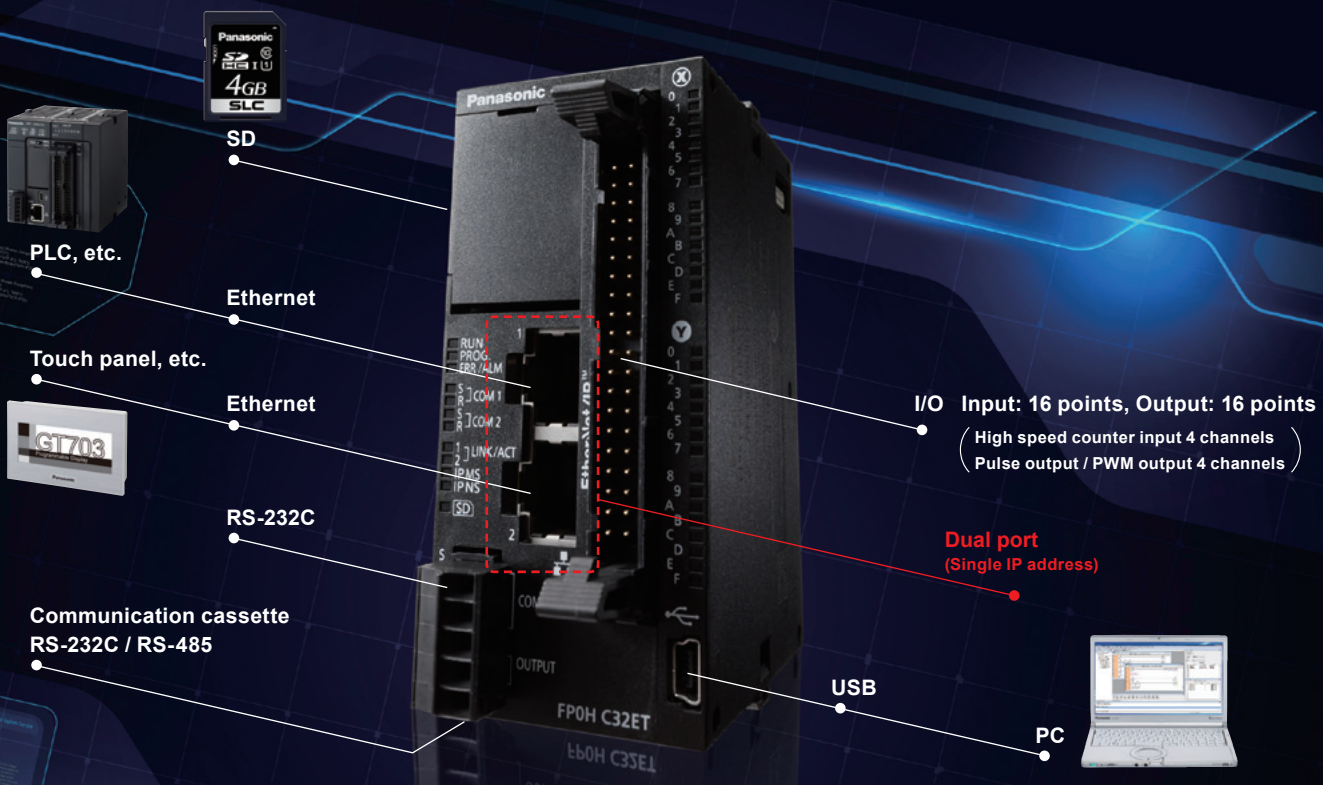
Panasonic

Programmable Controller

FP0H SERIES

Built-in dual Ethernet ports

Multiple interfaces that connect with various devices

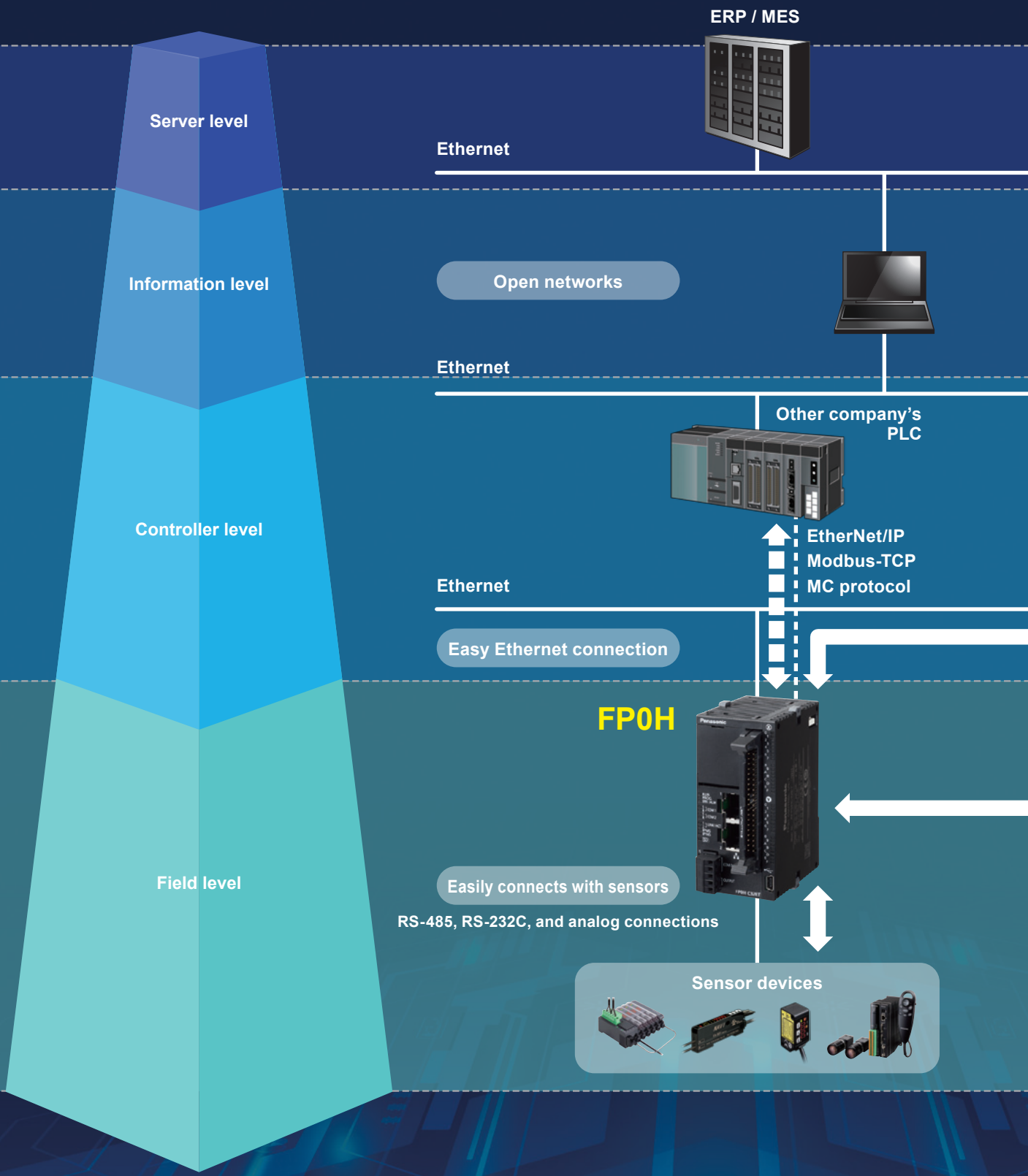


Ultra-compact PLC

3 Year Warranty

FP0H collects information from field level

The ultra-compact PLC "**FP0H**" collects information **(open network supported)** and achieves distributed control **(no hub required with serial wiring)**!



Network hierarchy

devices.

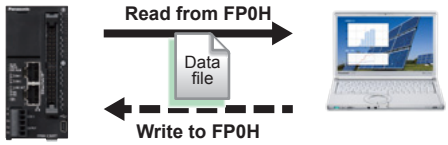
Information visualization using
FP7's Web server function

Basic performance

New functions
FP0H can transmit information to PC or server, etc.

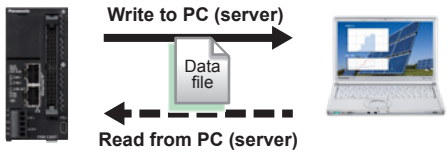
FTP server function NEW

Allows the PC to read the logging data in the SD memory card and to write setting values and other parameters.



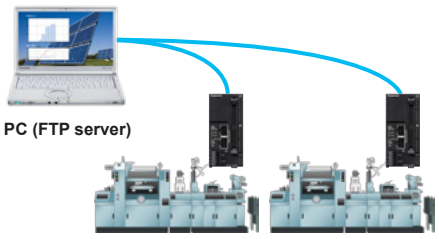
FTP client function NEW

The **FP0H** can generate and write data files to an FTP server on a PC as well as read data files from the FTP server.

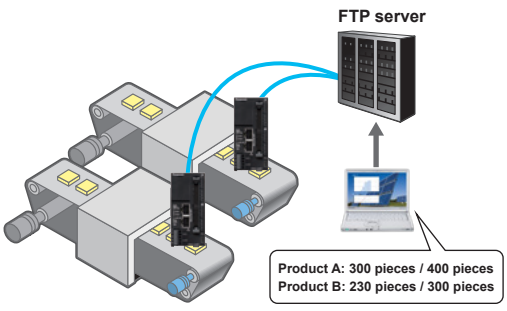


Data collection, data viewing and data writing from multiple units in the form of files

Transfer electric power data from factories and offices to an FTP server on a regular basis.



Users can access the accumulating production information in the server at any time.



Basic performance

Significantly improved basic performance in an ultra-compact body!

■ **High-speed operation processing** 8 x faster than conventional models!
Basic instruction: 10 ns to (up to 10 k steps)

■ **High capacity Max. 64 k steps** 2 x larger than conventional models!
Program capacity: 64 k / 40 k / 32 k / 24 k Step variable

■ **Data capacity: 12 k / 24 k / 32 k / 64 k Step variable**

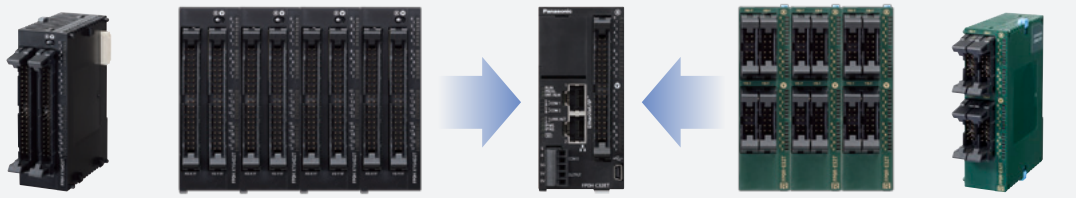
To improve productivity in an advanced small device!

