

# RPS Series Power Supply

**N+1 Redundant Power Supply ▶  
Ensures Stable Operation of Critical Equipment**



**RPS-8M**








**RPS-4M**

**RPS-100**

**AFAN-02/04**

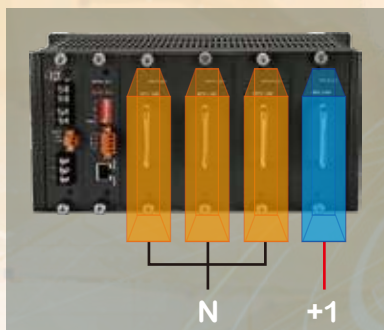


-  Redundant and modular design.
-  Support hot-swapping for maintenance without power interruption.
-  Support load balancing for extended lifespan.
-  Modbus protocol provides preventive maintenance and diagnostic information.
-  Multiple RPS connections for greater power expansion solutions.



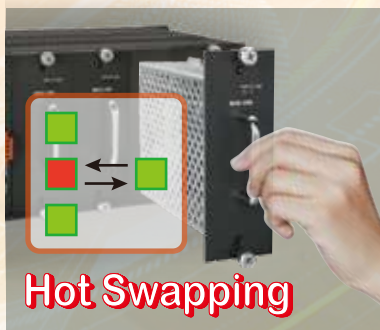
# Simple & Stable Redundancy Mechanism

The RPS series redundant power supply adopts a stable N+1 parallel current sharing redundancy backup method and supports various communication protocols, power diagnostics, and alarm functions. It provides real-time power monitoring information to the control center and notifies the system and relevant personnel when an abnormality occurs, replacing the traditional manual inspection process. The module ensures effective management and stable operation of critical production equipment.



## N+1 Power Redundancy

"N" is the total number of power supplies, and "+1" is a redundant backup that takes over the failed power module at any time.



## Hot Swapping

### Modular & Hot-swappable

With independent circuits and I/O, it allows users to replace the power supply without any downtime.



### Power Module Diagnostics

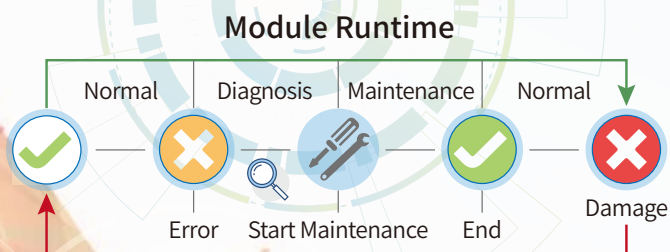
Built-in module diagnostics: Output current, operating temperature, cumulative usage time, health status.

## Features

The RPS series redundant power supply not only ensures uninterrupted power supply but records power usage and consumption. Besides, it provides real-time alerts for abnormalities, offering users preventive maintenance and fault alarm functions.

### ◆ Power Module Usage Time Records

The electrical data (power consumption & current) and usage time recorded by the RPS module are analyzed to serve as a basis for maintenance planning.

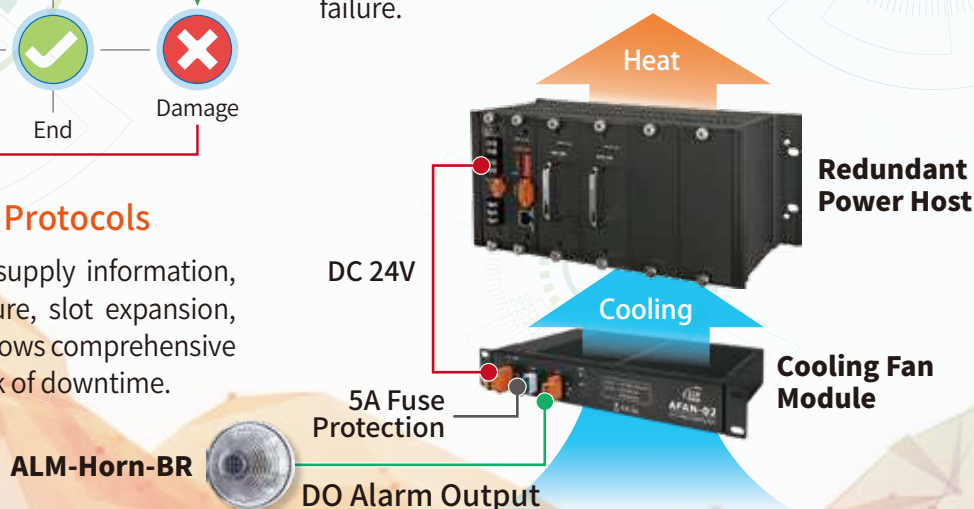


### ◆ Supports Modbus TCP/RTU Protocols

Real-time transmission of power supply information, including load current, temperature, slot expansion, power module operation status, allows comprehensive system control and reduces the risk of downtime.

