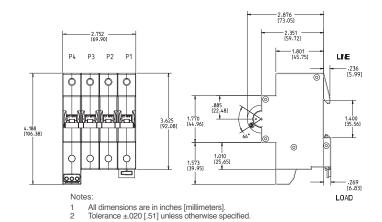
# **G-Series**Circuit Breaker

Carling Technologies' G-Series hydraulic/magnetic circuit breakers offer the highest quality solution to your circuit protection requirements. The G-Series is designed to sense over-current conditions and protect an electrical system's wires and equipment. When left unchecked over-current conditions will result in fires and costly damage. Hydraulic/magnetic circuit breakers are considered to be temperature stable and not adversely affected by temperature changes in their operating environment. As such, de-rating considerations due to temperature variations are not required, and heat-induced nuisance tripping is avoided.

# **Key Features:**

- 1-4 poles
- 0.02 63 Amps
- 80 VDC, 240 VAC, 480 VAC
- Mid-trip actuator indication
- Precise temperature independent operation
- Wiping contacts mechanical linkage with two-step
- actuation cleans contacts and ensures longer contact life
- Wide choice of trip time delay curves
- · Optional integrated auxiliary contacts
- Unique terminal bus connection system
- DIN rail mounting
- Finger safe terminals
- Suitable for reverse feed
- Common trip linkage between poles ensures that an overload in one pole will trip all adjacent poles







# Carling Technologies®

Innovative Designs. Powerful Solutions.

Innovative Designs, Powerful Solutions.

## **Electrical Tables**

Table A: Lists UL Recognized, CSA Accepted and TUV Certified configurations and performance capabilities as a Component Supplementary Protector.

G SERIES - COMPONENT SUPPLEMENTARY PROTECTOR										
CIRCUIT	VOLTAGE			CURRENT		SHORT	CIRCUIT CAPACITY (AM			
CONFIGURATION	MAX				UL CSA TUV		TUV	APPLICATION CODES		
					MINIMUM	WITHOUT BACKUP	WITHOUT BACKUP	WITHOUT BACKUP		
	RATING	FREQ.	PHASE	FULL LOAD	POLES	FUSE	FUSE	FUSE	UL	CSA
	80	DC		63	1	3000	3000	1500	TC1, OL1, U1	TC1, OL1, U1
SERIES	240	50/60	1	63	1	3000	3000	1500	TC1, OL1, U1	TC1, OL1, U1
	240	50/60	1	63	2	3000	3000	1500	TC1, OL1, U1	TC1, OL1, U1
	480	50/60	3	63	3	1500	1500	415V, 1000	TC1, OL1, U1	TC1, OL1, U1

# **Electrical**

Maximum Voltage AC: 240VAC (single pole), 440VAC (3 poles, additional pole shall be

dedicated for neutral break)

DC: 80VDC (single pole and multipole) **Current Rating** 0.2 - 63A. Other ratings available, see

Ordering Scheme.

Auxiliary Switch Rating

Insulation Resistance

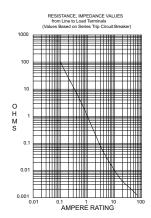
Dielectric Strength

(optional) Integrated, load side. SPST, 3A - 125Vac, 2A - 30Vdc. Auxiliary switch senses the on & off position of circuit breaker handle, as well as contact arm position. Switch connections are screw terminals.

Minimum of 100 Megohms at 500 VDC. UL, CSA: 1960 V 50/60 Hz for one minute between all electrically isolated terminals. G-Series Circuit Breakers comply with the 8mm spacing and 3750V 50/60 Hz dielectric requirements from hazardous voltage to operator accessible surfaces, between adjacent poles and from main circuits

to auxiliary circuits per Publications EN 60950 and VDE 0805.

Resistance, Impedance Values from Line to Load Terminal based on Series Trip Circuit Breaker.



TOLERANCE (%)					
15%					
25%					
35%					

# Mechanical

Endurance 10,000 ON-OFF operations @ 6 per minute; with rated current & voltage.

Trip Free All G-Series circuit breakers will trip

on overload, even when actuator is forcibly held in the ON position.

Trip Indication The operating actuator moves

positively to the OFF position when an overload causes the breaker to trip. With mid-trip, the handle moves to the mid position on electrical trip of the circuit breaker. With mid trip handle with alarm switch, handle moves to the mid position and the alarm switch actuates when the circuit breaker is

electrically tripped.

Fire and smoke NF F16-101/102, DIN5510 & BS6853

fire and smoke material selection & application for electrical equipment.

