Power Distribution

AC & DC Power Distribution and Battery Disconnects

Carling Technologies™
Innovative Designs. Powerful Solutions.

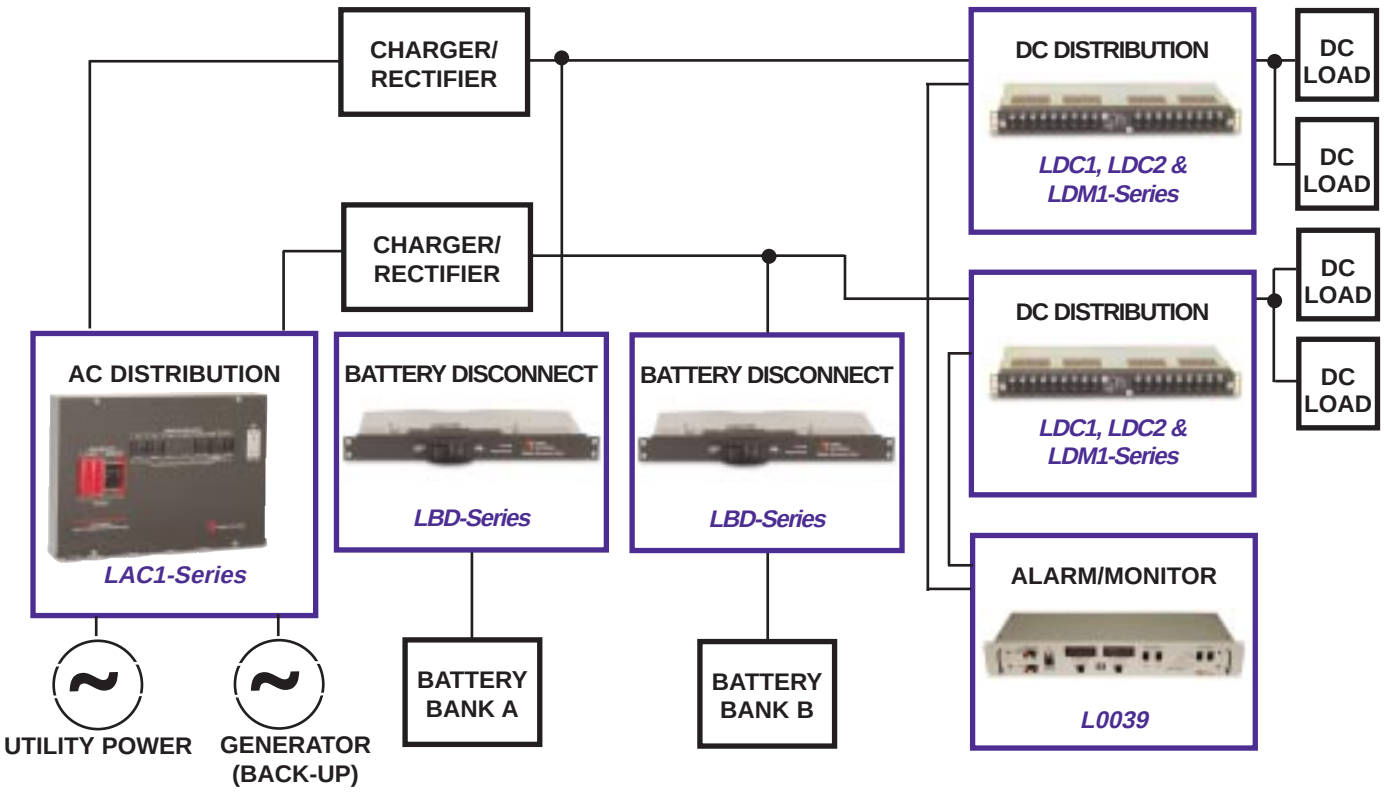
With over 80 years of experience in the development of power switching and protection components, Carling Technologies offers standard and custom designed AC and DC power distribution centers that provide the utmost in safety, reliability and performance.

Power Distribution Center, or PDC, is Carling's term for a standard or custom power distribution panel or unit that's factory wired and contains overcurrent and short circuit protection devices. It may also contain auxiliary devices such as surge suppressors, ground fault circuit interrupters, power receptacles, etc. A PDC is usually supplied by the main feeder and then divides the power into smaller branch circuits. A PDC provides the required circuit control and overcurrent protection needed to all the circuits and the loads connected to it. Power Distribution Unit, or PDU, is an industry term for horizontally mounted panels used in 19” or 23” racks.

Carling Technologies’ expertise in custom design solutions, tooling, manufacturing, and our broad customer base has allowed us to develop a high quality standard product line of power distribution centers. Our standard PDU and PDC products have been designed to meet today's demanding global industry standards, taking into account the growing need to reduce the amount of real estate that panels require, without sacrificing power.

In addition, our dedicated engineering team designs and develops custom Power Distribution Centers or Battery Disconnect Panels that will meet your special requirements. Utilizing a comprehensive range of quality circuit protection and control products, you can specify the physical size of the enclosure and add your component requirements including temperature stable Carling Technologies' hydraulic-magnetic circuit breakers, ground fault circuit protectors, transient voltage surge suppressors, meters, power receptacles, relays, bus bars, hole plugs and LED's.

For the Telecommunication, Server, Marine, Generator, Alternative Power, and Medical industries, Carling Technologies' expertise in power distribution and electrical design can help you meet your power needs. Contact us with your requirements today.



Block Diagram illustrating a typical telecommunications power distribution circuit featuring Carling Technologies PDU and PDC products. The Power Distribution circuit can be fed by utility power on a back-up generator. In addition, battery power can be supplied and controlled with Carling Technologies Battery Disconnect PDU’s. The DC Power Distribution can be monitored by Carling Technologies Alarm/Monitor PDU.

Carling Technologies' Products

Within this catalog, you'll find a comprehensive line of AC & DC Power Distribution Units (PDU's), AC Power Distribution Centers (PDC's), and Battery Disconnect Panels for the Telecom market. All DC products are designed to fit into industry standard 19" and 23" racks, from 1RU to 3RU, and utilize Carling hydraulic/magnetic breakers. We also offer custom power distribution products, hydraulic/ magnetic circuit breakers, thermal circuit protectors, switches, electronic controls and digital switching systems. For more information on these products, please request one of the catalogs listed on the inside back cover of this catalog, or go to **www.carlingtech.com**.

How To Use This Catalog

Please refer to the Product Selector Guide, located on this page, for the type of PDC required. Product features/specifications and dimensional drawings are provided to assist you with product selection. Follow our easy, step-by-step, catalog number sequence to construct the PDC which meets your needs. An example for constructing a catalog number is provided for each Series.

Customer Care Center

For additional application assistance, we urge you to consult with our experienced staff in our Customer Care Center. Our Technical and Engineering staff has extensive test, research and development capabilities, and have assisted many customers in solving unique design and application problems with standard or customized products. Please refer to our location listing on the back of this catalog for contact information for your area.

We look forward to working with you.

Power Distribution Product Selector Guide

Type	Series		# Circuits protected by Circuit breaker	# Circuits protected by GMT fuse	Circuit Current	Bus Current	Voltage	Alarm	Mounting	Size	Page
DC Dual Feed PDU	**LDM1-Series** 		18 total (9 per feed)	–	25A max	150A per feed	36 to 60 (- DC)	Yes	19" or 23" rack	1RU	2
	LDC1-Series 		12 total (6 per feed)	–	50A max	150A per feed	36 to 60 (- DC)	Yes	19" or 23" rack	1RU	5
	LDC2-Series 		12 total (6 per feed)	8 total (4 per feed)	50A max	150A per feed	36 to 60 (- DC)	Yes	23" rack	1RU	8
AC PDC	**LAC1-Series** 		13 poles	–	50A max	100A	120/240 AC	No	Vertical	–	10
Battery Disconnect	**LBDP-Series** 	LBDP1	1 up to 250A	–	250A	–	125 VDC max	No	19" rack	1RU	13
		LBDP1	1 up to 400A		400A					2RU	
		LBDP3	1 up to 700A		700A					3RU	
		LBDP1	1 up to 250A		250A				Vertical	–	
		LBDP1	1 up to 400A		400A						
		LBDP3	1 up to 700A		700A						

LDM1-Series:

19” or 23” One Rack Unit

The LDM1-Series One Rack Unit (1RU) saves valuable real estate on a rack, while offering ease of installation and service.

To help conserve valuable cabinet space, Carling Technologies introduces a new, advanced 1RU DC Power Distribution Unit (PDU) for the telecom industry. This new PDU is designed to fit industry standard 19” rack systems. This 1RU is listed to UL/CUL 1801 and designed to EN60950.

The Carling circuit breakers installed in the 1RU are the miniature M-Series hydraulic-magnetic breakers — the smallest breaker on the market that is UL489A listed up to 80 VDC. In addition, these breakers are plug in style to allow for hot “swappable” and front access, and are rated to 25 amps per pole.

Even as a “condensed” panel, this new 1RU exceeds the tough demands of today's applications while still offering safety, reliability and performance.

General Specifications

Standards:	UL 1801, CUL Approved
Dimensions:	Rack mounts to EIA standard EIA-310-D 19" rack for a 1RU panel, 1.75"H.
Enclosure:	16 gauge yellow zinc chromate cold rolled steel.
Feeds:	Dual, rated up to 150 amps per feed. Max. circuit breakers per feed: 9 Max. breaker rating: 25 amps. Connections: two hole compression lugs for 1/4 - 20 stud terminals x 5/8 centers.
Load Connections:	Requires 10 awg wire/ring or fork terminal for 25 A/75 C Rating, Top or bottom wire entry.
Operating Voltage:	-36V to –60V DC (-48VDC nominal)
Alarm Feature:	Power alarm: If either A or B FEED or both fail. Breaker alarm: If any populated breaker is OFF or "tripped." Alarm is not affected by unused breaker positions. LED indicators on the front panel. Breaker slots can be set or deactivated on the removable Alarm Card.
LED indicators:	Green lamps on A and B feeds. Red lamp for tripped breaker alarm indication.
Chassis Ground:	Via studs on the back panel. Use two hole X 5/8" center lugs. Grounding is also achieved through the rack mounting brackets to the yellow zinc chromate steel panel enclosure.

