
Fd.02	Baud rate	4
Fd.03	Parity bit	0

1.3 Address mapping

	🙀 HW Config - [SIMATIC 300(1) (Configuration) CT-NE300DPcommunication]					
1	🛯 <u>S</u> tati	on <u>E</u> dit <u>I</u> nser	rt <u>P</u> LC <u>V</u> iew <u>O</u> ptions <u>W</u> ind	low <u>H</u> elp		
	D 🖻	\$~ 8 \$n ∌	🗈 🗈 🏜 🎰 💽 📼 ^y	₩ እ?		
Γ		🚍 (0) UR				
		1	PS 307 5A		<u>^</u>	
			CPU 315-2 PM/DP			PROFIBUS(1):
			MP1/DP			
		<i>K2</i>	PN-10			🔜 (3) NE300
		X2 P1 R	Port 1			
		<u> X2 92 R</u>	Port 2			DP-NORM
<						
Γ	(3) NE300/600					
	S	DPID	Order Number / Designation	I Add	Q Address	Comment
	1	192	Process Data	68 127	6471	
	2	23	Status Input	29		
	3	192	Frite EEPROM	128 135	72 77	

1. Take above case for example, the I area address of NE300/600 slot 1 is

IW68~IW126, and Q area address is QW64~QW70, these addresses are modifiable in PLC software, but the mapping address and order of drive registers are fixed, see

below for details: Slot 1 IW input & OW output

	Slot 1 IW input & QW output address mapping					
	PLC address	Data type	Drive Registers	Description		
	QW64	WORD	Write 0001H	Write control word		
	QW66	WORD	Write 0002H	Communication reference		
	QW68	WORD	Write 0003H	Digital output setting		
	QW70	WORD	Write 0004H	Analog output setting		
	IW68	WORD	Read 0001H	Read control word		
Pr	IW70	WORD	Read 0002H	Read reference		
oce	IW72	WORD		Read digital output setting		
ss D			Read 0003H			
ata	IW74	WORD		Read analog output setting		
·			Read 0004H			
	IW76	WORD	Read 0020H	Read drive status		
	IW78	WORD	Read 0021H	Read fault content		
	IW80	WORD	Read 0022H	Read warning content		
	IW82	WORD	Read 0023H	Read output frequency		
	IW84	WORD	Read 0024H	Read frequency reference		

IW86 IW88	WORD	Read 0025H	Read DC bus voltage
IW/88			Itedu De eus vellage
1 ** 00	WORD	Read 0026H	Read output voltage
IW90	WORD	Read 0027H	Read output current
IW92	WORD	Read 0028H	Read motor speed
IW94	WORD	Read 0029H	Read output power
IW96	WORD	Read 002AH	Read output torque
IW98	WORD	Read 002BH	Read PID reference
IW100	WORD	Read 002CH	Read PID feedback
IW102	WORD	Read 002DH	Read AI1
IW104	WORD	Read 002EH	Read AI2
IW106	WORD	Read 002FH	Reserved
IW108	WORD	Read 0030H	Read terminal status
IW110	WORD	Read 0031H	Reserved
IW112	WORD	Read 0032H	Reserved
IW114	WORD	Read 0033H	Reserved
IW116	WORD	Read 0034H	Read external counts
IW118	WORD	Read 0035H	Read X1 status
IW120	WORD	Read 0036H	Read X2 status
IW122	WORD	Read 0037H	Read X3 status
IW124	WORD	Read 0038H	Read X4 status
IW126	WORD	Read 0039H	Read X5 status

Note:

Please refer to Modbus RTU section of NE user guides for more details.

Drive register address and function description(communication control bit 0001H corresponds to above Modbus address 40001)

