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Find the *OMRON CJ1W-PA202* at our website: ***Click HERE***

CJ Series Power Supply Unit

CJ1W-PA/PD

Equipped with the RUN output for checking the operation status, as well as the replacement notification function for easy maintenance.
Lineup of five models including the AC power supply (25W).



CJ1W-PA205C


CJ1W-PA202

- Stable power supply is available from the CJ-series CPU Unit to each I/O Units via the dedicated bus. The most suitable Power Supply Unit can be selected among various I/O specifications and/or options.

Features

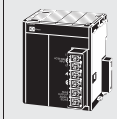
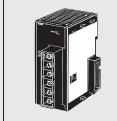
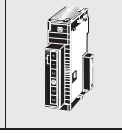
- The replacement notification function can prevent an overflow of the system due to the power lifetime. (CJ1W-PA205C only)
- Power Supply Unit provides wide variations according to the system scale up to maximum 25 W.
- Power Supply Unit provides wide variations according to the power supply (100 to 240 V AC/ 24 V DC) status.
- The output contact during operation enables you to check the CPU operation. (CJ1W-PA205R only)
- Conforming to the SEMI-F47 Standard. ✻

✻ AC input type, 200 V min. input.

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Ordering Information

Power Supply Units

Product name		Power supply voltage	Output capacity			Options			Model	Standards
			5-VDC output capacity	24-VDC output capacity	Total power consumption	24-VDC service power supply	RUN output	Maintenance forecast monitor		
AC Power Supply Unit		100 to 240 VAC	5 A	0.8 A	25 W	No	No	Yes	**CJ1W-PA205C**	UC1, N, L, CE
							Yes	No	**CJ1W-PA205R**	
			2.8 A	0.4 A	14 W		No	No	**CJ1W-PA202**	
DC Power Supply Unit		24 VDC	5A	0.8 A	25 W		No	No	**CJ1W-PD025**	
			2 A	0.4 A	19.6 W		No	No	**CJ1W-PD022**	UC1, CE

Accessories

There is no accessory for the CJ series Power Supply Unit.

International Standards

- The standards indicated in the "Standards" column are those current for UL, CSA, cULus, cUL, NK, and Lloyd standards and EC Directives as of the end of September 2007. The standards are abbreviated as follows: U: UL, U1: UL Class I Division 2 Products for Hazardous Locations, C: CSA, US: cULus Class I Division 2 Products for Hazardous Locations, CU: cUL, N: NK, L: Lloyd, and CE: EC Directives.
- Ask your OMRON representatives for the conditions under which the standards were met.

