EtherNet MPI Adapter GT100-IE-MPI

User Manual

V 2.0

Rev E







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1 Product Overview

1.1 Product Function

The GT100-IE-MPI is an adapter which is used for Ethernet communication of Siemens SIMATIC S7 series PLC (including S7-200, S7-300, S7-400), Siemens CNC (840D, 840DSL, etc). It supports data monitoring.

1.2 Product Features

- Supports multi-master communication, the expansion port can be connected to touch screen or other masters.
- > Automatic baud rate detection.
- > Automatically query the master station address and display the address list.
- It can be directly installed on the PPI/MPI/PROFIBUS communication port of PLC without external power supply.
- Supports Siemens S7 Ethernet communication drivers, including MicroWIN, STEP 7, WinCC, SIMATIC NET, KEPServerEX, etc.
- Supports connectivity to Node-Red.
- Supports up to 16 Ethernet TCP/IP connections, allowing 16 PCs to collect PLC data at the same time.



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- [1] DB9 communication port:
 - Interface type: TIA/EIA RS-485 compatible, ESD: ±15KV, up to 32 nodes.
 - Protocol supported: Siemens S7 bus multi-master protocol, supports PPI, MPI and PROFIBUS.
 - ◆ Baud rate (bps): 9600, 19200, 45450, 93750, 187500, 500K, 1.5M.
- [2] Ethernet port:
 - Network port type: a 10M/100M adaptive network port.
 - Protocols supported: S7TCP, 16 TCP/IP connections, Modbus TCP Server.
- [3] Power: 24 VDC (11~30 VDC), 100mA(24VDC).
- [4] Operating temperature: $32^{\circ}F \sim 140^{\circ}F(0^{\circ}C \sim 60^{\circ}C)$. Humidity: $5\% \sim 90\%$ (non-condensing).
- [5] Dimensions (W*H*D): 0.67 in *2.56 in *1.29 in (17mm*65mm*33mm).
- [6] Installation: Siemens S7 PLC DB9 communication port plug.
- [7] Protection Level: IP20.

1.4 Related Products

The related products include: GT200-DP-RS, GT200-PN-RS and GT200-PN-3RS, etc.

To get more information about related products, please visit SST Automation's website: www.sstautomation.com.



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1.5 Revision History

Revision	Date	Chapter	Description
V2.0, Rev E	5/6/2024	Chapter 8	Added instructions for Modbus TCP communication
V2.0, Rev D	6/14/2023	Appendix B	Added instructions to connect Node-Red
V2.0, Rev C	6/9/2023	Appendix A	Added instructions to connect KEPServerEX
V2.0, Rev B	4/11/2023	Chapter 7	Added more details for STEP 7 modeling
V2.0, Rev A	4/3/2023	Chapter 7	Added STEP 7 modeling
V2.0	3/20/2021	ALL	New release





2 Hardware Description

2.1 Product Appearance



Note: This picture is for reference only. The product appearance is subject to the actual product.



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2.2 LED Indicators

Indicator	State	State description	Troubleshooting
DWD	ON	Supply of power is normal	N/A
PWK	OFF, Flashing	Supply of power is abnormal	Check the power supply
	ON	The baud rate is correct and the gateway is functioning normally	N/A
	Flashing (for 1 second)	The same station address exists on the S7 bus	Modify the station address of the module through the web page
BUS	Flashes twice at 1Hz after a few seconds interval	Baud rate is not detected	Check the PLC communication port
	OFF	Gateway or indicator failure	Contact technical support
	Flashing	Communication response frequency	N/A
	ON	Network is connected	N/A
Link	OFF	Gateway or network failure	Check local and remote network connections
	Flashing	Communication is normal with remote devices	N/A
Active	OFF	No communication	N/A
	ON, not flashing quickly	Ethernet failure	Contact technical support

2.3 Interface

2.3.1 Power Interface

The power interface is an optional interface. It's not recommended to use it. The gateway can get power when connecting PLC using S7 bus interface. If PLC itself cannot provide power, you can connect power interface to power it.

Pin	Function
1	+24V
2	GND







2.3.2 Ethernet Interface

The Ethernet interface uses an RJ-45 connector. Its pin (standard Ethernet signal) is defined as below:

Pin	Description
S 1	TXD+, Transmit Data+
S2	TXD-, Transmit Data-
S3	RXD+, Receive Data+
S4	Bi-directional Data+
S5	Bi-directional Data-
S6	RXD-, Receive Data-
S7	Bi-directional Data+
S 8	Bi-directional Data-



2.3.3 S7 Bus Interface

1) S7 bus interface X1

The X1 interface uses a DB9 male port, which can be directly inserted into the communication port (PPI port, MPI port or PROFIBUS port) of an S7 series PLC. The pin definition of the communication port is the same as that of the PLC, among which pin 3 is the B line of RS485, pin 8 is the A line of RS485, and pin 5 is the logic ground. Pin 7 is the positive of the 24VDC power supply of the PLC, and pin 2 is the ground of the 24VDC power supply. The 24VDC power supply of pin 2/7 is used as the default power supply input. The baud rates supported by the X1 interface include: 9.6K, 19.2K, 45.45K, 93.75K, 187.5K, 500K and 1.5Mbps.

	Pin	Function
	2	GND of 24VDC
	3	RS485, B
	5	GND
	7	24VDC
	8	RS485, A
RS4	85_A (Pin 8)	GND (Pin 5) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0







2) Extended S7 bus interface X2

The X2 interface uses a DB9 female port, which is used to connect Siemens communication equipment (such as Siemens touch screen, CP5611 communication card, etc.). The supported baud rates include 9.6K, 19.2K, and 187.5K.



2.3.4 Reset Button

The reset button is used to restore the gateway to factory settings. Long press the button for 5 seconds and release the button when the BUS indicator is solid green. The default IP is 192.168.1.188. Navigate to 192.168.1.188 in a web browser to configure the gateway.



3 Hardware Installation

3.1 Mechanical Dimensions

Size (width * height * depth): 0.67 in *2.56 in *1.29 in (17mm*65mm*33mm)

3.2 Installation Method

The GT100-IE-MPI is installed using a Siemens S7 PLC DB9 communication port plug.





Basic steps when configuring G100-IE-MPI :

- 1. Wiring: See also Chapter2.3 Interface.
 - 1) Plug the S7 bus Ethernet interface to Siemens PLC PPI, MPI or PROFIBUS communication port.
 - 2) Connect the network port of the gateway to the PC with a network cable to download the configuration.
 - 3) Power on the PLC, and check whether the gateway powers on.
- 2. Build your configuration using web browser after connecting the gateway with network cable.

If the gateway cannot be discovered, please note:

- The factory network IP Address of the GT100-IE-MPI is 192.168.1.188. Please check whether the computer and gateway are in the same network segment.
- Please test the network connection first. Please refer to the note "<u>How to Use the Ping Command</u>" located on our Support page on the sstautomation.com website.
- If you press and hold the Reset button for 5 seconds, the gateway will restore the factory default configuration, and the IP address will be fixed to 192.168.1.188.
- 3. Navigate to 192.168.1.188 in your web browser to configure the gateway. For more details about configuring the GT100-IE-MPI, please refer to <u>Chapter 5</u>.







5 Configuration Instructions

5.1 Configuration Interface Description

After connecting the gateway using network cable, you can fill in http: //192.168.1.188/ to start configuration of GT100-IE-MPI.

When you first visit the web configuration page, the interface is as below.

The default password is admin.



Lang	Juage En	glish 🗸
Passwor	d]
Defau	ult Password:	admin
[LOGIN	





5.2 Home

The Home screen of the configuration webpage will show the basic info and diagnostics for your reference.

