



33 43312A03

POWER COLLECTION

Single-phase overexcitation rectifier

This single-phase overexcitation rectifiers specified below are designed to increase the attractive force, to reduce the attraction time of actuating solenoids, to reduce the coupling and disconnection times of clutches and brakes and to reduce the power consumption of clutches, brakes and actuating solenoids. All work must only be carried out by suitably qualified personnel. Make sure that no voltage is applied during connection. The specifications on the rating plate and the information provided in the circuit diagram or in the datasheet must be strictly observed.

Technical specifications

Type 33 433..	12A03
Rectifier type	full wave rectifier with synchronous switched
Input voltage	230 / 115 VAC \pm 10%
Frequency	40 – 60 Hz
Output voltage:	
Overexcitation	205/102 VDC
Holding voltage adjustable at 50 Hz	20 – 120 VDC at 230 VAC 10 – 60 VDC at 115 VAC
Maximum output current:	
with overexcitation	16 ADC
holding current	8 ADC
Overexcitation time adjustable	0.2 – 4 s
Min. recovery time	400 ms
Required relay output for powerless switching	15 mA / 115/230 VAC potential separated
Fuse: Fine wire fuse 6.3 x 32 delayed	T8/250 V
Connection	8-pole plug in screw terminals, 2,5 mm ² fine wire
Ambient temperature	0 – 70 °C See diagram 2 for derating
Protection as per EN 60529	IP 00

**Specification subject to change without notice.
Please observe ordering data!**

CE

EMC Directive 2004/108/EEC:

Compliance with the following standards is confirmed:

- EN 50081-2 (Emission):
- EN 55011 (VDE 0875, part 11, 1992)
- Group 1, Class A conducted interference
- Group 1, Class B radiated interference
- EN 61000-6-2 (Immunity):
- EN 61000-4-3 (1997) severity level 3
- EN 61000-4-4 (1996) severity level 3
- EN 61000-4-5 (1996) severity level 3

Low Voltage Directive 2006/95/EEC:

Compliance with the following standards is confirmed:

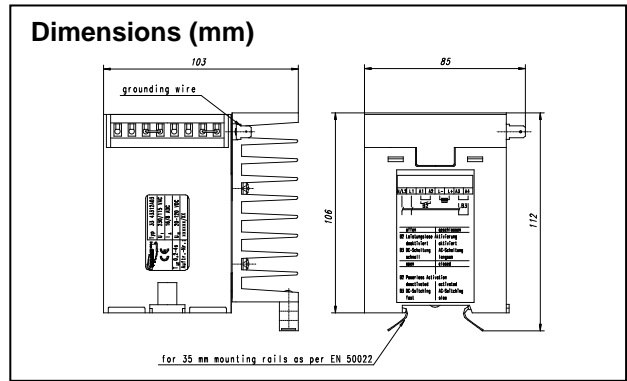
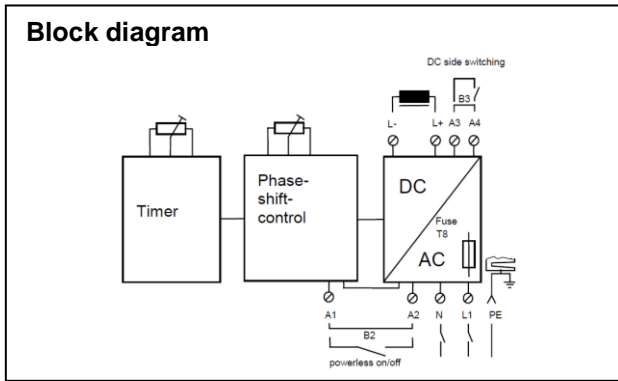
- HD 625.1S1 (1996), (VDE 0110) insulation coordination, EN 60529 (1991) IP 54 external mounting

Machinery Directive 2006/42/EC:

These products are considered components in the sense of Machinery Directive 2006/42/EC and must not be put into service until the machinery in which they are incorporated has been declared in conformity with the provisions of the EC Directives.

ROHS

We hereby declare that the above-mentioned products comply with the requirements of the RoHS Directive 2011/65/EU on the restriction of the usage of certain hazardous substances in electrical and electronic equipment, assigned to equipment category 11.



Operating range

Diagram 1: Permissible maximum switch frequency
Rectifiers installed in switch cabinets with a minimum distance of 30 mm to adjacent units.

Formula 1: Permissible maximum switch frequency

f_s : max. switch frequency

I_{Hmax} : max. holding current
(see technical data)

I_H : adjusted holding current

ED: duty cycle

I_U : overexcitation current

t_U : overexcitation time

$$f_s = \frac{I_{Hmax}^2 - I_H^2 * ED}{(I_U^2 - I_{Hmax}^2) * t_U}$$

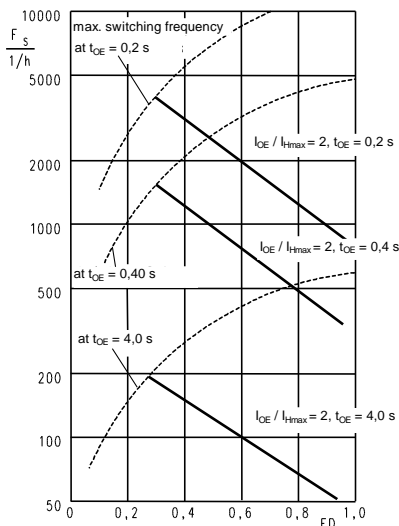
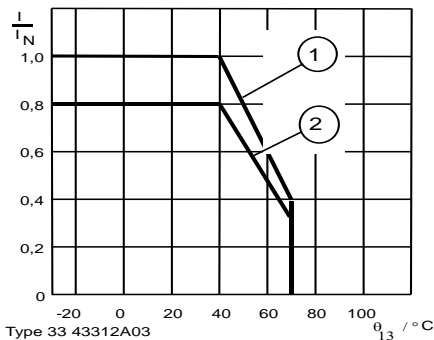


Diagram 2: Admissible current load at ambient temperature

① distance between 2 devices minimum 30 mm

② distance between 2 devices below 30 mm



Type 33 43312A03

Factory settings

Type 33 433	Overexcitation time	Holding voltage
	t_{OE} [s]	V [VDC]
	Nominal value	Nominal value
12 A03	2 ± 0.2	63 ± 3

Application hints

The technical data apply to rectifiers installed in switch cabinets with a minimum distance of 30 mm to adjacent units. In case the distance to other components is less than 30 mm, the power consumption must be reduced by 20%. The rectifier operates as bridge rectifier during the selected overexcitation time and subsequently reduces the output voltage to the selected holding voltage by phase shift control. It is crucial to ensure that the total power consumption does not exceed the rated power of the connected unit. The rectifier must only be used within the limits shown in diagram 1 in order to avoid overloading. The maximum switching frequency can be determined on the basis of formula 1. The overexcitation time should be lower than 80% of the duty cycle. Ongoing DC-side switching when operating in overexcitation mode isn't allowed due to a possible damage of the protection circuit. The holding voltage adjustment should be done with connected load.

Attention!

Before activation the ground wire has to be connected. To use the powerless switching feature a potential free relays contact is necessary because the terminals are internal connected with the AC input.

Ordering example	Overexcitation rectifier
$U_E = 230/115$ VAC	33 433 .. A03
10 I = 4/2 ADC	_____
11 I = 8/4 ADC	_____
12 I = 16/8 ADC	_____
$U_E = 380/415$ VAC	33 433 .. A00
10 I = 6/3 ADC	_____

Attention: The several types have different dimensions.

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