The compact C14 and C16

EEPROM memory with a program capacity of 900 steps. These units are suited to relatively simple I/O control. Being compact, the units are perfect for applications where space is a problem. The C14 has three independent output commons.

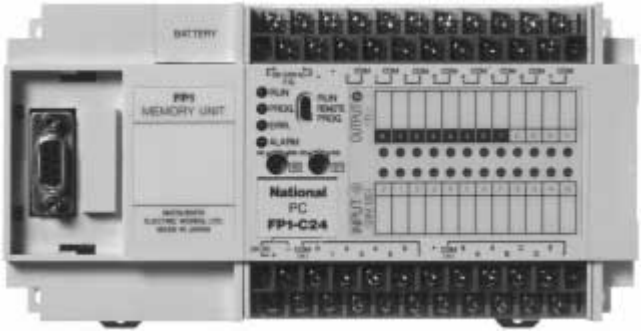
C14 Control Unit

■ Specifications

Operation speed	1.6 µs
Built-in memory	EEP-ROM
Program capacity	900 steps
Instructions	Basic: 41 High-level: 85
Expandability	1 Expansion Unit
Input configurations	C14 series: Sourse/Sink C16 series: Sourse or Sourse/Sink
Output configurations	C14 series: 1 output/common × 2 4 outputs/common × 1 C16 series: 8 outputs/common × 1
Advanced functions	• High-speed counter Single-phase: 10 kHz 2-phase: 5 kHz • Pulse output (Tr. output types) • Pulse catch input • Adjustable input time filtering • Manual dial-set register • Forced set/reset control • Password protection • Constant length scan setting • Self-diagnostic
Link function	• Computer link (using C-NET Adapters) • I/O link (using an FP1 I/O Link Unit)

C24, C40, C56 and C72 with high-level functions and optional serial communication

RAM memory is standard. A ROM memory unit is available. An interrupt function is included, ideal for high-speed processing. The program capacity is 2,720 steps for the C24 and C40 series, and 5,000 steps for the C56 and C72 series. Types with a built in RS232C port and clock/calender (C24C, C40C, C56C and C72C types) are available.