SST@M			
	Industrial Communication Bridge		
Home	Device name:	Serial number: 00109583	Firmware version: 0.3.1.38
Parameter Settings	Bridge adapter type: GT100-IE-MPI	MAC address: 4E-45-54-01-AC-0F	Production date: 2021-11-26
	Serial Interface Diagnostics		
	Protocol mode: MPI M/S	X1 baudrate type: Auto	X2 baudrate type: Auto
	Bus status: Error	X1 bandrate: 9600	X2 baudrate: 9600
	Bridge adapter address: 0	X1 request counts: 0	X2 request counts: 0
	Bus highest address: 31	X1 response counts: 0	X2 response counts: 0
	Gap factor: 10	X1 error counts: 0	X2 error counts: 0
	Master address sheet: 0		
	Slave address sheet:		
	Ethernet Interface Diagnostics		
	IP address: 192.168.1.188	TCP connection counts: 0	TCP request counts: 0
	Subnet mask: 255.255.255.0	S7TCP connection counts: 0	TCP response counts: 0
	Gateway: 192.168.1.1	Modbus connection counts:	TCP error counts: 0
	S7TCP target address: 2		
	S7TCP target address by slot: OFF		

5.3 Parameter Settings

5.3.1 Basic Settings

Click the "Parameter Settings" on the left and you will the configuration interface, as shown below:

Basic Settings

		Settings	Description
	Device name:		Enter the name of the device to which the bridge is connected.
	Password:		Change password.
	Conform password		Conform password.
Device name:	Ente	r the name of the device to which	the bridge is connected.

Device name:

Password:

Change the login password of the web configuration page.

Confirm password: Input the password again.





5.3.2 Serial Interface Settings

Serial Interface Settings

	Settings	Description
Protocol mode:	MPI M/S 🗸	Select the protocol mode of PLC.
Bridge adapter address:	0	The default is 0, which cannot conflict with other station address on the bus.
Bus highest address:	31	The default is 31.
Gap factor:	10	Range:1-100,the default is 10.
X1 baudrate:		X1 port connects to PLC, the baudrate can be set to be automatic or fixed baudrate.
X2 baudrate:		X2 port connects to HMI, the baudrate can be set to be automatic or fixed baudrate.
Protocol mode:	Select the protocol mode of PLC please select PPI. If the PLC is want to connect PROFIBUS port,	C. If you want to connect the PPI of S7-200 PLC, S7-300 or S7-400, please select MPI M/S. If you , please select PROFIBUS.
Bridge adapter address:	The default is 0, which cannot cor	nflict with other station address on the bus.
Bus highest address:	The default is 31. No need to chan	nge.
Gap factor:	The default is 10. No need to chan	nge.
X1 baudrate:	Select the baudrate you want to u can be set to be automatic or fixed	se with PLC. X1 port connects to PLC, the baudrate d baudrate.
X2 baudrate:	Select the baudrate you want to u can be set to be automatic or fixed	se with PLC. X2 port connects to PLC, the baudrate d baudrate.





Ethernet Interface Settings

Settir	igs	Description
IP address: 192	. 168 . 1 . 188	IP address is 192.168.1.188 by default.
Subnet mask: 255	. 255 . 255 . 0	Subnet mask is 255.255.255.0 by default.
Gateway: 192	. 168 . 1 . 1	Gateway is 192.168.1.1 by default.
S7TCP target address by slot. OFF	▼	When the status is ON,S7TCP target address is set by slot.
S7TCP target address: 2		The default is 2,valid when the status of S7TCP target address by slot is OFF.
Open TCP Port: 1099		The default is 1099.
	Download	
IP Address:	Set the IP address of the GT	100-IE-MPI.
Subnet Mask:	Subnet mask is 255.255.255	.0 by default.
Gateway:	The default address is 192.1	68.1.1.
S7TCP taget address by slot:	When the status is ON,S7TC	CP target address is set by slot
S7TCP taget address:	The default is 2, valid when	the status of S7TCP target address by slot is OFF.
Open TCP Port:	The default is 1099.	

5.4 Download

When parameter settings are done, please click Download button to download the configuration to the GT100-IE-MPI.

The web page will show the following hint when you click the Download button. Then the configuration will take effect.

The parameters are set successfully, the device will restart in 6 seconds.







6.1 System Requirements

To program your PLC with TIA Portal using the GT100-IE-MPI, TIA Portal must first be installed on your system. Please refer to Siemens for instructions on how to install TIA Portal.

6.2 Programming

Refer to the following instructions to configure the GT100-IE-MPI in TIA Portal.

- 1. Open a new project.
- 2. Double click "Add new device".





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3. Expand the "Controllers" tree and expand the "CPU" folder under "SIMATIC S7 300", then select the actual PLC model you want to connect. Then click "OK".





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4. Double click "MPI address", configure it and click "Add new subnet".

		515201											
							📱 Тор	ology	/iew	H Net	work view	De De	v <mark>ice v</mark> iew
PLC_	1 [CPU 315-2 DP]	•] 🖽 !			🔍 ±							
		~											^
		PLC											=
	Rail 0	2	₹4	5	6	7	8	9	10	11			
	Mun_o		HS		-								
		112	ſ										
	_	8		_	-		_	_	_	_	-		
													Contract of Contract of Contract
:]							>	100%				~
API inter	rface_1 [X1]		_				P	> roperti	100%	i. Info	i V Dia	agnostics	
. Ⅲ MPI inter Genera	rface_1 [X1]	Syste	em con	stants	Tex	ts	P	> roperti	100% es	L Info	i 🖞 Dia	agnostics	
. Ⅲ MPI inter Genera General	rface_1 [X1] al IO tags	Syste	em con	stants	Tex	tts	P	> roperti	100% es	L Info	i 🗓 Dia	agnostics	
API inter Genera General MPI addr	rface_1 [X1] II IO tags ress	Syste	em con MPI ac	stants Idress	Tex	tts	P	roperti	100% es	1 Info	1 U Dia	agnostics	
Cenera General MPI addr	rface_1 [X1] al IO tags ress	Syste	em con MPI ac Inte	stants Idress rface n	Tex	d with	P	roperti	00%	1 Info	1 Dia	agnostics	
C III MPI inter General General MPI addr	rface_1 [X1]	Syste	em con MPI ac Inte	stants Idress rface n	Tex	tts d with Subnet	P	roperti	es	<u>1</u> Info	i U Dia	agnostics	
C III MPI inter Genera General MPI addr	rface_1 [X1]	Syste	em con MPI ac Inte	stants Idress rface n	Tex 	d with Subnet	P	> roperti network Add n	ed ew subr	L Info	i V Dia	agnostics	
MPI inter Genera General MPI addr	rface_1 [X1] II IO tags	Syste	em con MPI ac Inte	stants Idress rface n	Tex etworked	d with Subnet	Not	> roperti network Add n	es ed	1 Info	i & Dia	agnostics	
MPI inter Genera General MPI addr	rface_1 [X1] al IO tags ress	Syste	em con MPI ac Inte Para	stants Idress rface n meters	Tex etworked	d with Subnet	E Not	roperti network Add n	ed ew subr	1 Info	L C Dia	agnostics	
MPI inter Genera General MPI addr	rface_1 [X1]	Syste	em con MPI ac Inte	stants Idress rface no meters	Tex etworked	d with Subnet	Not	> roperti network Add n	ed ew subr	ti Info		agnostics	
Ceneral General General MPI addr	rface_1 [X1]	Syste	em con: MPI ac Inte	stants Idress rface n meters	etworked	d with Subnet Address	• Not	network Add n	ed ew subr	il Info	i V Dia	agnostics	
C MPI inter General General MPI addr	rface_1 [X1]	Syst	em con MPI ac Inter Para	stants Idress rface n meters	Tex etworked Highes	d with Subnet Address t address	 Not 2 31 187. 	network Add n	ed ew subr	ti Info	i V Dia	agnostics	

5. It will generate "MPI_1" network. The "Address" should match the MPI address of PLC. The default is 2.

MPI interface_1 [X1]		Reperties 1 Info 1 Diagnostics		-
General IO tags Sy	stem constants Texts			
General MPI address	MPI address			
	Interface networked with			
	Subnet:	MPI_1	•	
	•	Add new subnet		
	Parameters			1
	Address:	2	-	
	Highest address:	31		
	Transmission speed:	187.5 kbps		
			~	~





6. Then select "Add new device", select the "PC station" option under the "PC general" folder within the "PC systems" tree. Then click OK.