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Specifications

Item Power Supply Unit	Specifications				
	CJ1W-PA205R	CJ1W-PA205C	CJ1W-PA202	CJ1W-PD025	CJ1W-PD022
Supply voltage	100 to 240 V AC (wide-range), 50/60 Hz			24 VDC	
Operating voltage and frequency ranges	85 to 264 V AC, 47 to 63 Hz			19.2 to 28.8 V DC	21.6 to 26.4 V DC
Power consumption	100 VA max.		50 VA max.	50 W max.	35 W max.
Inrush current ✻1	At 100 to 120 V AC: 15 A/8 ms max. for cold start at room temperature At 200 to 240 V AC: 30 A/8 ms max. for cold start at room temperature		At 100 to 120 V AC: 20 A/8 ms max. for cold start at room temperature At 200 to 240 V AC: 40 A/8 ms max. for cold start at room temperature	At 24 V DC: 30 A/20 ms max. for cold start at room temperature	
Output capacity ✻7	5.0 A, 5 V DC (including supply to CPU Unit)		2.8 A, 5 V DC (including supply to CPU Unit)	5.0 A, 5 V DC (including supply to CPU Unit)	2.0 A, 5 V DC (including supply to CPU Unit)
	0.8 A, 24 V DC		0.4 A, 24 V DC	0.8 A, 24 V DC	0.4 A, 24 V DC
	Total: 25 W max.		Total: 14 W max.	Total: 25 W max.	Total: 19.6 W max.
Output terminal (service supply)	Not provided.				
RUN output ✻2	Contact configuration: SPST-NO Switch capacity: 250 V AC, 2 A (resistive load) 120 V AC, 0.5 A (inductive load), 24 V DC, 2A (resistive load) 24 V DC, 2 A (inductive load)	Not provided.			
Replacement notification function	Not provided.	With Alarm output (open-collector output) 30 V DC max., 50 mA max.	Not provided.		
Insulation resistance	20 MΩ min. (at 500 V DC) between AC external and GR terminals ✻3	• 20 MΩ min. (at 500 V DC) between all external terminals and GR terminal, and between all alarm output terminals. • 20 MΩ 1 min. (at 250 V DC) between all alarm output terminals and GR terminal.	20 MΩ min. (at 500 V DC) between AC external and GR terminals ✻3	20 MΩ min. (at 500 V DC) between DC external and GR terminals ✻3	– ✻6
Dielectric strength ✻4	2,300 V AC 50/60 Hz for 1 min between AC external and GR terminals ✻3 Leakage current: 10 mA max.	• 2,300 VAC, 50/60 Hz for 1 minute between all external terminals and GR terminal and between all alarm output terminals with a leakage current of 10 mA max. • 1,000 V AC, 50/60 Hz for 1 minute between all alarm output terminals and GR terminal with a leakage current of 10 mA max.	2,300 V AC 50/60 Hz for 1 min between AC external and GR terminals ✻3 Leakage current: 10 mA max.	1,000 V AC, 50/60 Hz for 1 minute between DC external and GR terminals ✻3 Leakage current: 10 mA max.	– ✻6
	1,000 V AC, 50/60 Hz for 1 minute between DC external and GR terminals ✻3 Leakage current: 10 mA max.				
Noise immunity	2 kV on power supply line (conforming to IEC61000-4-4)				
Vibration resistance	10 to 57 Hz, 0.075-mm amplitude, 57 to 150 Hz, acceleration: 9.8 m/s² in X, Y, and Z directions for 80 minutes (Time coefficient: 8 minutes × coefficient factor 10 = total time 80 min.) (according to JIS C0040)				
Shock resistance	147 m/s² 3 times each in X, Y, and Z directions (Relay Output Unit: 100 m/s²) (according to JIS C0041)				
Ambient operating temperature	0 to 55°C				
Ambient operating humidity	10% to 90% (with no condensation)	10% to 90% (with no condensation) ✻5	10% to 90% (with no condensation)		
Atmosphere	Must be free from corrosive gases.				
Ambient storage temperature	–20 to 70°C (excluding battery)	–20 to 75°C ✻5	20 to 75°C (excluding battery)		
Grounding	Less than 100 Ω				
Enclosure	Mounted in a panel.				
Weight	All models are each 5 kg max.				

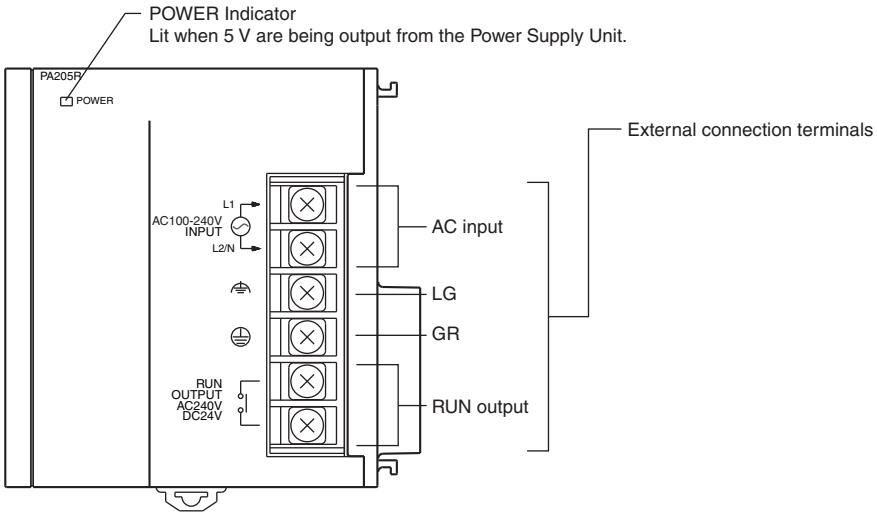
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Item	Specifications				
Power Supply Unit	CJ1W-PA205R	CJ1W-PA205C	CJ1W-PA202	CJ1W-PD025	CJ1W-PD022
CPU Rack dimensions	90.7 to 466.7 × 90 × 65 mm (W × H × D) (not including cables) **Note:** W = a + b + 20 × n + 31 × m + 14.7 a: Power Supply Unit: PA205R and PA205C = 80; PA202 = 45; PD025 = 60; PD022=27 b: CPU Unit: CJ1-H or CJ1 = 62; CJ1M-CPU1□ = 31; CJ1M-CPU2□ = 49 The total width is given by the following: W = 156.7 + n × 20 + m × 31, where n is the number of 32-point I/O Units or I/O Control Units and m is the number of other Units.				
Safety measures	Conforms to cULus and EC Directives.				

