

J-Series

CIRCUIT BREAKER

Designed to provide high levels of circuit protection, the J-Series is a compact, low profile hydraulic magnetic circuit breaker ideally suited for high power density applications. This newest addition to the Carling circuit breaker portfolio is available with a variety of actuator styles and terminal options to suit most any requirement.

1-3 poles; ratings from: 1-20 amps, up to 240VAC; UL 489 Listed, cULus Listed and TUV EN60947-2.



Resources:

Download 3D CAD Files

[IGS >](#)

[STP >](#)

Watch Product Video



Product Highlights:

- ♦ Low Profile / Depth
- ♦ Up to 10,000AIC Short Circuit Capacity
- ♦ UL 489 Listed, cULus Listed and TUV EN60947-2

Typical Applications:

- ♦ Datacom / Telecom
- ♦ AC Power Distribution Units
- ♦ AC Power Supplies
- ♦ Power Dense Motors & Controls
- ♦ Marine Applications Requiring Higher Interrupting Capacity



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Electrical Tables

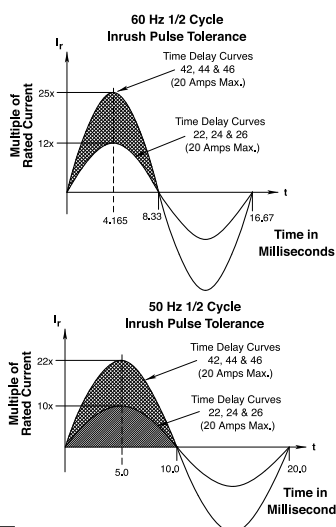
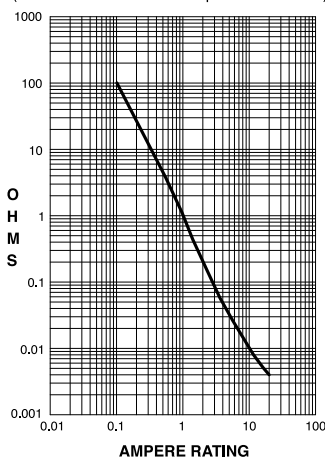
Table A: Voltage and Current Rating

J-SERIES TABLE A : ELECTRICAL RATINGS								
Circuit Configuration	Voltage			Current Rating	Short Circuit Capacity (Amps)			Construction Notes
	Max Rating	Frequency	Phase	Full Load Amps	UL / cULus	TUV		
					without backup fuse	with backup fuse	without backup fuse	
Series	120/240	50 / 60	1	1.0 - 20.0	10,000	5,000	5,000	
	240							2 or 3 Pole
								1 or 2 Pole

Electrical

Dielectric Strength	Meets UL and cULus requirements and can withstand 1500 VAC, 60Hz for one minute between all electrically isolated terminals.
Insulation Resistance	Minimum of 100 Megohms @ 500VDC
Overload	50 operations @ 600% of rated current for AC rated devices.
Inrush Pulse Tolerance	Standard delays 12 times rated current, high inrush delays 25x for ½ cycle @ 60Hz
Interrupt Capacity	See Table A
Resistance / Impedance	(Across circuit breaker terminals)

from Line to Load Terminals
(Values Based on Series Trip Circuit Breaker)



CURRENT (AMPS)	TOLERANCE (%)
0.10 - 5.0	+/- 15
5.1 - 20.0	+/- 25

Mechanical

Endurance	6,000 ON-OFF operations @ 6 per minute; with rated Current and Voltage. 4,000 ON-OFF operations with no load.
Trip Free	All J-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.

Physical

Number of Poles	1 - 3 poles
Termination	Designed for use with straight, fork, flanged fork, and ring terminals.
Termination Torque	See dimensional specs page (Table 1) for tightening torque specifications (Line and Load terminals)
Terminal Barrier	Foldable barriers to comply with regulatory standards.
Mounting	Threaded Insert: #6-32 UNC-2B or M3 x 0.5-6 H B ISO (2 per Pole).
Insert Termination Torque	7-9 in-lbs
Actuator	Rocker with or without guard
Internal Circuit Config.	Series Trip, without auxiliary switch
Materials	Housing - Glass Filled Polyester Rocker - Nylon Line/Load Terminals - Copper Alloy; Bright Acid Tin Plated
Weight	~170 Grams (~5.75 Ounces) per pole
Standard Color	Housing - Black. Rocker - Several (See ordering scheme)

