Programmable Logic Controllers

IN Your Future

CONTENT

Overview

GM1

Motion Controller, Combines programmable logic with motion control in one device

FP7 series – 0.011µs

The compact high-performance PLC. With its extensive range of expansion units, it offers optimized modularity.

FP0H series – 10ns

Thanks to its two Ethernet ports, the ultra compact PLC allows flexible connection to field-level devices. The PLC supports a large number of open protocols.

FP-I4C

FP-I4C, the IIoT Gateway. The FP-I4C gives you full insight into all IoT devices with real-time status alerts and early warnings.

FP0R series – 0.58µs (from 3001st step on)

Besides its narrow design (width just 25mm), this controller boasts a processing speed of 0.08µs per basic instruction for a range of up to 3000 steps.

FP-XH – 0.04µs

The compact and powerful CPU can be integrated without marshalling panels thanks to the screw-terminal design. It can be expanded easily by using add-on cassettes.

3

Machine automation

Machine builders

Packaging

Liquid dispensers

Positioning systems

Metal processing

Everything from a single source

With over 100 years of innovation and manufacturing expertise, Panasonic Industry Europe remains committed to its vision of creating "A Better Life, A Better World." Panasonic can look back on decades of experience in the electronics industry and, thanks to its dedicated customer orientation, is a competent and reliable partner for customers throughout Europe when it comes to technical expertise in combination with solution orientation. As a provider of tailor-made solutions, we focus on offering our customers products and services in the **Mobility, Living Space** and **Business** sectors that make a difference thanks to our proprietary innovations.

Smart automation technology

The factory of the future will achieve new levels of productivity, effectiveness and profitability through comprehensive networking. Equipment and components from Panasonic Industry Europe offer leading-edge Industry 4.0 features, as connectivity, energy efficiency, reliability and sturdiness play a pivotal role in modern production environments.

The Panasonic Industry Europe portfolio not only offers key electronic components, devices, modules and software but also complete solutions for production lines in a wide variety of industries. Panasonic Industry's comprehensive know-how along the entire value chain, combined with a corporate culture geared to customer needs, enables it to offer customer-specific solutions that extend beyond the products.

Our experience as a manufacturer and a sales partner for components and products allows us to share our experience with our customers. Customer wishes are specifically integrated into the development of new products, so that we can surpass our role as a supplier and become a competent, long-term partner for our customers.

Programmable logic controllers

Programmable logic controllers (PLCs) are indispensable in modern production environments. Due to their very compact dimensions, Panasonic Industry Europe controllers allow efficient use of the limited space available on machines and in control cabinets.

All programmable logic controllers by Panasonic Industry Europe undergo intensive test routines during their development to ensure a sturdy product design and in this way a long service life. The three-year guarantee underpins their quality.

All Panasonic programmable logic controllers produced since 1995 can be programmed with one software! As a pioneer of IEC 61131-3 programming, we have preserved many function blocks in our software for over 20 years: the best proof of our products' longevity. The standardised programming of our controllers makes it possible at any time to switch to a more compact or a more sophisticated model, as required.

Panasonic has been using analog modems in telecontrol engineering since 1993. The latest PLCs communicate via standard wired and wireless networks and allow remote-controlled updates to be installed, analysis results to be accessed or machines to be operated.

Service

Panasonic Industry Europe's comprehensive service includes an expert hotline, workshops and on-site service to ensure the reliable and effective use of our programmable logic controllers.

In addition to its wide-ranging product portfolio of programmable logic controllers, Panasonic Industry Europe also offers sensors, touch panels, drive technology, energy management systems, ionisers, automation components and many other products and complete solutions.
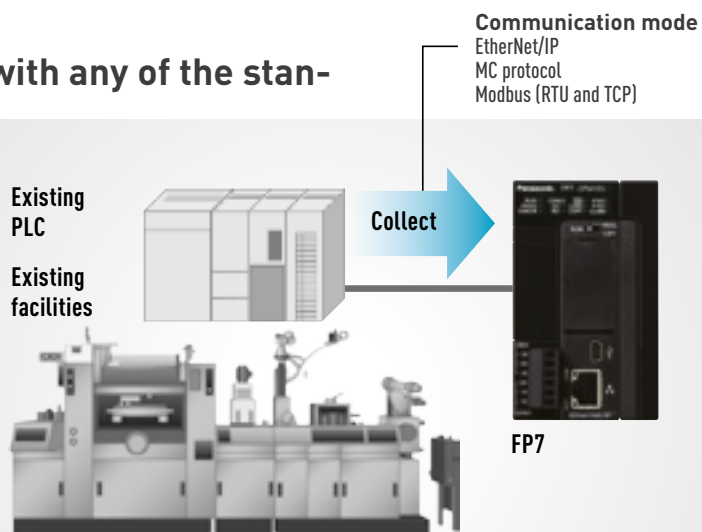
EtherNet/IP compatibility

Models with built-in Ethernet ports add functionality to the CPU. Easy connection with all kinds of robots and PLCs enables control and communication.

AFP7CPS41E
AFP7CPS31E
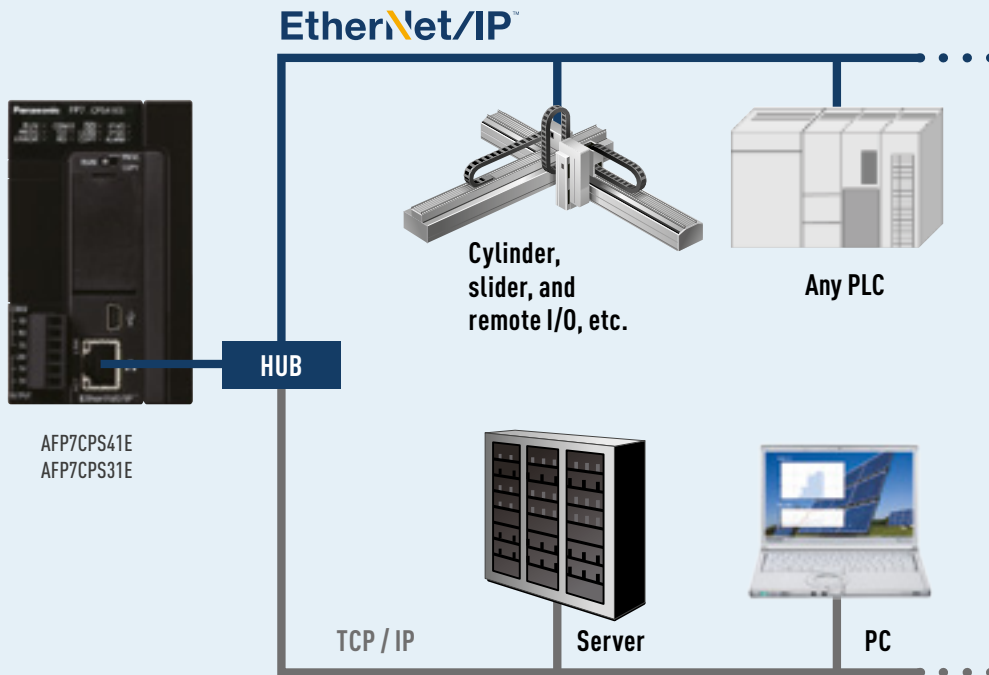
Collect information with any of the standard protocols

Communication mode
EtherNet/IP
MC protocol
Modbus (RTU and TCP)


Existing PLC

Existing facilities

Collect

FP7

To enable information collection, because the FP7 can deal with any protocol for Ethernet / serial communication, the FP7 can be installed in existing facilities.

WEB connectivity and communication

Total communication, everywhere, anytime.

Total connectivity in modern automation. Visualize, monitor and modify the PLC data from anywhere in the world. Remote control of your machine. Integrate a mini SCADA for process monitoring accessible from any computer, tablet or smartphone.

SCADA

INTERNET

AFP0RC32CP   AFP0RC32CP   AFP4C
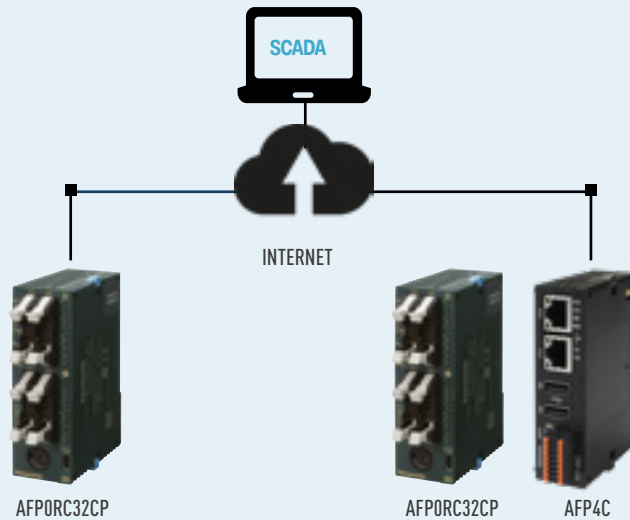
IIoT requires remote operation, assistance and alarms

The FP-I4C gives you full insight into all IIoT devices with real-time status alerts and early warnings. Thanks to the data provided, you can react quickly to reduce risks and proactively stop issues before they have a negative effect on your business.

OPC UA

OPC UA is the main reference for the IT / OT integration, i.e. for the data exchange between the field level and the IT systems of the enterprise level (ERP, MES, etc.)

