Model BGFL (Relay)

Ground Fault Current Detection Systems
Trip Currents 5-60, 30-360, or 100-1200 A

Operating Range
Trip currents of 5-60, 30-360, or 100-1200 A.
Time delay from 0.10 to 1 second.
(Adjustable)

Input Power
2 VA plus shunt coil requirements. Rated @ 120 Vac.

Input Withstand
200,000 Amp. RMS for 3 cycles, 50/60 Hz

Nominal Input Voltages
120 Volts ac, 125 Volts dc, 24 Volts dc, 48 Volts dc

Frequency
50/60 Hz.

Ambient Temperature Range
-30°C to +60°C

Only for use with GFL sensors.

Approximate weight 1.5 lbs

These Class 1 Model BGFL Ground Fault Relays and Sensors are designed to form a system for detecting a ground fault current on a ground ac power system. When a ground fault exceeds a pre-selected Current level and Time Delay setting, the relay initiates a trip signal for a shunt trip disconnect device to open and clear the fault. This BGFL system is designed to provide protection for electrical equipment, not protection for personnel.

Meets NEC service entrance equipment standards.
Available in three basic styles, "Standard", "Form C", or "Zone Interlocking" for coordination of single or multiple ground fault devices in system.
Integral test panel with Push To Test and Shunt Trip Bypass pushing for ease in proper operational testing of the system, with or without tripping the protective device.
"Power On" LED indicator in cover.
Positive visual trip indicator, manual reset.
Infinitely adjustable Time Delay.
Discrete current threshold adjustment.
Panel or door mounting.
Rear terminal kit and clear plastic cover standard with door mounting.
Electromechanical relay output, positive "ON" and "OFF".
Operates with molded case and power circuit breakers, bolted pressure switches, fusible disconnect switches.

How to Order Relays

Aux. Supply Voltage
5 = 120 V ac, 50/60 Hz
4 = 125 V dc
3 = 24 V dc
2 = 48 V dc

Internal Circuit Options
4 = Isolated Internal "Form C"*
7 = With Zone Interlocking
9 = Without Zone Interlocking

* Not available with zone interlocking option

Current Range
60 = 5 to 60 A
360 = 30 to 360 A
1200 = 100 to 1200 A

Model BGFL

<table>
<thead>
<tr>
<th>Device Input Power</th>
<th>Inrush</th>
<th>Cont.</th>
</tr>
</thead>
<tbody>
<tr>
<td>120 Volts ac</td>
<td>10 A</td>
<td>3 A</td>
</tr>
<tr>
<td>125 Volts dc</td>
<td>1 A</td>
<td>1 A</td>
</tr>
<tr>
<td>48 Volts dc</td>
<td>4 A</td>
<td>4 A</td>
</tr>
<tr>
<td>24 Volts dc</td>
<td>8 A</td>
<td>8 A</td>
</tr>
</tbody>
</table>

* Not available with zone interlocking option
Ground Fault Current Detection Systems Model BGFL (Outlines)

(4) # 6-32 inserts screws included

Clear plastic cover for door mounted units.

(2) 0.24 DIA. HOLES CLEARANCE HOLES FOR #12 SCREWS

REQUIRED PANEL AREA

5.20

2.81

4.38

PANEL MOUNTING LAYOUT

(4) 0.18 DIA. HOLES CLEARANCE HOLES FOR #6 SCREWS

REQUIRED CUTOUT AREA

3.05

1.75

3.25

1.625

3.27

DOOR MOUNTING LAYOUT
Model GFL (Sensor)

Ground Fault Current Detection Systems
Trip Currents 5-60, 30-360, or 100-1200A

Operating Range
Trip currents from 5-60, 30-360, or 100-1200A.
Trip current tolerance ± 15 percent.

Frequency
50/60 Hz.

Insulation Level
600 Volt, 10 kV BIL full wave.

Terminals are brass studs No. 8-32.

Only for use with BGFL relays.

Model GFL

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Sensor Dimensions</th>
<th>Sensor Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&quot;A1&quot;</td>
<td>&quot;A2&quot;</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trip Current 5-60 Amps</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GFL156T-1</td>
<td>1.56</td>
<td>3.53</td>
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<tr>
<td>GFL250T-1</td>
<td>2.50</td>
<td>4.56</td>
</tr>
<tr>
<td>GFL325T-1</td>
<td>3.25</td>
<td>4.70</td>
</tr>
<tr>
<td>GFL425T-1</td>
<td>4.25</td>
<td>4.86</td>
</tr>
<tr>
<td>GFL631T-1</td>
<td>6.31</td>
<td>6.75</td>
</tr>
<tr>
<td>GFL825T-1</td>
<td>8.25</td>
<td>8.50</td>
</tr>
<tr>
<td>Trip Current 30-360 Amps</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GFL156T-3</td>
<td>1.56</td>
<td>3.53</td>
</tr>
<tr>
<td>GFL250T-3</td>
<td>2.50</td>
<td>4.56</td>
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<tr>
<td>GFL325T-3</td>
<td>3.25</td>
<td>4.70</td>
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<tr>
<td>GFL425T-3</td>
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<td>4.86</td>
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<tr>
<td>GFL631T-3</td>
<td>6.31</td>
<td>6.75</td>
</tr>
<tr>
<td>GFL825T-3</td>
<td>8.25</td>
<td>8.50</td>
</tr>
<tr>
<td>Trip Current 100-1200 Amps</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GFL325T-2</td>
<td>3.25</td>
<td>4.70</td>
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<td>GFL425T-2</td>
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<td>GFL631T-2</td>
<td>6.31</td>
<td>6.75</td>
</tr>
<tr>
<td>GFL825T-2</td>
<td>8.25</td>
<td>8.50</td>
</tr>
</tbody>
</table>

