

BPGF100 Ground Fault Relay

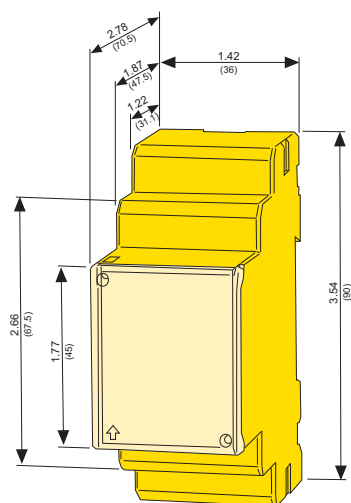
Retain for future use.

Introduction

This document is intended as a reference guide for installing and using a BPGF100 service entrance, ground fault (GF) relay. This document includes installation, setup, and usage instructions.



Description of Components



Dimensions shown in Inches (mm).

The BPGF100 GF relay is a control-powered ground fault protection device used to protect an electrical distribution system from ground faults. The relay receives input from the connected current transformers, processes the information, and, if necessary, changes the state of output contacts. The output contacts are intended to be connected to the protection device to initiate a trip in the case of a detected ground fault.

The relay supports a pickup range of 60–1200 A when using a compatible current transformer. Supported current transformers meet the following requirements:

- Primary turns ratio of 600 or 1000
- 1 A, 5 A, or 10 A secondary rating

When the ratio of the current transformer is entered into the settings of the BPGF100 GF relay, the value shown on the device's LCD display will be the value read on the primary side of the current transformer. Factory default settings support a 600:1 ratio current transformer. 1000:1 current transformers are supported after a settings adjustment.

Contents

Ensure that the following components have been included with the product:

- BPGF100 ground fault relay
- Surface mounting kit

Additional Components Required

- Compatible current transformer—One current transformer is required per device. Refer to Ground Fault Sensors on page 8 for information on compatible devices.
- Wires—Use AWG 24-14 (0.25 - 0.75 mm²). Use copper wiring only.
- External supply voltage—Use 120 VAC, 60 Hz as control power for the relay.
- Associated circuit breaker or fused switch with shunt trip.

FCC Notice

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. This Class A digital apparatus complies with Canadian ICES-003.

Hazard Categories and Special Symbols

Read these instructions carefully and look at the equipment to become familiar with the device before trying to install, operate, service, or maintain it. The following special messages may appear throughout this bulletin or on the equipment to warn of hazards or to call attention to information that clarifies or simplifies a procedure.



The addition of either symbol to a “Danger” or “Warning” safety label indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed.



This is the safety alert symbol. It is used to alert you to personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

⚠ DANGER

DANGER indicates a hazardous situation which, if not avoided, **will result in** death or serious injury.

⚠ WARNING

WARNING indicates a hazardous situation which, if not avoided, **could result in** death or serious injury.

⚠ CAUTION

CAUTION indicates a hazardous situation which, if not avoided, **could result in** minor or moderate injury.

NOTICE

NOTICE is used to address practices not related to physical injury. The safety alert symbol is not used with this signal word.

NOTE: Provides additional information to clarify or simplify a procedure.

Please Note

Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

A qualified person is one who has skills and knowledge related to the construction, installation, and operation of electrical equipment and has received safety training to recognize and avoid the hazards involved.

Safety Precautions

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E or CSA Z462.
- This equipment must be installed and serviced only by qualified electrical personnel.
- Perform such work only after reading and understanding all of the instructions contained in this bulletin.
- Turn off all power supplying this equipment before working on or inside equipment.
- Always use a properly rated voltage sensing device to confirm power is off.
- Replace all devices, doors, and covers before turning on power to this equipment.

Failure to follow these instructions will result in death or serious injury.

Testing

Perform testing after installation, periodically, and following any severe electrical fault.

NOTICE

HAZARD OF EQUIPMENT DAMAGE

Do not perform high pot or megger tests. These are high-voltage insulation tests which can damage relay.

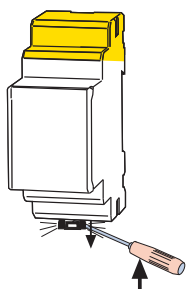
Failure to follow these instructions can result in equipment damage.

1. Make sure all connections are correct and secure.
2. Energize control power to module. The power LED should light (see Front Display on page 10 for the location).
3. If the power LED does not light, see Troubleshooting on page 23.
4. If the module still does not function, contact your local Schneider Electric representative.

NOTE: Use primary injection testing on system to verify system operation. Alternatively, apply a signal to test circuit of sensor to simulate ground fault.