OPC UA

SCADA

MQTT

MQTT is flexible and has a "server-centric" structure (publish / subscribe-type feature model) that quickly transfers large volumes of data from the devices to cloud servers such as MQTT Brokers (Amazon AWS, Microsoft Azure IoT, Mosquitto, etc.).
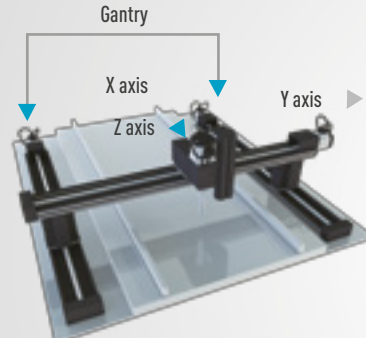
MQTT

MQTT Broker
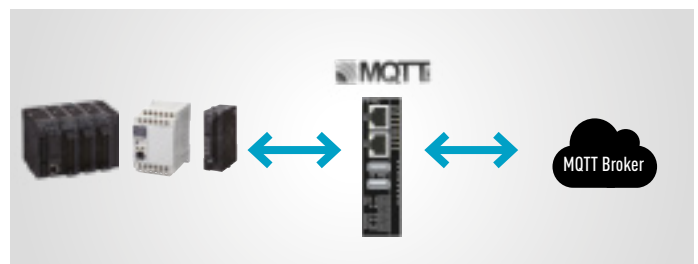
The compact PLC for high-speed and high-accuracy positioning

The palm-sized ultra-compact PLC allows you to establish a network servo system with up to 16 axes.

The RTEX (RTEX = Panasonic Realtime Express) positioning unit is compatible with Panasonic's MINAS series and enables you to construct a high-speed, high-accuracy, wire-saving servo system.

The sophisticated design reduces the wiring work significantly, thus contributing to the quick commissioning of equipment with a multi-axis control function.

FP0H
positioning unit

Gantry control

Position control keeps 2 axes synchronous when two parallel motors drive one gantry

Target markets

Production of electronic devices, LC displays, machine tools, etc.

Target devices

Inspection equipment, coating machines, etc.
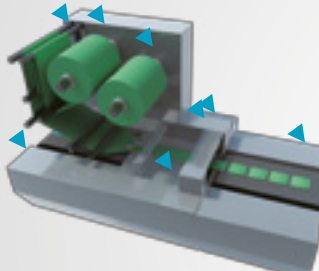
Linear interpolation   Circular interpolation   Spiral interpolation

Cam control

An electronic cam controls the slave axis in synchronization with the master axis according to a pre-defined electronic cam table.

Target markets

Packaging industry, food/chemicals processing, printing industry

Target devices

Rotary cutters, printing machines, inserters, etc.
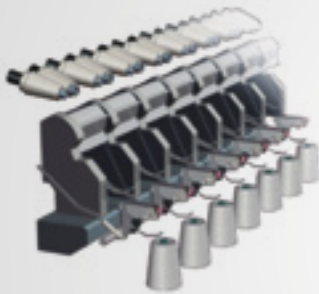
Electronic gear   Electronic clutch   Electronic cam

Traverse control

The revolution of the master axis is reciprocated horizontally by the slave axis.

Electronic gear   Electronic clutch   Electronic cam

ANALOG APPLICATIONS

Simple temperature control

The advanced PID control facilitates high-speed, high-accuracy multi-point temperature control.
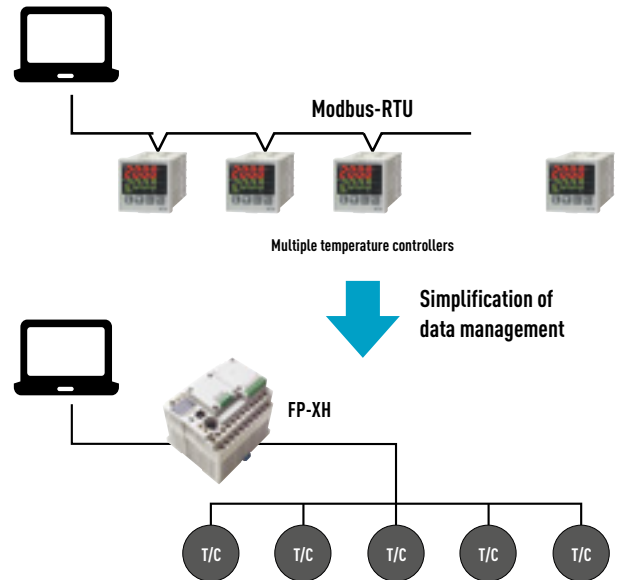
Multi-point PID control

› High-accuracy PID control
  With a sophisticated algorithm and floating-point operations
› Two modes selectable
  High-speed control PI-D mode (derivative type) and overshoot suppression I-PD mode (proportional-derivative type)
› Ultra high-speed computations in 32μs/loop
› Simple parameter setting
  With simultaneous multi-point auto-tuning

Modbus-RTU

Multiple temperature controllers

Simplification of data management

FP-XH

T/C T/C T/C T/C T/C

Two modes are selectable

PI-D mode
Target value
I-PD mode
Time
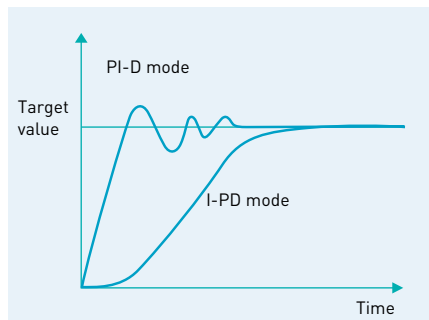
Partial optimum control by changing parameters

High-speed PID control
Target value
Overshoot suppression
Rapid acceleration
Smooth startup
Time
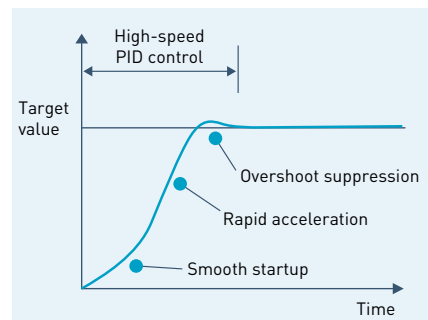
Multi-step control by changing the target value

Target value
Time
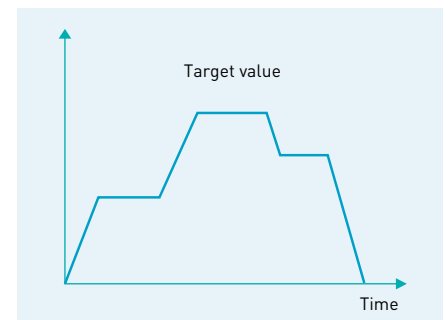
Hot or cold – always controlled

For accuracy and precision

High resolution (0.1K/°F, 0.01K/°F)
High conversion speed (1 or 0.1s for all channels)
Number of inputs: 6 (Pt100, Pt1000, Ni1000, resistor)

850C°

-200C°
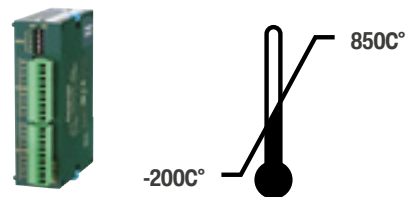
AFP0R analog units

FP0RTD6 temperature unit

› Temperature measurement with Pt100, Pt1000, Ni1000
› Selection of one RTD type for 3 channels via DIP switch.
› Individual configuration of each channel via software
› Circuitry of the ADC is optimized for Pt1000
› Improved accuracy with Pt100
› Resistance measurement possible.
› SW diagnostic & configuration

FP0R analog unit

FP0R

FP0H

Expansion FP0 Adapter

+

FP-XH
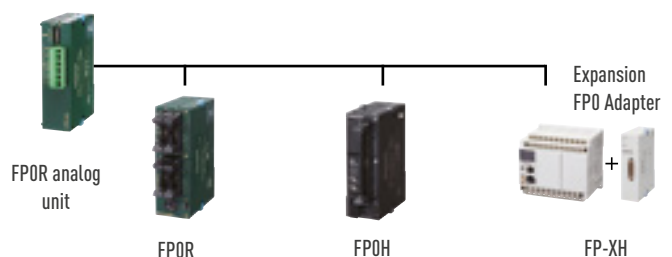
FP7 series

A new era of automation controls. Visualize work site conditions through information collection and transfer

Features

› Compact size with room for expansion functions

› Equipped with a cassette interface.

› Up to 16 different units can be connected to a single CPU.

› High-capacity SD (SDHC) memory cards up to 32GB are supported.

› High performance (min. scan time 1ms, max. 20μs for 60k steps); the processing speed is less susceptible to frequent Ethernet communication.

› EtherNet/IP, MEWTOCOL, Modbus TCP, PROFIBUS DB master, PROFINET master, CANopen master, DeviceNet master.

Item	AFP7CPS21	AFP7CPS31	AFP7CPS31E	AFP7CPS41E
Power supply	24V DC or FP power supply unit			
Max. number of inputs/outputs	1024	4096		
Max. number of expansion units	Up to 16 units	Up to 64 units (4 x 16)		
Operation speed	16ns	11ns/step (basic instructions)		
Program memory	Built-in flash ROM (no backup battery required)			
Program capacity	64k steps	120k steps		196k steps
Internal relays (R)	32768			
Timers (T)	4096 points: 1–4,294,967,295 (in units of 10μs, 1ms, 10ms, 100ms or 1s)			
Counters (C)	1024 points: 1–4,294,967,295			
Ethernet function	–		Built-in	
Constant scan time	0–125ms			
Clock/calendar function	Built-in			

Local & remote connectivity

The FP7 is dedicated to the total integration into Web applications. The standard CPU boards with Ethernet interface offer connectivity without limits, from remote programming to monitoring and data logging to FTP server and Modbus TCP.