Device name:				
PC station		1		
Controllers Controllers HM PC systems	C Systems C Second Se	Device: Article no.: Version: Description: SIMATIC PC st	SIMATIC PC station SIMATIC PC-Station V1.0 ation	

7. Select "Communications modules"->"PROFIBUS"->"CP5611(A2), and drag it to the No.1 slot of PC station.





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8. Double click "CP5611A2_A" to start configuring the serial interface parameters. Choose "MPI" for Interface type. Choose "MPI_1" for Subnet, then set the "Address" to the GT100-IE-MPI Module address (The default is 0, and it must not conflict with any other station address on the bus).

General IO ta	gs System constants Texts	
General MPI address	MPI address	
Assignment	Interface networked w	th
Reserve LSAPs		
	Si	ibnet: MPI_1
		Add new subnet
	Parameters	
	Interface	type: MPI
	Ad	dress: 0
	Highest ad	dress: 31 *
	- Transmission s	peed: 187.5 kbps 📼
		7

9. Select "Communications modules"->"PROFINET/Ethernet"->"IE general", drag it to the No.2 slot.





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10. Double click "IE general_1" to start configuring the ethernet interface parameters. Click "Add new subnet" and it will automatically generate "PN/IE". Fill in the IP address and Subnet mask of the GT100-IE-MPI (The default, IP address is 192.168.1.188).

IE general_1	[IE General]		Q Proper	ties	🗓 Info 🕦 🖫	Diagnostics	1 a v
General	IO tags	System constants	Texts				
 General PROFINET int General Options Ethernet Advanced 	erface [X1] addresses Loptions	Ethernet addres	ses worked with Subnet:	PN/IE	_1 Add new subnet		=
		ISO protocol	otocol MAC address:	08	-00 -06 -01 -00 -1	20]	
		Use IP prote	ocol version 4 (ocol IP address: Subnet mask:	192 255	. 168 . 0 . 188 . 255 . 255 . 0 se router		
		PROFINET	nutri nutressi	0			



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11. Right click "PLC", turn to "Go online". In the pop-up window, select "PN/IE" for "PG/PC" interface type, select local network card for "PG/PC Interface". Click searching, then the PLC will be found. Click "Go online".

Devices		
 Project1 		
📑 Add new dev	vice	
Devices & n	etworks	
▼ 🛄 PLC_1 [CF	Change device	
Device	Migrate to \$7-1500	
😵 Online	Migrate to 57 1500	
🕨 🛃 Progra	Open	
🕨 🙀 Techn	Open in new editor	
🕨 🐻 Extern	Open block/PLC data type	F/
🕨 🌄 PLC ta	Cut	Ctrl+X
🕨 💽 PLC da	Сору	Ctrl+C
🕨 🙀 Watch 🗐	Paste	Ctrl+V
🕨 🛐 Online 🗙	Delete	Del
🕨 🚂 Device	Rename	F2
Progra	Go to topology view	
PLC su	Go to network view	
PLC al		
Potails view	Compile Download to dovice	
· Details view	Backup from online device	
Module	Go online	Ctrl∔K
2	Go offline	Ctrl+M
Name 9	Online & diagnostics	Ctrl+D
Device configur	Receive alarms	
Online & diagno	Cosochot of the actual value	
Program blocks	Load snapshots as actual up	aluer
Technology obje	Load start values as actual	values
External source	Copy snapshots to start value	ies 🕨
PLC tags	The state in the second s	chiA v
👔 PLC data types 불	Start simulation Ctrl	+Snift+X
Watch and force	Compare	•
👌 Online backups 📑	Search in project	Ctrl+F
Device proxy da	Cross-references	F11
A Dortal view	Call structure	

12. Right click "Program blocks", select "Upload from device (software)", then start uploading and downloading the program of PLC.







7.1 System Requirements

To program your PLC with STEP 7 using the GT100-IE-MPI, STEP 7 must first be installed on your system. Please refer to Siemens for instructions on how to install STEP 7.

And, please install the STEP 7 driver (Run as administrator) which is available on GT100-IE-MPI product page.

7.2 Programming

The following procedure will show you how to program your PLC using STEP 7.

1. Set PG/PC interface

a. Using a web browser, go to the "S7 Bus Interface Parameters" page of the GT100-IE-MPI (See <u>Chapter 5.1</u>). Under 'Serial Interface Settings', set the 'Module address' to the desired MPI address for the GT100-IE-MPI (default is 0). This MPI address must be unique and cannot be the same as the PLC's MPI address.

	Settings	
Protocol mode:	MPI M/S	~
Module address:	0	
Bus highest address:	31]
Gap factor.	10)
X1 baudrate:	187500	~
X2 baudrate	187500	~

Serial Interface Settings



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Under 'Ethernet Interface Settings', set the 'S7TCP target address' to the actual PLC's MPI address (default is 2), and click the "Download" button to save the changes.



b. Open the STEP 7 programming software, select the menu "Options -> Set PG/PC Interface...".





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c. Select IE-MPID.MPI.1 in the pop-up dialog box, and then click on Properties to change its IP address so that it is in the same IP subnet as the PC.

Access Path LLDP / DCP PNIO Adapter Info	1	
Access Point of the Application:	2	
S7ONLINE (STEP 7) -> IE-MPID MPI 1		-
(Standard for STEP 7)		
Interface Parameter Assignment Used		
IE-MPID.MPI.1	Properties	
I ANONE>	Diagnostics.	. [
喝IE-MPID.MPI.1 圈IE-MPID.PPI.1 喝IE-MPID.PROFIBUS.1	Copy_	
Intel(R) Wireless-AC 9560.ISO.1	Delete	Ĩ
(User parameter assignment (converted))		





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2. Upload Program

a. Select the menu "PLC -> Upload Station to PG..." in the main window of STEP 7 software.





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b. Click the "View" button to check the type of the PLC, and then click the "OK" button to upload the program from the PLC.

	ess				
Which module do y	you want to	reach?			
<u>a</u> ck:	0 ÷	1			
<u>i</u> lot:	0 🕂				
Target Station:		l			
	C Can	be reached by mear	ns of gateway		
Enter connection	to target st	ation:			12.5%
IP address	MAC	Module type	Station name	Module name	Plant
192.168.1.188		CPU 315-2 DP			
Accessible Nodes					
Accessible Nodes		<u>U</u> pda	te		
Accessible Nodes	connected appropriate ise of firewa	Updato an enterprise net ly protected against ills and network segi about industrial sec	te work or directly to th t unauthorized acce mentation. surity, please visit:	ne internet	
Accessible Nodes	connected appropriate ise of firewa information	to an enterprise net ly protected against ills and network seg about industrial sec s.com/industrialsecu	te work or directly to the unauthorized acce mentation. surity, please visit:	ne internet	





3. Download Program

STEP 7 software will automatically check whether there is an Ethernet connection in the hardware configuration of the current S7-300 Station when performing download and when monitoring the Network communication interface.

a. Since the GT100IE-MPI driver has already been installed and "IE-MPID.MPI.1" has been selected in the PG/PC settings, you only need to select the S7-300 Station project and click "Download".

ccess Path LLDP / DCP PNIO Adapter Info	1	
Access Point of the Application:		
S7ONLINE (STEP 7) -> IE-MPID MPI 1		-
(Standard for STEP 7)		
Interface Parameter Assignment Used		
IE-MPID.MPI.1	Properties	
Mone>	Diagnostics	
疁IE-MPID.MPI.1 疁IE-MPID.PPI.1	~	1
疁IE-MPID.PROFIBUS.1	Copy_	
Intel(R) Wireless-AC 9560.ISO.1	Delete	
(User parameter assignment (converted))		



GT100-IE-MPI	
EtherNet MPI Adapte	r

11	or	Ma	nua	1
U	DEI	IVI a	IIua	

тс	
	Communication parameters
	IP address or domain name of the module: 192.168.1.188 S7TCP port(default 102): 102 Timeout(millisecond): 10000
	Confirm Cancel
SIMATIC Manager - S7_Pro2	
File Edit Insert PLC View C	Quetions Window Help 같이 약 문제 방문 (The Filler > 고 文 양 왕 梁 문 曰 티 N2
En S7 Pro2 - C) Program File	
□ - Pay S7. Pro2 □ - Pay S7. Pro2	Hardware CPU312(1)

b. After clicking on download, a download progress bar will be displayed to confirm that the GT100-IE-MPI connection is working properly.