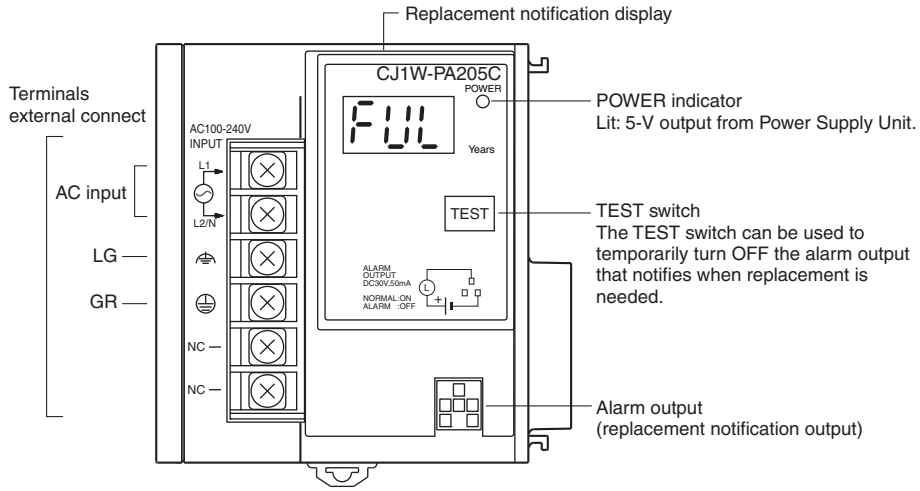
***1.** Disconnect the Power Supply Units LG terminal from the GR terminal when testing insulation and dielectric strength. Testing the insulation and dielectric strength with the LG terminal and the GR terminals connected will damage internal circuits in the CPU Unit.
***2.** Supported only when mounted to CPU Rack.
***3.** The inrush current is given for a cold start at room temperature. The inrush control circuit uses a thermistor element with a low-temperature current control characteristic. If the ambient temperature is high or the PLC is hot-started, the thermistor will not be sufficiently cool, and the inrush currents given in the table may be exceeded by up to twice the given values. When selecting fuses or breakers for external circuits, allow sufficient margin in shut-off performance.
***4.** Maintain an ambient storage temperature of –25 to 30°C and relative humidity of 25% to 70% when storing the Unit for longer than 3 months to keep the replacement notification function in optimum working condition.
***5.** Change the applied voltage gradually using the adjuster on the Tester. If the full dielectric strength voltage is applied or turned OFF using the switch on the Tester, the generated impulse voltage may damage the Power Supply Unit.
***6.** CJ1W-PD022 is not insulated between the primary DC power and secondary DC power.
***7.** Internal components in the Power Supply Unit will deteriorate or be damaged if the Power Supply Unit is used for an extended period of time exceeding the power supply output capacity or if the outputs are shorted.