Installation

DIN Rail Mounting



1. Install a 1.375 in. (35 mm) DIN rail for relay mounting.
2. Using a flathead screwdriver, pull the bottom mounting clip away from the relay until it clicks and provides sufficient clearance for mounting onto the DIN rail. Refer to the figure at left.
3. Slide the relay onto the top side of the DIN rail, then rotate it slowly downward to snap onto the bottom side of the rail.
4. Push the bottom mounting clip back in until the relay is locked into position.

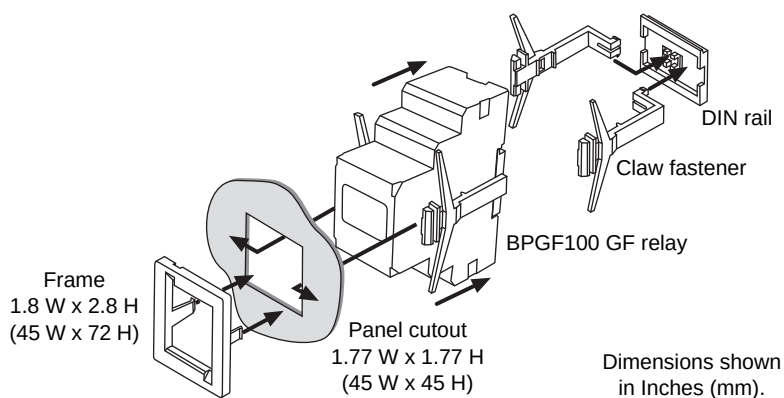
Panel Front Mounting

The supplied mounting kit (part no. XM420) will be used to mount the BPGF100 GF relay to a panel front. The display and buttons will be accessible without opening the panel. Refer to the figure below.

NOTE: Do not install the included DIN rail into the panel. The included rail is used to hold the BPGF100 GF relay to the panel front.

NOTE: All wiring must be completed before panel mounting the relay, otherwise terminals will become inaccessible.

Mounting BPGF100 GF Relay to Panel Front



1. Secure the cutout template from instruction bulletin 80262-402-01 to the panel front, and trace the 1.77 in. x 1.77 in. (45 mm x 45 mm) cutout.
2. Using a punch or saw, cut out the traced square on the panel front.
3. Attach claw fasteners to the included DIN rail as shown in the figure above.
4. Slide the relay front through the panel cutout. Attach claw fasteners to the sides of the cutout until the relay is securely attached.
5. From the front of the panel, slide the mounting frame over the relay front and secure it to the panel cutout.

Relay Removal

Door-Mounted

1. Disconnect all power before servicing.
2. From inside the panel front, locate the claw fastener of the relay mounting bracket at the place where it contacts the inside of the door.



3. Insert a small, thin, flathead screwdriver between the claw fastener and the exterior front frame catch. This will unlatch the exterior frame catch from the relay claw fastener catch point. Do this again on the other side of the relay. Remove the exterior frame from the panel.



4. Remove the BPGF100 GF relay from the panel cutout by squeezing both sides of the claw fastener together, inward towards the relay, to disengage the slots on the claw fastener from the cutout in the door.
5. Disconnect the wires from the screw terminals, if necessary.
6. For re-installation, see Panel Front Mounting on page 5.

DIN Rail-Mounted

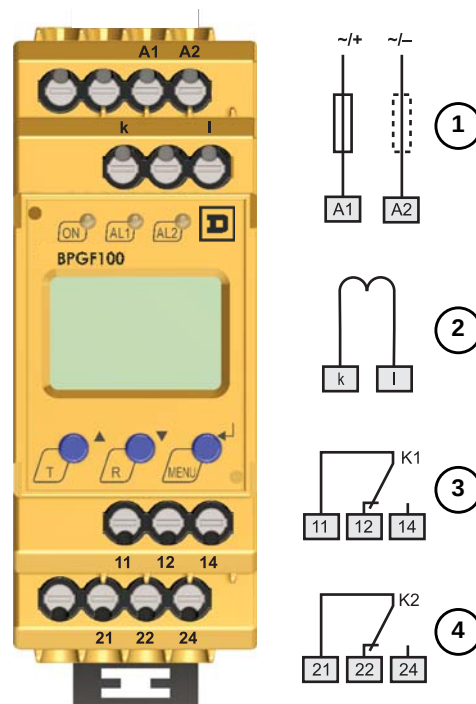
1. Disconnect all power before servicing.
2. To release the relay from the DIN rail, first locate the black clip at the rear of the relay (the side opposite the LCD screen). Pull downwards on the black clip until it clicks—the relay is no longer locked onto the DIN rail.
3. Remove the relay from the DIN rail by rotating the relay slowly upwards approximately 30° and lifting it upwards away from the rail. The relay is now free from the DIN rail.
4. Disconnect the wires from the screw terminals, if necessary.
5. For re-installation, see DIN Rail Mounting on page 5.

