

User manual

Product description
Rectifier DPR 2400B

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1 About the rectifier

The DPR 2400B-48 rectifier is a single phase rectifier, offering high power for small physical size. The rectifier provides a constant power output across the full output voltage range. The rectifier meets the supply requirements for state-of-the-art telecommunications equipment. The wide input voltage range and extended temperature operating range contribute to a cost effective and reliable solution.

The typical applications include telecommunications networks and data networks.

The rectifiers do not contain any user serviceable parts. A faulty rectifier module must be replaced as a complete unit.

The installation description must be strictly adhered to.

2 Feature overview

The key features of the DPR 2400B-48 rectifier include:

- Energy saving – high efficiency
- Advanced energy saving functionality
- Space savings – leading edge power density
- Space saving – very short depth
- Up to 265 A capacity in a 19-inch shelf system
- Extended operating temperature range
- Very low audible noise

3 Functional description

3.1 Input voltage range

The rectifier has a nominal input voltage operating range of 184 to 285 Vrms.

If the input voltage exceeds the nominal input voltage upper limit, the rectifier continues operating without power factor correction (PFC). If the input voltage rises above the maximum input voltage limit, the rectifier switches off.

The rectifier has protection against AC mains voltage up to 305 V. The rectifier is not working but safe. Exposure to AC over-voltage for greater voltages may cause rectifier failure.

If the input voltage falls below the nominal input voltage lower limit, the rectifier continues to operate with a lower output current. If the input voltage falls below the minimum input voltage limit, the rectifier switches off.

The rectifier switches on when the input voltage is within the input voltage limits.

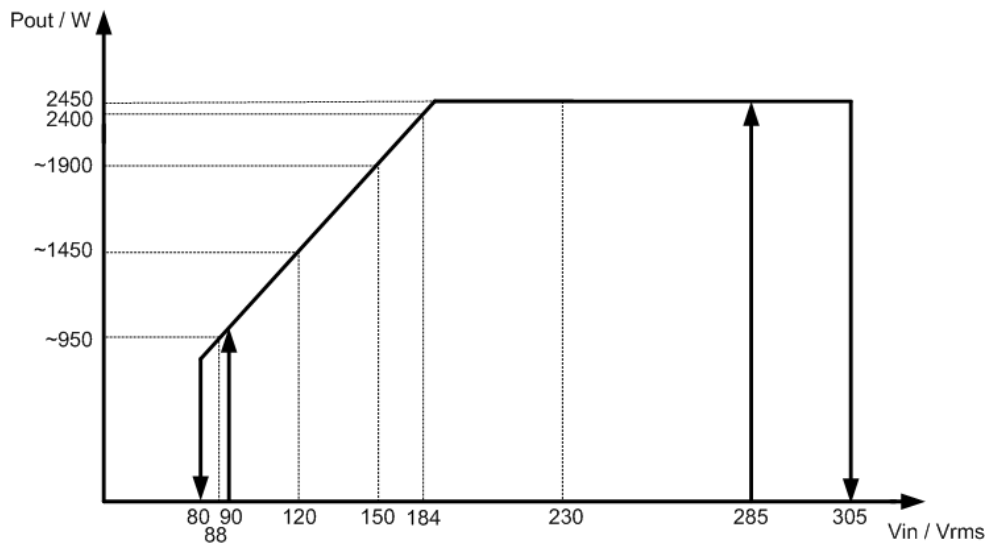


Figure 1. DPR 2400B-48 input characteristics

Refer to the generic installation manual for power systems for further guidelines about AC over-voltage and transient over-voltage protection.

3.2 Output characteristics

The rectifier has a constant output power characteristic to meet the demand of optimal power supply usage for electronic constant power loads. The result is a constant recharging current to the battery after a mains outage and improved rectifier efficiency.