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4. Conclusion

After the S7-300 Station is established, you can start using GT100-IE-MPI to download and monitor program (Operate on the S7-300 Station of the STEP 7 project).

Note:

- a. You should run as administrator to install the STEP 7 driver and run STEP 7 software.
- b. The IP address of IE General in S7-300 Station rack should be the IP address of GT100-IE-MPI.
- c. The address parameter of the STEP 7 programming station for GT100-IE-MPI should be pre-set to the MPI station address of the current PLC (the default is 2).



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8 Modbus TCP Communication

The GT100-IE-MPI can be configured to function as a Modbus TCP Server, which can be enabled using the Exclink configuration software. This feature is supported on S7-200, S7-300 and S7-400 PLCs. The PLC's Q output area is mapped starting at 0x0001, the I input area is mapped starting at 1x0001, and the M memory area is mapped starting at 3x0001. On S7-300 and S7-400 PLCs, the DB memory area blocks are mapped starting at 4x0001. On S7-200 PLCs, the V memory area is mapped starting at 4x0001.

The mapping address table is listed as below.

Modbus Register Starting Address	S7 Series PLC Starting Address	Data Type	Calculation	Function Code
0x0001	Q0.0	Bit	Qm.n = 0x0001 + m*8 + n	FC1 (Read Coil Status)
				FC5 (Write Single Coil)
1x0001	10.0	Bit	Im.n = 1x0001 + (m * 8) + n	FC2 (Read Discrete Input)
3x0001	MW0	Word (2 bytes)	MW m = 3x0001 + $m/2$	FC4 (Read Input Registers)
			Where <i>m</i> is an even number.	
4x0001	DBx.DBW0 (S7-300 and S7-400)	Word (2 bytes)	DBx.DBWm = $4x0001 + m/2$ Where <i>m</i> is an even number. (<i>x</i> is set through the Exclink configuration software)	FC3 (Read Holding Registers) FC16 (Write Multiple Registers)
	VW0 (S7-200)		VWm = 4x0001 + m/2 Where <i>m</i> is an even number (The V memory area in the Exclink configuration software is configured as DB1)	FC6 (Write Single Register)

- **Note:** Modbus register addresses are expressed in Base-1 notation. If the Modbus TCP Client uses Base-0 notation, then the addresses will need to be offset by one.
- Note: Please make sure your PC is configured within the same IP segment as the GT100-IE-MPI adapter. For example, if the adapter's IP address is 192.168.1.188, then your PC should be configured to 192.168.1.XXX.

Modbus TCP IP Address:	The same IP address as the GT100-IE-MPI Default: 192.168.1.188
Modbus TCP Slave ID:	The same as the station address of your PLC Default: 2



GT100-IE-MPI EtherNet MPI Adapter User Manual

The following example will show how to access data from S7-300 PLC.



- 1. Open the Exclink software
- 2. Click the "Search" button.

Bridge adaptor	Device no	Sorial nu	Firmware ve	MAC address	ID addrose	Subnot maek	Catoway	Device type	Production date		
bridge adapter	Device na	Seriai IIu	Filliwale ve	MAC addiess	IF address	Subnet mask	Gateway	Device type	Floutetion tate		

The GT100-IE-MPI is found.

		1 1								
Bridge ac GT100-I	apter Device na E-MPI GT100-IE	Serial nu 109583	Firmware ve 0.3.1.38	MAC address 4E-45-54-01-AC	IP address 192.168.1.188	Subnet mask 255.255.255.0	Gateway 192.168.1.1	Device type SIEMENS_S7	Production date 2021-11-26	



User Manual

Device information									
Model:	GT100-IE-MPI	IP addre	ss: 1	192.168.1.188		Export	Import	Clear log	Refresh
Serial number:	109583	Subnet ma	isk: 2	255.255.255.0					
Firmware version:	0.3.1.38	Gatew	ay: 1	192.168.1.1		Doumland	Unload	Doctort	Dimensioner Hand at
Device type:	SIEMENS_S7300	MAC addre	ess: 4	4E-45-54-01-AC-0F		Download	opioad	Restart	Firmware opuat
arameter configuration	Modbus slave Comm	unication diagnos	sis Con	nmunication test					
Device name:	GT100-IE-MPI								
Protocol mode:	MPI M/S v	X2 mode:	HMI	~	IP address:	192.168.1.188			
Module address:	0	X2 baudrate:	Auto	· · ·	Subnet mask:	255.255.255.0			
Bus highest address:	31	X2 databit:	8		Gateway:	192.168.1.1			
X1 baudrate:	Auto ~	X2 parity:	None	• ×	S7TCP target address:	2			
Gap factor:	10	X2 stopbit:	1		S7TCP target address by slot:	OFF ~			
					OpenTcp port:	1099			
					Web display:	ON ~			
						Advanced settings			
					neo display.	Advanced eattinge			

3. Double click the GT100-IE-MPI to enter into the configuration interface.

4. Click the Modbus slave Tab.

Dernee	informatio	on			
	Mo	del: GT100-IE-MPI I	P address: 192.168.1.188	Export Import	Clear log Refresh
5	erial num	ber: 109583 Sul	bnet mask: 255.255.255.0		
Firm	iware vers	sion: 0.3.1.38	Gateway: 192.168.1.1	Such at a state	
	Device t	ype: SIEMENS_S7300 MA	C address: 4E-45-54-01-AC-0F	Download Opload	Restart
aramete	er configur	ation Modbus slave Communication	diagnosis Communication test		
OFF		(Only valid for \$7300/400)	(X2 mode must be set modbus slave)		
Modbu	s slave ad	dress table	Modbus RTU		
DB DB·	number	Modbus area	Slave address: 1		
DB:	2	405001-409800	Target address: 2		
DB:	3	410001-414800	Tuget uuress.		
DB:	4	415001-419800			
DB:	5	420001-424800			
DB:	6	425001-429800			
DB:	7	430001-434800			
DB:	8	435001-439800			
DB:	9	440001-444800			
og					
024-04 024-04 024-04 024-04 024-04 024-04 024-04	-28 10:56: -28 10:56: -28 10:56: -28 10:56: -28 10:56: -28 10:56: -28 10:56:	45:1122.168.1.179)is connecting;[192. 45:Connect[192.168.1.186]successfull 45:Please wait while the device inform 45:Read information complete 45:Read configuration offset0.p 45:Pevice;[192.168.1.188]open succes	108.1.189j y iation is read lease wait ssfully		



User Manual

Set the drop-down option to "ON" to enable Modbus TCP, then configure the DB block numbers for the Modbus slave addresses to be mapped to the PLC. In this example, the DB10 block will be mapped to 400001-404800.

Note: Before enabling Modbus TCP, first add the data blocks, such as DB1 and DB2, to the S7 PLC program.