Wiring

Refer to the wiring diagram below. Note the following instructions before wiring the relay:

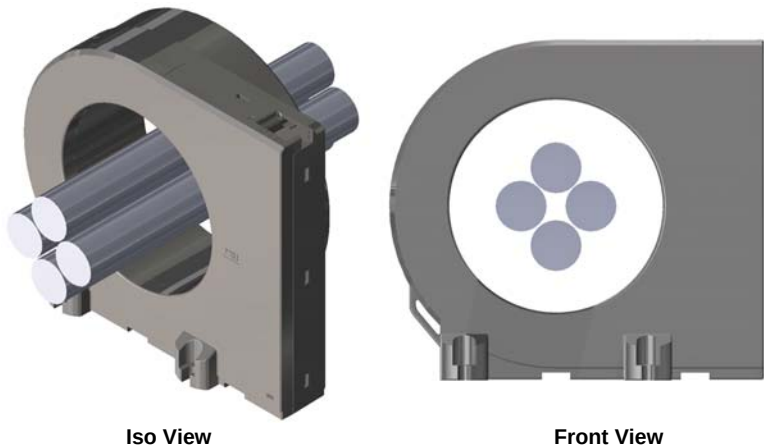
- Use minimum 24, maximum 14 AWG size wire.
- Use copper wiring only.
- Appropriate wiring stripping length is 0.3 in. (8 mm).
- Torque wire binding screws to 4–5 lb-in (0.5–0.6 N•m).
- A compatible current transformer is required for proper operation. Compatible current sensors support a 600–1000 primary turns ratio, and a secondary rating of 1, 5, or 10 A. The factory default setting for current transformers is a 600:1 ratio.
- Refer to Contacts on page 9 for detailed information regarding wiring and using the output dry contacts.

1. Connection to supply voltage—120 VAC, 60 Hz, 5 A fuse required.
2. Connection to external current transformer (CT). All system conductors, including the neutral, are routed through the CT. Refer to Current Transformer Routing on page 8 for instructions on routing system conductors through the current transformer. Refer to the table on page 8 for compatible current transformers.
3. Relay K1, Form C contact — this contact changes state when the threshold alarm is activated. Refer to Contacts on page 9 for more information.
4. Relay K2, Form C contact— this contact changes state when the main pickup alarm is activated. Refer to Contacts on page 9 for more information.



Current Transformer Routing

All system conductors, including the neutral, must be routed through the current transformer. Ensure that conductors are placed centrally in the current transformer. Direction is unimportant. Refer to the figures below.



Ground Fault Sensors

Use only ground fault sensors listed in this table. One sensor is required per BPGF100 GF relay. All sensors are rectangular, open-frame type.

Sensor Catalog Number	Sensor Type	CT Ratio	Overall Length [▲]	Overall Width [▲]	Usable Window Length [▲]	Usable Window Width [▲]
GT-1327	Rectangular, open-frame	600:1	31.3 (795)	15.2 (386)	24.0 (610)	9.5 (241)
GT-1330			34.3 (871)		27.0 (686)	
RZ 10-21		1000:1	23.0 (584)	15.5 (394)	19.0 (483)	8.5 (216)
RZ 10-31			35.4 (899)		29.0 (737)	

[▲] Dimensions are shown in inches (mm).

Contacts

Using Output Contacts with Default Settings

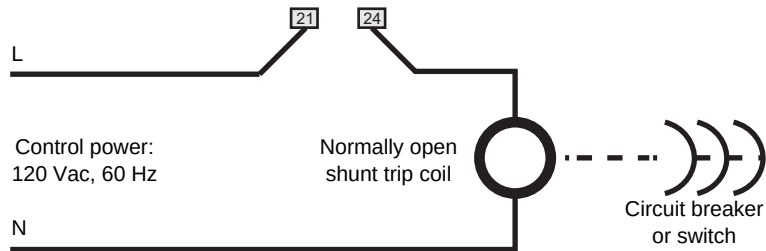
The following applies only when using the factory default settings. Changing any settings related to outputs will affect contact behavior.

The BPGF100 GF relay has two Form C contact outputs. By default, Relay 1 (marked terminals 11/12/14) switches on activation of the pre-alarm, and Relay 2 (marked terminals 21/22/24) switches on activation of the main pickup alarm.

