FATEK®

HEM-MPI

FATEK HMI MPI Expansion Module

Catalog

Tables

Figure

Revision Record

Version	Date	Name
V1.0	2020/5/20	Ray Tsai
V1.1	2020/5/25	Curtis Li
V1.2	2020/5/26	Calvin Wu

Chapter 1. HEM-MPI Expansion Module Product Introduction

1.1 Product Introduction

Through this product HEM-MPI, FATEK A model HMI can exchange data with Siemens S7-300 series PLC.

1.2 Product Specification

Table 1 Product Specification

Category	Item	Characteristic
System	Communication Standard	Siemens MPI
	Baud Rate	19.2K, 187.5K
Hardware	Signal Terminal	3 Pin Screw Terminal
	Power Supply Voltage and Current Consumption	5V, 150mA
	Operating Temperature	0 ~ 60℃
	Storage Temperature	-20 ~ 80℃
	Terminal Resistor	Yes, can be opened depending on the situation
	Recommended Number of Connections	Depends on the number of PLC supports
	Electrical Isolation	No
Software	Configuration Setting	PC Software FvDesigner

1.3 Product Appearance

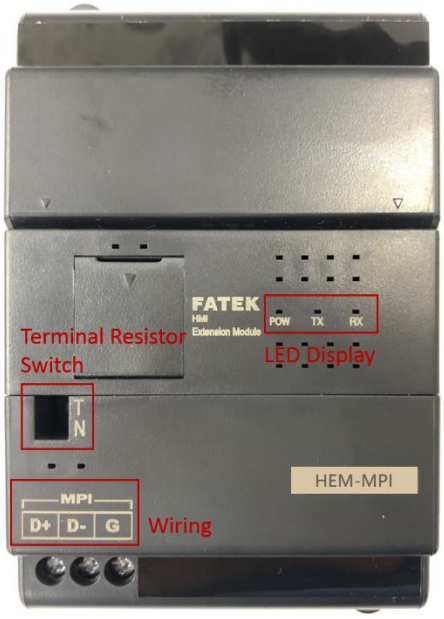

Figure 1 Product Appearance

As shown in Figure 1, the wiring hole of the module is in the lower left corner, and the communication interface is RS-485. Above the communication interface is a terminal resistance switch, which can be used as required. In addition, there are 3 groups of LED indicators, which are POW, TX and RX. Chapter 1.6 will have a more detailed introduction.

1.4 Product Wiring

The module uses RS-485 as the communication interface, it has 3 wirings, as shown below.

- DATA +
- DATA –
- GND (Ground)

When wiring, connect the module D+ with the device D+, D- connect with D-, GND connect with GND.

1.5 Product Installation

The module is installed on the back of the A model HMI, and locked with screws.

1.6 LED Indicator Status

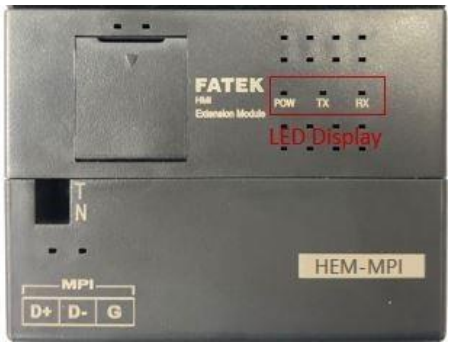

Figure 2 LED indicator name and location

Table 2 LED indicator operation mode

Indicator name	Indicator function	Indicator behavior
POW	Power status	Light on when power on
		Light off when power off
TX	Communication interface transmission status	Flashes while transmitting
RX	Communication interface receiving status	Flashes when receiving

Chapter 2. FvDesigner Software Introduction

2.1 Software Introduction

FvDesigner provides software tools for editing HMI series product project. Added S7-300 MPI Driver in the link page, so that it can exchange data with Siemens S7-300 series PLC.

2.2 Software Operation Description

Step 1

Add new link, Manufacturer->Siemens Corporation, Product Series->S7-300 MPI

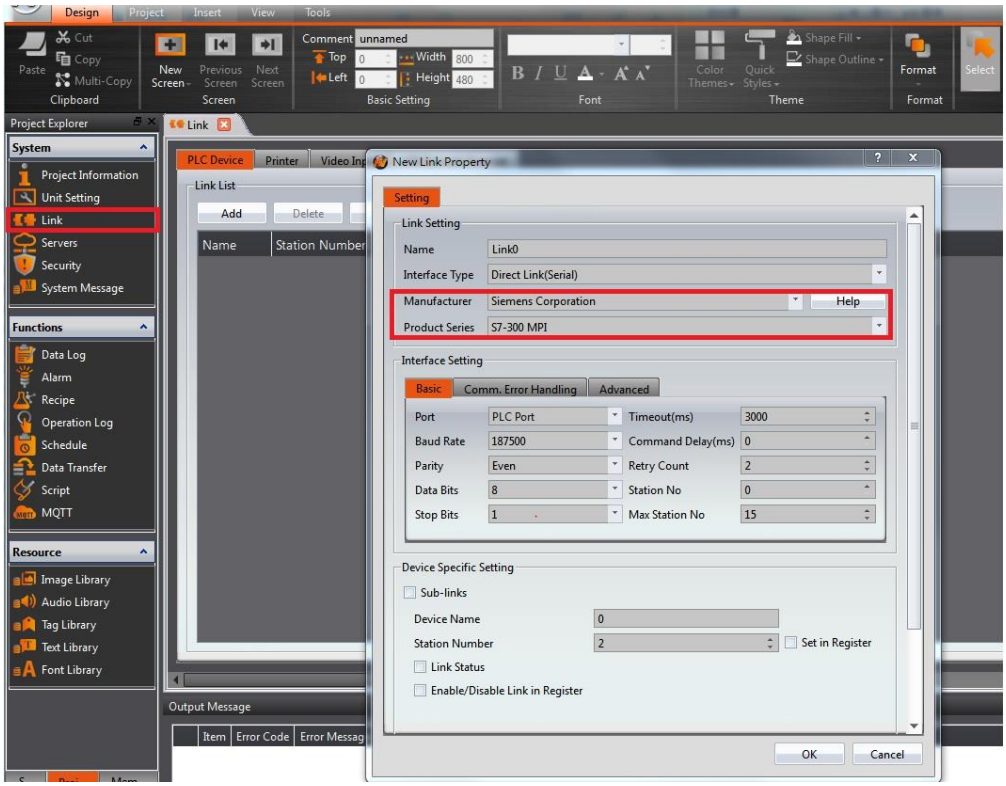

Figure 3 FvDesigner New Link Property

Note 1: Only support A model HMI PLC port for the communication.

Step 2

After finish planning the project, then download it to the HMI.

Chapter 3. Siemens S7-300 Wiring and Setting

3.1 Siemens S7-300 Setting

Step 1

Use TIA Portal V14 to open the Siemens S7-300 project, click on the 9-pin communication interface in the Siemens S7-300 image, as shown in Figure 4.

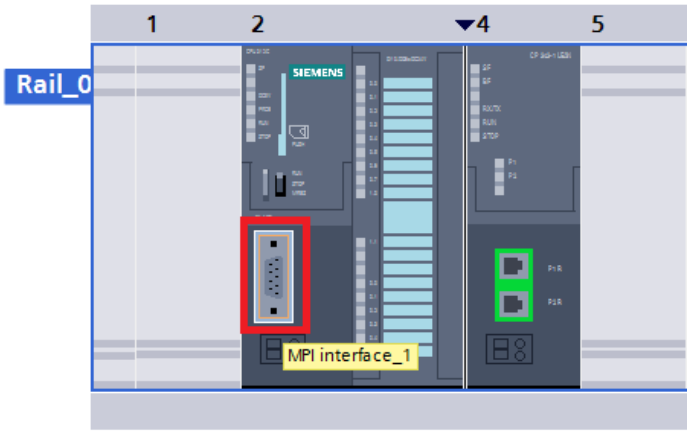

Figure 4 Siemens S7-300 software image of communication interface

Step 2

Set the station number, it can't conflict with the station number of HEM-MPI.

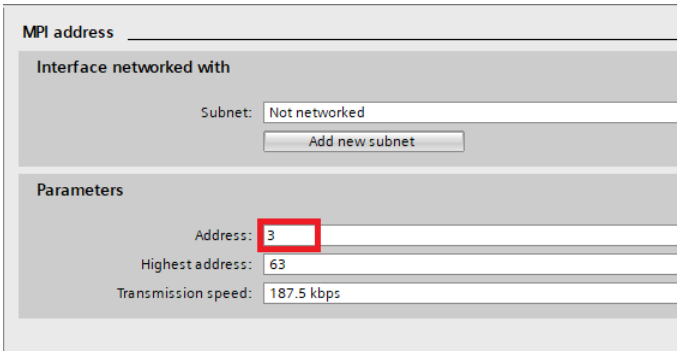

Figure 5 Set MPI address

Step 3

Set the maximum station number in the entire network. This maximum station number must be the same as the maximum station number in the HEM-MPI link setting, otherwise communication will be abnormal.

