PME / PMB – Half-Wave and Bridge Rectifiers

Application

These compact and reliable modules are designed for the efficient control of electromagnetic clutches and brakes.

Half-Wave Rectifier

Half-wave rectifiers convert alternating current (AC) into a pulsating direct current (DC) by utilizing only one half of the AC waveform.
Advantage: Simple construction.
Electromagnetic brakes often do not require a perfectly smoothed DC voltage, which makes the simple technology of a half-wave rectifier sufficient for many applications.

Bridge Rectifier

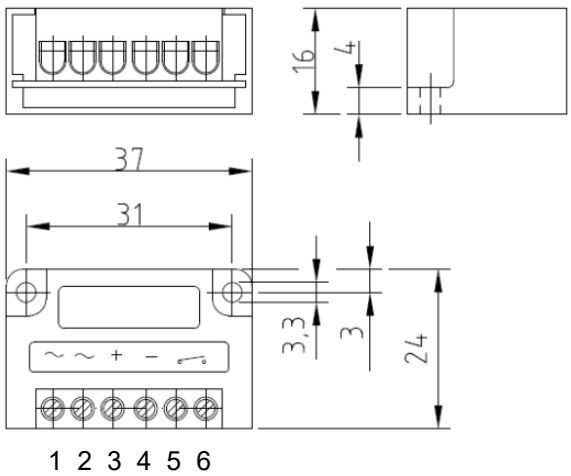
A bridge rectifier uses both halves of the AC waveform to generate an almost continuous DC voltage.
It is particularly advantageous when a stable magnetic force is required for the brake — for example, in precision applications such as CNC machines or robotics, where voltage uniformity is essential.

Conclusion

While half-wave rectifiers offer advantages in simplicity and cost efficiency, bridge rectifiers provide smoother, more efficient, and power-friendly operation. These benefits often make them the preferred choice for demanding or performance-critical applications.

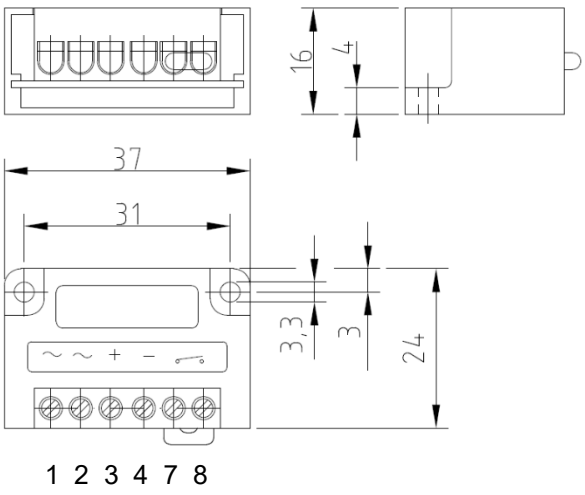
DC-side Switching (Direct Current)

Figure 1



AC-side Switching (Alternating Current)

Figure 2



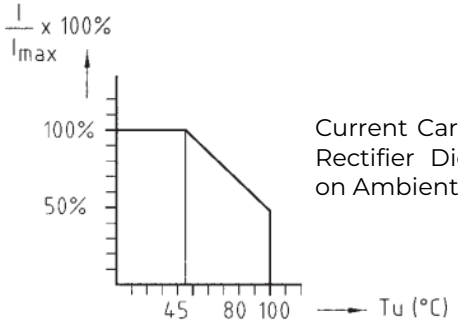
Electrical Connections (Terminals)

1, 2 – Input voltage [VAC]

3, 4 – Brake coil [VDC]

5, 6 – DC-side switching [Figure 1]

7, 8 – Wechselstromseitiges Schalten [Figure 2]
(Switch bypassed)



Current Carrying Capacity of Rectifier Diodes Depending on Ambient Temperature

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Technical Data

		PME 400-S	PME 500-S	PMB 400-S
Maximum input voltage (+10%)	VAC	400	500	400
Output voltage	VDC	0,45 x UAC	0,45 x UAC	0,9 x UAC
Maximum output voltage	VDC	180	225	360
Maximum output current	A	1	1	2
Peak reverse voltage	V	1500	1500	1500
Terminal cross-section	mm²	0,34 – 1,5	0,34 – 1,5	0,34 – 1,5
Ambient temperature	°C	-20 to +100	-20 to +100	-20 to +100
Certification marks		CE	CE	CE
Article number		17908	17931	17913

Safety

Meaning of Safety and Warning Symbols

Danger — Indicates a risk of fatal injury due to electric shock.

Warning — Indicates a potential risk of fatal injury.

Validity

- The information provided in the technical documentation, as well as any application-specific advice, is given to the best of our knowledge and based on our understanding of the application. This also applies regarding potential infringement of third-party intellectual property rights.

Responsibility of the User — The use and application of our devices in end products are beyond our control and are therefore solely the responsibility of the user.

Qualification

- Installation, commissioning, and maintenance must only be carried out by qualified personnel (in accord ance with IEC 364 or VDE 0100).

- The power supply must be disconnected before installing or servicing the device.

Design modifications reserved. Please check the ordering data before placing an order.

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