Environmental

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

Shock	Withstands 100G's, 6ms saw tooth while carrying rated current per Method 213B, Test Condition "I". Instantaneous and ultra short curves tested @ 90% rated current.
Vibration	Withstands 0.060" excursion from 10-55Hz, and 10G's 55-500Hz, at rated current per Method 204C, Test Condition A. Instantaneous and ultrashort curves tested @ 90% of rated current.
Moisture Resistance	Method 106G, i.e., Ten 24-hour cycles at +25°C to +65°C, 80-98% RH.
Salt Spray	Method 101, Condition A (90-95% RH @ 5% NaCl Solution, 96 hours)
Thermal Shock	Method 107G, Condition A (Five cycles @ -55°C to +25°C to +85°C to 25°C)
Operating Temperature	-40° C to +85° C
Storage Temperature	-40° C to +85° C

Agency Approvals

UL489, cUL CAN/CSA 22.2 No. 5, TUV EN60947-2

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

J	1	1	-	B	0	-	24	-	620	-	1	1	B	-	D	G
1 Series	2 Actuator	3 Poles		4 Circuit	5 Auxiliary Switch		6 Frequency & Delay		7 Current Rating		8 Terminal	9 Actuator Color	10 Mounting/ Barriers		11 Application Rating	12 Agency Approval

1 SERIES**J** J-Series Circuit Breaker**2 ACTUATOR****FLAT ROCKER:****Two Color Visi-Rocker**

- 1 Indicate OFF, vertical legend
2 Indicate OFF, horizontal legend

Single color

- 3 Vertical legend
4 Horizontal legend

Push-To-Reset, Visi-Rocker

- 5 Indicate OFF, vertical legend
6 Indicate OFF, horizontal legend

Push-To-Reset, Single color

- 7 Vertical legend
8 Horizontal legend

CURVED ROCKER:**Two Color Visi-Rocker**

- C Indicate ON, vertical legend
D Indicate ON, horizontal legend
F Indicate OFF, vertical legend
G Indicate OFF, horizontal legend

Single color

- J Vertical legend
K Horizontal legend

3 POLES

- 1 One
2 Two
3 Three ¹

4 CIRCUIT**B** Series Trip (Current)**5 AUXILIARY SWITCH****0** without Aux Switch**6 FREQUENCY & TIME DELAY**

- 20 50 / 60Hz Instantaneous ²
21 50 / 60Hz Ultra Short
22 50 / 60Hz Short
24 50 / 60Hz Medium
26 50 / 60Hz Long
42 50 / 60Hz Short, Hi-Inrush
44 50 / 60Hz Medium, Hi-Inrush
46 50 / 60Hz Long, Hi-Inrush

7 CURRENT RATING (AMPERES)**CODE AMPERES**

410	1.00	435	3.50	480	8.00	712	12.50
512	1.25	440	4.00	485	8.50	613	13.00
415	1.50	445	4.50	490	9.00	614	14.00
517	1.75	450	5.00	495	9.50	615	15.00
420	2.00	455	5.50	610	10.00	616	16.00
522	2.25	460	6.00	710	10.50	617	17.00
425	2.50	465	6.50	611	11.00	618	18.00
527	2.75	470	7.00	711	11.50	619	19.00
430	3.00	475	7.50	612	12.00	620	20.00

8 TERMINAL

- 1 Push-On .250 Tab (Q.C.)
2 Screw 8-32 with upturned lugs
3 Screw 8-32 (Bus Type)
4 Screw 10-32 with upturned lugs
5 Screw 10-32 (Bus Type)
6 Screw 8-32 with upturned lugs and 30° Bend
7 Screw 8-32 (Bus Type) and 30° Bend
8 Screw 10-32 with upturned lugs and 30° Bend
9 Screw 10-32 (Bus Type) and 30° Bend
B Screw M5 with upturned lugs
C Screw M4 with upturned lugs
F Screw M5 with upturned lugs and 30° Bend
G Screw M5 (Bus Type) and 30° Bend
H Screw M5 (Bus Type)
J Screw M5 Back Connect
K Screw 10-32 Back Connect
L Screw 10-32 Back Connect, Alt. Spacing ³
M Screw M5 Back Connect, Alt. Spacing ³
N Screw M4 Back Connect
P Screw M4 Back Connect, Alt. Spacing ³
R Screw 8-32 Back Connect, Alt. Spacing ³
Y Screw 8-32 Back Connect