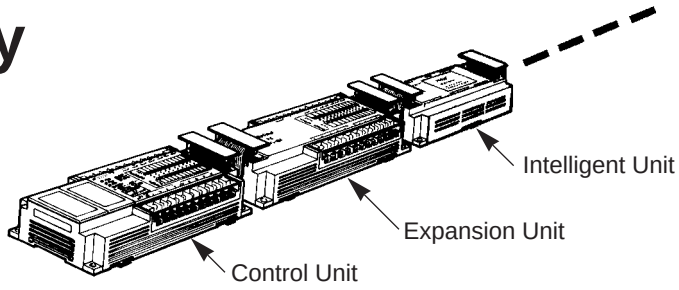
C24C Control Unit

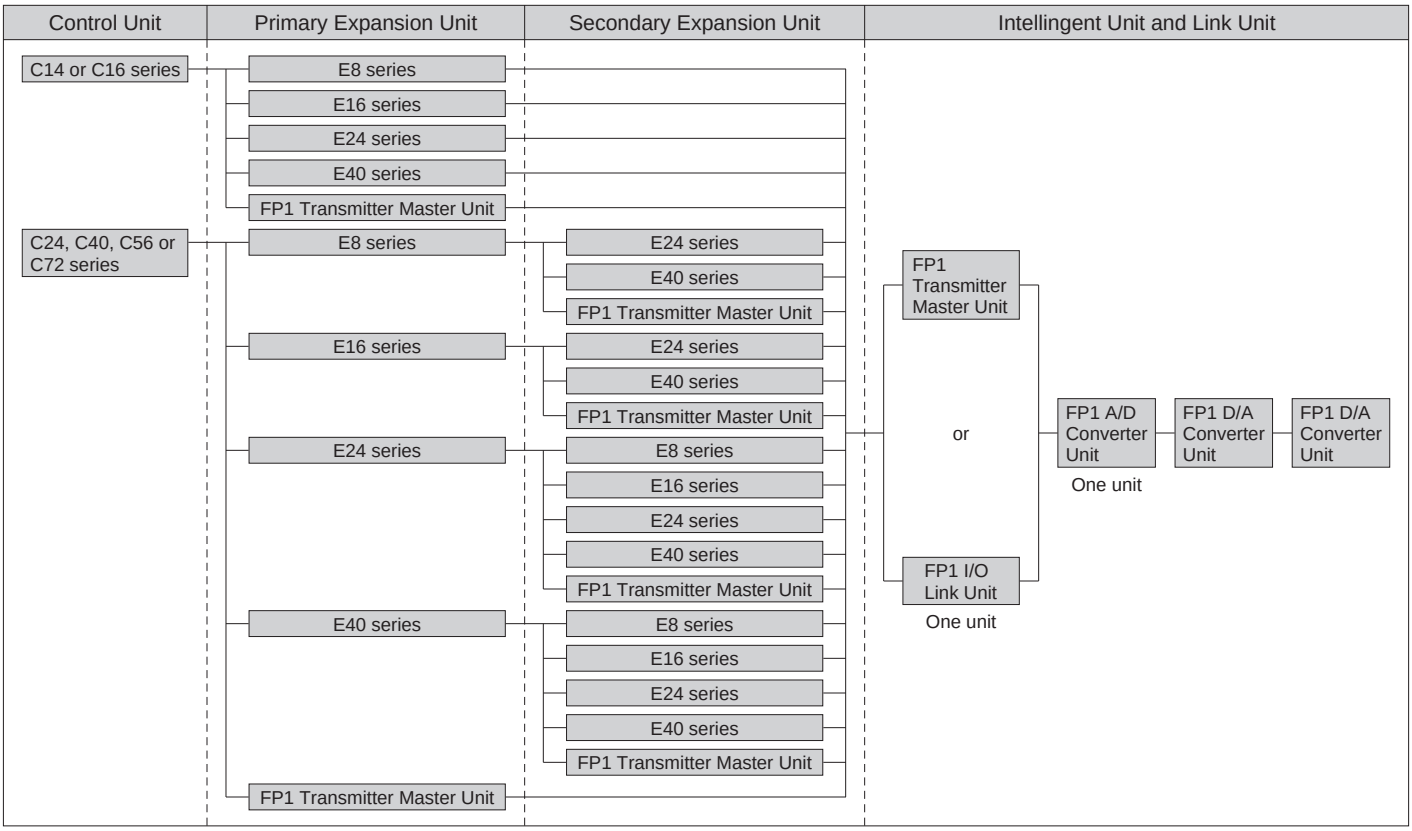
■ Specifications

Operation speed	1.6 µs
Built-in memory	RAM
Program capacity	C24, C40 series 2,720 steps C56, C72 series 5,000 steps
Instructions	C24/C40 series C56/C72 series Basic: 80 (*1) 81 (*1) High-level: 111 111
Expandability	2 Expansion Units
Input configurations	C24/C40 series: + common or ± common style C56/C72 series: ± common style
Output configurations	C24 series: 1 output/common × 8 C40 series: 1 output/common × 8 8 outputs/common × 1 C56 series: 1 output/common × 8 8 outputs/common × 2 4 outputs/common × 1 C72 series: 1 output/common × 8 8 outputs/common × 2 4 outputs/common × 2
Advanced functions	• High-speed counter Single-phase: 10 kHz 2-phase: 5 kHz • Pulse output (Tr. output types) • Pulse catch input • Adjustable input time filtering • Manual dial-set registers • Forced set/reset control • Password protection • Constant length scan setting • Self-diagnostic • Clock/Calendar (“C” types)
Link function	• Computer link (using C-NET Adapters) • I/O link (using an FP1 I/O Link Unit) • MODEM communication • Serial communication through RS232C port (“C” types)

Note:
(*1): CPU Ver. 2.7 or later

Expandability





Be sure to check that the units are expanded according to the following restrictions:

1) Expansion Units

■ **Control Units (C14 and C16 series)**

- Number of expansion units: 1 unit
- Total number of I/O points:
  C14 series: Max. 54 points
  C16 series: Max. 56 points

■ **Control Units (C24, C40, C56 or C72 series)**

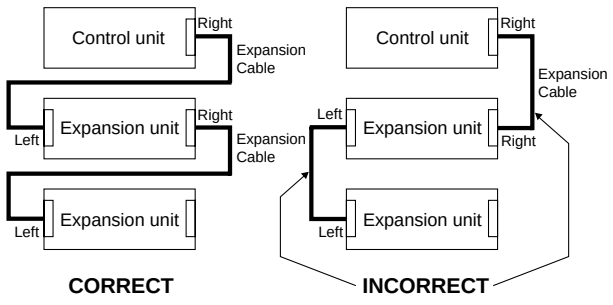
- Number of expansion units: 1 or 2 units
- Total number of I/O points:
  C24 series: Max. 104 points
  C40 series: Max. 120 points
  C56 series: Max. 136 points
  C72 series: Max. 152 points

2) Intelligent Units and Link Unit

- Number of expansion units together:
  FP1 A/D converter unit: 1 unit, FP1 D/A converter unit: 2 units,
  FP1 transmitter master unit or FP1 I/O link unit: 1 unit (Select either of the two.)
- There are no restrictions on the order of connection of intelligent units and link unit.

Notes:

- There are no restrictions on the order of connection of intelligent units and link units.
- Expansion units (E8 and E16) do not have a power supply. Therefore, two of these cannot be connected.
- Units must be connected next to each other unless an optional long cable is used when the units are aligned as shown in the illustration to the right.



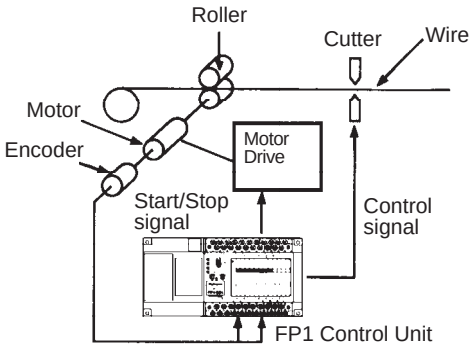
Advanced Control Functions

The FP1 performs advanced functions usually available only in larger, more expensive controllers. The FP1 offers expandability and integrated communications capability simplifying sytem configuration.

■ High-speed counter function (all models)

A high-speed counter function which supports four modes:
Two-phase input, UP, DOWN, and UP/DOWN.
FP1 can read the inputs regardless of the scan time, and allows processing with no delay in response time.

Max. counting speed	1-phase: 10 kHz 2-phase: 5 kHz
Counting range	–8, 388, 608 to 8, 388, 607



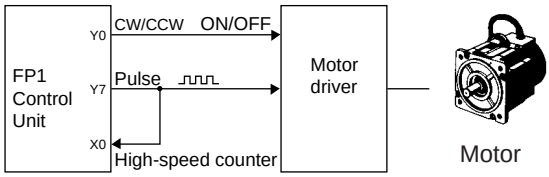
■ Pulse output function (transistor output type)

This function allows the output of a direct pulse (45 Hz to 4900 Hz) from the FP1. In combination with a motor driver, motor control can be performed. A special positioning controller is not needed. The C56 and C72 units have two pulse outputs, so they also can support motor drivers with one input for forward and the other input for reverse.

• Position control:

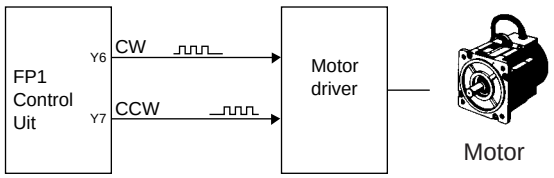
C14, C16, C24, and C40:

These support drivers with one pulse input and one direction switching input. When using a driver with two pulse inputs, a switching circuit using an external relay is needed.



C56 and C72:

These also support drivers with two pulse inputs. In addition, it is not necessary to connect the pulse output to the high-speed counter. (To prevent incorrect forward/reverse drive, an interlock circuit outside of the FP1 can be used.)

