



FP Industry 4.0 Communicator

# FP-I4C Unit



User Manual

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#### **Panasonic Industry Europe GmbH**

Caroline-Herschel-Straße 100

85521 Ottobrunn, Germany

Tel: +49 89 45354-1000

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## Important symbols

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One or more of the following symbols may be used in this documentation.

The following symbols are used to indicate the type of hazard.

### **DANGER**

Indicates a hazardous situation which, if not avoided, will result in death or serious injury.

### **WARNING**

Indicates a hazardous situation which, if not avoided, could result in death or serious injury.

### **CAUTION**

Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

### **Notice**

Indicates a property damage message.

## Safety precautions

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Observe the following notices to ensure personal safety or to prevent accidents. To ensure that you use this product correctly, read this User's Manual thoroughly before use. Make sure that you fully understand the product and information on safety.

### **WARNING**

- Always take precautions to ensure the overall safety of your system, so that the whole system remains safe in the event of failure of this product or other external factor.
- Do not use this product in areas with inflammable gas. It could lead to an explosion.
- Exposing this product to excessive heat or open flames could cause damage to electronic parts.

### **CAUTION**

- To prevent abnormal exothermic heat or smoke generation, do not use this product continuously at the maximum performance values listed in the specifications.
- Do not disassemble or modify the product. It could lead to abnormal exothermic heat or smoke generation.
- Do not touch the terminals while the electricity is turned on. It could lead to an electric shock.
- Use external devices to ensure safety related functions such as the emergency stop and interlock circuit.
- Connect the wires and connectors securely. A loose connection might pose an electrical hazard, which could result in a short-circuit, exothermic heat or smoke generation.
- Do not allow foreign matter such as liquid, flammable materials, metals to enter the product. It could cause excessive exothermic heat or smoke generation.
- Do not undertake construction (such as connection and disconnection) while the power supply is on. It could lead to an electric shock.

## Network security

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Implementing measures to protect your network is crucial to keep your network and its traffic secured.

As you will use this product connected to a network, your attention is called to the following security risks.

- Leakage or theft of information through this product
- Use of this product for illegal operations by persons with malicious intent
- Interference with or stoppage of this unit by persons with malicious intent

It is your responsibility to take precautions such as those described below to protect yourself against the above network security risks.

- Use this product in a secure network by using protection tools such as a firewall.
- If this product is connected to a network that includes PCs, make sure that the system is not infected by computer viruses or other malicious entities (using a regularly updated antivirus program, anti-spyware program, etc.).
- Use this product in an environment that has LAN, VPN (virtual private network) or leased line network.
- Use this product in an environment where only limited people concerned can enter.
- Use this product and connected devices such as a PC and tablet securing safety.
- Do not install this product in locations where the product or the cables can be destroyed or damaged by persons with malicious intent.

Note that incorrect setting of the connection to the existing LAN might cause malfunction in the devices on the network. Consult your network administrator before connecting.

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# 1 Product overview

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## 1.1 Product package

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The FP-I4C product package contains the following items.

- 1 x FP-Industry 4.0 Communicator (FP-I4C unit)  
Product number: AFP4C
- 1 x 24V DC power supply cable  
Product number: AFPG805
- 1 x leaflet providing installation instructions
- 1 x 16-pin spring force plug (Phoenix Contact Co. MC0.5/8-ST-2,54)

## 1.2 System requirements

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To configure your applications and to access FP series PLCs via Ethernet, you only need a standard browser. For HMWIN Studio, your PC must meet some basic requirements.

Supported browsers:

- Microsoft Edge
- Mozilla Firefox
- Google Chrome
- Safari
- Opera

HMWIN Studio has the following system requirements:

- Microsoft Windows® 7, Windows® 8.x, Windows® 10, or Windows® 11
- Hard disk with at least 500MB free disk space, 512MB RAM, Ethernet connection

HMWIN Studio can be downloaded free of charge from the [Panasonic InfoHub](#) .

## 1.3 Features

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The FP-I4C unit connects PLCs and other devices securely with databases, cloud servers, and remote control systems.

The unit works as an interface between a LAN or WAN (Internet/Intranet) and all PLCs of the FP series. It comes in a compact housing with multiple interfaces and offers various services for data exchange.

Interfaces:

- RS232C interface
- Switchable RS232C/RS485 interface
- 2 Ethernet interfaces
- 2 USB 2.0 host ports
- 2 digital function inputs
- Redirection from Ethernet to any other interface

Modbus TCP/RTU support:

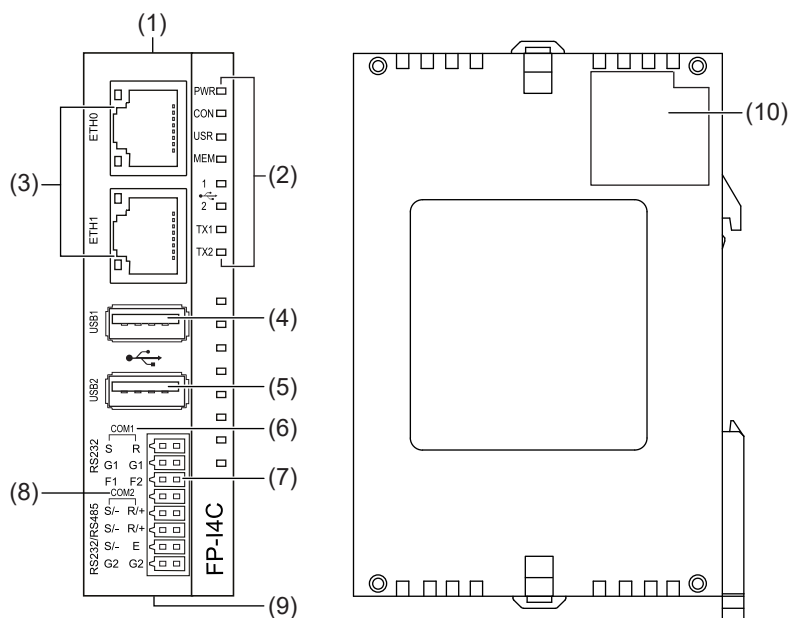
- Modbus RTU master functionality
- Modbus TCP client/server functionality
- Modbus TCP gateway

Other features:

- Configuration via Web interface in any standard browser
- Secure data transmission and authentication
- Web server
- Data logger with visualization function
- FTP client
- SMTP/POP3 (email) client
- MQTT protocol
- HTTP client
- SQL/NoSQL client
- TLS client/server
- Script function
- REST API/HTTP server
- IEC60870 protocol

## 1.4 Part names

The FP-I4C unit is equipped with multiple communication interfaces, status LEDs, function inputs, a reset tact switch, and an expansion connector.



- (1) Reset tact switch
- (2) Status LEDs
- (3) ETH0, ETH1, Ethernet connectors
- (4) USB1, USB 2.0 host port (500mA)
- (5) USB2, USB 2.0 host port (100mA)
- (6) COM1 RS232 (non-insulated)
- (7) F1, F2, function inputs (pull-up design)
- (8) COM2 RS232/RS485 (insulated, switchable)
- (9) 24V DC power supply connector
- (10) Expansion connector for FP0/FP0R expansion units (16 pins)

### Related topics

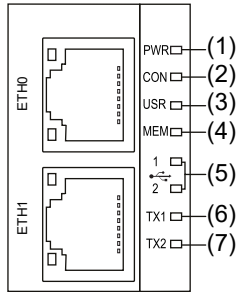
[Factory reset](#) (page 13)

[Wire the power supply](#) (page 27)

[Status LEDs](#) (page 12)

## 1.5 Status LEDs

The LEDs on the FP-I4C unit display the operation and communication status.



