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Rectifier mode, load-dependent

.Rectifier mode, load-dependent

.General information

In the "Rectifier mode, load-dependent" mode, the power output stage is switched off. The control of the DC bus voltage is inactive and the supply unit works as a rectifier. The DC bus voltage value corresponds to the rectified value of the mains voltage. To protect the diodes, switching to DC bus voltage control takes place in the case of greater load, and the DC bus voltage is controlled with regard to S-0-1706.0.1. Also, regeneration back to the mains is activated for protection against overvoltage, if the DC bus voltage becomes greater than "S-0-1706.0.1, DC bus voltage command value".

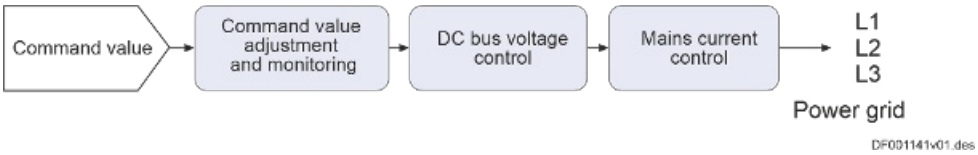

Fig. 263: Block diagram of the operation mode Rectifier mode, load-dependent

.Relevance for the user

This operation mode is only available for regenerative supply units (e.g., XVR). Relevant if it is only energy from the mains that has to flow to the DC bus in operation phases, and the diode current is sufficient for supplying the DC bus and the reduced DC bus voltage is sufficient for operating the motors. This way, active control mode is not required which allows the power dissipation of the device to be reduced.

.Commissioning

The following dialog is available in ctrlX DRIVE Engineering to parameterize the operation mode Rectifier mode, load-dependent:

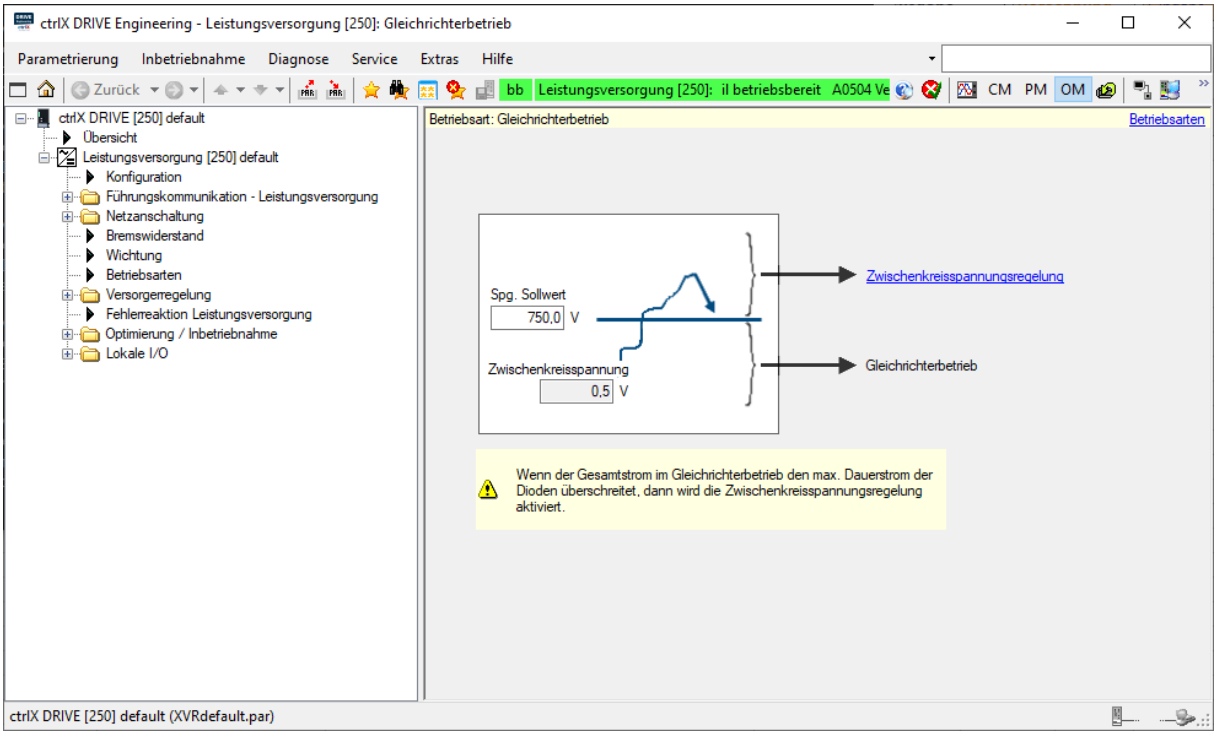

Fig. 264: Parameterizing the operation mode Rectifier mode, load-dependent

For further information about the commissioning process, please see the following link:

https://www.ctrlx-automation.com/community

.Additional information and details

The power output stage is switched on as follows:

- the mains current exceeds the maximum allowed diode current
  or
- the DC bus voltage exceeds the command value parameterized in "S-0-1706.0.1, DC bus voltage command value".

The supply unit hereby goes to the boost converter mode and the DC bus voltage is controlled with regard to the command value. The control loop structure from chapter "DC bus voltage control" is active. The control is switched off if the diode current falls below the maximum allowed value again or the DC bus voltage reaches the command value.

The supply unit automatically changes to the boost converter mode to protect the device against overload and for protection against DC bus overvoltage.

To use this operation mode, enter the code 0x0037 in at least one of the operation mode parameters S-0-1709.0.1 to S-0-1709.0.4.

- The reactive power compensation cannot be used in this operation mode.
- The mains currents are not sinusoidal in rectifier mode.

See also chapter "Power supply control at the mains".

.Parameters and diagnostics involved

.Parameters involved

- S-0-1706.0.1, DC bus voltage command value
- S-0-1707.0.1, Actual DC bus voltage

.Diagnostics involved

- A0506 Supply module in rectifier mode