Food processing machine | Packaging equipment | Inspection equipment

◎ Faster ▶ Reduce production costs
◎ Higher capacity ▶ Support multiple types

I/O:	16 input points, 16 output points, Transistor output (NPN / PNP)
Built-in I/F:	Ethernet × 2 ports, RS-232C × 1 channel, USB × 1 channel
Expansion I/F:	**FP0H** / **FPΣ** expansion bus × 1, **FP0R** expansion bus × 1
	Cassette slot × 1 (RS-232C, RS-232C × 2, RS-485, RS-232C and RS-485)
Tool:	**FPWIN GR7 / FPWIN Pro7**

■ Up to 384 I/O points FP0H / FPΣ / FP0R units can be added.



FP0H Expansion I/O unit

FP0H / **FPΣ** Expansion unit (expansion possible up to 4 units)

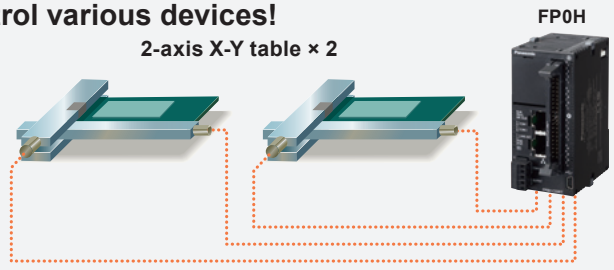
FP0R Expansion unit (expansion possible up to 3 units)

FP0R Expansion unit

■ Can select required functions to control various devices!

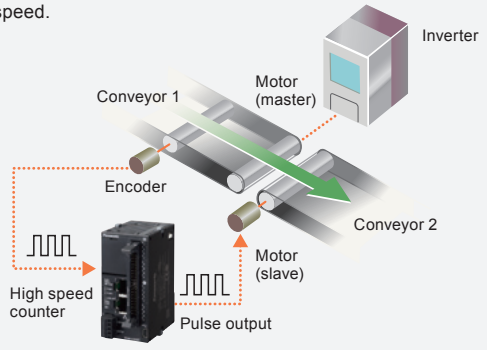
Built-in 4-axis pulse outputs

Built-in 4-axis pulse output, so simultaneous control of 2-axis linear interpolation is possible for two sets. For example, two X-Y tables can be controlled.



High-speed counter input and pulse output

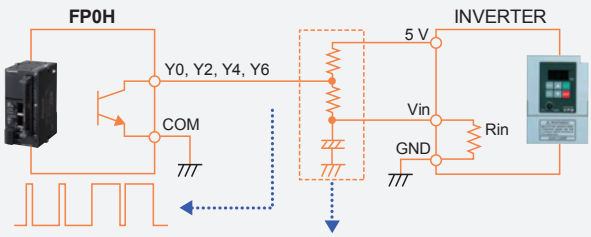
Ladder programs can be combined to create an application for counting pulse signals from the encoder through the high speed counter input and adjusting the pulse output frequency based on the count to synchronize the slave axis speed with the master axis speed.



In the upper figure, the speed of conveyor 1, which is inverter controlled, is measured based on the encoder pulse count, and pulses are output (for jog operation) to the motor (slave) according to the measured speed in order to synchronize the speed of conveyor 2.

Built-in multipoint PWM outputs (4 channels)

The pulse output port of **FP0H** can also serve as a PWM output port. One of the application examples is an analog voltage output, which can be used for inverter speed control.



The speed can be controlled by changing the ON width of the PWM output.

The unit can also serve as an analog voltage output when a smoothing capacitor is inserted in the circuit.

Connection to various devices

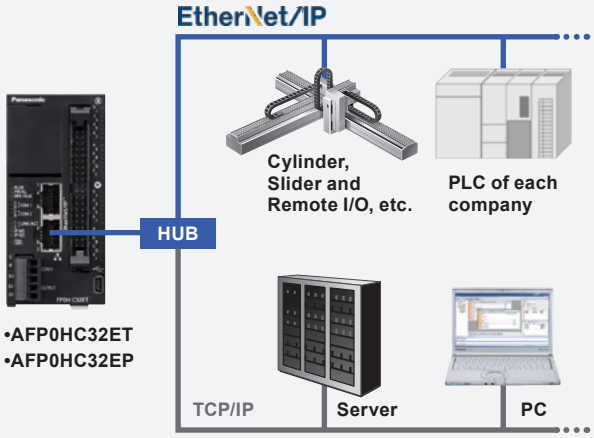
■ **EtherNet/IP, Modbus-TCP and MC protocol compatibility***
■ **Easy connection with all kinds of robots and PLCs***
■ **Cassette system reduces unit cost and installation space**

*Only for Ethernet type

EtherNet/IP compatibility

An Ethernet type control unit supports EtherNet/IP.
Easy connection with all kinds of robots and PLCs enables control and communication.

Note: EtherNet/IP is a trademark of ODVA, Inc.

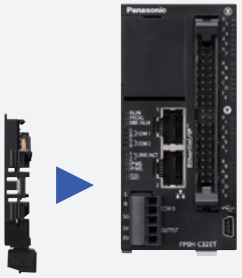


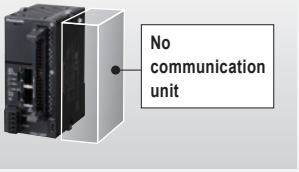
Cassette system reduces unit cost and installation space

With ease and at low cost, extend the serial communication functionality of control unit.

Communication cassettes

- RS-232C
- RS-232C × 2
- RS-485
- RS-232C and RS-485





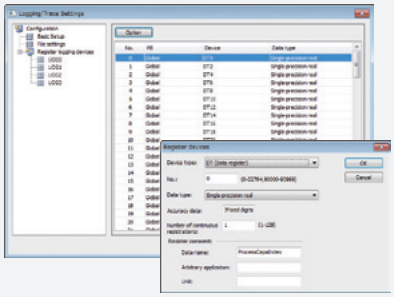
Logs collected information

■ **An SD memory card slot and a logging trace function are provided.***
■ **A project copy function can copy ladder data without a PC.* (Only when a programmable display is used)**
■ **Variable data capacity handles capacity shortage.**
■ **Program capacity: Max. 64 k steps***

* Only for Ethernet type

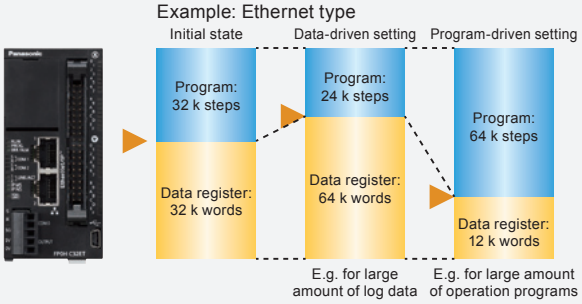
Easy multiple concurrent logging

Logging set up is done via the configuration screen.
Moreover, it is possible to keep up to 4 files concurrently active.



•Various triggers: periodic, cycle, bit, startup, etc.

Use program and data register sharing to resolve data space shortage. No need repurchase expensive upgrade models.



Reference value: for Ethernet type

Program	64 k steps	40 k steps	32 k steps	24 k steps
Data register	12 k words	24 k words	32 k words	64 k words

Can update programs with an SD memory card

Can save programs in and read them from an SD memory card.
Programs can be updated easily via an SD memory card.

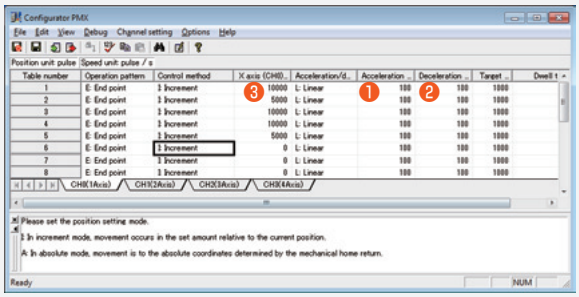
Motor control

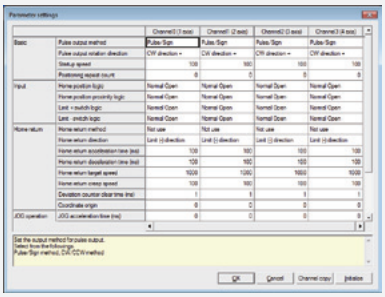
■ The control unit controls four axes with pulse output (up to 100 kHz per axis). You can achieve position control easily only by starting a positioning action pattern configured with a dedicated setting tool.

Control unit

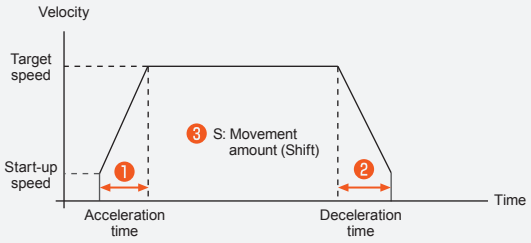
Positioning control configuration

The positioning table (Note 1) and parameters for each axis (Note 2) are set.



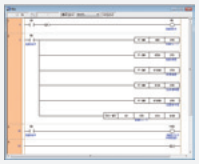


Notes: 1) The positioning table separately shows movement amount, target speed, acceleration and deceleration time, operation mode, and other information for positing control operations.
2) For each axis parameters are shown for limit input logic, deceleration time to stop, and operation conditions for JOG operation and return to point, etc.



■ The positioning unit (fast start-up in 5 µs) can support ultra-fast linear servos.

Expansion unit



FP0H
Positioning unit

Pulse output of up to 4 Mpps and fast start-up in 5 µs can control linear servos.

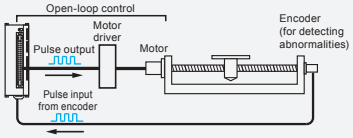
Ideal for applications that repeat short-stroke actions quickly, such as palletizing of electronics parts

A built-in high speed counter can detect abnormalities.

Ex.

FP0H
Positioning unit

● Counts feedback pulses from the encoder to detect abnormalities.



Counting feedback pulses from encoders during positioning can detect accidents such as the abnormalities in the drive system.

Jog positioning supports fixed feed

Fast start-up and repetitive control can support fixed-feed processing.

■ The supported positioning unit RTEX can control Panasonic motors.

Expansion unit

Support of network servos MINAS A4N / A5ⅡN / A6N significantly reduces the man-hours in wiring.

Commercially available LAN cables can be used as network cables, providing excellent availability, cost efficiency, and flexibility.

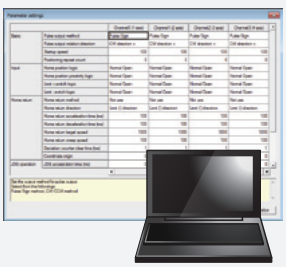
High communication speed of 100 Mbps. Precise multi-axis position control is achieved.

Three types (2-axis, 4-axis and 8-axis) are available. Flexible support of control with a small number of axes

FPΣ
Positioning unit
RTEX

The Configurator PM setting software strongly supports from configuration to start-up and to monitoring.

