Panasonic

AFP0HC32ET | FP0H

※Photo may vary from actual product.

Product Number	**AFP0HC32ET**
Part Number	**AFP0HC32ET**
Product	**FP0H Control unit**
Product name	**FP0H**

Spec Detail

As of May 29, 2021

Specifications and design of the products are subject to change without notice for the product improvement.

Item	Specifications
Product Number	AFP0HC32ET
Part Number	AFP0HC32ET
[[Control specifications]]Number of controllable I/O points	32 points (Input: 16, Output: 16), When expanded: Max. 384 points
[[Control specifications]]Programming method / Control method	Relay symbol / Cyclic operation
[[Control specifications]]Program memory	Built-in flash ROM (no backup battery required)
[[Control specifications]]Number of instructions : Basic instructions	120 types approx.
[[Control specifications]]Number of instructions : High-level instructions	270 types approx.
[[Control specifications]]Program capacity	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** / **DT Number of word** 24k steps / 65,533 words 32k steps(initial value) / 32,765 words(initial value) 40k steps / 24,573 words 64k steps / 12,285 words
[[Control specifications]]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)
[[Control specifications]]Base scan time I/O refresh and base time	Control unit: 100 μs or less approx. and FP0 / FP0R expanshion unit refresh time (Note) Note : Refresh times for FP0 / FP0R expansion units 8 points unit : Number of units×0.8ms 16 points unit : Number of units×1.0ms 32 points unit : Number of units×1.3ms 64 points unit : Number of units×1.9ms
[[Control specifications]]Operation memory : Relay : External input (X)	1, 760 points (X0 to X109F)(Note 1, 2) Note 1 : The number of points that can be used depends on the combination of hardware. Note 2 : Some specifications are compatible with FPΣ.
[[Control specifications]]Operation memory : Relay : External output (Y)	1, 760 points (X0 to X109F)(Note 1, 2) Note 1 : The number of points that can be used depends on the combination of hardware. Note 2 : Some specifications are compatible with FPΣ.
[[Control specifications]]Operation memory : Relay : Internal relay (R)	8,192 points (R0 to R511F) (Note 1) Note 1 : Some specifications are compatible with FPΣ.