### ◆ Stable Power Supply with Cooling Fan

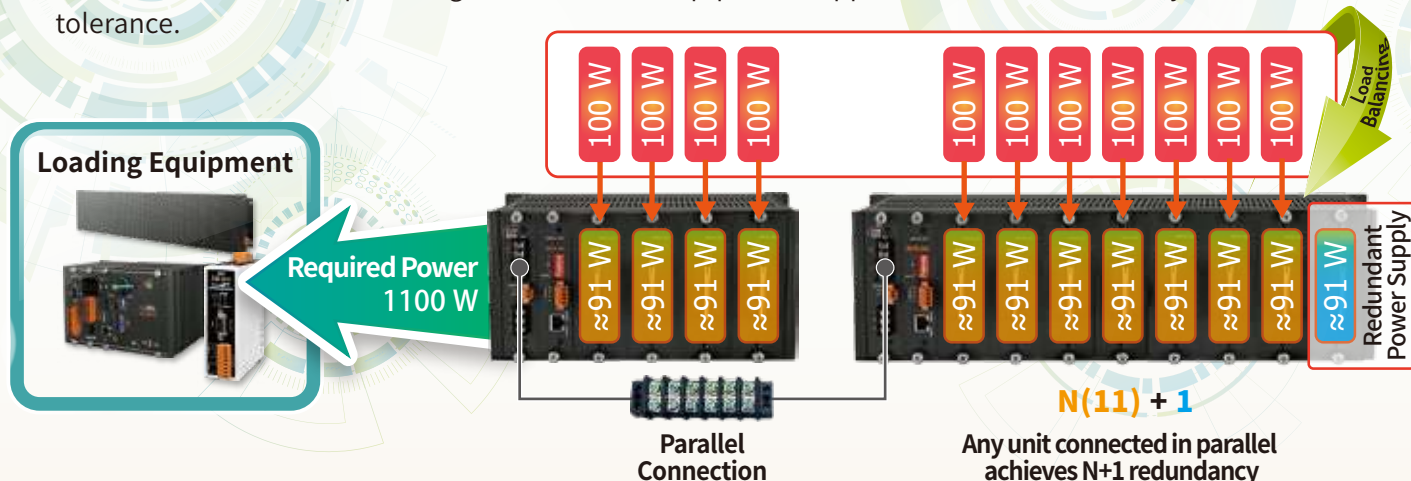
It cools the operating power module to prevent damage from prolonged high temperatures. Its built-in diagnostic function and LED indicators provide precise control of the fan status, and the fan module provides DO to alert other devices. The fan module slot supports hot-swappable function for replacement in case of failure.