Kei Configuration tool[GT100-IE-MPI] - 192.168.1.188				– 🗆 X
Device information				
Model: GT100-IE-MPI IP	address: 192.168.1.188	Export	Import Clear log	Refresh
Serial number: 109583 Subr	et mask: 255.255.255.0			
Firmware version: 0.3.1.38	Gateway: 192.168.1.1			
Device type: SIEMENS_S7300 MAC	address: 4E-45-54-01-AC-0F	Download	Upload Restart	Firmware Update
Parameter configuration Modbus slave Communication d	agnosis Communication test			
ON (Only valid for \$7300/400)	(X2 mode must be set modbus slave)			
Modbus slave address table	Modbus RTU			
DB number Modbus area DB: 10 400001-404800	Slave address: 1			
DB: 2 405001-409800	Target address: 2			
DB: 3 410001-414800				
DB: 4 415001-419800				
DB: 5 420001-424800				
DB: 6 425001-429800				
DB: 7 430001-434800				
DB: 8 435001-439800				
DB: 9 440001-444800				
Log 2024-04-28 10:56-45:Device:[192.168.1.188]open success 2024-04-28 11:05:08:Writing the mapping configuration, of 2024-04-28 11:05:09:Read file configuration complete 2024-04-28 11:05:09:Read file configuration offset0.ple 2024-04-28 11:05:12:Perice:12:21.681.188]disconnected 2024-04-28 11:05:12:Perice:12:21.681.188]disconnected 2024-04-28 11:05:12:20:Perice129:1681.188]disconnected 2024-04-28 11:05:12:20:Perice129:1681.188]disconnected 2024-04-28 11:05:12:Device:192.1681.188]open successful 2024-04-28 11:05:12:Device:192.1681.188]open success	fully ffset0,please wait ase walt 1 8.1.188] fully			

5. When the configuration is done, please click the "Download" button to download the configuration into the GT100-IE-MPI adapter.

Device	informatio	on			
	Mo	del: GT100-IE-MPI	IP address: 192.168.1.188 Export Import	Clear log Refresh	
S	erial num	ber: 109583	ubnet mask: 255.255.255.0		
Firm	iware ver Device t	sion: 0.3.1.38 ype: SIEMENS_S7300	Gateway: 192.168.1.1 AC address: 4E-45-54-01-AC-0F	Restart Firmware Upda	late
aramete	r configur	ation Modbus slave Communicati	n diagnosis Communication test		
ON		 (Only valid for \$7300/400) 	(X2 mode must be set modbus slave)		
Modbu	s slave ad	dress table	Modbus RTU		
DB DB:	number 10	Modbus area 400001-404800	Slave address: 1		
DB:	2	405001-409800	Target ad Download configuration confirmation		
DB:	3	410001-414800			
DB:	4	415001-419800	Are you sure you want to download the configuration?		
DB:	5	420001-424800			
DB:	6	425001-429800	Vor		
DB:	7	430001-434800			
DB:	8	435001-439800			
DB:	9	440001-444800			
og					
2024-04 2024-04 2024-04 2024-04 2024-04 2024-04 2024-04 2024-04	28 10:56 28 10:56 28 10:56 28 10:56 28 10:56 28 10:56 28 10:56 28 10:56	:45:[192.168.1.179]is connecting:[1 :45:Connect[192.168.1.188]success :45:Please wait while the device info :45:Read information complete :45:Read configuration offset :45:Read configuration complete :45:Device:[192.168.1.188]open suc	2.168.1.186] Ily mation is read please wait essfully		





2024-04-28 11:05:08:Writing the r	napping configuration, offset0,please wait	
2024-04-28 11:05:09:Write configu	uration complete	
2024-04-28 11:05:09:Reading the	configuration offset0,please wait	
2024-04-28 11:05:09:Read configu	ration complete	
2024-04-28 11:05:12:Device:192.1	.68.1.188is disconnected	
2024-04-28 11:05:12:[192.168.1.1	79]is connecting:[192.168.1.188]	
2024-04-28 11:05:12:Connect[192	.168.1.188]successfully	
2024-04-28 11:05:12:Device:[192.	168.1.188]open successfully	
-		

6. Use a Modbus TCP Client to connect to the GT100-IE-MPI and read the data. In this example, the Modbus Poll acts as a Modbus TCP Client to read the data. Connect to IP address 192.168.1.188 and Slave ID 2.

ପ୍ରି Modbus Poll - Mbpoll1			- 🗆 X
File Edit Connection Setup Functions Display	v View Window Help		
🗅 🗃 🔚 🎒 🗙 🗂 🗏 🚊 л. об с	onnection Setup	×	
Mbpoll1	Connection	ОК	
Tx = 2: Err = 1: ID = 2: F = 03: SR = 1000	Modbus TCP/IP ~		
No connection	Serial Settings	Cancel	
Alias 00000	COM1 ~	Mode	
0 -24576	0000 Devid	ORTU OASCII	
2 0	3000 Daug *	Besponse Timeout	
3 21	8 Data bits 🗸 🗸	1000 [ms]	
4 789	Even Parity V	Delau Returnen Della	
5 0	1 Stop Bit V Advanced	20 Imsl	
6 0		- Internet	
	Remote Modbus Server		
	192.168.1.188	~	
	Server Port Connect Timeout	O IPv4	
	502 3000 [ms]		
		0	
객 Modbus Poll - Mbpoll1 File Edit Connection Setup Functions Display	View Window Help		- O X
	Read/Write Definition	×	
Mbpoll1	Slave ID:	ОК	
1x - 9. Ell - 1. ID - 2. F - 03. SR - 1000IIIS	Function: 03 Bead Holding Begisters (4x) >	Capital	
Alias 00000			
0 -11008	Address: V Protocol address. E.g. 40	011 -> 10	
1 21	Quantity: 10		
2 0	Scan Rate: 1000 [ms]	Apply	
3 21	Disable		
5 0	Disable on error	Read/Write Once	
6 0			
	Rows		
	O 10 O 20 O 50 O 100 O Fit to Q	uantity	
	Hide Alias Columns PLC Address	es (Base 1)	
	Address in Cell Enron/Danie	Mode	
or Help, press F1.			1192.168.1.1881: 502



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The data can now be read from the S7 PLC using Modbus TCP. Function codes FC6 or FC16 can also be used to write register values to the PLC.

ଷ୍ଣି Modbus Poll - Mbpoll1		-	×
File Edit Connection Setup Functions Display View Window Help			
🗅 🚔 🔚 🞒 🗙 🛅 🖳 📋 几 05 06 15 16 17 22 23 TC 🖳 🦓 📢			
D Mbpoll1	- • ×		
Tx = 36: Err = 1: ID = 2: F = 03: SR = 1000ms			
Alias 00000			
0 3072			
1 21			
3 21			
4 789	-		
5 0			
6 0			
		J	
For Help, press F1.	[192.168.1.188]: 5	602	.5





9 Use Case









A. How to connect GT100-IE-MPI to KEPServerEX

Firstly, please set S7TCP target address as 2 or other number, and set the IP address the same IP segment with the PC installed with KEPServerEX. Keep other parameters as default.

SST@M

	Industrial Commu	inication Bridge				
Home	Device name:		Serial number:	00109583	Firmware version:	0.3.1.38
Parameter Settings	Bridge adapter type:	GT100-IE-MPI	MAC address:	4E-45-54-01-AC-0F	Production date:	2021-11-26
	Serial Interface Di	agnostics				
	Protocol mode:	MPI M/S	X1 baudrate type:	Auto	X2 baudrate type:	Auto
	Bus status:	Error	X1 bandrate:	9600	X2 baudrate:	9600
	Bridge adapter address:	0	X1 request counts:	0	X2 request counts:	0
	Bus highest address:	31	X1 response counts:	0	X2 response counts:	0
	Gap factor:	10	X1 error counts:	0	X2 error counts:	0
	Master address sheet:	0				
	Slave address sheet:					
	Ethernet Interface	Diagnostics				
	IP address:	192.168.1.188	TCP connection counts:	0	TCP request counts:	0
	Subnet mask.	255.255.255.0	S7TCP connection counts:	0	TCP response counts.	0
	Gateway:	192.168.1.1	Modbus connection counts:	0	TCP error counts:	0
	S7TCP target address:	2				
	S7TCP target address by	OFF				





Then start configuring KEPServerEX.