9 ACTUATOR COLOR & LEGEND ⁴

Actuator or Visi-Color	Marking:	Dual	Marking Color:	Single Color	Visi-Rocker
White	B	1	Black	Black	White
Black	D	2	White	White	n/a
Red	G	3	White	White	Red
Green	J	4	White	White	Green
Blue	L	5	White	White	Blue
Yellow	N	6	Black	Black	Yellow
Gray	Q	7	Black	Black	Gray
Orange	S	8	Black	Black	Orange

10 MOUNTING ⁵**Standard Rocker Bezel**

- A 6-32 x .195 inches 1 6-32 x .195 inches
B ISO M3 x 5 mm 2 ISO M3 x 5 mm

Rockerguard (Curved Rocker) / Push-to-Reset (Flat Rocker) Bezel

- C 6-32 x .195 inches 3 6-32 x .195 inches
D ISO M3 x 5 mm 4 ISO M3 x 5 mm

Recessed Off (Flat Rocker)

- E 6-32 x .195 inches 5 6-32 x .195 inches
F ISO M3 x 5 mm 6 ISO M3 x 5 mm

11 APPLICATION RATING

- C 120 / 240 VAC ⁶
D 240 VAC

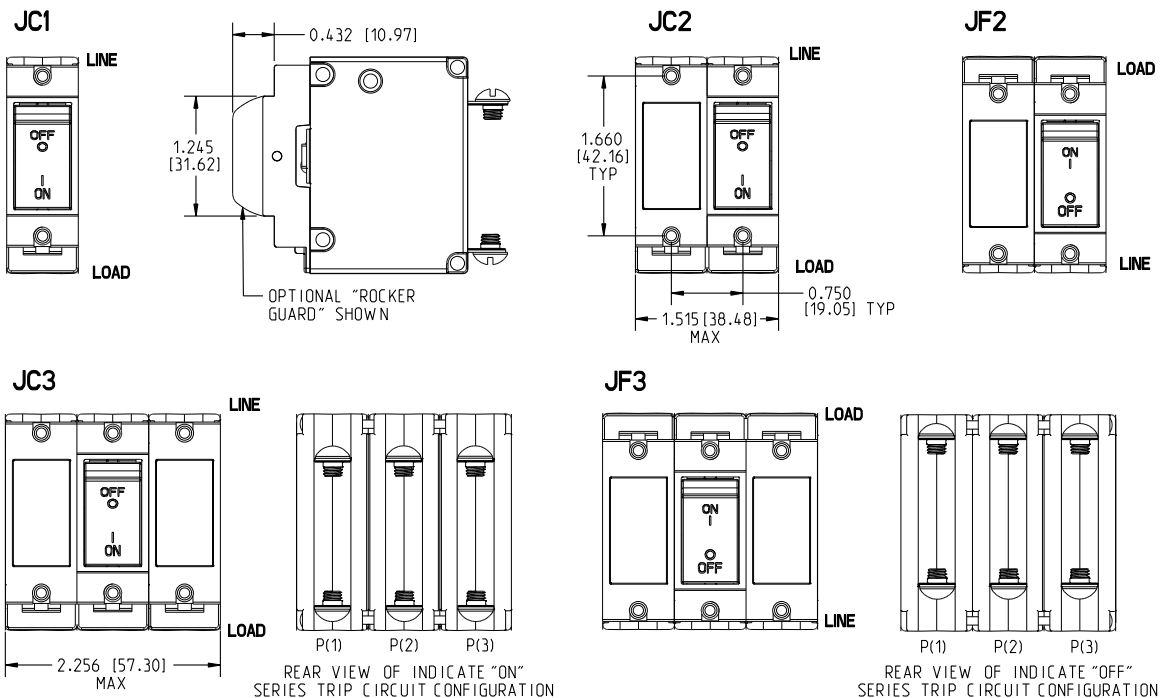