ETHERNET (FTP)

Web-server function

Monitor and control the FP7 without the need for a dedicated software. Users can check the accumulated data in the FP7 with a browser and send control commands as required.

Data

Information updates via e-mail

Supervise the operation of the equipment via e-mail. Receive and view daily reports as well as get notifications if a malfunction occurs.

E-mail

E-mail sending function (SSL-compatible)

Configure the FP7 to send e-mails on a preset schedule or when a preset condition changes in the PLC. The e-mails can be sent with data files attached and are protected by SSL.

Production control system

Local & remote connectivity

The standard CPU boards with Ethernet interface offer connectivity without limits, from remote programming to monitoring and data logging to FTP server, MEWTOCOL (client/server), EtherNet/IP and Modbus TCP.

MC protocol*
Modbus (TCP)
EtherNet/IP

*QnA compatibility: 3E frame binary
Batch read / write
Master / slave communication
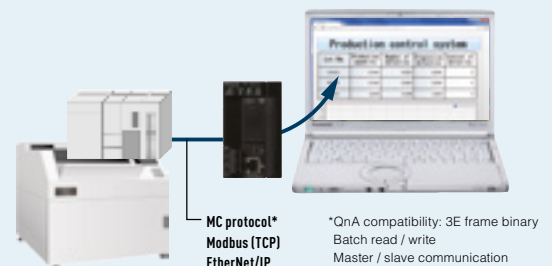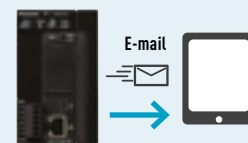
Custom Web

Users set up their own screens with Control Web Creator and upload them to the FP7. Then, the information in the FP7's internal web server can be monitored with any browser.

Control Web Creator

This is a graphics creation tool that allows you to easily design web pages for content that is published by the FP7. Create your own design by arranging web components such as switches, lamps, and meters on the screen and then setting the properties. Your content will be linked to information in the PLC without you needing any knowledge of HTML.

Two types of web contents to choose from

Enter the URL in a browser

URL   http://192.168.xxx.xxx/

Ethernet

(Example) IP address:
192.168.xxx.xxx

cULus CE RoHS compliance

FP0H series

A compact PLC with multiple interfaces

Features

› 2 Ethernet ports as a hub
› EtherNet/IP as I/O scanner [controller], PROFIBUS DB master, PROFINET master, CANopen master, DeviceNet master, CANopen slave, DeviceNet slave, PROFIBUS DB slave, BACnet-IP slave, BACnet-MSTP slave, Modbus RTU, Modbus TCP, MC protocol

› High processing speed of 10ns per basic instruction (up to 10k steps)
› High program capacity up to 64k steps: 24k / 32k / 40k / 64k steps
› High data capacity: 12k / 24k / 32k / 64k steps
› 16 inputs / 16 outputs (transistor)

Item	AFP0HC32EP/T (with Ethernet)	AFP0HC32P/T (without Ethernet)
No. of inputs/outputs	16 inputs, 16 outputs (max. 384 with expansion units), transistor output (PNP/NPN)	
High-speed counter	Single-phase 4 channels (max. 100kHz per input) or two-phase 2 channels (max. 50kHz per input)	
Interrupt input	Total 8 inputs (with high-speed counter)	
Pulse output	4 channels (max. 100kHz per axis)	
PWM output	4 channels, 1Hz to 70kHz (at resolution of 1000), 70.001kHz to 100kHz (at resolution of 100)	
Built-in interfaces	Ethernet port x 2, RS232C port x 1, USB port x 1	RS232C port x 1, USB port x 1
Expansion	FP0H / FPΣ (Sigma) expansion unit x 4, FP0R expansion unit x 3, Slot for communication cassette (RS232C, RS232C x 2, RS485, RS232C and RS485)	
SD memory card	Yes (SDHC)	No
Operation speed (basic instructions)	10ns (up to 10k steps)	
Program capacity	64k / 40k / 32k / 24k (depending on system register setting)	32k / 24k (depending on system register setting)
Data register	12k / 24k / 32k / 64k (depending on system register setting)	24k / 32k (depending on system register setting)
Clock/calendar function	Built-in	

FP0H – BASIC PERFORMANCE

Excellent basic performance in an ultra-compact body

High-speed processing

Only 10ns per basic instruction (up to 10k steps), 8 x faster than conventional models

High capacity – two times larger than conventional models

Program capacity: 64k / 40k / 32k / 24k, data capacity: 12k / 24k / 32k / 64k

High compatibility

Ladder programs written for FP∑ (Sigma) can be converted for FP0H to facilitate the replacement.

To improve productivity in all types of equipment

- Food processing machine
- Packaging equipment
- Inspection equipment

No. of inputs / outputs	16 inputs, 16 outputs (max. 384 with expansion units), transistor output (PNP/NPN)
Built-in interfaces	Ethernet port x 2, RS232C port × 1, USB port × 1
Expansion	**FP0H / FP∑** (Sigma) expansion bus × 1, **FP0R** expansion bus × 1 Slot for communication cassette (RS232C, RS232C x 2, RS485, RS232C and RS485)
Programming software	Control FPWIN Pro

Expandable to 384 inputs/outputs with FP0H / FP∑ (Sigma) / FP0R expansion units

FP0H
expansion I/O unit

FP0H / FP∑ (Sigma) expansion unit
(max. 4 expansion units)

FP0H

FP0R expansion unit
(max. 3 expansion units)

FP0R
expansion unit
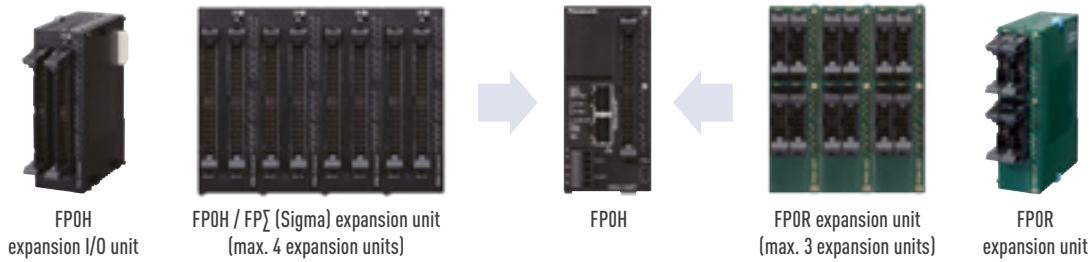
Suitable for ultra-fast linear servo drives

Built-in 4-axis pulse outputs

The control unit can control four axes with pulse output (up to 100kHz per axis), so simultaneous control of two 2-axis X-Y tables is possible. The configuration tool offers positioning tables to make it easy to set the parameters.

Simultaneous control of two
2-axis X-Y tables

FP0H
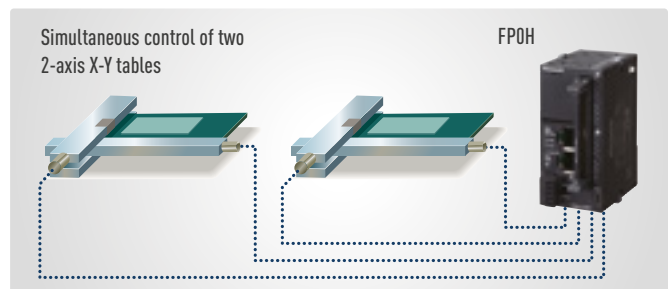
High-speed counter input

The speed of conveyor 1 (master axis), which is controlled by an inverter, is measured by counting pulse signals from the encoder with the high-speed counter input. The pulse output frequency is adjusted based on the count in order to synchronize the speed of conveyor 2 (slave axis).

Conveyor 1

Motor
(master)

Inverter

Conveyor 2

High-speed
counter

Pulse output

Motor
(slave)
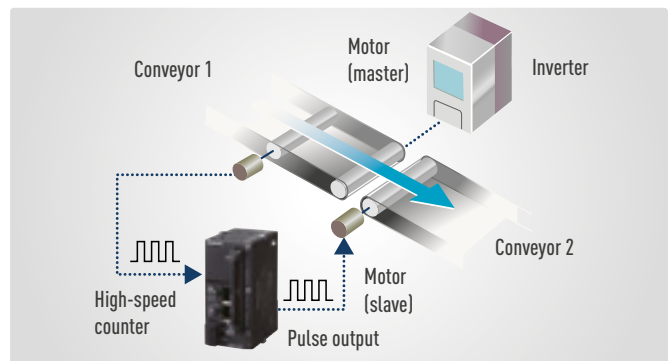
Built-in multipoint PWM outputs (4 channels)

The pulse output port of FP0H can also serve as a PWM output port.

The FP0H supports EtherNet/IP, Modbus TCP, and MC protocol and can easily be connected to all kinds of robots and PLCs. The cassette system saves unit cost and installation space.