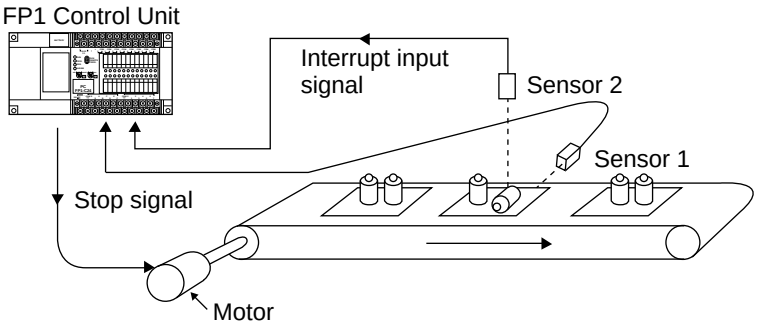


■ Interrupt function - input or timed (C24, C40, C56, and C72)

This function executes an interrupt program immediately when an external input (minimum pulse width of 0.2 ms) occurs. It also enables high-speed processing based on a fixed time which is not effected by scan time. This “heart-beat” interrupt is useful when performing control which would be disrupted by variations in processing time due to such factors as timing synchronization.

• Example of an input interrupt on a board inspection line

The FP1 immediately executes the interrupt function when an edge detection signal comes in to an interrupt input from Sensor 1. Sensor 2 inspects the part, and if an abnormality is detected, the conveyor stops and the problem is reported.



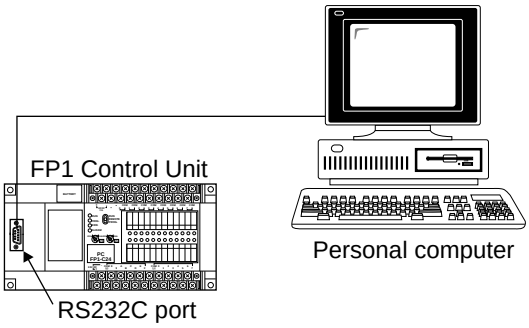
Computer Communication Functions

■ Computer link function

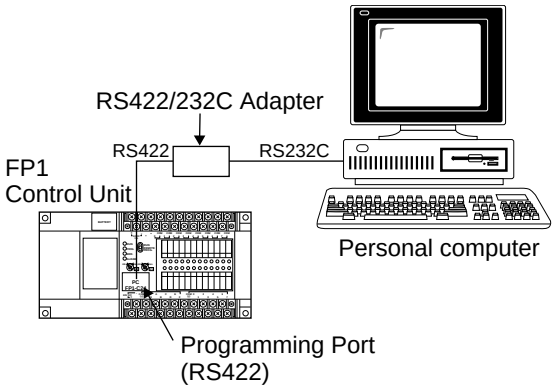
This function allows you to read and write the contact information and data register content to and from a host computer. It can be used for data collection and monitoring of operating conditions as well as downloading data to an FP1.

1) Communication between one computer and one FP1 Control Unit

RS232C connection (C24C, C40C, C56C and C72C types)
The optional RS232C port can be used for direct connection to a computer.

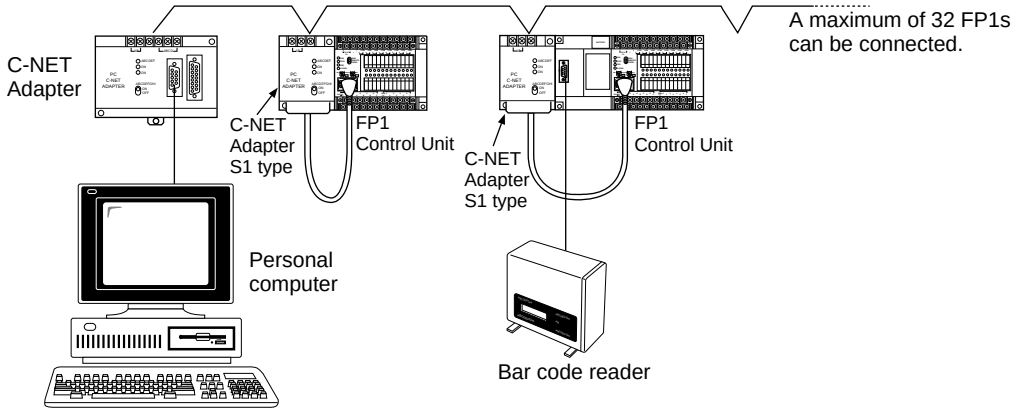


RS422 connection (Programming port)
The standard RS422 port can also be used to link to a computer by connecting it through an RS232C to RS422 adapter.



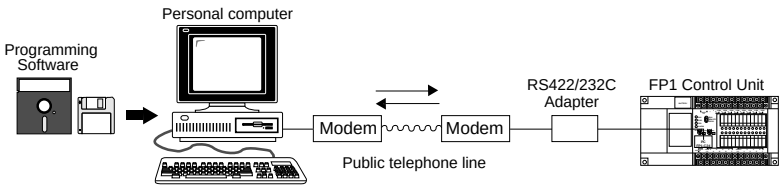
2) Communication between one computer and multiple FP1 control units (Up to 32)

Using C-NET adapters, a maximum of 32 FP1 units can be connected to one computer. If a bar code reader, for example, is connected to the RS232C port, this system can be used for collection of various production control information.



■ Modem communication (C24, C40, C56 and C72 series)

With a MODEM, data transfer and long-distance communication between a personal computer and an FP1 unit can be performed. This can be done even when using FP Programming software. Select a cable in accordance with the specifications of the MODEM used.