1. Create a new channel.

[Connected to Runtime] - KEPServerEX 6 Configuration

Project	Channel Name	/ Driver	Connection
-(iii) Connectivity	Click to add a channel.		
Click to add a channel.			
Alarms & Events			
Add Area			
📲 🛢 Data Logger			
Add Log Group			
EFM Exporter			
Add Poll Group			
DF for Splunk			
Add Splunk Connection			
Local Historian			
Add Datastore			
🖃 🗊 Profile Library			
Add Profile			
Scheduler			
Add Schedule			
SINIMP Agent			

SST@M

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2. Selec	et Siemens TCP/IP Ethernet driver.	
		×
~	Add Channel Wizard	
s	Select the type of channel to be created:	
	Siemens TCP/IP Ethernet V	

3. Fill the name of the Channel.

\leftarrow	Add Channel Wizard

Specify the identity of this object.	
Name:	
GT100-IE-MPI	0



 \times



← Add Channel Wizard

Binding	Adapter Name	
169 254 185 157	Default Intel(R) Wi-Ei 6 AX201 160MHz	
192.168.1.193	Realtek PCIe GbE Family Controller	
-		



 \times

p other parameters as default. Add Channel Wizard Choose how write data is passed to the underlying communications driver when more than one write exists in the write queue. Optimization Method: Write Only Latest Value for All Tags Specify the ratio of write operations to read operations, based on one read per configurable number of writes. Duty Cycle: 10	Us	er Manual	
Add Channel Wizard Choose how write data is passed to the underlying communications driver when more than one write exists in the write queue. Dytimization Method: Write Only Latest Value for All Tags © Specify the ratio of write operations to read operations, based on one read per configurable number of writes. Duty Cycle: 10	ep other pa	rameters as default.	
Add Channel Wizard Choose how write data is passed to the underlying communications driver when more than one write exists in the write queue. Optimization Method: Write Only Latest Value for All Tags Specify the ratio of write operations to read operations, based on one read per configurable number of writes. Duty Cycle: 10 ©			×
Choose how write data is passed to the underlying communications driver when more than one write exists in the write queue. Optimization Method: Write Only Latest Value for All Tags Specify the ratio of write operations to read operations, based on one read per configurable number of writes. Duty Cycle: 10	Add Cl	nannel Wizard	
Optimization Method: Write Only Latest Value for All Tags Specify the ratio of write operations to read operations, based on one read per configurable number of writes. Duty Cycle: 10	Choose ho one write	ow write data is passed to the underlying communications driver when more than exists in the write queue.	
Write Only Latest Value for All Tags Image: Constraint of the second	Optimizat	ion Method:	
Specify the ratio of write operations to read operations, based on one read per configurable number of writes. Duty Cycle: 10	Write On	y Latest Value for All Tags 🛛 🗸 🔞	
10			
	Specify th configural Duty Cycle	e ratio of write operations to read operations, based on one read per ole number of writes. e:	
	Specify th configural Duty Cycle 10	e ratio of write operations to read operations, based on one read per ole number of writes. e: ②	
	Specify th configural Duty Cycle 10	e ratio of write operations to read operations, based on one read per ole number of writes. e: ②	
	Specify th configural Duty Cycle <u>10</u>	e ratio of write operations to read operations, based on one read per ole number of writes. e: ②	
	Specify th configural Duty Cycle 10	e ratio of write operations to read operations, based on one read per ole number of writes. e: @	

← Add Channel Wizard

Choose how to send invalid floating-point numbers to the client.

Floating-Point Values:

Replace with Zero 🛛 🗸 🙆



	User Manual	
	Add Channel Wizard	
-	Identification	
_	Name	GT100-IE-MPI
	Description	
	Driver	Siemens TCP/IP Ethernet
	Diagnostics	
	Diagnostics Capture	Disable
	Tag Counts	
	Static Tags	0
	Ethernet Settings	
	Network Adapter	Realtek PCIe GbE Family Controller
	Write Optimizations	
	Optimization Method	Write Only Latest Value for All Tags
	Duty Cycle	10
	Non-Normalized Float Handling	
	Electing-Doint Voluce	Replace with Zero

The channel is created successfully.



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Then you need to add a device.

- 5. Click to add a device.
- 🔯 [Connected to Runtime] KEPServerEX 6 Configuration

project	Channel Name	1	Driver
 Connectivity GT100-IE-MPI Click to add a device. Aliases Advanced Tags Adarms & Events Add Area Data Logger Add Log Group EFM Exporter Add Poll Group K IDF for Splunk Add Splunk Connection Add Splunk Connection Add Agent Local Historian Add Datastore 	GT100-IE-MPI		Siemens TCP/IP Ethernet

Add Device Wizard

Specify the identity of this object.	
Name:	
<u>\$7-300</u>	۲

 \times



7. Select the actual S7 PLC model. GT100-IE-MPI only supports connecting S7-200, S7-300 and S7-400.

X

← Add Device Wizard

Select the specific type of device associated with this ID. Options depend on the type of communications in use.

Model:	
S7-300	~ 📀
\$7-200	
S7-300	
S7-400	
S7-1200	
S7-1500	
NetLink: S7-300	
NetLink: S7-400	

8. Fill in the IP address of GT100-IE-MPI.

← Ad	d Device Wizard	
Specif	y the device's driver-specific station or node.	
ID:		
192.10	68.1.188	



Keep other parameters as default.

Add Device Wizard	
Specify the method for determining	g how often tags in the device are scanned.
Scan Mode:	
Respect Client-Specified Scan Rate	e 🗸 🎯
polling devices immediately.	
Initial Undates from Cache	
Initial Updates from Cache:	
Initial Updates from Cache: Disable v @	
Initial Updates from Cache: Disable v 💿	
Initial Updates from Cache: Disable v	
Initial Updates from Cache: Disable v	



	User Manual
А	dd Device Wizard
Defir	ne the maximum amount of time, in seconds, allowed to establish a connection to a
Conr	nect Timeout (s):
3	
~	
from	the target device to indicate completion.
Requ	iest Timeout (ms):
2000	
Indic requ	ate how many times the driver sends a communications request before considering the est to have failed and the device to be in error.
Atte	mpts Before Timeout:
2	
Defir	ne how long, in milliseconds, the driver waits before sending the next request to the
Defir	he how long, in milliseconds, the driver waits before sending the next request to the

Automatically remove the device from the scan due to communication failures.

Demote on Failure:

Disable 🗸 🙆



Add Device Wizard	
Select the automatic tag gene	ration action to be taken on device startup.
On Device Startup:	
Do Not Generate on Startup	~ 💿
Indicate the preferred method On Duplicate Tag:	of avoiding creation of duplicate tags.
Delete on Create	· ·
Indicate a tax group name for	new generated tags. If empty, generated tags are added at
the device level.	and the she was a consider the second s

Instruct the server to automatically create sub groups for automatically generated tags.

Allow Automatically Generated Subgroups:

Enable 🗸 🥝



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9. Ke	eep the default port as 102. Since it is fixed in S7 communication port in the S7-200/S7-300/S7-400 PLC.
	X
\leftarrow	Add Device Wizard
	Set the TCP/IP port number configured for this device. Port Number: 102 Enter the device port number where the NetLink adapter is connected.