- (1) PWR
- (2) CON
- (3) USR
- (4) MEM
- (5) USB 1, USB 2
- (6) TX1
- (7) TX2

LED	Color	LED status	Description
PWR	Green	On	Power supply is on and self-test is completed.
CON	Yellow	User-defined	User-defined, controlled by script function
USR	Yellow	User-defined	User-defined, controlled by script function
		Flashes (heartbeat 1/s)	A system reset initiated by the reset tact switch is active.
MEM	Orange	On	Data is written to the USB flash drive.
USB 1	Green	On	A device is connected to USB port 1.
USB 2	Green	On	A device is connected to USB port 2.
TX1	Green	Flashes (rate depending on data traffic)	Communication via COM1 RS232 is active.
TX2	Green	Flashes (rate depending on data traffic)	Communication via COM2 RS232/RS485 is active.

### Related topics

[Factory reset](#) (page 13)

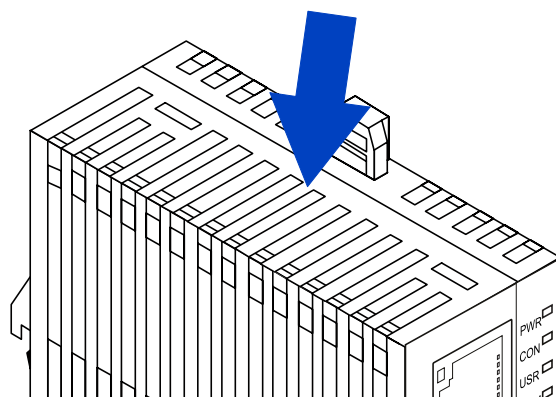
## 1.6 Factory reset

You may need to restore your settings to the factory defaults if, for example, you have forgotten your password.

You can restore the factory settings either with the small tact switch within the housing or with a USB flash drive (from BSP 1.3 only).

### Using the tact switch

When restoring the unit to factory settings, the password is set to default (admin). From BSP version 1.3 (and firmware version 1.4.5.0) you must set a strong password after the first login with the default password.



To restart or to reset the unit to the factory settings, use a paperclip or similar and press the tact switch 3 times within 3 seconds. The yellow USR LED starts flashing (heartbeat 1/s).

- To restart the unit, press the tact switch again for 3 to 6 seconds.
- To reset the unit, press the tact switch for at least 6 seconds after the LED began to flash. The unit will be restarted and all user data are removed.

If this method does not work, try to reset the unit using recovery mode.

### Using a USB flash drive

This method is available from BSP version 1.3.

1. Go to “System Settings” > “Services” and make sure that “Enable device restore via USB option” is enabled (default setting).
2. Connect the USB flash drive to your PC. The format of the USB flash drive must be FAT32.
3. Create an empty file named `device-factory-restore` (no extension) in the root path of the USB flash drive.  
The file name does not have an extension. Make sure it is spelled exactly as shown.
4. Remove the USB flash drive from your PC and connect it to the FP-I4C unit.

The FP-I4C unit can be in recovery mode or in normal operation mode.

5. Wait for approximately 5 minutes.
6. Remove the USB flash drive.  
Your system should now be reset.

Related topics

[System recovery](#) (page 14)

[Backup and restore application settings](#) (page 15)

## 1.7 System recovery

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If the FP-I4C unit cannot be reset using the tact switch, you must recover the main operating system or the data partition.

This task includes the following steps:

- Activate recovery mode
- Find your device
- Recover the system

Note

To use this method, you need an administrator password.

### Activate recovery mode

- Power on the device for approximately 5 seconds (wait until the power LED turns on), then power it off again. Repeat this step three times.  
On the fourth time, let the unit boot normally.
- The device will enter recovery mode once the power LED blinks, which should take approximately 10 to 15 seconds.

### Find your device

Once the system is in recovery mode, DHCP is enabled for both Ethernet interfaces.

- If your FP-I4C unit is connected to an Ethernet network with a DHCP server, you can find out the unit's IP address with the HMWIN Studio software.
- If your FP-I4C unit is connected directly to your PC, you need to set the IP address in your PC:

In Windows, go to "Network Connections" and select your Ethernet network. On the "Network" tab, select "Internet protocol, Version 4 (TCP/IPv4)" > "Properties". Select "Use the following IP address" and set the IP address.

IP address: 169.254.x.x, e.g. 169.254.10.100


Subnet mask: 255.255.0.0

(Settings for default gateway and preferred DNS server not required.)

Use HMWIN Studio to find the FP-I4C unit.

## Recover the system

Depending on the cause of the fault, you must recover either the main operating system or the data partition. Recover the main OS if you have encountered issues with the operating system. For issues with applications, recover the data partition.

The necessary recovery files are included in the latest FP-I4C BSP update and the FP-I4C firmware update, available in the [Panasonic InfoHub](#) .

- Recover the main OS:

Download the latest FP-I4C BSP update.

Go to “Management” > “Main OS” > “Update”.

Click “Update”, go to `\BSP USB autoupdate\src` in the zip file and select the files `un74-pa18-mainos-x.x.xxx.rootfs.tar.gz` and `un74-pa18-mainos-x.x.xxx.rootfs.tar.gz.md5`.

- Recover the data partition:

Download the latest FP-I4C firmware update.

Go to “Management” > “Data” > “Update”.

Click “Update”, go to `\Software Package\Data Partition (read README.txt)` in the zip file and select the files `data.tar.gz` and `data.md5` from the zip file.

### Related topics

[Connect the FP-I4C unit directly to a PC](#) (page 31)

[Connect the FP-I4C unit to a PC via DHCP server](#) (page 32)

[Factory reset](#) (page 13)

[Backup and restore application settings](#) (page 15)

## 1.8 Backup and restore application settings

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You can backup and restore your application settings or reset your configuration to the default settings in the FP-I4C Web interface.

The backup file only contains application settings. System settings, such as network settings (IP and subnet address), language, date and time, are not saved.

### Note

We strongly recommend that you password protect your backup file from unauthorized access.

1. Go to the “Backup/Restore” page.
2. Enter a password to encrypt your backup file.  
Be sure to memorize or write down your password and keep it in a safe place because the file can't be restored if you forget the password. If you do not enter a password, the file will not be protected.
3. To **backup your settings**, simply select “Save”.  
The default file name is `backup-<date>.i4csettings`. This file will be saved to your PC.  
To **restore your settings**, drag the desired backup file onto the drag and drop area or select the file with the “+” icon and then select the cloud icon.  
Confirm or cancel the restore process. If the file is password-protected, you will be asked to enter the password.  
To **reset all application settings** to the default settings, select “Reset”.  
To **reset the settings on individual pages**, use the “Reset” button on each page.

### Related topics

[Factory reset](#) (page 13)

[System recovery](#) (page 14)

## 1.9 Devices supported by USB host ports

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The USB host ports support the FP series PLCs and GT series HMIs listed in the following targeted peripheral list.

