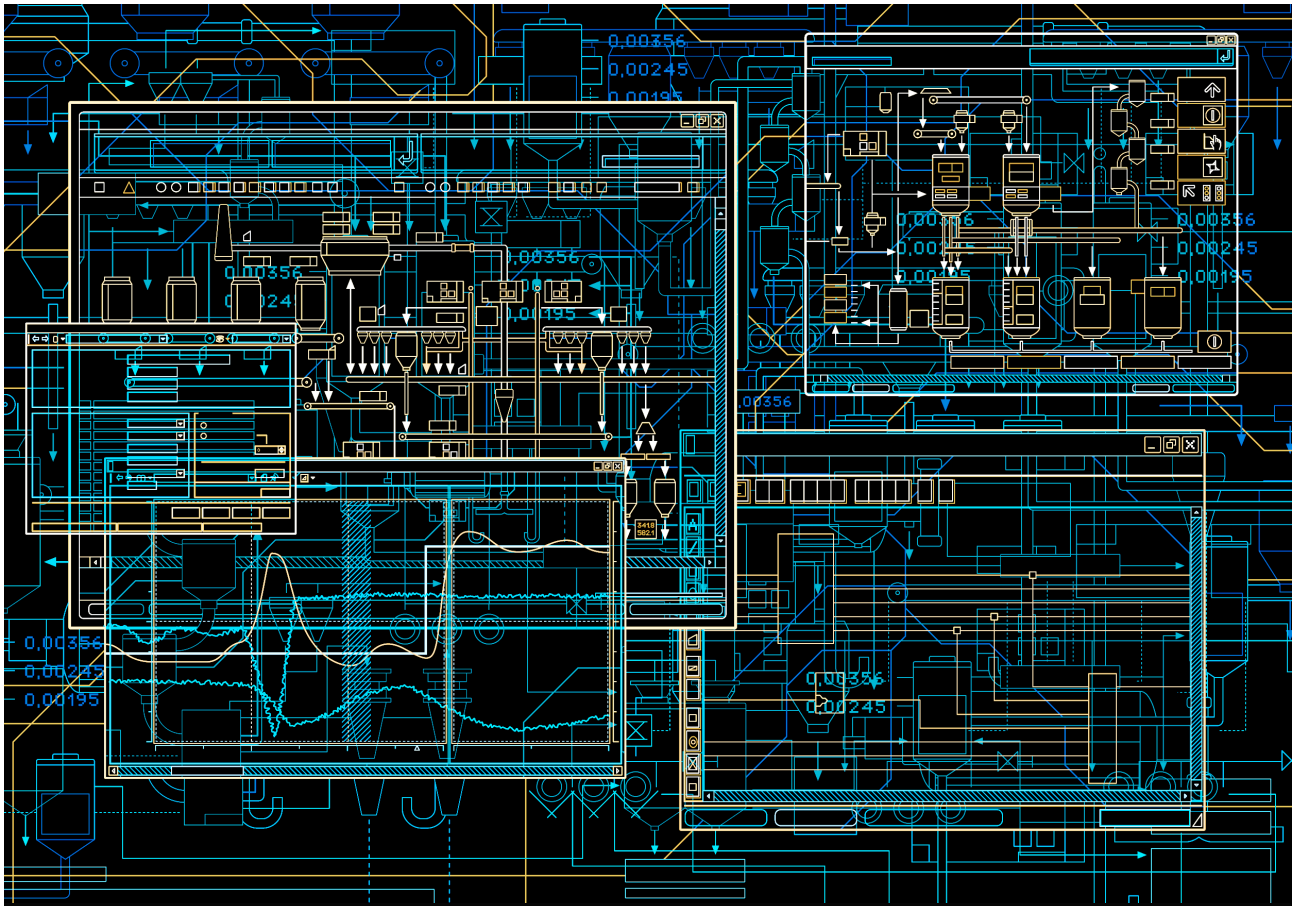


# AC 800M

## Controller Hardware
## Product Guide

**System Version 5.1**

Power and productivity
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Satt I/O Interface CI865 ..... 143
Modbus TCP Interface CI867 ..... 144
IEC 61850 Interface CI868 ..... 145
External Battery Back-up Unit - SB821 ..... 146
External Rechargeable Battery Back-up Unit - SB822 ..... 147
Power Supply Components ..... 148
SD821, SD822, SD823 ..... 148
SD831, SD832, SD833, SD834 ..... 149
SS822, SS823 ..... 151
SS832 ..... 152
DIN Rail and Al-profile ..... 154