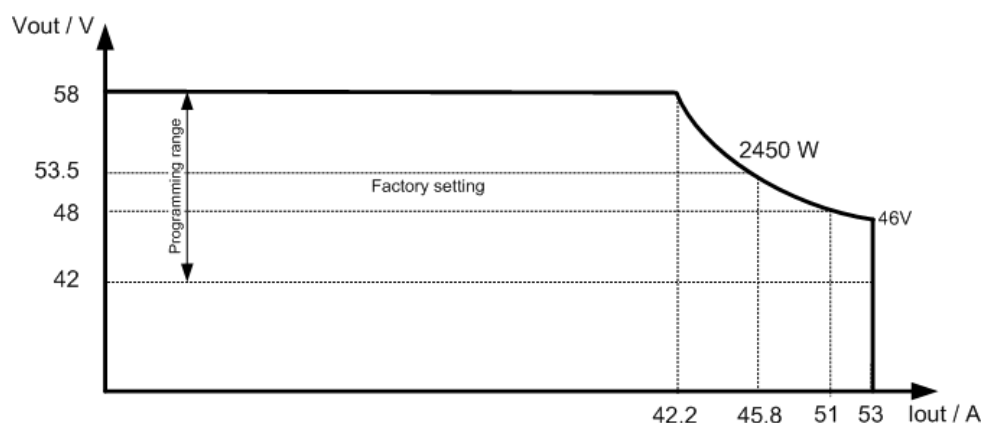


Figure 2. DPR 2400B-48 output characteristics

3.3 Output voltage

An output voltage of 53.5 V is predefined for flooded battery types. If a controller with voltage programming function is used, the rectifier output voltage can be adjusted. The output voltage range of the rectifier is 42 V to 58 V.

3.4 Output current

DPR 2400B-48: The factory setting for the output current limit is 53 A_{DC}.

3.5 Over-voltage protection OVP

The rectifier is equipped with selective over-voltage protection (OVP). If the output voltage exceeds an internally set limit, the rectifier is shut down.

Combining OVP with a current measuring condition allows selectivity for rectifiers connected in parallel to ensure that only the affected rectifier is shut down.

The factory setting is 59 V.

Disconnecting the mains supply voltage for approximately 2 seconds resets the rectifier after an OVP shutdown.

3.6 Load sharing

The rectifier is equipped with an active load sharing function that ensures equal load on parallel rectifiers. The function uses the signal interface bus between rectifiers. This function does not require any other external unit outside rectifiers.

3.7 Cooling

The rectifier uses a fan to force air through it.

3.8 Thermal management

The rectifier is protected with two integrated thermal sensors monitoring the fresh intake air temperature and temperatures at the rectifier.

Thermal management protects the rectifier against overheating by reducing the output current limit to limit internal temperature, as shown in Figure 3.

To protect against interrupted air flow and fan failure, the rectifier is shut down as soon as the internal temperature reaches a critical value. If the temperature returns to within normal limits, the rectifier restarts automatically. If the airflow is interrupted or the fan fails, the rectifier recognizes several unsuccessful restart attempts within a short period. In that case the rectifier remains shut down and generates an alarm.