Features & Benefits

- Panel incorporates Carling M-Series style hydraulic/magnetic breakers: The smallest UL489A listed hydraulic-magnetic circuit breaker on the market today!
- Keyed terminal to prevent breaker from being mounted incorrectly.
- Hot “swappable” circuit breakers that can be installed, changed, or replaced in the field or factory.
- Circuit breakers are front panel accessible.
- Maximum of 9 circuit breakers per feed; 18 per panel.
- One Rack Unit (1RU) size.
- Panel plugs provided for non populated circuit breaker slots.
- Rockerguard circuit breakers to prevent accidental operation.
- Panel is easily configurable and upgradeable in the field. Provides flexibility when designing added features or options.
- Conserves valuable cabinet space to meet the tough demands of today’s applications.
- Front accessible removable alarm card.
- Optional Rack Extenders to expand the panel mounting from a 19" rack to a 23" rack.
  Part Numbers: 8L1-A-DC1A (offset mounting)
  8L1-A-DC1B (center mounting)

LDM1-Series Ordering Scheme

LDM1	-	B	M	-	05	20	10	01	03	25	15	H7	20	-	A
1 Series		*2 Rocker Style*	*3 Delay*		*4 Breaker in Position 1*	*5 Breaker in Position 2*	*6 Breaker in Position 3*	*7 Breaker in Position 4*	*8 Breaker in Position 5*	*9 Breaker in Position 6*	*10 Breaker in Position 7*	*11 Breaker in Position 8*	*12 Breaker in Position 9*		*13 Approvals*

1 SERIES
LDM1

2 ROCKER STYLE

N	No breaker	**W**	White Visi-Rocker indicate OFF
B	Black with white legend		

3 DELAY

N	No breaker	**M**	Medium Delay, Curve 14

4 through 12 BREAKER RATING

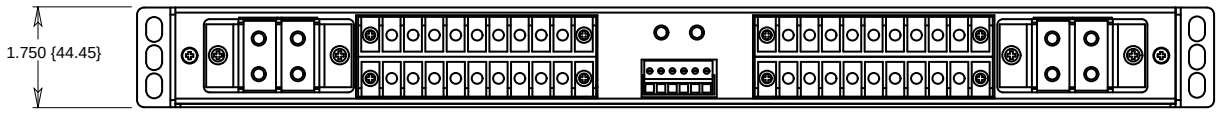
00	No breaker	**10**	10 amps
01	1 amp	**12**	12 amps
03	3 amps	**15**	15 amps
05	5 amps	**20**	20 amps
H7	7.5 amps	**25**	25 amps

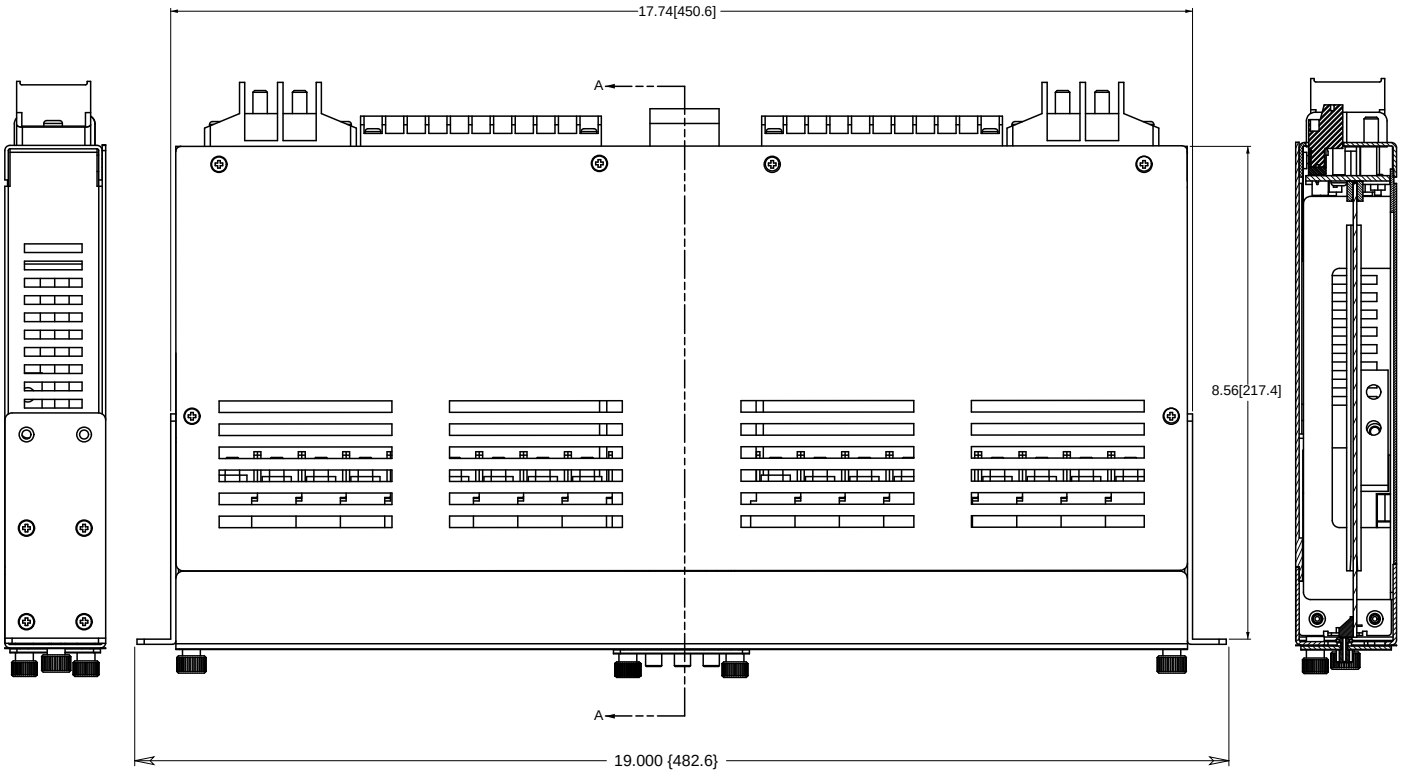
13 APPROVALS

A	No approvals	**G**	UL/CUL	**J**	UL/CUL, CE, TUV

NOTES:
Redundant feed. Breaker layout will be duplicated on the second feed.
Feeds A and B are rated for 150 amps. Total combined breaker ratings can not exceed 150 amps per feed.
A panel plug will be supplied in the breaker positions that do not have a circuit breaker selected.

LDM1-Series Dimensional Specifications



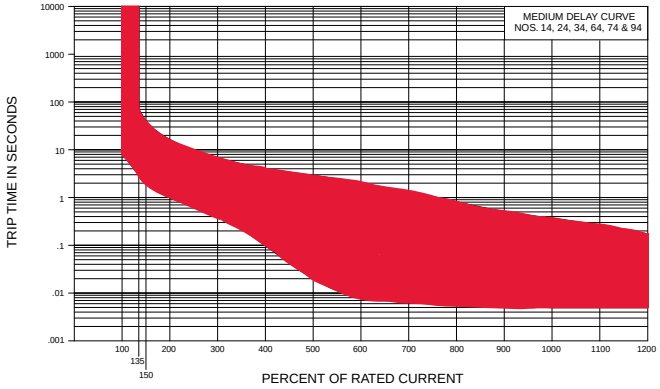


Circuit Breakers

Circuit breakers can be ordered separately to upgrade or reconfigure panel at a later date.
Standard circuit breaker part numbers are listed on the chart below. For other ratings, consult factory.

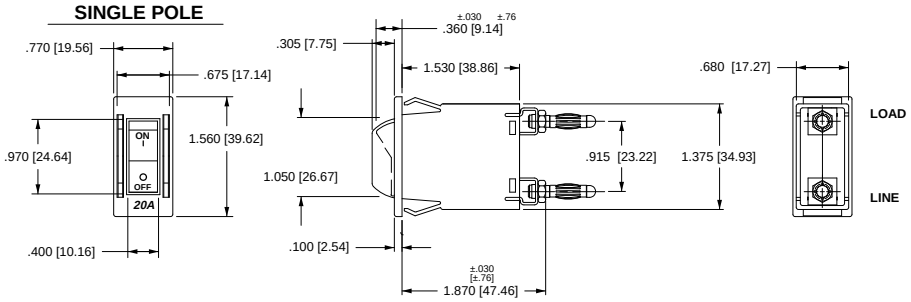
General Specifications:
UL/CUL and TUV approved

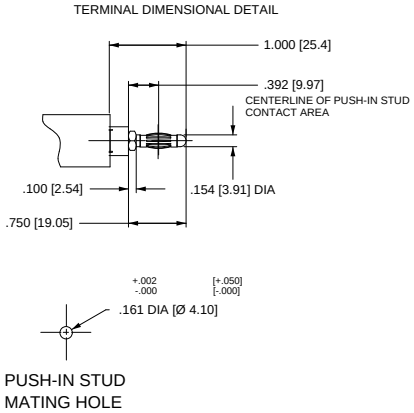
STANDARD TRIP, MEDIUM DELAY, CURVE #14		
RATING (amps)	BLACK ROCKER	WHITE VISI-ROCKER
1	MA1-X-00-927-2-A26-2-J	ME1-X-00-927-5-A16-2-J
3	MA1-X-00-902-7-A26-2-J	ME1-X-00-927-6-A16-2-J
5	MA1-X-00-902-6-A26-2-J	ME1-X-00-927-7-A16-2-J
7.5	MA1-X-00-927-3-A26-2-J	ME1-X-00-927-8-A16-2-J
10	MA1-X-00-902-5-A26-2-J	ME1-X-00-927-9-A16-2-J
12	MA1-X-00-927-47-A26-2-J	ME1-X-00-928-0-A16-2-J
15	MA1-X-00-902-4-A26-2-J	ME1-X-00-928-1-A16-2-J
20	MA1-X-00-902-3-A26-2-J	ME1-X-00-928-2-A16-2-J
25	MA1-X-00-897-5-A26-2-J	ME1-X-00-928-3-A16-2-J

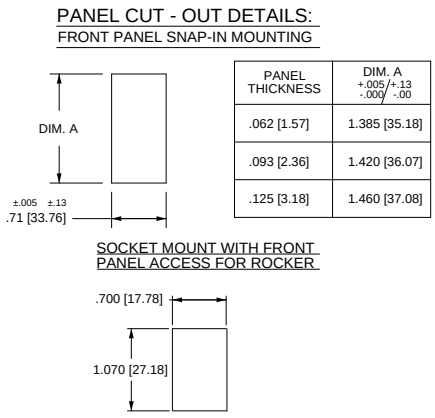


M-SERIES TIME DELAY VALUES										
TRIP TIME (SECONDS)	PERCENT OF RATED CURRENT									
	Delay	100%	135%	150%	200%	400%	600%	800%	1000%	1200%
	14,24,34,64,74,94	No Trip	3.00-70.0	2.00-40.0	1.00-15.0	.100-4.00	.008-2.00	.006-.800	.005-.350	.005-.160

Circuit Breakers Dimensional Specifications







PANEL THICKNESS	DIM. A +.005/+.13 -.000/-.00
.062 [1.57]	1.385 [35.18]
.093 [2.36]	1.420 [36.07]
.125 [3.18]	1.460 [37.08]

LDC1-Series:

19” or 23” One Rack Unit

The LDC1-Series One Rack Unit (1RU) saves valuable real estate on a rack, while offering ease of installation and service.