AFP0HC32ET
AFP0HC32EP

AFP0HCCS1 AFP0HCCS2 AFP0HCCM1 AFP0HCCS1M1
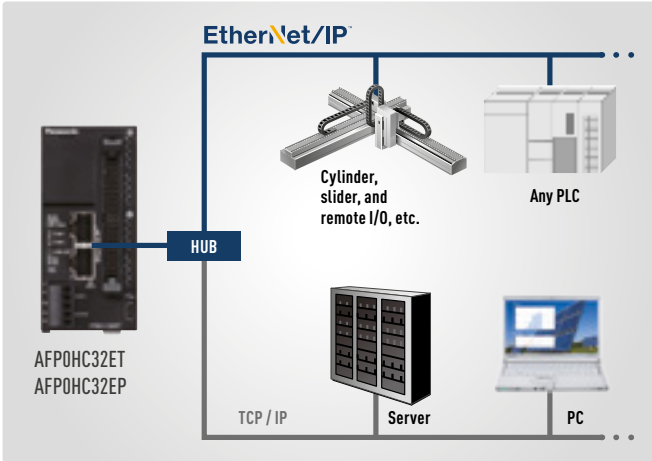
EtherNet/IP compatibility

The Ethernet type is compatible with EtherNet/IP, Modbus TCP and MC protocol and can be connected easily to all kinds of robots and PLCs.

Cassette system reduces unit cost and installation space

The communication cassette system extends the serial communication functionality of the CPU without the need to buy or install a dedicated communication unit.

SD memory card slot for the logging / trace function

Use data logging and the trace function with SD memory cards

Copy projects in ladder diagram without a PC (touch panel required)

Various triggers such as bit, interval, instruction, and time can be used.
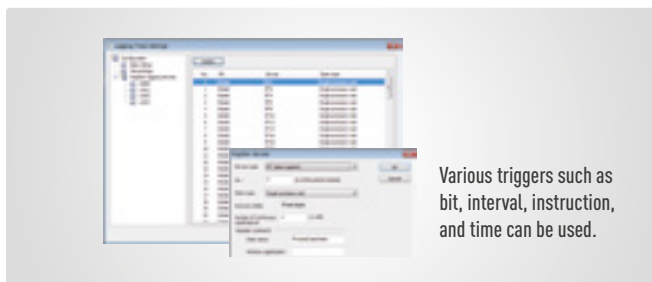
Update

Logging with 4 simultaneously active files

Logging can be performed with 4 simultaneously active files using various triggers such as bit, interval, instruction, and time.

Update programs with an SD memory card

SD memory cards can be used to store programs for and from the PLC. This makes it easy to update programs quickly if necessary.

FP0H – ADVANCED MOTION CONTROL

RTEX (Real time Ethernet positioning units)

› Positioning units to control MINAS A6N RTEX servodrives
› Ring connection
› Max. 16 axes (4/8 axes modules)
› 1ms communication cycle on 8 axes
› Linear, circular, spiral interpolation
› Max. 4 axes groups of interpolation
› Axis synchronization: electronic cams, gearing, clutch

› Master axis: physical, virtual or encoder
› PM7 configurator for axis modules set-up, for data table creation and axis modules monitoring/positioning
› "FP0H_RTEX" function block to set PLC program
› Up to 600 positioning/axis tables
› Advantage: easy and time saving wiring, noise immunity, parameter and motion monitoring

Linear interpolation	Circular interpolation	Spiral interpolation	Electronic gear	Electronic clutch	Electronic cam

Full suite of motion functions / Multi-axis synchronous control

Electronic gear

The electronic gear function changes the master axis and slave axis speed ratio.

Electronic clutch

The electronic clutch function is used to engage the clutch.

Electronic cam

The electronic cam function determines and outputs the movement amount of the slave axis according to the operation of the master axis and cam pattern.

Suitable for ultra-fast linear servo drives

Pulse output of up to 4Mpps and fast startup in 5μs

The positioning units support ultra-fast linear servo drives with a pulse output of up to 4Mpps and fast startup in 5μs.

Ideal for applications with short-stroke actions

The FP0H positioning units are ideal for applications that repeat short-stroke actions quickly such as palletizing of electronics parts.

Built-in high-speed counter

A built-in high speed counter can detect abnormalities by counting feedback pulses from encoders during positioning.

FP0H
positioning unit

FP0R series

Pocket-sized ultra-compact controller for use in extremely narrow spaces

Features

› Large-capacity program/data memory

› Program capacity: 32k steps max.

› Data register: 32k words max.

› Ultra-high speed processing

› 80ns / step (ST instruction) for basic instructions for the first 3000 steps

› USB tool port as standard equipment

› Capable of high-speed program transfer with USB 2.0

› Multi-axis control available without expansion units

› Built-in pulse outputs for four axes (50kHz max. each)

› Battery-less automatic backup of all data

› The F type has a built-in FRAM that provides maintenance-free and complete backup of all data without requiring a battery

CPU type	C10, C14 and C16	C32	T32	F32
Max. number of inputs/outputs	106 to 112	128	128	128
Max. number of expansion units	3 units			
Program capacity	16k steps	32k steps		
Comment memory	Available (built-in memory)			
Operation speed (basic instructions)	0.08μs (up to 3k steps), 0.58μs (3k and more)			
Data registers (DT)	12315 words	32756 words		
Internal flags	4096 (256 words)			
Ethernet	Available (FP Web-Server 2 and KS1 signal converter)			
Modbus RTU	Available (RS485)			
CC-Link	Available (Slave, CC-Link unit)			
MEWTOCOL-COM	Available (TOOL port, COM port)			
Program-controlled communication	Available (COM port)			
PLC Link (MEWNET-W0)	RS232C: 1:1, RS485: up to 16 units			
Remote I/O (MEWNET-F)	Available (64-point slave units, I/O link unit)			
S-LINK	Available (FP0-SL1 control unit)			
Built-in pulse output	4 axes/50kHz (C16, C32 or T32)			
Positioning unit	–			
PWM output	4 channels/4.8kHz/resolution: 1000 (C16, C32, T32, or F32)			
High-speed counter	6 channels/50kHz			
Voltage/current input Voltage/current output	4-channel analog input unit, 8-channel analog input unit, 4-channel analog output unit, 2-channel analog input/1-channel analog output unit, 4-channel analog input/2-channel analog output unit			
Temperature input	8-channel thermocouple unit			
Clock/calendar function	–	Available		–
Others	Mini USB port			

FP-XH series

Compact terminal block type controller

Features

› High-speed operation
› Large-capacity program memory
› Expandability
  Max. number of I/O: 300 inputs/outputs
› Multi-axis positioning control
› Network

› Communication port:
  Max. 5 channels. Support for up to 5 channels including 2 communication cassettes (2-channel type) and TOOL port

CPU type	C14	C30	C60
Max. no. of inputs/outputs	328	352	382
Max. no. of expansion units	8 units + up to 3 add-on cassettes		
Program capacity	16k steps	32k steps	
Comment memory	Available (built-in memory)		
Operation speed (basic instructions)	Basic instruction: 0.04µs/step, up to 7k steps		

FP-XH RTEX CPU

The one-stop solution

Features

› All-in-one solution - PLC and motion controller in a single unit, the CPU for an extensive range of applications and main functions
› Electronic gear

› Electronic cam / electronic clutch
› RTEX communication
› 8 inputs / 8 outputs (transistor)

Product no.	Description
AFPXHM8N16PD	FP-XH RTEX control unit with motion functions, 24k/32k/40k step (switching), 8 IN/8 OUT (24V DC / 0.5A), terminal block, 24V DC, 8-axis RTEX motion control

FP-I4C

c(UL)us   C€   RoHS compliance

FP-I4C

The IIoT Gateway

Features

› Web server with HTML5 pages for mobile and PC connectivity
› Corvina Cloud with integrated VPN for remote access to the PLC (remote maintenance)
› Expandable with I/O units of the FP0R PLC series to collect information from sensors and actuators
› Sending files via FTP client / server services

› Data management: storage of information on the internal memory or on USB memory stick
› Great connectivity: two Ethernet ports (separate), 2 USB ports, 1 serial RS232C / RS485 port
› Configurable via internet browser and with the HMWIN development environment

Item	FP-I4C
PLC connection 1	PLC COM1: RS232C via 16-pin spring force plug: Phoenix contact product: MC 0.5/8-ST-2,5
PLC connection 2	PLC COM2: RS232C/RS485 via 16-pin spring force plug: Phoenix contact product: MC0.5/8-ST-2,5
Power supply	24V DC. Connection with the power supply cable (AFPG805) supplied with the unit.
2x Ethernet connection	10BASE-T / 100BASE-TX autoneg via RJ45 female connector
USB 1	USB 2.0 full speed, 500mA (power supply)
USB 2	USB 2.0 full speed, 100mA (power supply)
LEDs	Power, Ethernet, PLC data, USB, memory access, user configurable, system connection
Protocols and standards	TCP/IP, UDP/IP, DHCP, FTP, FTPS, SSH, TELNET, http, https, SMTP, ESMTP-Auth, POP3, IEC60870, NTP, Modbus, DynDNS, SNMP, Cloud service, VNC
Flash memory	2.4GBytes user/configuration data
RAM	496MB
Operating voltage	24V DC (22.4–26.4V DC supplied by class 2 circuit only)
Current consumption	Approx. 75mA at 24V DC (without expansion unit, USB stick,...)
Degree of protection	IP20
Ambient temperature	0°C to +55°C
Storage temperature	-20°C to +70°C
Humidity	Max. 30% to 85% (non-condensing)
Vibration resistance	10Hz to 55Hz, 1 cycle per minute with a double amplitude of 0.75mm; 10 minutes every X-, Y-, and Z-axis
Shock resistance	Min. 10g; 4 times every X-, Y-, and Z-axis
Dimensions	Height 90mm, width 25mm, depth 64mm
Weight	Approx. 110g
Operating conditions	Free of corroding gases and excessive influence of dust

FP-I4C: for everything in IoT that requires remote operation, assistance and alarms

In today's world, users want to be able to instantly connect to, monitor, and operate machines and devices securely, no matter where they are.