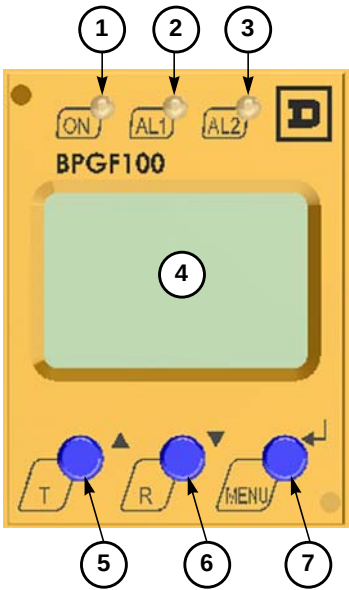
Under default conditions, Relay 2 operates in normally de-energized mode and behaves in the following manner:

- During the normal condition, the contact is not energized. Terminals 21 and 22 are closed and terminals 21 and 24 are open.
- When the BPGF100 GF relay enters the alarm condition, the contact will be energized. Terminals 21 and 22 will open and terminals 21 and 24 will close.

The figure below shows a typical application of wiring the main alarm contact to a normally open shunt trip breaker or switch. Consult the manufacturer of the interruption device to determine proper contact behavior before connecting any interruption device. Changing any contact settings changes this wiring diagram.



Front Display



- 1. LED “ON” (green): Illuminates when power is applied to the device.
- 2. LED “AL1” (yellow): Illuminates when the pre-alarm is activated.
- 3. LED “AL2” (yellow): Illuminates when the main alarm is activated.
- 4. LCD screen
- 5. TEST / UP button: Activates self-test / scrolls up inside main menu.
- 6. RESET / DOWN button: Resets device / scrolls down inside main menu.
- 7. MENU / ENTER button: Activates main menu / Confirms (momentary push) or goes back a step (held > 1.5 s) inside main menu.

NOTE: When the actual current reaches approximately 3.5 times the relay pickup value, the display will show a value with the “greater than” symbol: > . This is due to a readout accuracy issue. Raising the pickup value temporarily will allow the actual current to be displayed more accurately.

Default Values

This table shows important default values for the device that are adjustable during device setup.

Feature	Default Value
Current transformer turns ratio	600 (for 600:1 current transformer)
Pickup level	60 A (using 600:1 current transformer)
Threshold alarm	50% of main pickup alarm (600 A)
Startup delay (only applies during initial device power-up)	0.1 s
Relay K1 (Terminals 11/12/14)	Switches on threshold activation, normally de-energized operation
Relay K2 (Terminals 21/22/24)	Switches on main alarm activation, normally de-energized operation

Settings Adjustments

The instructions in this section show how to adjust settings. Follow the appropriate diagram to adjust settings in the device.

Menu Legend

The following table provides a description of each button used in the main menu.

	DOWN ARROW / RESET Button
	UP ARROW / TEST Button
	MENU / ENTER Button
 Short press	Push button quickly
 Hold > 1.5 sec	Hold button for at least 1.5 seconds, then release

Change Current Transformer Ratio

NOTE: Change this option only if you are using a current transformer with a different turns ratio than the factory default of 600:1. Otherwise, do not change this setting.

NOTE: Change the current transformer ratio before setting a pickup value. Otherwise, the pickup value will be incorrect and will need to be re-entered.

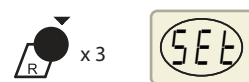
NOTICE
HAZARD OF IMPROPER OPERATION Failure to use the correct ratio will cause improper readings. Failure to follow these instructions will result in equipment damage.

Follow the steps below to change the current transformer ratio from the default 600:1 to 1000:1. The value selected is the net transformation ratio. For example, both a 600:1 and a 3000:5 transformer would use a value of 600. A 1000:1 or 5000:5 current transformer would require changing the value to 1000.

1. Hold the MENU button for > 1.5 s. A flashing “AL” will appear on the screen.



2. Press the DOWN button three times. A flashing “SEt” will appear on the screen.



3. Press the MENU button. The word “HI” will appear in the middle of the screen.



4. Press the DOWN button once. A flashing “n” will appear in the top right corner, and “0.60k” will appear in the middle of the screen. This indicates that a transformer ratio of 600 is currently set.



5. If changing the ratio to 1000 is necessary, press the MENU button. The “n” will become solid, and the number in the middle will flash.



6. Press the DOWN button once. The number in the middle will change to “1.00k.” This indicates that the CT ratio has changed to 1000.



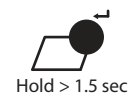
7. Press the MENU button. The number will stop flashing and the “n” will flash.



