

## **ARC FLASH / OVERCURRENT (WITHOUT GROUND FAULT)**

### **Model AFGF1 Relay**

The AFGF system is designed for electrical equipment protection, not specifically for personnel protection.

**Application:** Arc Reduction / Overcurrent Relay

**Ratings Switch Use:** 400A, 600A, 800A, 1200A, 1600A, 2000A, 2500A, 3000A, 3500A, 4000A, 5000A, 6000A

**Arc Reduction & Overcurrent Relay Section:** The Arc Reduction/Overcurrent section is designed to minimize damage due to overcurrent/Arc Flash events.

- The Arc Flash/Overcurrent section is not designed to prevent the condition, but to minimize the incident energy release and damage due to current spikes.
- See page 2 for available CT/Sensors sold separately and produced under Electromagnetic Industries LLP Instrument Transformers UL File E238872.
- Use of any other CTs void the warranty of this product and may result in damage to equipment and the relay.

**Input Power Options:** 120 Vac

**Frequency:** 50/60 Hz.

**Input Withstand:** 200,000 Amperes RMS for 3 cycles, 50/60 Hz.

**Ambient Temperature Range:** -30 Deg C. to 60 Deg C.

- Meets NEC service entrance equipment standards.
- Power Indication
- Maintenance Mode Select Switch (w/ connections for remote switch)
- Maintenance Mode Indication
- Contact ratings: Normally open, Dry Type, 120Vac, 5A (Make and Carry 0.2 sec, 30A)
- Operates with molded case power circuit breakers, bolted pressure switches, or fusible disconnect switches.
- Solid State Contacts to provide faster trip signal (Optional)
- Inverse Time Delay Curve (For Fuse Curve Option "A")
- Positive visual trip indicator
- System "Push to Test" function

**Overcurrent Relay:** The Arc Flash/Overcurrent section is not designed to prevent, but to minimize damage due to current spikes.

- Fuse Curve Option A, used with Class L fuses and provides protection of the fuse by tripping the relay while under the fuse curve.
- Use of other Class fuses does not affect the operation of the relay; however, the relay may not protect the fuses.
- Fuse Curve Option NA takes no action unless in Maintenance Mode, and then trips instantaneously once current reached 250% switch rating.

### **Maintenance Mode for units with Fuse Protection:**

- While in Maintenance mode, the Overcurrent trip setting is reduced to instantaneous trip at 250% of switch rating.
- Both the Mode switch on the panel and the remote switch (if used) must be in the "Off" or "Closed" position for the unit to be in "Normal Mode". If the remote switch is not used, a jumper must be placed across the terminals.
- Indications:
  - Mode LED (Red) = Unit in Maintenance Mode
  - Mode LED (Green) = Unit in Normal Mode

## ARC FLASH / OVERCURRENT (WITHOUT GROUND FAULT)

### Model AFGF1 Relay

#### Maintenance Mode for units without Fuse Protection:

- While in Maintenance mode, the Overcurrent trip setting is reduced to instantaneous trip at 250% of switch rating.
- Both the Mode switch on the panel and the remote switch (if used) must be in the “Off” or “Closed” position for the unit to be in “Normal Mode”. If the remote switch is not used, a jumper must be placed across the terminals.
- Indications:
  - Mode LED (Blue) = Unit in Maintenance Mode
  - Mode LED (Off) = Unit in Normal Mode

#### Overcurrent Protection Response Curves

Switch Rating (Amps)	Normal Mode					Maintenance Mode
	(0 - 300 sec) 100% Time Delay 200%	30% Time Delay 300%	6% Time Delay 400%	3% Time Delay 500%	Instantaneous Trip 600%	Time Delay Instantaneous 250%
400A	800A	1200A	1600A	2000A	2400A	1000A
600A	1200A	1800A	2400A	3000A	3600A	1500A
800A	1600A	2400A	3200A	4000A	4800A	2000A
1200A	2400A	3600A	4800A	6000A	7200A	3000A
1600A	3200A	4800A	6400A	8000A	9600A	4000A
2000A	4000A	6000A	8000A	10000A	12000A	5000A
2500A	5000A	7500A	10000A	12500A	15000A	6250A
3000A	6000A	9000A	12000A	15000A	18000A	7500A
3500A	7000A	10500A	14000A	17500A	21000A	8750A
4000A	8000A	12000A	16000A	20000A	24000A	10000A
5000A	10000A	15000A	20000A	25000A	30000A	12500A
6000A	12000A	18000A	24000A	30000A	36000A	15000A



#### Relay Selections

Model	Switch Rating	Solid State Relay Options	Ground Fault Response Curves	Zone Interlock	Fuse Curve Option
AFGF-1	A = 400A	1 = w/ Solid State	0 = N/A	0 = N/A	A = Typical Curve
	B = 600A	2 = w/o Solid State			NA = Arc Reduction only active in Maintenance Mode
	C = 800A				
	D = 1200A				
	F = 1600A				
	G = 2000A				
	H = 2500A				
	J = 3000A				
	K = 3500A				
	M = 4000A				
	N = 5000A				
	P = 6000A				

**Notes:**  
When the NA option is selected, the Overcurrent Protection is only available when the relay is in Maintenance Mode.  
No overcurrent protection is provided while in Normal Mode.

