

Technical Information

Experion Series-C Platform Specification



EP03-520-515

Release 515

Aug 2020, Version 1.8

4. Series-C Power Systems

The Series C Power System provides 24 Vdc power to compatible Series-C components.

Series-C power is provided by a purposed built Series-C power system, two Commercial Off the Shelf (COTS) power systems as well as direct 24V feed (optional). Each power system provides unique capabilities that are tailored for the particular Series-C need.

4.1. Series-C Purpose Built Power System

The Series C purpose built power system provides optionally redundant 24VDC primary power at 20 and 40 amps for Series C devices. The power system allows for reserve (battery) power when disconnected from the power mains.

The power system also provides capabilities to support integral field power. This eliminates the need for additional power sources as well as the additional wiring, fusing, marshalling and documentation costs.

4.1.1. Notable Features

- Modular – “Blade” design allows for easy maintenance in the field.
- Space efficient design
- Designed specifically for Series C
- 20A and 40A Capacities Available
- Power supply is removable and insert-able under power
- Redundant power supply
- Optional battery backup for a minimum of 30 minutes at 20A (Note: Battery Backup available on 20A power system only)
- Seamless switch operation between power supplies or battery backup system
- Visual and point contact alarms on all power system components
- Full Series-C HAZLOC Approvals



4.1.2. Model Numbers

Description	Model or Part Number
Power System (20A), redundant (2 power supplies), 120/240 VAC, with 24V Backup Battery Assembly	CC-PWRB01
Power System (20A), redundant (2 power supplies), 120/240 VAC	CC-PWRR01
Power Subsystem (20A), non-redundant (one power supply), 120/240 VAC	CC-PWRN01
Power Subsystem (40A), redundant (one power supply), 120/240 VAC	CC-PWR401
Power Subsystem (40A), non-redundant (one power supply), 120/240 VAC	CC-PWN401
<i>Spare/Loose Items</i>	
24V Backup Battery Kit (3 batteries and interconnecting cables)	51199946-100
20A Power Supply	51198685-100

4.1.3. Detailed Specifications

Detailed Specifications – Power System PARAMETER	OPERATING BAND ⁽¹⁾	OPERATING LIMITS ^(1a)
AC Input (VAC, rms)	100-230	85-264
Frequency (Hz)	47-63	47-63
Holdup	20ms	20ms
Output Voltage (VDC)	24-26VDC	24-26VDC
Battery Backup (UPS) ⁽²⁾	30min @ 20A max	30min @ 20A max
Output Current DC Output		
20A Power System	0-20 amps	0-20 amps
40A Power System ⁽³⁾	0-40 amps	0-40 amps
Load Change (%)	30 to 100	0 to 100
Efficiency	65% (min)	65% (min)
Input Current @ 120/240 VAC line Inrush/ Rerush	35A peak max	35A peak max
Running (max)	5.5 Amps rms @120V 2.7Amps rms @240V	9 amps rms
Crest Factor (max)	1.55	1.55
Power Factor (min) with a 25VDC 10A to 20A load	0.95 (min)	0.95 (min)
Ambient Temperature (a) Range (deg. C)	0 to 60	0 to 60
Max Rate of Change (deg/min)	0.25	1

Notes:

- 1) Operating Band defines the range of operating conditions within which the system is designed to operate and for which operating influences are stated. Performance characteristics shown here are maintained when operating in this state. Please see ANSA/ISA D 51.1 for more information.
- 1a) Operating Limits define the range of conditions to which the system may be subjected without permanent damage to the equipment. In general, performance characteristics are not guaranteed in this state. Stated Operating Band characteristics are restored when returning to the Operating Band specifications without damage to the equipment. Please see ANSA/ISA D 51.1 for more information.
- 2) Battery Backup available only with the 20A Power System
- 3) Three AC Mains Power feeds are required to power the 40A power system. Care should be taken to understand the power distribution requirements to meet this need.



SYSTEM HINTS NEWSLETTER

JANUARY 2025

Service Note – Series C Power Systems

Maintaining power is critical to all systems. Failure to proactively maintain power supplies, batteries, and related equipment, or ignoring power system alarms, could lead to electrical failures. Depending on your configuration and process, power failures could potentially shut down a process or trigger loss of view, loss of control, or loss of process incidents.

As power supplies age, electrical components undergo normal lifecycle deterioration. Failure potential increases significantly after a power supply passes its 10-year service life. After 10 years of service in normal operating conditions, power supplies have a higher probability of failure and should be inspected annually. You should replace all power supplies that are nearing or have exceeded the 10-year service life at the earliest opportunity. Honeywell recommends scheduling replacements during planned down time when possible.

