

GFA 300

ground fault relay for generators

GFA 300 Features

- ◆ No C.T.s
- ◆ Adjustable alarm level 100-1200 A
- ◆ Adjustable time delay
- ◆ Monitoring loss of ground connection
- ◆ Metering output
- ◆ Vibration-resistant

GFA 300 Applications

- ◆ Single generator
- ◆ Parallel generators
- ◆ Parallel generators with 3 pole or 4 pole transfer switches
- ◆ Multiple power sources

The GFA 300 is designed to provide ground fault protection or ground fault indication for generator systems in accordance with NEC Sections 700-26 and 700-7(d).

GFA 300 Operation

Ground Fault Operation

The GFA 300 has a unique measuring system that allows the user to detect ground fault current for any generator application. The GFA 300 uses no C.T.s. It is simply connected between the Generator-Neutral and the Generator-Ground. The unit's sensing method measures total system ground fault current which flows from Generator-Neutral to Generator-Ground. The GFA 300 has an additional monitoring function. It continuously monitors the neutral to ground connection and will alarm immediately if this connection is broken.

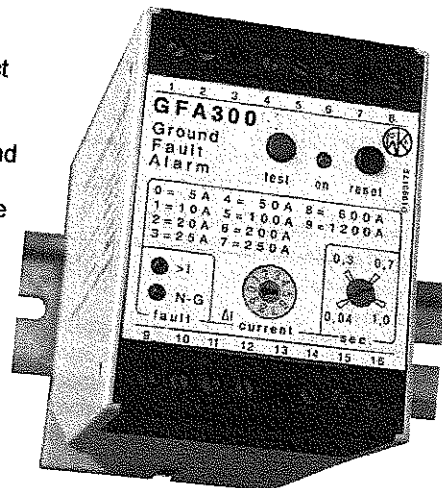
Prior to the introduction of the GFA 300, the only reliable way for conventional ground fault equipment to measure ground fault current on a generator required the use of a 4 pole transfer switch. The open neutral pole of the 4 pole transfer switch allowed a clear path for the ground fault current to flow into. For generators using 3 pole transfer switches, there is no clear path for the ground fault current to flow in.

● 3 Pole Automatic Transfer Switch (ATS)

The GFA 300 is the only ground fault device that will measure ground fault current when using a 3 pole ATS. Conventional ground fault equipment cannot distinguish between single phase loads, multiple fault paths and actual ground fault current. The GFA 300 sees only the ground fault current.

● Paralleling Generators and Multiple Sources

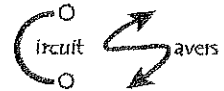
The GFA 300 is the only ground fault device that will measure ground fault current when generators are installed in parallel or there are multiple power sources. When a ground fault occurs under these circumstances, there will be multiple paths for the current to flow in different ground path resistances. It is impossible to tell how the ground fault current will divide. Conventional ground fault sensing equipment may or may not work. The GFA 300 will always work. It sees the ground fault current at all times which flows from Generator-Neutral to Generator-Ground.



GFA300 Technical Information

Mounting and Wiring

The GFA 300 can be either DIN rail mounted (35mm) or screw-mounted by the 2 holes at the corners of the device. Terminals are clearly marked for connection.



Input Power Supply

The GFA 300 requires an auxiliary power supply of 24 V dc (18 -33 V).

Trip/Alarm Output Relay

One set of changeover trip/alarm contacts is provided rated at 250V, 5A (UL: 125V, 5A). These relays can be set for tripping or remote indication. They can be configured for either manual or auto reset. Factory setting is Auto Reset. To adjust relay for manual reset link terminals 4-5, no link for auto reset.

LEDs

In addition to the trip relay, there are three LED indicators on the front cover. The green LED indicates POWER ON. There are two red LEDs indicating different conditions on the ground fault function.

- ">" indicates ground fault in excess of preset trip level
- "N-G" indicates open ground connection

Metering Output

The GFA 300 has a metering output signal of 0 -1 mA FSD. The output signal is reflected as a percentage (0-100%) and is proportional to the trip setting.

Test/Reset

The test button, S1 is used to simulate a ground fault condition internally as a means of testing the relay function. The reset button, S2 resets the alarm after fault clearance.

Technical Data

General

Nominal AC insulation voltage	600 V ac
Insulation group to UL 1053 and VDE 0110(01.83)	Dirty group 2
Test voltage	2000 V ac
Operation class	Continuous
Input supply voltage	DC 18-33 V
Maximum self-consumption	1W
Alarm relay contacts	Volt-free NO/NC
Switching capacity	1100 VA
Rated contact voltage	250V (UL: 125V)
Continuous current, resistive	5A
Breaking capacity	
At: 240V ac, P.F.=0.4	3A
At: 110V dc, @L/R=0	0.3A
Relay alarm memory	Manual/Auto reset
Operating ambient temperature	-10° to +60° C
Storage ambient temperature	-40° to +70° C