The FP-I4C gives you full insight into all IoT devices with real-time status alerts and early warnings. Thanks to the data provided, you can react quickly to reduce risks and proactively stop issues before they have a negative effect on your business.

Functionality
Its main functions are

| VPN | Security | Web pages | Configuration via Browser | SQL |
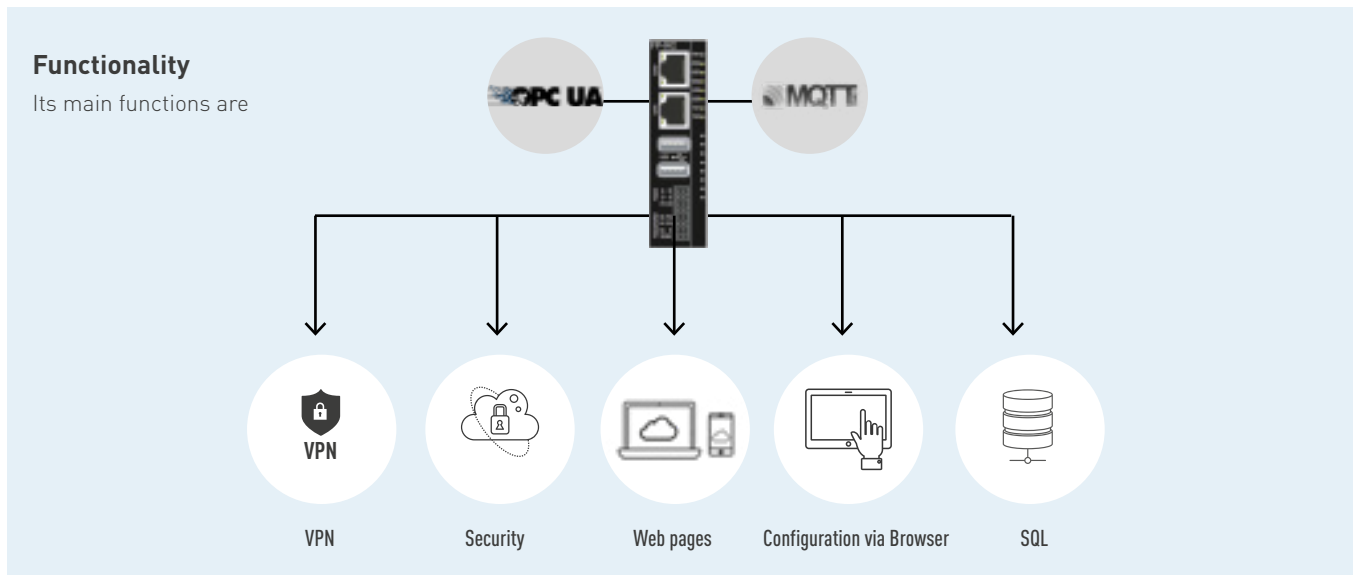
Access to SQL Database
The FP-I4C has client functionality for accessing databases and exchanging information with it.
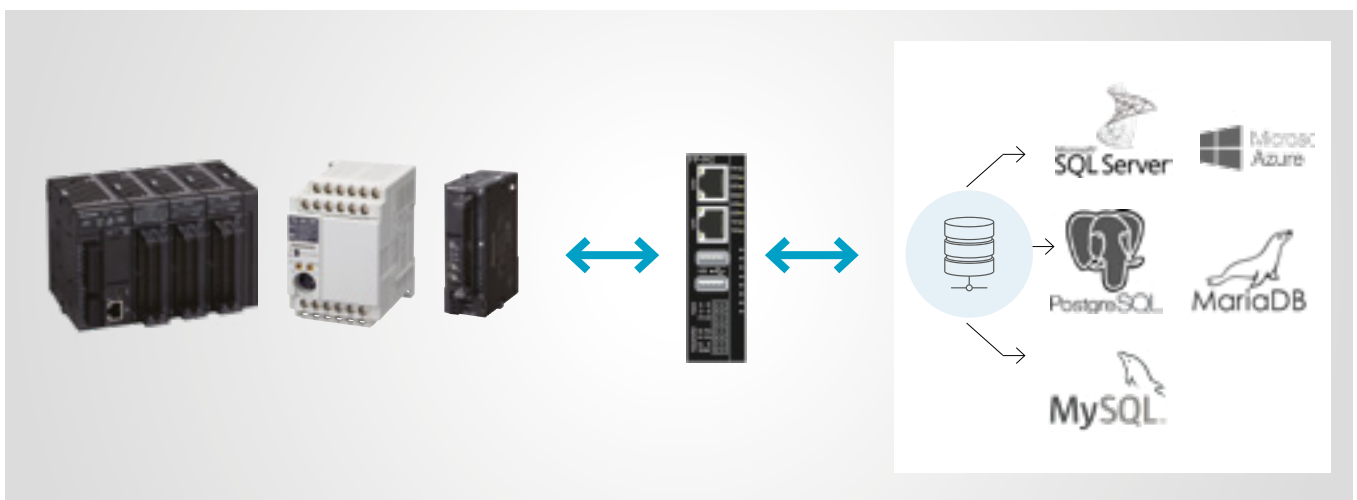
Customization

› Open programming via Python or Java
› Datalogging with individual formats
› Data conversion from text to SQL
› Visualization of your data on webseites, smartphones or on HMI

› No compiler needed
› Direct test on the device
› Good for acyclic applications
› Many open source libraries

› No compiler needed
› Direct test on the device
› Good for cyclic applications
› Many open source libraries

Future developments

Thanks to the possibility of updating the firmware of the unit through software, it is possible to expand the functionality in hardware equipment.

› IEC60870
› WLAN client through a USB WLAN stick
› HTTP Client (POST, GET commands, …)
› Modbus gateway
› CGI user applications
› … and many others. Ask us for information!
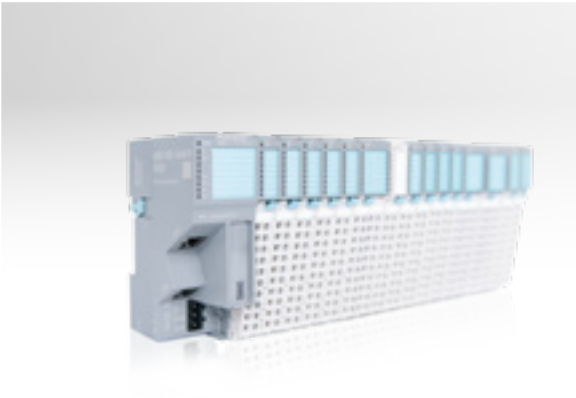
Remote I/O System

PLCs FP series and
TB series remote I/O systems

Three-component module design

TB20 I/O modules have three components: a separate front connector, an electronic module, and a base module. A locking mechanism ensures that all modules can be quickly mounted and securely attached to DIN rails while guaranteeing a reliable electrical connection. Likewise, all modules can be easily and quickly removed for maintenance and/or system expansions.

Modules are delivered as completely assembled units (i.e., as a single assembly) and can be installed immediately.

Bus couplers

All bus couplers feature an integrated power module. However, power modules are also available separately for users interested in segmenting the power supply for the I/O modules in their system.

Bus couplers for Modbus/TCP and EtherNet/IP are currently available. Our portfolio is designed as an open and vendor-neutral fieldbus system and will gradually be expanded and added to.

c UL us CE RoHS compliance

GM1 Motion

Combines programmable logic and motion control in one device for high productivity – efficient and economic.

Overview of the most important functions and features

Configuration software with

› User assistance for choosing the right function blocks
› Smooth editing of cam curves
› Simulation and debug function

Synchronous control

› Complex multi-axis systems like systems with 2- and 3-axis interpolation

High-speed response

› For fast data exchange and networking

Programming with CODESYS

› Standard programming languages according to international standard IEC 61131

FP-PS24 series

The high-end power supply

FP-PS24-0120E
(24V DC/5A)

FP-PS24-024E
(24V DC/1A)

FP-PS24-060E
(24V DC/2.5A)

Features

› 24W/1A (primary 100-240V AC, 2 x secondary 24V DC/1A)
› 60W/2.5A (primary 100-240V AC, 2 x secondary 24V DC/2.5A)
› 120W/5A (primary 100-240V AC, 2 x secondary 24V DC/5A)
› All units are of course short-circuit protected

› Compliant with safety standards IEC60950, UL60950, CSA22.2-60950, EN60950 tested by CSA
› Protection class II, without grounding
› Compact size with optimal cooling
› Easy DIN-rail mounting and wiring

Control FPWIN Pro

PLC programming software

The most important Control FPWIN Pro highlights at a glance:

› One software for all FP series PLCs

› 5 programming languages (instruction list, ladder diagram, function block diagram, sequential function chart, structured text)

› Well-structured navigator provides a clear overview of programming organization units (POUs), tasks, system registers, etc., simplifying project management

› Reuse of ready-made functions and function blocks saves time needed for programming and debugging

› Remote programming, service, monitoring, and diagnostics via RS232 (COM), modem, Ethernet, USB

› Forced ON/OFF for input and output contacts via the PC

› Extensive comments for online documentation created hand in hand with the program

› Names of variables, functions, function blocks and comments can be written in all languages thanks to Unicode

› Improved programming comfort: snap function, automatic placement of newly inserted elements, existing connection retained while moving elements

› Keyboard-control mode to accelerate programming

› 8 languages are supported: English, German, French, Italian, Spanish, Japanese, Korean, and Chinese

› Clock / calendar function on the PLC can be set in the software

› All IEC functions support the FP7

› New communication and pointer functions

› New family of overloaded and type-safe instructions for 32-bit type PLCs (FP7) and 16-bit type PLCs

› SD card instructions

Free download of comprehensive and powerful libraries

Over the years, Panasonic has developed a large collection of function blocks and libraries in a worldwide cooperation. The continually expanded collection is available to customers for free. Some examples from our library portfolio:

› Motion control libraries for different servo drives

› Communication libraries for multiple data transfer protocols

› Libraries for configuring masters and slaves for many fieldbus systems

› Please visit our download center on our website www.panasonic-electric-works.com. There you can find an overview over all available libraries.