Add Device Wizard 4D57	
Add Device Wizard 4D57 Specify the remote (device) unique address for this connection in hexadecimal. Remote TSAP: 4D57 Select the type of connection link to be used in communications. ink Type: PC Select the rack number where this CPU resides. CPU Rack: 0 Select the slot number where this CPU resides.	
Add Device Wizard 4D57 © Specify the remote (device) unique address for this connection in hexadecimal. Remote TSAP: 4D57 © Select the type of connection link to be used in communications. Link Type: PC V © Enter the rack number where this CPU resides. CPU Rack: 0 © Enter the slot number where this CPU resides.	
4D57 Specify the remote (device) unique address for this connection in hexadecimal. Remote TSAP: 4D57 Select the type of connection link to be used in communications. Link Type: PC PC Select the rack number where this CPU resides. CPU Rack: 0 Select the slot number where this CPU resides.	
4D57 Specify the remote (device) unique address for this connection in hexadecimal. Remote TSAP: 4D57 Select the type of connection link to be used in communications. .ink Type: PC Enter the rack number where this CPU resides. CPU Rack: 0 Senter the slot number where this CPU resides.	
Specify the remote (device) unique address for this connection in hexadecimal. Remote TSAP: 4D57	
Specify the remote (device) unique address for this connection in hexadecimal. Remote TSAP: 4D57	
AD57 Select the type of connection link to be used in communications. Link Type: PC Enter the rack number where this CPU resides. CPU Rack: 0 Enter the slot number where this CPU resides.	
AD57 (Select the type of connection link to be used in communications. Link Type: PC v (Enter the rack number where this CPU resides. CPU Rack: 0 (Enter the slot number where this CPU resides.	
Select the type of connection link to be used in communications. Link Type: PC v v Enter the rack number where this CPU resides. CPU Rack: D v Enter the slot number where this CPU resides.	
ink Type: PC \checkmark @ Enter the rack number where this CPU resides. CPU Rack: D \textcircled{O} Enter the slot number where this CPU resides.	
PC v @ Enter the rack number where this CPU resides. CPU Rack: 0 @ Enter the slot number where this CPU resides.	
Enter the rack number where this CPU resides. CPU Rack: 0 @ Enter the slot number where this CPU resides.	
Enter the rack number where this CPU resides. CPU Rack: D @ Enter the slot number where this CPU resides.	
CPU Rack: 0 @ Enter the slot number where this CPU resides.	I
0 💿	I
nter the slot number where this CPU resides.	I
nter the slot number where this CPU resides.	I
	I
CPU Slot:	1
2	V
p other parameters as default.	
	×
Add Device Wizard	

	d and a second se
ou can import Step 7 proje	ect to generate the tags or do not import and manually create the tag later.
	×
Add Device Wizard	
ಲಾಭವಾರಾವ ಭಾಲಾಶಕ ನೆಲ್ಲ ಕೆಲೆಸಿದರು. ನೆಲೆ	
Select the source for tag	import.
Select the source for tag Fag Import Type:	import.
Select the source for tag Fag Import Type: Step 7 Project File	import.
Select the source for tag Tag Import Type: Step 7 Project File	import.
Select the source for tag Tag Import Type: Step 7 Project File Locate and select the Sier	import. v @ mens Step 7 project file from which to import tags.
Select the source for tag Tag Import Type: Step 7 Project File Locate and select the Sier Step 7 Project (*.S7P):	import. v @ mens Step 7 project file from which to import tags.
Select the source for tag Tag Import Type: Step 7 Project File Locate and select the Sie Step 7 Project (*.S7P):	import. v © mens Step 7 project file from which to import tags. ©

GT100-IE-MPI EtherNet MPI Adapter User Manual

12. Then the device is created successfully. Click ok to close.

← Add Device Wizard

Ξ	Identification	
	Name	S7-300
	Description	
	Driver	Siemens TCP/IP Ethernet
	Model	S7-300
	Channel Assignment	GT100-IE-MPI
	ID	192.168.1.188
8	Operating Mode	
	Data Collection	Enable
	Simulated	No
=	Tag Counts	
	Static Tags	0
=	Scan Mode	
	Scan Mode	Respect Client-Specified Scan Rate
	Initial Updates from Cache	Disable
Ξ	Communication Timeouts	
	Connect Timeout (s)	3
	Request Timeout (ms)	2000
	Attompte Roforo Timoout	2

Then you should create the tags or auto generate the tags.

Manually click to add a tag.

[Connected to Runtime] - KEPServerEX 6 Configuration



X

User Manual

The address should be in the Step 7 project.

🔯 Property Editor - GT100-IE-MPI.S7-300

Property Groups	Identification	
General	Name	test
Scaling	Description	
Ū.	Data Properties	
	Address	DB10.W0
	Data Type	Default
	Client Access	Read/Write
	Scan Rate (ms)	100

Or, you can select a Step 7 Project file. And move to "Tag Generation" to auto create the tags.

Property Editor - GT100-IE-MPI.S7-300

Property Groups	🖃 Tag Import	
General	Tag Import Type	Step 7 Project File
Scan Mode	Step 7 Project (*.S7P)	C:\ProgramData\Siemens\Automation\Step7\S7Proj\ts-180v1\test.s
Timing	Program Path	SIMATIC 300(1)\CPU 315-2 DP\S7 Program(1)
Auto-Demotion	and the second	
Tag Generation		
Communication Parameters		
S7 Communication Parame		
Addressing Options		
Tag Import		
Redundancy		
and the second second		

😳 Property Editor - GT100-IE-MPI.S7-300

Property Groups	Tag Generation	
General	On Device Startup	Do Not Generate on Startup
Scan Mode	On Duplicate Tag	Delete on Create
Timing	Parent Group	
Auto-Demotion	Allow Automatically Generated Subgroups	Enable
Tag Generation	Create	Create tags
Communication Parameters		
S7 Communication Parame		
Addressing Options		
Tag Import		
Redundancy		



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GT100-IE-MPI EtherNet MPI Adapter User Manual

Then, the tags will be created under device S7-300.

[Connected to Runtime] - KEPServerE	X 6 Configuration			- 0	
<u>File Edit View Tools Runtime He</u>	elp				
🗋 📂 🗟 🥵 🍀 🛅 📬 😪 🧺 🚰	🔊 🎽 🗈 🛍 🗙 🔛				
Project	Tag Name	Address	1	Data Type	
	🤜 SendData[0]	DB10.WORD0		Word	
	CondData SendData	DB10,WORD0[466]		Word Array	
B DB10	CendData[1]	DB10,WORD2		Word	
DB20	SendData[2]	DB10,WORD4		Word	
DB30	GendData[3]	DB10,WORD6		Word	
- Aliases	GendData[4]	DB10,WORD8		Word	
Advanced Tags	CendData[5]	DB10,WORD10		Word	
🚍 🎒 Alarms & Events	GendData[6]	DB10,WORD12		Word	
	SendData[7]	DB10,WORD14		Word	
🖻 💾 Data Logger	SendData[8]	DB10,WORD16		Word	
Add Log Group	SendData[9]	DB10,WORD18		Word	
	SendData[10]	DB10,WORD20		Word	
E B IDE for Splunk	SendData[11]	DB10,WORD22		Word	
Add Splunk Connection	SendData[12]	DB10,WORD24		Word	
□ 柴 IoT Gateway	SendData[13]	DB10,WORD26		Word	
- 😓 Add Agent	SendData[14]	DB10,WORD28		Word	
🖨 🔁 Local Historian	SendData[15]	DB10,WORD30		Word	
- 1 Add Datastore	SendData[16]	DB10,WORD32		Word	
😑 🎒 Profile Library	SendData[17]	DB10,WORD34		Word	
Add Profile	SendData[18]	DB10,WORD36		Word	
	SendData[19]	DB10,WORD38		Word	
Add Schedule	SendData[20]	DB10WORD40		Word	