Commercial USB flash drives and hard disks (max. 500mA on upper USB connector) can also be connected.

- Panasonic GT USB driver ver. 1.0  
Model: GT series, manufacturer: Panasonic Electric Works, Ltd.,  
vendor ID: 0x0986, product ID: 0x0310
- Panasonic FP series USB driver  
Model: PLC FP0H, FP7, FP0R, manufacturer: Panasonic Electric Works, Ltd.,  
vendor ID: 0x0986, product ID: 0x0320
- Panasonic Eco-POWER METER  
Model: Eco-POWER METER, manufacturer: Panasonic Electric Works, Ltd.,  
vendor ID: 0x04da, product ID: 0x4201
- Panasonic FP-X series USB driver



Model: CP210x UART Bridge, e.g. FP-X, manufacturer: Cygnal Integrated Products, vendor ID: 0x10C4, product ID: 0xEA60

## 1.10 Specifications

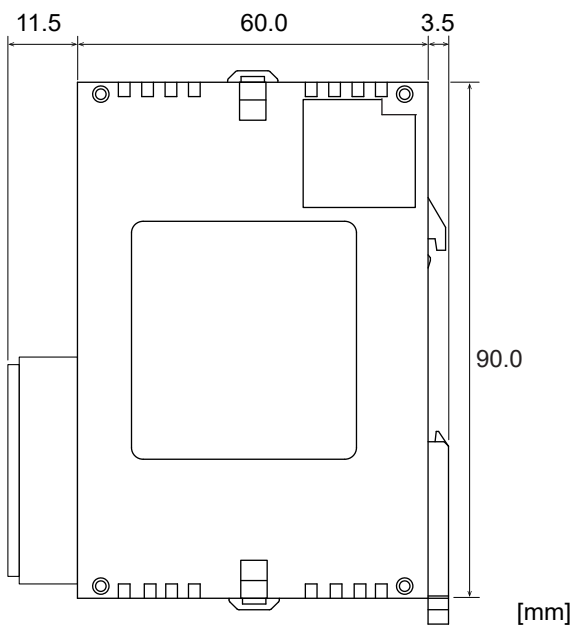
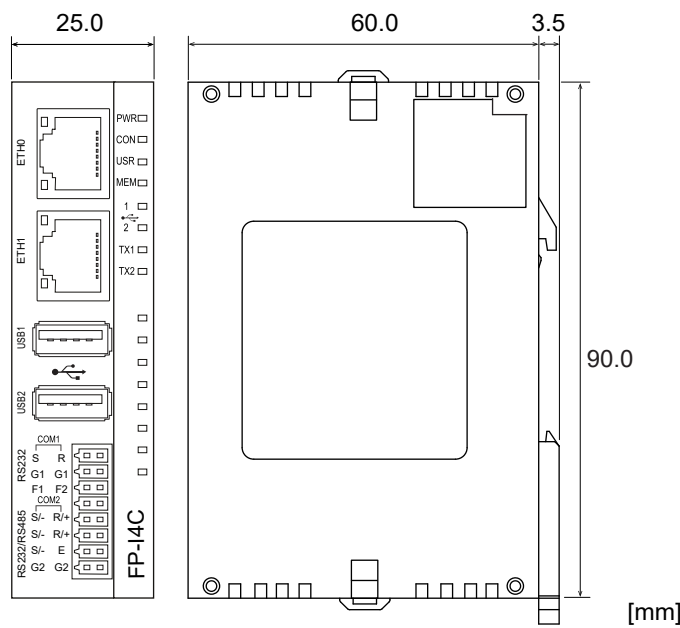
The FP-I4C unit has the following characteristics and technical specifications.

Item	Description
Product number	AFP4C
Rated input voltage	24V DC, use the power supply cable (AFPG805) supplied with the unit
Operating voltage range	21.6–26.4V DC, supplied by class 2 circuit only
Serial interfaces	COM1 RS232 (non-insulated), COM2 RS232/RS485 (insulated, switchable) 16-pin spring force plug by Phoenix Contact Co. (MC0.5/8-ST-2,54)
Ethernet	2 Ethernet connectors, 10BASE-T/100BASE-TX auto-negotiation via RJ45 female connector
USB	2 USB connectors, USB 2.0 full speed, max. 500mA (USB1), max. 100mA (USB2)
Function inputs	2 binary inputs (pull-up design) for optional functions
Operation status LEDs	7
Protocols and standards	TCP/IP, UDP/IP, DHCP, FTP, FTPS, SSH, HTTP, HTTPS, SMTP, ESMTP-Auth, POP3, NTP, Modbus, DNS, SNMP, VPN, VNC, MQTT, SQL, OPC UA, TLS
Flash memory	2.4GB user/configuration data
RAM	496MB
Current consumption	≈75mA at 24V DC (without expansion unit, USB flash memory, etc.)
Degree of protection	IP20
Operating temperature	0°C to +55°C
Storage temperature	-20°C to +70°C
Operating humidity	10%–95% RH (at 25°C, non-condensing)
Storage humidity	10%–95% RH (at 25°C, non-condensing)
Vibration resistance	10Hz to 55Hz, 1 cycle per minute with a double amplitude of 0.75mm; 10min on 3 axes
Shock resistance	≥10g, 4 times on 3 axes
Unit dimensions	Height: 90mm, width: 25mm, depth: 64mm
Weight	≈110g
Operation conditions	Free from corrosive gases and excessive dust

Item	Description
Conformity to EU directives and standards	2011/65/EU RoHS, 2014/30/EU EMC, EN IEC 63000:2018, EN 61326-1:2013
UL approval	UL number "2LD7" (file E232530)

## 1.11 Dimensions

The dimensions of the FP-I4C unit are indicated in the technical drawings.



Right side view of the unit with the 16-pin connector installed

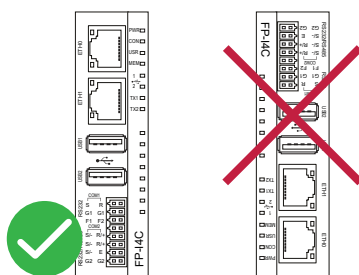
## 2 Installation

### 2.1 Installation environment

To prevent failure or malfunctions, the installation environment must comply with the specifications of the FP-I4C unit.

After installing the unit, make sure to use it within the range of the general specifications:

- Operating temperature: 0°C to +55°C
- Operating humidity: 30% to 85% RH (at 25°C, non-condensing)
- Pollution degree: 2
- Do not use the unit in the following environments:
  - Direct sunlight
  - Sudden temperature changes causing condensation
  - Flammable or corrosive gases
  - Excessive airborne dust, metal particles or salts
  - Benzene, paint thinner, alcohol or other organic solvents, or strong alkaline solutions such as ammonia or caustic soda
  - Vibration, shock, or direct drop of water
- Avoid noise interference from the following items:
  - Influence from power transmission lines, high voltage equipment, power cables, power equipment, radio transmitters, or any other equipment that would generate high switching surges. Maintain at least 100mm of space between these devices and the unit.
  - If noise occurs in the power supply line even after the above countermeasures are taken, it is recommended to supply power through an isolated transformer, noise filter, or the like.
- Take measures regarding heat discharge:
  - Always install the unit orientated with the Ethernet ports facing outward on the top in order to prevent the generation of heat.

