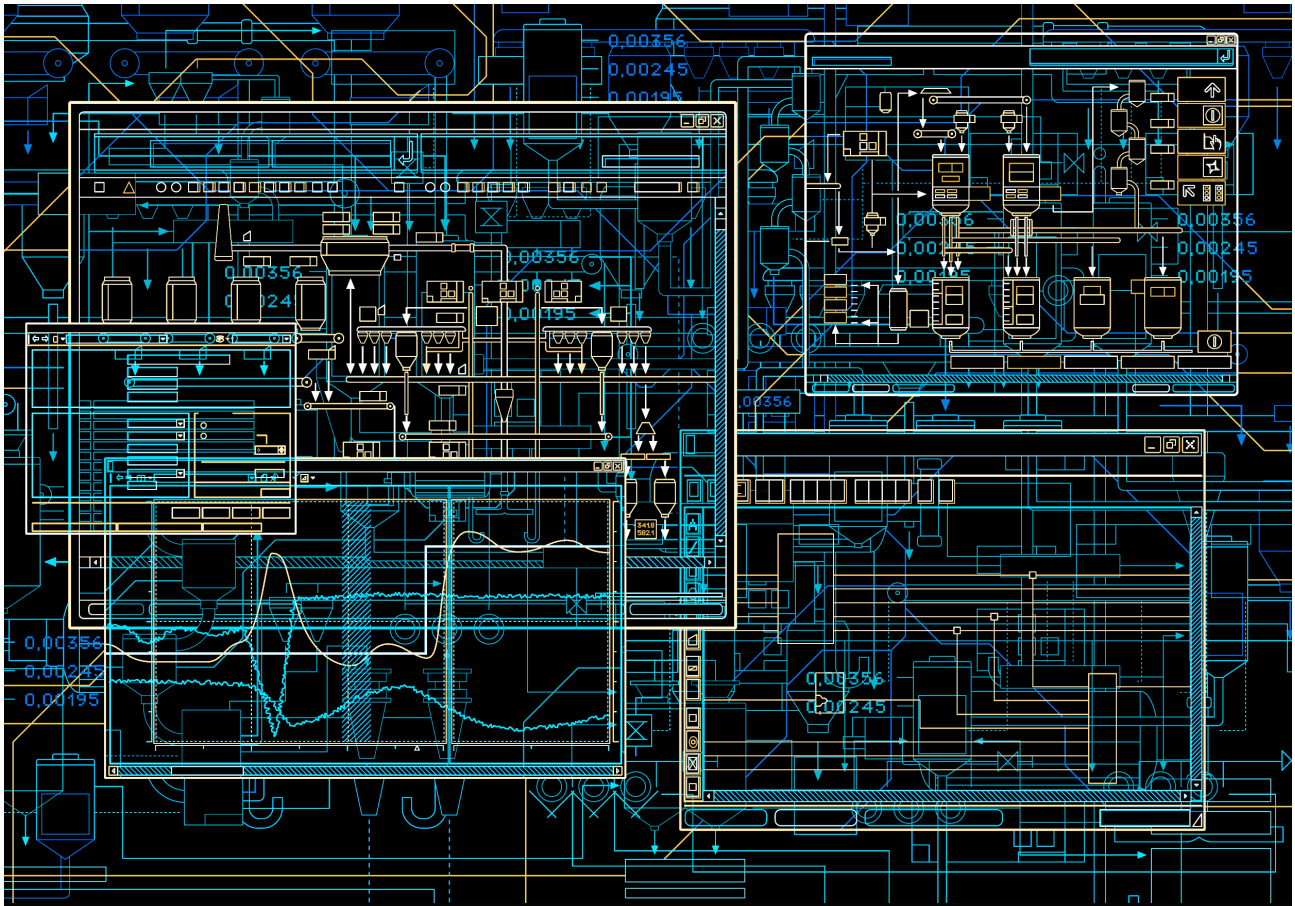


AC 800M

Controller Hardware
Product Guide

System Version 5.1

Power and productivity
for a better world™

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

Safety Summary



Electrostatic Sensitive Device
Devices labeled with this symbol require special handling precautions as described in the installation section.

GENERAL WARNINGS

Equipment Environment
All components, whether in transportation, operation or storage, must be in a noncorrosive environment.

Electrical Shock Hazard During Maintenance
Disconnect power or take precautions to insure that contact with energized parts is avoided when servicing.

SPECIFIC WARNINGS

-50, -63 and Page 70: It is not allowed to manipulate CEX bus base plates in a powered and running system. Before changing or removing a base plate, all CEX modules on that segment must be removed.

Page 177: Explosion hazard - Substitution of components may impair suitability for Class I, Zone 2.

Page 177: Explosion hazard - Do not replace batteries unless the power has been switched off or the area is known to be non-hazardous.

Page 178: Explosion hazard - Do not disconnect equipment unless the power has been switched off or the area is known to be non-hazardous.