You can start the positioning-dedicated configuration tool **Configurator PM**, and easily configure parameters and positioning actions. A test run is also supported so that you can check positioning action even when the control unit is in program mode.

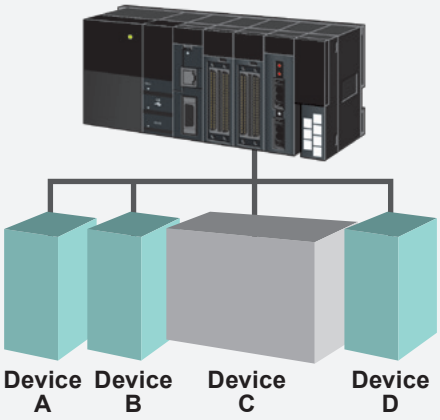


Distributed control

■ Distributed devices result in a flexible line, reducing man-hours.

Before

Centralized control by a high performance large PLC

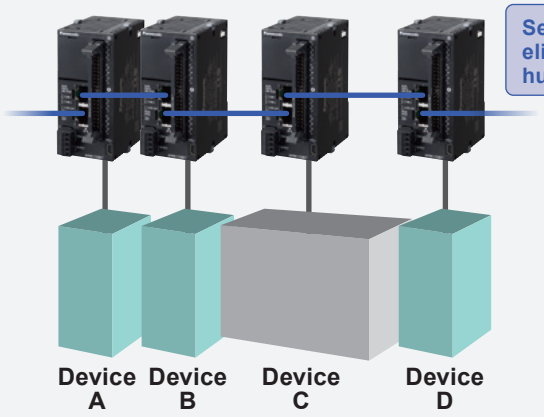


- ●Control of multiple devices leads to a complicated system design
- ●When a failure occurs, all the devices are stopped.
- ●System modification requires more man-hours.
- ●High risk at start-up and when an error occurs

After

Distributed control where FP0H controls each device.

Data between each controller is shared over Ethernet

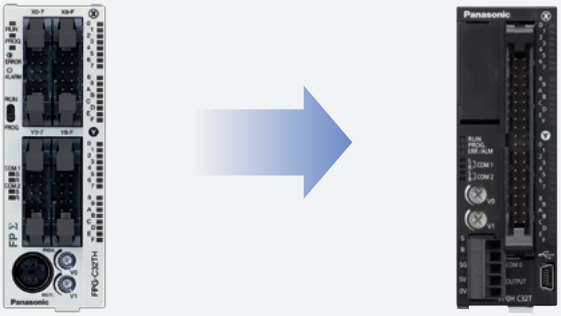


- ●Distributed control reduces the load on a control unit.
- ●Recovery of only failed devices reduces man-hours.
- ●System modification is available per device, which reduces man-hours.
- ●Lower risk at start-up and when an error occurs

Compatibility

■ Ultra-compact size inherited from FPΣ

Ultra-compact size of 90 mm 3.543 in in height contributes to the reduction in size of a device.



FPΣ Control unit
(W 30 × H 90 × D 60 mm
W 1.181 × H 3.543 × D 2.362 in)

FP0H Control unit (Without Ethernet type)
(W 30.4 × H 90 × D 60 mm
W 1.197 × H 3.543 × D 2.362 in)

■ Ladder programs for FPΣ can be converted for FP0H.

**Ladder programs for FPΣ created in Control FPWIN GR/GR7 can be converted for FP0H.
Creating new ladder programs are not required when replacing FPΣ with FP0H.**

Note: When an unsupported instruction (F176 SPCH: arc interpolation) is used, convert it before model switching.

FP0H series Lineup

Control units

With Ethernet
NPN type
AFP0HC32ET

With Ethernet
PNP type
AFP0HC32EP

Without Ethernet
NPN type
AFP0HC32T

Without Ethernet
PNP type
AFP0HC32P

Expansion I/O units

32 points input DC
Transistor output
(sink) 32 points
AFP0HXY64D2T

32 points input DC
Transistor output
(source) 32 points
AFP0HXY64D2P NEW

Communication cassettes

RS-232C, 1 channel
AFP0HCCS1

RS-232C, 2 channels
AFP0HCCS2

RS-485, 1 channel
AFP0HCCM1

RS-232C, 1 channel
RS-485, 1 channel
AFP0HCCS1M1

Positioning units

Transistor output
1 axis
AFP0HPG01T

Line driver output
1 axis
AFP0HPG01L

Transistor output
2 axes
AFP0HPG02T

Line driver output
2 axes
AFP0HPG02L

Expansion units (Common to FPΣ)

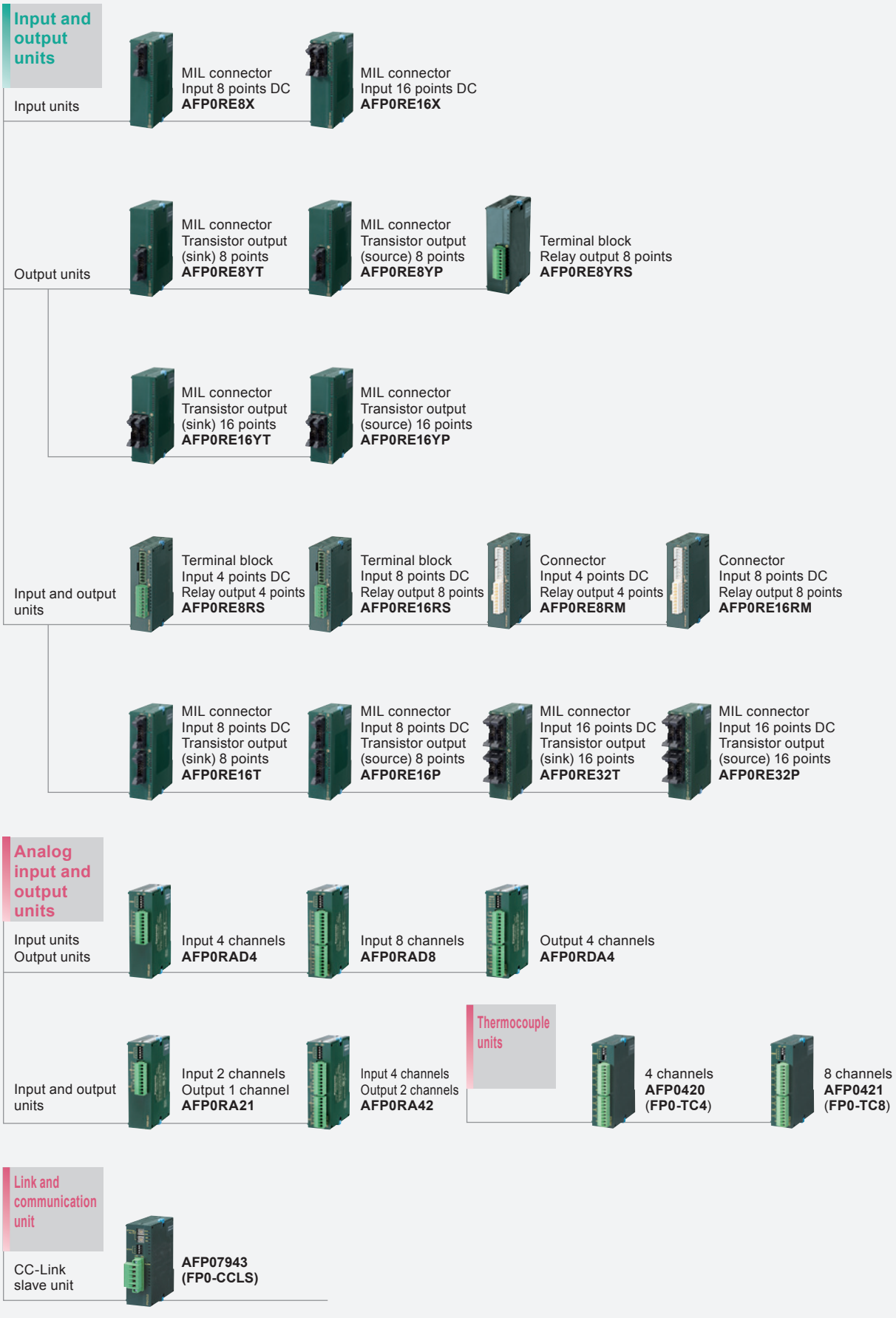
Positioning units RTEX

2 axes
FPG-PN2AN
(AFPG43610)

4 axes
FPG-PN4AN
(AFPG43620)

8 axes
FPG-PN8AN
(AFPG43630)

Expansion units (Common to FP0R)



Control units

Significantly improved basic performance in an ultra-compact body!

With Ethernet NPN type **AFP0HC32ET** | With Ethernet PNP type **AFP0HC32EP** | Without Ethernet NPN type **AFP0HC32T** | Without Ethernet PNP type **AFP0HC32P**

Control specifications

Item \ Type		Without Ethernet		With Ethernet	
		NPN type	PNP type	NPN type	PNP type
Item \ Part No.		AFP0HC32T	AFP0HC32P	AFP0HC32ET	AFP0HC32EP
Number of controllable I/O points		32 points (Input: 16, Output: 16), When expanded: Max. 384 points			
Programming method / Control method		Relay symbol / Cyclic operation			
Program memory		Built-in flash ROM (no backup battery required)			
Number of instructions	Basic instructions	120 types approx.			
	High-level instructions	240 types approx.		270 types approx.	
Program capacity		24 k /32 k steps		24 k /32 k /40 k / 64 k steps	
		Can be selected at system register No. 0 When the program capacity is changed, the number of words that can be used in the data register (DT) is also changed. Program capacity: 24 k steps / 32 k steps (initial value) / 40 k steps / 64 k steps DT Number of word: 65,533 words / 32,765 words (initial value) / 24,573 words / 12,285 words			
Operation speed		Basic instruction (NOT: /) : 10 ns/step approx. (Up to 10 k steps) , 0.18 µs/step approx. (10 k steps and later) Basic instruction (ST) : 40 ns/step approx. (Up to 10 k steps) , 0.65 µs/step approx. (10 k steps and later) High-level instruction (FOMV) : 0.14 µs/step approx. (Up to 10 k steps) , 1.2 µs/step approx. (10 k steps and later)			
Base scan time I/O refresh and base time		Control unit: 40 µs or less approx. and **FP0** / **FP0R** expanshion unit refresh time (Note 1)		Control unit: 100 µs or less approx. and **FP0** / **FP0R** expanshion unit refresh time (Note 1)	
Operation memory — Relay	External input (X) (Note 2, 3)	1, 760 points (X0 to X109F)			
	External output (Y) (Note 2, 3)	1, 760 points (Y0 to Y109F)			
	Internal relay (R) (Note 3)	4,096 points (R0 to R255F) or 8,192 points (R0 to R511F) (Note 4)		8,192 points (R0 to R511F)	
	Special internal relay (R)	800 points (R9000 to R951F)			
	Timer / Counter (T / C) (Note 5)	1,024 points (initial setting, timer: 1,008 points, counter: 16 points)			
	Link relay (L)	2,048 points (L0 to L127F)			
Operation memory — Memory area	Data register (DT) (Note 6)	32,765 words or 65,533 words		12,285 words or 24,573 words or 32,765 words or 65,533 words	
	Special data register (DT) (Note 3)	1,000 words (DT90000 to DT90999)			
	Link data register (LD)	256 words (LD0 to LD255)			
	Index register (I)	14 words (I0 to ID)			
Differential points		Points for the program capacity			
Number of master control relay (MCR)		256 points			
Number of labels (JP and LOOP)		256 points			
Number of step ladder		1,000 stages			
Number of subroutines		500 subroutines			
Number of interrupt program		9 programs •Input: 8 programs (INT0 to INT7) •Periodic: 1 program (INT24)			
Sampling trace (Note 7)		Available Sampling by commands / Sampling at regular time intervals (For one sampling: 16 bits + 3 words), 1,000 samples			
Comment storage		I/O comments, remarks and block comments can be stored. (no backup battery required, 1 M byte)			
PLC link function (Serial communication)		Max. 16 units, link relays: 1,024 points, link registers: 128 words. (Data transfer and remote programming are not supported)			