8. Hold the MENU button for > 1.5 s. A flashing “SEt” will appear on the screen.



9. Hold MENU button again for > 1.5 s. The device will exit the main menu and return to the normal display.



Note:  = flashing symbol

Pickup Value

Follow the steps below to adjust the pickup value. The pickup value can be adjusted in the following increments:

Pickup Value Increments

Current Transformer Ratio	Desired Value Range	Setpoint Increment
600	60–600 A	6 A
	600–1200 A	60 A
1000	100–1000 A	10 A
	1000–1200 A	100 A

By default, when the pickup value is activated, the following state changes will take place:

- Alarm LED “AL2” will illuminate
- Relay K2 (terminals 21/22/24) will change state

1. Hold the MENU button for > 1.5 s. A flashing “AL” will appear on the screen.



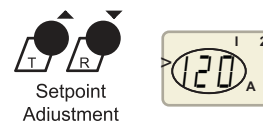
2. Press the MENU button. A number will appear in the middle of the screen, with a flashing “I 2” appearing in the top right hand corner. This is the value for the main alarm, in amperes.



3. Press the MENU button. The “I 2” indicator will become solid, and the middle number will flash.



4. Press the UP and DOWN buttons to adjust the pickup alarm to the desired level.



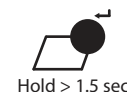
5. Once complete, press the MENU button. The middle number will become solid, and the “I 2” indicator will flash.



6. Hold the MENU button for > 1.5 s. A flashing “AL” will appear on the screen.



7. Hold MENU button again for > 1.5 s. The device will exit the main menu and return to the normal display.



Note:  = flashing symbol

Response Delay

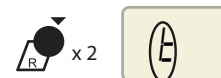
The response delay is activated when the BPGF100 GF relay sees a current level above the pickup value. The default setting is 0.10 seconds.

Follow the steps below to adjust the response delay.

1. Hold the MENU button for > 1.5 s. A flashing "AL" will appear on the screen.



2. Press the DOWN button twice. A flashing "t" will appear on the screen.



3. Press the MENU button. A number will appear in the middle of the screen. A flashing "ton" will appear in the lower left hand corner and a flashing "1" will appear in the top right corner.



4. Press the DOWN button. The flashing "1" in the top right corner will change to "2." This is the response delay for the main pickup alarm.



5. Press the MENU button. The "2" and "ton" will become solid, and the number in the middle will flash.



6. Press the UP and DOWN buttons to adjust the response delay to the desired value. Each press increases or decreases the response delay by 0.01 seconds.



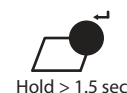
7. Once adjustment is completed, press the MENU button. The middle number will become solid, and "ton" and "2" will flash.



8. Hold the MENU button for > 1.5 s. A flashing "t" will appear in the center of the screen.



9. Hold MENU button again for > 1.5 s. The device will exit the main menu and return to the normal display.



Note:  = flashing symbol

Activate Password Protection

NOTE: This procedure is informational-only since the BPGF100 GF relay is delivered with a factory-set password.

1. Hold the MENU button for > 1.5 s. A flashing "AL" will appear on the screen.



2. Press the DOWN button three times. A flashing "SEt" will appear on the screen.



3. Press the MENU button. The word "HI" will appear in the middle of the screen.



4. Press the DOWN button twice. A flashing lock icon will appear in the lower right corner, and "OFF" will appear on the left side of the screen.



5. Press the MENU button. The lock symbol will become solid, and a flashing "off" will appear in the lower left corner of the screen.



6. Press the DOWN button once. A flashing "on" will appear in the lower left corner of the screen, and the middle will show a number.



7. Press the MENU button. The "on" will disappear, and the number will flash.



8. Press the UP and DOWN buttons to change the value to the desired password.



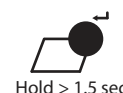
9. Once completed, press the MENU button. The word "on" will appear in the middle to indicate that the new password has been set. The lock icon will flash.



10. Hold the MENU button for > 1.5 s. A flashing "SEt" will appear on the screen.



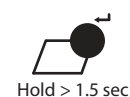
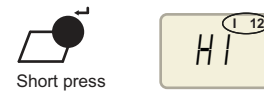
11. Hold the MENU button again for > 1.5 s. The device will exit the main menu and return to the normal display. The lock icon will appear in the lower right corner of the screen.



Note:  = flashing symbol

Change Password

1. Hold the MENU button for > 1.5 s.
A flashing "AL" will appear on the screen.
2. Press the DOWN button three times.
A flashing "SEt" will appear on the screen.
3. Press the MENU button. The word "HI" will appear in the middle of the screen.
4. Press the DOWN button twice. A flashing lock icon will appear in the bottom right corner, and "on" will appear in the middle.
5. Press the MENU button. The lock symbol will become solid. Three flashing dashes will appear in the middle of the screen.
6. Press the UP and DOWN buttons to display the password originally stored in the device (the example shown is "470").
7. Press the MENU button. The number will become solid, and a flashing "on" will appear in the lower left corner.
8. Press the MENU button. The "on" will disappear, and the number in the middle will flash.
9. Press the UP and DOWN buttons to adjust the password to a new value.
10. Press the MENU button. The word "on" will appear in the middle to indicate the new password has been set and the lock icon will flash.
11. Hold the MENU button for > 1.5 s.
A flashing "SEt" will appear on the screen.
12. Hold the MENU button again for > 1.5 s. The device will exit the main menu and return to the normal display.