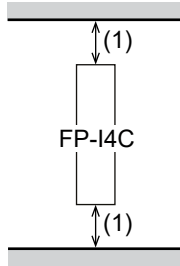


- Do not install the unit above devices which generate heat, such as heaters, transformers or large-scale resistors.

## 2.2 Installation space

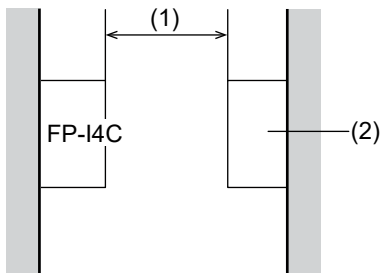
Make sure to keep a minimum distance to other devices to avoid effects from noise or heat and to permit unit replacement.

- Leave at least 50mm of space between the wiring ducts of the unit and other devices to allow heat radiation and unit replacement.



(1) 50mm or more

- Maintain a minimum of 100mm between devices to avoid adverse effects from noise and heat when installing a device or panel door to the front of the unit.



(1) 100mm or more

(2) Other device or panel door

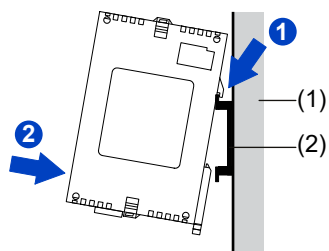
- Keep the first 100mm from the front surface of the unit open in order to allow room for wiring.

## 2.3 Attach the unit to a DIN rail

The unit is designed for easy installation on DIN rails.

1. Fit the upper hook of the unit onto the DIN rail.

- Without moving the upper hook, press on the lower hook to fit the unit into position.

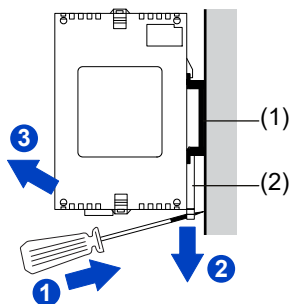


- (1) Mounting panel
- (2) DIN rail

## 2.4 Remove the unit from a DIN rail

You can easily remove the unit from a DIN rail with a slotted screwdriver.

- Insert a slotted screwdriver into the DIN rail attachment lever.
- Pull the attachment lever downwards.
- Lift the unit and remove it from the rail.



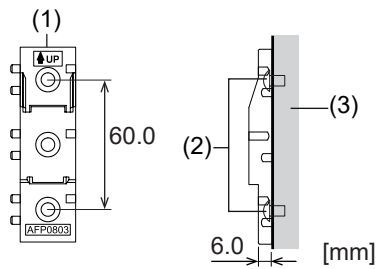
- (1) DIN rail
- (2) DIN rail attachment lever

## 2.5 Install the unit on a slim mounting plate (AFP0803)

To attach the unit directly to the wall, you can use a slim type mounting plate, which can be ordered separately.

Use M4 size pan-head screws to attach the mounting plate to the mounting panel.

## 2.6 Install the unit on a flat mounting plate (AFP0804)

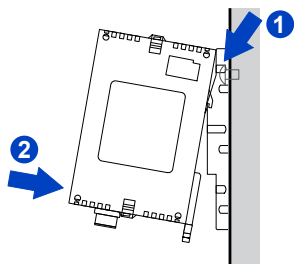


(1) FP0 slim type mounting plate AFP0803

(2) Screw

(3) Mounting panel

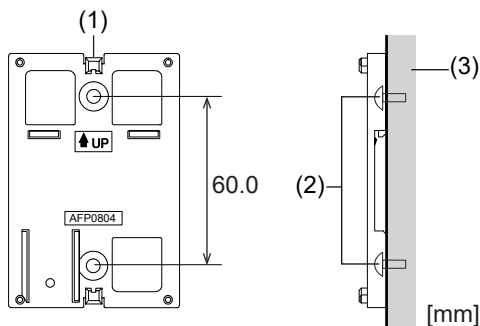
1. Fit the upper hook of the unit onto the mounting plate.
2. Without moving the upper hook, press on the lower hook to fit the unit into position.



## 2.6 Install the unit on a flat mounting plate (AFP0804)

To attach the unit sideways, you can use a flat type mounting plate, which can be ordered separately.

Use M4 size pan-head screws to attach the mounting plate to the mounting panel.



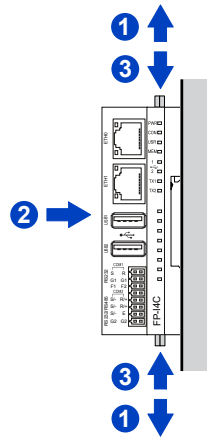
(1) FP0 flat type mounting plate AFP0804

(2) Screw

(3) Mounting panel

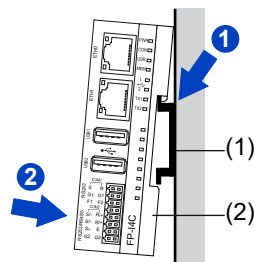
1. Raise the expansion hooks on the top and bottom of the unit.
2. Install the unit on the mounting plate.

3. Align the expansion hooks with the plate and press the hooks back down.



#### Note

A unit with an attached flat type mounting plate can also be installed sideways on a DIN rail.

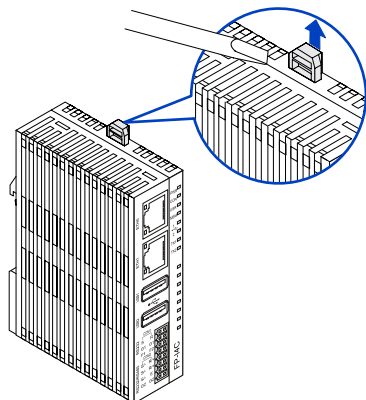


- (1) DIN rail  
 (2) FP0 flat type mounting plate AFP0804

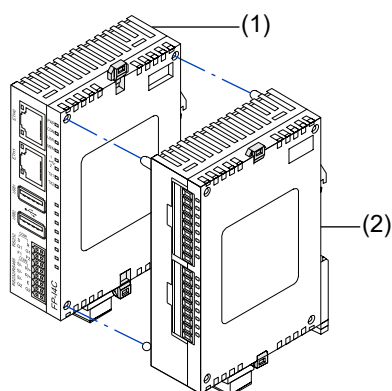
## 2.7 Add FP0/FP0R expansion units to the FP-I4C unit

Up to three FP0/FP0R expansion units can be connected on the right side of the FP-I4C unit. All common digital I/O and analog units of the FP series are supported.