Item \ Type		Without Ethernet		With Ethernet	
		NPN type	PNP type	NPN type	PNP type
Item \ Part No.		AFP0HC32T	AFP0HC32P	AFP0HC32ET	AFP0HC32EP
Constant scan		Available (0 to 600 ms)			
Password		Available (32 digits)			
Program upload protection		Available			
Program protect function		Available			
Self-diagnostic function		Watchdog timer, program syntax check, etc.			
Program edition during RUN		Available			
SD memory card function		—		SD memory card project copy, SD memory card access (instruction), Logging trace function (Note 7)	
Memory transfer		Available [Built-in memory (ROM ⇔ RAM)]			
High speed counter (Note 8)	Main unit input	Single-phase 4 channels (Max. 100 kHz each input) or 2-phase 2 channels (Max. 50 kHz each input)			
Pulse output (Note 8)	Main unit output	4 channels (Max. 100 kHz each axis)			
PWM output (Note 8)	Main unit output	4 channels (1 Hz to 70 kHz: 1,000 resolution / 70.001 kHz to 100 kHz: 100 resolution			
Pulse catch input Interrupt input		Total 8 points (with high speed counter)			
Periodical interrupt		0.1 ms to 30 sec.			
Potentiometer (Volume) input (Note 3)		2 channels (0 to 4000)		Not available	
Clock / calendar (Note 9, 10)		Year (last two digits), month, day, hour (24-hour display), minute, second and day of week			
Memory backup (Note 11)	Backup by instruction P13	Data register: all area			
	Auto-backup at power failure	Counter: 16 points Internal relay: 128 points Data register: 315 words			
Battery backup (only when a battery is installed)		Hold areas or non-hold areas can be specified by setting the system registers No.6 to No. 13. (It is also possible to make the setting for hold all points.)			
Battery life		5 years or more under a production condition (operates for 8 hours per day)			

Notes: 1) Refresh times for **FP0** / **FP0R** expansion units

8 points unit	Number of units × 0.8 ms
16 points unit	Number of units × 1.0 ms
32 points unit	Number of units × 1.3 ms
64 points unit	Number of units × 1.9 ms

2) The number of points that can be used depends on the combination of hardware.
3) Some specifications are compatible with **FPΣ**.
4) System register No. 1 (internal relay capacity) can be configured to select "0: 4,096 points / 1: 8,192 points".
5) An auxiliary timer instruction (F137) can be used to add the number of points.
6) System register No. 0 (program capacity) can be configured to select the capacity of the data register (DT).
7) Logging trace and sampling trace cannot be used at the same time.
8) The specifications are based on the rated input voltage of 24 V DC at +25 °C +77 °F.
The maximum operation frequency may be lower depending on the applied voltage, ambient temperature, and conditions of use.
The maximum operation frequency varies depending on how the unit is used.
9) Accuracy of the clock / calendar (within ± 90 seconds per month at +25 °C +77 °F).
If an error of the clock / calendar becomes a problem in the system, set an accurate time periodically.
10) If the battery is not attached, calendar information is cleared when the power is turned off. It will be necessary to set the date when the power is turned on.
11) Data can be rewritten up to 10,000 times. Hold / non-hold areas can be specified in the system registers.

General specifications

Item \ Type	Without Ethernet		With Ethernet	
	NPN type	PNP type	NPN type	PNP type
Part No.	AFP0HC32T	AFP0HC32P	AFP0HC32ET	AFP0HC32EP
CE marking directive compliance	EMC Directive, RoHS Directive			
Rated voltage	24 V DC			
Operating voltage range	20.4 to 28.8 V DC			
Consumption current	140 mA or less		170 mA or less	
Allowed momentary power off time	4 ms (at 20.4 V DC), 10 ms (24 V DC or higher)			
Ambient temperature	0 to +55 °C +32 to +131 °F, At storage: -40 to +70 °C -40 to +158 °F			
Ambient humidity	10 to 95 % RH (at +25 °C +77 °F, no dew condensation allowed), At storage: 10 to 95 % RH (at +25 °C +77 °F, no dew condensation allowed)			
Breakdown voltage (Detection current: 5 mA)	500 V AC for 1 minute Input and output terminals ⇔ power and functional ground terminals Input terminals ⇔ Output terminals			
Insulation resistance (Test voltage: 500 V DC)	100 MΩ or more Input and output terminals ⇔ power and functional ground terminals Input terminals ⇔ Output terminals			
Vibration resistance	5 to 8.4 Hz, single amplitude of 3.5 mm, 8.4 to 150 Hz, constant acceleration of 9.8 m/s², for 10 times each in X, Y, and Z directions (1 octave/min.) (JIS B 3502, IEC 61131-2)			
Shock resistance	147 m/s², 4 times each in X, Y, and Z directions (JIS B 3502, IEC 61131-2)			
Noise immunity	1,000 V (p-p) with pulse widths 50 ns and 1 µs (using a noise simulator) (Power supply terminal)			
Operating condition	Free from corrosive gasses and excessive dust			
Overvoltage category	Category II			
Degree of pollution	Pollution level 2			
Net weight	110 g approx. each		130 g approx. each	

COM0 port communication specifications

Item		Specifications
Interface		RS-232C, three-wire system, 1 channel (Not insulated)
Transmission distance		15 m 49.213 ft
Communication configuration		1 : 1 communication
Communication method		Half-duplex system
Synchronous method		Start-stop synchronization system
Transmission cable		Multi-conductor shielded wire
Communication speed (Specified at the system registers)		1,200 (Note 3), 2,400 (Note 3), 4,800, 9,600, 19,200, 38,400, 57,600, 115,200, 230,400 bits/sec.
Transmission format	Data length	7 bits / 8 bits
	Parity	none / odd / even
	Stop bit	1 bit / 2 bits
	Start code	with STX / without STX
	End code	CR / CR + LF / none / ETX / Time (0 to 100.00 ms)
Data transmission order		Transmit from bit 0 in character units
Communication mode		MEWTOCOL-COM (Master / Slave) (Computer link) General-purpose communication PLC link MODBUS RTU (Master / Slave)

Notes: 1) The start and end codes can be used only for general-purpose serial communications.
2) The unit No. (station number) can be selected at system register No. 410.
3) System register no. 415 cannot be used to set the baud rate to 1,200 bps. To set the baud rate to 1,200 bps, use the SYS1 instruction. If the baud rate of any of the COM ports is 2,400 bps or lower, F-ROM access will slow down. Example) F12(ICRD) instruction, P13(ICWT) instruction, etc.

LAN port communication specifications (for only Ethernet type)

Item	Specifications
Communication interface	Ethernet 100BASE-TX / 10BASE-T
Baud rate	100 Mbps, 10 Mbps auto negotiation function
Total cable length	100 m 328.084 ft (500 m 1640.420 ft when a repeater is used)
Number of simultaneous connections	Max. 10 (system connection: 1, user connection: 9)
Communication method	Full duplex / Half-duplex system
Communication protocol (Communication layer)	TCP / IP, UDP
DNS	Supports name servers
DHCP	Automatic IP address acquisition
FTP server / client	Server function: File transmission, No. of users: 1 Client function: Data and file transmission
SNTP	Time adjustment function
General-purpose communication	4 kB / 1 connection (user connection: 1 to 9) (Note 2)
Dedicated communication	EtherNet/IP MEWTOCOL-COM (Master / Slave) (Computer link) MODBUS-TCP (Master / Slave) MEWTOCOL-DAT (Master / Slave) General-purpose communication MC protocol (Note 1) (Master / Slave)

Notes: 1) MC protocol is a short form denoting MELSEC communication protocol; MELSEC is a registered trademark of Mitsubishi Electric Corporation. QnA compatible 3E frame, only binary (bulk writing and bulk reading) use is available.
2) General-purpose communications can be up to 4 kB (reception) and up to 2 kB (transmission) per connection.

USB port specifications

Item	Specifications
Standard	USB2.0 Full speed (USB mini B type)
Communication function	Computer link (slave)

Dedicated power supply output port specifications for GT series programmable display

Output terminal	Connecting programmable display model
5 V DC	For 5 V DC type **GT02** series Programmable Display

Input specifications

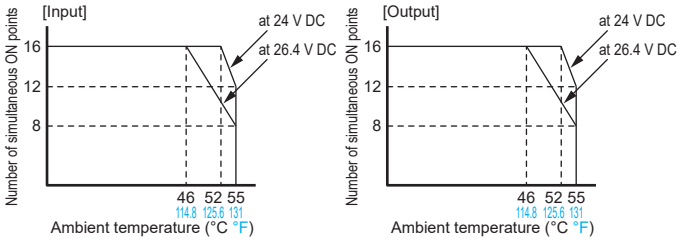
Item		Specifications
Rated input voltage		24 V DC
Operating voltage range		21.6 to 26.4 V DC
Rated input current		High-speed part (X0 to X7) : 8 mA approx. Low-speed part (X8 to XF) : 3.5 mA approx.
Input points per common		16 points/common (Either the positive or negative of the input power supply can be connected to the common terminal.)
Min. ON voltage / Min. ON current		High-speed part (X0 to X7) : 19.2 V DC / 6 mA Low-speed part (X8 to XF) : 19.2 V DC / 3 mA
Max. OFF voltage / Max. OFF current		2.4 V DC / 1 mA
Input impedance		High-speed part (X0 to X7) : 3 kΩ approx. Low-speed part (X8 to XF) : 6.8 kΩ approx.
Response time (Note)	OFF → ON	<High-speed part (X0 to X7)> 135 µs or less: normal input 5 µs or less: high speed counter, pulse catch, interrupt input settings <Low-speed part (X8 to XF)> 1 ms or less: normal input only
	ON → OFF	Same as above
Operating mode indicator		LED display

Note: The input time constant (0.1 to 256 ms) can be specified.