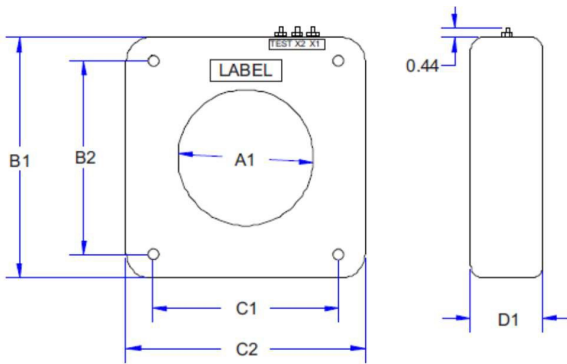
## ARC FLASH / OVERCURRENT (WITHOUT GROUND FAULT)

### Model AFGF1 Relay

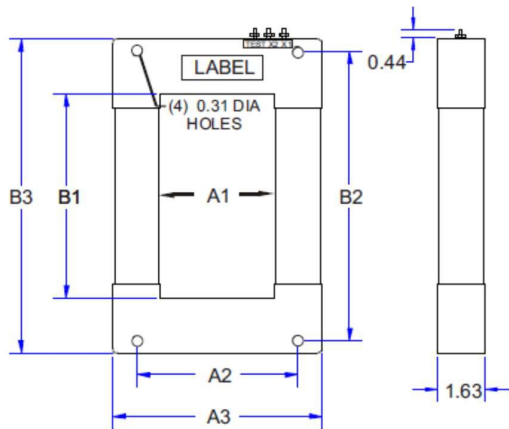
**CT Selection/CT Requirements\*** (Switch Rating must match the sensors being used.)

CT/Sensors are produced under Electromagnetic Industries LLP Instrument Transformers UL File E238872. Use of any other CTs void the warranty of this product and may result in damage to equipment and the relay.

Other CT/Sensor configurations available, contact Electromagnetic Industries for more options.



Switch Rating	Relay Series Number	CT Part Number	A1	B1	B2	C1	C2	D1
400	AFGF-3A- - - -	194-162-1-T-3	2.50"	4.88"	N/A	3.50"	4.50"	2.19"
600	AFGF-3B- - - -	194-242-1-T-3	2.50"	4.88"	N/A	3.50"	4.50"	2.19"
800	AFGF-3C- - - -	100-322-1-T-3	4.00"	7.00"	5.60"	5.60"	7.00"	2.20"
1200	AFGF-3D- - - -	100-482-1-T-3	4.00"	7.00"	5.60"	5.60"	7.00"	2.20"



Switch Rating	Relay Series Number	CT Part Number	A1	B1	B2	C1	C2	D1
800	AFGF-3C- - - -	550T041X071-322-001T-3	4.10"	6.40"	7.30"	7.10"	10.0"	10.9"
1200	AFGF-3D- - - -	550T041X071-482-001T-3	4.10"	6.40"	7.30"	7.10"	10.0"	10.9"
1600	AFGF-3F- - - -	550T041X071-322-002T-3	4.10"	6.40"	7.30"	7.10"	10.0"	10.9"
2000	AFGF-3G- - - -	550T041X071-402-001T-3	4.10"	6.40"	7.30"	7.10"	10.0"	10.9"
2500	AFGF-3H- - - -	550T041X071-502-001T-3	4.10"	6.40"	7.30"	7.10"	10.0"	10.9"
3000	AFGF-3J- - - -	550T058X071-602-001T-3	5.80"	7.00"	9.00"	7.10"	10.0"	10.9"
3500	AFGF-3K- - - -	550T058X071-702-001T-3	5.80"	7.00"	9.00"	7.10"	10.0"	10.9"
4000	AFGF-3M- - - -	550T080X117-802-001T-3	8.00"	9.50"	11.1"	11.7"	14.5"	17.9"
5000	AFGF-3N- - - -	550T080X141-103-001T-3	8.00"	9.50"	11.1"	14.1"	17.0"	19.0"
6000	AFGF-3P- - - -	550T080X141-123-001T-3	8.00"	9.50"	11.1"	14.1"	17.0"	19.0"