1. Raise the expansion hooks on the top and bottom sides of the FP-I4C unit with a screwdriver.

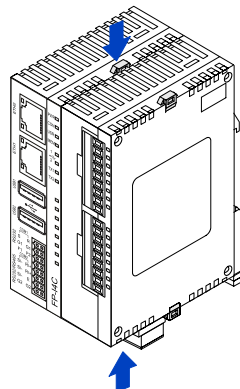


2. Align the pins and holes in the four corners of the units and press the two units together.



- (1) FP-I4C unit  
(2) FP0/FP0R expansion unit

3. Press down the expansion hooks raised in step 1 to secure the unit.





## 3 Wiring

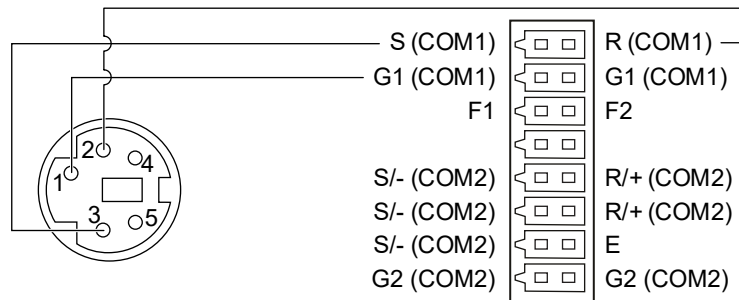
### 3.1 Connection to PLC TOOL port using cable AIGT8192

Use the cable AIGT8192 to connect the FP-I4C unit to the 5-pin mini DIN male TOOL port of an FP0R, FPΣ, FP-X, or FP2SH type PLC.

Use either COM1 or COM2 depending on your setting for “Service control interface” in the FP-I4C Web interface.

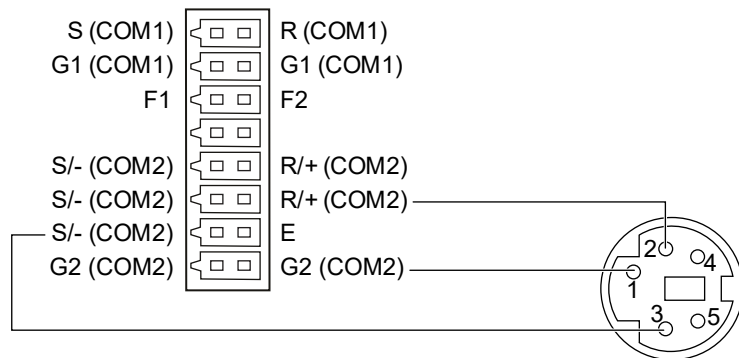
The cable AIGT8192 can be ordered as an accessory. Remove the ferrules of the cable before inserting the wires into the connector.

Using COM1:



AIGT8192, 5-pin mini DIN male (left) and FP-I4C unit, 16-pin connector (right)

Using COM2:



FP-I4C unit, 16-pin connector (left) and AIGT8192, 5-pin mini DIN male (right)

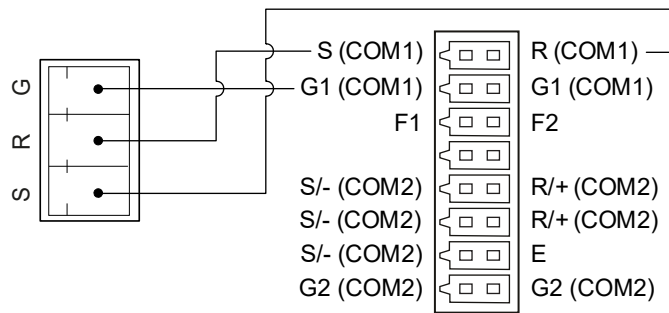
### 3.2 Connection to PLC COM port

Wire the 16-pin connector of the FP-I4C unit directly to the COM port of an FP0R, FP-X, FPΣ, FP0H, or FP7 type PLC.

Use either COM1 or COM2 depending on your setting for “Service control interface” in the FP-I4C Web interface.

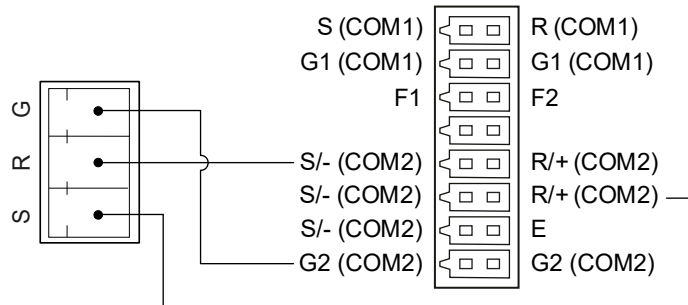
Suitable wire: AWG26-24

Using COM1:



PLC COM port, 3-pin screw terminal (left) and FP-I4C unit, 16-pin connector (right)

Using COM2:

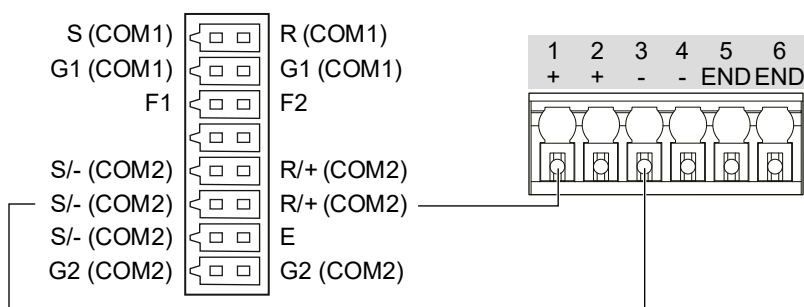


PLC COM port, 3-pin screw terminal (left) and FP-I4C unit, 16-pin connector (right)

### 3.3 RS485 connection to Eco-POWER METER

Use COM2 RS485 to connect the FP-I4C unit to an Eco-POWER METER.

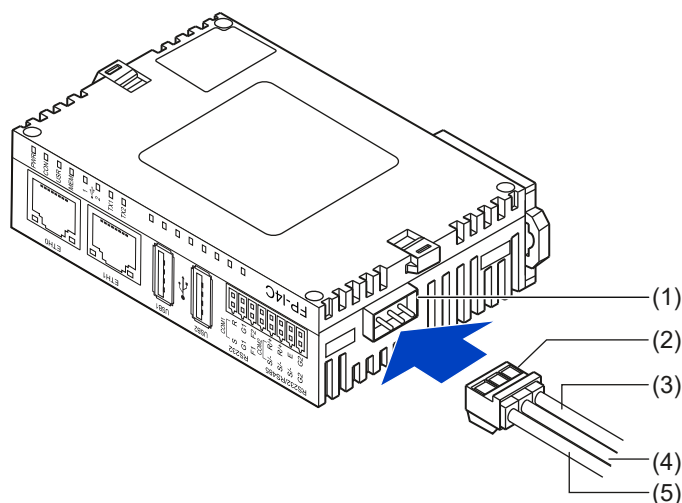
Suitable wire: AWG26-24



FP-I4C unit, 16-pin connector (left) and Eco-POWER METER terminal block (right)

### 3.4 Wire the power supply

Use the power supply cable (AFPG805) that comes with the unit to connect the power supply.



- (1) Power supply connector
- (2) Power supply cable (AFPG805)
- (3) Brown: 24V DC
- (4) Blue: 0V
- (5) Green: must be connected to frame ground

The FP-I4C unit will turn on as soon as the power supply has been connected. The green LED PWR will turn on after self-test.

When connecting the power supply (class 2 circuit), make sure the polarity (+/-) is correct.

If you connect an FP0/FP0R expansion unit, both units must be supplied by the same power supply.

## 3.5 Pre-startup checklist

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Check the following items prior to applying power to the system.

 **CAUTION**



Perform the pre-startup checks with the power turned off.

