

EATON | Cutler-Hammer

Series G L-Frame Electronic Trip Unit with Arcflash Reduction Maintenance System™ Molded Case Circuit Breaker

Product Focus



Introduction

Eaton defined the industry standard for safety with the Arcflash Reduction Maintenance System for power circuit breakers. Setting the standard once again, Eaton introduces the industry's first Arcflash Reduction Maintenance System for molded case circuit breakers.

Combining the proven technology of Eaton's Arcflash Reduction Maintenance System with the DigiTrip™ 310+ electronic trip unit, customers have the ability to place the trip unit in *maintenance mode* to reduce potential arc flash energy. This is accomplished through a dedicated instantaneous sensing circuit

with settings of 2.5X and 4.0X the current rating of the trip unit. The low 2.5X and 4.0X settings of the *maintenance mode* are highlighted by a blue indicator on the trip unit. This confirms to the user that the trip unit is in *maintenance mode*. Trip units with the Arcflash Reduction Maintenance System incorporated are labeled as ALSI and ALSIG. The A stands for Arcflash Reduction Maintenance System, L for Long Delay, S for Short Delay, I for Instantaneous and G for Ground Fault.

While in *maintenance mode*, the trip unit will trip the breaker instantaneously for any current greater than the *maintenance mode* setting; overriding any customer programmed delay. Since the instantaneous trip settings of *maintenance mode* are significantly below typical short delay settings (typical 5X – 10X with a customer defined delay), potential arc flash energy is half the level observed with typical circuit breakers and fuses.

Design Specifications

- 3-pole
- 100 – 630 amperes
- 35, 50, 65, 100, 150, 200 kAIC interrupting capacity
- UL®, CSA®, IEC
- ALSI, ALSIG electronic trip unit

- Two instantaneous *maintenance mode* settings — $2.5 \times I_n$ and $4.0 \times I_n$
- Five instantaneous *normal mode* settings — 6.0, 7.0, 8.0, 10.0 and $12 \times I_n$

Benefits of Arcflash Reduction Maintenance System Trip Unit

- Increased worker safety
 - Arcflash Reduction Maintenance System provides an accelerated instantaneous trip to reduce arc flash energy
- Reduce Personal Protection Equipment (PPE)
 - Reduction in incident energy levels may allow for reduced PPE requirements, offering an improvement to worker comfort and mobility
- Arcflash Reduction Maintenance System set at 2.5X or 4.0X will reduce incident energy levels to allow PPE Category 0 for currents of 2.5X or 4.0X the breaker ampere rating or greater. In contrast, typical devices do not limit PPE to Category 0 until the currents are greater than 15X the ampere ratings

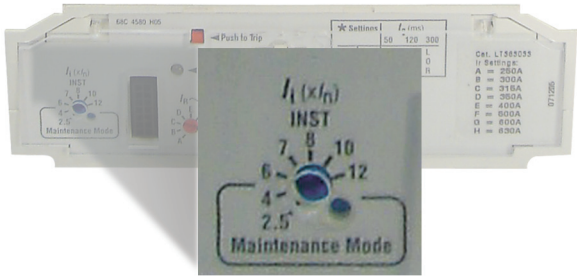
Note: Eaton recommends using a minimum PPE level of 1.

How to Use the Arcflash Reduction Maintenance System Trip Unit

- Initial setup of each system is determined by completing a power system analysis to determine the available fault current at the circuit breaker
- Determine *maintenance mode* protection setting from the power system analysis that achieves the desired reduced level of arc flash energy
- Activate *maintenance mode* by adjusting the trip unit's Instantaneous I_i setting to desired *maintenance mode* level as determined by the power system study
 - Verify blue indicator is visible in trip unit window
 - Seal trip unit cover to prevent unauthorized tampering while in *maintenance mode*
 - To return to *normal mode* settings after maintenance, simply rotate the I_i dial clockwise to the appropriate instantaneous setting

For more information, please visit: arcflashsafetysolutions.com.