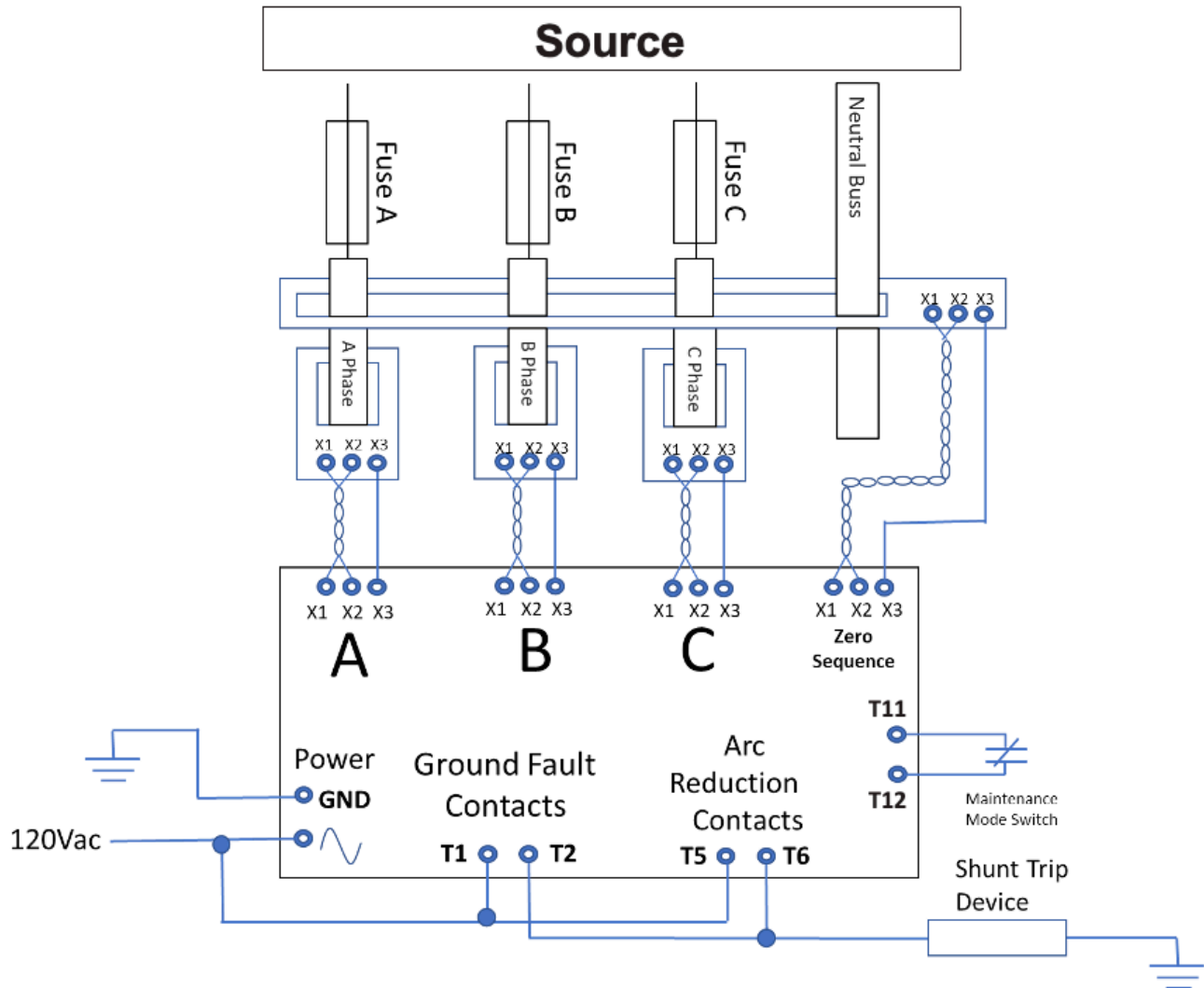
**Note:** It is recommended that both ends (terminal end and non-terminal end) are supported when installed horizontally to prevent twisting of the case and/or separation on the internal lamination steel.

\* Example: P/N AFGF-1G100A = Overcurrent Relay, for a 2000A switchgear/pressure switch, with solid state relay, and the standard overcurrent trip curve.

## ARC FLASH / OVERCURRENT (WITHOUT GROUND FAULT)

### Model AFGF1 Relay

#### Ground Fault Current Sensor Typical Installation



**Note:** It is recommended that both ends (terminal end and non-terminal end) are supported when installed horizontally to prevent twisting of the case and/or separation on the internal lamination steel.

1. This relay is designed to be used on switches with Class L fuses. Use of other Class fuses does not affect the operation of the relay; however, the relay may not protect the fuses.
  2. The sensors can be installed upstream or downstream of the fuses and switch blades.
  3. Recommend use of twisted pair for X1–X1 and X2–X2 connections.
  4. Optional remote Mode Select Switch (N/C) must be replaced w/ jumper if not used.
- Polarity of the Sensors is not critical if they are all facing the same direction.

**ARC FLASH / OVERCURRENT (WITHOUT GROUND FAULT)**

**Model AFGF1 Relay**

Relay Dimensions:

