

FAQ

DC POWER SUPPLIES FOR MISSION CRITICAL AUTOMATION APPLICATIONS

Q: What do you mean when you say mission critical applications aren't all power supply needs critical?

A: Besides the fact that every piece of electronics equipment needs a solid power supply, some machines like printers, scanners, copiers, and desktop computers don't need the same quality of DC power as automation devices such as plant floor equipment, robotics, edge computing and sensor devices for the industrial internet of things, and other enterprise resources where downtime and a loss of production can have a very heavy cost associated with it.

Q: What are some key elements I need to look for in such a power supply?

A: It doesn't matter if you're involved with food and beverage machines, industrial control cabinets, electronics production, or automotive manufacturing, you'll need clean, ripple-free, reliable power that is available under a variety of environmental conditions. DC power supplies, in these types of applications, must deliver rugged, efficient power that is compliant with multiple standards, while maintaining compactness for installation into tighter and tighter spaces. Users must also look for products that are readily available while offering the performance and reliability needed for long life cycles.

Q: Are there industry standard interfaces that make this selection easier?

A: Most industrial control enclosures and cabinets employ a standard DIN rail system to provide quick and easy installation and maintenance. The challenge is the growing amount of control electronics, sensor systems, and IIoT interfacing that can take up a lot of the usable space making it difficult to include power management devices easily. The fact that most manufacturers have a global customer base these days, means that they require their power supply provider offers a single product line that is highly flexible.

Sponsored by

Altech Corp.®

Q: How are power supply providers meeting these challenges?

A: Innovations such as the use of high-frequency electronics has helped companies boost efficiency, seeing power density rapidly increase along with efficiency and reliability. These advancements have led to a new generation of power components including power transistors, inductors and transformers, voltage regulation devices, and other components. All this technology leads to reduced electromagnetic interference while increasing reliability.

Q: What benefits have we gained from all this advancement in technology?

A: Advancements like those mentioned have permitted products supplying 480 Watts to now fit into the space that formerly only handled a 120 Watt power supply (see photo below). Companies, such as Altech have designed and manufactured a series of ultra slim metal case DIN rail power supplies designed to take up less than half the space that a current power supply would normally occupy on a DIN rail. For example, the company's Ultra-compact PSC-120 series needs only 1 ¼ inches of space rather than the 2.5 inches of space a competitor's product might take up. Also, the company's low-profile series are ideal for shallow equipment enclosures. These series make it easier for customers to include additional functionality in the same enclosure space (see photos below).



Photo A illustrates how big the difference is between a standard and compact DIN rail power supply while photo B shows a series of low-profile units.

Q: What other features and benefits can I expect from these power supplies?

A: Every product in the Altech series of high efficiency units supports 1+1 or N+1 redundancy with built-in current sharing. Regardless of output, each product in the series has the same input requirement of 85-264 VAC/127-360 VDC, making it so much easier to specify them into a new design or retrofit them into an old design. Additional features include 100% full load burn-in, low voltage and current ripple, Class II isolation, and overload, overvoltage, overtemperature and short-circuit protection. Users get efficiencies of over 90% that provide for lower power dissipation and enhanced thermal performance.

Q: What if my needs continually change as I'm working on new machines?

Units that offer the proper specifications can provide solutions for industrial applications that are in constant evolution, which makes them remarkably flexible. For example, you'll want to make sure the line of products you choose offers an ambient temperature operation field that ranges from at least -25oC to 70°C as well as units that offer both 1-phase, 115-230 VAC units and 2-phase, 230-500 VAC—to allow customers to be able to use and store only one product. In addition, where it is possible for loads to increase significantly, it is possible for some supplies to be connected together—two or more—where the voltage is consistent but the load capability increases.

Sponsored by

Altech Corp.[®]

Q: If my needs are varied what protection levels are covered?

A: Select product lines with at least three short-circuit overload protection levels, including a hiccup mode as a default factory setting for each power supply unit. Devices should offer output current interruption for short-circuit or overloading conditions with a manual reset available to the operator. If safety procedure are specified to be carried out only by an authorized person, supplies should provide a way to switch off the input circuit prior to restart. For demanding load, such as motors, solenoid valves, and PLCs with highly capacitive input circuits some units offer a continuous output mode where the output current is kept at a high value with near zero voltage during a short-circuit or overload condition. This allows the current to reach up to three times the rated current if needed.

Q: How would I protect from high levels of salt and humid conditions near water?

A: Coastal companies, where there are high salt levels or where there are high humidity levels should consider that supplies must include a conformal coating as a protection against corrosion. This approach greatly extends the life of the supply. This is even the case for markets where humidity can enter into the control panel, such as supermarkets and frozen food stores like fisheries. High enough humidity can cause short circuits to appear more easily. Besides a conformal coating, companies can also include shrink tubing or white glue to protect components, particularly on high-voltage components.



Sponsored by

Altech Corp.[®]

NEW from
Altech[®]

Ultra-Compact & Low Profile DIN Rail Power Supplies

◀ IN STOCK



Ultra-Compact

Available Rated Power:
75, 120, 240, or 480W

Input: 85-264VAC 47/63Hz
Output Voltage: 12, 24 & 48 V DC

- Ultra Slim size
- Conformal coated PCB
- Parallel option available
- Universal input
- 150% peak load capacity
- High efficiency up to 91%
- Built-in current sharing function
- Built-in current limiting circuit



3-year
Warranty



Low Profile

Available Rated Power:
15, 30, 60, or 100W

Input: 90-240VAC 50/60Hz
Output Voltage: 5V-48V DC

- High Efficiency
- 100% Full Load Burn-In
- Low Ripple & Noise
- Adjustable DC Voltage Output
- Class II Isolation Level
- UL62368-1 and CAN / CSA C22.2
- Protections: Overload / Over Voltage / Short Circuit



Altech Corp.[®]

908.806.9400
AltechCorp.com

Q: What certifications should I look for when selecting a flexible power supply for worldwide use?

A: Always check the local and country requirements. Here are a few certifications you might look for: UL, CE and CSA approvals, which may include UL508 listed for USA and Canada, 89/336/EEC EMC directive, 006/95/EC (low voltage), IEC 61000-6-4 for emissions, and IEC 61000-6-2 for immunity. Safety approvals to look for include EN60204-1, EN60950, and military standard MIL-HDBK-217F. Note that product safety standards continually change. One of these includes IEC 62368-1, which supersedes the IEC and UL60950 and 60065 across the world. The goal of the new standard is to establish a more universal and clear approach to hazard-based product testing.

Sponsored by

Altech Corp.[®]