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B X

POWERBOX  
EXM180A28



## Supporting repetitive peak loading in medical devices

Medical applications such as Continuous Positive Airway Pressure (CPAP) and Non-invasive Ventilation (NIV) require power supplies that are able to deliver repetitive peak power during the air-push process. Different equipments have different requirements in terms of peak-power cycles and duration, which during the CPAP or NIV development process, power designers must adjust in real time. To meet the very specific load parameters and application profiles the power stage and loop control must be sized to meet complex requirements (e.g. peak current of 6A for 0.3 second, every second). It is also important that the power supply is 'Always ON', meaning that in the case of an overload due to accidental usage or manipulation, safe, undisturbed power remains available.



Time to prototype and to market is very important for medical equipment manufacturers, which when considering verification and certification can be very challenging. Thus, based on the standard EXM 80 5121 that delivers 65W at 24V output (adjustable up to 28V) PRBX designers have developed and delivered a modified version, the EXM180A28, to a medical equipment manufacturer requiring an extremely short time to market.

Based on Powerbox's flyback topology and 'Always ON' platform, the output voltage has been calibrated for optimum operation within a bandgap, guaranteeing that during repetitive peak loads the voltage remains within specified limits. Our designers also performed several meticulous thermal tests to ensure that safety and component stress levels would guarantee the highest level of quality.

Sustaining repetitive loads without performance degradation is a must, but equally it is mandatory to guarantee that a power supply never shuts down in the case of an extraordinary event. In the case of abnormal load conditions or temperature, thermal protection decreases the maximum output power by automatically adjusting the current limit, reducing the risk of damage and making it possible for the system to identify a fault. In any case the switching stage will continue to operate and to deliver the full power as soon the fault has been removed.

Last but not least, Powerbox's flyback topology and 'Always ON' one-step conversion platform has been designed for long term reliability, with a low component count that ensures a long life time.

The EXM180A28 includes an AC cord holder with a lockable DC plug, thus secure and preventing the cable from being accidentally unplugged.

#### **Features**

- Providing 2 MOPP isolation, primary-secondary
- Unique Over temperature protection
- 180 W peak capability
- Mechanical AC cable holder withstanding 100Nm
- Customised case color
- Customer defined lockable DC connector

#### **Input**

- 100-240 VAC, 50-60Hz

#### **Output**

- 28 VDC
- 2.5 A cont. 6 A peak
- 70W rms, 180 W peak

#### **Environmental**

- +10° to +50° convection cooling

#### **About the Powerbox's flyback topology and 'Always ON'**

Although the flyback platform originates from the 1960s, continuous research and platform evolution has resulted in competitive and technically advanced solutions being delivered quickly and efficiently to customers worldwide. The Powerbox flyback topology and 'Always ON' platform has successfully been implemented in multiple PRBX designs throughout the years, and combined with a low component count and best practice design has contributed to delivering high reliability power solutions to demanding applications requiring peak loads and always ON operation even in the case of overloads.

#### **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.

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