[[Control specifications]]Operation memory : Relay : Special internal relay (R)	800 points (R9000 to R951F)
[[Control specifications]]Operation memory : Relay : Timer / Counter (T / C)	1,024 points (initial setting, timer: 1,008 points, counter: 16 points)(Note) Note : An auxiliary timer instruction (F137) can be used to add the number of points.
[[Control specifications]]Operation memory : Relay : Link relay (L)	2,048 points (L0 to L127F)
[[Control specifications]]Operation memory : Memory area : Data register (DT)	12,285 words or 24,573 words or 32,765 words or 65,533 words(Note) Note : System register No. 0 (program capacity) can be configured to select the capacity of the data register (DT).
[[Control specifications]]Operation memory : Memory area : Special data register (DT)	1,000 words (DT90000 to DT90999)(Note) Note : Some specifications are compatible with FPΣ.
[[Control specifications]]Operation memory : Memory area : Link data register (LD)	256 words (LD0 to LD255)
[[Control specifications]]Operation memory : Memory area : Index register (I)	14 words (I0 to ID)
[[Control specifications]]Differential points	Points for the program capacity
[[Control specifications]]Number of master control relay (MCR)	256 points
[[Control specifications]]Number of labels (JP and LOOP)	256 points
[[Control specifications]]Number of step ladders	1,000 stages
[[Control specifications]]Number of subroutines	500 subroutines
[[Control specifications]]Number of interrupt program	9 programs •Input: 8 programs (INT0 to INT7) •Periodic: 1 program (INT24)
[[Control specifications]]Sampling trace	Available(Note) [Sampling by commands / Sampling at regular time intervals (For one sampling: 16 bits + 3 words), 1,000 samples] Note : Logging trace and sampling trace cannot be used at the same time.
[[Control specifications]]Comment storage	I/O comments, remarks and block comments can be stored. (no backup battery required, 1 M byte)
[[Control specifications]]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)
[[Control specifications]]Constant scan	Available (0 to 600 ms)
[[Control specifications]]Password	Available (32 digits)
[[Control specifications]]Program upload protection	Available
[[Control specifications]]Program protect function	Available
[[Control specifications]]Self-diagnosis function	Watchdog timer, program syntax check, etc.
[[Control specifications]]Program edition during RUN	Available
[[Control specifications]]SD memory card function	SD memory card project copy, SD memory card access instruction, Logging trace function (Note) Note : Logging trace and sampling trace cannot be used at the same time.
[[Control specifications]]Memory transfer	Available [Built-in memory (ROM ⇔ RAM)]
[[Control specifications]]High speed counter : Main unit input	Single-phase 4 channels (Max. 100 kHz each input) or 2-phase 2 channels (Max. 50 kHz each input)(Note) Note : 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.
[[Control specifications]]Pulse output : Main unit output	4 channels (Max. 100 kHz each axis)(Note) Note : 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.
[[Control specifications]]PWM output : Main unit output	4 channels (1 Hz to 70 kHz: 1,000 resolution / 70.001 kHz to 100 kHz: 100 resolution(Note) Note : 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.
[[Control specifications]]Pulse catch input Interrupt input	Total 8 points (with high speed counter)
[[Control specifications]]Periodical interrupt	0.1 ms to 30 sec.
[[Control specifications]]Potentiometer (Volume) input	Not available
[[Control specifications]]Clock / calendar	Year (last two digits), month, day, hour (24-hour display), minute, second and day of week(Note 1, 2) Note 1 : 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. Note 2 : 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.
[[Control specifications]]Memory backup : Backup by instruction P13	Data register: all area(Note) Note : Data can be rewritten up to 10,000 times. Hold / non-hold areas can be specified in the system registers.
[[Control specifications]]Memory backup : Auto-backup at power failure	Counter: 16 points Internal relay: 128 points Data register: 315 words Note : Data can be rewritten up to 10,000 times. Hold / non-hold areas can be specified in the system registers.
[[Control specifications]]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.)
[[Control specifications]]Battery life	5 years or more under a production condition (operates for 8 hours per day)
[[General specifications]]CE marking directive compliance	EMC Directive, RoHS Directive
[[General specifications]]Rated voltage	24 V DC
[[General specifications]]Operating voltage range	20.4 to 28.8 V DC
[[General specifications]]Current consumption	170 mA or less
[[General specifications]]Allowed momentary power off time	4 ms (at 20.4 V DC), 10 ms (24 V DC or higher)
[[General specifications]]Operating temperature	0 to +55 ˚C +32 to +131 ˚F, At storage: -40 to +70 ˚C - 40 to +158 ˚F
[[General specifications]]Operating 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)
[[General specifications]]Withstand voltage	(Detection current: 5 mA) 500 V AC for 1 minute Input and output terminals ⇔ power and functional ground terminals Input terminals ⇔ Output terminals
[[General specifications]]Insulation resistance	(Test voltage: 500 V DC) 100 MΩ or more Input and output terminals ⇔ power and functional ground terminals Input terminals ⇔ Output terminals
[[General specifications]]Vibration resistance	5 to 8.4 Hz, single amplitude of 3.5 mm 0.138 in, 8.4 to 150 Hz, constant acceleration of 9.8 m/s^2, for 10 times each in X, Y, and Z directions (1

	octave/min.) (JIS B 3502, IEC 61131-2)
[[General specifications]]Shock resistance	147 m/s^2, 4 times each in X, Y, and Z directions (JIS B 3502, IEC 61131-2)
[[General specifications]]Noise immunity	1,000 V (p-p) with pulse widths 50 ns and 1 µs (using a noise simulator) (Power supply terminal)
[[General specifications]]Operating environment	Free from corrosive gasses and excessive dust
[[General specifications]]Overvoltage class	Category II
[[General specifications]]Pollution level	Pollution level 2
[[General specifications]]Net weight	130 g approx.
[[COM0 port communication specifications]]Interface	RS-232C, three-wire system, 1 channel (Not insulated)
[[COM0 port communication specifications]]Transmission distance	15 m 49.213 ft
[[COM0 port communication specifications]]Communication configuration	1 : 1 communication
[[COM0 port communication specifications]]Communication method	Half-duplex system
[[COM0 port communication specifications]]Synchronous method	Start-stop synchronization system
[[COM0 port communication specifications]]Transmission cable	Multi-conductor shielded wire
[[COM0 port communication specifications]]Communication speed (Specified at the system registers)	1,200(Note), 2,400(Note), 4,800, 9,600, 19,200, 38,400, 57,600, 115,200, 230,400 bits/sec. Note : 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.
[[COM0 port communication specifications]]Transmission format : Data length	7 bits / 8 bits
[[COM0 port communication specifications]]Transmission format : Parity	none / odd / even
[[COM0 port communication specifications]]Transmission format : Stop bit	1 bit / 2 bits
[[COM0 port communication specifications]]Transmission format : Start code	with STX / without STX
[[COM0 port communication specifications]]Transmission format : End code	CR / CR + LF / none / ETX / Time (0 to 100.00 ms)
[[COM0 port communication specifications]]Data transmission order	Transmit from bit 0 in character units
[[COM0 port communication specifications]]Communication mode	MEWTOCOL-COM (Master / Slave) (Computer link) General-purpose communication PLC link MODBUS RTU (Master / Slave)
[[COM0 port communication specifications]]Remark	The start and end codes can be used only for general-purpose serial communications. The unit No. (station number) can be selected at system register No. 410.
[[LAN communication port specifications]]Communication interface	Ethernet 100BASE-TX / 10BASE-T
[[LAN communication port specifications]]Communication speed	100 Mbps, 10 Mbps auto negotiation function
[[LAN communication port specifications]]Total cable length	100 m 328.084 ft (500 m 1640.420 ft when a repeater is used)

[[LAN communication port specifications]]Number of simultaneous connections	Max. 10 (system connection: 1, user connection: 9)
[[LAN communication port specifications]]Communication method	Full duplex / Half-duplex system
[[LAN communication port specifications]]Communication protocol (Communication layer)	TCP / IP, UDP
[[LAN communication port specifications]]DNS	Supports name servers
[[LAN communication port specifications]]DHCP	Automatic IP address acquisition
[[LAN communication port specifications]]FTP server / Client	File transmission, server function, No. of users:1 Client function, Data file transfer
[[LAN communication port specifications]]SNTP	Time adjustment function
[[LAN communication port specifications]]General-purpose communication	4 kB / 1 connection (user connection: 1 to 9) (Note) Note : General-purpose communications can be up to 4 kB (reception) and up to 2 kB (transmission) per connection.
[[LAN communication port specifications]]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) Note : 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.
[[USB port specifications]]Standard	USB2.0 Full speed (USB mini B type)
[[USB port specifications]]Communication function	Computer link (slave)
[[Dedicated power supply output port specifications for GT series programmable display]]Terminal:5V	Connecting programmable display model : For 5 V DC type GT02 series Programmable Display
[[Input specifications]]Rated input voltage	24 V DC
[[Input specifications]]Applied voltage range	21.6 to 26.4 V DC
[[Input specifications]]Rated input current	High-speed part (X0 to X7) : 8 mA approx. Low-speed part (X8 to XF) : 3.5 mA approx.
[[Input specifications]]Input points per common	16 points/common (Either the positive or negative of the input power supply can be connected to the common terminal.)
[[Input specifications]]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
[[Input specifications]]Max. OFF voltage / Max. OFF current	2.4 V DC / 1 mA
[[Input specifications]]Input impedance	High-speed part (X0 to X7) : 3 kΩ approx. Low-speed part (X8 to XF) : 6.8 kΩ approx.
[[Input specifications]]Response time : 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 Note: The input time constant (0.1 to 256 ms) can be specified.
[[Input specifications]]Response time : ON→OFF	Same as above
[[Input specifications]]Action indicator	LED display
[[Output specifications]]Output type	Nch open drain
[[Output specifications]]Rated load voltage	5 to 24 V DC
[[Output specifications]]Load voltage	4.75 to 26.4 V DC