Function description	Register Address	Data definition and instruction	R/W feature
reserved	0000H	reserved	reserved
Communication control command	0001H	0001H: Forward rotation 0002H: Reverse rotation 0003H: Stop 0004H: Coast to stop 0005H: Fault reset	W
Communication setting value address	0002H	Range:(-10000~10000) Note: Communication Setting is percentage. (-100.00 \sim 100.00%) When it is used to frequency setting, It is relative to the maximum frequency. When it is used to torque setting, it is relative to the 2*rated torque. When it is used to PID setting	W

		or feedback, it is relative to the	
		analog input corresponding setup	
Output terminal	0003H	Bit0: reserved Bit1:Y1	W
setting		Bit2: reserved Bit3:relay 1	
Analog output	0004H	AO output communication setting	W
setting		(0~1000 correspond to 0.00~10.00v)	
reserved	0005H~001 FH	reserved	reserved
Drive status	0020H	Bit01: run 0: stop	
		Bit11: reverse rotation 0:forward	
		rotation	
		Bit21:fault 0:no fault	
		Bit31:warning 0:no warning	
		Bit41:fault resetting 0:no fault	
		resetting	
Fault content	0021H	0:NULL 1: Uu1 bus Under voltage fault 2: OC1 over current in acceleration 3: OC2 over current in deceleration 4: OC3 over current in constant speed 5: Ou1 over voltage in acceleration 6: Ou2 over voltage in deceleration 7: Ou3 over voltage in constant speed 8: GF Ground Fault 9: SC Load Short-Circuit 10: OH1 Radiator over heat 11: OL1 Motor overload 12: OL2 Drive overload 13: EF0 communication fault 14: EF1 external terminal fault 15: SP1 Input phase failure or Unbalance 16: SPO Output phase failure or Unbalance 17: EEP EEPROM Fault 18: CCF Transmission between the drive and keypad cannot be actebliched	

		 19: bCE Brake unit fault 20: PCE Parameter copy Error 21: IDE Hall current detection fault 22: ECE PG fault 23: ③LC Fast current limit fault 24: ③EF2 Terminal closing fault 25: ③PIDE PID feedback offline fault 26: ③OLP2 Overload pre-alarm 	
Warning Content	0022H	 No warning uu Bus under voltage warning OLP2Drive overload warning OH2Drive overheat warning SF3 Output Terminal function selection 10 not reach to 3 	R
Running/Stop Monitor	0023H	Output frequency	R
parameters	0024H	Frequency reference	R
•	0025H	Bus voltage	R
	0026H	Output voltage	R
	0027H	Output current	R
	0028H	Rotate speed of motor	R
	0029H	Output power	R
	002AH	Output torque	R
	002BH	PID reference	R
	002CH	PID feedback	R
	002DH	AI1	R
	002EH	AI2	R
	002FH	High pulse input	R
	0030H	Terminal status	R
	0031H	PLC current steps	R
	0032H	length reference	R
	0033H	Actual length	R
	0034H	External count	R
	0035H	X1 terminal status 0: Invalid 1:Valid	R
	0036H	X2 terminal status 0: Invalid 1:Valid	R
	0037H	X3 terminal status 0: Invalid 1:Valid	R
	0038H	X4 terminal status 0: Invalid 1:Valid	R
	0039H	X5 terminal status 0: Invalid 1:Valid	R

NE300 Terminals status (0030H) definition.



 The I area address of NE300/600 slot 2 is IB2-IB9, these addresses are modifiable in PLC software, this function is for commissioning analyzing, does not mapped to any drive register.

	Slot2 IB2 description								
Bit 7		Bit 6	Bit 5	Bit	: 4	Bit 3	Bit 2	Bit 1	Bit 0
		1: IB9 write fault	1: IB8 write fault	1: I wri fau	B7 te lt	1: IB6 write fault	1: IB5 rea fault	1: IB4 read fault	1: IB3 read fault
Slot2 IB3-IB9 descriptions									
S	PLC A	Address	Data type	e		Drive 1	registers		
tati	IB3		Byte Read		0001H~00	04H error c	ode	Refer to	
sn	IB4		Byte Read		Read	Read 0020H~002FH error code		ode	section
int	II	B5	Byte		Read 0030H~0039H error code			1.4 for	
IB6		B6	Byte		Write 0001H error code			error	
I		B7	Byte		Write	0002H err	or code		codes
	II	B8	Byte		Write 0003H error code				
	II	B9	Byte		Write	0004H err	or code		

3. The I area address of NE300/600 slot 3 is IW128-IW134, the Q area address is QW72-QW76, these addresses are modifiable in PLC software

This function is used to write drive parameters (e.g. acceleration and deceleration time, maximum frequency) directly to drive EEPROM, it is power-off saved. Please be noticed that writing frequently will damage the EEPROM.