Output specifications

Item \ Type	Without Ethernet	With Ethernet	Without Ethernet	With Ethernet
Part No.	AFP0HC32T	AFP0HC32ET	AFP0HC32P	AFP0HC32EP
Output type	Nch open drain		Pch open drain	
Rated load voltage	5 to 24 V DC		24 V DC	
Operating load voltage range	4.75 to 26.4 V DC		21.6 to 26.4 V DC	
Rated load current	0.3 A (For Y0, Y1, Y3, Y4, Y8,Y9, YB,YC), 0.1 A (For Y2, Y5, Y6, Y7, YA, YD, YE, YF)		0.3 A (For Y0 to YF)	
Max. surge current	High-speed part (For Y0, Y1, Y3, Y4, Y8, Y9, YB, YC) : 1.0 A, Low-speed part (For Y2, Y5, Y6, Y7, YA, YD, YE, YF) : 0.5 A			
OFF state leakage current	1 µA or less		2 µA or less	
ON state voltage drop	0.5 V DC or less			
Overcurrent protection	Provided (automatically protected for each 8 points)			
Output points per common	16 points/common (Y0 to YF / 1 common)			
Response time OFF → ON	High-speed part (For Y0, Y1, Y3, Y4, Y8, Y9, YB, YC) : 2 µs or less, Low-speed part (For Y2, Y5, Y6, Y7, YA, YD, YE, YF) : 1 ms or less			
Response time ON → OFF	High-speed part (For Y0, Y1, Y3, Y4, Y8, Y9, YB, YC) : 5 µs or less, Low-speed part (For Y2, Y5, Y6, Y7, YA, YD, YE, YF) : 1 ms or less			
Surge absorber	Zener diode			
Operating mode indicator	LED display			

Limitations on simultaneous ON points



Current consumption

Type of unit		Control unit current consumption (at 24 V DC)	Additional current (at 24 V DC)	Expansion unit current consumption (at 24 V DC)
Control unit alone	AFP0HC32T	140 mA or less	—	—
	AFP0HC32P			
	AFP0HC32ET	170 mA or less		
	AFP0HC32EP			
Extension unit attached	AFP0HXY64D2T	—	35 mA or less	—
	AFP0HXY64D2P			
	AFP0HPG01T		50 mA or less	20 mA or less
	AFP0HPG01L			
	AFP0HPG02T		70 mA or less	35 mA or less
	AFP0HPG02L			
Extension cassette attached	AFP0HCCS1	—	10 mA or less	—
	AFP0HCCS2			
	AFP0HCCM1		30 mA or less	
	AFP0HCCS1M1			

Note: For details about the current consumption of **FPΣ** expansion units and **FP0** / **FP0R** expansion units, refer to relevant specifications and manuals.

Expansion I/O units

32 input and 32 output points.

AFP0HXY64D2T
Input 32 points DC
Transistor output (sink)
32 points
AFP0HXY64D2P NEW
Input 32 points DC
Transistor output (source)
32 points

General specifications

Item	Specifications
Ambient temperature	0 to +55 °C +32 to +131 °F, At storage: -20 to +70 °C - 4 to +158 °F
Ambient humidity	30 to 85 % RH (at +25 °C +77 °F, no dew condensation allowed), At storage: 30 to 85 % RH (at +25 °C +77 °F, no dew condensation allowed)
Breakdown voltage (Detection current: 5 mA)	500 V AC for 1 minute Input and output terminals ⇔ power and functional ground terminals (at control unit) Input terminals ⇔ Output terminals
Insulation resistance (Test voltage: 500 V DC)	100 MΩ or more Input and output terminals ⇔ power and functional ground terminals (at control unit) Input terminals ⇔ Output terminals
Vibration resistance	10 to 55 Hz, 1 sweep/min., double amplitude of 0.75 mm, 10 minutes each in X, Y, and Z directions
Shock resistance	98 m/s², 4 times each in X, Y, and Z directions
Noise immunity	1,000 V (p-p) with pulse widths 50 ns and 1 µs (using a noise simulator)
Operating condition	Free from corrosive gasses and excessive dust
Net weight	100 g approx.
Control unit's additional consumption current	35 mA or less (at 24 V DC) [100 mA or less (internal 5 V DC)]

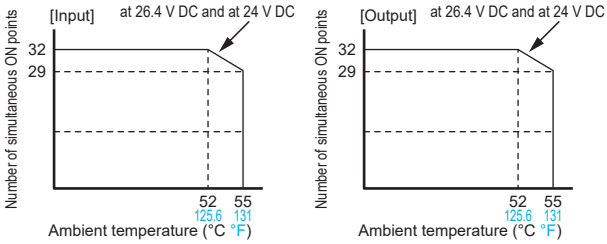
Input specifications

Item		Specifications
Insulation method		Photocoupler
Rated input voltage		24 V DC
Operating voltage range		21.6 to 26.4 V DC
Rated input current		3.5 mA approx.
Input points per common		32 points/common (Either the positive or negative of the input power supply can be connected to the common terminal.)
Min. ON voltage / Min. ON current		19.2 V DC / 3 mA
Max. OFF voltage / Max. OFF current		2.4 V DC / 1.3 mA
Input impedance		6.8 kΩ approx.
Response time	OFF → ON	0.2 ms or less
	ON → OFF	0.3 ms or less
Operating mode indicator		LED display

Output specifications

Item \ Type / Part No.		Sink type **AFP0HXY64D2T**	Source type **AFP0HXY64D2P**
Insulation method		Photocoupler	
Output type		Open collector (NPN)	Open collector (PNP)
Rated load voltage		5 to 24 V DC	24 V DC
Operating load voltage range		4.75 to 26.4 V DC	21.6 to 26.4 V DC
Rated load current		0.1 A	
Max. surge current		0.5 A	
Output points per common		32 points/common	
OFF state leakage current		100 µA or less	
ON state voltage drop		0.5 V DC or less	
Response time	OFF → ON	0.2 ms or less	
	ON → OFF	0.5 ms or less	
External power supply (for driving internal circuit)	Voltage	21.6 to 26.4 V DC	
	Current	15 mA or less	30 mA or less
Surge absorber		Zener diode	
Operating mode indicator		LED display	
Short circuit protection		Short circuit protection, Thermal protection	

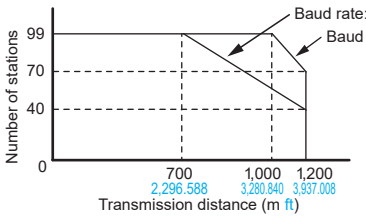
Number of simultaneous ON points



Communication cassettes

A cassette system reduces the cost and footprint of the unit

AFP0HCCS1 **AFP0HCCS2** **AFP0HCCM1** **AFP0HCCS1M1**



When the transmission speed is 19,200 bits/s, you can set up to 99 stations and up to 1,200 m 3,937.008 ft transmission distance.

Specifications

Refer to p.11 for the general specifications.

Item		Specifications				
		AFP0HCCS1	**AFP0HCCS2**	**AFP0HCCM1**	**AFP0HCCS1M1**	
Interface		RS-232C 1 channel	RS-232C 2 channels	RS-485 1 channel	RS-232C 1 channel and RS-485 1 channel	
Transmission distance		Max. 15 m 49.213 ft		Max. 1,200 m 3,937.008 ft	RS-232C Max. 15 m 49.213 ft	RS-485 Max. 1,200 m 3,937.008 ft
Communication configuration		1 : 1 communication		1 : N communication	1 : 1 communication	1 : N communication
Communication speed		1,200(Note 1), 2,400(Note 1),4,800, 9,600, 19,200, 38,400, 57,600, 115,200, 230,400 bits/sec.				
Communication method		Half-duplex system				
Synchronous method		Start-stop synchronization system				
Transmission format	Data length	7 bits / 8 bits				
	Parity	none / odd / even				
	Stop bit	1 bit / 2 bits				
	Start code	with STX / without STX				
	End code	CR / CR + LF / none / ETX / Time (0 to 100 ms)				
Data transmission order		Transmit from bit 0 in character units.				
Number of stations		—	—	Max. 99 units	—	Max. 99 units
Net weight		10 g approx. each				

Notes: 1) System register no. 415 cannot be used to set the baud rate to 1,200 bps. To set the baud rate to 1,200 bps, use the SYS1 instruction. If the baud rate of any of the COM ports is 2,400 bps or lower, F-ROM access will slow down.
Example) F12(ICRD) instruction, P13(ICWT) instruction, etc.
2) The start and end codes can be used only for general-purpose serial communications.
3) The unit No. (station number) can be selected at system register.
4) Sufficient noise tolerance is provided but it is recommended that a user program be created for retransmission. (To improve the reliability of communications when a communication error occurs due to an excessive noise or when the target device cannot receive data temporarily.)
5) When connecting a commercially available device that has an RS-485 interface, please confirm operation using the actual device. In some cases, the number of station units, transmission distance and communication speed vary depending on the connected device.
6) The transmission distance, transmission speed, and number of stations should be within the range of the graph on the left, depending on each value.

Positioning units

Fast start-up in 5 µs can support ultra-fast linear servos

AFP0HPG01T AFP0HPG01L AFP0HPG02T AFP0HPG02L

Specifications

Refer to p.11 for the general specifications.