* The Model GFL156T-1, GFL156T-3, GFL250T-1, and GFL250T-3 have molded mounting feet.
** The Models GFL425T-1, GFL425T-2, and GFL425T-3 have no top mounting holes. Order the following mounting bracket kits:

Model GFL

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Bracket Kit</th>
</tr>
</thead>
<tbody>
<tr>
<td>GFL 325T-1, -2 and -3</td>
<td>0221B00183</td>
</tr>
<tr>
<td>GFL 425T-1, -2 and -3</td>
<td>0221B00183</td>
</tr>
<tr>
<td>GFL 631T-1, -2 and -3</td>
<td>0221B00231</td>
</tr>
<tr>
<td>GFL 825T-1, -2 and -3</td>
<td>0221B01529</td>
</tr>
</tbody>
</table>
Model GFL (Sensor)

Ground Fault Current Detection Systems
Trip Currents 5-60, 30-360, or 100-1200 A

Rectangular sensors are available for the following trip currents: 5-60A, 30-360A and 100-1200A. The table above lists the available sensors sizes. Any window width (A1) may be combined with any window length. (B1) Rectangular sensors are also available as a split core (take-apart) style for assembly to existing electrical installation without the need for dismantling the primary bus or cables.

Caution:

Proper safety precautions must be followed during installation by a trained electrician. It is recommended that the incoming power be de-energized before installation. The sensor must have its secondary terminals short circuited or the relay connected, before energizing the primary circuit.

Model GFL

<table>
<thead>
<tr>
<th>Rectangular Sensors</th>
<th>4.1</th>
<th>6.4</th>
<th>7.3</th>
<th>7.1</th>
<th>10.0</th>
<th>10.9</th>
</tr>
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<tbody>
<tr>
<td>&quot;A1&quot;</td>
<td>5.1</td>
<td>7.2</td>
<td>8.5</td>
<td>11.7</td>
<td>14.5</td>
<td>15.4</td>
</tr>
<tr>
<td>&quot;A2&quot;</td>
<td>5.8</td>
<td>7.0</td>
<td>9.0</td>
<td>14.1</td>
<td>17.0</td>
<td>17.9</td>
</tr>
<tr>
<td>&quot;A3&quot;</td>
<td>8.0</td>
<td>9.5</td>
<td>11.1</td>
<td>18.1</td>
<td>21.0</td>
<td>21.9</td>
</tr>
<tr>
<td>&quot;B1&quot;</td>
<td>10.1</td>
<td>11.6</td>
<td>13.2</td>
<td>24.0</td>
<td>27.0</td>
<td>27.9</td>
</tr>
<tr>
<td>&quot;B2&quot;</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>30.1</td>
<td>33.0</td>
<td>33.9</td>
</tr>
<tr>
<td>&quot;B3&quot;</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>36.0</td>
<td>38.9</td>
<td>39.8</td>
</tr>
</tbody>
</table>

How to Order Rectangular Sensors

- **Dimension A1**: Window width in tenths of an inch
- **Dimension B1**: Window length in tenths of an inch
- **Trip Current**
  - 1 = 5-60 A
  - 2 = 100-1200 A
  - 3 = 30-360 A

Basic Series

- The letter X must appear here
- Denotes split core design (take apart) delete this designation for non-take apart

**Example**: To order a rectangular sensor with a 4.1 X 7.1 window and a 5-60 A trip current, the catalog number would be GFL 041 X 071-1.
Typical Response Curves
Cardinal points are shown for clarity only.
The actual time delay adjustment is continuously variable between instantaneous and 1 second. The time delay tolerance is ± 15% of setting.

To determine if the neutral is grounded in only one place at the service entrance (in accordance with The National Electrical Code):
1. Disconnect power.
2. Remove ground bond link.
3. With a “megger”, measure the resistance of each phase and neutral to ground. The resistance should be 1 megohm in accordance with NEC requirements. Reading as low as 100 ohms will pass a minimal current so as not to affect BGFL calibration on the 100 - 1200A relay. The 5-60A and 30-360A relay calibration will be affected if set at the lowest setting.
4. Reconnect bond link, reconnect power and check power LED for illumination.

To test the entire system including the disconnect device:
1. Check for control power, the LED should be illuminated.
2. Press the “Push To Test” switch on the relay. The trip indicator will go to the tripped position and disconnect device will open.
3. Reset the relay and the disconnect device. System is now back to normal.

To test the ground Fault Relay and Sensor only (The sensor will trip the relay in this test).
1. Check for control power, the LED should be illuminated.
2. Press and HOLD the “Shunt Trip Bypass” switch on the relay.
3. Press the “Push To Test” switch. The Ground Fault Relay will trip.
4. Reset the relay, then release the “Shunt Trip Bypass” switch. System is now back to normal.

THE ABOVE TEST PROCEDURES SHOULD BE PERFORMED BY QUALIFIED PERSONNEL ONLY
Typical Wiring Diagrams

Typical Wiring Diagram for "Standard" and "Zone Interlocking" Circuitry (BGFLXX7-XXXX and BGFLXX9-XXXX)

Notes:
1) All zone interlocking wiring should be twisted pair, 20 AWG or large.
2) No more than 10 upstream units should be connected to a single output.
3) For relays with dc input voltage, connect 120 V ac test circuit to the 24" long black lead and terminal #2.

GE Grid Solutions

Worldwide Contact Center
Web: www.GEGridSolutions.com/contact
Phone: +44 (0) 1785 250 070
USA and Canada: +1 (0) 800 547 8629
Europe, Middle East and Africa: +34 (0) 94 485 88 00

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