## Section 7 - Ordering

Ordering Procedure ..... 155
Price List Structure ..... 155

## Appendix A - Power Consumption

General ..... 157
Current Consumption and Power Dissipation ..... 158
Calculations ..... 160

## Appendix B - Recommended Components

Recommended Components ..... 161

## Appendix C - Directive Considerations

Electro-Magnetic Compatibility (EMC) ..... 175
Low-Voltage Directive (LVD) ..... 175

## Appendix D - Standards

Hazardous Location Approval ..... 177

## Appendix E - Environmental Data

Environmental Data for AC 800M Products ..... 179
Climatic and Mechanical Environmental Conditions ..... 180

# Power Supply

The power supply units (SD82x and SD83x) are switch-mode power converters that convert a.c. mains supply voltage to a regulated 24 V d.c. The mains input supply voltage can either be 115 V a.c. or 230 V a.c. and is selected using a switch, mounted on the front panel of the unit. The three SD82x power supply units have rated output capacities as follows:

- SD823 = 24 Volts d.c. regulated @ 10 A
- SD822 = 24 Volts d.c. regulated @ 5 A
- SD821 = 24 Volts d.c. regulated @ 2.5 A

The power supply units can be used in both redundant and non-redundant applications. When redundant power supply units are connected to a common load, a voting device, (SS822 or SS823), must be used to combine the two outputs to a single output, via diodes. The redundant power supply units may be connected to completely separate mains supplies or to the same mains supply, depending on the configuration selected.

The L- output (0 V) of the power supply units can be used without being grounded. If grounding is required, the power supply unit L- output (0 V) can be grounded directly or via a suitable resistor.

The processor unit has no requirement for an uninterruptible power supply in order to shut down safely. The processor unit has an internal power reservoir that lasts for 5 ms, which is sufficient for it to make a controlled power down. The power supply units easily handle short power interruptions (<20 ms) that can normally occur within any industrial environment. Despite this, it is sometimes necessary to protect certain applications, from brief voltage failures, by installing Uninterruptible Power Supply (UPS) devices.



For information on SD83x, refer to Power Supply Units - SD831, SD832, SD833, and SD834 on page 104.

## Powering from an External Source

The AC 800M Controller can be powered from an external +24 V DC source. This source is often common for many different types of plant equipment, resulting in long power cables to the AC 800M Controller. Furthermore, heavy load changes can cause variations in controller supply voltage making it necessary to take precautions against low voltage in order to prevent controller malfunction.

Should there be a risk that the +24 V at the PM8xx power terminals could drop below 19.2 V for more than 1 ms, then an energy reservoir must be used for Powering Units.

ABB strongly recommends using a DC/DC converter and extra energy reservoir in case external DC-supply with longer cables than 10 m is used.