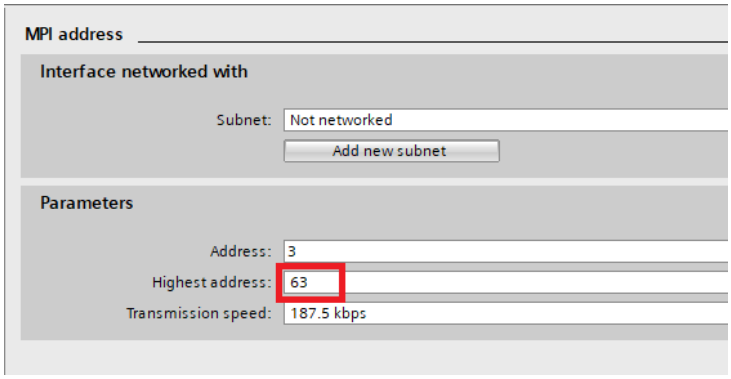

Figure 6 Set the maximum station number in the MPI network

Step 4

Set the Baud Rate. Siemens S7-300 only supports 19.2 kbps and 187.5 kbps.

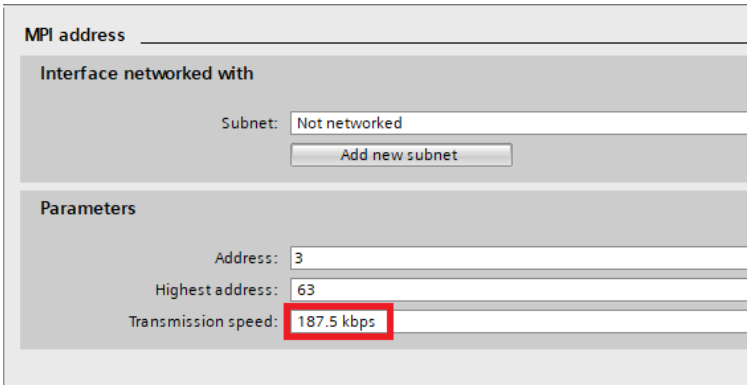

Figure 7 Set Baud Rate

Step 5

After setting and planning, compile and download to Siemens S7-300.

3.2 Siemens S7-300 wiring

Siemens S7-300 uses RS-485 as the communication interface, it has 3 wirings, as shown below. When wiring, the same wiring of the different devices must be connected.

- DATA +
- DATA –
- GND (Ground)

The communication interface of Siemens S7-300 has 9 pins, each pin is marked with a number, as shown below.

Figure 8 Siemens S7-300 communication interface

RS-485 uses three pins, as shown in Table 3. Connect the same pin to start communication with the connected device.

Table 3 Pins used by Siemens S7-300 communication interface RS-485

Pin	Signal
3	DATA +
5	GND
8	DATA -

Appendix A. How to get FATEK FvDesigner software

Download link: http://www.fatek.com/zh-tw/download.php?act=list&cid=13

Appendix B. Limitation number of the connected devices

The total number of connected devices on the network is limited by the device with the smallest number of connections on the network. The following provides suggestions for the total number of connected devices of Siemens S7-300 series PLC. When the limit is exceeded, the communication accuracy cannot be guaranteed .

(The table is only for reference. Refer to the Siemens website for the latest information.)

Siemens S7-300 series PLC – CPU model	Maximum connection number for MPI communication
CPU 312	2
CPU 312C	2
CPU 313	4
CPU 313C	4
CPU 313C-2DP	4
CPU 313C-2PtP	4
CPU 314	8
CPU 314C-2DP	8
CPU 314C-2PtP	8
CPU 315	8
CPU 315-2DP	12
CPU 315F-2DP	12
CPU 315-2PN/DP	14
CPU 315F-2PN/DP	14
CPU 316	8
CPU 316-2DP	8
CPU 317-2DP	30
CPU 317F-2DP	30
CPU 317-2PN/DP	30
CPU 317F-2PN/DP	30
CPU 318-2DP	30
CPU 319-3PN/DP	30
CPU 319F-3PN/DP	30
CPU 614	8