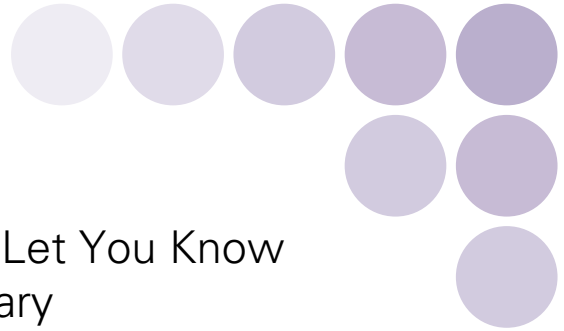


## Power Supply Units with Maintenance Forecast Monitor for SYSMAC PLCs

CJ Series: CJ1W-PA205C

CS Series or C200HX/HG/HE: C200HW-PA204C

New PLC Power Supply Units That Let You Know  
When Unit Replacement Is Necessary



CJ Series:  
CJ1W-PA205C



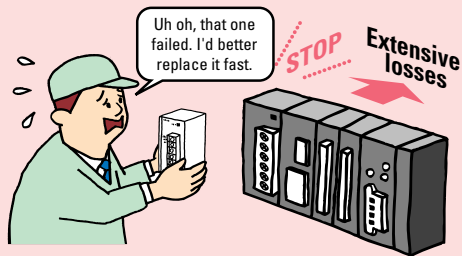
CS Series or  
C200HX/HG/HE:  
C200HW-PA204C



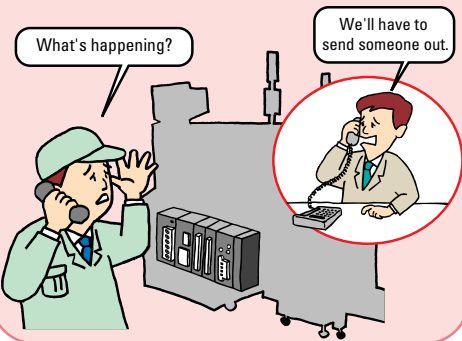
# Advance Notification of the End of the Service Life

## Before

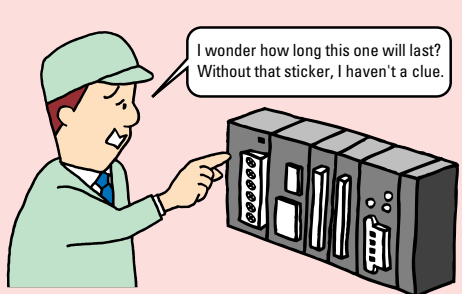
- Spare Power Supply Units were kept on hand in case one failed.



- A failed Power Supply Unit was costly in terms of getting equipment together and dispatching personnel.



- Figuring out when to replace Units took time. Here's a typical example. Stickers are supposed to be attached to the Unit to show when it was installed.



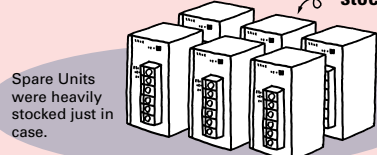
Administrative logs were kept as well, but they weren't very helpful.

Administrative Log for Power Supply Units

Rack	Model	Installation date
A1	CJ1W-PA205R	00-07-01
A2	CJ1W-PA205R	01-03-21
B1	C200HW-PA204	02-10-10

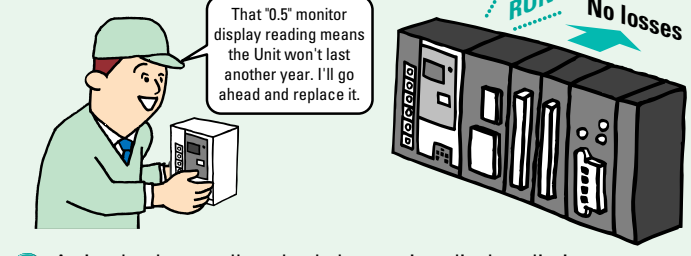
Difficult to use

- Concern about Unit failure led to unnecessary stocking.