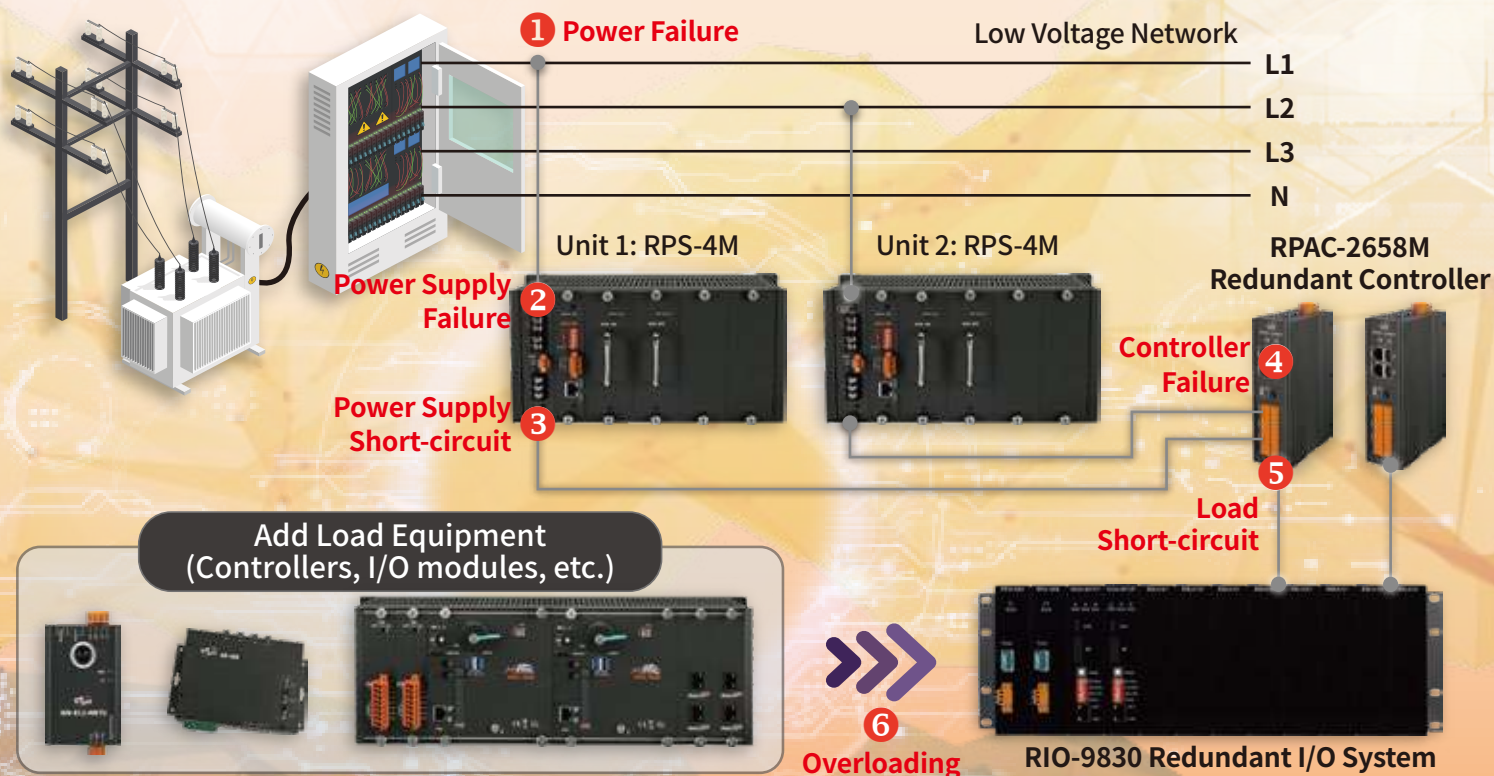
## ◆ Power Parallel Expansion for New Equipment

RPS series power supplies can be connected in parallel to increase output power, making system expansion more convenient, and providing redundant backup power supplies to ensure that the system maintains fault tolerance.



## Avoid All Possible Power Failures

Reducing downtime in the production process can lead to higher profits for manufacturers, so a constant and stable power supply is the key to efficient production. The power system equipped with RPS series redundant power supply can meet long-term operational needs and it's easy to install in the power cabinet. When a power supply fails, the redundant unit immediately takes over. Management personnel can directly replace the faulty power module through hot-swapping, ensuring uninterrupted production.



No.	Failure Type	Solution
1	Main power single-phase failure	Operate parallel power supply units on different phases.
2	Power supply failure	Create power supply redundancy for the system.
3	Short-circuit between power & controller	Decouple two power supplies from each other with a redundant controller.
4	Redundant controller failure	Monitor the controller status, replace the abnormal module, and resume the redundant operation.
5	Short circuit of loaded cable	Decouple two power supplies from each other with a redundant controller.
6	Excessive equipment load	Add a power supply in parallel connection.