Part number list

FP0H CPUs	
Description	**Part number**
FP0HC32EP 64k steps, SD card, 16 IN / 16 OUT transistor (PNP), HSC/Pos. 4ch, 2 x Ethernet 10/100MBit, COM port RS232, MIL connector, 24V DC	AFP0HC32EP
FP0HC32ET 64k steps, SD card, 16 IN / 16 OUT transistor (NPN), HSC/Pos. 4ch, 2 x Ethernet 10/100MBit, COM port RS232, MIL connector, 24V DC	AFP0HC32ET
FP0HC32P 32k steps, 16 IN / 16 OUT transistor (PNP), HSC/Pos. 4ch, MIL connector, 24V DC	AFP0HC32P
FP0HC32T 32k steps, 16 IN / 16 OUT transistor (NPN), HSC/Pos. 4ch, MIL connector, 24V DC	AFP0HC32T
FP0H digital expansion units (left side)	
Description	**Part number**
FP0H expansion, 32 IN / 32 OUT transistor (PNP), MIL connector, 24V DC	AFP0HXY64D2P
FP0H expansion, 32 IN / 32 OUT transistor (NPN), MIL connector, 24V DC	AFP0HXY64D2T
FP0H positioning units	
Description	**Part number**
FP0H-PG01L positioning unit for 1 axis with line driver outputs	AFP0HPG01L
FP0H-PG01T positioning unit for 1 axis with transistor outputs	AFP0HPG01T
FP0H-PG02L positioning unit for 2 axes with line driver outputs	AFP0HPG02L
FP0H-PG02T positioning unit for 2 axes with transistor outputs	AFP0HPG02T
FP0H-M4AN positioning unit RTEX for 4 axes	AFP0HM4N
FP0H-M8AN positioning unit RTEX for 8 axes	AFP0HM8N
FP0H communication cassettes	
Description	**Part number**
FP0HCCM1 cassette, 1 x RS485 (3 pin)	AFP0HCCM1
FP0HCCS1 cassette, 1 x RS232C (5 pin)	AFP0HCCS1
FP0HCCS1M1 cassette, 1 x RS232C (3 pin) and 1 x RS485	AFP0HCCS1M1
FP0HCCS2 cassette, 2 x RS232C (2 x 3 pin)	AFP0HCCS2

FP0H/FP0R/FP-XH analog expansion units (right side)	
Description	**Part number**
FP0R analog expansion, 2 x 14-bit inputs (-10 to +10V, -5 to +5V, 0–10V, 0–5V, 0–20mA) and 1 x 14-bit output (-10 to +10V, -5 to +5V, 0–10V, 0–5V, 0–20mA, 4–20mA)	AFP0RA21
FP0R analog expansion, 4x 14-bit inputs (-10 to +10V, -5 to +5V, 0–10V, 0–5V, 0–20mA) and 2 x 14-bit outputs (-10 to +10V, -5 to +5V, 0–10V, 0–5V, 0–20mA, 4–20mA)	AFP0RA42
FP0R analog expansion, 4x 14-bit inputs (-10 to +10V, -5 to +5V, 0–10V, 0–5V, 0–20mA)	AFP0RAD4
FP0R analog expansion, 8x 14-bit inputs (-10 to +10V, -5 to +5V, 0–10V, 0–5V, 0–20mA)	AFP0RAD8
FP0R analog expansion, 4x 14-bit outputs (-10 to +10V, -5 to +5V, 0–10V, 0–5V, 0–20mA, 4–20mA)	AFP0RDA4

FP0R CPUs

Description	Part number
FP0R-C10, 16k steps, 6 IN / 4 OUT relay (2A), screw terminal block, RS232, USB, 24V DC	AFP0RC10RS
FP0R-C10, 16k steps, 6 IN / 4 OUT relay (2A), screw terminal block, RS232C, USB, 24V DC	AFP0RC10CRS
FP0R-C10 with COM port: RS485 (19,2/115,2kbit/s), TOOL port: RS232 & Mini USB, 16k steps, 6 IN (PNP + NPN), 4 OUT relay, screw terminal block, 24V DC	AFP0RC10MRS
FP0R-C14, 16k steps, 8 IN / 6 OUT relay (2A), screw terminal block, RS232, USB, 24V DC	AFP0RC14RS
FP0R-C14, 16k steps, 8 IN / 6 OUT relay (2A), screw terminal block, RS232C, USB, 24V DC	AFP0RC14CRS
FP0R-C14 with COM port: RS485 (19,2/115,2kbit/s), TOOL port: RS232 & Mini USB, 16k steps, 8 IN (PNP + NPN), 6 OUT relay, screw terminal block, 24V DC	AFP0RC14MRS
FP0R-C16, 16k steps, 8 IN / 8 OUT (0.2A), MIL connector, RS232, USB, 24V DC	AFP0RC16P (PNP), AFP0RC16T (NPN)
FP0R-C16, 16k steps, 8 IN / 8 OUT (0.2A), MIL connector, RS232C, USB, 24V DC	AFP0RC16CP (PNP), AFP0RC16CT (NPN)
FP0R-C16 with COM port: RS485 (19,2/115,2kbit/s), TOOL port: RS232 & Mini USB, 16k steps, 8 IN (PNP + NPN) / 8 OUT transistor, MIL connector, 24V DC	AFP0RC16MP (PNP), AFP0RC16MT (NPN)
FP0R-C32, 32k steps, 16 IN / 16 OUT (0.2A), MIL connector, RS232, USB, 24V DC	AFP0RC32P (PNP), AFP0RC32T (NPN)
FP0R-C32, 32k steps, 16 IN / 16 OUT (0.2A), MIL connector, RS232C, USB, 24V DC	AFP0RC32CP (PNP), AFP0RC32CT (NPN)
FP0R-C32 with COM port: RS485 (19,2/115,2kbit/s), TOOL port: RS232 & Mini USB, 32k steps, 16 IN (PNP + NPN) /16 OUT transistor, MIL connector, 24V DC	AFP0RC32MP (PNP), AFP0RC32MT (NPN)
FP0R-T32, 32k steps, 16 IN / 16 OUT (0.2A), RTC, MIL connector, RS232C, USB, 24V DC	AFP0RT32CP (PNP), AFP0RT32CT (NPN)
FP0R-T32 with COM port: RS485 (19,2/115,2kbit/s), TOOL port: RS232 & Mini USB, 32k steps, 16 IN (PNP + NPN) / 16 OUT transistor, MIL connector, RTC, buffered RAM, 24V DC	AFP0RT32MP (PNP), AFP0RT32MT (NPN)
FP0R-F32, 32k steps, 16 IN / 16 OUT (0.2A), FRAM, RS232C, USB, 24V DC	AFP0RF32CP (PNP), AFP0RF32CT (NPN)
FP0R-F32 with COM port: RS485 (19,2/115,2kbit/s), TOOL port: RS232 & Mini USB, 32k steps, 16 IN (PNP + NPN) / 16 OUT transistor, MIL connector, flash RAM, 24V DC	AFP0RF32MP (PNP), AFP0RF32MT (NPN)

FP0H/FP0R digital expansion units (right side)

Description	Part number
FP0R-E8 expansion unit, 8 IN, MIL connector, 24V DC	AFP0RE8X
FP0R-E8 expansion unit, 4 IN / 4 OUT relay, terminal block, 24V DC	AFP0RE8RS
FP0R-E8 expansion unit, 8 OUT relay, terminal block, 24V DC	AFP0RE8YRS
FP0R-E8 expansion unit, 8 transistor OUT, MIL connector, 24V DC	AFP0RE8YP (PNP), AFP0RE8YT (NPN)
FP0R-E16 expansion unit, 16 IN, MIL connector, 24V DC	AFP0RE16X
FP0R-E16 expansion unit, 8 IN / 8 OUT relay, terminal block, 24V DC	AFP0RE16RS
FP0R-E16 expansion unit, 8 IN / 8 transistor OUT, MIL connector, 24V DC	AFP0RE16P (PNP), AFP0RE16T (NPN)
FP0R-E16 expansion unit, 16 transistor OUT, MIL connector, 24V DC	AFP0RE16YP (PNP), AFP0RE16YT (NPN)
FP0R-E32 expansion unit, 16 IN / 16 transistor OUT, MIL connector, 24V DC	AFP0RE32P (PNP), AFP0RE32T (NPN)

FP0H/FP0R temperature units (right side)