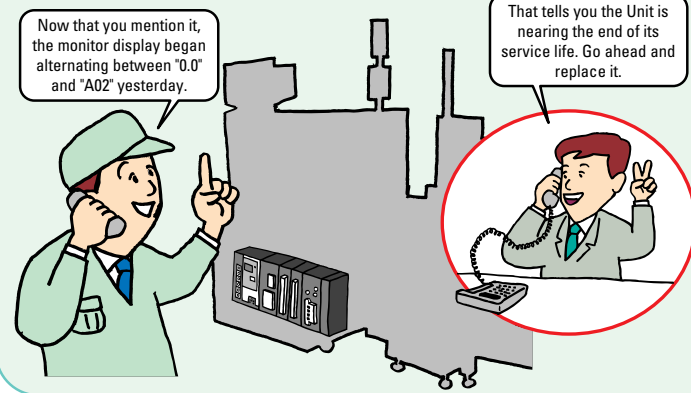


## After

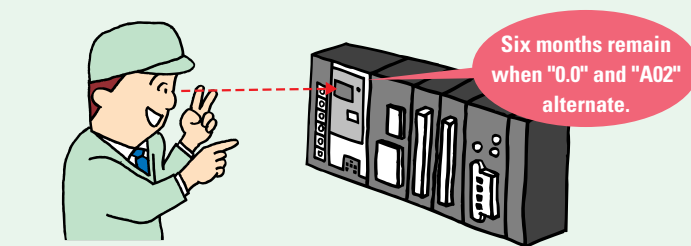
- Power Supply Units can be replaced before the end of their service life.



- A simple phone call to check the monitor display eliminates the need for confirmation and courtesy visits.



- The 7-segment display tells you when to replace the Unit even in the dark or far away. And you know only six months remain when the display alternates between "0.0" and "A02."



- A simple visit, routine or otherwise, and you'll know when Units need to be replaced. This helps you plan exactly when to replace Units, including the lines and Racks where replacement is necessary and the number of Units to replace. No more overstocked inventory of spare Units.

Rack	Model	Indication
A1	CJ1W-PA205C	FUL
A2	CJ1W-PA205C	HLF
B1	C200HW-PA204C	0.5

# Maintenance Forecast Monitor Function

## Principle of Operation

PLC Power Supply Units are equipped with electrolytic capacitors. The electrolyte inside the capacitor penetrates the rubber seal and evaporates over time starting the day the capacitor is manufactured. This causes characteristics, like the capacitance, to decline and leads to deterioration of Power Supply Unit performance over time.

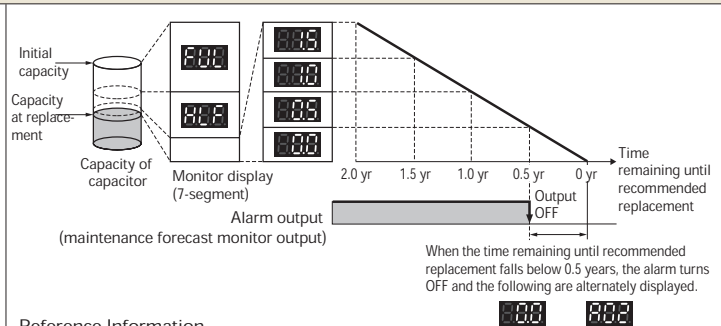
The maintenance forecast monitor function tracks the internal temperature of the PLC Power Supply Unit when power is supplied. It calculates deterioration of the electrolytic capacitor based on operating time and internal temperature. The function tells you the

approximate time left until the deterioration of electrolytic capacitor characteristics leads to a decline in Power Supply Unit performance, and it outputs an alarm when the estimated remaining service life of the Unit falls below six months. Use this function to gauge when the PLC Power Supply Unit should be replaced.

**Note:** The maintenance forecast monitor function only approximates when the Power Supply Unit should be replaced based on electrolytic capacitor deterioration. It does not predict failures due to other factors.