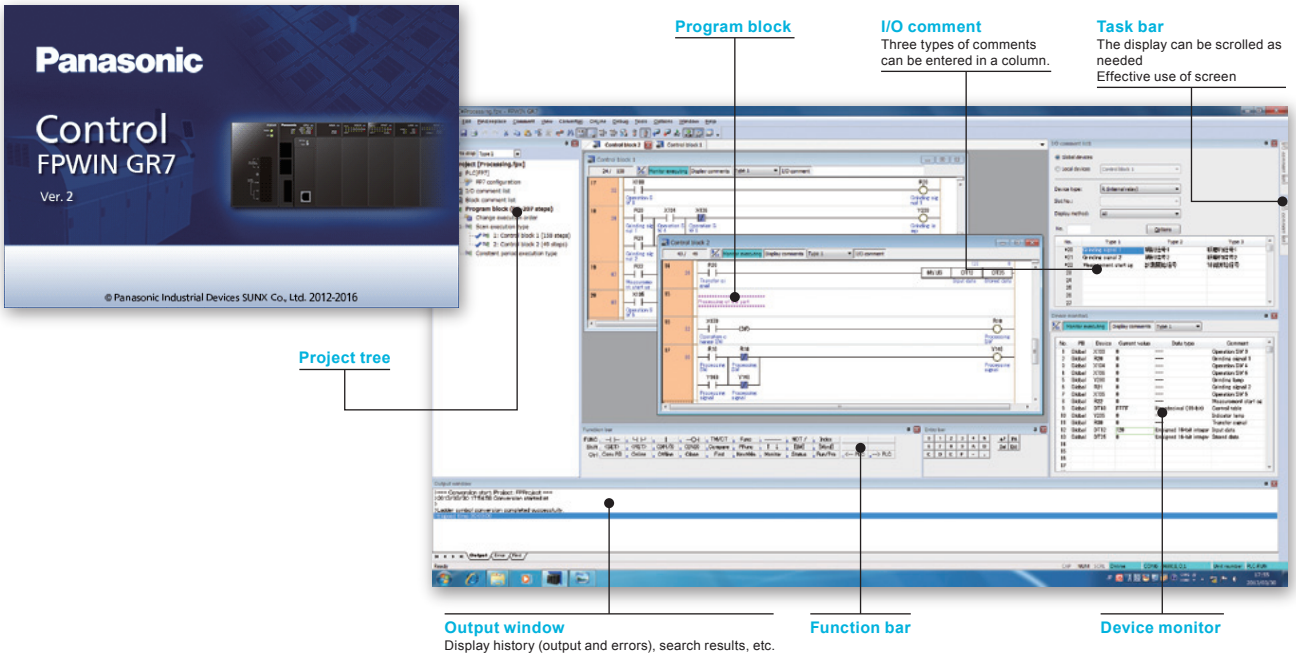
Item \ Part No.		AFP0HPG01T	AFP0HPG01L	AFP0HPG02T	AFP0HPG02L
Output type		Transistor	Line driver	Transistor	Line driver
Number of occupied points		Input 16 points, Output 16 points		Input 32 points, Output 32 points	
Number of axes controlled		1 axis		2 axes, independent	
Position command	Command units	Pulse unit (The program specifies whether Increment or Absolute is used.)			
	Max. pulse count	Signed 32 bits (-2,147,483,648 to +2,147,483,647 pulses)			
Speed command	Command range	1 pps to 500 kpps (can set in 1 pps.)	1 pps to 4 Mpps (can set in 1 pps.)	1 pps to 500 kpps (can set in 1 pps.)	1 pps to 4 Mpps (can set in 1 pps.)
Acceleration / deceleration command	Acceleration / deceleration method	Linear acceleration / deceleration, S acceleration / deceleration			
	S-curve type	Can select from Sin curve, Secondary curve, Cycloid curve and Third curve.			
	Acceleration / deceleration time	0 to 32,767 ms (can set in 1 ms)			
Home return	Home return speed	Speed setting possible (changes return speed and search speed)			
	Input signal	Home input, Near home input, Over limit input (+), Over limit input (-)			
	Output signal	Deviation counter clear signal			
Operation mode		E point control (Linear accelerations / decelerations, S accelerations / decelerations) P point control (Linear accelerations / decelerations, S accelerations / decelerations) Home return function (Home search) JOG operation function (Note 1) JOG positioning function Pulser input function (Note 3) • Transfer multiplication ratio (× 1, × 2, × 5, × 10, × 50, × 100, × 500, × 1000) Real-time frequency change function Infinity output function			
Startup time		0.02 ms or 0.005 ms selectable (Note 2)			
Output interface	Output mode	1 pulse output (Pulse and Sign), 2-pulse output (CW and CCW)			
Feed back counter function (Note 3)	Countable range	Signed 32 bits (-2,147,483,648 to +2,147,483,647 pulses)			
	Input mode	Two-phase input, Direction distinction input, Individual input (transfer multiple available for each.)			
Other functions		The flag to compare the elapsed value is built in. (The timing signal outputs at the optional position during an operation.)			
External power supply	Voltage	21.6 to 26.4 V DC			
	Current consumption	20 mA		30 mA	
Net weight		75 g approx. each		80 g approx. each	

Notes: 1) When selected linear acceleration / deceleration operation, the target speed can be changed during an operation.
2) The startup time can be changed by the control code setting in the shared memory. The factory setting (default setting) is 0.02 ms. The startup time is the time from the start request to the first pulse output.
3) Pulser input function and feedback counter function use the same pulse input terminal, so the both cannot function simultaneously.

Programming software

Control FPWIN GR7

Save Time on Programming with User-Friendly Software



Configuration, editing programming, searching, monitoring, debugging, security, etc.

PLC programming demands a lot of time and effort.

Many programmers get hung up on trying out different configurations, consulting the manual, and re-writing repetitive code blocks.

The **Control FPWIN GR7** programming software is designed to eliminate these inefficiencies and minimize programming complexity.

Software helps reduce time and effort in various work situations.

Configuration → Instructions editing → Search → Monitor → Debug → Security

Designed to boost global expansion

Control FPWIN Pro7

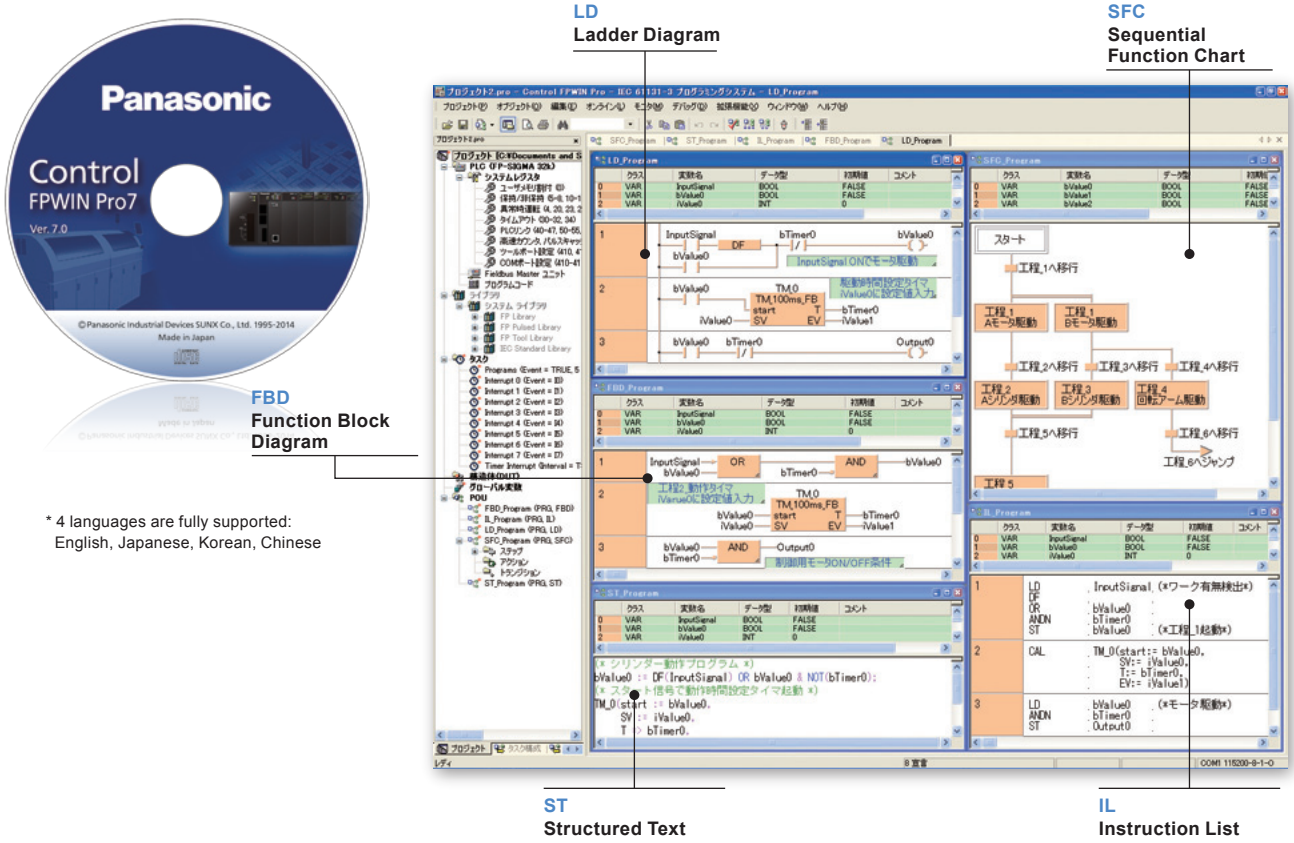
Control
FPWIN Pro7 (IEC61131-3 compliant Windows version software)

Programming software of PLC open certification corresponds to FP7.

Control FPWIN Pro is the Panasonic programming software developed according to the international standard IEC 61131-3 (for Windows® XP / Vista / 7).
Contol FPWIN Pro is the universal software for all Panasonic PLC's

- Programs written in **Control FPWIN Pro 6** or earlier versions will run with **Control FPWIN Pro 7**
- Programs are compatible across **FP** series PLCs, e.g. **FP0R** will run with minor adjustments on **FPΣ** (Sigma) and **FP7** PLCs
- **FP7** PLCs and **Control FPWIN Pro 7** offer the same flexible choice of editors and allow you to select the programming language you are most familiar with.

*Windows, Windows XP, Vista and 7 are trademarks or registered trademarks of Microsoft Corporation in the United States and other countries.



* 4 languages are fully supported:
English, Japanese, Korean, Chinese

- **Five programming languages can be used.**
  Programming can be done using the language most familiar to the developer or using the language most suited to the process to be performed.
  High-level (structured text) languages that allow structuring, such as C, are supported.
  5 programming languages: IL (Instruction List), LD (Ladder Diagram), FBD (Function Block Diagram), SFC (Sequential Function Chart), ST (Structured Text)
- **Easy to reuse well-proven programs**
  Efficiency when writing programs has been greatly increased by being able to split programming up for each function and process using structured programming.
- **Keep know-how from getting out**
  By "black boxing" a part of a program, you can prevent know-how from leaking out and improve the program's maintainability.
- **Source program from PLC can be uploaded.**
  Serviceability is improved by being able to read programs and comments from a PLC.
- **Programming for all models in the FP series possible**

Product types

Control units

Product name		Number of I/O points	Rated voltage	Input specifications	Output specifications	Connection method	SD memory card function	Part No.
FP0H control units	Without Ethernet	Input: 16 points Output: 16 points	24 V DC	24 V DC (Polarity + / - common)	NPN transistor output: 0.3 A / 0.1 A	MIL connector	—	**AFP0HC32T**
					PNP transistor output: 0.3 A			**AFP0HC32P**
	With Ethernet				NPN transistor output: 0.3 A / 0.1 A		Built-in	**AFP0HC32ET**
					PNP transistor output: 0.3 A			**AFP0HC32EP**

Expansion I/O units

Product name		Number of I/O points	Rated voltage	Input specifications	Output specifications	Connection method	Part No.
FP0H expansion unit	Sink type	Input: 32 points Output: 32 points	24 V DC	24 V DC (Polarity + / - common)	NPN transistor output: 0.1 A	MIL connector	**AFP0HXY64D2T**
	Source type				PNP transistor output: 0.1 A		**AFP0HXY64D2P**