Mounting

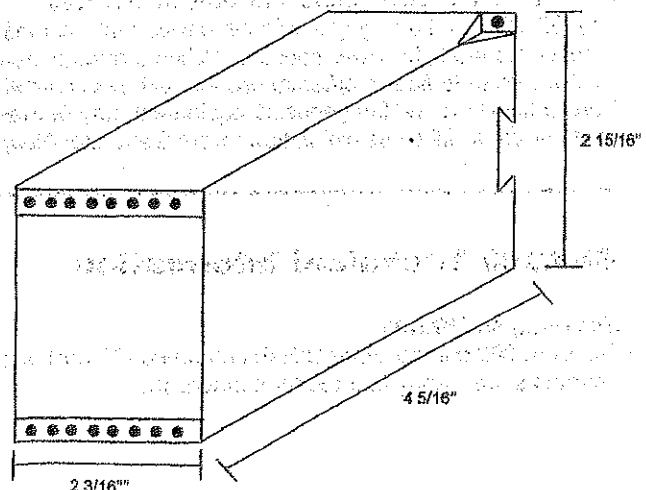
Terminal	M 2.5
Terminal capacity	0.5 to 4 mm ²
operation force	max. 0.8Nm
Weight	485g

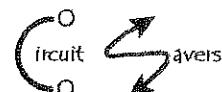
Measuring Circuit

Trip level	10 steps
	100-150-200-250-300-450-600-750-800-1200 A
Neutral to Ground connection resistor, base for:	
3 pole transfer switch	2.0mΩ
4 pole transfer switch	0.2mΩ
stray voltage on measuring circuit	
between Terminal 6-8	max. 600V
Time delay	0 - 1S
Response time	<30 mS
Metering driver	not potential free
independent current	0 - 1mA
max. load	5kΩ

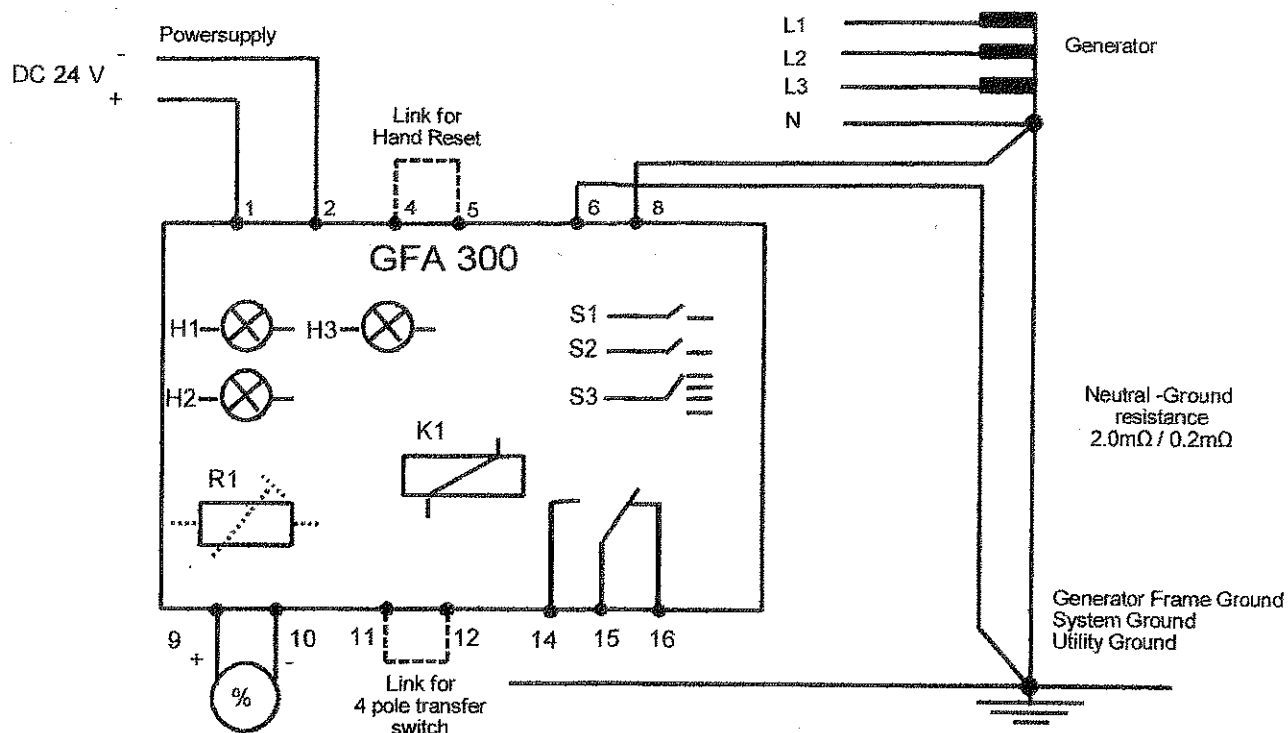
Industry Standards NEC Sections 700-26, 700-7(d)
UL 508

GFA 300 Housing Dimensions





Connection Diagram



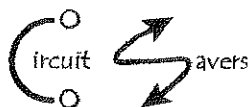
Legend

H1	LED green POWER ON
H2	LED red GROUND FAULT
H3	LED red LOSS OF GROUND CONNECTION
K1	Alarm relay
S1	Internal test button
S2	Internal reset button
S3	Ground fault current selector switch
R	Time delay potentiometer
%	1mA meter with 100% scale

Terminals

1-2	Input power supply DC 24 V
4-5	Link for manual reset
6	Ground connection
8	neutral connection
9-10	metering output
11-12	link for 4 pole ATS connection no link for 3 pole ATS connection (factory setting)

The GFA 300 is manufactured by Woka-Elektronik GmbH. Circuit Savers is an authorized US distributor for Woka electrical products. You can contact Circuit Savers at (972) 370-0664, email wistie@airmail.net



For technical assistance contact the above
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