Description	Part number
FP0 thermocouple unit, resolution: 0.1°C, 4 input channels, -100°C to +1500°C	FP0TC4
FP0 thermocouple unit, resolution: 0.1°C, 8 input channels, -100°C to +1500°C	FP0TC8
FP0 RTD unit, Pt100, Pt1000, Ni1000, 6 input channels (3-wire), -200°C to +500°C, resolution 0.1°C	FP0RTD6

FP0R cables and accessories

Description	Part number
I/O cable with 10-pin MIL connector and 10 wires, set of two cables (1 x blue, 1 x white), 1m	AFP0521D
I/O cable with 10-pin MIL connector and 10 wires, set of two cables (1 x blue, 1 x white), 3m	AFP0523D
I/O cable with 10-pin MIL connector and 10 wires, set of two cables (blue), 1m	AFP0521BLUED
I/O cable with 10-pin MIL connector and 10 wires, set of two cables (blue), 3m	AFP0523BLUED
I/O cable with 10-pin MIL connector and 10 wires, set of two cables (orange),1m	AFP0521ORANGED
I/O cable with 10-pin MIL connector and 10 colored wires, set of two cables, 1m	AFP0521COLD
I/O cable with 10-pin MIL connector and 10 colored wires, set of two cables, 2m	AFP0522COLD
I/O cable with 40-pin MIL connector and 40 blue wires, 1m	AYT58403BLUED
I/O cable with 40-pin MIL connector and 40 blue wires, 3m	AYT58406BLUED
I/O cable with 40-pin MIL connector and 40 colored wires based on DIN 47100, 1m	AYT58403COLD
I/O cable with 40-pin MIL connector and 40 colored wires based on DIN 47100, 3m	AYT58406COLD
Power supply cable for FPWEB2, FP0R and FP∑ (Sigma), 1m	AFPG805J
Power supply cable for FP0/FP0R, FP Modem-56k, 1m	AFP0581J
Slim type mounting plate for FP0 expansion units, 10 pcs per set	AFP0803
FP∑ (Sigma) high capacity battery holder. Battery CR123A is not included.	AFPG807
Backup battery	AFPG804
FP Memory Loader, data clear type	AFP8670
MIL connector, attaches to transistor output type (2 sockets per pack)	AFP0807
Pressure connection tool for MIL connection	AXY52000FP

FP0H cables

Description	Part Number
I/O cable with 40-pin MIL connectors, 40 pins to 4 x 10 pins, 1m	AFP0541H
I/O cable with 40-pin MIL connectors, 40 pins to 2 x 20 pins, 260mm	AFP0542

FP-XH CPUs

Description	Part number
FP-XH-C14R, 8 IN (24V DC) / 6 OUT (2A relay), terminal block, 230V AC	AFPXHC14R
FP-XH-C14RD, 8 IN (24V DC) / 6 OUT (2A relay), terminal block, 24V DC	AFPXHC14RD
FP-XH-C14, 8 IN (24V DC) / 6 OUT (transistor, 0.5A), terminal block, 230V AC	AFPXHC14P (PNP), AFPXHC14T (NPN)
FP-XH-C14, 8 IN (24V DC) / 6 OUT (transistor, 0.5A), terminal block, 24V DC	AFPXHC14PD (PNP), AFPXHC14TD (NPN)
FP-XH-C30R, 16 IN (24V DC) / 14 OUT (2A relay), terminal block, 230V AC	AFPXHC30R
FP-XH-C30R, 16 IN (24V DC) / 14 OUT (2A relay), terminal block, 24V DC	AFPXHC30RD
FP-XH-C30, 16 IN (24V DC) / 14 OUT (transistor, 0.5A), terminal block, 230V AC	AFPXHC30P (PNP), AFPXHC30T(NPN)
FP-XH-C30, 16 IN (24V DC) / 14 OUT (transistor, 0.5A), terminal block, 24V DC	AFPXHC30PDJ (PNP), AFPXHC30TDJ (NPN)
FP-XH-C60R, 32 IN (24V DC) / 28 OUT (2A relay), terminal block, 230V AC	AFPXHC60R
FP-XH-C60R, 32 IN (24V DC) / 28 OUT (2A relay), terminal block, 24V DC	AFPXHC60RD
FP-XH-C60, 32 IN (24V DC) / 28 OUT (transistor, 0.5A), terminal block, 230V AC	AFPXHC60P (PNP), AFPXHC60T (NPN)
FP-XH-C60, 32 IN (24V DC) / 28 OUT (transistor, 0.5A), terminal block, 24V DC	AFPXHC60PD (PNP), AFPXHC60TD (NPN)
FP-XH RTEX, 8 IN (24V DC) /8 OUT (transistor, 0.5A), terminal block, 24V DC, 8-Achs RTEX Motion Control Modul	AFPXHM8N16PD

FP-XH / FP-X expansion units

Description	Part number
FP-X-E16R expansion unit, 8 IN (24V DC) / 8 OUT (2A relay), terminal block	AFPXE16R
FP-X-E16 expansion unit, 8 IN (24V DC) / 8 OUT (transistor, 0.5A), terminal block	AFPXE16P (PNP), AFPXE16T (NPN)
FP-X-E16X expansion unit, 16 IN (24V DC), terminal block	AFPX-E16X
FP-X-E14YR expansion unit, 14 OUT (2A relay), terminal block	AFPX-E14YR
FP-X-E30R expansion unit, 16 IN (24V DC) / 14 OUT(2A relay), terminal block, 230V AC	AFPXE30R
FP-X-E30RD expansion unit, 16 IN (24V DC) / 14 OUT(2A relay), terminal block, 24V DC	AFPXE30RD
FP-X-E30 expansion unit, 16 IN (24V DC) / 14 OUT (transistor, 0.5A), terminal block, 230V AC	AFPXE30P (PNP), AFPXE30T (NPN)
FP-X-E30 expansion unit, 16 IN (24V DC /14 OUT (transistor, 0.5A), terminal block, 24V DC	AFPXE30PD (PNP), AFPXE30TD (NPN)
Adapter for connecting FP0 expansion units, 24V DC	AFPXEFP0

FP-XH / FP-X add-on cassettes

Description	Part number
FP-X I/O cassette, 4 IN (24V DC) / 4 OUT (NPN, 0.3A), terminal block	AFPX-IN4T3
FP-X input cassette, 8 IN (24V DC), terminal block	AFPXIN8
FP-X output cassette, 6 OUT (PNP, 0.5A), terminal block	AFPXTR6P (PNP)
FP-X output cassette, 8 OUT (NPN, 0.3A), terminal block	AFPXTR8 (NPN)
FP-X pulse I/O cassette, HSC input (single-phase 2 ch ., each 80kHz or two-phase 1ch ., 30kHz, pulse output: one axis 100kHz/ch) . Cannot be used with a transistor output control unit .	AFPXPLS
FP-X analog input cassette, 2 inputs (0–10V or 0–20mA, 12-bit, 2ms/2ch .)	AFPXAD2
FP-X analog output cassette, 2 outputs (0–10V or 0–20mA, 12-bit, 2ms/2ch .)	AFPX-DA2
FP-X analog I/O cassette, 2 ch . inputs (0 to 10V or 0 to 20mA, 12-bit, 2ms/2ch .), 1 ch . output (0–10V or 0–20mA, 12-bit, 1ms/ch) (insulated)	AFPX-A21
FP-X thermocouple input cassette, 2-point thermocouple input, K/J type, -50°C to +500°C, resolution 0.2°C, 200 ms/2 ch . (insulated)	AFPX-TC2
FP-X RTD cassette, 2-point RTD input, PT100, -200°C to +850°C, resolution 0.1°C	AFPX-RTD2
FP-X master memory cassette with a clock/calendar function	AFPXMRTC
FP-X-COM1 communication cassette, 1ch . RS232C (5 pin)	AFPXCOM1
FP-X-COM2 communication cassette, 2ch . RS232C (2 x 3 pin)	AFPXCOM2
FP-X-COM3 communication cassette, 1ch . RS485 (3 pin)	AFPXCOM3
FP-X-COM4 communication cassette, 1ch . RS232C (3 pin) and 1ch . RS485 (2 pin)	AFPXCOM4
FP-X-COM5 communication cassette, 1ch . Ethernet (10Base-T, 100Base-TX) and 1ch . RS232C (3 pin)	AFPXCOM5
FP-X-COM6 communication cassette, 2 x RS485, 115 .2 kbit/s	AFPXCOM6
Control Configurator WD, tool software for setting the Ethernet port of the COM5 communication cassette	Free to download from our homepage

FP-XH / FP-X accessories

Description	Part number
FP-X backup battery for backing up the operation memory and real-time clock	AFPXBATT
FP-X expansion cable	AFPXEC08 (8cm), AFPXEC30 (30cm), AFPXEC80 (80cm)
FP-X terminal block for C30, C60 and E30, 21 pins, cover with no marking, set of 5 pcs .	AFPXTAN1