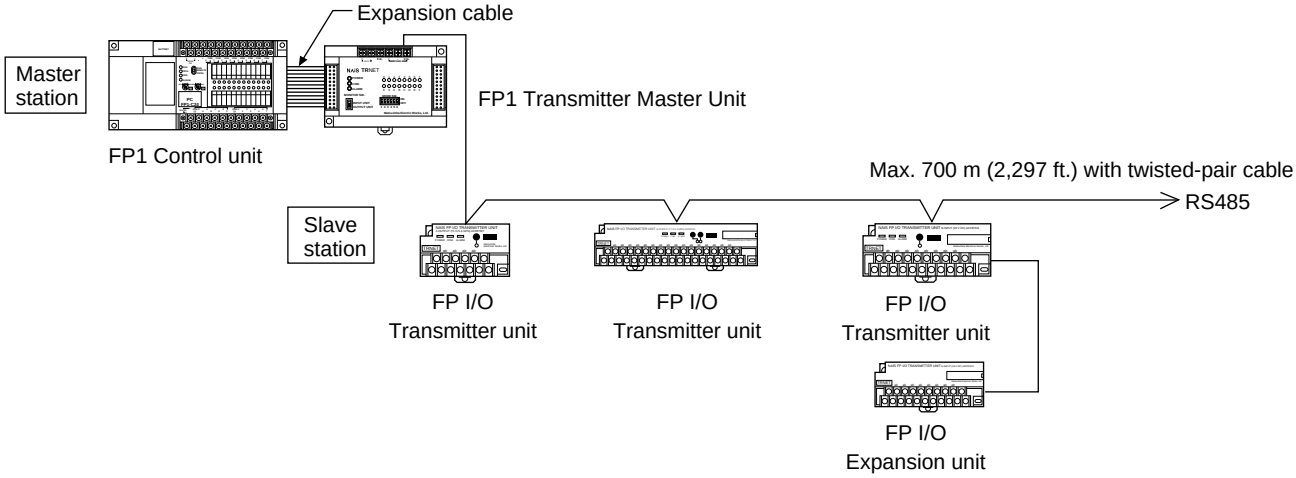
The FP1 can even initiate a call to a computer through the RS232C port, via a modem. This can be used for alarm purposes or simple information upload.

Remote I/O Communication Functions

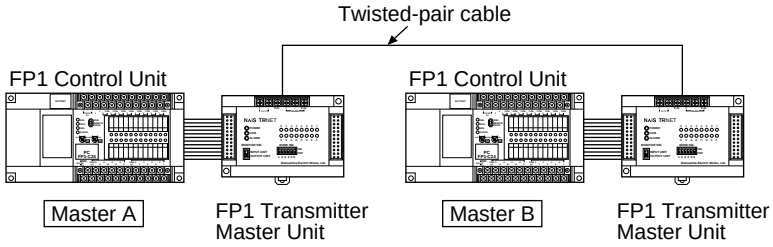
■ MEWNET-TR (Remote I/O) system

- Discrete I/O can be shared between a master and slave station at a remote site.
- A maximum of 48 inputs and 32 outputs can be controlled per master unit (32 inputs and 32 outputs for C14, C16 types).
- By connecting two FP1 transmitter master units, a maximum of 80 inputs and 64 outputs can be controlled.
- This system supports a total communication distance of 700 m (2,297 ft.) per port with twisted-pair cable.
- Master-to-master communications are also possible.

Master-Slave communication

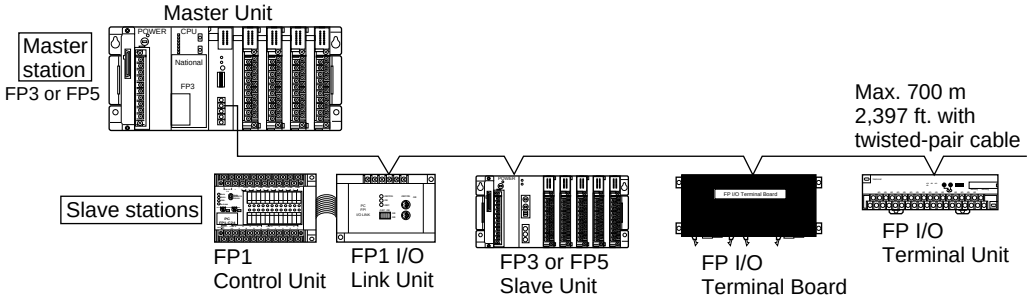


Master-Master communication (I/O link communication)

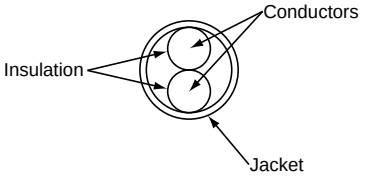


■ MEWNET-F (Remote I/O) system

- With an FP1 I/O link unit, I/O information can be exchanged with the master unit of an FP3 series programmable controller through a 2 conductor cable.



- Twisted-pair cable



Conductor:
Size: Min. 1.25 mm^2 (AWG16 or larger)
Resistance: Max. 16.8 Ω/km (at 20° C 68° F)
Cable:
Insulation material: Polyethylene
Insulation thickness: Max. 0.5 mm 0.020 inch
Jacket diameter: Approx. 8.5 mm 0.335 inch

Specifications

1. Control Specifications

Item		C14 Series	C16 Series	C24 Series	C40 Series	C56 Series	C72 Series
Programming method		Relay symbol					
Control method		Cyclic operation					
Program memory		Built in EEPROM (without battery)		Built in RAM (lithium battery backup) EEPROM (Master memory unit)/EPROM (Memory unit)			
Program capacity		900 steps		2,720 steps		5,000 steps	
Operation speed		1.6 μs/step: basic instruction					
Kinds of instruction	Basic	41		80 (*5)		81 (*5)	
	High-level	85		111			
External input (X)		208 points (*1)					
External output (Y)		208 points (*1)					
Internal relay (R)		256 points		1,008 points			
Special internal relay (R)		64 points					
Timer/Counter (T/C)		128 points		144 points			
Auxiliary timer		Not available				Unlimited number of points (0.01 s to 327.67 s)	
Data register (DT)		256 words		1,660 words		6,144 words	
Special data register (DT)		70 words					
Index register (IX, IY)		2 words					
MCR points		16 points		32 points			
Number of labels (JMP, LOOP)		32 points		64 points			
Differential points (DF or DF/)		Unlimited number of points					
Number of step ladders		64 stages		128 stages			
Number of subroutines		8 subroutines		16 subroutines			
Number of interrupts		Not available		9 programs			
Special functions	High-speed counter	1 point Count input (X0, X1) Reset input (X2)	Counting mode: 1 CH (Up mode, Down mode, 2 phase mode) Counting range: –8388608 to 8388607 Max. counting speed: Up/Down mode 10 kHz, 2 phase mode 5 kHz Min. input pulse width: 1 phase @ 50μs, 2 phases @ 10μs					
	Manual dial-set register	1 point		2 points	4 points		
	Pulse catch input	4 points		Total 8 points			
	Interrupt input	Not available					
	Time interrupt	Not available		10ms to 30s interval			
	RS232C port (*4)	Not available		Communication rate: 300 / 600 / 1,200 / 2,400 / 4,800 / 9,600 / 19,200 Communication distance per port: 15 m (49.2 ft.) Connector: D-SUB 9 pins connector			
	Clock/Calendar	Not available		Clock/Calendar available			
	I/O link	32 inputs, 32 outputs					
	Pulse output	1 point (Y7), pulse output frequency: 45 Hz to 4900 Hz				2 points (Y6, Y7) pulse output frequency: 45 Hz to 4900 Hz (*2)	
	Constant scan	2.5 ms × set value (160ms or less)					
Adjustable input time filtering		1 to 128ms					
Self-diagnostic functions		Such as watchdog timer, battery detection, program check					
Memory backup at 25 °C (77 °F)		(*3)		Approx. 27,000 h (C24C, C40C, C56C, and C72C types) Approx. 53,000 h (except C24C, C40C, C56C, and C72C types)			

Notes:
- (*1): The actual number of points that can be used is the total number of I/O points of the control unit and the expansion unit.
- (*2): The two pulse outputs, Y6 and Y7, are not available at the same time.
- (*3): For C14 and C16 series, the hold type data are backed up by the internal capacitor. Back-up time for them is 10 days.
- (*4): Functions for C24C, C40C, C56C, and C72C types.
- (*5): Some of the instructions are available for CPU Ver. 2.7 or later.

2. General Specifications

Item		Description
Ambient temperature		0°C to 55°C (32°F to 131°F)
Ambient humidity		30% to 85% RH (non-condensing)
Storage temperature		–20°C to 70°C (–4°F to 158°F)
Storage humidity		30% to 85% RH (non-condensing)
Breakdown voltage		AC type: 1,500 V rms for 1 min Between AC terminal and frame ground terminal DC type: 500 V rms for 1 min Between DC terminal and frame ground terminal
Insulation resistance		Min. 100 MΩ: Between AC terminal and frame ground terminal (measured with a 500 V DC megger) Min. 100 MΩ: Between DC terminal and frame ground terminal (measured with a 500 V DC megger)
Vibration resistance		10 Hz to 55 Hz, 1 cycle/min: double amplitude of 0.75 mm (0.030 inch), 10 min on 3 axes
Shock resistance		Shock of 98 m/s^2 or more, 4 times on 3 axes
Noise immunity		1,000 Vp-p with pulse widths 50 ns and 1 μs (based on in-house measurements)
Operating condition		Free from corrosive gases and excessive dust
Rated operating voltage		AC type: 100 V to 240 V AC DC type: 24 V DC
Operating voltage range		AC type: 85 V to 264 V AC DC type: 20.4 V to 26.4 V DC
Current consumption	Control Unit (all series)	AC type C14, C16 series: 0.3 A or less (at 100 V AC) 0.2 A or less (at 200 V AC) C24, C40 series: 0.5 A or less (at 100 V AC) 0.3 A or less (at 200 V AC) C56, C72 series: 0.6 A or less (at 100 V AC) 0.4 A or less (at 200 V AC) DC type C14, C16 series: 0.3 A or less (at 24 V DC) (See note.) C24 series: 0.4 A or less (at 24 V DC) C40 series: 0.5 A or less (at 24 V DC) C56, C72 series: 0.6 A or less (at 24 V DC)
	Expansion Unit (E24 and E40 series only)	AC type E24, E40 series: 0.5 A or less (at 100 V AC) 0.3 A or less (at 200 V AC) DC type E24 series: 0.4 A or less (at 24 V DC) E40 series: 0.5 A or less (at 24 V DC)
	FP1 A/D Converter Unit	AC type: 0.2 A or less (at 100 V AC) 0.2 A or less (at 200 V AC) DC type: 0.3 A or less (at 24 V DC)
	FP1 D/A Converter Unit	
	FP1 I/O Link Unit	AC type: 0.12 A or less (at 100 V AC) 0.08 A or less (at 200 V AC) DC type: 0.2 A or less (at 24 V DC)
Built-in DC power output for inputs	Control Unit (AC type only)	C14, C16 series: 110 mA C24, C40 series: 230 mA C56, C72 series: 400 mA
	Expansion Unit (AC type only)	E24, E40 series: 230 mA
No-influence time by momentary power drop		Min. 10 ms

Note: When the expansion unit. E16 output type (Part number: AFP13110) is connected, the rated current consumption is 0.4 A or less.

3. Input Specifications

Item	Description
Rated input voltage	12 V to 24 V DC
Operating voltage range	10.2 V to 26.4 V DC
ON voltage/current	10 V or less/3 mA or less
OFF voltage/current	2.5 V or more/1 mA or more
Input impedance	Approx. 3 kΩ
Response time ON ↔ OFF	2 ms or less (at normal input) (See note) 50 μs or less (in setting high speed counter) 200 μs or less (in setting interrupt input) 500 μs or less (in setting pulse catch)
Operating mode indicator	LED
Connection method	Terminal block (M3.5 screw)
Insulation method	Optical coupler

Note: Input response time can be changed using the input time filtering function to 1 ms, 2 ms, 4 ms, 8 ms, 16 ms, 32 ms, 64 ms or 128 ms. This function is available for the first 8 inputs on all CPU units. For expansion units and other inputs on base units, the response time is fixed at 2 ms.

4. Output Specifications

1) Relay output

Item		Description
Output type		Normally open (1 Form A)
Rated control capacity		2 A 250 V AC, 2 A 30 V DC (5 A/common)
Response time	OFF → ON ON → OFF	8 ms or less 10 ms or less
Mechanical life time		5×10^6 operations or more
Electrical life time		10^5 operations or more
Surge absorber		None
Operating mode indicator		LED
Connection method		Terminal block (M3.5 screw)

2) Transistor output

Item		Description
Insulation method		Optical coupler
Output type		Transistor PNP or NPN open collector
Rated load voltage range		5 V to 24 V DC
Operating load voltage range		4.75 V to 26.4 V DC
Max. load current		0.5 A/point (at 24 V DC) (*1)
Max. surge current		3 A
OFF state leakage current		100 μA or less
ON state voltage drop		1.5 V or less
Response time (*2)	OFF → ON ON → OFF	1 ms or less 1 ms or less
Surge absorber		Zener diode
Operating mode indicator		LED
Connection method		Terminal block (M3.5 screw)

Notes:
- (*1): For C56 and fC72 series control units, the current for one common should be no more than the following:
  1 point/common circuit: 0.5 A/common
  4 points/common circuit: 1 A/common
  8 points/common circuit: 2 A/common
- (*2): For C14, C16, C24, and C40 series, Y7 only is 100 μs maximum, and for C56 and C72 series, Y6 and Y7 are 100 μs maximum.

3) Triac output (E8 Triac output type only)

Item		Description
Insulation method		Optical coupler
Output type		Triac
Rated load voltage range		100 V to 240 V AC
Operating load voltage range		85 V to 250 V AC
Max. load current		1A / point, 1A / common
Min. load current		30 mA
Max. surge current		15 A, 100 ms or less
OFF strate leakage current		4 mA or less (at 240 V AC)
ON state voltage drop		1.5 V or less (at 0.3 A to 1 A load) 5 V or less (at 0.3 A or less load)
Response time	OFF → ON ON → OFF	1 ms or less 0.5 cycle + 1 ms or less
Surge absorber		Varister
Operating mode indicator		LED
Connection method		Terminal block (M3.5 screw)

5. Intelligent Units

1) FP1 A/D Converter Unit

Item	Description
Analog input points	4 channels/unit
Analog input range	0 to 5 V and 0 to 10 V 0 to 20 mA
Resolution	1/1000
Overall accuracy	±1 % of full scale
Response time	2.5 ms/channel
Input impedance	1 MΩ or more (at 0 to 5 V and 0 to 10 V range) 250 Ω (at 0 to 20 mA range)
Absolute input range	+7.5 V (at 0 to 5 V range) +15 V (at 0 to 10 V range) +30 mA (at 0 to 20 mA range)
Digital output range	K0 to K1000 (H0000 to H03E8)
Insulation method	Optical coupler: between terminal and internal circuit Not insulated: between channels
Connection method	Terminal block (M3.5 screw)

2) FP1 D/A Converter Unit

Item	Description
Analog output points	2 channels/unit
Analog output range	0 to 5 V and 0 to 10 V 0 to 20 mA
Resolution	1/1000
Overall accuracy	±1 % of full scale
Response time	2.5 ms/channel
Output impedance	0.5 Ω or less (at voltage output terminal)
Maximum output current	20 mA (at voltage output terminal)
Allowable load resistance	0 to 500 Ω (at current output terminal)
Digital output range	K0 to K1000 (H0000 to H03E8)
Insulation method	Optical coupler: between terminal and internal circuit Not insulated: between channels
Connection method	Terminal block (M3.5 screw)

6. Link Units

1) FP1 Transmitter Master Unit

Item	Description
Interface	RS485
Data transmission velocity	0.5 M bps
Number of controllable I/O points	64 points (Input: 32, Output: 32, setting when shipped) When 2 transmitter master units are connected, the I/O points are as follows, 104 points (Input: 56, Output: 48, C14, C16 series) 144 points (Input: 80, Output: 64, C24, C40, C56 and C72 series)
Transmission distance	Max. 700 m (2,397 ft.) with twisted-pair cable

2) FP1 I/O Link Unit

Item	Description
Number of controllable Input/Output points	64 points (Input: 32 points and Output: 32 points)
Slot occupation per FP1 I/O link unit	1 slot

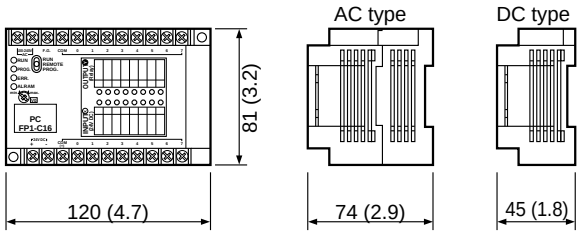
3) C-NET Adapter S1 Type

Item	Description
Interface	RS485 × 1 port, RS422 × 1 port
Conversion format	Between RS485 and RS422 interfaces

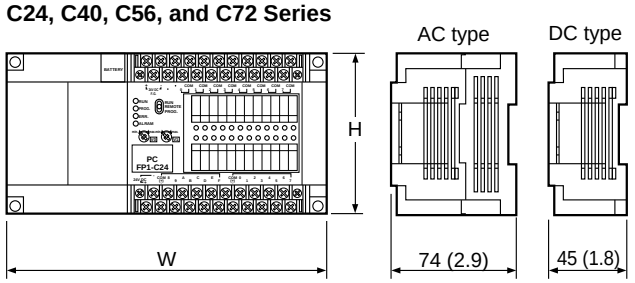
Dimensions

1) Control Units

C14 and C16 Series



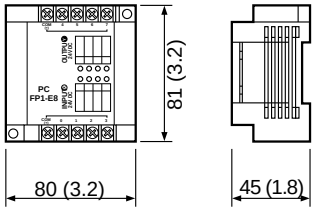
C24, C40, C56, and C72 Series



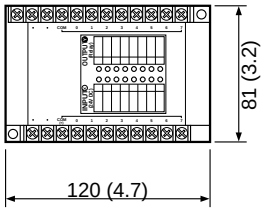
Item	W	H
C24 Series	190 (7.5)	96 (3.8)
C40 Series	260 (10.2)	
C56 Series		120 (4.7)
C72 series	300 (11.8)	

2) Expansion Units

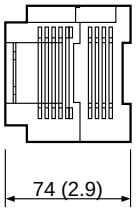
E8 Series (except E8 Triac output type)



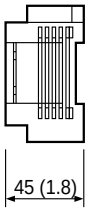
E8 Triac output type and E16 Series



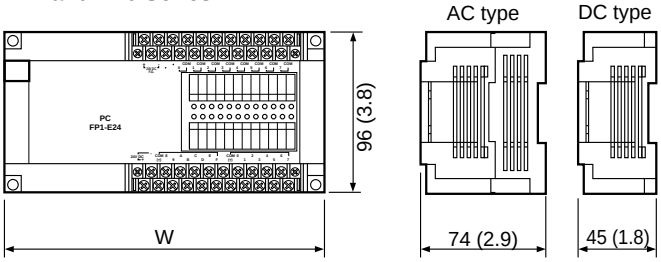
E8 Triac output type



E16 Series



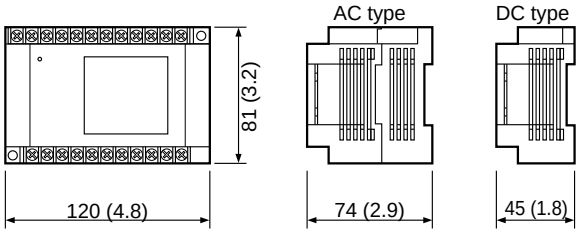
E24 and E40 Series



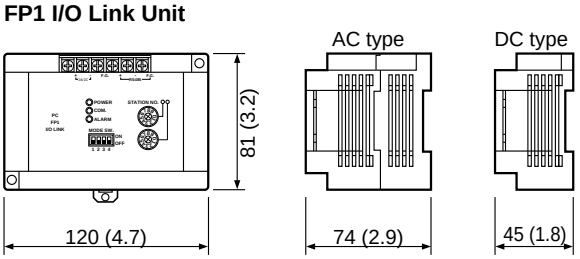
Item	W
E24 Series	190 (7.5)
E40 Series	260 (10.2)

3) Intelligent Units

FP1 A/D Converter Unit, FP1 D/A Converter Unit

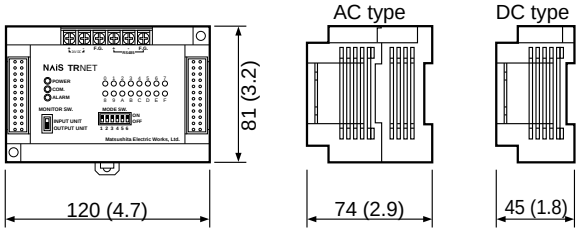


FP1 I/O Link Unit

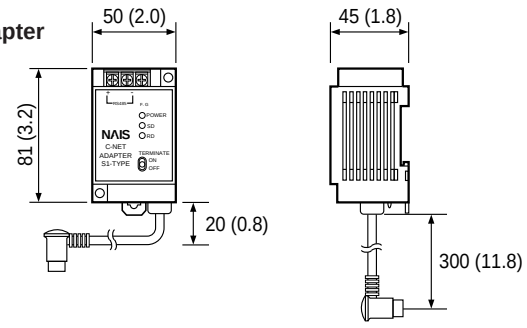


4) Link Units

FP1 Transmitter Master Unit



C-NET Adapter S1 Type



Product Types and Part Numbers

1. Control Units

	Series	Description					
		Built-in memory	I/O point	Operating voltage	Input type	Output type	Part number
C14	Standard types	EEPROM	14 Input: 8 Output: 6	24 V DC	Source/Sink	Relay Transistor (NPN open collector) Transistor (PNP open collector)	AFP12313B AFP12343B AFP12353B
				100 V to 240 V AC	Source/Sink	Relay Transistor (NPN open collector) Transistor (PNP open collector)	AFP12317B AFP12347B AFP12357B
					120 V AC	Relay	AFP12314B
C16	Standard types	EEPROM	16 Input: 8 Output: 8	12 V DC	Source	Transistor (NPN open collector)	AFP12111B
				24 V DC	Source/Sink	Relay Transistor (NPN open collector) Transistor (PNP open collector)	AFP12113B AFP12143B AFP12153B
				100 V to 240 V AC	Source/Sink	Relay Transistor (NPN open collector) Transistor (PNP open collector)	AFP12117B AFP12147B AFP12157B
C24	Standard types	RAM	24 Input: 16 Output: 8	24 V DC	Source/Sink	Relay Transistor (NPN open collector) Transistor (PNP open collector)	AFP12213B AFP12243B AFP12253B
				100 V to 240 V AC	Source/Sink	Relay Transistor (NPN open collector) Transistor (PNP open collector)	AFP12217B AFP12247B AFP12257B
	C24C types (with RS232C port and Clock/Calender function)	RAM	24 Input: 16 Output: 8	24 V DC	Source/Sink	Relay Transistor (NPN open collector) Transistor (PNP open collector)	AFP12213CB AFP12243CB AFP12253CB
				100 V to 240 V AC	Source/Sink	Relay Transistor (NPN open collector) Transistor (PNP open collector)	AFP12217CB AFP12247CB AFP12257CB
C40	Standard types	RAM	40 Input: 24 Output: 16	24 V DC	Source/Sink	Relay Transistor (NPN open collector) Transistor (PNP open collector)	AFP12413B AFP12443B AFP12453B
				100 V to 240 V AC	Source/Sink	Relay Transistor (NPN open collector) Transistor (PNP open collector)	AFP12417B AFP12447B AFP12457B
	C40C types (with RS232C port and Clock/Calender function)	RAM	40 Input: 24 Output: 16	24 V DC	Source/Sink	Relay Transistor (NPN open collector) Transistor (PNP open collector)	AFP12413CB AFP12443CB AFP12453CB
				100 V to 240 V AC	Source/Sink	Relay Transistor (NPN open collector) Transistor (PNP open collector)	AFP12417CB AFP12447CB AFP12457CB
C56	Standard types	RAM	56 Input: 32 Output: 24	24 V DC	Source/Sink	Relay Transistor (NPN open collector) Transistor (PNP open collector)	AFP12513B AFP12543B AFP12553B
				100 V to 240 V AC	Source/Sink	Relay Transistor (NPN open collector) Transistor (PNP open collector)	AFP12517B AFP12547B AFP12557B
	C56C types (with RS232C port and Clock/Calender function)	RAM	56 Input: 32 Output: 24	24 V DC	Source/Sink	Relay Transistor (NPN open collector) Transistor (PNP open collector)	AFP12513CB AFP12543CB AFP12553CB
				100 V to 240 V AC	Source/Sink	Relay Transistor (NPN open collector) Transistor (PNP open collector)	AFP12517CB AFP12547CB AFP12557CB
C72	Standard types	RAM	72 Input: 40 Output: 32	24 V DC	Source/Sink	Relay Transistor (NPN open collector) Transistor (PNP open collector)	AFP12713B AFP12743B AFP12753B
				100 V to 240 V AC	Source/Sink	Relay Transistor (NPN open collector) Transistor (PNP open collector)	AFP12717B AFP12747B AFP12757B
	C72C types (with RS232C port and Clock/Calender function)	RAM	72 Input: 40 Output: 32	24 V DC	Source/Sink	Relay Transistor (NPN open collector) Transistor (PNP open collector)	AFP12713CB AFP12743CB AFP12753CB
				100 V to 240 V AC	Source/Sink	Relay Transistor (NPN open collector) Transistor (PNP open collector)	AFP12717CB AFP12747CB AFP12757CB