To help conserve valuable panel space, Carling Technologies introduces a new 1RU DC Power Distribution Unit (PDU) for the telecom industry. This new PDU is designed to fit industry standard 19” rack systems. The 1RU is listed to UL/CUL 1801 and designed to EN60950.

The Carling circuit breakers installed in the 1RU are plug in style to allow for hot swapability and front access, and are rated to 50 amps per pole with a standard 10,000 amp interrupting capacity rating and a special 50,000 amp interrupting capacity on request.

Even as a “condensed” panel, this new 1RU exceeds the tough demands of today's applications while still offering safety, reliability and performance.

General Specifications

Standards:	UL subject 1801 , CUL, TUV Approved CE approval pending
Dimensions:	Rack mounts to EIA standard EIA-310-D 19" rack for a 1RU panel, 1.75"H.
Enclosure:	16 gauge galvaneel steel
Enclosure finish:	Powder coat, Gray
Feeds:	Dual feeds, rated up to 150 amps per feed. Max. circuit breakers per feed: 6 Max. breaker rating: 50 amps. Connections: single hole ring terminal up to 2/0 awg For 150 amps continuous max.
Load Connections:	Requires 8 awg wire/ring or fork terminal for 50 A/75° C Rating, Top or bottom wire entry.
Operating Voltage:	-36V to –60V DC (-48VDC nominal)
Alarm Feature:	Power alarm: If either A or B FEED or both fail. Breaker alarm: If any populated breaker is OFF or “tripped.” Alarm is not affected by unused breaker positions. LED indicators on the front panel.
LED indicators:	Green lamps on A and B feeds. Red lamp for tripped breaker alarm indication.
Chassis Ground:	Via studs on the back panel and rack brackets to bare galvanized metal on the distribution unit. Use two hole x 5/8” center lugs.

Features & Benefits

- Hot “swappable” circuit breakers that can be installed, changed, or replaced in the field or factory.
- Circuit breakers are front panel accessible.
- Breaker removal tools available upon request for installation and removal of circuit breakers.
- Maximum of six UL489 listed circuit breakers per feed.
- One Rack Unit (1RU) size.
- Panel plugs provided for non populated circuit breaker slots.
- Short handle circuit breakers to prevent accidental operation.
- Panel is easily configurable and upgradeable in the field. Provides flexibility when designing added features or options.
- Conserves valuable cabinet space to meet the tough demands of today’s applications.
- Consult factory or your local Carling Technologies representative for any custom panel requirements.
- Optional Rack Extenders to expand the panel mounting from a 19” rack to a 23” rack.
  Part Numbers: 8L1-A-DC1A (offset mounting)
  8L1-A-DC1B (center mounting)

LDC1-Series Ordering Scheme

LDC1	-	A	L	-	05	-	20	-	40	-	01	-	03	-	20	-	A
1 Series		2 Breaker Function	3 Delay		4 Breaker in Position 1		5 Breaker in Position 2		6 Breaker in Position 3		7 Breaker in Position 4		8 Breaker in Position 5		9 Breaker in Position 6		10 Approvals

1 SERIES
LDC1

2 BREAKER FUNCTION

N	No breaker	**S**	Mid-Trip
A	Standard Trip		

3 DELAY

N	No breaker	**L**	Medium Delay, Curve 16
M	Medium Delay, Curve 14		

4 through 9 BREAKER RATING

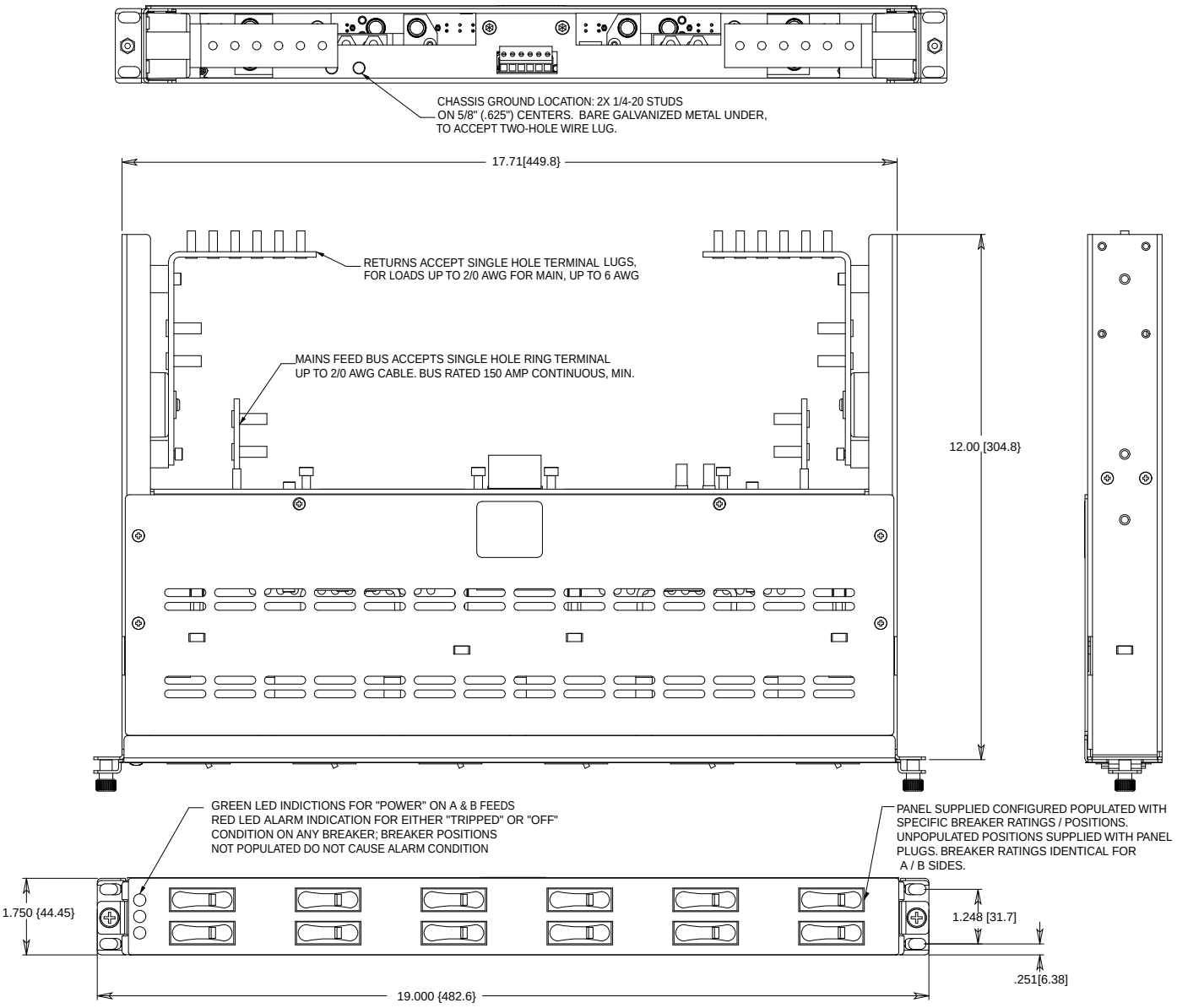
00	No breaker	**20**	20 amps
01	1 amp	**25**	25 amps
03	3 amps	**30**	30 amps
05	5 amps	**35**	35 amps
10	10 amps	**40**	40 amps
15	15 amps	**45**	45 amps
		50	50 amps

10 APPROVALS

A	No approvals	**G**	UL/CUL	**J**	UL/CUL, CE, TUV

NOTES:
Redundant feed. Breaker layout will be duplicated on the second feed.
Feeds A and B are rated for 150 amps. Total combined breaker ratings can not exceed 150 amps per feed.

LDC1-Series Dimensional Specifications



LDC2-Series:

23” One Rack Unit

The LDC2-Series One Rack Unit (1RU) combines GMT fuse and Hydraulic/magnetic Circuit Breaker protection in one compact package.

To reduce space within Telecom cabinets without sacrificing power, Carling Technologies has introduced a versatile 1RU power distribution unit that combines GMT fuse protection with hydraulic-magnetic circuit breaker protection. This new LDC2-Series panel is designed to fit industry standard 23” rack systems.

The LDC2-Series panel features powerful dual feed redundancy for both the circuit breakers and the fuses. Hot “swappable” design allows the panel to be field or factory configured, and upgraded.

Even in this compact package, this new LDC2-Series 1RU panel exceeds the tough demands of today’s applications, while offering safety, reliability and performance.

General Specifications

Standards:	UL subject 1801, CUL and TUV Approved CE approval pending
Dimensions:	Rack mounts to EIA standard EIA-310-D 23” rack for a 1RU panel, 1.75” H.
Enclosure:	16 gauge yellow zinc chromate cold rolled steel
Feeds:	Dual feeds, rated up to 150 amps per feed. Max. circuit breakers per feed: 6 Max. breaker rating: 50 amps. GMT fuse feeds rated to 40A. Max. GMT fuses per feed: 4 Max. fuse rating: 10A
Load Connections:	Requires 1 awg wire/ring or fork terminal for 25 A/75 C Rating, Top or bottom wire entry. For 50A load with 25A terminal, fuse leads are through the connector.
Operating Voltage:	-36V to –60V DC (-48VDC nominal)
Alarm Feature:	Power alarm: If either A or B FEED or both fail. Breaker alarm: If any populated breaker is OFF or “tripped.” Alarm is not affected by unused breaker positions. LED indicators on the front panel.
LED indicators:	Green lamps on A and B feeds. Red lamp for tripped breaker alarm indication.
Chassis Ground:	Via studs on the back panel. Use two hole X 5/8” center lugs. Via Rack Mounting via brackets to yellow zinc chromate steel panel enclosure.