SPECIFIC CAUTIONS

Page 13: This Product guide does not contain last-minute product information and updates which might affect functionality and/or performance. For information on late changes and restrictions, please refer to the Release Notes, Control Software for AC 800M (3BSE021377*).

Page 54: Always check that the CPU and other hardware units have the correct firmware version, before installing them. If the CPU is empty, CPU firmware must be loaded via the COM4 port.

Page 105: Note that SS822 operates on 24 V only.

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.

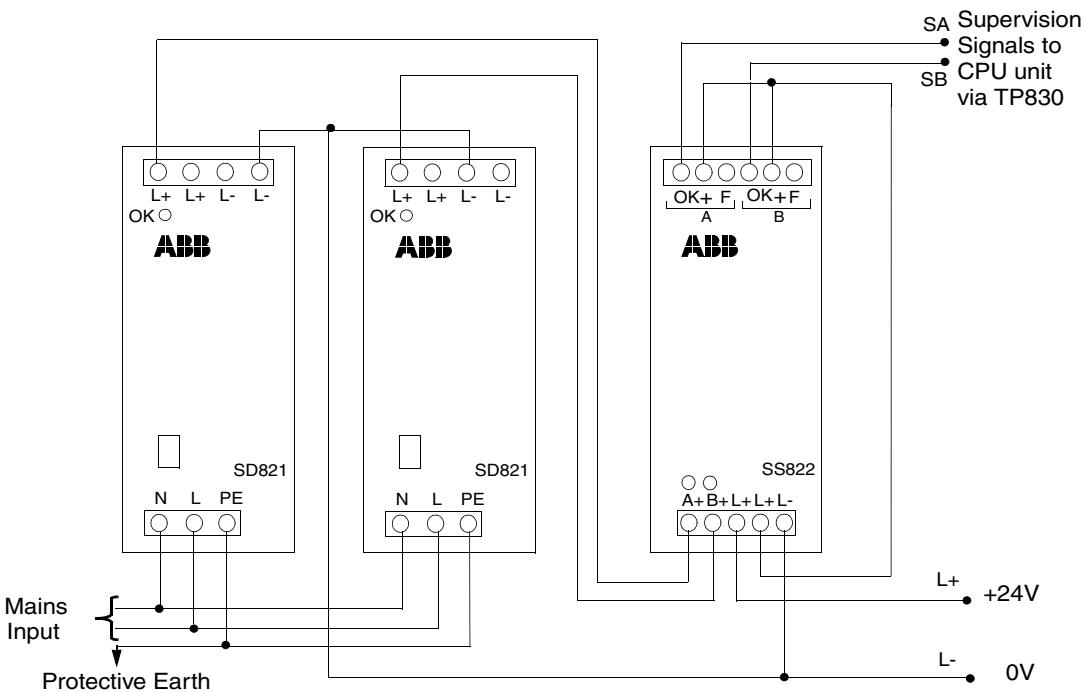


Figure 7. Example of a Redundant Power Supply Configuration

The processor unit has a communication expansion bus connector located on the left-hand side of the TP830 base plate. This CEX-Bus provides extension of the on-board communication ports with additional communication units.