# **Physical**

Salt Spray

Thermal Shock

Number of Poles 1 pole  $\leq$  63A, 2 poles  $\leq$  63A per pole Approx.172 grams/pole (4.13 oz). Weight

Standard Colors Housing: Black

#### **Environmental**

Designed in accordance with requirements of specification MIL-PRF-55629 & MIL-STD-202 as follows:

Shock Withstands 100 Gs, 6ms sawtooth

> while carrying rated current per Method 213, Test Condition "I". Instantaneous and ultrashort curves tested @ 90% of rated current. Withstands 0.060" excursion from

Vibration 10-55 Hz & 10 Gs 55-500 Hz. @ rated current per Method 204C, Test Cond.

A. Instantaneous & ultrashort curves tested @ 90% of rated current.

Moisture Resistance Method 106D, i.e., ten 24-hour cycles

@ +25°C to +65°C, 80-98% RH.

Method 101, Condition A (90-95% RH

@ 5% NaCl Solution, 96 hrs). Method 107D, Condition A (five cycles

@ -55°C to +25°C to +85°C to +25°C).

Operating Temperature -40°C to +85°C

\*Manufacturer reserves the right to change product specification without prior notice



2 ACTUATOR Handle, one per pole Mid-Trip Handle, one per pole

3 POLE Four<sup>1</sup>

**4 CIRCUIT** Switch Only (no coil) Series Trip (current)

5 AUXILIARY/ALARM SWITCH3 3 S.P.D.T. screw terminal/ w/o Aux Switch S.P.D.T., screw terminal Gold contacts

**6 FREQUENCY & DELAY** DC 50/60Hz, Switch Only 50/60Hz Medium DC Instantaneous 26 50/60Hz Long 50/60Hz Short, Hi-Inrush 10 DC Ultra Short 12 DC Short DC Medium 50/60Hz Medium, Hi-Inrush 50/60Hz Long, Hi-Inrush 46<sup>4</sup> 14 DC Short, Hi-Inrush DC Long 20 50/60Hz Instantaneous DC Medium, Hi-Inrush DC Long, Hi-Inrush 21 50/60Hz Ultra Short 50/60Hz Short

7 CL	JRRENT RATIN AMPERES	NG (A	MPERES)				
220 225 230 235 240 245 250 255 260 265 270 275 280 285	0.200 0.250 0.300 0.350 0.400 0.450 0.550 0.600 0.650 0.750 0.750 0.850	295 410 512 415 517 420 522 425 527 430 435 440 445	0.950 1.00 1.25 1.50 1.75 2.00 2.25 2.50 2.75 3.00 4.00 4.50 5.00	460 465 470 475 480 485 490 495 610 710 611 711 612 712	6.00 6.50 7.00 7.50 8.00 8.50 9.00 9.50 10.00 11.50 11.50 12.00	614 615 616 617 618 620 622 624 625 630 635 640 650 660	14.00 15.00 16.00 17.00 18.00 20.00 22.00 24.00 25.00 30.00 35.00 40.00 50.00 60.00
290	0.900	455	5.50	613	13.00	663	63.00

# Screw Terminal

9 ACTUATOR CO	LOR & LEGI	END		
Actuator Color	I-O	ON-OFF	Dual	Legend Color
White	Α	В	1	Black
Black	С	D	2	White
Red	F	G	3	White
Green	Н	J	4	White
Blue	K	L	5	White
Yellow	M	N	6	Black
Gray	Р	Q	7	Black
Orange	R	S	8	Black

10 MAX. APPLICATION RATING 80VDC **D** 240VAC H 480VAC5

11 AGENCY APPROVAL Without approvals UL Recognized, CUL UL Recognized, CUL, TUV

#### Notes:

- 4th pole for neutral break only. Switch only construction currently only available on multipole units when at least one pole is a protected pole.
- On multipole breakers, one auxiliary switch is supplied, mounted in the extreme right pole. (when viewed from back.)
- High Inrush delays limited to 50A max.
- 480V only available as three or four pole. Two pole is not available.