Communication cassettes

Product name	Specifications	Part No.
FP0H communication cassettes	RS-232C 1 channel	**AFP0HCCS1**
	RS-232C 2 channel	**AFP0HCCS2**
	RS-485 1 channel (insulated)	**AFP0HCCM1**
	RS-232C 1 channel and RS-485 1 channel (insulated)	**AFP0HCCS1M1**

Positioning units

Product name	Output type	Number of occupied points	Number of axes controlled	Speed command	Part No.
FP0H positioning units	Transistor	Input 16 points, Output 16 points	1 axis	1 pps to 500 kpps	**AFP0HPG01T**
		Input 32 points, Output 32 points	2 axes		**AFP0HPG02T**
	Line driver	Input 16 points, Output 16 points	1 axis	1 pps to 4 Mpps	**AFP0HPG01L**
		Input 32 points, Output 32 points	2 axes		**AFP0HPG02L**

Expansion units (Common to FPΣ)

Product name	Specifications	Product No.	Part No.
FPΣ positioning unit RTEX	Network type, 2 axes, connected to Panasonic's MINAS A4N / A5IIN / A6N	**FPG-PN2AN**	**AFPG43610**
	Network type, 4 axes, connected to Panasonic's MINAS A4N / A5IIN / A6N	**FPG-PN4AN**	**AFPG43620**
	Network type, 8 axes, connected to Panasonic's MINAS A4N / A5IIN / A6N	**FPG-PN8AN**	**AFPG43630**
Control Configurator PM	Dedicated tool software for positioning unit RTEX, Japanese version		**AFPS66110**
	Dedicated tool software for positioning unit RTEX, English version		**AFPS66510**

Expansion units (Common to FP0R)

Product name	Number of I/O points		Rated voltage	Input specifications	Output specifications	Connection type	Part No.
FP0R-E8 expansion units	8 points	Input: 8 points	—	24 V DC ±common	—	MIL connector	**AFP0RE8X**
	8 points	Input: 4 points Output: 4 points	24 V DC	24 V DC ±common	Relay output: 2 A	Terminal block	**AFP0RE8RS**
						Molex connector	**AFP0RE8RM**
	8 points	Output: 8 points	24 V DC	—	Relay output: 2 A	Terminal block	**AFP0RE8YRS**
	8 points	Output: 8 points	—	—	NPN transistor output: 0.3 A	MIL connector	**AFP0RE8YT**
	8 points	Output: 8 points	—	—	PNP transistor output: 0.3 A	MIL connector	**AFP0RE8YP**
FP0R-E16 expansion units	16 points	Input: 16 points	—	24 V DC ±common	—	MIL connector	**AFP0RE16X**
	16 points	Input: 8 points Output: 8 points	24 V DC	24 V DC ±common	Relay output: 2 A	Terminal block	**AFP0RE16RS**
						Molex connector	**AFP0RE16RM**
	16 points	Input: 8 points Output: 8 points	—	24 V DC ±common	NPN transistor output: 0.3 A	MIL connector	**AFP0RE16T**
	16 points	Input: 8 points Output: 8 points	—	24 V DC ±common	PNP transistor output: 0.3 A	MIL connector	**AFP0RE16P**
	16 points	Output: 16 points	—	—	NPN transistor output: 0.3 A	MIL connector	**AFP0RE16YT**
	16 points	Output: 16 points	—	—	PNP transistor output: 0.3 A	MIL connector	**AFP0RE16YP**
FP0R-E32 expansion units	32 points	Input: 16 points Output: 16 points	— —	24 V DC ±common	NPN transistor output: 0.3 A	MIL connector	**AFP0RE32T**
	32 points	Input: 16 points Output: 16 points	— —	24 V DC ±common	PNP transistor output: 0.3 A	MIL connector	**AFP0RE32P**

Notes: 1) The relay output type expansion units come with a power cable (part number: **AFP0581**). (The transistor output type expansion units need no power cable.)
2) The terminal block type relay output units have two terminal blocks (9 pins) made by Phoenix. Use a 2.5 mm 0.098 in wide screwdriver. Preferably use the specific terminal block screwdriver (part number: **AFP0806**, Phoenix type code SZS0, 4 × 2.5 mm 0.098 in) or equivalent.
3) The connector type relay output units have two connectors made by Nihon Molex (Molex type code 51067-0900, 9 pins). Use the specific Molex connector press-fit tool (part number: **AFP0805**, Nihon Molex type code 57189-5000) or equivalent.
4) The transistor output units have a press-fit socket for wire-pressed terminal cable and contacts. Use the press-fit tool (part number: **AXY52000FP**) for wire-pressed terminal cable.

Product types

Expansion units (Common to FP0R)

Product name	Specications	Product No.	Part No.
FP0R analog input unit	<Input specifications> Number or channels: 4 channels Voltage -10 to +10 V, -5 to +5 V, 0 to +10 V, 0 to +5 V (Resolution: 1/16,000) Current 0 to 20 mA (Resolution: 1/16,000)	—	**AFP0RAD4**
FP0R analog input unit	<Input specifications> Number or channels: 8 channels Voltage -10 to +10 V, -5 to +5 V, 0 to +10 V, 0 to +5 V (Resolution: 1/16,000) Current 0 to 20 mA (Resolution: 1/16,000)	—	**AFP0RAD8**
FP0R analog input and output unit	<Input specifications> Number or channels: 2 channels Voltage -10 to +10 V, -5 to +5 V, 0 to +10 V, 0 to +5 V (Resolution: 1/16,000) Current 0 to 20 mA (Resolution: 1/16,000) <Output specifications> Number or channels: 1 channel Voltage -10 to +10 V, -5 to +5 V, 0 to +10 V, 0 to +5 V (Resolution: 1/16,000) Current 0 to 20 mA, 4 to 20 mA (Resolution: 1/16,000)	—	**AFP0RA21**
FP0R analog input and output unit	<Input specifications> Number or channels: 4 channels Voltage -10 to +10 V, -5 to +5 V, 0 to +10 V, 0 to +5 V (Resolution: 1/16,000) Current 0 to 20 mA (Resolution: 1/16,000) <Output specifications> Number or channels: 2 channels Voltage -10 to +10 V, -5 to +5 V, 0 to +10 V, 0 to +5 V (Resolution: 1/16,000) Current 0 to 20 mA, 4 to 20 mA (Resolution: 1/16,000)	—	**AFP0RA42**
FP0R analog output unit	<Output specifications> Number or channels: 4 channels Voltage -10 to +10 V, -5 to +5 V, 0 to +10 V, 0 to +5 V (Resolution: 1/16,000) Current 0 to 20 mA, 4 to 20 mA (Resolution: 1/16,000)	—	**AFP0RDA4**
FP0 thermocouple units	K, J, T and R thermocouple, 4 channels, Resolution: 0.1 °C	**FP0-TC4**	**AFP0420**
	K, J, T and R thermocouple, 8 channels, Resolution: 0.1 °C	**FP0-TC8**	**AFP0421**
FP0 CC-Link slave unit	Unit to connect to **FP0** CC-link	**FP0-CCLS**	**AFP07943**

Programming tools

Product name		Supported version	Supported OS	Part No.
Programming software for Windows® **Control FPWIN GR7**	Japanese version	Ver. 2.23.0 or later	Windows®10 (32-bit / 64-bit) / Windows®8.1 (32-bit / 64-bit) / Windows®8 (32-bit / 64-bit) / Windows®7 SP1 or later (32-bit / 64-bit) / Windows® Vista SP2/ Windows® XP SP3	**AFPSGR7JP**
	Security enhanced type			**AFPSGR7JPS**
	English version			**AFPSGR7EN**
	Security enhanced type			**AFPSGR7ENS**
Programming software for Windows® **Control FPWIN Pro7**	English, Japanese, Korean and Chinese	Ver. 7.2.3.0 or later	Windows®10 (32-bit / 64-bit) / Windows®8.1 (32-bit / 64-bit) / Windows®8 (32-bit / 64-bit) / Windows®7 SP1 or later (32-bit / 64-bit)	**AFPSPR7A**
	Security enhanced type			**AFPSPR7AS**

Notes: 1) Windows is trademarks or registered trademarks of Microsoft Corporation in the United States and other countries.
2) Please use a commercially available USB2.0 cable (A type mini B) for connecting a control unit with a PC.

Option

Product name	Specications	Part No.
Backup battery	Required for backup of the data registers and when the calendar timer feature is used.	**AFPX-BATT**

Others

Product name	Shape	Descriptions	Part No.
Power cable	—	Cable length 1 m 3.281 ft Supplied with **FP0H** control unit.	**AFPG805**
Scattered wire connector set (40 pins)		Supplied with **FP0H** control unit Supplied with **FP0H** expansion I/O unit. (including 2 pcs.)	**AFP2801**
Flat cable connector set (40 pins)		For **FP0H** control unit and **FP0H** expansion I/O unit. Used when flat cables are used for bulk wiring. (including 2 pcs.)	**AFP2802**