13. Click "QC" Quick Client in the tool bar to review the data.

Quick Client - 无标题 *				-
t View Tools Help				
😹 💣 💣 😭 👗 🖻 🖷 🗙				
are.KEPServerEX.V6	Item ID	∠ Data Type Va	lue Timestamp	Quality
1100-E-MPI \$72300 Tirolie-MPI \$7300 DB10 .TIrolie-MPI \$7300 DB20 .TIrolie-MPI \$7300 DB30	CT100-IE-MPILS7-300.test	Word 0_	13:59:53.345	Good
匾 OPC Quick Client - 无频题 * File Edit View Tools Hel			_	o x
D 📽 🖬 🛫 💣 🖆 👗 🗞 🗑	×			
B-: Kepware KEPServerEX.V6	Item ID	/ Data Type Value	Timestamp Quality	Update C
GT100-IE-MPLS7-300	GT100-E-MPI.S7-300.DB10.SendData	Word Array [0, 0, 0, 0, 0,	13:59:53.293 Good	1
GT100-IE-MPLS7-300 DB20	GT100-E-MPLS7-300 DB10.SendData[0]	Word 0	13:59:53:293 Good	1
GT100-IE-MPLS7-300 DB30	GT100-E-MPLS7-300 DB10 SendData[1]	Word 0	13:59:53:303 Good	1
	GT100-E-MPLS7-300 DB10 SendData[3]	Word 0	13:59:53:303 Good	1
	GT100-IE-MPI S7-300 DB10 SendData[4]	Word 0	13:59:53:303 Good	1
	CT100/E-MPIS7300 DB10 SondData[4]	Word 0	13:59:53:303 Good	4
	GT100-IE-MPI S7-300 DB10 SendData[6]	Word 0	13:59:53:303 Good	1
	CT100/E-MPI S7-300 DB10 SondData[0]	Word 0	13:59:53:303 Good	1
	GT100-E-MPLS7-300 DB10 SendData[8]	Word 0	13:59:53:314 Good	1
	GT100-E-MPLS7-300 DB10 SendData[0]	Word 0	13:59:53:314 Good	1
	CT100/E-MPLS7-300 DB10 SendData[3]	Word	13:59:53:293 Good	1
	GT100/E-MPLS7300 DB10 SendData[10]	Word	13:59:53:293 Good	1
	GT100-E-MPLS7-300 DB10 SendData[12]	Word 0	13:59:53:293 Good	i
	GT100-E-MPLS7-300 DB10 SendData[13]	Word 0	13:59:53:293 Good	i
	GT100-E-MPLS7-300 DB10 SendData[14]	Word 0	13:59:53:293 Good	i
	GT100-IE-MPI.S7-300.DB10.SendData[15]	Word 0	13:59:53.293 Good	1
	GT100-IE-MPI.S7-300.DB10.SendData[16]	Word 0	13:59:53.293 Good	1
	GT100-IE-MPI.S7-300.DB10.SendData[17]	Word 0	13:59:53.293 Good	1
	GT100-IE-MPI.S7-300.DB10.SendData[18]	Word 0	13:59:53.293 Good	1
	GT100-IE-MPI.S7-300.DB10.SendData[19]	Word 0	13:59:53.293 Good	1
	GT100-IE-MPI.S7-300.DB10.SendData[20]	Word 0	13:59:53.293 Good	1
	GT100-IE-MPI.S7-300.DB10.SendData[21]	Word 0	13:59:53.293 Good	1
	G I 100-IE-MPI.S7-300.DB10.SendData[22]	Word 0	13:59:53.293 Good	1
	G I 100-IE-MPLS /-300.DB10.SendData[23]	Word 0	13:59:53:293 Good	1
	W G 1100-IE-MPLS7-300.DB10.SendData[24]	Word 0	13:59:53:293 Good	1
	CT100/E-MPLS7-300 DB10.SendData[25]	Word 0	13:53:53:293 Good	1
	CT100 E MDLS7 300 DB10 SendData[26]	Word 0	13.59.53.293 Good	-
	GT100-E-MPLS7-300-DB10-SendData[27]	Word 0	13.59.53.293 Good	1
	w G i TUO'IL TIIP 1,37-300.00 TU,StrinuData[20]	word	13.33.33.233 3000	
Date Time	Event			
0 2023-06-09 13:59:53	Connected to se			
0 2023-06-09 13:59:53	Added group 'G			
2023-06-09 13:59:53	Added group 'G			
2023-06-09 13:59:53	Added source C			
2023-00-09 13:59:53	Added group G			
2023-06-09 13:59:53	Added group 'G			
0 2023-06-09 13:59:53	Added 12 items t			
0 2023-06-09 13:59:53	Added 1 items t.			
Deadu				Born Count 1017

You can see the data value is 0 and Quality is Good. That means the connection is normal.





B. How to connect GT100-IE-MPI to Node-Red

Install the contrib-S7 module. Click the "Manage palette".



Search S7 in the "Install" area and install node-red-contrib-s7 module.

Node-RED					
Q filter nodes	Flow 1	User Settings			
common			Close		
inject		View	Nodes Install		
debug		Palette	sort: 17 a-z recent C		
complete			Q S7 14/4424 ¥		
catch	S7-300	Keyboard	Node-RED nodes to communicate with Siemens MPI/PPI/DP adapters • 1.0.0-beta.2 1 year, 2 months ago		
++ status					
by link in			 I.0.2 [™] 1 year, 7 months ago install 		
link call			🗑 node-red-contrib-s7 🖸		
link out			A Node-RED node to interact with Siemens S7 PLCs		
Comment			R node-red-contrib-s7-http (2		
			A Node-RED node to interact with Siemens S7 via HTTP		
 function 			🗣 1.0.0 🏙 5 years, 3 months ago install		
function			node-red-contrib-s7comm A Node DED node to communicate with Siemens S7 DLCs		
c c switch			1.1.6		
Change			+ 4 more		



User Manual

After installation, you will see the new node.





User Manual

Drag S7-In and debug module to the panel and do the wiring between them.



Edit s7 in node)		
Delete		Cancel	Done
Properties		0	
5 PLC	S7-300	~	
≇ Mode	All variables	~	
	Emit only when value of	changes (diff)	
Name Name	Name		



User Manual

Click the pen to create the new connection. Fill the same IP address and S7TCP target address (Slot 2 as defualt) as GT100-IE-MPI configuration web page.

Please make sure the S7TCP target address is the same with the actual MPI address with Siemens PLC.

Delete		Cancel	Update
Properties			•
Connection	Variables		
🖋 Transport	Ethernet (ISO-on-TCP)		
Address	192.168.1.188 Port 102	Q 8	
≣ Mode	Rack/Slot ~		
A Rack	0 Slot 2		
Cycle time	1000 🔹 ms		
O Timeout	2000 🗘 ms		
Name	S7-300		

Serial interface settings

	Settings	Des
Protocol mode:	MPI M/S V	Sele
Bridge adapter address:	0	The
Bus highest address:	31	The
Gap factor:	10	Rar
X1 baudrate:	AUTOMATIC ~	X1
X2 baudrate:	AUTOMATIC ~	X2

Ethernet interface settings

	Settings			Des	
IP addres:	192	. 168	. 1	. 188	IP a
Subnet mask	255	. 255	. 255	. 0	Sub
Gateway	192	. 168	. 1	. 1	Gat
S7TCP target address by slot.	OFF 🗸				Wh
S7TCP target address	2				The
Open TCP Port	1099				The



	User Ma	nual	
/aria	bles, fill in the c	orrect DB address.	
EC	dit s/ in node >	Edit s7 endpoint node	
	Delete		Cancel
<	Properties		0
	Connection	Variables	
	■ Variable list		
Г			_
L	DB10,W0	DB10	×

Uncheck the "Emit only when value changes" box to receive the data in cycle or check the box to receive the data when value changes.

Select All variables to read all the variables.

Edit s7 in node			
Delete		Cancel Done	
Properties			þ
7 PLC	S7-300	~	
≢ Mode	All variables	~	
	Emit only when value ch	nanges (diff)	
Name Name	Name		





Finally, click deploy, the node-red will receive the data in cycle.



Click the debug button, you will see the data.