Note:  = flashing symbol

Deactivating Password to Change Settings

- During any attempt to change settings, a prompt will appear to enter the password. Follow the steps below to allow settings to be changed.
- Password protection is restored after exiting the main menu. Re-entering the main menu and attempting to change settings will require re-entering the password.
- The password is stored in non-volatile memory and is retained on power loss.
- After five minutes of idle time in the menu, the device will automatically exit to the normal display. Entering the menu again requires re-entering the password to change settings.

1. When attempting to modify any settings with password protection active, three flashing dashes will appear on the screen along with the lock symbol in the lower right corner.



2. Press the UP and DOWN buttons to select the password stored in the device.



3. Press the MENU button.

If the correct password was entered, the settings option originally selected will appear and can now be modified.



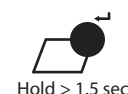
If an incorrect password was entered, the device will exit the main menu and return to the normal display.

4. Password protection will be restored upon exiting the main menu.

Note:  = flashing symbol

Remove Password Protection

1. Hold the MENU button for > 1.5 s.
A flashing "AL" will appear on the screen.
2. Press the DOWN button three times.
A flashing "SEt" will appear on the screen.
3. Press the MENU button. The word "HI" will appear in the middle of the screen.
4. Press the DOWN button twice. A flashing lock icon will appear in the bottom right corner, and "on" will appear in the middle.
5. Press the MENU button. The lock symbol will become solid. Three flashing dashes will appear in the middle of the screen.
6. Press the UP and DOWN buttons to display the password originally stored in the device (the example shown is "470").
7. Press the MENU button. The number will become solid, and a flashing "on" will appear in the lower left corner.
8. Press the DOWN button once. The word "OFF" will appear in the middle of the screen, and a flashing "off" will appear in the bottom left corner.
9. Press the MENU button. The "off" in the lower left corner will no longer appear and the lock symbol will flash. This indicates the password has been deactivated.
10. Hold the MENU button for > 1.5 s.
A flashing "SEt" will appear on the screen.
11. Hold the MENU button again for > 1.5 s. The device will exit the main menu and return to the normal display.



Note:  = flashing symbol

Menu Structure / Settings Checklist

This section provides the menu structure of the BPGF100 service entrance, ground fault relay, along with a checklist of entered settings for the device.

	Description	Range	Factory Default	My Settings
AL	Trip level	60–1200 A	60 A	
> I 2				
> I 1	Prewarning	50–100% (as a percentage of the main pickup value)	50%	
Hys	Hysteresis	1–40%	15%	
OUT	Latching behavior (fault memory)	ON (latching) / OFF (non-latching) / CON (remains latched on power restore)	ON (latching)	
M				
K1 OP	Relay K1 operation	N/O (normally de-energized)	N/O (normally de-energized)	
K2 OP	Relay K2 operation	N/O (normally de-energized)	N/O (normally de-energized)	
RL	Reload cycles	0–100	0	
R1	Relay K1 trips on detected device error	ON	ON	
ERR				
> I 1	Relay K1 trips on prewarning	ON	ON	
> I 2	Relay K1 trips on main pickup alarm	OFF	OFF	
Tes	Relay K1 trips on device self-test	ON	ON	
R2	Relay K2 trips on detected device error	ON	ON	
ERR				
> I 2	Relay K2 trips on prewarning	OFF	OFF	
> I 1	Relay K2 trips on main pickup alarm	ON	ON	
Tes	Relay K2 trips on device self-test	ON	ON	
t	Response delay, prewarning	0–0.9 s	0.1 s	
ton1				
ton2	Response delay, main pickup alarm	0–0.9 s	0.1 s	
t	Startup delay (applies only on device startup)	0.1 s	0.1 s	
toff	Delay on release (to return to normal state)	0–300 s	1 s	
SET	Device mode of operation	HI	HI	
I 1 2				
n	Adjust transformer ratio (enter primary turns value, based on 1A secondary)	600 or 1000 Examples: 600 = 600:1 or 3000:5 1000 = 1000:1 or 5000:5	600	
ON / OFF	Password protection enable / disable	ON / OFF (0–999)	OFF	
FAC	Restore device to factory default settings			
SYS	For manufacturer use only			
INF	Displays device firmware version			
HIS	Shows last tripped value			
ESC				

Note: If using a CT ratio other than the factory default, change the ratio before entering in the pickup level.