Drive parameter address: High 8 bits=81+ parameter menu number, low 8 bits=parameter number, e.g. the address of F0.02 is 8102H, the address of F2.03 is 8303H.

	Slot3 IW input & QW output description					
	PLC address	Data type	Description			
V	QW72	WORD	Target parameter address			
Vrit	QW74	WORD	Parameter value			
еE	QW76	WORD	Enable EEPROM operation (1)			
ŒF	IW128	WORD	Read the parameter address			
PRC	IW130	WORD	Read the parameter value			
MC	IW132	WORD	Operation status (1: enable)			
, ,	IW134	WORD	Error code (0: no error)			

1.4 Error codes

Error Code	Description	Solutions
0x00	No trip	None

0x01	Invalid function code	The function code is not supported by slave, please using another function code.
0x02	Invalid address	The address is out of range.
0x03	Invalid value	Data length error.
0x04	Slave failure	Check the slave.
0x06	Slave busy	Check the slave.
0x07	Parity error	Check the parity check, baud rate, and stop
0x02		bit
0x08		
0x09	CRC check error	CRC check from slave error, please check slave status.
0x0B	Slave timeout	Increase timeout detecting time, check the wiring and communication setting.
0x0E	Response message length error	Increase receiving interval.
0x0F	Slave response error when it is written	Check the wiring.

2. Hardware description

2.1 **Product appearance**



2.2 LED indicators

There are 4 LED status indicators, the descriptions are shown as follow.

Symbol	Definition	Status	Description
		Red light on	DPcommunication error
D1	DPcommunication indicator	Red light flashing	
		Green light on	DPcommunication is normal
D9	Transmission light of serial port	Green light flashing	Serial port is sending data
	Sector Port	Green light off	Serial port is not sending
D8	Receiving light of	Green light flashing	Serial port is receiving data
	serial port	Green light off	Serial port is not receiving
D10	Power indicator	Red light on	Power on
210		Red light off	Power off

2.3 Setting Profibus DP address



As shown in the FIG above, DP address of drive = high bit * 10 + 100 bit, so the drive address here is 0 * 10 + 3 = 3, the valid address range is $1 \sim 99$.

2.4 **PROFIBUS DPinterface**



Pin Number	RS-485	Signal name	description			
1		Shield 2)	Shielding ground			
2		M24V 2)	-24V output			
3	B/B'	RXD/TXD-P	Receiving/Transmission-P			
4		CNTR-P 2)	Control-P			
5	C/C'	DGND	Data ground			
6		VP 1)	+5V supply			
7		P 24V 2)	+24V supply			
8	A/A'	RXD/TXD-N	Receiving/Transmission-N			
9		CNTR-N 2)	Control-N			
1) This signal is needed at terminal station.						
2) These signals are optional.						

2.5 Terminal definition

16 pins definition of communication board:

Pin number	Signal name	Description
1	COM	GND of 24V
2	VCC	+5VDC output
3	P24	+24VDC output
4	GND	GND of 5VDC
12	GND	GND of 5VDC
15	485+	485+
16	485-	485-

CN3 definition of NE300/600:



2.6 Installation and dimensions

The dimension of communication board is shown as follow.

Align the two installation holes of communication board and the installation feet of NE300/600 for optional board, plug the communication board into CN3 of control board and use two screws to fix it.



3. Network topology



4. Step by step using Siemens Step7

4.1. Get NE300/600 GSD file from drive supplier.



4.2. Open Step7 software, create a new project named CTNEDPCommunication.



4.3. Right-click on the project name, select "Insert New Object/SIMATIC 300 station ", click "SIMATIC 300", and then double-click " hardware " on the right to enter the hardware configuration interface.

4.4. Before configuring the hardware, click " Options/Install GSD file ", click " Browse ... " in the pop-up box, and then find and select the directory where "CT-NE300.GSD" is located, click " Install " and then click " OK ".