Features & Benefits

- LDC2-Series incorporates Carling AC-Series hydraulic/magnetic breakers, providing a superior level of performance.
- Versatile design combines circuit breaker and GMT fuse protection in one panel.
- Hot "swappable" circuit breakers that can be installed, changed, or replaced in the field or factory.
- Circuit breakers are front panel accessible.
- Breaker removal tools available upon request for installation and removal of circuit breakers.
- Maximum of six UL489 listed circuit breakers per feed, 12 per panel.
- One Rack Unit (1RU) size.
- Panel plugs provided for non populated circuit breaker slots.
- Short handle circuit breakers to prevent accidental operation.
- Panel is easily configurable and upgradeable in the field. Provides flexibility when designing added features or options.
- Conserves valuable cabinet space to meet the tough demands of today’s applications.
- Consult factory or your local Carling Technologies representative for any custom panel requirements.

LDC2-Series Ordering Scheme

LDC2	-	A	L	-	05	20	40	01	03	50	-	A	A	A	A	-	A
1 Series		*2 Breaker Function*	*3 Delay*		*4 Breaker in Position 1*	*5 Breaker in Position 2*	*6 Breaker in Position 3*	*7 Breaker in Position 4*	*8 Breaker in Position 5*	*9 Breaker in Position 6*		*10 Fuse in Position 1*	*11 Fuse in Position 2*	*12 Fuse in Position 3*	*13 Fuse in Position 4*		*14 Approvals*

1 SERIES
LDC2

2 BREAKER FUNCTION

N	No breaker	**S**	Mid-Trip
A	Standard Trip		

3 DELAY

N	No breaker	**L**	Medium Delay, Curve 16
M	Medium Delay, Curve 14		

4 through 9 BREAKER RATING

00	No breaker	**20**	20 amps
01	1 amp	**25**	25 amps
03	3 amps	**30**	30 amps
05	5 amps	**35**	35 amps
10	10 amps	**40**	40 amps
15	15 amps	**45**	45 amps
		50	50 amps

10 through 13 FUSE RATING

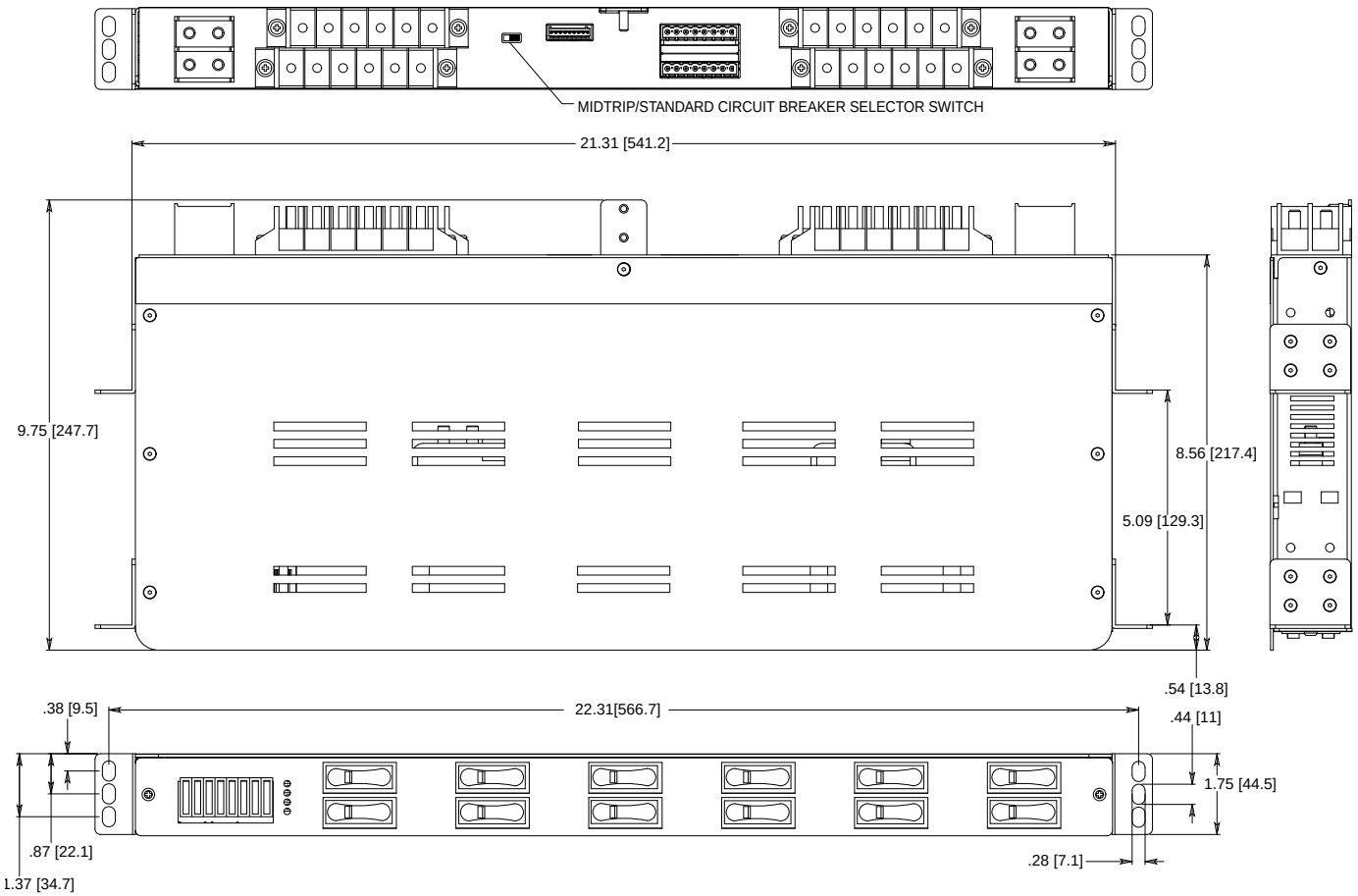
Z	Dummy Fuse	**F**	2 amps
A	.25 amp	**G**	3 amps
B	.50 amp	**H**	4 amps
C	.75 amp	**I**	5 amps
D	1 amp	**J**	7.5 amps
E	1.5 amps	**K**	10 amps

14 APPROVALS

A	No approvals	**G**	UL/CUL	**J**	UL/CUL, CE, TUV

NOTES:
Redundant feed. Breaker layout will be duplicated on the second feed.
Feeds A and B are rated for 150 amps. Total combined breaker ratings can not exceed 150 amps per feed.
GMT fuse feeds A & B are rated for 40 amps each. Total combined fuse ratings can not exceed 40 amps.

LDC2-Series Dimensional Specifications



Circuit Breakers

Circuit breakers can be ordered separately to upgrade or reconfigure panel at a later date.
Standard circuit breaker part numbers are listed on the chart below. For other ratings, consult factory.

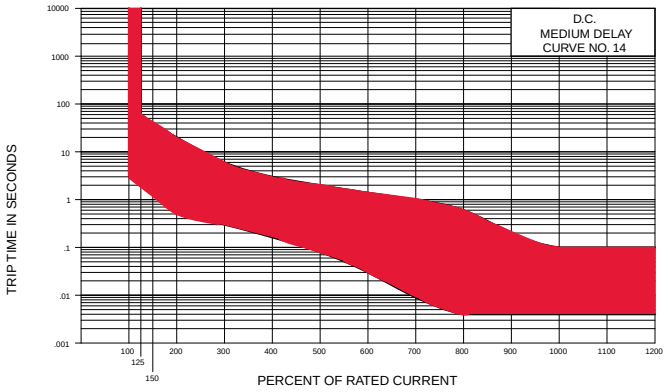
General Specifications:
UL489, CSA and VDE approved
10,000 amp interrupting capacity

C-SERIES TIME DELAY VALUES

TRIP TIME (SECONDS)	PERCENT OF RATED CURRENT									
Delay	100%	125%	150%	200%	400%	600%	800%	1000%	1200%
14	No trip	2.00-60.0	1.20-40.0	.600-20.0	.150-3.00	.030-1.30	.004-.600	.004-.100	.004-.100
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	.005-.500

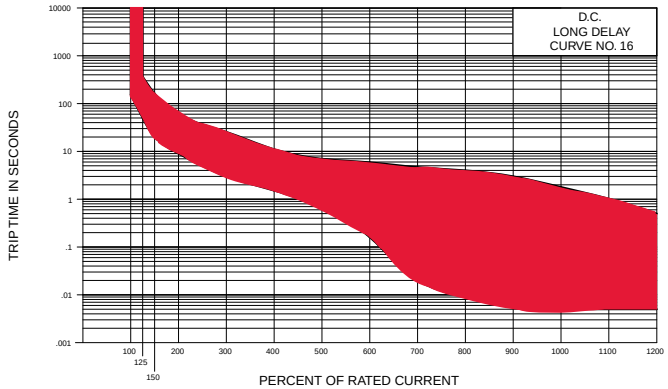
MEDIUM DELAY, CURVE #14

RATING (amps)	STANDARD TRIP	MID-TRIP with LDC1-Series	MID-TRIP with LDC2-Series
1	CA1-X0-09-031-AX1-MF	CS1-X0-09-032-AX1-MF	CT1-X0-09-032-AX1-MF
3	CA1-X0-08-981-AX1-MF	CS1-X0-08-992-AX1-MF	CT1-X0-08-992-AX1-MF
5	CA1-X0-08-982-AX1-MF	CS1-X0-08-993-AX1-MF	CT1-X0-08-993-AX1-MF
10	CA1-X0-08-983-AX1-MF	CS1-X0-08-994-AX1-MF	CT1-X0-08-994-AX1-MF
15	CA1-X0-08-984-AX1-MF	CS1-X0-08-995-AX1-MF	CT1-X0-08-995-AX1-MF
20	CA1-X0-08-985-AX1-MF	CS1-X0-08-996-AX1-MF	CT1-X0-08-996-AX1-MF
25	CA1-X0-08-986-AX1-MF	CS1-X0-08-997-AX1-MF	CT1-X0-08-997-AX1-MF
30	CA1-X0-08-987-AX1-MF	CS1-X0-08-998-AX1-MF	CT1-X0-08-998-AX1-MF
35	CA1-X0-08-988-AX1-MF	CS1-X0-08-999-AX1-MF	CT1-X0-08-999-AX1-MF
40	CA1-X0-08-989-AX1-MF	CS1-X0-08-000-AX1-MF	CT1-X0-08-000-AX1-MF
45	CA1-X0-08-990-AX1-MF	CS1-X0-08-001-AX1-MF	CT1-X0-08-001-AX1-MF
50	CA1-X0-08-991-AX1-MF	CS1-X0-08-002-AX1-MF	CT1-X0-08-002-AX1-MF