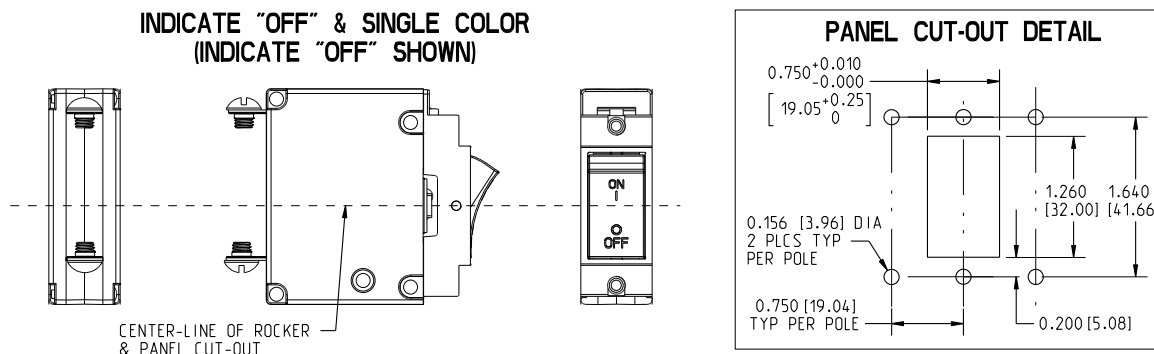
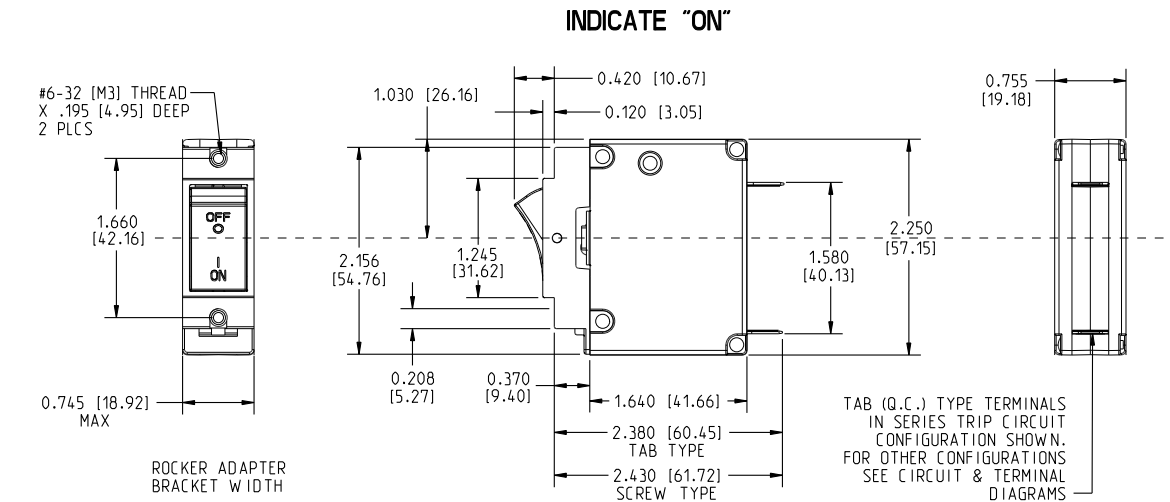
12 AGENCY APPROVAL

- A Without Approvals
G UL489 Listed, cULus Listed
3 UL489 Listed, cULus Listed, TUV Certified

Notes:

- 1 3 Pole Units available when 1 of 3 poles is neutral.
2 20 Delay available only with no agency approvals.
3 Refer to dimensional specifications for alternate back connect terminal spacing dimension.
4 TUV Approval requires Dual (I-O, ON-OFF) markings.
5 For codes A through F, rocker to be on Pole 1 for multi pole breakers with behind the panel standoff bracket on pole 2. For codes 1 through 6, rocker to be on pole 2 for multipole breakers with behind the panel standoff bracket on Pole 1. For 1 & 3 pole breakers use codes A-F.
6 Voltage Rating available with 2 and 3 pole breakers only.