Install GSD Files				\times
Install GSD Files:		from the directory 💌		
C:\Users\L94152\De	≥sktop\NE Profibu	isDP测试		Browse
File Rel	Lease Version	Languages		
CT-NE300.gsd		Default		
I	Install GSD File (1	3:4986)	×	
	<u> </u>			
NE300/600				
Install	Show Log	Select All Deselect All		
Close				Help

4.5 Click "Options/Install HW Updates"

🖳 HW Config - [SIMATIC 300(1) (Config	guration) CT-NE300DPcommunicatio	on]			- 6 x
Station Edit Insert PLC View	Options Window Help				_ 8 ×
D 🧀 🐎 🔍 🕵 🚑 🖻 🛍 🎪	Customize	Ctrl+Alt+E			
	Specify Module Configure Network Symbol Table Report System Error Edit Catalog Profile Update Catalog Install KW Updates Install GSD File Find in Service & Support Create GSD file for I-Device	Ctrl+Alt+T		Zind: Drefil Standar PROFING: PROFIN: PROFIN: PROFIN: PROFIN: PROFIN: PROFIN: PROFIN:	DX at an at a set of the set of
<			>		
SIMATIC 300(1) S Designation			L	PROFIBUS-DF =law (distributed rac)	as for SIMATIC 57 and C7 ±
Allows the download and installation of I	HW updates.		- -	JI	

4.6. Now NE300/600 can be found under "Profibus DP/Additional Field Devices/Drives/Control Techniques".

Station Edit Insett DCC Vew Options Window Help Image: Control options Window Help Image: Control options Window Help Image: Control options Window Help Image: Control options Window Help Image: Control options Window Help Image: Control options Window Help Image: Control options Window Help Image: Control options Window Help Image: Control options Window Help Image: Control options Window Help Image: Control options Window Help Image: Control options Window Help Image: Control options Window Help Image: Control options Window Help Image: Control options Window Help Image: Control options Window Help Image: Control options Window Help Image: Control options Window Help Image: Control options Window Help Image: Control options Window Help Image: Control options Window Help Image: Control options Window Help Image: Control options Window Help Image: Control options Window Help Image: Control options Window Help Image: Control options Window Help Image: Control options Window Help Image: Control options Window Help Image: Control options Window Help Image: Control options Window Help Image: Control options Window Help Image: Control options Window Help Image: Control options Window Help <th>👪 HW Config - [SIMATIC 300(1) (Configuration) CT-NE300DPcommunication]</th> <th></th>	👪 HW Config - [SIMATIC 300(1) (Configuration) CT-NE300DPcommunication]	
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B) B1 B10001 B1 Function Modules V	Station Edit [neert PLC View Options Window Help Image: State of the s	
Down Films and Hale		en anticon Modules v termina Pronotion V termina

4.7. Hardware configuration, first insert a rail, and then power module and CPU, when adding CPU, the IP address should also be configurated.

HW Config - [SIMATIC 300(1) (Configuration) CT-NE300DPc	ommunication]		
	,		= 0 A
Station Edit Insert PLC Yew Options Window Hell Image: Station Image: Station	Properties - Ethernet interface PN-IO (R0/52.2) X General Parameters If a subnet is selected, the next available addresses are suggested. IP address: Subnet mask: 255.255.25.0 Cateway © Do not use router Juse different method to obtain IP address: Subnet: Properties Delete OK Cancel Heip	×	
6 7 8 9			GES7 315-2EH14-OABO 384 KB vork menory: 0.05ms/1000 instructions: FEDEFAITE connection: S7
Insertion possible		•	Communication (loadable FBz/FCz);

🔩 HW Con	fig - [SIMATIC 300	(1) (Configuration) CT-NE3001	DPcommunica	ition]								r x
<u>un</u> <u>S</u> tation	<u>E</u> dit <u>Insert</u> <u>P</u> L	C <u>V</u> iew Options <u>W</u> indow	Help									- 8 ×
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	1 PS	307 5A		0						i di G	0.02	
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1 1	X1 MP	I/DP								6.	CPU-300	
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1 1	X2 82 8 8 80	rt 2								B	🖶 🦲 CPU 312 IFM	
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1 1	6									6	🔁 🧰 CPV 313C-2 PtP	
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1	PS 307 5A	6ES7 307-1EA01-0AA0	TITURAL C	Aux aum ess	1 aug	q aum ess	connent		- 1	B	🖬 🧰 CPU 315F-2 PN/DP	
2	関 CPV 315-2 PM	/DP 6ES7 315-2EH14-0AB0	¥3.2							6	🗄 🦲 CPV 316	
NI .	MPI/DP				2047#						🗄 🦲 CPV 316-2 DP	
82	PN-IO				2046#						- CPU 317-2	
82 P1 R	Fort 1				2045*							
<u> </u>	Port 2		_		2044*				11		- CPU 317E-2 PN/DP	~
3			+ +						Ē	ES7 31	5-2EH14-0AB0	^ t.
5									100	84 KB 1	work memory: 0.05ms/1000	
-			+ +			1		~	Ċ	Communi	cation (loadable FBs/FCs);	~
									11			Cha

After adding CPU, double-click it, and then go to "Cycle/Clock Memory", modify the "Size of the process-image input area" and "Size of the process-image output area" from 128 to 2000.

HW Config - [SIMATIC 300(1) (Configuration) CT-NE300D	Pcommunication]	- - -
	eip	- 8 X
	Properties - CPU 315-2 PN/DP - (R0/S2)	^
	Cyclic Interrupts Diagnostics/Clock Protection Communication Web	Find: Mt Mi
🚍 (0) UR	General Startup Synchronous Cycle Interrupts	Profil Standard
1 PS 307 5A	Cycle/Clock Memory Retentive Memory Interrupts Time-of-Day Interrupts	· · · · · · · · · · · · · · · · · · ·
2 1 12/12* 11 12/12* 12* 12 1 12* 12 1 12* 12 1 1 12 1 1 12 1 1 12 1 1 12 1 1 12 1 1 12 1 1 13 1 1 5 - - 6 - - 7 - - 9 - - 10 - -	Cycle IP Update 081 process image cyclically Scan cycle monitoring time (ms): 150 Minimum scan cycle time (ms): 0 Scan cycle load from communication (%): 20 IP Prioritized OCM communication 5ize of the process-image input area: Size of the process-image output area: 2000 OB85 - call up at I/O access error: No OB85 call up	
(0) UR Slat Medule Drder number 1 PS 307 5A BST 307-1E01-0A0 2 Urv 315-2 VNDF BST 315-2EN14-0A00 3 Prevo Prevo 3 Prevo Prevo 3	Clock Memory	

4.8. Double-click "MPI/DP", select interface type as "PROFIBUS", and then create a new Profibus network.





4.9. Drag the NE300/600 (see section 4.6) to Profibus-DP bus, configurate the Profibus address to the same with the communication board, it is 3 in this case (see section 2.3).

HW Config - [SIMATIC 300(1) (Configuration) CT-NE300DPcommunication]			
	^		
1 PS 307 5A		Eind:	nt ni
2 ICPU 315-2 PR/DP X1 INF1/DP		Profil Standard	•
12 IP-10 P 2 F 8 Deve 1 Deve 1		PROFIBUS DP	·
12 P2 R Port 2 Prot 2 Profiles(1): Demoster system (1)		- Additional	LISTO DEALCER
3 4	_	E Cont	crol Techniques
5 Properties - PROFIBUS interface NE300/600 >>	1	🕀 🧰 Switchi	ng Devices
			,
9 General Parameters	1	🗄 🔂 Compati	ble PROFIBUS DP Slaves
10 Address:		E Closed-Loo	p Controller
		E Configured DP VO slav	es
Transition and 15 Mar		DP/AS-i	
i ransmission rate: 1.5 mops		E- ENCODER	
Subnet:			
not networkg New	~	E ET 2000	
PROFIBUS(1) 15 Mbps		# ET 200iS	
Properties		ET 2001SP	
Slet Modele Order number Firnvare Mr		ET 200M	
1 II IS 307 5A PEST 307 - TEAUIT-DAU		# 🔁 ET 200R	
81 <u>NPL/DP</u>		ET 200S	
R P1 R Fort I		ET 2000	
3 272 R Porr 2		H- Function M	Indul es
			<u>-</u> {
	1		
Insertion possible			Chg

4.10. Select the NE300/600 slave, and then double-click the "Process data" "Status input" and "Write EEPROM" slot to customize the I/O address.



4.11. Click "Save and Compile", if there is no error, click "Download to Module" to download the configuration.

4.12. Right-click on slot 1 "Process data", select "Monitor/Modify", slave data can be monitor and modified here, same with the "Status Input" and "Write EEPROM".



