How to Configure Pro-face HMI with Siemens PLC

Moxa Technical Support Team
support@moxa.com

Contents

1 Application Description ........................................................................................................... 2
2 System Topology .................................................................................................................. 2
3 Hardware and Software Requirements .............................................................................. 3
   3.1 Hardware Requirement .................................................................................................. 3
   3.2 Software Equipment ..................................................................................................... 3
4 Configuration ....................................................................................................................... 3
   4.1 Hardware Installation .................................................................................................. 3
   4.2 Configuring GP-Pro EX ............................................................................................. 5
5 On-line Test .......................................................................................................................... 17

About Moxa

Moxa is a leading manufacturer of industrial networking, computing, and automation solutions. With over 25 years of industry experience, Moxa has connected more than 30 million devices worldwide and has a distribution and service network that reaches customers in more than 70 countries. Moxa delivers lasting business value by empowering industry with reliable networks and sincere service for automation systems. Information about Moxa’s solutions is available at www.moxa.com. You may also contact Moxa by email at info@moxa.com.

How to Contact Moxa

Tel: +886-2-8919-1230
Fax: +886-2-8919-1231
1 Application Description

- **Objective**
  
  This document describes how to use Pro-face GP-4501TW to control and monitor Siemens PLC.

- **Goals**
  
  This document covers the following topics:
  - How to use Pro-face GP-4501TW.
  - How to use the Pro-face screen editor tool, **GP-Pro Ex**.
  - How to use Pro-face HMI to control and monitor Siemens PLC.

2 System Topology

The following figure shows the system architecture in which the Modbus end devices, PowerFlex 4M and IAQPoint2, are connected to the serial port on MGate 4101-MB-PBS through RS-485-2W wiring. MGate 4101-MB-PBS is connected to the PROFIBUS port on Siemens PLC via a PROFIBUS cable. PC (running SIMATIC Step 7) is connected to an Ethernet switch port on Siemens PLC via an Ethernet cable. A fan is connected to PowerFlex 4M that outputs electric current to power the fan. Pro-face GP-4501TW controls and monitors Siemens PLC via Ethernet connection.
3 Hardware and Software Requirements

3.1 Hardware Requirement
A. Pro-face GP-4501TW
   Pro-face GP-4501TW is a 10.4-inch TFT color, touch screen with operator interface.
B. For information on other hardware requirements, refer to the Configuring Siemens S7-300 PLC with Moxa MGate 4101-MB-PBS.

3.2 Software Equipment
A. GP-Pro EX:
   This is the screen editor utility published by Pro-face.
   Rev.: V3.5
B. For information on other software requirements, refer to the Configuring Siemens S7-300 PLC with Moxa MGate 4101-MB-PBS.

4 Configuration

4.1 Hardware Installation
1. Serial Wiring
   For information on installing PowerFlex 4M and IAQPoint2, refer to the Configuring Siemens S7-300 PLC with Moxa MGate 4101-MB-PBS.
2. Ethernet Connection
   • Connect CPU 315 to the PC running SIMATIC Step7 through an Ethernet connection to one of the two Ethernet connectors, either directly or through a common Ethernet switch.
   • Connect the PROFIBUS cable from the PROFIBUS port on CPU 315 to the PROFIBUS port on MGate 4101-MB-PBS.
   • Connect the Ethernet port on the Pro-face GP-4501TW to an Ethernet port on CPU 315.
3. Pro-face GP-4501TW IP Setup
   a. Touch either the top right hand corner then the bottom left hand corner OR the top
      left hand corner and then the bottom right hand corner within 0.5 seconds.
      **Note:** Do not touch both corners at the same time.

   ![Diagram](image1)

   b. A menu appears on the screen as shown in the following figure. Touch **Offline**.

   ![Menu Screen](image2)

   c. Touch **Main Unit Settings → Ethernet Local Settings**.
**Moxa Tech Note**  How to Configure Pro-face HMI with Siemens PLC

d. Configure the **IP address** and **Subnet Mask** fields.

![IP address and Subnet Mask Configuration](image)

4. For information on other hardware settings, refer to the *Configuring Siemens S7-300 PLC with Moxa MGate 4101-MB-PBS*.