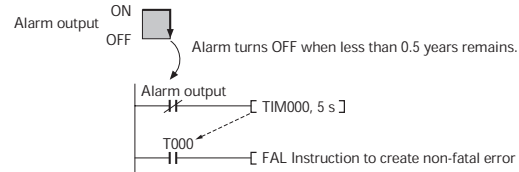
## Functions

Specifications	Description
Replacement monitor display	<p>Three 7-segment LEDs indicate the time remaining until recommended replacement of the Power Supply Unit.</p> <ul style="list-style-type: none"> <li>When the product is purchased, FUL will be displayed. As the electrolytic capacitor deteriorates, the display changes to HLF.</li> <li>If the time remaining until recommended replacement is less than two years, the monitor display shows decreasing values over time of "1.5," "1.0," "0.5," and finally "0.0" alternating with "A02," as shown on the right. The monitor display alternately displays "0.0" and "A02" at 2-s intervals when the time remaining until replacement falls below 0.5 years (6 months).</li> </ul>
Alarm output (maintenance forecast monitor output)	<p>The alarm stays ON until the time remaining until recommended replacement reaches 0.5 years. It turns OFF when the time remaining falls below 0.5 years.</p> <p><b>Note:</b> Other conditions that turn OFF the alarm output are as follows:</p> <ul style="list-style-type: none"> <li>The AC input to the Power Supply Unit is turned OFF.</li> <li>The self-diagnosis function detects an error.</li> <li>The TEST Key is pressed and held for at least 3 s.</li> <li>TEST Key maintenance function</li> </ul>
Test Key maintenance function	<ul style="list-style-type: none"> <li>Press and hold the TEST Key for 3 seconds or longer to display "A02" and turn OFF the alarm. Release the key to return to normal status. The TEST Key is used to initially and periodically check the status of the alarm output as well as external connections.</li> <li>Press the TEST Key for up to 3 seconds to display the version number of the Power Supply Unit.</li> </ul>



### Reference Information

Alarm output example: Creating a Non-fatal Error when a Unit Needs to be Replace



A timer is used to delay execution of the FAL instruction to allow for the delay in the alarm output turning ON at startup. The FAL instruction does not create an error while the alarm output is ON (i.e., during normal operation), but creates a non-fatal error in the CPU Unit when the alarm output turns OFF (i.e., when Unit replacement is required).

**Note:** The Power Supply Unit must be stored at an ambient temperature of -25 to 30°C and a humidity of 25% to 70% to maintain the maintenance forecast monitor function when the Unit is stored without power supplied for more than three months.

## Maintenance Forecast Monitor Function Module

C200HW-PA204C	CJ1W-PA205C
<p>Monitor display (7-segment, red)</p> <p>POWER indicator (green)</p> <p>Alarm output (maintenance forecast monitor output) TEST Key</p>	<p>Monitor display (7-segment, red)</p> <p>POWER indicator (green)</p> <p>Alarm output (maintenance forecast monitor output) TEST Key</p> <p>Alarm output (maintenance forecast monitor output) (wiring diagram)</p>

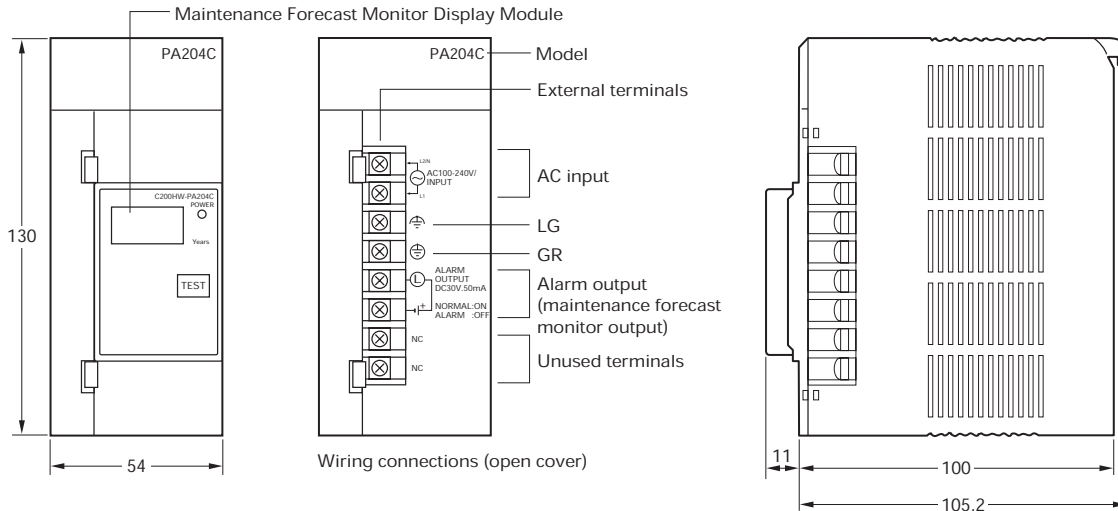
## Ordering Information

Model	Specifications		International standards
CJ1W-PA205C	100 to 240 V DC, output capacity: 5 V DC, 5 A	Maintenance forecast monitor	UC1, CE N, L (approval pending)
C200HW-PA204C	100 to 240 V DC, output capacity: 5 V DC, 4.6 A		