allowable range	
[[Output specifications]]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)
[[Output specifications]]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
[[Output specifications]]OFF state leakage current	1 μA or less
[[Output specifications]]ON state voltage drop	0.5 V DC or less
[[Output specifications]]Overcurrent protection	Provided (automatically protected for each 8 points)
[[Output specifications]]Output points per common	16 points/common (Y0 to YF / 1 common)
[[Output specifications]]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
[[Output specifications]]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
[[Output specifications]]Surge absorber	Zener diode
[[Output specifications]]Operating mode indicator	LED display
[[Current consumption]]Current consumption	Refer to "FP0H Specifications - Current consumption" for the current consumption.

Accessories

Product Number	**FP0-TC4**
Part Number	**AFP0420**
Product name	**FP0 Intelligent units**

Product Number	**FP0-TC8**
Part Number	**AFP0421**
Product name	**FP0 Intelligent units**

Product Number	**FP0-CCLS**
Part Number	**AFP07943**
Product name	**FP0 Link and Communication units**

Product Number	**AFP0HCCM1**
Part Number	**AFP0HCCM1**
Product name	**FP0H communication cassettes**

Product Number	**AFP0HCCS1**
Part Number	**AFP0HCCS1**
Product name	**FP0H communication cassettes**

Product Number	**AFP0HCCS1M1**
Part Number	**AFP0HCCS1M1**
Product name	**FP0H communication cassettes**

Product Number	**AFP0HCCS2**
Part Number	**AFP0HCCS2**
Product name	**FP0H communication cassettes**

Product Number	**AFP0HM4N**
Part Number	**AFP0HM4N**
Product name	**FP0H Positioning RTEX units**

Product Number	**AFP0HM8N**
Part Number	**AFP0HM8N**
Product name	**FP0H Positioning RTEX units**

Product Number	**AFP0HPG01L**
Part Number	**AFP0HPG01L**

Product Number	**AFP0HPG01T**
Part Number	**AFP0HPG01T**

Product Number	**AFP0HPG02L**
Part Number	**AFP0HPG02L**

Product name	**FP0H positioning units**

Product Number	**AFP0HPG02T**
Part Number	**AFP0HPG02T**
Product name	**FP0H positioning units**

Product name	**FP0H positioning units**

Product Number	**AFP0HXY64D2T**
Part Number	**AFP0HXY64D2T**
Product name	**FP0H expansion I/O unit**

Product name	**FP0H positioning units**

Product Number	**AFP0RA21**
Part Number	**AFP0RA21**
Product	**FP0R Analog I/O unit**
Product name	**FP0R Intelligent units**

Product Number	**AFP0RA42**
Part Number	**AFP0RA42**
Product	**FP0R Analog I/O unit**
Product name	**FP0R Intelligent units**

Product Number	**AFP0RAD4**
Part Number	**AFP0RAD4**
Product	**FP0R Analog input unit**
Product name	**FP0R Intelligent units**

Product Number	**AFP0RAD8**
Part Number	**AFP0RAD8**
Product	**FP0R Analog input unit**
Product name	**FP0R Intelligent units**

Product Number	**AFP0RDA4**
Part Number	**AFP0RDA4**
Product	**FP0R Analog output unit**
Product name	**FP0R Intelligent units**

Product Number	**AFP0RE16P**
Part Number	**AFP0RE16P**
Product	**FP0R Expansion unit**
Product name	**FP0R Expansion units**

Product Number	**AFP0RE16RM**
Part Number	**AFP0RE16RM**
Product	**FP0R Expansion unit**
Product name	**FP0R Expansion units**

Product Number	**AFP0RE16RS**
Part Number	**AFP0RE16RS**
Product	**FP0R Expansion unit**
Product name	**FP0R Expansion units**

Product Number	**AFP0RE16T**
Part Number	**AFP0RE16T**
Product	**FP0R Expansion unit**
Product name	**FP0R Expansion units**