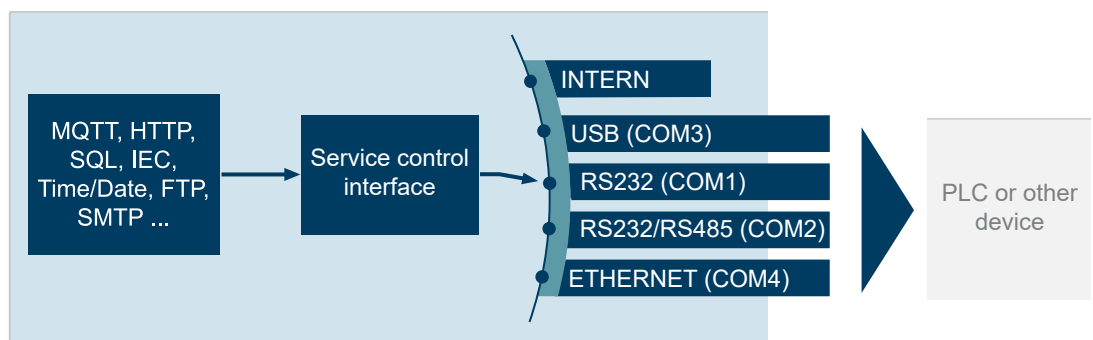
1. Is the unit securely fixed to the control panel?
2. Are all wires firmly secured to the terminals?
3. Are the connectors properly wired with respect to voltage and polarity?
4. Is the green wire connected to frame ground?

## 4 Getting started

### 4.1 Basic communication processes

The FP-I4C unit is equipped with multiple interfaces and supports a variety of protocols and services.

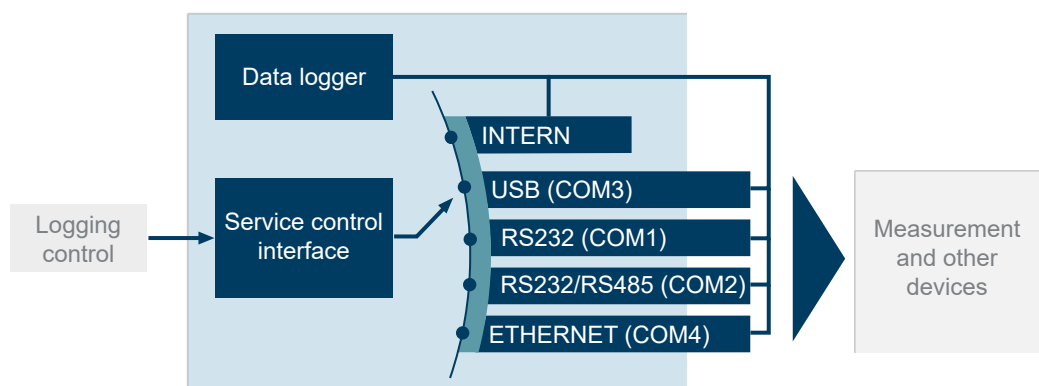
All services (FTPC, MQTT, data logger, etc.) use a so-called service control interface to poll the control and status flags/registers of connected devices. This service control interface is configured using the FP-I4C unit's Web interface.



Via TCP listening ports and port redirections, all interfaces are also available to external clients, such as Control FPWIN Pro7 or SCADA systems. Port redirections can be configured in the Web interface.

“INTERN” refers to the addressable internal memory areas of the FP-I4C unit which is accessible via Modbus/TCP or the script function. If the unit is used as a stand-alone FTP or SMTP client (no PLC connected), select “INTERN” as service control interface.

The data logger can collect data from all interfaces, allowing you to connect multiple sensors. The log function can be controlled by time trigger or by PLC via the service control interface.



Related topics

[Port redirection](#) (page 33)

[Configure a port redirection](#) (page 34)

## 4.2 Connecting the FP-I4C unit to an Ethernet network

---

The FP-I4C unit is configured using any standard Web browser.

To perform an initial function test and to configure the FP-I4C unit, connect a PC and the unit in the same Ethernet network and connect the 24V DC power supply.

You can connect the unit and the PC directly via LAN cable. In this case, use the ETH1 connector, which has a fixed IP address, and set the IP address in your PC (see "Related topics").

In larger networks where IP addresses are usually assigned by a DHCP server, you first need to find out the IP address of your FP-I4C unit. This can easily be done with the HMWIN Studio software. Use the ETH0 connector in networks with a DHCP server.

With the IP address of your device and the proper URL, you can open the FP-I4C Web interface in your browser. You can now activate and configure the required services and functions.

The Web interface is divided in application settings and system settings. Use the corresponding menu commands to switch between these areas. Or enter the URL to access each area directly:

- "Application Settings": `https://[IP address]/fp_config`
- "System Settings": `https://[IP address]/machine_config`

Replace `[IP address]` with the IP address of your FP-I4C unit (e.g. `https://192.168.0.10/machine_config`).

In the "System Settings", you can change the user interface language and password (see "Related topics").

You can find detailed operating instructions for the FP-I4C Web interface if you click on the help button in the status bar of the "Application Settings".

Related topics

[Connect the FP-I4C unit directly to a PC](#) (page 31)

[Connect the FP-I4C unit to a PC via DHCP server](#) (page 32)

[Change the user interface language](#) (page 35)

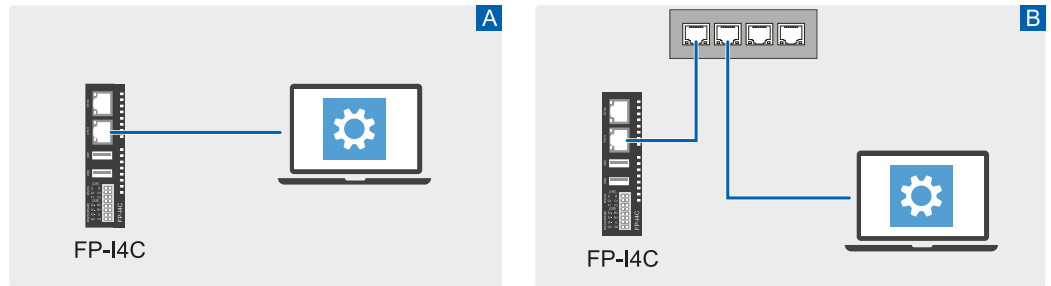
[Change passwords](#) (page 36)

## 4.3 Connect the FP-I4C unit directly to a PC

For a direct connection, use a standard LAN cable and the unit's ETH1 connector.

The factory default IP address of the ETH1 connector is 192.168.0.1. This address is printed on a label attached to the unit's housing. The PC must be on the same subnet as the FP-I4C unit.

1. Connect a LAN cable between your PC and the ETH1 connector.



A: Direct connection, B: Connection using a network switch

2. Set the IP address in your PC.  
In Windows, go to "Network Connections" and select your Ethernet network. On the "Network" tab, select "Internet protocol, Version 4 (TCP/IPv4)" > "Properties". Select "Use the following IP address" and set the IP address.  
Example:  
IP address: 192.168.0.10  
Subnet mask: 255.255.255.0  
(Settings for default gateway and preferred DNS server not required.)
3. Open your browser and enter the URL `https://192.168.0.1/machine_config`.  
Depending on your browser, an insecure connection warning may be displayed. Follow the instructions in your browser to accept the connection. You will then be forwarded to the Web interface of the FP-I4C unit.
4. Log in with the user name "admin" and the default password "admin".  
You are now in the system settings area where you can make general network and service settings, change the user interface language and password (see "Related topics"). We recommend that you change the default password as soon as possible.
5. Select "Application Settings" to go to the application settings area.