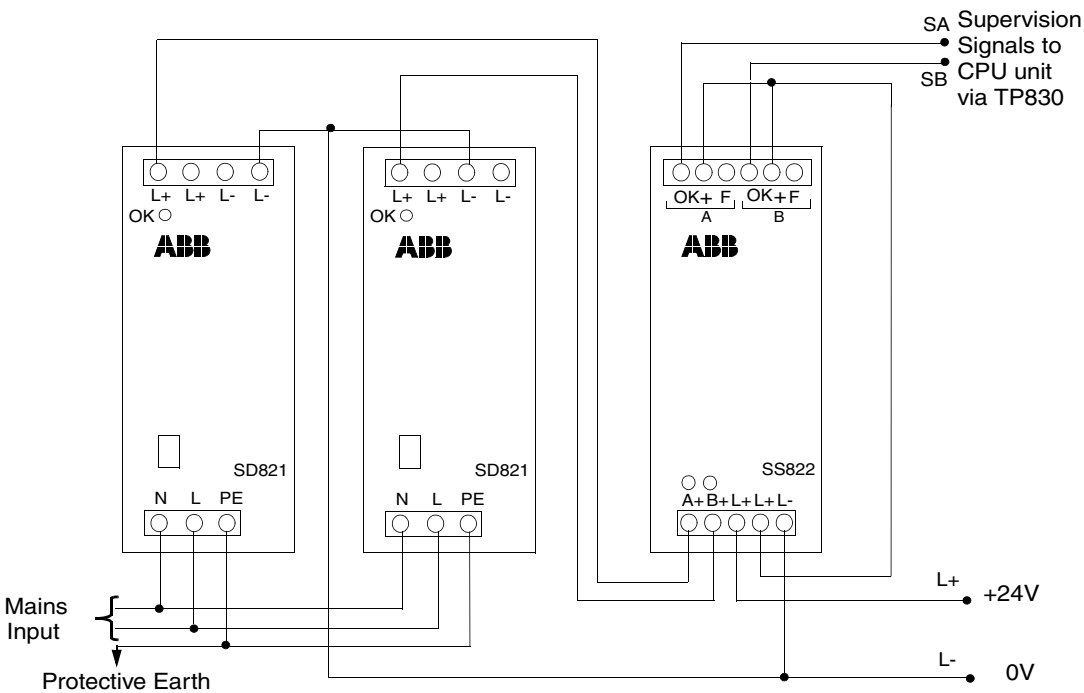



*Figure 7. Example of a Redundant Power Supply Configuration*

# Power Supply Components - SD82x, SD83x, SS82x, SS832

### Power Supply Units - SD821 / SD822 / SD823

The SD82x series Power Supply Units (PSU's) are used to provide power to the AC 800M Controller, when connected to an industrial mains network of installation category III. All three PSUs can be used for both redundant and non-redundant applications.

The three PSUs are designed as switch mode power converters, that is, converting a.c. mains supply voltage to a regulated 24 V d.c. output. The three converters have rated output capacities as follows:

SD823 = 24 Volts d.c. regulated @ 10 A

SD822 = 24 Volts d.c. regulated @ 5 A

SD821 = 24 Volts d.c. regulated @ 2.5 A

The mains input voltage is set to either 115 V or 230 V by means of a switch mounted on the front face of the unit. The factory default for this switch is in the 230 V position.

The output voltage of all three PSUs is, as stated, a regulated, low noise, 24 V d.c. A green LED, mounted on the PSU front panel, indicates that the output circuit is providing the correct output voltage level. The double connectors, provided on the 24 V d.c. output terminals, allow for the connection of more than one piece of equipment.

All three PSUs are designed to maintain the output voltage within an acceptable range for 20 ms, in the event of a total mains power failure.

SD821 is shown in Figure 42 on page 103. For measurements for all power supply units, see Table 22 on page 148.



Make sure that the mains voltage selection switch has the correct setting, see Figure 42 on page 103.