Dimensional Specifications: in. [mm]



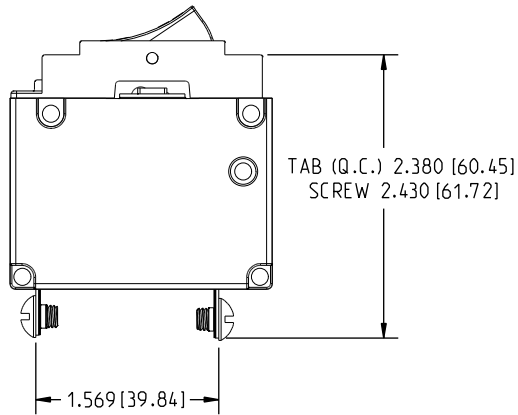
Notes:

- 1 All dimensions are in inches [millimeters].
- 2 Tolerance ± 0.20 [.51] unless otherwise specified.

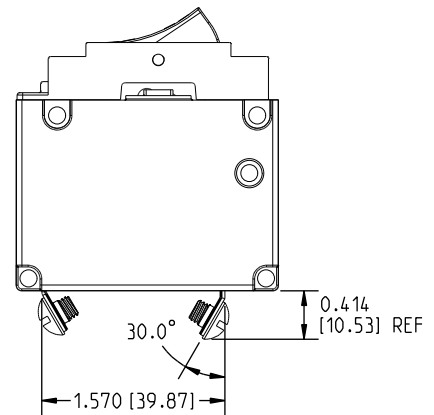
Dimensional Specifications: in. [mm]

TERMINAL SPACING

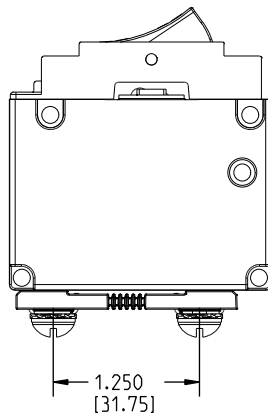
SCREW TERMINAL & PUSH-IN Q.C. TAB



SCREW TERMINAL WITH 30° BEND



BACK CONNECT SCREW TERMINAL
WITH RETAINER



BACK CONNECT SCREW TERMINAL
WITH RETAINER - ALTERNATIVE SPACING

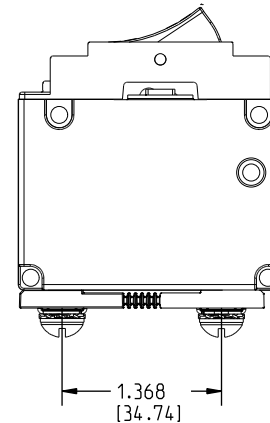


TABLE 1 TIGHTENING TORQUE SPECIFICATIONS	
THREAD SIZE	TORQUE
#6-32 & M3 MOUNTING HARWARE	7-9 IN-LBS [0.8-1.0 NM]
#8-32 & M4 THREAD TERMINAL SCREW	12-15 IN-LBS [1.4-1.7 NM]
#10-32 & M5 THREAD TERMINAL SCREW	15-20 IN-LBS [1.7-2.3 NM]

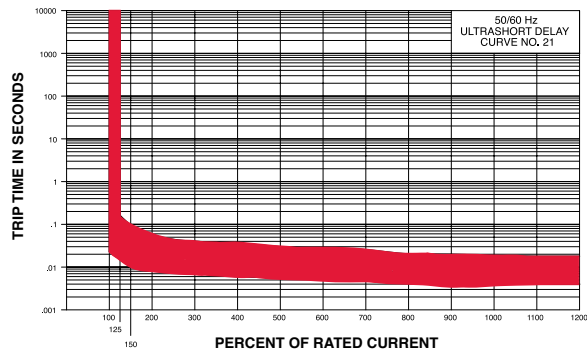
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- 1 All dimensions are in inches [millimeters].
- 2 Tolerance ± 0.02 [.51] unless otherwise specified.

