ARGUS®

Why Argus' Cordex rectifiers significantly exceed average reliability figures within the DC Power industry

1 They employ the most advanced power conversion technology.

The Cordex family of rectifiers employ an advanced resonant power conversion technology featuring high power conversion efficiency. All internal semiconductor devices operate under "soft-switching" conditions and exhibit very low power loss. The reduced power loss leads to lower thermal stress on the semiconductors and thus improves reliability.

It is proven fact that the reliability of both the semiconductors and the electrolytics reduces by a factor of two for every 10°C above 100°C. Cordex rectifiers are designed with proper component spacing and layout to optimize cooling airflow, significantly decreasing component temperatures, which are always a major factor with reliability equations.

2 They are designed with safety margins to handle simultaneously the three worst-case field scenarios: 65°C ambient, full output power and low AC input (176Vac)

Sustaining low component temperatures is again the primary factor with simultaneously meeting the three worst-case field scenarios: 65°C ambient temperatures, full output power, and low AC input (176Vac). While meeting these specifications, Cordex rectifiers also offer roughly twice the reliability at 55°C and up to four times more at 45°C ambient temperature.

Full power output at 55°C and 45°C limits are commonly advertised temperature ratings of several rectifiers in the DC power industry today. When a rectifier de-rates it's output power at 45°C to 55°C, it indicates that component temperatures are approaching maximum limits and there are not likely any safety margins left to handle much further increase in temperature.

Very few of Argus' competitors could claim to meet all three of these conditions at the same time. Under most situations, only two of the three would be simultaneously met.

In summary, the Cordex family of rectifiers are designed for higher temperature operation, have built-in safety margins for optimizing component temperature, and will exhibit higher reliability under normal operating conditions.

3 They employ digital control algorithms that constantly monitor critical reliability parameters and protect both the rectifiers and the power system against abnormal conditions

Advances in digital control technology have found their way into the control section of Cordex rectifiers. They are capable of constant monitoring of rectifier and system performance, and can immediately adjust upon seeing abnormal conditions.

4 They are designed using the most advanced computer simulation methods, accurately predicting both the electrical and thermal performance of the product in all possible field scenarios.

These computer simulation methods generate accurate design information at a very early stage, allowing for an optimal selection of components including proper safety margins to meet worse case scenarios. These methods are a major factor in designing for high reliability and finding the right balance between product cost and performance.