4.2 **Configuring GP-Pro EX**

1. **Creating a New project**
   
a. Start the GP-Pro EX application.
   
b. The Welcome to GP-Pro EX window appears. Select **New** and click **OK**.

![Welcome to GP-Pro EX](image)
c. Configure the following **Display Unit** settings and click **Next**.
   - **Series**: Select **GP 4000 Series** and **GP-45** Series from the drop-down lists.
   - **Model**: Select **GP-4501TW** from the drop-down list.

d. In the Device/PLC screen, configure the following fields and click **New Screen**:
   - **Manufacture**: Select **Siemens AG** from the drop-down list.
   - **Series**: Select **SIMATIC S7 Ethernet** from the drop-down list.
   - **Port**: Select **Ethernet (TCP)** from the drop-down list.
The system closes the Welcome screen and creates a Base Screen as shown in the following figure.

2. PLC Connection Setup
   a. Click the Project tab and select Device/PLC.
   b. In the Device/PLC 1 configuration area, click the icon next to PLC1 as indicated in the following figure.
c. In the PLC1 settings screen, configure the following fields and click **New**:

- **Destination IP Address**: Enter the IP address.
- **Connection Type**: Select **OP Communication** from the drop-down list.
- **CPU Rack Number**: Enter “0”.
- **CPU Slot Number**: Enter “2”.
- **Use Tag Data**: Select this check box.

![Individual Device Settings](image)

**Note:** Ensure the settings match the configuration of your Siemens PLC.
d. The **Add Tag** screen appears. Click **Add**.

![Add Tag screen](image1)

e. In the **Tag List** screen, add the tags as shown in the following figure.

![Tag List screen](image2)
3. **Using the Edit Screen**
   a. In the **Base 1** screen window, use the **Text** tool to create Text Objects as shown in the following figure.

   ![Base 1 screen window](image1)

   ![Text objects](image2)

   b. In the **Parts Toolbox** pane, select **Data Display** from the **Parts** drop-down list and drag a data display element to the screen next to **Temperature**.

   ![Parts Toolbox](image3)

   ![Data display](image4)
c. Double-click the **Data Display** element to configure its properties.
   i. Click the icon next to the **Monitor Word Address** field and select the **DisplayTemperature** tag.
   ii. Click **Ent**.
   iii. From the **Data Type** drop-down list, select **32 Bit Float**.
d. Click the **Display** tab and set the **Decimal places** field to 1; then, click **OK**.
e. Copy the Data Display element next to Temperature and paste it next to Drive Speed.

f. Click the icon next to the Monitor World Address and change the tag name to DisplaySpeed.
g. In the **Parts Toolbox** pane, select **Switch** from the **Parts** drop-down list and drag a Switch element next to **Start Drive** and **Stop Drive**. Then, change the color of the Switch element for Start Drive to green.

![Image of Pro-face HMI with Siemens PLC](image1.png)

h. Double-click the Start Drive Switch element to configure its properties. In the **Switch Feature** tab, configure the following fields and click **OK**:
   - **Bit Address**: Select **StartDrive** from the drop-down list.
   - **Bit Action**: Select **Bit Set** from the drop-down list.

![Image of Switch Feature Configuration](image2.png)
i. Double-click the Stop Drive Switch element to configure its properties. In the **Switch Feature** tab, configure the following fields and click **OK**:

- **Bit Address**: Select **StartDrive** from the drop-down list.
- **Bit Action**: Select **Bit Reset** from the drop-down list.

4. **Transferring a Project**

   After you edit a screen, save the project.

   a. **Click Transfer Project** to transfer a project to Pro-face GP-4501TW.
b. In the **Transfer Tool** window, click **Send Project**.
c. The Select Display Unit window displays the list of online Pro-face HMI devices. Select to enable the Pro-face GP-4501TW device and click OK to transfer the project.

5 On-line Test

The Pro-face GP-4501TW panel displays **Temperature** (in degree Celsius) that is read from IAQPoint2 and **Drive Speed** from Power Flex 4M.

Drive Speed is 0.0 because PowerFlex 4M is in Stop Mode.
Click the Switch element for the Start Drive to set the StartDrive tag. PowerFlex 4M is now in Start Mode and Drive Speed is greater than 0.0 as shown in the following figure.