External Interface

CJ1W-PA205R

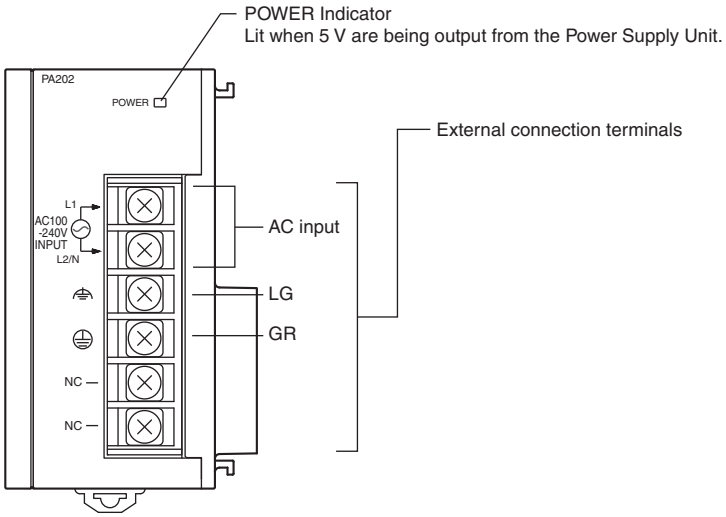


CJ1W-PA205C

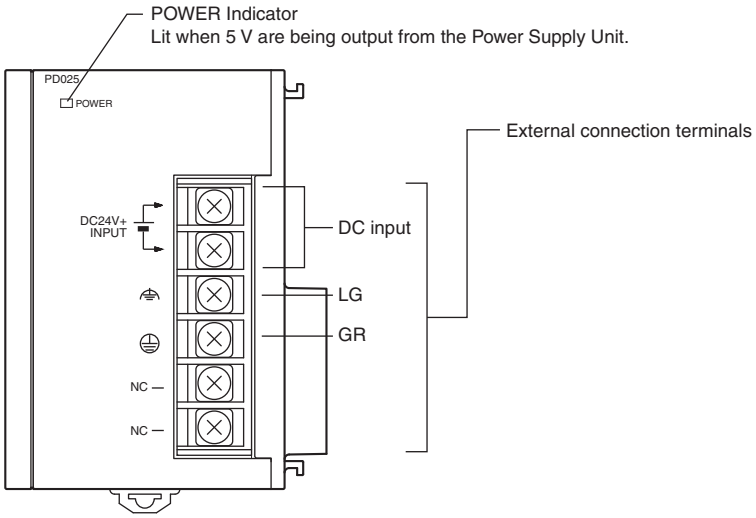


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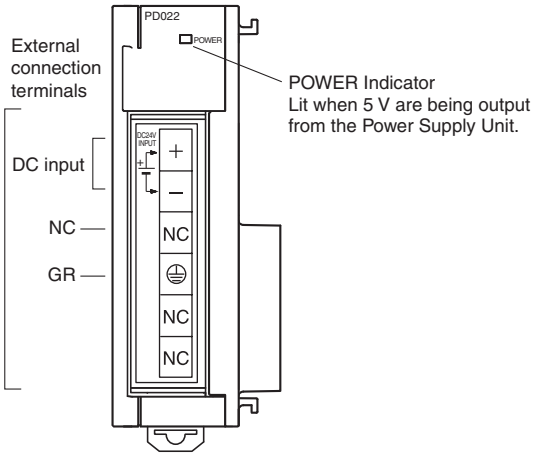
CJ1W-PA202



CJ1W-PD025



CJ1W-PD022



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AC Input

Supply 100 to 240 V AC (allowable: 85 to 264 V AC). (Voltage selection is not required.)

DC Input

Supply 24 V DC.

Model	Allowable power supply voltage fluctuation range
CJ1W-PD025	19.2 to 28.8 VDC (±20%)
CJ1W-PD022	21.6 to 26.4 VDC (±10%)

LG

Ground to a resistance of 100 Ω or less to increase noise resistance and avoid electric shock.

GR

Ground to a resistance of 100 Ω or less to avoid electric shock.

RUN Output (CJ1W-PA205R Only)

The internal contact turns ON when the CPU Unit is operating (RUN or MONITOR mode). The Power Supply Unit must be in the CPU Rack to use this output.

Alarm Output (CJ1W-PA205C Only)

The alarm output is used to notify when Power Supply Unit replacement is required. The output is normally ON. The output turns OFF when the time until replacement is 6 months or less.

Wiring

Wire

For AC/DC power supply

Recommended wire size	AWG14 to 20 (0.517 to 2.08mm^2)

For grounding wire

Recommended wire size	2 mm^2 min.

For alarm output

Recommended wire size	Use	Pushing strength (clamping operation)	Pulling strength (holding force)	Length of stripped section
AWG 22 to 18 (0.32 to 0.82 mm^2)	Connecting to PLC terminal block models	30 N max.	30 N min.	7 to 10 mm
AWG 28 to 24 (0.08 to 0.2 mm^2)	Connecting to PLC connector models		10 N min.	