### **Time Delay Values**

The Delay values												
				A, B, C & E	D-SERIES TIME	DELAY VALU	IES					
		PERCENT OF RATED CURRENT										
	DELAY	100%	125%	135%	150%	200%	400%	600%	800%	1000%	1200%	
	10	No Trip	May Trip		.032 MAX	.024 MAX	.020 MAX	.018 MAX	.016 MAX	.015 MAX	.013 MAX	
	11	No Trip	.013125		.010070	.008032	.006020	.005020	.004020	.004020	.004020	
	12	No Trip	.500 - 6.50		.300 - 3.00	130 - 1.20	.031220	.011120	.004090	.004060	.004040	
	14	No Trip	2.00 - 60.0		1.20 - 40.0	.600 - 20.0	.150 - 3.00	.030 - 1.30	004 600	.004 - 100	.004100	
	16	No Trip	45.0 - 345		20.0 - 150	9.00 - 60.0	1.40 - 11.4	150 - 5.80	009 - 3.70	.005 - 1.70	.005500	
	20	No Trip	May Trip		.040 MAX	.035 MAX	.030 MAX	.025 MAX	.020 MAX	.017 MAX	.015 MAX	
	21	No Trip	.014150		.011095	.008055	.006035	.005027	.005021	.004018	.004017	
TRIP	22	No Trip	.700 - 12.0		.350 - 4.00	130 - 1.30	.027220	.008130	.004090	.004045	.004040	
TIME	24	No Trip	10.0 - 160		6.00 - 60.0	2.20 - 20.0	.300 - 3.00	.050 - 1.30	.007500	.005060	.005040	
(SECONDS)	26	No Trip	50.0 - 700		32.0 - 350	10.0 - 90.0	1.50 - 15.0	.500 - 7.00	.020 - 3.00	.006 - 2.00	.005 - 1.00	
	42	No Trip	.700 - 12.0		400 - 6.00	180 - 2.30	.050600	.026300	018 200	014 150	012 - 130	
	44	No Trip	7.00 - 100		3.00 - 50.0	1.10 - 18.0	.220 - 3.00	120 - 1.70	.075 - 1.20	050 - 850	.042720	
	46	No Trip	50.0 - 700		31.0 - 350	12.0 - 150	1.50 - 20.0	700 - 10.0	404 - 7.90	260 - 6.50	.198 - 5.80	
	52	No Trip	.500 - 6.50		.340 - 4.50	180 - 2.30	.051600	.030320	018 - 220	014 - 200	.012130	
	54	No Trip	1.50 - 50.0		.750 - 35.0	350 - 18.0	.110 - 3.00	.070 - 1.70	.045 - 1.40	039 - 1.30	.035 - 1.30	
	56	No Trip	45.0 - 345		19.0 - 170	8.50 - 100	1.24 - 15.0	410 - 9.00	256 - 8.00	210 - 5.50	.198 - 2.90	

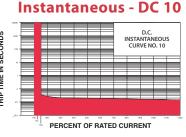
Delay Curves 11,12,14,16,21,22,24,26,42,44,46,52,54,56: Breakers to hold 100% and must trip at 125% of rated current and greater within the time limit shown in this curve.

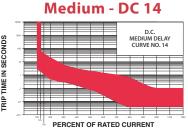
Delay Curves 10,20: Breakers to hold 100% and must trip at 150% of rated current and greater within the time limit shown in this curve.

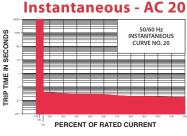
All Curves: Curve data shown represents breaker response at ambient temperature of 77°F (25°C) with no preloading. Breakers are mounted in standard wall-mount position.

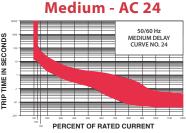
On 50 amp and less current ratings, the minimum inrush pulse tolerance handling capability is 12 times the rated current on standard delays and 25 times the rated current on standard delays. These values are based on a 60 Hz 1/2 cycle, 8.33 ms pulse. High inrush delays should be specified for applications with high initial surge currents of short duration such as switching power supplies, highly capacitive loads and transformer loads.

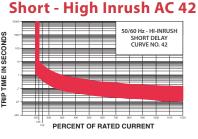
# TRIP TIME IN SECONDS TRIP TIME IN SECONDS TRIP TIME IN SECONDS TRIP TIME IN SECONDS TRIP TIME IN SECONDS

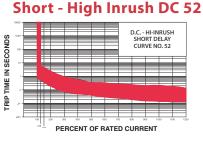






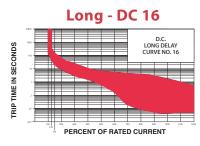


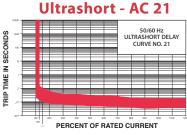


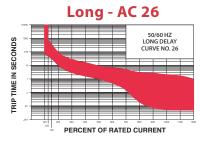




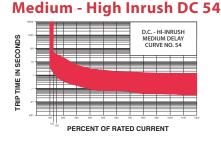
PERCENT OF RATED CURRENT

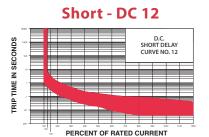


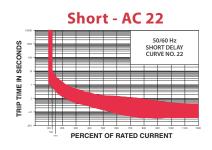




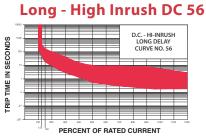












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