GT series Lineup

List of related products Programmable display GT series

Product name	Description						Part No.
	LCD	Screen size	Power supply	Communication port	Color of front panel	SD memory card slot	
Tough GT03M-E	TFT monochrome LCD (white backlight)	3.5 inch	24 V DC	RS-232C	Silver	Not available	AIG03MQ03DE
				RS-422 / RS-485			AIG03MQ05DE
Tough GT03T-E	TFT color LCD (white backlight)			RS-232C	Silver	Available	AIG03TQ13DE
				RS-422 / RS-485			AIG03TQ15DE
Tough GT32M-E	TFT monochrome LCD (white backlight)	5.7 inch		RS-232C	Silver	Available	AIG32MQ03DE
				RS-422 / RS-485			AIG32MQ05DE
Tough GT32T-E	TFT color LCD (white backlight)			RS-232C	Silver	Available	AIG32TQ03DE
				RS-422 / RS-485			AIG32TQ05DE
GT02L	STN monochrome LCD (white backlight)	3.7 inch	5 V DC	RS-232C	Black	Not available	AIG02LQ02D
				RS-422 / RS-485			AIG02LQ04D
GT02M	TFT monochrome LCD (white/pink/red backlight)	3.8 inch	5 V DC	RS-232C	Pure black	Not available	AIG02MQ02D
					Hairline silver		AIG02MQ03D
				RS-422 / RS-485	Pure black		AIG02MQ04D
					Hairline silver		AIG02MQ05D
			24 V DC	RS-232C	Pure black		AIG02MQ12D
					Hairline silver		AIG02MQ13D
				RS-422 / RS-485	Pure black		AIG02MQ14D
					Hairline silver		AIG02MQ15D
				RS-232C	Pure black	Available	AIG02MQ22D
					Hairline silver		AIG02MQ23D
				RS-422 / RS-485	Pure black		AIG02MQ24D
					Hairline silver		AIG02MQ25D
GT02G	TFT monochrome LCD (green/orange/red backlight)	3.8 inch	5 V DC	RS-232C	Pure black	Not available	AIG02GQ02D
					Hairline silver		AIG02GQ03D
				RS-422 / RS-485	Pure black		AIG02GQ04D
					Hairline silver		AIG02GQ05D
			24 V DC	RS-232C	Pure black		AIG02GQ12D
					Hairline silver		AIG02GQ13D
				RS-422 / RS-485	Pure black		AIG02GQ14D
					Hairline silver		AIG02GQ15D
				RS-232C	Pure black	Available	AIG02GQ22D
					Hairline silver		AIG02GQ23D
				RS-422 / RS-485	Pure black		AIG02GQ24D
					Hairline silver		AIG02GQ25D
GT05M	TFT monochrome LCD (white/pink/red backlight)	3.5 inch	24 V DC	RS-232C	Pure black	Available	AIG05MQ02D
					Hairline silver		AIG05MQ03D
				RS-422 / RS-485	Pure black	Available	AIG05MQ04D
					Hairline silver		AIG05MQ05D
GT05G	TFT monochrome LCD (green/orange/red backlight)	3.5 inch	24 V DC	RS-232C	Pure black	Available	AIG05GQ02D
					Hairline silver		AIG05GQ03D
				RS-422 / RS-485	Pure black	Available	AIG05GQ04D
					Hairline silver		AIG05GQ05D
GT05S	TFT color LCD (white backlight)	3.5 inch	24 V DC	RS-232C	Pure black	Available	AIG05SQ02D
					Hairline silver		AIG05SQ03D
				RS-422 / RS-485	Pure black	Available	AIG05SQ04D
					Hairline silver		AIG05SQ05D
GT703M	TFT monochrome LCD (white/pink/red backlight)	3.8 inch	5 V DC	RS-232C	Pure black	Available	AIG703WMN1B5
					Silver		AIG703WMN1S5
				RS-422 / RS-485	Pure black	Available	AIG703WMNMB5
					Silver		AIG703WMNMS5
			24 V DC	RS-232C	Pure black	Available	AIG703WMN1B2
					Silver		AIG703WMN1S2
				RS-422 / RS-485	Pure black	Available	AIG703WMNMB2
					Silver		AIG703WMNMS2
GT703G	TFT monochrome LCD (green/orange/red backlight)	3.8 inch	5 V DC	RS-232C	Pure black	Available	AIG703WGN1B5
					Silver		AIG703WGN1S5
				RS-422 / RS-485	Pure black	Available	AIG703WGNMB5
					Silver		AIG703WGNMS5
			24 V DC	RS-232C	Pure black	Available	AIG703WGN1B2
					Silver		AIG703WGN1S2
				RS-422 / RS-485	Pure black	Available	AIG703WGNMB2
					Silver		AIG703WGNMS2

GT series Lineup

List of related products Programmable display GT series

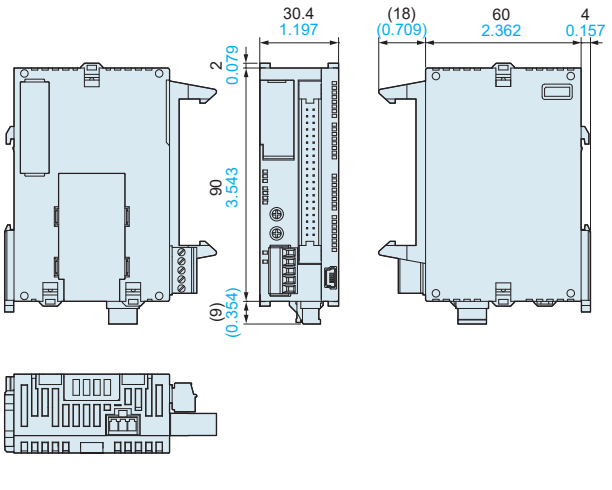
Product name	Description						Part No.
	LCD	Screen size	Power supply	Communication port	Color of front panel	SD memory card slot	
GT12M	TFT monochrome LCD (white/pink/red backlight)	4.6 inch	24 V DC	RS-232C	Pure black	Not available	**AIG12MQ02D**
					Hairline silver		**AIG12MQ03D**
				RS-422 / RS-485	Pure black	Not available	**AIG12MQ04D**
					Hairline silver		**AIG12MQ05D**
				RS-232C	Pure black	Available	**AIG12MQ12D**
					Hairline silver		**AIG12MQ13D**
				RS-422 / RS-485	Pure black	Available	**AIG12MQ14D**
					Hairline silver		**AIG12MQ15D**
GT12G	TFT monochrome LCD (green/orange/red backlight)	4.6 inch	24 V DC	RS-232C	Pure black	Not available	**AIG12GQ02D**
					Hairline silver		**AIG12GQ03D**
				RS-422 / RS-485	Pure black	Not available	**AIG12GQ04D**
					Hairline silver		**AIG12GQ05D**
				RS-232C	Pure black	Available	**AIG12GQ12D**
					Hairline silver		**AIG12GQ13D**
				RS-422 / RS-485	Pure black	Available	**AIG12GQ14D**
					Hairline silver		**AIG12GQ15D**
GT704M	TFT monochrome LCD (white/pink/red backlight)	4.6 inch	24 V DC	RS-232C	Pure black	Available	**AIG704WMN1B2**
					Silver		**AIG704WMN1S2**
				RS-422 / RS-485	Pure black	Available	**AIG704WMNMB2**
					Silver		**AIG704WMNMS2**
GT704G	TFT monochrome LCD (green/orange/red backlight)	4.6 inch	24 V DC	RS-232C	Pure black	Available	**AIG704WGN1B2**
					Silver		**AIG704WGN1S2**
				RS-422 / RS-485	Pure black	Available	**AIG704WGNMB2**
					Silver		**AIG704WGNMS2**
GT32M-R	TFT monochrome LCD (white backlight)	5.7 inch	24 V DC	RS-232C	Pure black	Available	**AIG32MQ02DR**
					Hairline silver		**AIG32MQ03DR**
				RS-422 / RS-485	Pure black	Available	**AIG32MQ04DR**
					Hairline silver		**AIG32MQ05DR**
GT32T-R	TFT color LCD (white backlight)	5.7 inch	24 V DC	RS-232C	Pure black	Available	**AIG32TQ02DR**
					Hairline silver		**AIG32TQ03DR**
				RS-422 / RS-485	Pure black	Available	**AIG32TQ04DR**
					Hairline silver		**AIG32TQ05DR**
GT707	TFT color LCD (white backlight)	7 inch widescreen	24 V DC	RS-232C	Black	Available	**AIG707WCL1G2**
Terminal GTWIN Ver.2	Japanese version	**Terminal GTWIN** CD-ROM					**AIGT8000V2**
	English version	**Terminal GTWIN** CD-ROM					**AIGT8001V2**
Terminal GTWIN Ver.2 Upgrade version (Note)	Japanese version	**Terminal GTWIN** CD-ROM					**AIGT8000V2R**
	English version	**Terminal GTWIN** CD-ROM					**AIGT8001V2R**
Terminal GTWIN Ver.3	Japanese version	**Terminal GTWIN** CD-ROM					**AIGSGT7JP**
	English version	**Terminal GTWIN** CD-ROM					**AIGSGT7EN**

Note: It enables to upgrade from **Terminal GTWIN Ver. 1** to **Ver. 2**.

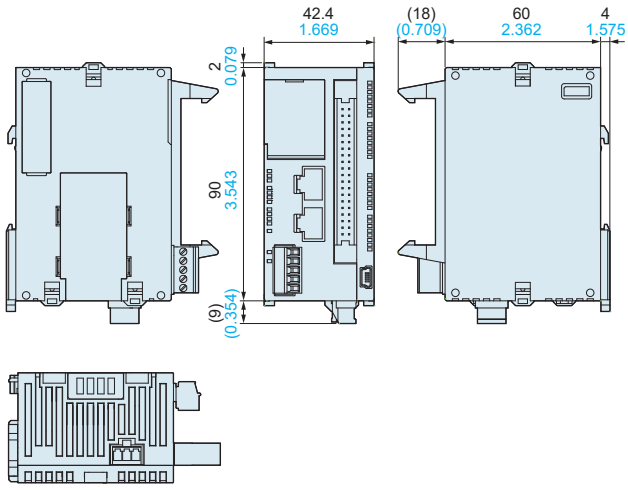
Dimensions (Unit: mm in)

The CAD data can be downloaded from our website.

AFP0HC32T AFP0HC32P Control units



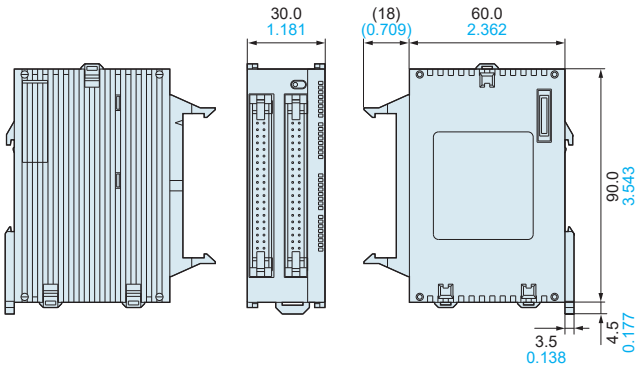
AFP0HC32ET AFP0HC32EP Control units



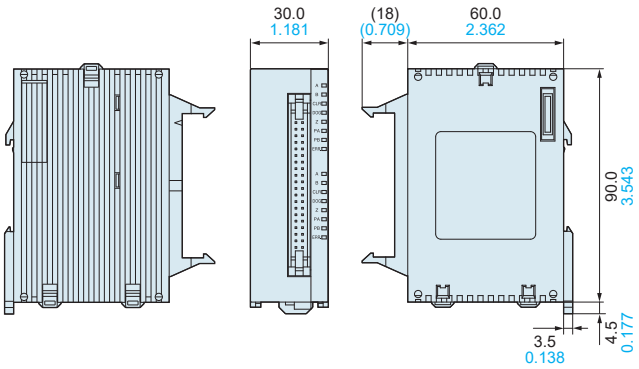
Dimensions (Unit: mm in)

The CAD data can be downloaded from our website.

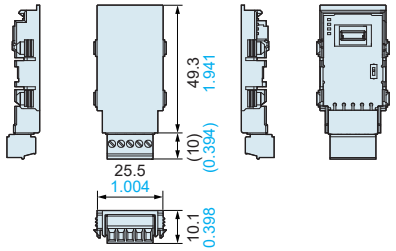
AFP0HXY64D2T AFP0HXY64D2P Expansion I/O units



AFP0HPG01T AFP0HPG01L AFP0HPG02T AFP0HPG02L Positioning units



AFP0HCCS1 AFP0HCCS2 AFP0HCCM1 AFP0HCCS1M1 Communication cassettes



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