You are now ready to configure the services required for your application.


### Related topics

[Change the user interface language](#) (page 35)

[Change passwords](#) (page 36)

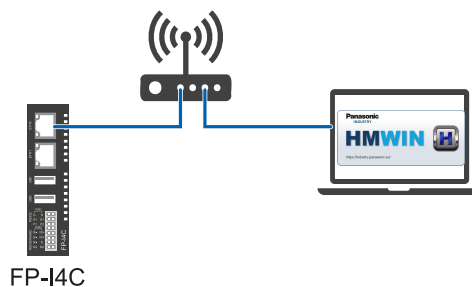
## 4.4 Connect the FP-I4C unit to a PC via DHCP server

If you connect the FP-I4C unit and the PC in an Ethernet network with a DHCP server, you need to know which IP address was assigned to the unit.

You can easily find out the IP address of your unit with the HMWIN Studio software. The software is available free of charge in the [Panasonic InfoHub](#) .

1. Connect a LAN cable between the ETH0 connector of the FP-I4C unit and your Ethernet network.

For Ethernet connections using a DHCP server it is important that you use the top Ethernet connector ETH0.



2. Start HMWIN Studio to find out the IP address of the FP-I4C unit.
3. Go to "Run" > "Manage Target" and select the "Board" tab.  
In the device list of your DHCP network you can find the IP address of the FP-I4C unit. If there are multiple devices in the list, compare the MAC address to the MAC address of the ETH0 connector to find the right device. The MAC address is printed on a label that can be found on the unit's housing.
4. Open your browser and enter the URL `https://[IP address]/machine_config`. Replace [IP address] with the IP address of your FP-I4C unit (e.g. `https://192.168.0.10/machine_config`).  
Depending on your browser, an insecure connection warning may be displayed. Follow the instructions in your browser to accept the connection. You will then be forwarded to the Web interface of the FP-I4C unit.
5. Log in with the user name "admin" and the default password "admin".  
You are now in the system settings area where you can make general network and service settings, change the user interface language and password (see "Related topics"). We recommend that you change the default password as soon as possible.  
We also recommend setting a static IP address:
  - a. Select "Network" > "Network Interface".
  - b. Select "EDIT" and then "DHCP disabled" for "eth0" so that DHCP is disabled for both Ethernet connectors.  
Make settings for "Address" (e.g. 192.168.100.10), "Netmask" (e.g. 255.255.255.0), and "Gateway" (e.g. 192.168.100.1).
6. Select "Application Settings" to go to the application settings area.

You are now ready to configure the services required for your application.



Related topics

[Change the user interface language](#) (page 35)

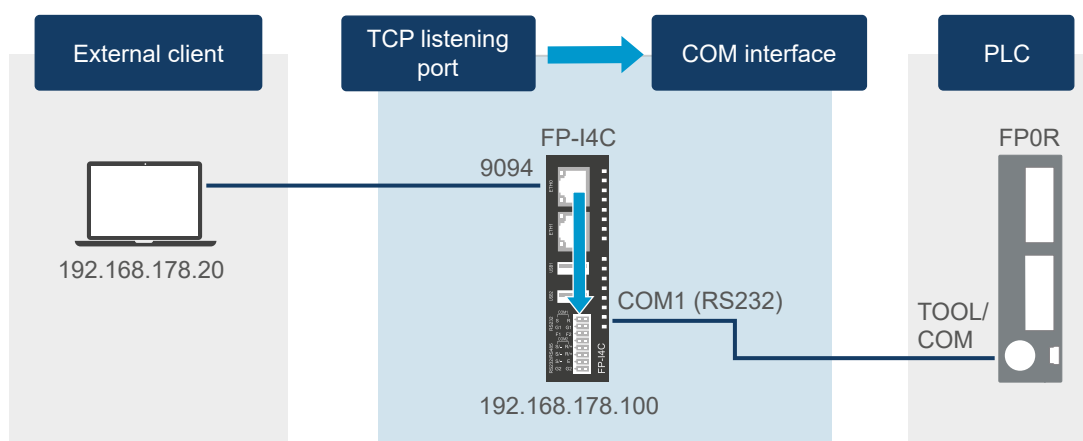
[Change passwords](#) (page 36)

## 4.5 Port redirection

For some applications, port redirections need to be configured to forward data packages from the TCP listening port to another FP-I4C interface.

### General principle

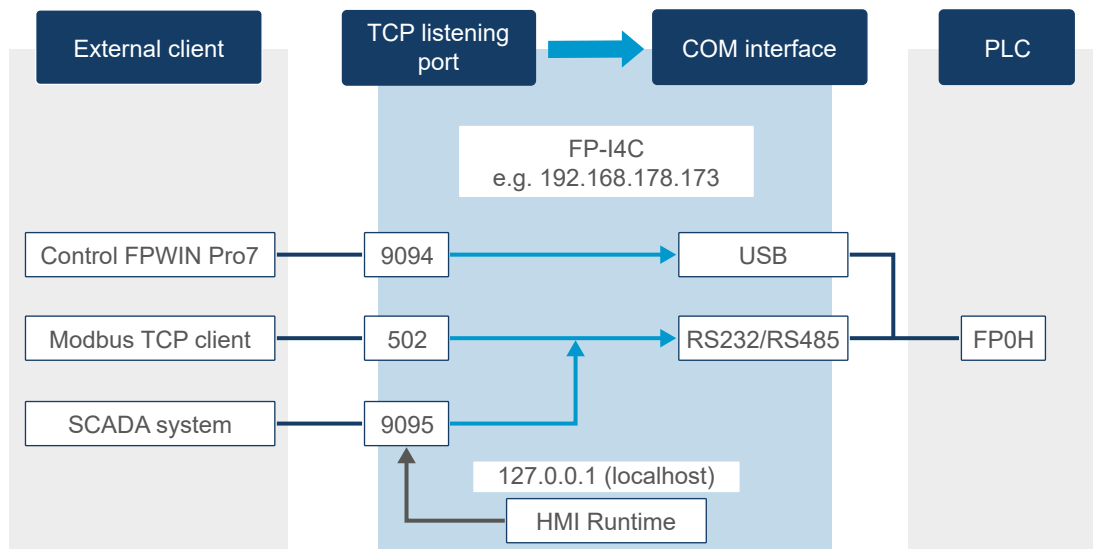
An open TCP listening port is redirected to a serial COM interface (blue arrows). This allows external clients to communicate via TCP with a device connected to the COM interface.



### Example

Three TCP listening ports are opened on the FP-I4C unit (9094, 502, and 9095) and redirected to two serial COM interfaces connected to an FP0H PLC:

- Port 9094 handles requests from the PLC programming software Control FPCON Pro7 to the PLC. The port is redirected to the USB interface.
- Port 502 is used as a Modbus TCP gateway to handle data requests from a Modbus TCP client.
- Port 9095 is used as a MEWTOCOL server to handle MEWTOCOL data requests from a SCADA system.



In addition, a Web server (HMI Runtime) is installed in the FP-I4C unit to show PLC data on an HTML page. The Web server connects to the PLC using the localhost IP address 127.0.0.1. In the example, HMI Runtime collects data from the PLC via MEWTOCOL and port 9095.

