

P R
B X

POWERBOX
OFI700A



When silence and reliability matter!

A number of industrial applications require power supplies to operate with limited or no ventilation cooling. A sealed box such as is required for a radio amplifier is one example, but there is also a growing demand for equipment installed in supervisory rooms or even offices that for the comfort and health of the employees, generate noise is simply not produced or very much limited.

One example is open-landscape offices where in some cases noise levels can be as high as 60 to 65 decibels. This may seem minor compared to say a busy highway that generates 85 decibels, but it can make cognitively demanding work difficult to undertake, with subsequent effects on health and safety. In fact a number of companies now require noise levels in open-landscape offices to be below 55 decibels.



Such situations include equipment installed in the room, and from computers to large displays e.g. as used in road or air traffic control, noise levels must be reduced to the lowest level possible, and noisy forced air cooling is banned. In such conditions the power supply must be designed to be able to operate without ventilation using a conduction cooling solution.

In harsh industrial applications, cold wall or heat exchangers are often used to guarantee proper cooling, and power supplies are affixed to the dissipating interface.

Designing a power supply for conduction cooling requires power designers to work in very different way to when designing a power supply that benefits from a high airflow and extensive cooling. A power supply for convection cooling must feature a large baseplate to which all dissipating components are thermally connected, and an enclosure that provides efficient EMI shielding while not substantially limiting free air convection circulation.

Based on PRBX's long expertise in designing power solutions for demanding applications, and the outstanding TUNS power modules from COSEL, our designers have developed a 700W AC/DC power supply optimized for conduction cooling, the OFI700A.

The OFI700A works from -40 to +95 degrees centigrade baseplate, has an international input voltage of 85 to 264VAC and can be powered from a high voltage DC Bus comprised between 120 and 350VDC. Three output voltages are available, +12, +28, +48VDC, and all models include a 12V auxiliary output.

The OFI700A is built in a ruggedized metal case making it ideal for harsh environment.

Features

- Conduction cooling
- Redundancy operation
- Low EMI
- DC-OK, Remote On/Off
- OCP, OVP, OTP, SCP
- Auxiliary voltage 12VDC
- High efficiency

Input

- AC input voltage range 85-264VAC
- DC input voltage range 120 – 350VDC

Output

- OFI700A-12
12 VDC / 58.4A - Adjustable 9.6 – 14.4VDC
- OFI700A-28
28VDC / 25A - Adjustable 22.4 – 33.6VDC
- OFI700A-48
48VDC / 14.4A - Adjustable 38.4 – 57.6VDC

Mechanical

- With cover 126x40x250mm
- Without cover 126x38x250mm
- Weight 0.95kg (1.1kg with cover)

Environmental

- Operating baseplate temperature -40°C to +95°C

Safety standards

- UL62368-1 approval pending
- CE

About Powerbox

Founded in 1974, with headquarters in Sweden and operations in 15 countries across four continents, Powerbox serves customers all around the globe. The company focuses on four major markets - industrial, medical, transportation/railway and defense - for which it designs and markets premium quality power conversion systems for demanding applications. Powerbox's mission is to use its expertise to increase customers' competitiveness by meeting all of their power needs. Every aspect of the company's business is focused on that goal, from the design of advanced components that go into products, through to high levels of customer service. Powerbox is recognized for technical innovations that reduce energy consumption and its ability to manage full product lifecycles while minimizing environmental impact. Powerbox is a Cosel Group Company.

For more information

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Reliable and efficient power for harsh environments!

In many industrial applications the cooling of the dissipating elements uses fans and blowers. But there are a number of applications where it is not possible or even allowed to use active ventilation. In harsh environments or in applications where the required reliability level imposes the need to remove all possible risks of failure, fans and blowers are not allowed.

Here are a few examples.

Industrial machinery such as laser cutting equipment that generates burnt particles, smoke, and steam have their monitoring and control boxes sealed to avoid contamination and the risk of damage as a result of the cutting process. In order to power the control system the power supply is enclosed in a sealed box, requiring the dissipated heat to be extracted by conduction from the chassis, or the need for it to be attached to a cold-wall. To make the cooling as efficient as possible the power supply is designed with a large base-plate to which all dissipating components are attached.



Industrial surveillance and safety equipment may be installed in remote places where exposure to extreme weather conditions is common, and where maintenance can become complicated. In such installations reliability is extremely important, and system designers need to exclude all possible causes of failure. Despite significant improvement in quality, fans and blowers are subject to mechanical failure and are not suitable for such applications. Again, as in the previous example, cooling can only be achieved through conduction to the outside of the sealed box and a passive heat exchanger.

Although an application that the general public may not be aware of, deep water installations such as on oil and gas fields are full of electronics to monitor and control safety and operation. The electronic equipment and power supply are packed into waterproof boxes that are naturally cooled by the surrounding water. In this type of application extreme reliability is mandatory and conduction cooling is the only way to secure the temperature levels needed to guarantee the highest level of safety.

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