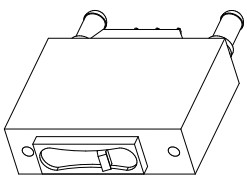
LONG DELAY, CURVE #16

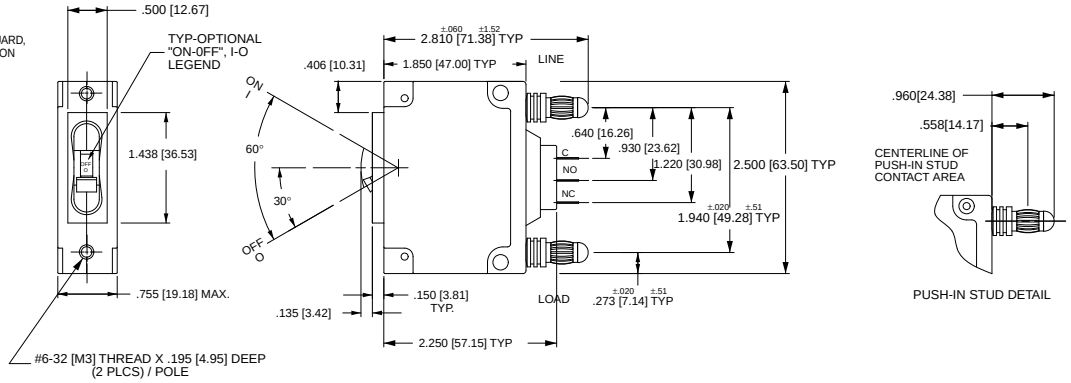
RATING (amps)	STANDARD TRIP	MID-TRIP with LDC1-Series	MID-TRIP with LDC2-Series
1	CA1-X0-08-561-AX1-MF	CS1-X0-09-033-AX1-MF	CT1-X0-09-033-AX1-MF
3	CA1-X0-07-803-AX1-MF	CS1-X0-09-003-AX1-MF	CT1-X0-09-003-AX1-MF
5	CA1-X0-07-804-AX1-MF	CS1-X0-09-004-AX1-MF	CT1-X0-09-004-AX1-MF
10	CA1-X0-07-805-AX1-MF	CS1-X0-09-005-AX1-MF	CT1-X0-09-005-AX1-MF
15	CA1-X0-07-806-AX1-MF	CS1-X0-09-006-AX1-MF	CT1-X0-09-006-AX1-MF
20	CA1-X0-07-807-AX1-MF	CS1-X0-09-007-AX1-MF	CT1-X0-09-007-AX1-MF
25	CA1-X0-07-645-AX1-MF	CS1-X0-09-008-AX1-MF	CT1-X0-09-008-AX1-MF
30	CA1-X0-07-646-AX1-MF	CS1-X0-09-009-AX1-MF	CT1-X0-09-009-AX1-MF
35	CA1-X0-07-808-AX1-MF	CS1-X0-09-010-AX1-MF	CT1-X0-09-010-AX1-MF
40	CA1-X0-07-809-AX1-MF	CS1-X0-09-011-AX1-MF	CT1-X0-09-011-AX1-MF
45	CA1-X0-07-810-AX1-MF	CS1-X0-09-012-AX1-MF	CT1-X0-09-012-AX1-MF
50	CA1-X0-07-811-AX1-MF	CS1-X0-09-013-AX1-MF	CT1-X0-09-013-AX1-MF



Circuit Breakers Dimensional Specifications

SHORT HANDLE CIRCUIT BREAKER REQUIRES NO HANDLE GUARD, HAS MINIMAL HANDLE PROTRUSION IN "ON" AND "OFF" POSITION





LAC1-Series: Telecom AC PDC

The LAC1-Series AC PDC provides custom configurations in a standard format.

The LAC1-Series eliminates the need to invest in custom designed AC power requirements. The LAC1-Series is a standard AC load center designed for today's Telecommunications requirements, and is available from 120-240VAC.

General Specifications

Standards:	UL67 Listed for AC Panelboards
Dimensions:	Wall mount enclosure. 20"W x 14"H x 3.84"D
Enclosure:	16 gauge cold rolled steel with a powder coat finish.
Mains Breaker:	2-pole 100 amp mains breaker, 120/240 vac, 50-60 Hz, & 2-pole 100 amp generator back-up breaker, tied together, but with independent operation. Slide-bar, lock-out feature allows transfer from AC to generator power.
Loads:	Slots for up to 13 poles of branch circuit breakers. Circuit breakers 1-4: reserved for 2-pole breakers. Circuit breakers 5-6: reserved for one, 2-pole breaker or two single pole breakers. Circuit breaker 7: reserved for a 2-pole 15A circuit breaker (preloaded) for the GFI service outlet & optional surge suppressor. Circuit breaker 8: reserved for a single pole circuit breaker
Service Outlet:	15 Amp, 120VAC GFI
Operating Voltage:	120/240VAC, or 120/208V @ 50/60 Hz, 70 Amps single phase.
Service Entry:	Service Entry fittings located at the bottom, and bottom right corner of the enclosure.
Load Center Breakers:	UL489 C-Series w/ clip terminals & maximum rating of 50 amps per position with a total per panel of 70 amps or less.

Features & Benefits

- Versatile design allows custom configurations of branch circuits based on individual applications.
- Circuit breakers snap-in to Carling Technologies' exclusive circuit breaker mounting block. No need to hard wire the circuit breakers.
- Easy change over from main to generator power by use of a slide bar.
- UL listed to UL67 for AC panel boards.
- GFI convenience outlet is included for service.
- AC panel was designed for easy wiring.
- Ordering scheme assists you in ordering a custom solution from a standard product. Individual circuit breaker part numbers are provided which allow you to easily upgrade your existing panel in the future.
- Front cover is easily removed.
- Handleguards protect breakers.
- Breaker handles are visible through the front cover of the panel to allow easy breaker status identification .
- Breaker state can be changed without opening panel.
- Branch Circuits protected by Carling C-Series UL489 hydraulic/magnetic listed, VDE approved breakers, with clip terminals that allow easy snap-in mounting of breakers into the AC panel.
- Breaker trip and Current ratings are unaffected by ambient temperatures.

LAC1-Series Ordering Scheme

LAC1	-	05	05	05	20	-	1	10	1	10	-	15	-	15
1 Series		*2 Breaker in Position 1*	*3 Breaker in Position 2*	*4 Breaker in Position 3*	*5 Breaker in Position 4*		*6 # Poles in Position 5*	*7 Breaker in Position 5*	*8 # Poles in Position 6*	*9 Breaker in Position 6*		*10 Breaker in Position 7*		*11 Breaker in Position 8*

1 SERIES
LAC1

2 through 5 TWO POLE BREAKER RATING

00	No breaker	**20**	20 amps	**40**	40 amps
05	5 amps	**25**	25 amps	**45**	45 amps
10	10 amps	**30**	30 amps	**50**	50 amps
15	15 amps	**35**	35 amps		

6 and 8 NUMBER OF POLES[1]

0	No breaker
1	single pole
2	two pole

7 and 9 BREAKER RATING

00	No breaker	**20**	20 amps	**40**	40 amps
05	5 amps	**25**	25 amps	**45**	45 amps
10	10 amps	**30**	30 amps	**50**	50 amps
15	15 amps	**35**	35 amps		

10 TWO POLE BREAKER RATING

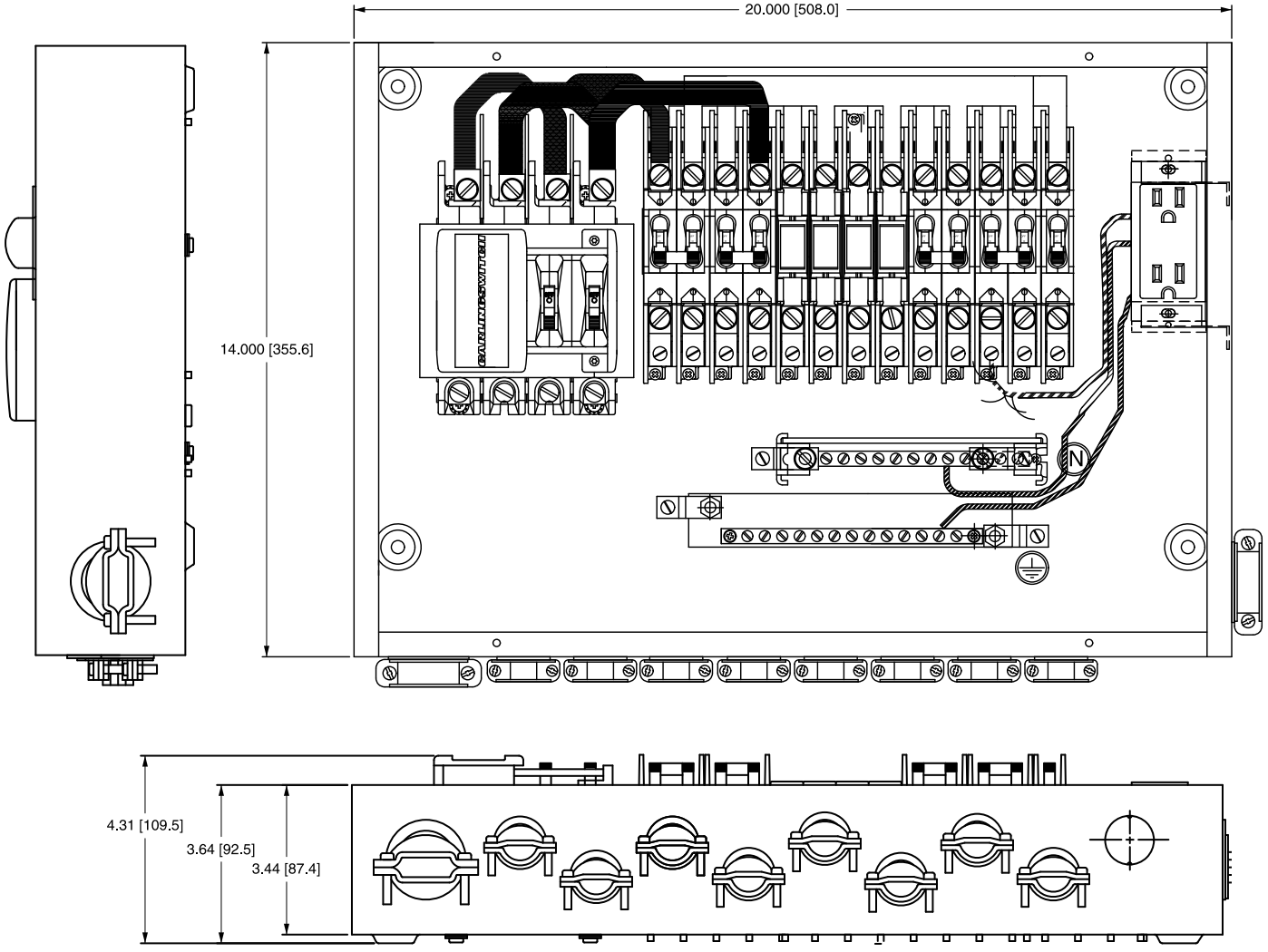
15	15 amps

11 SINGLE POLE BREAKER RATING

00	No breaker	**20**	20 amps	**40**	40 amps
05	5 amps	**25**	25 amps	**45**	45 amps
10	10 amps	**30**	30 amps	**50**	50 amps
15	15 amps	**35**	35 amps		