PART NUMBER LIST

FP0H/FP0R/FP-XH network communication

Description	Part number
FP-I4C, Industry 4.0 Communicator; 2 x Ethernet 10/100MBit; 2 x USB; 1 x RS232; 1 x RS485/RS232	AFP4C
FP Web-Server 2, Ethernet with 10/100MBit/s and Modem interface	FPWEB2
License for FP Web Configurator Tool, Windows software for FP Web-Server 2	FPWEBCONFIG_LICENSE
Connection cable for FPWEB2 <—> FP series PLC TOOL port, 2m	AIGT8192
FP0H / FP Sigma PROFIBUS DP master unit	FPG-DPV1-M
FP0H / FP Sigma DeviceNet master unit	FPG-DEV-M
FP0H / FP Sigma CANopen master unit	FPG-CAN-M
Control Configurator FM for Fieldbus Master Units	AFPS35510
FP0H / FP Sigma PROFIBUS DP slave unit	FPG-DPV1-S
FP0H / FP Sigma DeviceNet slave unit	FPG-DEV-S
FP0H / FP Sigma CANopen slave unit	FPG-CAN-S
FP0H / FP Sigma PROFINET I/O slave unit	FPG-PRT-S
FP0H/FP0R PROFINET DP slave unit, or works as remote IO unit without controller	FP0DPS2D
C-NET adapter (RS485) S2-Type, 30cm cable for FP0/FP∑ (Sigma)/FP2 TOOL port	AFP15402J
Programming cable for FP and GT series (9-pin Sub-D to 5-pin miniDIN), L type, 3m	AFC8513D
RS232C cable for FP Modem-56k <—> FP series PLC COM port (3 pins), 0.5m	CABMODPLC111D
RS232C cable for FP Modem-56k <—> FP series PLC COM port (9 pins), 0.5m	CABMODPLC211D
RS232C cable for FP Modem-56k <—> FP series PLC TOOL port (5 pins), 2m	CABMODPLC311D
RS232C cable for FP Modem-56k <—> FP series PLC TOOL port (5 pins), 0.5m	AFS8TP
KS1 signal converter, Ethernet <—> RS232C/RS485, 24V DC	AKS1202

24V DC power supply units

Description	Part number
Power supply unit 24W (primary 100– 240V AC, 2 x secondary 24V DC/1A, short-circuit protected)	FP-PS24-024E
Power supply unit 60W (primary 100– 240V AC, 2 x secondary 24V DC/2 .5A, short-circuit protected)	FP-PS24-060E
Power supply unit 120W (primary 100– 240V AC, 2 x secondary 24V DC/5A, short-circuit protected)	FP-PS24-120E

FP7 CPUs

Description	Part number
120k steps, operation speed 11ns, no Ethernet support	AFP7CPS31
120k steps, operation speed 11ns, Ethernet communication available	AFP7CPS31E
196k steps, operation speed 11ns, Ethernet communication available	AFP7CPS41E
64k steps, operation speed 14 ns, no Ethernet support	AFP7CPS21

FP7 communication cassettes

Description	Part number
RS232C, 1 channel (insulated)	AFP7CCS1
RS232C, 2 channels (insulated)	AFP7CCS2
RS422 or RS485, 1 channel (insulated)	AFP7CCM1
RS422 or RS485, 2 channels (insulated)	AFP7CCM2
RS232C, 1 channel (insulated) and RS485	AFP7CCS1M1
Ethernet 100Base-TX/10Base-T	AFP7CCET1

FP7 application cassettes

Description	Part number
2-channel analog input voltage/current	AFP7FCAD2
2-channel analog input, 1-channel analog output	AFP7FCA21
2-channel thermocouple input, K/J type	AFP7FCTC2

FP7 digital input, output and mixed I/O units

Description	Part number
16 IN, 12–24V DC, configurable input time constant	AFP7X16DW
32 IN, 12–24V DC, configurable input time constant	AFP7X32D2
64 IN, 12–24V DC, configurable input time constant	AFP7X64D2
16 OUT, relay, 2A/point, 5A/common, 16 points/common	AFP7Y16R
16 OUT, transistor, PNP, load current 1.0A, 5A/common, 16 points/common	AFP7Y16P
16 OUT, NPN, load current: 1.0A, 5A/common, 16 points/common	AFP7Y16T
32 OUT, transistor, PNP, load current 0.3A, 3.2A/common, 32 points/common	AFP7Y32P
32 OUT, NPN, load current 0.3A, 3.2A/common, 32 points/common	AFP7Y32T
64 OUT, transistor, PNP, load current 0.3A/0.1A, 3.2A/common, 32 points/common	AFP7Y64P
64 OUT, load current: 0.3 A, 0.1 A, mixed 3.2A/common, 32 points/common	AFP7Y64T
32 IN, 32 OUT, transistor, PNP, input: 24V DC, 32 points/common Output: load current 0.3A/0.1 A, 3.2A/common, 32 points/common	AFP7XY64D2P
32 IN, 32 OUT, NPN, input: 24V DC, 32 points/common Output: load current: 0.3A, 0.1A, mixed 3.2 A/common, 32 points/common	AFP7XY64D2T

FP7 multi I/O unit

Description	Part number
High-speed counter and interrupt input, pulse output, PWM output, positioning function	AFP7MXY32DWDH
High-speed counter and interrupt input, pulse output, PWM output	AFP7MXY32DWD

PART NUMBER LIST

FP7 analog input and output units

Description	Part number
Input unit, 4 channels, voltage/current, conversion rate: 25µs/channel, resolution max. 16 bits, accuracy: max. ±0.05% F.S. (at 25°C)	AFP7AD4H
Output unit, 4 channels, voltage/current, conversion rate: 25µs/channel, resolution max. 16 bits, accuracy: max. ±0.05% F.S. (at 25°C)	AFP7DA4H
Output unit, 8 channels, Voltage/current, conversion rate 25µs/channel, resolution max. 16 bit, accuracy max. ±0.1% F.S. (at 25°C)	AFP7AD8

FP7 thermocouple & RTD units

Description	Part number
8 channels, analog input, resolution 0.1°C, K, J, T, N, R, S, B, E, types	AFP7TC8
8 channels, analog input, resolution 0.1°C, Pt100/JPt100/Pt1000	AFP7RTD8

FP7 high-speed counter units

Description	Part number
2 channels, 16MHz (for two-phase factor 4 input mode), 4MHz (for incremental/decremental input mode)	AFP7HSC2T
4 channels, 16MHz (for two-phase factor 4 input mode), 4MHz (for incremental/decremental input mode)	AFP7HSC4T

FP7 positioning units

Description	Part number
Line driver, 2 axes, 1–4Mpps, electronic gear and cam function, linear interpolation, circular interpolation	AFP7PP02L
Line driver, 4 axes,1–4Mpps, electronic gear and cam function, linear interpolation, circular interpolation	AFP7PP04L
Transistor, 2 axes,1–500kpps, electronic gear and cam function, linear interpolation, circular interpolation	AFP7PP02T
Transistor, 4 axes,1–500kpps, electronic gear and cam function, linear interpolation, circular interpolation	AFP7PP04T

FP7 motion control units

Description	Part number
FP7 EtherCAT unit, 16 axes, electronic gear, clutch, and cam function	AFP7MC16EC
FP7 EtherCAT unit, 32 axes, electronic gear, clutch, and cam function	AFP7MC32EC
FP7 EtherCAT unit, 64 axes, electronic gear, clutch, and cam function	AFP7MC64EC

FP7 pulse output units

Description	Part number
Line Driver, 2 axes, 1pps to 500kpps	AFP7PG02L
Line Driver, 4 axes, 1pps to 500kpps	AFP7PG04L
Transistor, 2 axes, 1pps to 4Mpps	AFP7PG02T
Transistor, 4 axes, 1pps to 4Mpps	AFP7PG04T

FP7 serial communication unit

Description	Part number
2 cassettes per unit, max. 8 units can be installed per CPU	AFP7NSC

FP7 expansion units

Description	Part number
Up to 3 slave units can be connected to one expansion master unit	AFP7EXPM
Up to 16 I/O units and intelligent units can be connected to one expansion slave unit	AFP7EXPS

FP7 Fieldbus master units

Description	Part number
FP7 CANopen Master FMU	AFP7NCANM
FP7 DeviceNet Master FMU	AFP7NDNM
FP7 PROFIBUS Master FMU	AFP7NPFBM
FP7 Profinet Master FMU	AFP7NPFNM

FP7 Web Creator

Description	Part number
Web content creation software for the web-server function of the FP7 CPU	AFPSWCKEY

Control FPWIN Pro

Description	Part number
License for Control FPWIN Pro programming software, version 7, full version for all FP series PLCs (including FP7)	FPWINPRO7_LICENSE
Programming cable for FP0R/FP0/FP-e/FPG/FPX/FP2 TOOL port to PC, 9-pin Sub-D to 5-pin miniDIN, L type, 3m	AFC8513D
Cable with USB 1.1 to RS232 with 9-pin Sub-D converter, 2m	CABUSBSER9D
Programming cable: USB A to USB B, 2m	AFPXCABUSB2D
Programming cable, USB A to mini USB B (5-pin), 2m, USB2.0 compatible	CABMINIUSB5D

FP Memory Loader

Description	Part number
FP Memory Loader, data non-hold type	AFP8670

Other software products

Description	Part number
FP OPC Server	FPOPCSERVER_LICENSE
FP Web Configurator Tool	FPWEBCONFIG_LICENSE
PCWAY software + USB port dongle: Data monitoring in Excel format	AFW10031J
USB port dongle for PC Way software	AFW1033J

Connection technology: PLC relay terminal

Description	Part number
Relay terminal with 8 relays (changeover contact with screw terminal) for connecting to FP-series PLCs	AFPRT8
Flat cable with connector, AFPCT10PINS/AFPRT8 (10 pins) <—> FP0/FP∑ (10 pins), 1m	CABAFPCT10PINS

Connection technology: MMFP power relay terminal

Description	Part number
Flat cable with connector, MMFP30R <—> PLC, 40 pins, 1m	FC40FF/1

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