Technical Data

Insulation coordination acc. to IEC 60664-1 / IEC 60664-3

Rated insulation voltage	250 V
Rated impulse voltage / pollution degree	2.5 kV / III
Protective separation (reinforced insulation) between	(A1, A2) - (k, l) - (11, 12, 14) - (21, 22, 24)
Maximum rated voltage of the system being monitored (conductor to be monitored directly connected)	
With protective separation	230 Vac
Without protective separation	400 Vac
Voltage test according to IEC 61010-1	2.21 kV
Supply voltage	
Supply voltage rating	100–240 Vac
Supply voltage tolerance	± 20%
Supply frequency rating	42–460 Hz
Power consumption	≤ 3 VA
Measuring circuit	
Rated frequency	42–460 Hz
Measuring range	AC 0.05–16 A
Overload capability, continuous	17.6 A
Overload capability < 1 s	40 A
Frequency display range	10–2000 Hz
Response values	
Ground fault alarm range	60–1200 A
Transformation ratio n	1–2000 (600) ▲
Relative percentage error (50 / 60 Hz)	± 3 % ± 2 digit
Relative percentage error (40–460 Hz)	± 5 % ± 2 digit
Hysteresis	1–40% (15%) ▲

Response times and delays

Start-up delay t	0–300 s (0.1 s) ▲
Response delay t _{on1}	900 ms
Response delay t _{on2}	900 ms
Delay on release t _{off}	0–300 s (1 s) ▲
Operating time t _{ae}	≤ 70 ms
Response time t _{an}	t _{an} = t _{ae} + t _{on1/2}
Recovery time t _b	≤ 300 ms

Displays, memory

Display range measured value	AC 0.01 x 6 A x n
Operating error (50 / 60 Hz)	± 3 % ± 2 digit
Operating error (40–460 Hz)	± 5 % ± 2 digit
Measured value memory	Stores last recorded alarm value
Password	off / 0–999 (off) ▲
Latching operation (fault memory)	on (latching) / off (non-latching) (on) ▲

Switching elements

Number of changeover contacts	2 SPDT relays
Operating principle	Normally energized or normally de-energized
Electrical service life	10,000 switching operations

Contact data acc. to IEC 60947-5-1

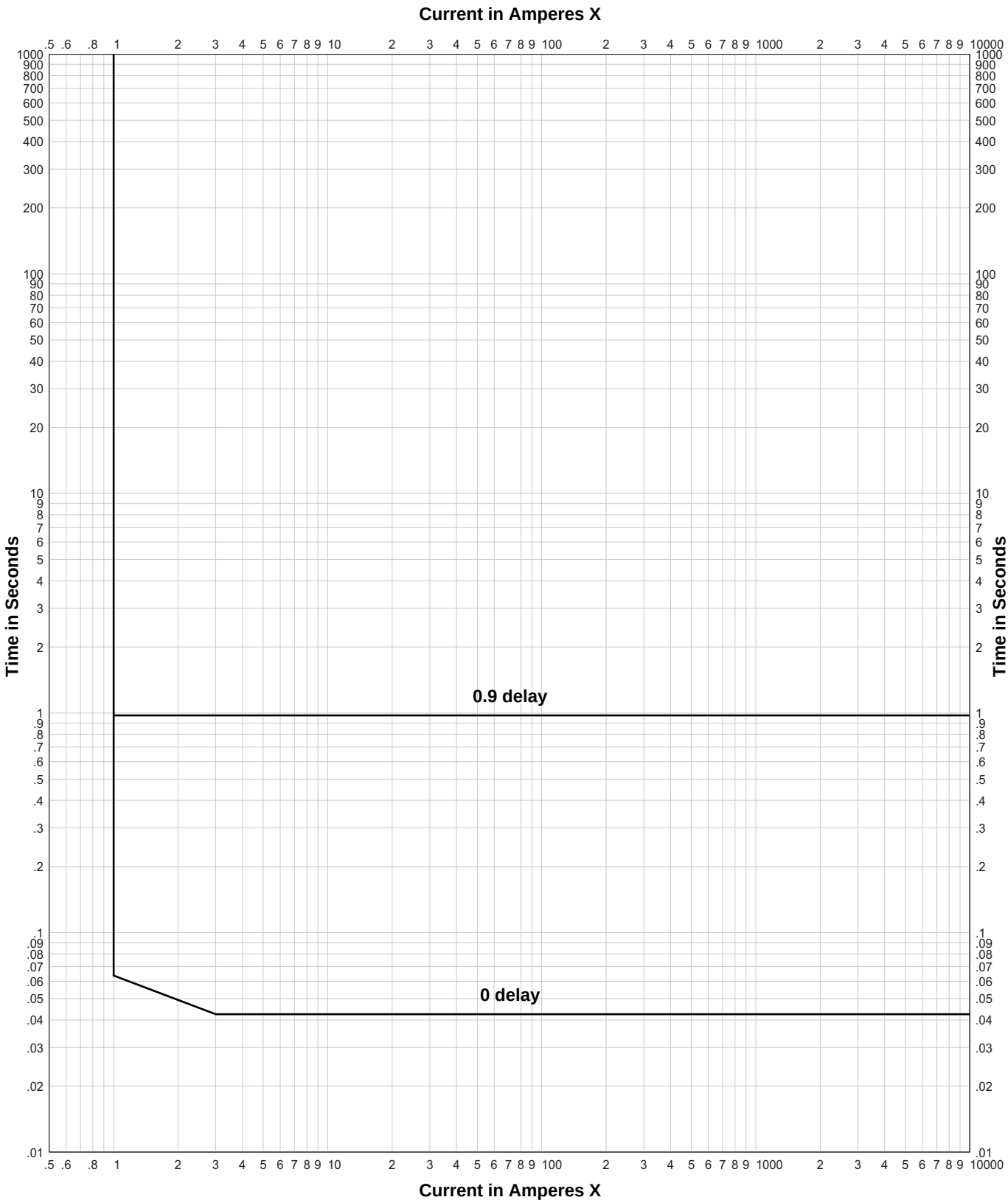
Utilization category	AC-13	AC-14	DC-12	DC-12	DC-12
Rated operational voltage	230 V	230 V	24 V	110 V	220 V
Rated operational current	5 A	3 A	1 A	0.2 A	0.1 A
Minimum contact load / gold-plated relay contacts	1 mA at AC/DC ≥ 10 V				

▲ Factory setting.

Environment / EMC	
EMC	IEC 61326-1
Operating temperature	-13 °F to +131 °F (-25 °C to +55 °C)
Climatic class acc. to IEC 60721	
Stationary use (IEC 60721-3-3)	3K5 (except condensation and formation of ice)
Transport (IEC 60721-3-2)	2K3 (except condensation and formation of ice)
Long-time storage (IEC 60721-3-1)	1K4 (except condensation and formation of ice)
Classification of mechanical conditions IEC 60721	
Stationary use (IEC 60721-3-3)	3M4
Transport (IEC 60721-3-2)	2M2
Long-time storage (IEC 60721-3-1)	1M3
Connection	
Connection	screw terminals
Connection properties:	
Rigid	0.2–2.5 mm ² (AWG 24–14)
Flexible without ferrules	0.2–2.5 mm ² (AWG 24–14)
Flexible with ferrules	0.2–1.5 mm ² (AWG 24–16)
Stripping length	0.3–0.35 in. (8–9 mm)
Tightening torque	4–5 lb-in (0.5–0.6 N•m)
Test opening, diameter	2.1 mm
Other	
Operating mode	continuous operation
Position of normal use	any
Degree of protection, internal components (IEC 60529)	IP30 (NEMA 1)
Degree of protection, terminals (IEC 60529)	IP20 (NEMA 1)
Enclosure material	polycarbonate
Flammability class	UL94V-0
DIN rail mounting acc. to	IEC 60715
Screw mounting	2 x M4 with mounting clip
Product standard	IEC 61010-1 and according to IEC 60255-6
Operating manual	TGH1400
Weight	≤ 5.6 oz. (160 g)

Trip Curve

NOTE: The BPGF100 relay has an accuracy of $\pm 3\%$.



Troubleshooting

Troubleshooting

Condition	Possible Cause	Solution
Intermittent operation	Loose terminal connections	Check all terminal connections and tighten any loose connections.
Power supply LED does not come on.	No voltage	Make sure power is connected to correct module terminals.
BPGF100 GF relay trips too quickly or too slowly.	Improper relay settings	Verify pickup level and delay time settings conform with system coordination study.

Sensor Terminals

Sensor Models	Secondary Terminals		Test Signal Terminals	
	Signal	Common	Signal	Common
GT Series	X1 X3	X2 X4	X6	9
RZ Series	W1	W2	R3	R4

Relay Terminals

Terminal Number	Description
24	Trip Solenoid N/O
21	Trip Solenoid Common
k	Ground Fault Sensor Input Common
l	Ground Fault Sensor Input
A1	120 Vac Input
A2	120 Vac Common