The data from port 502 and 9095 is redirected to the RS485/RS232 interface and then transmitted to the PLC FP0H. The SCADA system with polling rates in the millisecond range causes high loads on the serial interface. It is therefore advisable to use a different serial interface (in this example USB) for remote programming of the PLC.

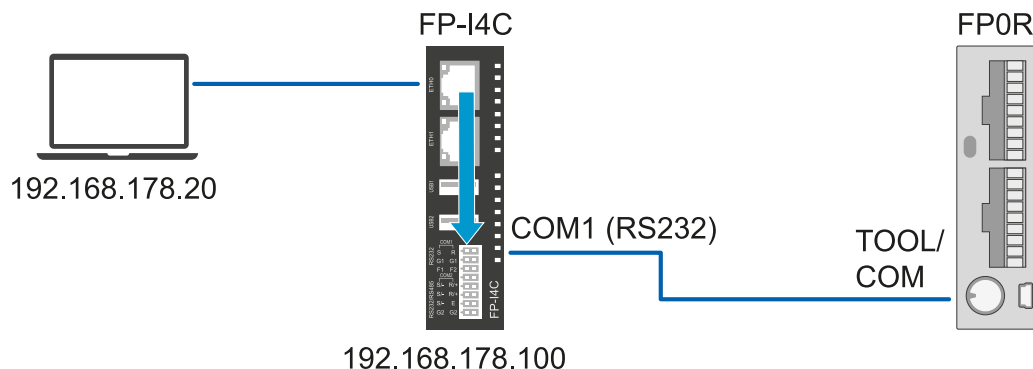
#### Related topics

[Configure a port redirection](#) (page 34)

## 4.6 Configure a port redirection

With the PLC connection wizard, you can set a port redirection very quickly. Alternatively, you can also configure the redirection manually.

In the following example, the TOOL or COM port of the FP0R PLC is connected to COM1 RS232 of the FP-I4C unit. A PC is connected to one of the Ethernet interfaces of the unit. To establish a connection between the PC and the PLC via the FP-I4C unit, open port 9094 for COM1 RS232, and make the communication settings.



### Using the wizard

1. Go to “COM Interface” and select “Start wizard” to start the PLC connection wizard.
2. Select “Simple mode” and “Continue”.
3. Select the interface used to communicate with the PLC (“COM1 RS232”) and then “Continue”.
4. Set baud rate and parity (or IP address and port if the interface is COM4 Ethernet).
5. Enter the TCP listening port number (9094).
6. Select “Finish” and save your configuration.

### Manual configuration

1. Go to “COM Interface” and enable the interface “COM1 RS232” to communicate with the PLC.
2. Make the desired communication settings.
3. Go to “Service control interface” and select “RS232” as “COM interface to control device (PLC)” and the station number.
4. Go to “Port” > “Ports and restrictions” and select “Add new”.
5. Specify the TCP listening port number 9094 and the COM interface “RS232” to which the data packets should be forwarded, and make all other desired communication settings.
6. Save your configuration.

## 4.7 Change the user interface language

The language of the user interface can be changed in the system settings.

Go to “System Settings” > “Language” and select the desired language.

Note that the application settings and the online help are not yet available in all of the languages.

## 4.8 Change passwords

From BSP V1.3, you must change the default passwords after the first startup.

Passwords must meet the following requirements:

- At least 8 characters in total
- At least one lower case and one upper case letter
- At least one numeric character
- At least one special character (e.g. #!@?)

You can set different passwords for the administrator and standard users. There are certain access restrictions for standard users.

If you forget your password, you must reset the FP-I4C unit to the default settings with the reset tact switch.

The following default passwords have been set:

Service	User name	Password
Configuration/SSH (if enabled)	admin	admin
SSH (if enabled) standard user	user	user
FTP server (if enabled) for logged data	log	log

1. To change the password, go to “System Settings” > “Authentication”.
2. Select “EDIT” and enter the new password.

Related topics

[Factory reset](#) (page 13)

## 4.9 User rights

Access to certain functions and settings is restricted to administrators.

The functions accessible to users have a check mark.

### System settings

Function	Admin	User
Change language	✓	✓
View system status	✓	✓
Save log file	✓	✓

Function	Admin	User
Change date and time	✓	✓
Change network settings	✓	✓
View data, settings, and main OS partitions	✓	✓
Change, clear, and update partitions	✓	✗
Restart system	✓	✓
Change user password	✓	✓
Change admin password	✓	✗

## Application settings

Function	Admin	User
View system information	✓	✓
Load CSV files and view graphs	✓	✓
Download list of global variables	✓	✓
Change COM settings	✓	✗
Change port settings	✓	✗
PLC connection test	✓	✓
Start PLC connection wizard	✓	✗
Change data logging settings	✓	✗
Download log files	✓	✓
Delete log files	✓	✗
Change MQTT settings	✓	✗
Save or download MQTT library or example	✓	✓
Change date and time settings	✓	✗
Change FTP client settings	✓	✗
Save or download FTP library or example	✓	✓
Change script settings	✓	✗
Change SQL client settings	✓	✗
Save or download SQL library or example	✓	✓
Change NoSQL client settings	✓	✗
Save or download NoSQL library or examples	✓	✓
Change email client settings	✓	✗
Save or download email library or example	✓	✓
Change HTTP client settings	✓	✗
Save or download HTTP library or example	✓	✓
Change REST API settings	✓	✗

Function	Admin	User
Change TLS client/server settings	✓	×
Change IEC60870 settings	✓	×
Save configuration changes	✓	×
Reset configuration to default	✓	×
Backup application settings	✓	✓
Restore application settings	✓	×


#### Related topics

[Change passwords](#) (page 36)

## 5 Record of changes

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### ACGM0162V5EN, 2024.11

- Updated list of features (TLS client/server, HTTP server, NoSQL)
- Updated list of user rights
- Modified instructions for restoring the factory settings
- Added instructions for recovering the system and restoring the application settings
- Added information on the maximum number of expansion units
- Transferred application examples to the [Panasonic InfoHub](#) 

### ACGM0162V4EN, 2022.07

- Added application example for Corvina Cloud
- Added pre-startup checklist
- Updated list of features
- Corrected list of applicable EU directives and standards
- Added description of basic communication processes and port redirections
- Corrected instructions for changing passwords
- Updated software user interface descriptions
- Added new graphics in section "Getting started" and in application examples

### ACGM0162V3EN, 2021.01

- Updated list of features
- Added unit dimensions with Phoenix Contact connector installed
- Added information on changing access credentials and restrictions
- Added application example for data logging from different devices
- Added application example for the HTTP client function
- Added application example for Web-based data visualization

### ACGM0162V2EN, 2020.06

- Cover page: changed manual title, corrected product name
- Frontmatter: added software legal notes, safety precautions, network security notes
- Corrected list of features
- Deleted section on hardware version information

Updated description of LEDs

Specifications: corrected product number and list of supported protocols, corrected operating voltage range, corrected operating and storage humidity

Added dimensional drawing

Devices supported by USB host ports: added FP0R

Revised installation instructions for FP0R expansion units

Corrected wiring diagram for "Connecting the TOOL port" with COM1

Revised section "Getting started"

## **ACGM0162V1EN, 2019.07**

First edition