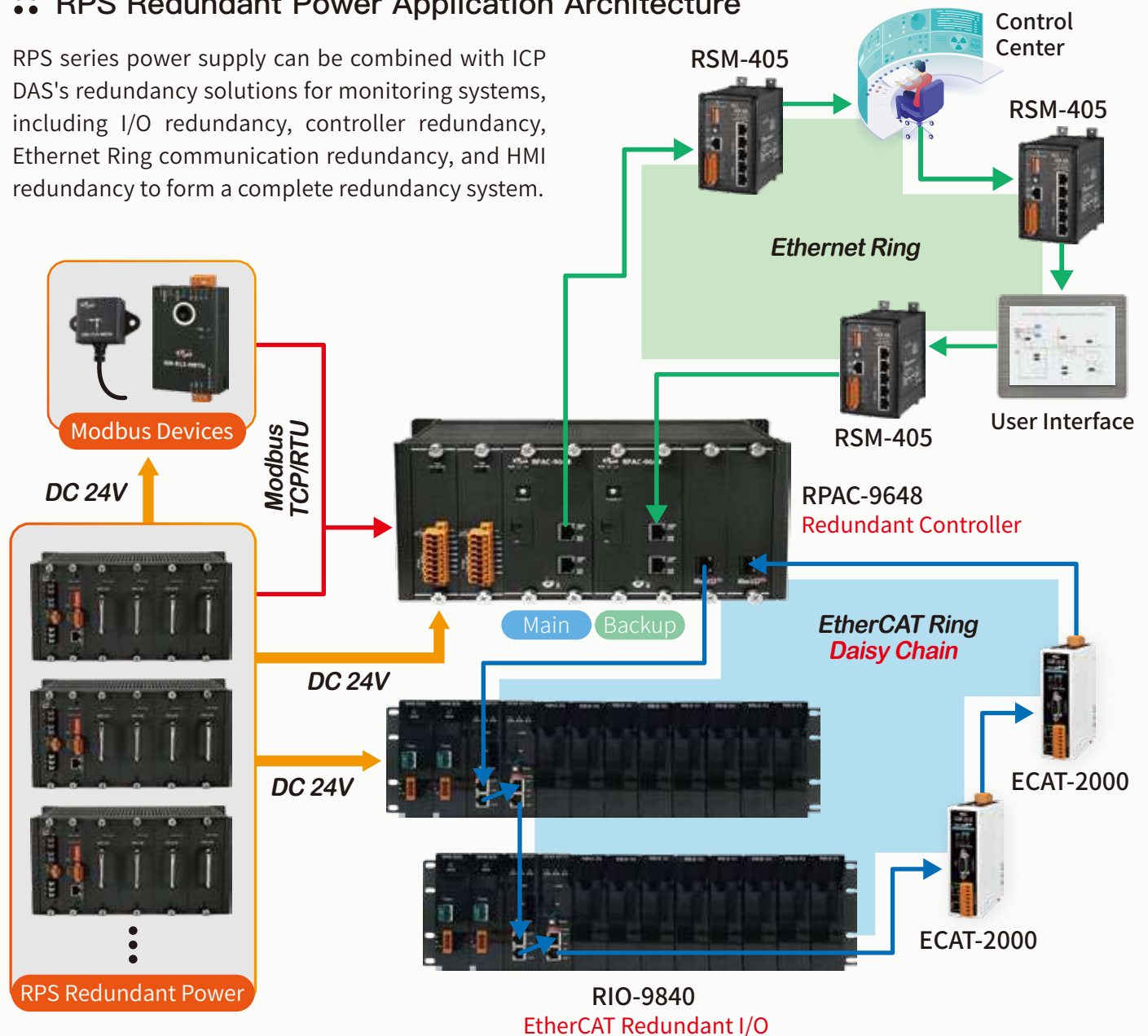
## Application Areas

Highly complex process system engineering requires high functionality to ensure the safety of personnel and the production environment. It is important to prevent costs and losses due to unplanned shutdowns, while continuously optimizing productivity. Redundant power solutions can be widely applied across various industries. For example, they provide stable power to equipment in food, chemical, and pharmaceutical plants to maintain production capacity, or enhance process and transportation safety in energy industries such as oil, gas, and Power-to-X."