Product Number	**AFP0RE16X**
Part Number	**AFP0RE16X**
Product	**FP0R Expansion unit**
Product name	**FP0R Expansion units**

Product Number	**AFP0RE16YP**
Part Number	**AFP0RE16YP**
Product	**FP0R Expansion unit**
Product name	**FP0R Expansion units**

Product Number	**AFP0RE16YT**
Part Number	**AFP0RE16YT**
Product	**FP0R Expansion unit**
Product name	**FP0R Expansion units**

Product Number	**AFP0RE32P**
Part Number	**AFP0RE32P**
Product	**FP0R Expansion unit**
Product name	**FP0R Expansion units**

Product Number	**AFP0RE32T**
Part Number	**AFP0RE32T**

Product Number	**AFP0RE8RM**
Part Number	**AFP0RE8RM**

Product Number	**AFP0RE8RS**
Part Number	**AFP0RE8RS**

Product	**FP0R Expansion unit**
Product name	**FP0R Expansion units**

Product Number	**AFP0RE8X**
Part Number	**AFP0RE8X**
Product	**FP0R Expansion unit**
Product name	**FP0R Expansion units**

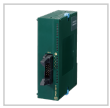
Product	**FP0R Expansion unit**
Product name	**FP0R Expansion units**

Product Number	**AFP0RE8YP**
Part Number	**AFP0RE8YP**
Product	**FP0R Expansion unit**
Product name	**FP0R Expansion units**

Product	**FP0R Expansion unit**
Product name	**FP0R Expansion units**

Product Number	**AFP0RE8YRS**
Part Number	**AFP0RE8YRS**
Product	**FP0R Expansion unit**
Product name	**FP0R Expansion units**

Product	**FP0R Expansion unit**
Product name	**FP0R Expansion units**



Product Number	**AFP0RE8YT**
Part Number	**AFP0RE8YT**
Product	**FP0R Expansion unit**
Product name	**FP0R Expansion units**

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Product Number	**AFP2801**
Part Number	**AFP2801**
Product name	**Discrete-wire connector set**

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Product Number	**AFP2802**
Part Number	**AFP2802**
Product name	**Flat cable connector set**

Discontinued

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Product Number	**FPG-XY64D2P**
Part Number	**AFPG3567**
Product name	**FPΣ Expansion I/O unit**

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Product Number	**FPG-PN2AN**
Part Number	**AFPG43610**
Product name	**FPΣ Expansion I/O unit**

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Product Number	**FPG-PN4AN**
Part Number	**AFPG43620**
Product name	**FPΣ Expansion I/O unit**

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Product Number	**FPG-PN8AN**
Part Number	**AFPG43630**
Product name	**FPΣ Expansion I/O unit**

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Product Number	**AFPG805**
Part Number	**AFPG805**
Product name	**Power cable**

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Product Number	**AFPS66110**
Part Number	**AFPS66110**
Product name	**Configurator PM**

No image

Product Number	**AFPS66510**
Part Number	**AFPS66510**
Product name	**Configurator PM**

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Product Number	**AFPSGR7EN**
Part Number	**AFPSGR7EN**
Product name	**Control FPWIN GR7**

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Product Number	**AFPSGR7ENS**
Part Number	**AFPSGR7ENS**
Product name	**Control FPWIN GR7**

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Product Number	**AFPSGR7JP**
Part Number	**AFPSGR7JP**
Product name	**Control FPWIN GR7**

No image

Product Number	**AFPSGR7JPS**
Part Number	**AFPSGR7JPS**
Product name	**Control FPWIN GR7**

No image

Product Number	**AFPSGR7KR**
Part Number	**AFPSGR7KR**
Product name	**Control FPWIN GR7**

Product Number	**AFPSGR7KRS**
Part Number	**AFPSGR7KRS**
Product name	**Control FPWIN GR7**

Product Number	**AFPSPR7A**
Part Number	**AFPSPR7A**
Product name	**Control FPWIN Pro7**

Product Number	**AFPSPR7AS**
Part Number	**AFPSPR7AS**
Product name	**Control FPWIN Pro7**