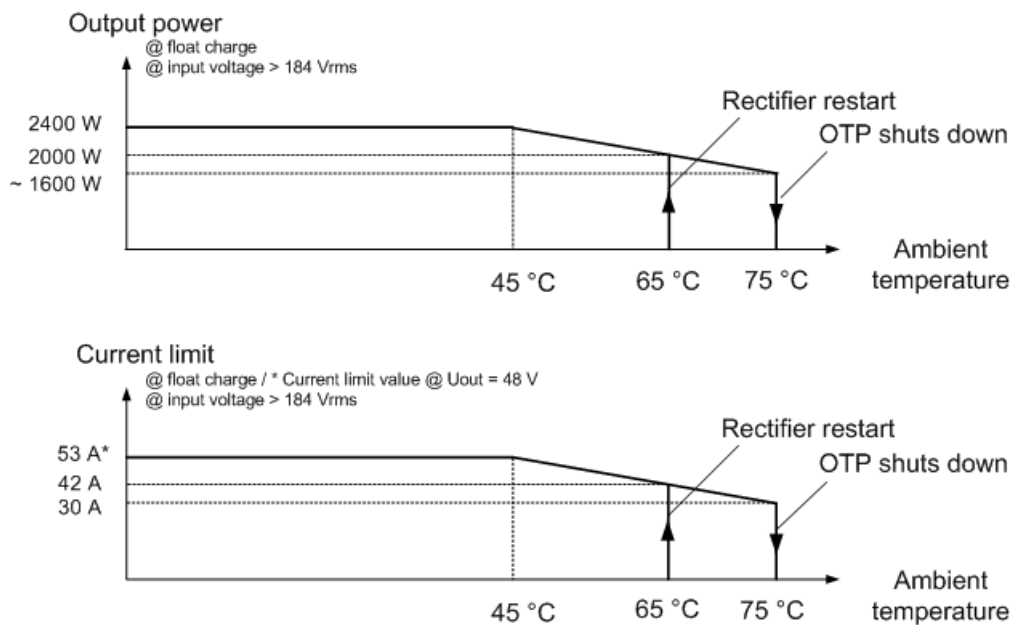


Figure 3. DPR 2400B-48 thermal characteristics

4 Mechanical description

4.1 Front panel

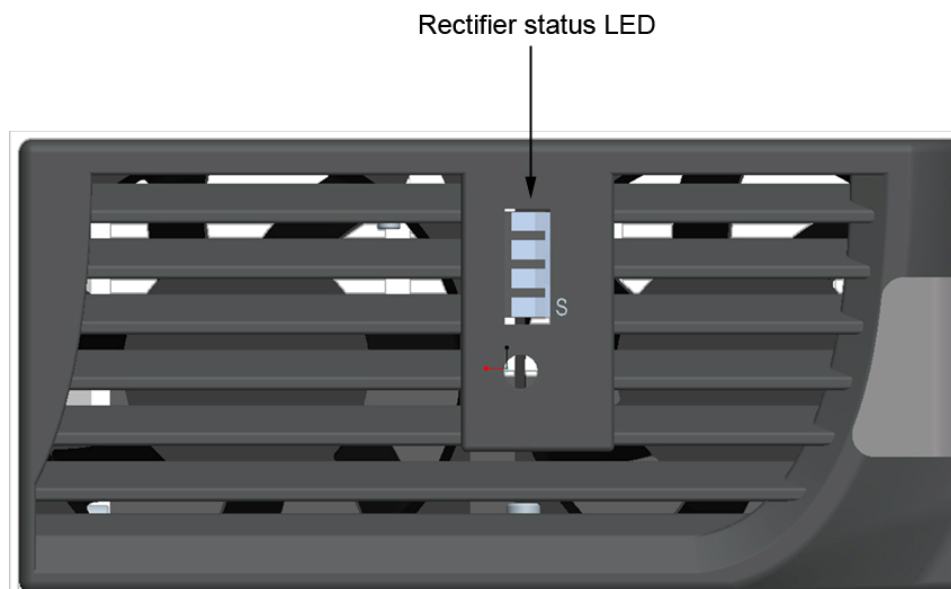


Figure 4. DPR 2400B-48 front panel

4.2 Rectifier installation

The rectifier is installed onto a shelf by sliding the module into the required location, and secured with locking clips.

4.3 Configuration

On installation to a system with a PSC 3 controller, the rectifier is automatically configured. In systems without a controller the rectifier operates with the factory-set standard configuration.

4.4 Rectifier status indicators

LED "OK":

- Green "OK" status indication.
- Red "Failure" indication.

LED "COM":

- Green indication in case the rectifier is communicating properly with PSC 3.

LED "LD":

- Yellow indication in case the rectifier is not loaded.
- Yellow blinking indication in case the rectifier operates in current limit.

LED "STA":

- Red indication in case of latched shut down over-temperature protection OTP, over-voltage protection OVP.

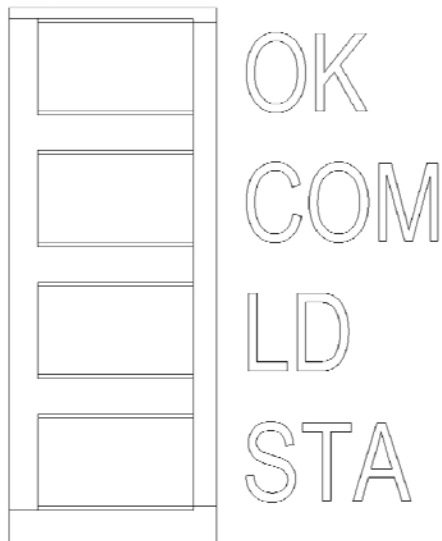
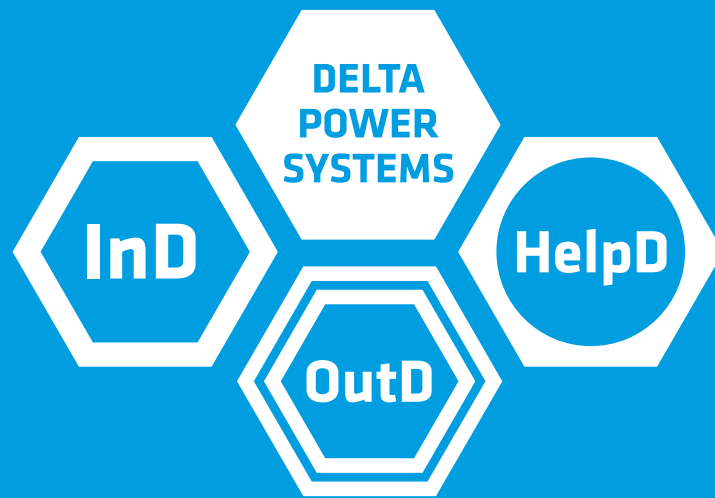


Figure 5. DPR 2400B-48 status indicators



Our InD, OutD and HelpD series are designed to complement each other. InD stands for indoor power systems, while OutD solutions are created for demanding outdoor use. HelpD is our global support team; its task is to make everything easy for you. The full range of Delta Power Systems keeps you powered and allows you to concentrate on what is most important for you – your business.

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