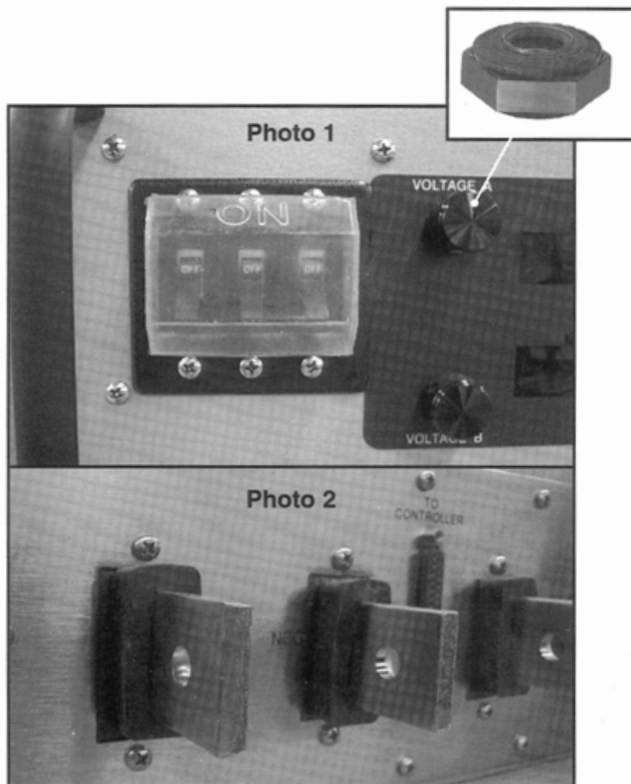


Sealing Solutions

APPLICATIONS IN INDUSTRY

PROBLEM: Sealing Package for Environmental Protection for High-Power, High-Current Custom AC/DC Power Supplies



Subject: Circuit Breaker, Potentiometer, and Custom Bus Bar Seals

Situation: LAMBDA EMI of Neptune, NJ designs and manufactures high-power, high-current AC/DC Power Supplies for scientific and industrial applications. They can range from 600W to 90kW, usually in standard 19" rack mount. In the case of severe environments such as airborne particles or other corrosive materials, the supplies must be mounted in expensive and large cabinets with separate cooling systems. Lambda EMI was able to develop a unique package to protect the electronics, but was still faced with the necessity of external interfaces such as circuit breaker, control potentiometers and output connections via the large bus bars.

Solution: A combination of standard and custom designed sealing components were employed, providing a total sealing package. LAMBDA EMI chose APM P/N HE1050 clear, silicone-rubber circuit breaker seal to protect the 3-pole circuit breaker while maintaining full functionality (Photo 1). Pot shaft seals are provided by APM P/N N9030 rotary-shaft seals (also Photo 1). The 500A output bus bar interface is protected by custom oval-shaped seal (Photo 2), all fabricated in silicone-rubber and rated at -94°F to $+400^{\circ}\text{F}$. Finally, APM provided additional protection by furnishing a special custom six-position multi-button single-piece seal and a number of self-sealing fasteners with Nylok® inserts. Together, the unit successfully passed environmental requirements, enabling LAMBDA EMI to mount the units in standard racks, saving substantial space and energy without the separate cooling cabinet.

To obtain further information on this subject, ask for Catalogs (Circuit Breaker Boots) CB-100, and (Potentiometer Boots) HEX-200, and (Custom Molding) CM, and (Sealskrews) SF-200.

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