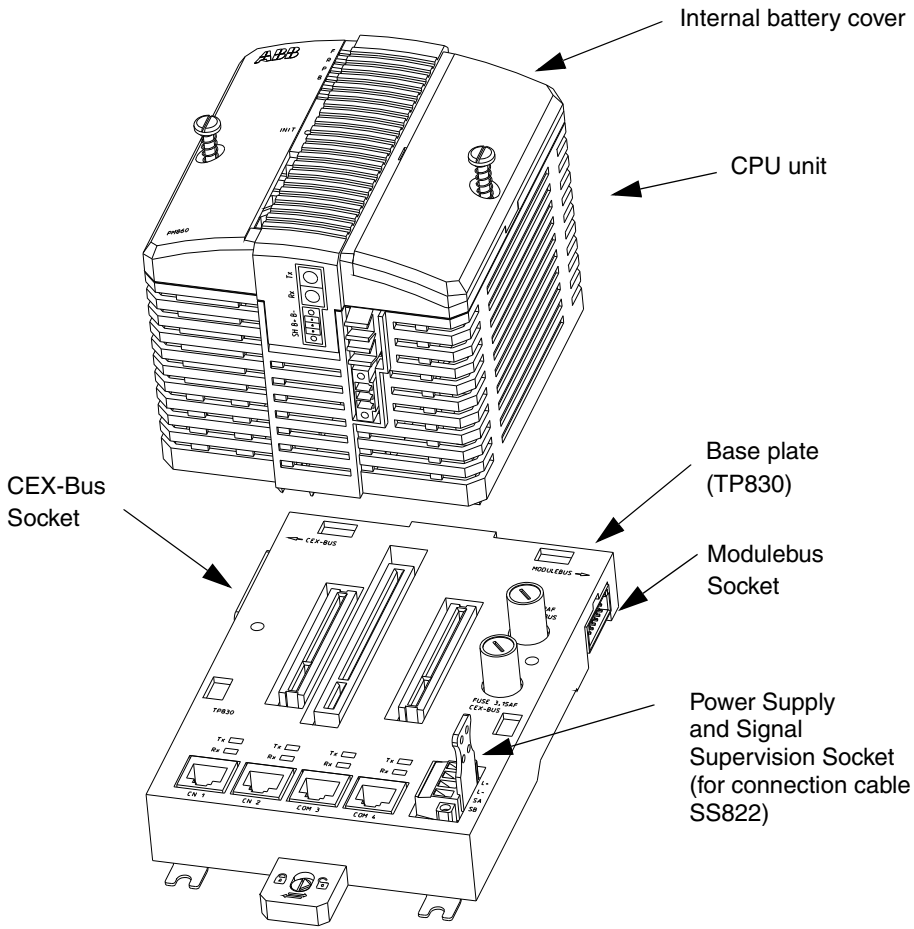


Figure 17. Processor Unit Assembly - General View (shown here with PM860 / TP830)

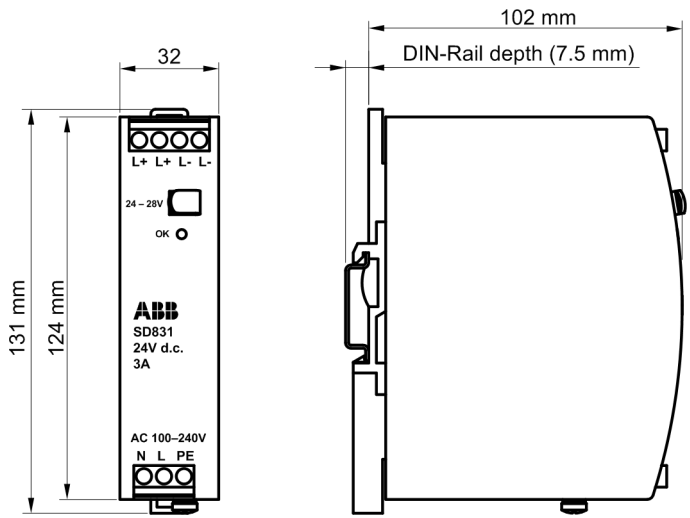


Figure 43. SD831 Dimension and Connections for 3 A Power Supply

SS822/SS823 Voting Unit

When designing a redundant power supply, the output connections from two identical Power Supply Units (PSUs) are connected to the SS822 voting unit, see Figure 44 on page 106. The voting unit separates the redundant power converters, supervises the voltage supplied, and generates supervision signals to be connected to the processor unit.

Green LED's, mounted on the front panel of the SS822, provide a visual indication that the correct output voltage is being delivered. Simultaneously with the green LED illuminating, a voltage free contact closes the path to the corresponding "OK connector". The SS822 Voting Unit trip levels (2 off) are factory preset.

Note that SS822 operates on 24 V only.

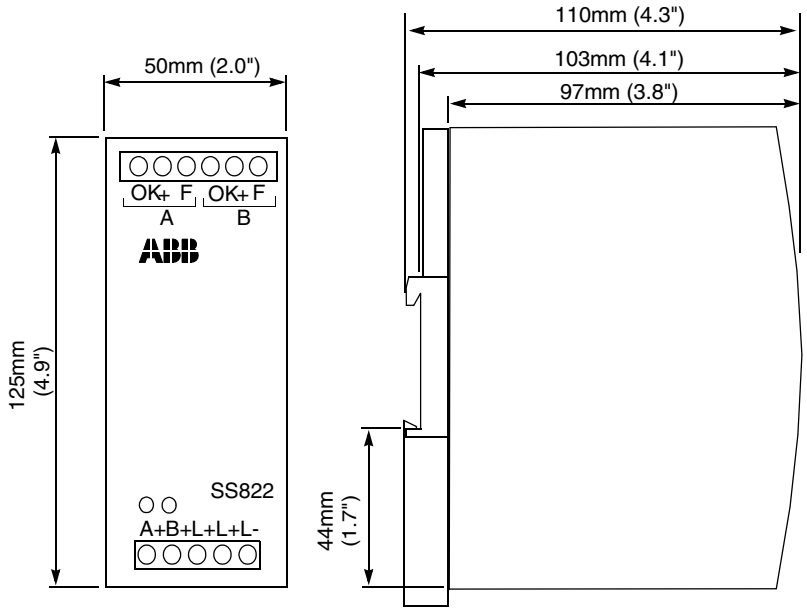


Figure 44. SS822 Voting Unit Connections

The SS823 Voting Unit has double overvoltage protection circuit on the input. It is also able to detect both short and open circuit in the voting element.

Please note that for voting two SS823 is required.