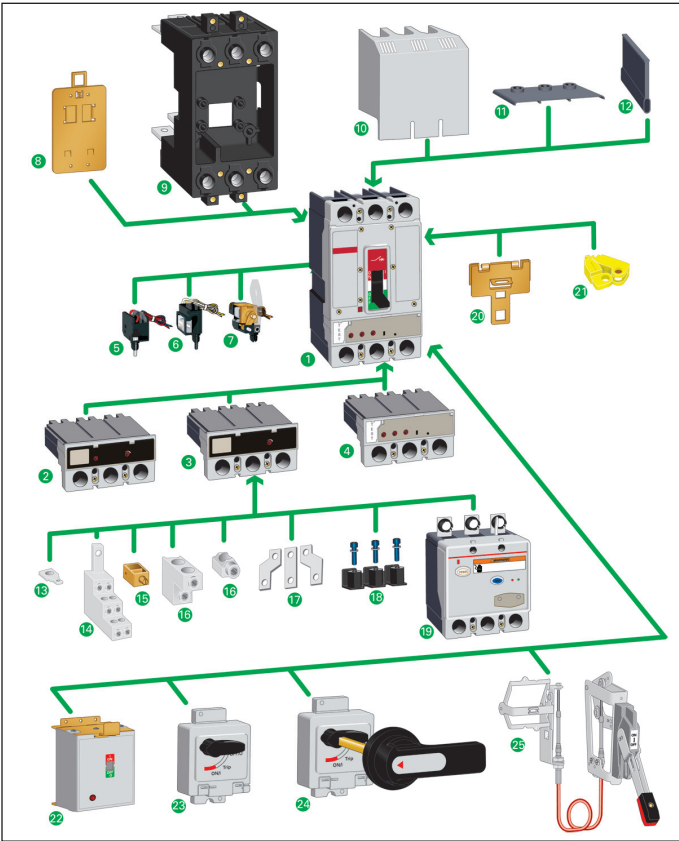
Also available for reference is the Arcflash Reduction Maintenance System product focus (SA00804001E), found on www.eaton.com.



Close-Up of LG Trip Unit

Trip Unit Features

- No rating plug required
- Interchangeable trip unit
- Available with ALSI and ALSIG electronic trip unit
- Four trip units cover wide ampere ranges: 100 – 250 A, 160 – 400 A, 250 – 600 A and 250 – 630 A
- Arcflash Reduction Maintenance System instantaneous settings
- Status indicator, test without tripping indicator, *maintenance mode* indicator and push-to-trip test button
- Optional self-powered plug-in test kit (MTST120V)
- Optional cause of trip/ammeter display (DIGIVIEW)
- Adjustable short time delay, long time delay, instantaneous and optional adjustable ground fault protection



Accessories for Series G Circuit Breakers

World-class accessories for: 1 Circuit breaker include: 2 Thermal-magnetic trip unit, integrated on E-Frame 3 Magnetic only trip unit, integrated on E-Frame 4 Electronic protection trip unit, J/L-Frame only 5 Auxiliary/alarm contact 6 Shunt trip 7 Undervoltage release 8 DIN-rail mounting adapter, E-Frame only 9 Plug-in block or drawout cassette 10 Terminal cover 11 Terminal end cover 12 Interphase barrier 13 Control wire kit 14 Multiwire connector 15 Steel cable terminal 16 Aluminum/copper terminal 17 Terminal spreader 18 Endcap kit 19 Earth leakage module 20 Padlockable handle lock hasp 21 Padlockable handle block 22 Motor operator 23 Direct close-coupled handle mechanism 24 Through-the-door handle mechanism 25 Flex shaft handle mechanism

Arcflash Reduction Maintenance System is a trademark of Eaton Corporation. CSA is a registered trademark of the Canadian Standards Association. NEMA is the registered trademark and service mark of the National Electrical Manufacturers Association. UL is a registered trademark of Underwriters Laboratories Inc.