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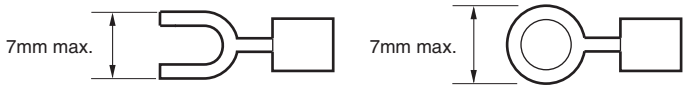
Crimp Terminals

The terminals on the Power Supply Unit are M4, self-raising terminals with screws. Use crimp terminals for wiring.

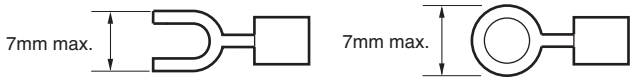
Crimp terminal for the AC power supply



Crimp terminal for the DC power supply



Crimp terminal for the grounding wire



The crimp terminal is not required for the alarm output.

Checking Current Consumption and Power Consumption

After selecting a Power Supply Unit based on considerations such as the power supply voltage, calculate the current and power requirements for each Rack.

Condition 1: Current Requirements

There are two voltage groups for internal power consumption: 5 V and 24 V.
Current consumption at 5 V (internal logic power supply)
Current consumption at 24 V (relay driving power supply)

Condition 2: Power Requirements

For each Rack, the upper limits are determined for the current and power that can be provided to the mounted Units. Design the system so that the total current consumption for all the mounted Units does not exceed the maximum total power or the maximum current supplied for the voltage groups shown in the following tables.
The maximum current and total power supplied for CPU Racks and Expansion Racks according to the Power Supply Unit model are shown below.

Note: 1. For CPU Racks, include the CPU Unit current and power consumption in the calculations. When expanding, also include the current and power consumption of the I/O Control Unit in the calculations.
2. For Expansion Racks, include the I/O Interface Unit current and power consumption in the calculations.

Power Supply Units	Max. current supplied		Max. total power supplied
	5 V	24 V (relay driving current)	
CJ1W-PA205R	5.0 A	0.8 A	25 W
CJ1W-PA205C	5.0 A	0.8 A	25 W
CJ1W-PA202	2.8 A	0.4 A	14 W
CJ1W-PD025	5.0 A	0.8 A	25 W
CJ1W-PD022	2.0 A	0.4 A	19.6 W

Conditions 1 and 2 below must be satisfied.

Condition 1: Maximum Current

(1) Total Unit current consumption at 5 V ≤ (A) value
(2) Total Unit current consumption at 24 V ≤ (B) value

Condition 2: Maximum Power

(1) × 5 V + (2) × 24 V ≤ (C) value

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Example: Calculating Total Current and Power Consumption

Example: When the Following Units are Mounted to a CJ-series CPU Rack Using a CJ1W-PA202 Power Supply Unit

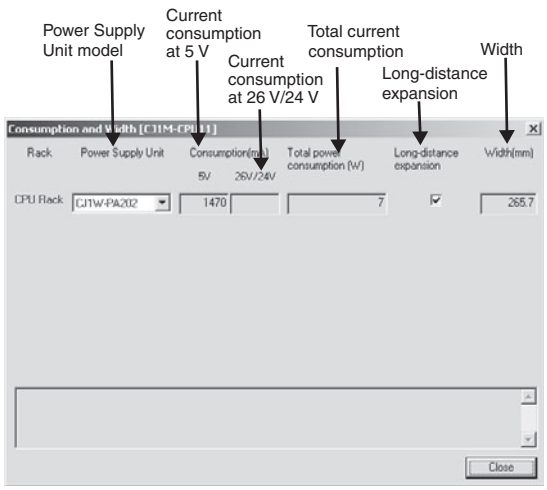
Unit type	Model	Quantity	Voltage group	
			5 V	24 V
CPU Unit	CJ1G-CPU45H	1	0.910 A	–
I/O Control Unit	CJ1W-IC101	1	0.020 A	–
Basic I/O Units (Input Units)	CJ1W-ID211	2	0.080 A	–
	CJ1W-ID231	2	0.090 A	–
Basic I/O Units (Output Units)	CJ1W-OC201	2	0.090 A	0.048 A
Special I/O Unit	CJ1W-DA041	1	0.120 A	–
CPU Bus Unit	CJ1W-CLK23	1	0.350 A	–
Current consumption	Total		0.910 + 0.020 + 0.080 × 2 + 0.090 × 2 + 0.090 × 2 + 0.120 + 0.350	0.048 A × 2
	Result		1.92 A (≤ 2.8 A)	0.096 A (≤ 0.4 A)
Power consumption	Total		1.92 × 5 V = 9.60 W	0.096 A × 24 V = 2.304 W
	Result		9.60 + 2.304 = 11.904 W (≤ 14 W)	

Note: For details on Unit current consumption, refer to Ordering Information.

Using the CX-Programer to Display Current Consumption and Width

CPU Rack and Expansion Rack current consumption and width can be displayed by selecting Current Consumption and Width from the Options Menu in the CS/CJ/CP Table Window. (The width can be displayed for the CJ/CP Series only.) If the capacity of the Power Supply Unit is exceeded, it will be displayed in red characters. For details, refer to the CX-Programmer Operation Manual (Cat. No. W446).

Example:



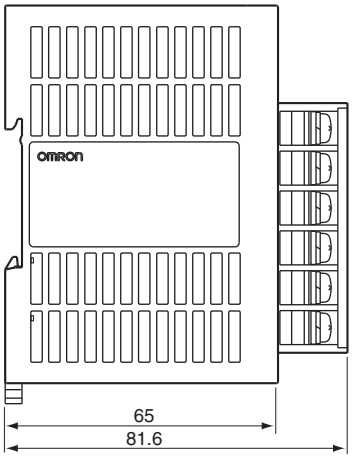
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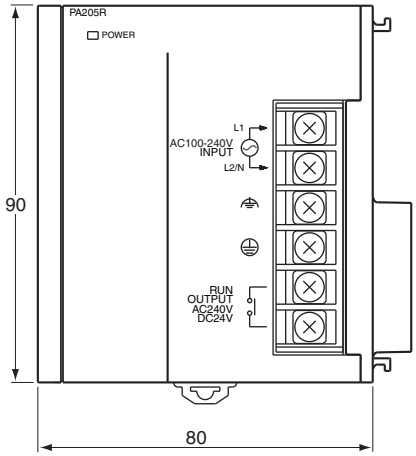
Dimension

(Unit: mm)