Power System part numbers

Model	Part #	Description
CC-PWRN01	51199937-100	Power Subsystem (20A), non-redundant (one power supply), 120/240 VAC
CC-PWRR01	51199939-100	Power System (20A), redundant (2 power supplies), 120/240 VAC
CC-PWRB01	51199940-100	Power System (20A), redundant (2 power supplies), 120/240 VAC, with 24V Backup Battery Assembly
CC-PWN401	51198661-100	Power System (40A), non-redundant (2 power supplies), 120/240 VAC
CC-PWR401	51198662-100	Power System (40A), redundant (3 power supplies), 120/240 VAC
CU-PWMR20	51154856-100	Approved COTS Power (20A), redundant (2 power supplies & 1 Redundancy module), 120/240 VAC – Meanwell
CU-PWMN20	51154856-200	Approved COTS Power (20A), non-redundant (one power supply), 120/240 VAC – Meanwell
CU-PWPR20	51154864-100	Approved COTS Power (20A), redundant (2 power supplies & 1 Redundancy module), 120/240 VAC – Phoenix Contact
CU-PWPN20	51154864-200	Approved COTS Power (20A), non-redundant (one power

		supply), 120/240 VAC – Phoenix Contact
--	--	--

Power System Maintenance Increases Reliability

Equipment life

Proper maintenance of the power system includes addressing power supplies, battery backup and memory backup batteries. The expected lifespan of each of these components is different and the lifespan of each is affected by local environmental conditions.

Description	Life Expectancy
Power Supply	~10 years
24V Battery Backup	~3 to 5 years
Ni-MH Battery pack	~2 years

Have a maintenance plan

A proactive power system maintenance program provides:

- Reassurance that power systems and batteries are running properly
- Lower risk of downtime due to power system issues
- Component replacement coordinated with planned process outages
- Low replacement costs compared to unplanned system downtime
- Improved power system reliability.

Servicing the Power System

The power system is critical to your process. Loss of the power system may lead to loss of control, loss of view, or loss of process. Honeywell strongly recommends regular power system maintenance and service checks with regular component replacements performed by Honeywell trained service technicians.

Preventing foreign particle contamination is a key to achieving the planned 10-year lifecycle. Even clean environments are susceptible to whiskers which have the potential to short out active circuits.

Doing regular corrosion tests on the cabinets is recommended

Planning Power System Upgrade / Maintenance:

- Order the power system upgrade kit
- Order replacement parts for immediate installation.
- Order spares to have in stock for emergencies.
- Add power system components to a parts contract.

Note that there is always risk involved when powering down equipment and issues when the equipment is powered back up. Honeywell recommends changing power supplies off-process when possible. Replacements on-process should be done only when a power supply fails only for redundant power system. Immediate replacement required to restore power supply redundancy.

Replacing Series C Power Supply Module

You can replace one power supply of the Series C power supply module while the other is operating (redundant).

This procedure is applicable to all redundant power systems - CC-PWRR01, CC-PWRB01, and CC-PWR401.

Before replacing the series C power supply module, ensure the following:

- You have the proper personal protection equipment (PPE) required by your site.
- You have the necessary work permits.
- Appropriate operators are aware of your work to the cabinet.

The environment has been tested to confirm the absence of a flammable atmosphere and continuously monitored during the work process. NOTE: Depending on your site-specific practices or local codes and regulations, it may be necessary to de-energize the AC mains to the defective power unit. In this case, make sure you are de-energizing the correct AC mains. De-energizing the AC mains to the operating power module will turn off the entire cabinet.

Maintaining Batteries

24 Volt Battery Backup

Main Backup Battery - this subsystem backs up the main DC 20A output for 30 minutes when the primary AC power is lost.

Rechargeable batteries lose their full charging capabilities over time and need to be tested and replaced when they fall below 60 percent of original capacity.

The battery backup is designed to operate in standby (float) service for approximately five years based on:

- Battery temperature maintained at 20C (68F)
- Float charge voltage maintained between 2.25 and 2.30 volts per cell.
- Output voltage variation shall be measured yearly at the output terminals and shall be no more than +/- 0.1% when operated at full load under reference conditions for the 0.5 hour battery discharge.

No battery should remain in service longer than five years. If no maintenance is conducted, it should be replaced every three years.

Battery service life is directly affected by the number of discharges, the depth of discharge, ambient temperature, and the charging voltage. The expected service life is reduced by 20% for each 10C that the ambient temperature is above 20C.

Memory Battery Backup

The RAM Battery Backup subsystem provides unregulated 3.6 volts to the Series-C system from three nickel metal hydride cells. The minimum battery capacity must be 1100 ma hours (which can easily be supplied by three "C" cells). The main function of the power system, as related to RAM Battery backup, is to charge the cells as needed and monitor their health. If the batteries do not have sufficient charge to provide the specified output current, or there is a failure of the monitoring circuit, or the charger has failed, an alarm is to be generated. The alarm output is via a normally closed relay contact. The contact opens on alarm. The trial run RAM battery charger will include a low voltage cutoff for the battery pack set at 3.4 volt.