INTERRUPTING CAPACITIES

Maximum Rated Current (Amperes)	250, 400, 600, 630 ①						
Circuit Breaker Type	LGE	LGS	LGH	LGC	LGU	LGX	
Short Circuit Current Ratings (kA rms) ac 50 – 60 Hz							
NEMA® UL 489	240 Vac	65	85	100	200	200	200
	480 Vac	35	50	65	100	150	200
	600 Vac	18	25	35	50	65	65
	125/250 Vdc	22	22	42	42	50	50
IEC 60947-2	220 Vac	65	85	100	200	200	200
	415 Vac	35	50	70	100	150	200
	690 Vac	12	20	25	30	35	35
	125/250 Vdc	22	22	42	42	50	50
Number of Poles	3	3	3	3	3	3	
Adjustable Long Delay Pickup Settings	630 A ① Trip Unit	A = 250, B = 300, C = 315, D = 350, E = 400, F = 500, G = 600, H = 630 A					
	600 A Trip Unit	A = 250, B = 300, C = 315, D = 350, E = 400, F = 450, G = 500, H = 600 A					
	400 A Trip Unit	A = 160, B = 200, C = 225, D = 250, E = 300, F = 315, G = 350, H = 400 A					
	250 A Trip Unit	A = 100, B = 125, C = 150, D = 160, E = 175, F = 200, G = 225, H = 250 A					
Electronic rms	ALSI, ALSIG						
Dimensions (inches)	H	W	D				
	10.13	5.48	4.09				
Weight (approximate) lbs. (kgs.)	13.04 (5.92) ETU						

① 630 A is not a UL or CSA listed rating. 600 A is the max. UL and CSA listed rating for the LG. 160 and 315 A are also IEC only amperages.

LG Electronic Circuit Breakers Catalog Numbers

AMPERE RATING ②	CATALOG NUMBER ALSI	ALSIG	NEUTRAL CT FOR LSG & LSG ③
IEC/UL/CSA 35 kAIC at 415 and 480 Vac			
250	LGE325038G	LGE325039G	LGFACT250
400	LGE340038G	LGE340039G	LGFACT400
600	LGE360038G	LGE360039G	LGFACT600
630	LGE363038G	LGE363039G	LGFACT600
IEC/UL/CSA 50 kAIC at 415 and 480 Vac			
250	LGS325038G	LGS325039G	LGFACT250
400	LGS340038G	LGS340039G	LGFACT400
600	LGS360038G	LGS360039G	LGFACT600
630	LGS363038G	LGS363039G	LGFACT600
IEC/UL/CSA 70/65 kAIC at 415 and 480 Vac			
250	LGH325038G	LGH325039G	LGFACT250
400	LGH340038G	LGH340039G	LGFACT400
600	LGH360038G	LGH360039G	LGFACT600
630	LGH363038G	LGH363039G	LGFACT600
IEC/UL/CSA 100 kAIC at 415 and 480 Vac			
250	LGC325038G	LGC325039G	LGFACT250
400	LGC340038G	LGC340039G	LGFACT400
600	LGC360038G	LGC360039G	LGFACT600
630	LGC363038G	LGC363039G	LGFACT600
IEC/UL/CSA 150 kAIC at 415 and 480 Vac			
250	LGU325038G	LGU325039G	LGFACT250
400	LGU340038G	LGU340039G	LGFACT400
600	LGU360038G	LGU360039G	LGFACT600
630	LGU363038G	LGU363039G	LGFACT600
IEC/UL/CSA 200 kAIC at 415 and 480 Vac			
250	LGX325038G	LGX325039G	LGFACT250
400	LGX340038G	LGX340039G	LGFACT400
600	LGX360038G	LGX360039G	LGFACT600
630	LGX363038G	LGX363039G	LGFACT600
LG Electronic Trip Units			
250	LT325038	LT325039	LGFACT250
400	LT340038	LT340039	LGFACT400
600	LT360038	LT360039	LGFACT600
630	LT363038	LT363039	LGFACT600

② 630 A is not a UL or CSA listed rating. 600 A is the max. UL and CSA listed rating for the LG. 160 and 315 A are also IEC only amperages.

③ Required for 4-wire systems if ground protection is required.

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