2. Expansion Units

Series	Description				
	I/O point	Operating voltage	Input type	Output type	Part number
E8	8 Input: 8	——	Source/Sink	——	AFP13803
			120Vac	——	AFP13804
	8 Input: 4 Output: 4	——	Source/Sink	Relay Transistor (NPN open collector) Transistor (PNP open collector)	AFP13813 AFP13843 AFP13853
	8 Output: 8	——	——	Relay Transistor (NPN open collector) Transistor (PNP open collector) Triac	AFP13810 AFP13840 AFP13850 AFP13870
E14	14 Input: 8 Output: 6	——	120Vac	Relay	AFP13314
E16	16 Input: 16	——	Source/Sink	——	AFP13103
	16 Input: 8 Output: 8	——	Source/Sink	Relay Transistor (NPN open collector) Transistor (PNP open collector)	AFP13113 AFP13143 AFP13153
	16 Output: 16	——	——	Relay Transistor (NPN open collector)	AFP13110 AFP13140
E24	24 Input: 16 Output: 8	24 V DC	Source/Sink	Relay Transistor (NPN open collector) Transistor (PNP open collector)	AFP13213 AFP13243 AFP13253
		100 V to 240 V AC	Source/Sink	Relay Transistor (NPN open collector) Transistor (PNP open collector)	AFP13217 AFP13247 AFP13257
E40	40 Input: 24 Output: 16	24 V DC	Source/Sink	Relay Transistor (NPN open collector) Transistor (PNP open collector)	AFP13413 AFP13443 AFP13453
		100 V to 240 V AC	Source/Sink	Relay Transistor (NPN open collector) Transistor (PNP open collector)	AFP13417 AFP13447 AFP13457

3. Intelligent Units

Type	Specification	Operating voltage	Part number
FP1 A/D Converter Unit	• Analog input points: 4 channels/unit • Analog input range: 0 to 5 V, 0 to 10 V, 0 to 20 mA • Digital output range: K0 to K1000	24 V DC	AFP1402
		100 V to 240 V AC	AFP1406
FP1 D/A Converter Unit	• Analog output points: 2 channels/unit • Analog output range: 0 to 5 V, 0 to 10 V, 0 to 20 mA • Digital intput range: K0 to K1000	24 V DC	AFP1412
		100 V to 240 V AC	AFP1416

4. Link Units

Type	Specification	Operating voltage	Part number
FP1 Transmitter Master Unit (TR-NET)	FP1 transmitter master unit enables the FP1 to exchange I/O information with slave stations at a remote site using a twisted-pair cable. By connecting with another FP1 transmitter master unit or with an FP3 transmitter master unit, you can exchange I/O information with another FP1. Communication medium (RS485 port): Twisted-pair cable up to 32 inputs and 32 outputs can be controlled per unit.	24 V DC	AFP1752
		100 V to 240 V AC	AFP1756
FP1 Remote I/O Link Unit	The FP1 I/O link unit is the interface unit for exchanging I/O information between an FP3/FP5 and an FP1. When the FP1 is connected to the FP3/FP5 remote I/O system via the FP1 I/O link unit, you can exchange I/O information, using a 2-conductor cable.	24 V DC	AFP1732
		100 V to 240 V AC	AFP1736
C-NET Adapter	RS485 ↔ RS422/RS232C signal converter. Used for communication between a computer and FP programmable controllers - Up to 32 stations. Communication medium (RS485 port): 2-conductor cable or twisted-pair cable	24 V DC	AFP8532
		100 V to 240 V AC	AFP8536
C-NET Adapter S1 type (for FP1 Control Unit only)	RS485 ↔ RS422 signal converter for FP1 control unit. Used for communication between the C-NET adapter and an FP1 control unit.	——	AFP15401

5. Programming Tools

Type		Part number	Description
FP*soft* Windows Programming Software		FPSOFT-FD	Program editing software used with commercially available computer.
FP Programmer II		AFP1114	Handheld programmer for FP series programmable controllers.
FP1 Peripheral Cable	3 m (9.8 ft.)	AFP15201-US9	Cable for connection between the FP1 RS422 programming port and a PC, 9-pin RS232C port.
	50 cm (1.6 ft.)	AFP15205-US	Cable for connection between the FP1 RS422 programming port and the hand held programmer or ATM terminal.
	1.5 m (4.9 ft.)	AFP15215-US	

6. Memory (for C24, C40, C56 and C72 series)

Type		Part number	Description
FP1 Memory Unit		AFP1201	EPROM
FP1 Memory Unit	for C24/C40 series	AFP1202	EEPROM
	for C56/C72 series	AFP1203	EEPROM

7. FP ROM Writer

Type		Part number	Description
FP ROM Writer		AFP5651	ROM programmer for FP series programmable controllers [EEPROM (28C256 or equivalent) cannot be programmed]
FP1 Peripheral Cable	50 cm (1.6 ft.)	AFP15205-US	Cable for connection between the FP1 RS422 programming port and the ROM writer when the RS422/232C Adapter (AFP8550) is used.
	1.5 m (4.9 ft.)	AFP15215-US	
FP1 ROM Writer Socket Adapter		AFP1810	Adapter needed to program the FP1 memory unit (AFP1201) using the FP ROM writer or commercially available ROM writer. Can also be used to program the EEPROM memory units.

8. Maintenance Parts

Type		Part number	Description
Lithium Battery		AFP1801	For FP1 control unit (C24, C40, C56, and C72 series)
FP1 Short-circuit Bar		AFP1803	Used to short the COM terminals when loads at the same voltage are connected to the FP1's outputs.
FP1 Expansion Cable	7 cm (2.8 inch)	AFP15101	Cable needed for connection between the control unit and expansion unit.
	30 cm (11.8 inch)	AFP15103	
	50 cm (19.7 inch)	AFP15105	