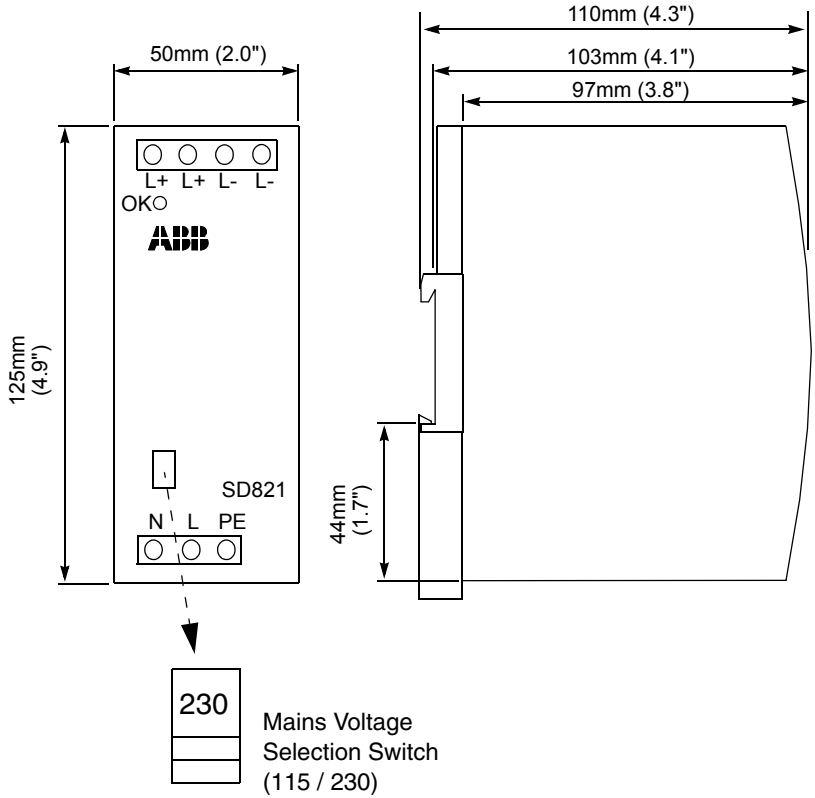



*Figure 42. Connections for SD821 Power Supply Unit (2.5 A)*

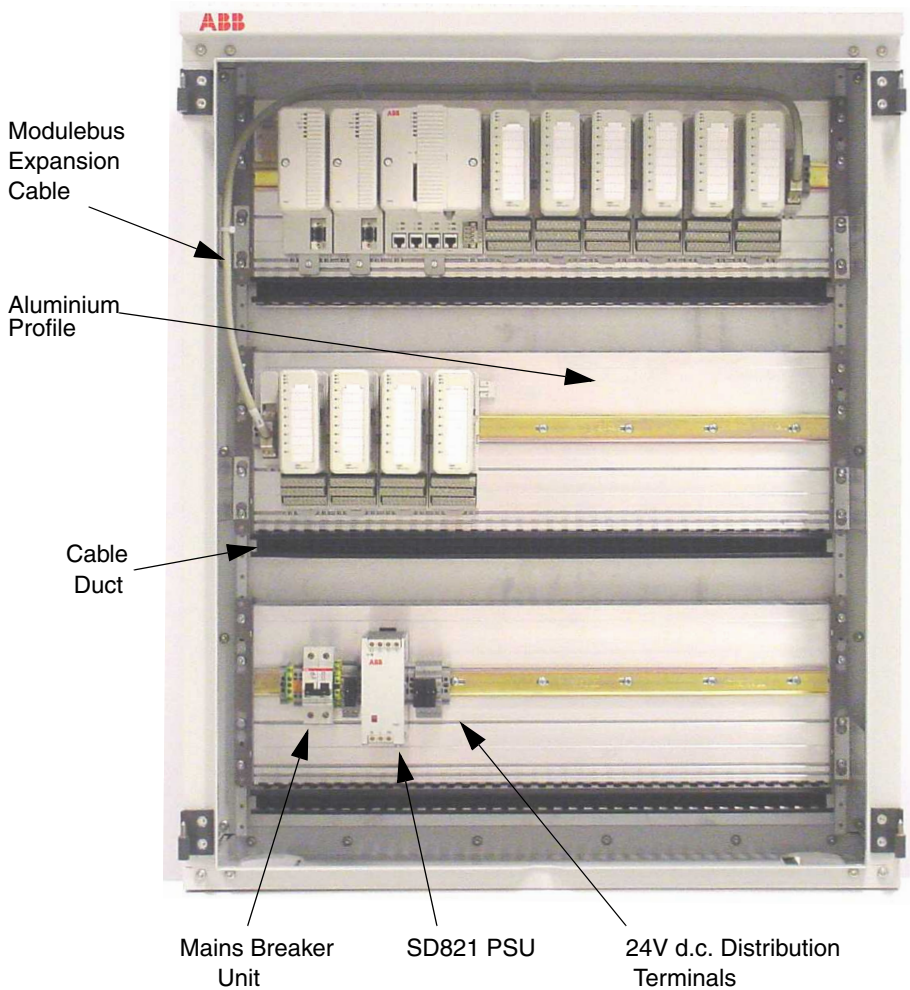