NOTES:
1 If choosing single pole breakers, you must choose breakers for both positions 5 and 6.
If choosing a two pole breaker in position 5, then position 6 (selected in fields 8 and 9) must be "no breaker".

LAC1-Series Dimensional Specifications



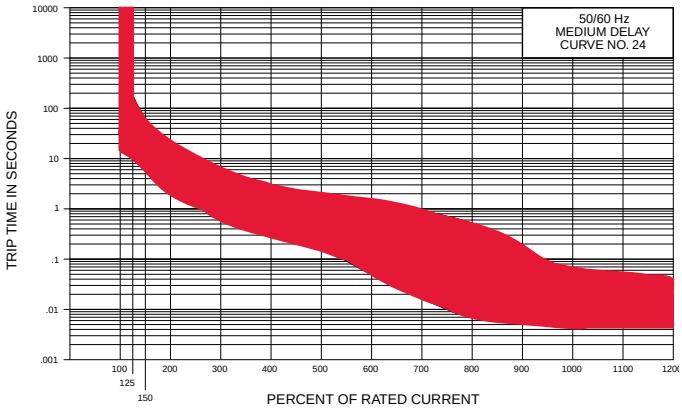
Circuit Breakers

Circuit breakers can be ordered separately to upgrade or reconfigure panel at a later date.
Standard circuit breaker part numbers are listed on the chart below. For other ratings, consult factory.

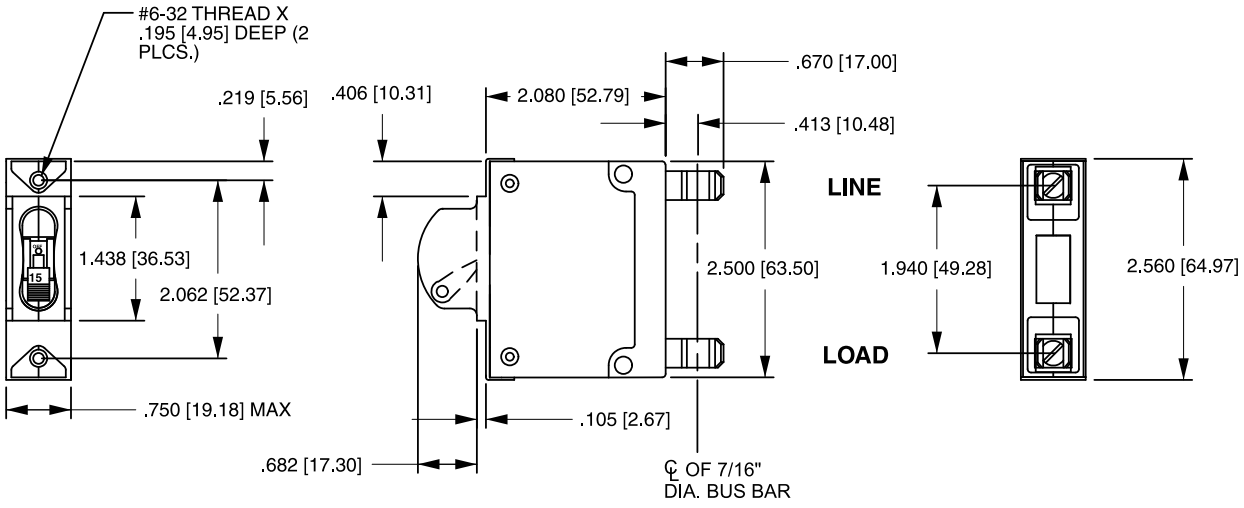
General Specifications:
UL489, CSA and VDE approved
10,000 amp interrupting capacity

C-SERIES TIME DELAY VALUES										
TRIP	PERCENT OF RATED CURRENT									
TIME	Delay	100%	125%	135%	150%	200%	400%	600%	800%	1200%
(SECONDS)	24	No trip	10.0-160	-	.600-60.0	2.20-20.0	.300-3.00	.050-1.30	.007-.500	.005-.040

MEDIUM DELAY, CURVE #24		
RATING (amps)	SINGLE POLE	TWO POLE
5	CA1-X0-09-250-C2X-KG	CA2-X0-09-244-C2X-CG
10	CA1-X0-06-604-C2X-KG	CA2-X0-07-169-C2X-CG
15	CA1-X0-09-251-C2X-KG	CA2-X0-08-169-C2X-CG
20	CA1-X0-06-606-C2X-DJ	CA2-X0-04-891-C2X-CG
25	CA1-X0-09-252-C2X-KG	CA2-X0-09-245-C2X-CG
30	CA1-X0-09-253-C2X-KG	CA2-X0-06-299-C2X-CG
35	CA1-X0-09-254-C2X-KG	CA2-X0-09-246-C2X-CG
40	CA1-X0-09-255-C2X-KG	CA2-X0-09-247-C2X-CG
45	CA1-X0-09-256-C2X-KG	CA2-X0-09-248-C2X-CG
50	CA1-X0-09-261-C2X-KG	CA2-X0-09-249-C2X-CG



Circuit Breakers Dimensional Specifications



LBD-Series:

Battery Disconnect Panels

The LBD-Series Battery Disconnect Panels provide battery protection in rack mount and enclosure style while freeing up valuable real estate within your cabinet.

The LBD-Series battery disconnect panels were designed with performance, style and size in mind. Carling Technologies has packed this product line with ratings up to 700A, interrupt capacity of 50,000A, PDC voltage ratings of -36 to -60 VDC and in sizes starting as small as 1 rack unit (1RU) x 19", up to 3RU.

The LBD-Series addresses the demanding requirements associated with today's Telecommunication Networks.

General Specifications

Standards:	UL Listed
Dimensions:	Rack mounts to EIA standard EIA-310-D, 1-3RU, 19" or 23" panel
Enclosure:	14 gauge Galvaneel steel w/ powder coat finish, & Bare metal ground.
Current Ratings:	250 amps/ 1RU;400 amps/2RU 700 amps/3RU
Circuit Breaker Voltage Ratings:	125 vdc
Interrupting Capacity:	50,000 amps @ 60 vdc
Alarm Feature:	Std. 1 form C contact for power ON/OFF, 1 form C, Contact for breaker OFF/TRIPPED.
Ambient Temperature:	-40°C to +60°C
LED indicators:	Green lamp for power indication. Red lamp for alarm indication.
Rack Mount Insulators:	UL94V-0 material over all live parts.
Meter Shunt Option:	Optional meter shunt provides 25m V at rated current.
Chassis Ground:	Bare metal to rack mount flange & 1/4 - 20 stud to bare metal.
Lug Connections:	Busbars accept 2-hole std. telecom lugs up to 750 mcm cable. 1 lug-up to 250 amps; 2 lugs-up to 400 amps; 3 lugs- up to 700 amps. Lugs can be mounted on either or both sides. Lugs can be through bolted on each side of the bus bar, doubling lug capacity.
Lugs Required:	1.75" hole spacing, 1/2: bolt lug, max. 1.75" wide

Features & Benefits

- Panel incorporates Carling F-Series high amperage hydraulic/magnetic breakers: providing a superior level of performance.
- Each panel is sized for maximum protection in the smallest size possible to conserve valuable cabinet space. Starting with a compact 1RU x 19" rack rated up to 250 amps @ 60 vdc with a 50,000 AIC.
- Front panel access.
- Insulator covers are standard to protect live parts once the panel is installed.
- Front panel is provided with a circuit breaker handle guard to protect from unintentional operation.
- LED indications are standard for visual monitoring.
- The LBD provides, as a standard, a circuit breaker alarm feature to alert breaker trip or off conditions.
- Voltage, or current monitoring, and remote shut down options are offered.
- Cable connections on thick silver plated, copper busbars, which accept standard 2-hole telecom lugs from 1 AWG to 750 MCM sizes.
- Lugs can be mounted on either or both sides of the bus bars.