## Part Names and Dimensions

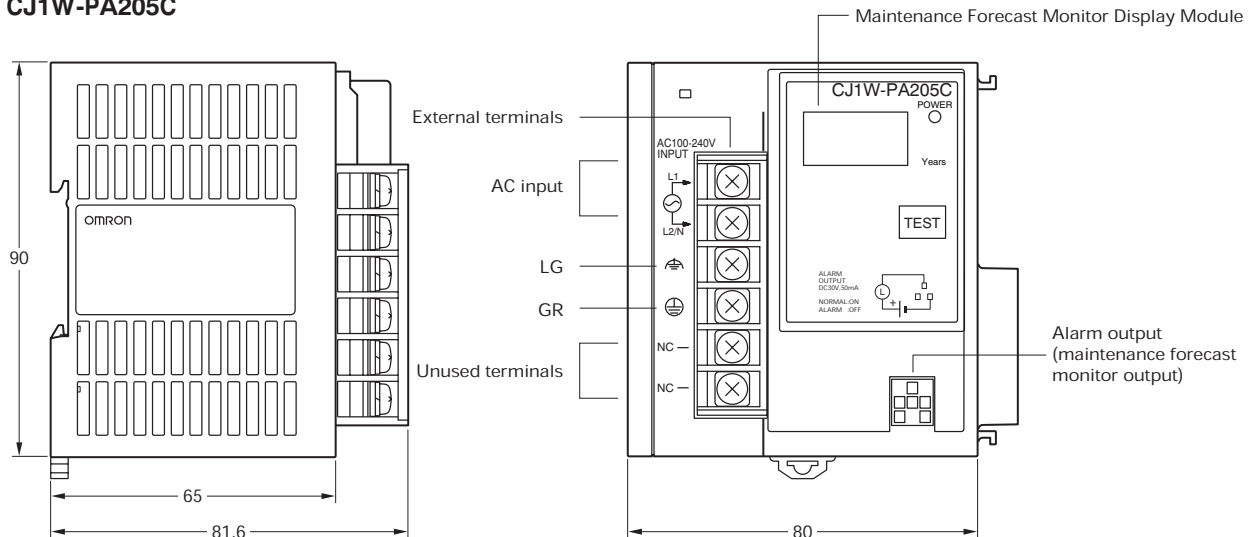
Unit: mm

### C200HW-PA204C



- AC inputs: 100 to 240 V AC (50/60 Hz) power supply
- LG: Use a separate ground to 100  $\Omega$  or less to improve resistance to electric shock and noise.
- GR: Use a separate ground to 100  $\Omega$  or less to prevent electric shock.
- Alarm output (maintenance forecast monitor output): Turns ON when the remaining service life is 0.5 years or longer and turns OFF when the remaining service life is 0.5 years or shorter.
- Maintenance forecast monitor display module: Indicates when to replace the Power Supply Unit. It has a power indicator that is lit when 5 V is supplied from the Power Supply Unit.

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- Maintenance forecast monitor display module: Indicates when to replace the Power Supply Unit. It has a power indicator that is lit when 5 V is supplied from the Power Supply Unit.





# Comparison with Previous Models

## C200HW-PA204C

Item	C200HW-PA204C	C200HW-PA204 (previous model)
Input specifications	100 to 240 V AC (wide range)	100 to 120 V AC/200 to 240 V AC (switchable)
Power interruption detection voltage	85 V max.	100 to 120 V AC: 85 V max. 200 to 240 V AC: 170 V max.
Service power supply	None	None (except for the PA204S)
RUN output	None	None (except for the PA204R)
Terminal block arrangement	<p><b>C200HW-PA204C</b></p>	<p><b>C200HW-PA204</b></p>
Power indicator	On the maintenance forecast monitor display module	On the Power Supply Unit
Maintenance forecast monitor function	Yes (7-segment display and transistor output)	None

**Note:** The time from external AC power supply input to 5 V or 26 V output.

## CJ1W-PA205C

Item	CJ1W-PA205C	CJ1W-PA205R (previous model)
RUN output	None	Yes
Terminal block arrangement	<p><b>CJ1W-PA205C</b></p>	<p><b>CJ1W-PA205R</b></p>
Terminal block location		
Power indicator	On the maintenance forecast monitor display module	On the Power Supply Unit
Maintenance forecast monitor function	Yes (7-segment display and transistor output)	None

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