*Figure 51. Wall Cabinet - Single Power Supply Arrangement*

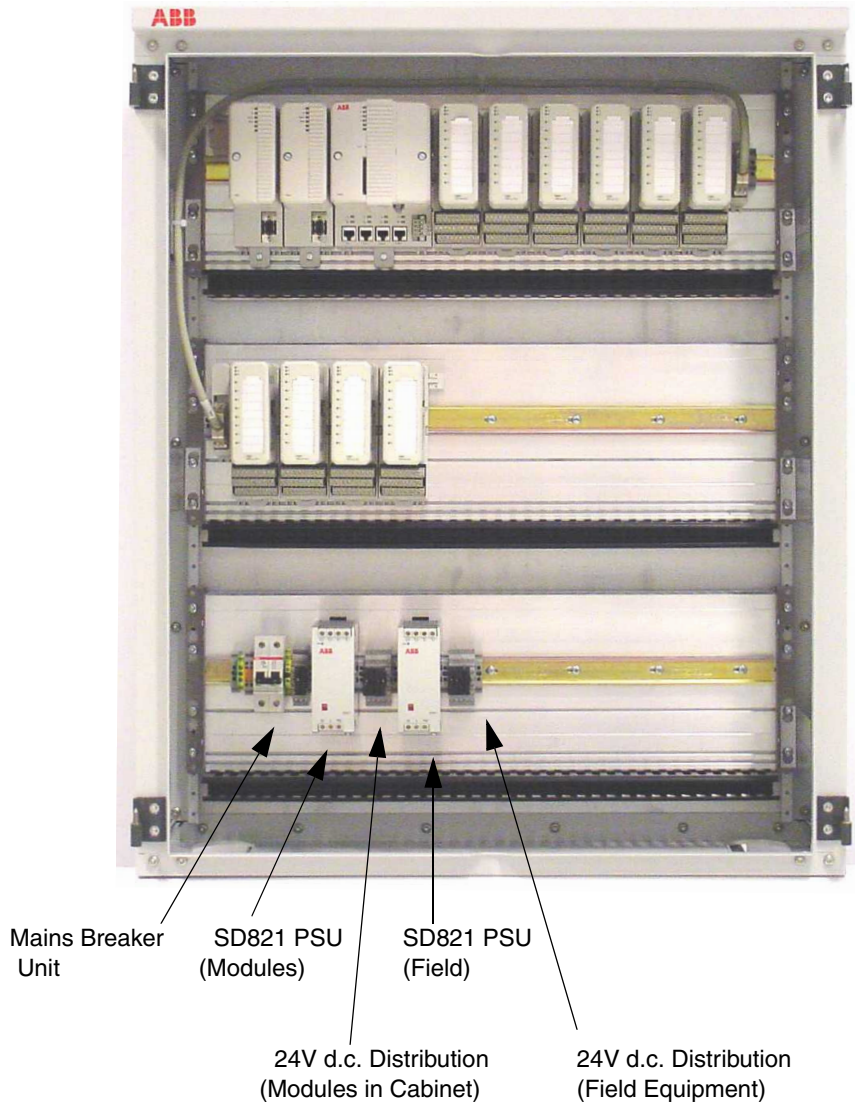



*Figure 52. Wall Cabinet - Dual Power Supply (Local/Field) Arrangement*