LBD-Series Ordering Scheme

LBD	P	1	-	1	-	810	-	A	-	A	-	0	-	0	-	A
1 Series	2 Style	3 Rack Size		4 Function		5 Current Rating		6 Bus Bar Type		7 Metering Shunt		8 Remote Disconnect		9 Special Options		10 Approvals

1 SERIES
LBD

2 STYLE
P Rack Mount
E Enclosure/Wall Mount

3 RACK SIZE
1 19" rack
2 23" rack
E Enclosure

4 FUNCTION
0 Switch Only
1 Series Trip
2 Series Trip with Aux. Switch
3 Mid-trip with Alarm Switch

5 CURRENT RATING
810 100 amp (1RU)
820 200 amp (1RU)
825 250 amp (1RU)
840 400 amp (1RU)
860 600 amp (1RU)
870 700 amp (1RU)

6 BUS BAR TYPE
A figure 1
B figure 1 w/ PEM studs

7 METERING SHUNT
0 No shunt
A Metering shunt

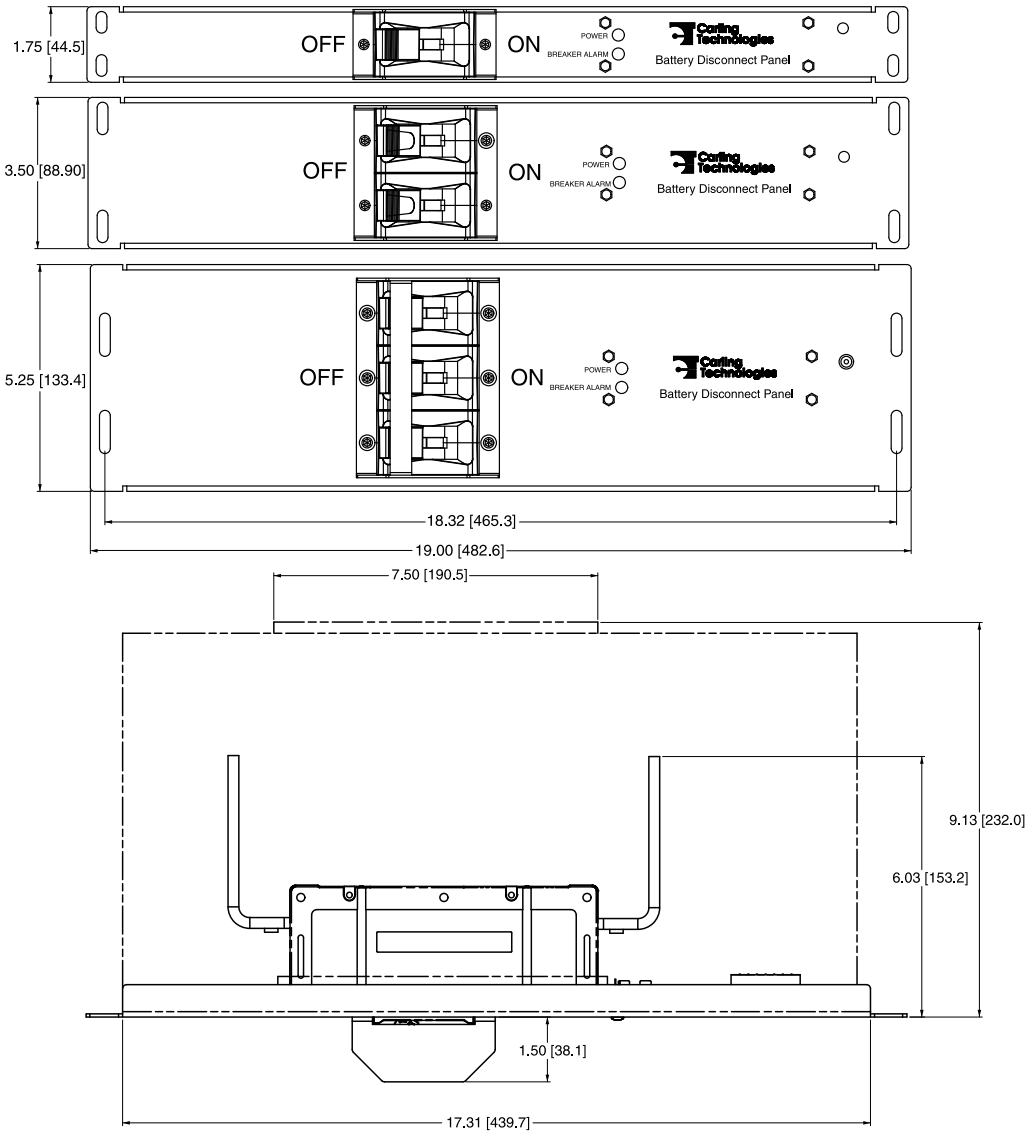
8 REMOTE DISCONNECT VOLTAGE
0 No remote option
A 24 vdc
B 48 vdc
C 120 vdc
D 240 vdc

9 SPECIAL OPTIONS
0 None
X Consult factory

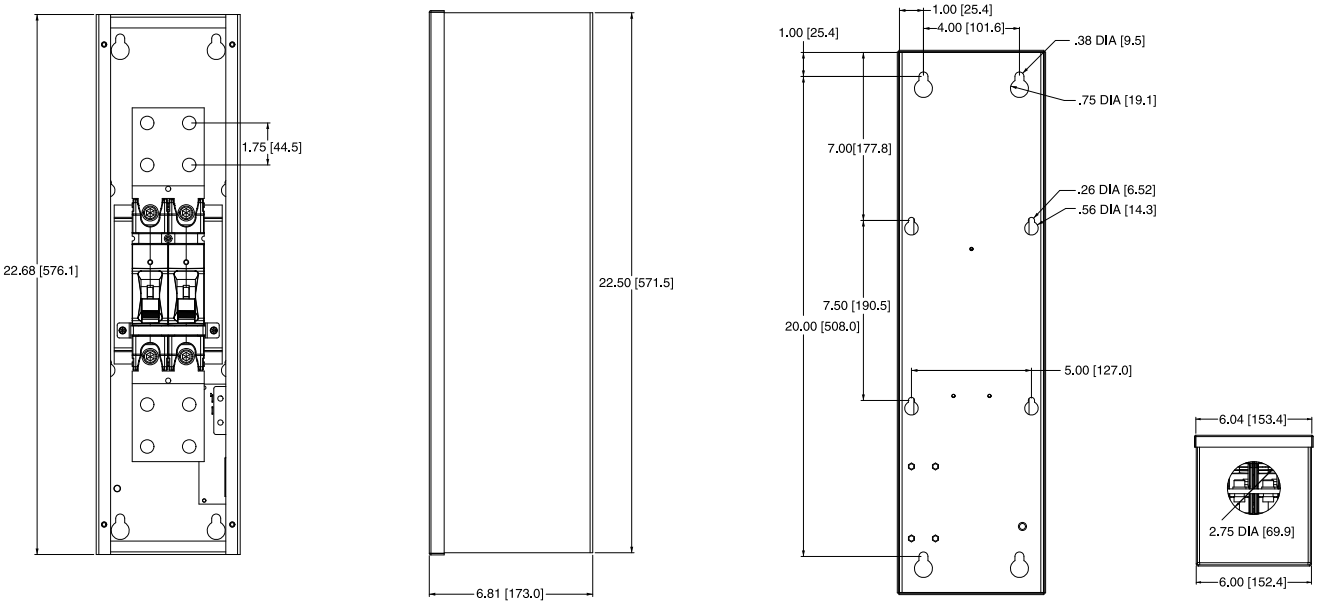
10 APPROVALS
A No approvals
B UL Listed

NOTES:
Circuit breakers are provided with a DC medium delay curve.
1 Current & voltage monitoring are available as special options. Select X in position 9, and advise factory.

LBD-Series Rack Mount Dimensional Specifications



LBD-Series Wall Mount Dimensional Specifications



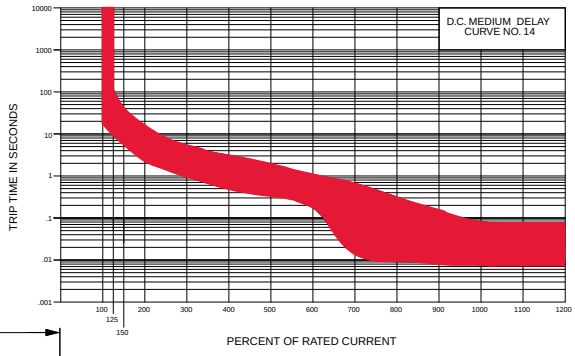
Circuit Breakers

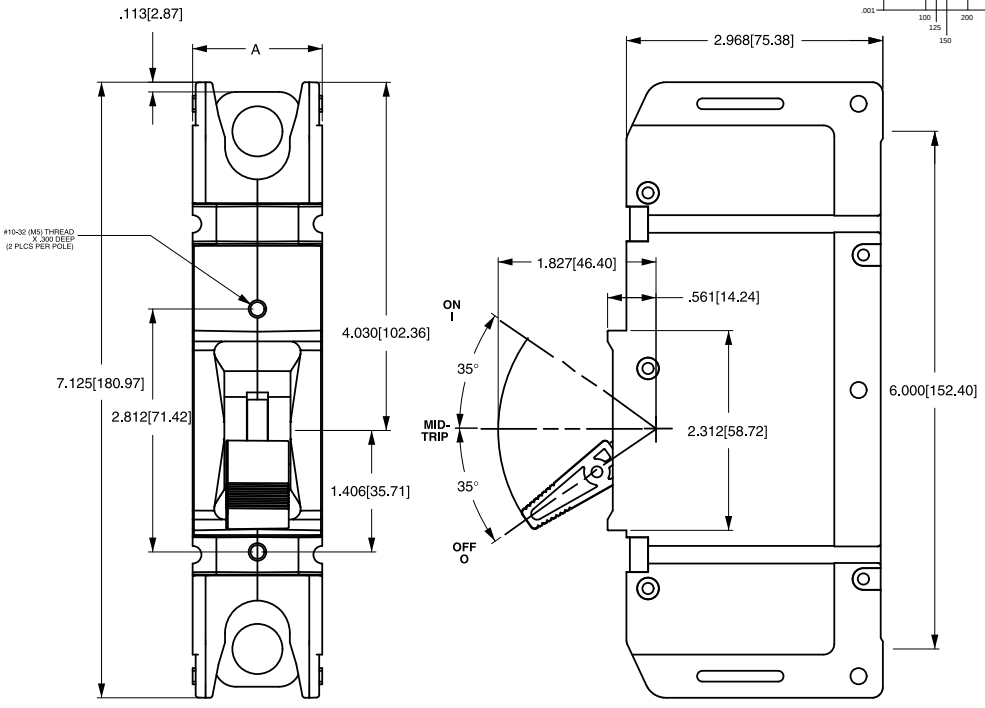
Circuit breakers can be ordered separately to upgrade or reconfigure panel at a later date. Standard circuit breaker part numbers are listed on the chart below. For other ratings, consult factory.