### :: RPS Redundant Power Application Architecture

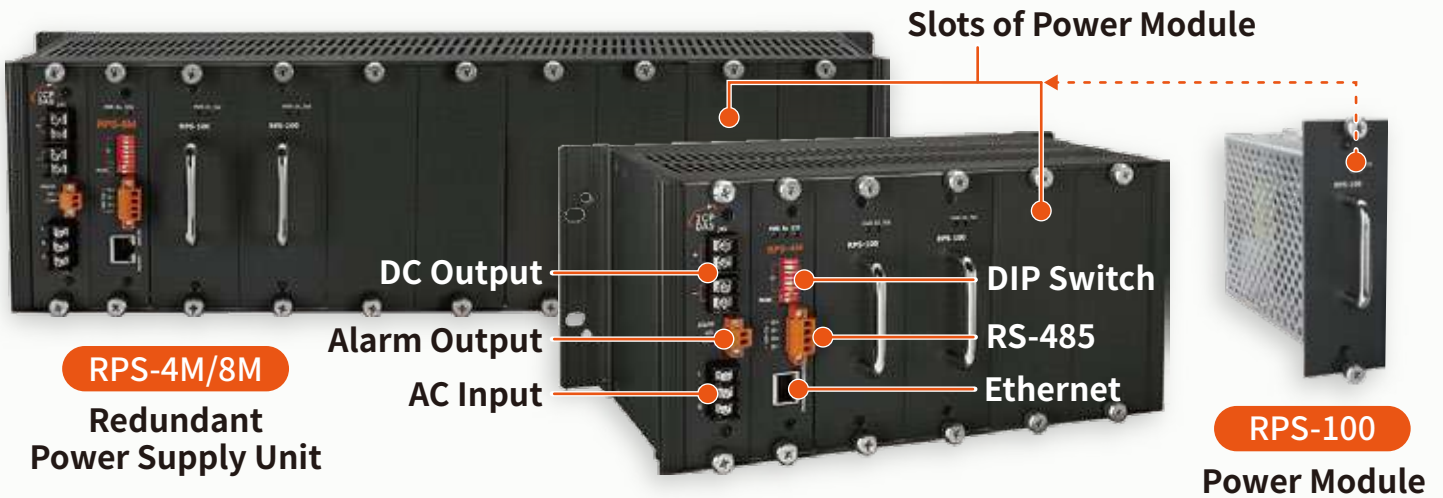
RPS series power supply can be combined with ICP DAS's redundancy solutions for monitoring systems, including I/O redundancy, controller redundancy, Ethernet Ring communication redundancy, and HMI redundancy to form a complete redundancy system.







# Selection Guide



Redundant Power Supply Unit	RPS-4M	RPS-8M
Slots	4	8
Communication		
Interface	1 x RS-485 1 x RJ-45, 10/100 Base-TX	
Protocol	Modbus RTU/ TCP, Web Server	
Diagnostic Parameter		
Current	Range / Error: 0 ~ 5 A / $\pm 0.25$ A	
Temperature	Range / Error: 0 ~ 100 °C / $\pm 5$ °C	
Usage Time	Unit: Hour	
Equipment Health	0 / 1 ( Abnormal / Normal )	
LED Indicator		
PWR / Rx / STA	Power / Modbus Comm. / Status	
EMS Protection		
ESD (IEC61000-4-2)	$\pm 4$ kV ( Contact / Air )	
EFT (IEC61000-4-4)	$\pm 2$ kV for Power Line	
Surge (IEC61000-4-5)	$\pm 2$ kV for Power Line	
Power		
Input Voltage	90 ~ 264 VAC, 47 ~ 63 Hz	

Power Module	RPS-100		
Output			
DC Voltage	24 V	Load Regulation	±5.0 %
Rated Current	4.16 A	Rated Power	100 W
Input			
Voltage	90 ~ 264 VAC		
Frequency	47 ~ 63 Hz		
Efficiency	86 %		
AC Current	1.01A/115VAC, 0.51A/230VAC		
Protection			
Overloading	110 % ~ 200 % of output power (Automatic recovery)		
Over Voltage	26.4 ~ 31.2 (Automatic recovery)		
Safety Regulations & EMC			
Safety Standards	Design to meet 62368		
EMC Emission	EN 55032 CISPR 32 & FCC Part 15 B CLASSB: System with 4 module in parallel		
EMC Immunity	EN 55022, CISPR 22 & FCC Part 15, EN 61000-3-2, EN 61000-3-3, EN 61204-3 IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-8, IEC 61000-4-11		



**AFAN-02/AFAN-04**

Cooling Fan Module	AFAN-02	AFAN-04
No. of fans	2 (Hot-swappable)	4 (Hot-swappable)
LED Indicator	1 x PWR 、 2 x Status of fans	1 x PWR 、 4 x Status of fans
Alarm	Relay ( 6 A @ 30 VDC ) for fan failure alarms	
Fuse	5A ( 6.3 A <sup>2</sup> ·s )	
Input Voltage	24 VDC	