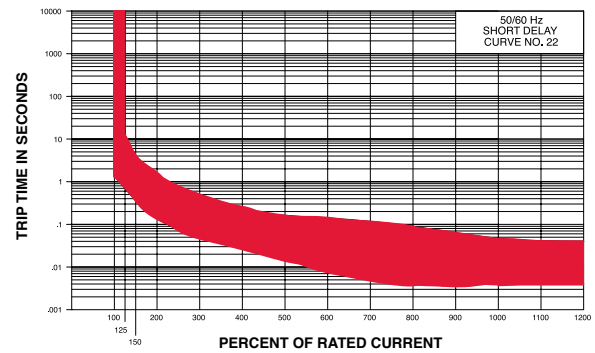
Trip Time Delays

AC

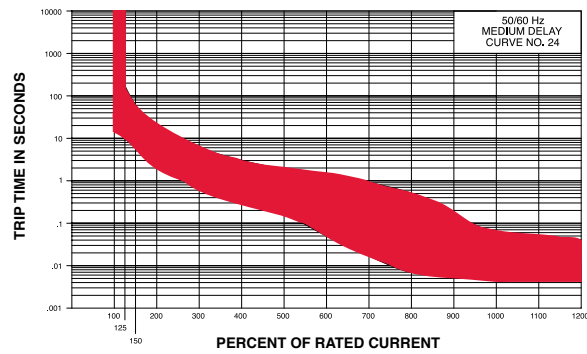
Ultrasort



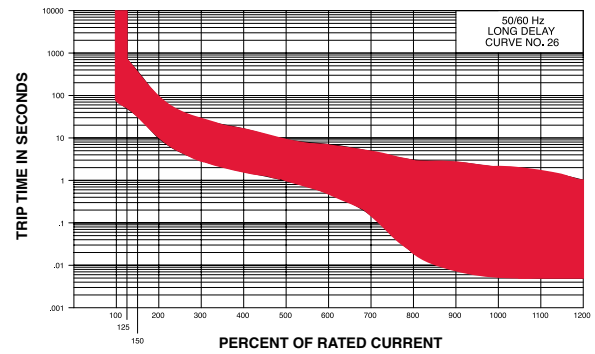
Short



Medium

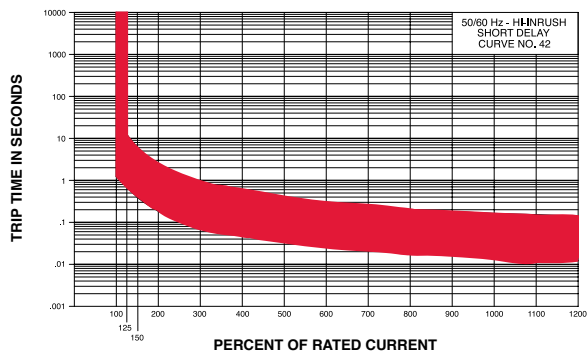


Long

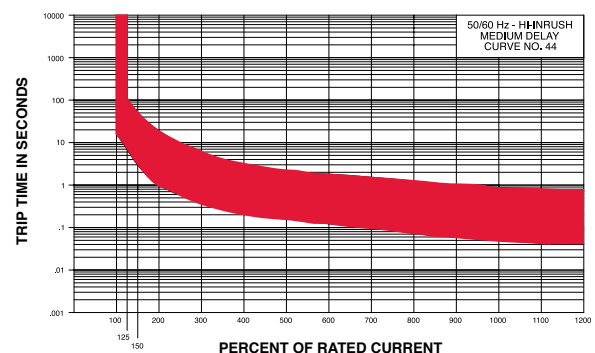


High Inrush AC

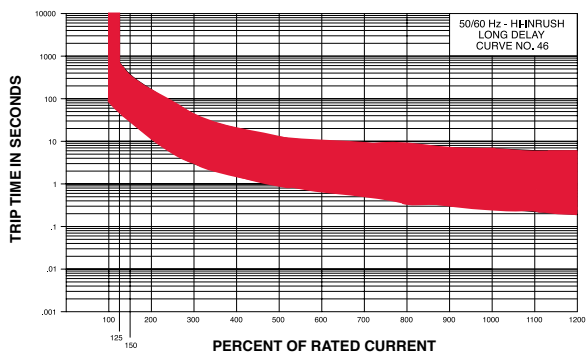
Short



Medium



Long



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About Carling

Founded in 1920, Carling Technologies is a leading manufacturer of electrical and electronic switches and assemblies, circuit breakers, electronic controls, power distribution units, and multiplexed power distribution systems. With four ISO registered manufacturing facilities and technical sales offices worldwide, Carling Technologies Sales, Service and Engineering teams do much more than manufacture electrical components, they engineer powerful solutions! To learn more about Carling please visit www.carlingtech.com/company-profile.

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