CJ1W-PA205R

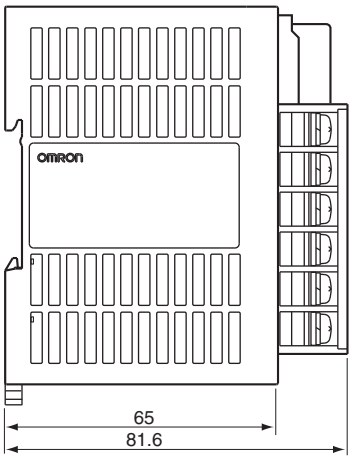


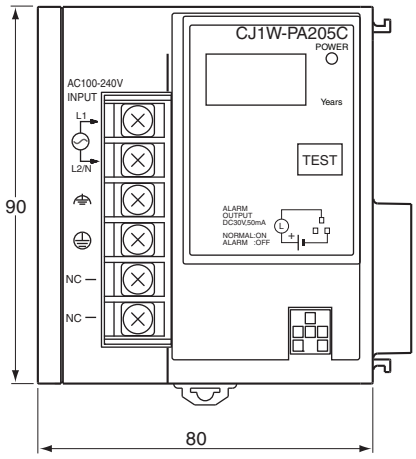




CJ1W-PA205C

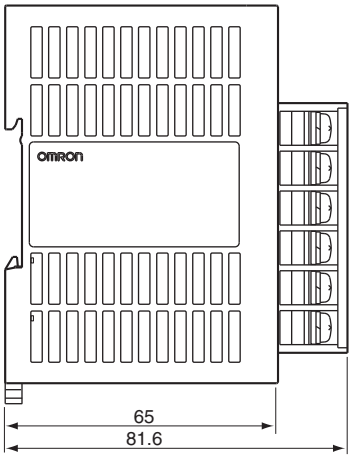


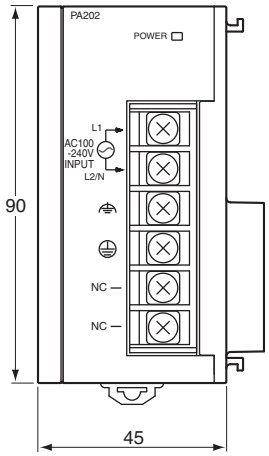




CJ1W-PA202



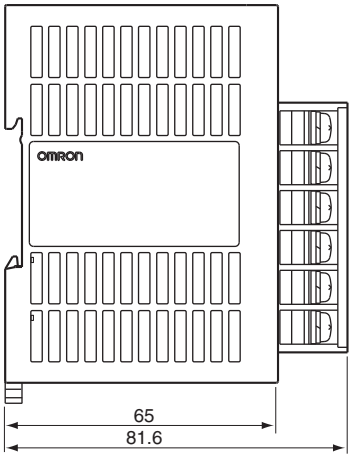


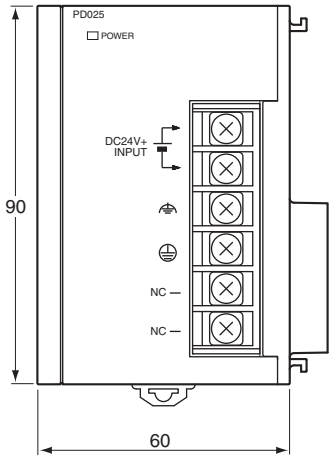


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CJ1W-PD025

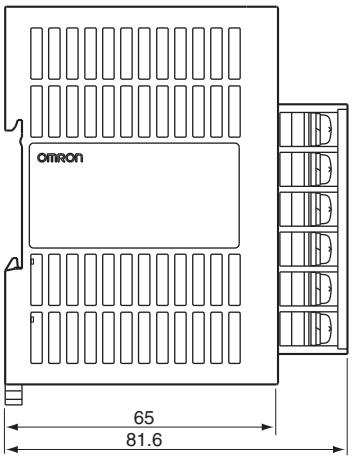


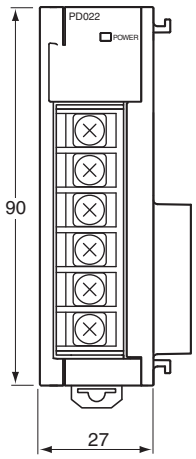




CJ1W-PD022







Related Manuals

Cat. No.	Name	Contents
W393	SYSMAC CJ Series CJ1H-CPU□□H-R, CJ1G/H-CPU□□H, CJ1G-CPU□□P, CJ1G-CPU□□, CJ1M-CPU□□ Programmable Controllers Operation Manual	Provides an outlines of and describes the design, installation, maintenance, and other basic operations for the CJ-series PLCs.

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In no event shall responsibility of OMRON for any act exceed the individual price of the product on which liability is asserted.

IN NO EVENT SHALL OMRON BE RESPONSIBLE FOR WARRANTY, REPAIR, OR OTHER CLAIMS REGARDING THE PRODUCTS UNLESS OMRON'S ANALYSIS CONFIRMS THAT THE PRODUCTS WERE PROPERLY HANDLED, STORED, INSTALLED, AND MAINTAINED AND NOT SUBJECT TO CONTAMINATION, ABUSE, MISUSE, OR INAPPROPRIATE MODIFICATION OR REPAIR.

Application Considerations

SUITABILITY FOR USE

OMRON shall not be responsible for conformity with any standards, codes, or regulations that apply to the combination of products in the customer's application or use of the product.

At the customer's request, OMRON will provide applicable third party certification documents identifying ratings and limitations of use that apply to the products. This information by itself is not sufficient for a complete determination of the suitability of the products in combination with the end product, machine, system, or other application or use.

The following are some examples of applications for which particular attention must be given. This is not intended to be an exhaustive list of all possible uses of the products, nor is it intended to imply that the uses listed may be suitable for the products:

- Outdoor use, uses involving potential chemical contamination or electrical interference, or conditions or uses not described in this catalog.
- Nuclear energy control systems, combustion systems, railroad systems, aviation systems, medical equipment, amusement machines, vehicles, safety equipment, and installations subject to separate industry or government regulations.
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