General Specifications:
UL489, CSA and VDE approved
10,000 amp interrupting capacity

F-SERIES TIME DELAY VALUES

TRIP TIME (SECONDS)	PERCENT OF RATED CURRENT								
	Delay	100%	125%	150%	200%	400%	600%	800%	1200%
	14	No trip	10.0-110	.600-40.0	2.50-15.0	.500-3.00	.180-1.00	.010-.280	.008-.080





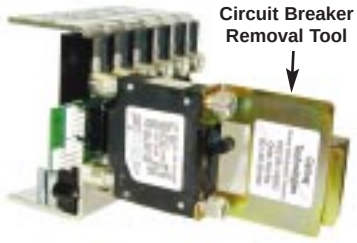
Panel Hole Plug

809-70194-001

1 Part Number

1 PART NUMBER	
809-70194-001	LAC1 Snap-In Panel Plugs
809-70194-002	LDC1 & LDC2 Snap-In Panel Plugs

C-Series with Push-In Stud Terminals Mounting Kit & Removal Tool



8C1-X0-08-639

1 Part Number

1 PART NUMBER	
8C1-X0-08-639	Removal Tool for 6-32 inserts
8C1-X0-09-593	Removal Tool for M3 inserts
8C1-X0-07-628	Mounting kit for one circuit breaker position (includes mounting block, bullet sockets, aux. switch, PC board connectors, aux. switch connector housing and two screws. Bus bar and PCB are not included in the mounting kit.)

C-Series Circuit Breaker Module for DC Power Distribution

L0053

1 Part Number

1 PART NUMBER	
L0053	Circuit Breaker Module • Six position circuit breaker module, individual circuit breaker slot rated to 100amps • Hot swappable plug-in circuit breakers • UL489 listed hydraulic/magnetic circuit breakers available for the module • Breaker alarm circuit • 300 amp line bus • Custom mounting block allows for Load bus to easily change • Building block design allows for easy changes
8C1-X0-08-573	Circuit Breaker Module Kit for individual loads (includes mounting block, auxiliary switch housing, rivet, two screws, two push-in terminal receptacles and three .110QC terminal receptacles.)

C-Series Circuit Breaker AC Plug-In Bracket

PR8080-667

1 Part Number

1 PART NUMBER	
PR8080-667	C-Series Circuit Breaker AC Plug-In Bracket

Custom Power Distribution Solutions

Carling Technologies offers expertise in electrical and mechanical design, tooling, prototyping, testing, and manufacturing. At Carling we do much more than manufacture standard products. Our dedicated PDC team provides innovative design and skillfully engineered power distribution solutions to meet today's demanding custom requirements. We work closely with your engineering team to meet your application requirements and exceed your expectations.

Let the Carling PDC team design and develop a custom Power Distribution Center or Battery Disconnect Panel that will meet your special requirements. Please take a moment to browse through our PDC photo galleries and view some examples of our custom design & solution capabilities. Then contact us today and let us assist you with your custom designs.

Custom Battery Disconnect Gallery

L0054

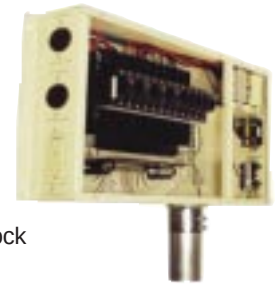
- Battery disconnect for single battery string
- Mounts directly to a battery housing
- Connections made by Anderson Connectors
- UL489 Listed hydraulic/magnetic circuit breaker
- Circuit breaker rating 100A @ 80VDC with a 50,000 AIC

L0059

- Battery Disconnect for multiple battery strings
- Two UL489 Listed hydraulic/magnetic circuit breakers, one to disconnect an individual battery string, one to disconnect the entire battery system
- Breakers are rated for 100 amps @ 80VDC with 50,000 AIC
- Panel attaches directly to a battery compartment
- Connections made with Anderson Connectors

Custom AC Gallery

L0005



- 100 amp rating
- 208-420VAC
- UL489 listed hydraulic magnetic circuit breakers
- Optional surge suppressor 4-115V convenience outlets, GFI & non-GFI protected 4-250V twist lock
- Designed for UL50

L0066

- 23" rack mount design
- 100 amp 3 pole UL489 listed breaker
- 16 slots for plug-in circuit breakers
- Rocker style branch circuit break with rocker guard and visual trip indication
- Hydraulic magnetic circuit breakers
- Power strip top for a variety of outlets

L0069 Remote Power Management

- Independent circuit breakers controlled remotely via your phone
- RPMS calls an assigned phone number when a breaker has tripped, & allows you to service or reset the breaker over the phone
- Dial up feature allows you to change breaker states as needed

L0081

- UL67 listed for AC panelboards
- Wall mount enclosure
- 70A 2 pole Mains breaker, with 2 pole 70A generator back-up breaker tied together but operating independently
- Slide bar lock out allows transfer slots for up to 13 poles of branch circuit breakers
- UL489 listed hydraulic/magnetic breakers with handle guards
- 15 amp GFI service outlet
- Circuit breakers visible through front cover

L0118

- Compact wall mount design
- 2 pole circuit breaker for rectifiers
- 1 pole circuit breaker for battery heater
- 1 pole circuit breaker for GFI outlet
- GFI service outlet
- Battery heater outlet
- UL489 listed hydraulic/magnetic breakers with handle guards
- Designed for UL67

L0125

- Compact wall design
- 30A 3 pole Mains breaker back-up breaker tied together but operating independently - slide bar lock out allows transfer
- Slots for up to 10 poles of branch circuit breakers
- UL489 listed hydraulic magnetic circuit breakers

Custom DC Gallery

L0039 - Alarm Panel

- 23" rack mount alarm panel, with front handles for easy mounting, thumb screws for easy access
- Ability to monitor up to 144 circuit breaker positions, DC volt monitoring display, DC amp monitoring display
- Audible alarm mute feature
- Front access fuse protection, voltage & amp monitoring front access plugs
- 2 surge suppressors,15 amp GFI Service outlet
- Entry for large generator connector

L0039 - High Power PDC

- 23" rack mount design
- 48 circuit breaker position panel
- Hot swappable UL489 Listed hydraulic/magnetic breakers
- Mid-trip alarm indication
- Ratings up to 100 amps per slot
- 800 amp bus

L0056

- 23" rack mount panel with hinged front cover, designed for UL1801
- 16 poles available for hot swappable plug-in circuit breakers
- UL489 Listed mid-trip hydraulic magnetic circuit breakers with handle guards
- 20 position GMT fuse panel
- 800 amp LOW VOLTAGE DISCONNECT
- Front access alarm and load connections
- Visual alarm and power indicators

L0074

- 23" rack mount DC distribution panel
- 3 rack units tall
- Redundant feeds
- 5 circuit breakers per feed
- Front access alarm connection
- Hot swappable UL489 Listed hydraulic/magnetic breakers
- Powder coat finish
- Open back for easy access

L0078

- 19" rack mount DC panel
- Dual feed
- Four circuit breakers per feed
- 200 amp rating per feed
- Alarm monitoring: Major, Minor, Critical
- Power indicator
- UL489 Listed hydraulic/magnetic rocker style breakers with visual trip indication and rocker guards
- Designed for UL1801 and NEBs

L0082

- 1 rack unit tall (1.75") for a 23" rack
- Dual feed
- 6 hot swappable plug-in circuit breakers, 300A rating per feed
- Dual feed GMT fuse panel, 4 fuses per feed
- UL489 Listed hydraulic/magnetic mid-trip circuit breakers with short handle design to hinder unintentional operation
- Extended top cover over the front of panel for added protection
- Rear insulator
- UL1801 and CSA approved

L0105

- 1 rack unit tall (1.75") for a 19" rack
- Dual feed
- Each feed consists of 2 hot swappable plug-in breakers and 10 GMT fuses
- 50A max rating per breaker
- 10 amp max rating per GMT fuse
- Removable alarm card
- Visual alarm indications: Major, Minor, Critical Power indicator
- UL489 Listed hydraulic magnetic rocker style circuit breakers with rocker guard & visual trip indicator

Carling Technologies™
Innovative Designs. Powerful Solutions.

Power Distribution Project Design Form

*** Please fax completed forms to 860-793-9231 or email to: sales@carlingtech.com ***

PROJECT INFORMATION:			
Index Number:		Submittal Date:	
Sales Representative:		Phone/email:	
Rep. Company:		Region Manager:	

CUSTOMER INFORMATION:			
Company Name:		Date of Non-Disclosure:	
Address:		City, State, ZIP:	
Engineering Contact:		Title:	
Phone:		Fax:	
email:			
Purchasing Contact:		Title:	
Phone:		Fax:	
email:			

APPLICATION INFORMATION:													
Acceptable electronic files:	IGS		DXF		DWG		PDF		STEP		other:		
Application:					EAU Year 1:		EAU Year 2:		EAU Year 3:		# of prototypes:		
Pilot Production Schedule:							Schematic Available?:						
Product Life:							Project Value:						
Redesign Details:	Specifications Available?:				Existing Sample Available?:				Target Price:				
New Product Details:	Development Budget Limitations:								Target Price:				

SPECIFICATIONS:									
AC/DC Voltage:						Open/Closed Frame:			
Operating Voltage Tolerance:						For DC, Rack Type:		19":	23":
Enclosure Dimensions:						Mains Feed Amps:			
Number of Breakers:		If necessary, add additional information to notes section below, or attach second sheet.							
Type of Trip Indication Alarming Required:									

AGENCY APPROVALS:											
UL		UL STD		CUL		TUV		CE		Other:	

COMPETITIVE INFORMATION:			
Competition:			
Competitors Part Number:		Current Price:	

NOTES AND ACTION ITEMS:

Other Carling Technologies Catalogs

Thermal Circuit Protectors

This catalog details Carling's thermal circuit protection products. Thermal protectors range from 0.1 to 40 amps. Front Panel Snap-in Mounting styles and Quick Connect Terminals are included. Worldwide certifications, including UL1500, TUV and CE marked.

Circuit Protection

This catalog details the complete line of Carling circuit protection products including hydraulic/magnetic circuit breakers and ground fault breakers. Breakers range from 0.1 to 700 amps Hi-inrush delay curves, Front Panel Snap-in Mounting styles, Rockerguard Bezels, Dual-Coil functions, and Quick Connect Terminals are included. Worldwide certifications, including UL1500, UL489 and CE marked.

Switches and Electronic Controls

This catalog includes the complete line of Electronic Controls and Carlingswitch brand electrical switches for most any power switching need. Included are dimmer, wiper, and mirror rotate controls, along with rocker, toggle, pushbutton, rotary and sealed switches with a wide variety of circuits, ratings, terminations, colors, illuminations, and legends. Worldwide certifications, UL1500, CE marked.

Digital Switching Systems

This catalog details Carling's Digital Switching System: the ECS III. The ECS III (Electronic Control System), features the latest in digital multiplex technology, creating a safer and fully configurable control system for the marine environment. The ECS III eliminates complex wiring while increasing switching features and functionality, and simplifying troubleshooting.

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