Z KCF0 315-Z FB/BF X1 KPI/DP					Profil St	andard 💌
KZ PM-10					E-W PROFI	BUS DP
N2 P1 R Port 1					🗐 🗍 🗍 🔁 A	lditional Field Devices
X2 F2 R Port 2	PROFIBUS(1): DP master syste	m (1)			e 🤤	Drives
			(0.104)			Control Techniques
4	(3) NE300 ₪ M	fonitor/Modify - 192	- (R-/S1)		EX.	ME300/600
6	DP-NORM Onlin	ne via assigned CPU :	services			Switching Devices
7	Path	CT-NE300DP comm	unication\SIMATIC 300	(1)\CPU 315-2 PM/	DP	Gateway
8				<u>г г</u>		Compatible PROFIBUS DP Slaves
10		Address Symbo	l Display format	Status value	Modify value ^	Ubject
· · · · · · · · · · · · · · · · · · ·	1	IW 80	HEX	W#16#0000		Figured Stations
	2	IW 82	HEX	W#16#1000		rigured Stations
	3	IW 84	HEX	W#16#1000		AS-i
	4	IW 86	HEX	W#16#0200		PA Link
	5	IW 88	HEX	W#16#0137		DDER
	6	าม ดก	HEX	W#16#0024		200AL
	7	TW 02	UEV	W#16#04CC		2008
		14 92	ILEA INTEN	W#10#04CC		2000
<		1W 94	HEX	W#16#0002		200eco
		IW 96	HEX		~	20015
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5. Step by step using Siemens TIA V15

In this chapter, Siemens CPU 1211DC/DC/DC, CM1243-5 communication module and TIA V15 software are used.

1. Get CT-NE300.gsd file from drive supplier.



2. Open TIA V15, create a new project named CTNEProfibusDPTest, and then click "Project view" into next step.

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 Install GSD file: click "Options/Manage general station description files (GSD)", locate the GSD file, and then click "Install".



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4. Click "Add new device" and select CPU 1211DC/DC/DC.



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5. Select and drag communication module CM1243-5 to Rack_0 as follow.

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6. Select DP interface in "Device view", create a new subnet and set the address.



Select Profinet interface on PLC and set the IP address.

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7. Go to "Network view" and drag NE300/600 to Profibus DP bus.

8. Click "Not assigned" and then "Select master: PLC_1.CM1243-5 DP interface"

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9. Select DP interface on NE300/600 and set the DP address to the same with communication board, it is 3 in this case (see section 2.3).

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10. Double-click on the NE300/600 station to show the mapping address, those addresses are modifiable.

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11. Click "Save project", select "PLC_1[CPU1211 DC/DC/DC]" under project tree, click "Compile", then "Download to device"

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12. Double-click on the "Add new watching table" under project tree, add addresses which needed to be watched and modified. Go online, and then all the addresses can be watched and modified.

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	Traces	L	17	%IW92	DEC					Read motor speed,0028H				
	Device proxy data	I.	18	%IW94	DEC					Read output power,0029H				
	Program info	L	19	%IW96	DEC					Read output torque,002AH				
	PLC alarm text lists	L	20	%IW98	DEC					Read PID reference,002BH				
	Local modules	I	21	%IW100	DEC					Read PID feedback,002CH				
	Distributed I/O	4	22	%IW102	DEC					Read Al1,002DH				
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😵 Online &	diagnostics	=	29		%IW116	Hex				Read external count,0034H		
🕨 🛃 Program	blocks		30		%IW118	Hex				Read X1 status,0035H		
📕 🕨 🖡 Technolo	ogy objects		31		%IW120	Hex				Read X2 status,0036H		
🕨 🐻 External	source files		32		%IW122	Hex				Read X3 status,0037H		
PLC tags			33		%IW124	Hex				Read X4 status,0038H		
🕨 🕨 💽 PLC data	types		34		%IW126	Hex				Read X5 status,0039H		_
🔻 🥘 Watch ar	nd force tables		35		%IB2	Hex				Communication status		
📑 Add r	new watch table		36		%IB3	Hex				Read 0001H~0004H error code		
Force	table		37	1	%IB4	Hex				Read 0020H~002FH error code		
👸 Watcl	h table_1		38		%IB5	Hex				Read 0030H~0039H error code		
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🕨 🗎 Device p	roxy data		41		%IB8	Hex				Write 0003H error code		
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EEPROM operation can write value to drive parameters which are saved when power off.

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