



Electronic Dimmer Control



The NEW LD-Series represents a dynamic breakthrough in dashboard technology. Programmable circuitry, superior design, and unparalleled performance that will afford seamless integration into most any customer interior.

Carling Technologies is pleased to introduce the latest addition to the L-Series family of control products, the LD-Series Electronic Dimmer Control. The LD-Series, with its fully programmable electronic circuitry, represents a vast improvement over other available products now on the market. A variety of options, along with superior performance, functionality, and aesthetics assure compliance with most any customer requirement. In addition, our integrated design can provide savings by reducing the need for insulated wires and connectors.

Design Features include:

Fully Programmable Circuitry

- to determine min and max illumination levels
- to determine the number of steps from total dim to full bright
- to adjust illumination levels

Momentary Ratchet Design

- allows programming of illumination intensity variation speed
- provides intuitive operator recognition
- avoids inadvertent actuation

Robust Envelope Design

- protects critical internal components
- minimizes electrical connections and the need for extra wires

Adjustable Safety Features

- "Watch-dog timer" prevents device lock-up
- memory device recalls dimmer position after power interrupts

Performance

- reliability in a variety of environmental conditions
- exceeds SAE J1113 and SAE 1445 EMI standards
- Life exceeds 100,000 actuations

Product Announcement LD-Series November 1, 2002

For additional information on the new Electronic Dimmer Control, please contact a Carling Technologies Technical Customer Service Rep:

Phone	(860) 793-9281
Fax	(860) 793-9231
email	sales@carlingtech.com
internet	www.carlingtech.com
mail	Carling Technologies, Inc. 60 Johnson Avenue Plainville, CT 06062-1177



Carling Technologies™

Innovative Designs. Powerful Solutions.

LD	3	5	1	C	C	1	-	3	A	A	FE	-	1	FC
1 Series	2 Rating	3 Dimming Rate	4 Termination	5 Illumination	6 Illumination	7 Bracket Color		8 Actuator Style/Color	9 Lens Color	10 Lens Color	11 Legend One		12 Legend Orientation	13 Legend Two

1 SERIES
LD Electronic Dimmer Control

2 RATING

1	4A, 12 volt
2	7A, 12 volt
3	10A, 12 volt
A	2A, 24 volt
C	5A, 24 volt

3 DIMMING RATE

1	30 - 100%	8 positions
5	10 - 100%	10 positions
A	0 - 100%	11 positions

4 TERMINATION

1	.250 TABS (6.4 mm)
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5 & 6 ILLUMINATION

S	No lamp	
C	Red	12 Volt LED
D	Red	24 Volt LED
N	Amber	12 Volt LED
P	Amber	24 Volt LED
H	Green	12 Volt LED
J	Green	24 Volt LED

7 BRACKET COLOR¹

1	Black
2	White
3	Gray

8 ACTUATOR STYLE / COLOR

3	Laser Etched Rocker
4	Laser Etched Paddle
A	Rocker/Black
B	Rocker/White
C	Rocker/Gray
D	Rocker/Red
J	Paddle/Black
K	Paddle/Gray
M	Paddle/Red
N	Paddle/White

9 & 10 LENS COLOR
Z NO LENS

CLEAR	WHITE	AMBER	GREEN	RED	BLUE	LENS STYLE
1	n/a	B	G	M	T	Large Transparent
n/a	7	C	H	N	U	Large Translucent
3	n/a	D	J	P	V	Bar Transparent
n/a	9	E	K	R	W	Bar Translucent
5	A	n/a	n/a	n/a	n/a	Laser Etch

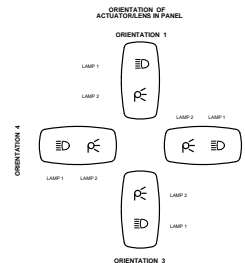
11 LEGEND #1

00 No legend
FC DIM
FE BRIGHT

See catalog for additional printed and laser etched images.

12 LEGEND ORIENTATION

0 No legend
 Available printed or laser etched.
 See catalog for images.


13 LEGEND #2

00 No legend
FC DIM
FE BRIGHT

See catalog for additional printed and laser etched images.

NOTES:
 Shading indicates available options. Contact factory for availability of other listed options.
 Consult factory to verify horsepower rating for your particular circuit choice.
¹ Custom colors are available. Consult factory.

Electrical

Contact Rating	4 amps, 12 VDC 7 amps, 12 VDC 10 amps, 12 VDC 2 amps, 24 VDC 3.5 amps, 24 VDC 5 amps, 24 VDC
Contacts	Solid State
Terminals250 (6.3mm) Quick Connect terminations standard.
EMI/EMC	Per SAE J 1113 & SAE J 1455
Reverse Polarity.24VDC for 5 minutes
Dielectric Strength.	A potential of 1000V @ 60Hz was applied to each unit for one minute. The voltage was increased from 0 to 1000V at a rate of 500V per second and then reduced from 1000V to 0 at a rate of 500V per second. No noticeable signs of flashover, arcing or perforation were evident. All units operated properly both before and after test.

Mechanical

Endurance	100,000 cycles minimum
Actuation Force.	300 grams \pm 50 grams

Physical Characteristics

Lighted	LED - internally dimmed, rated 100,000 hours 1/2 life
Base	PBT Polyester with V-0 flammability rating
Actuator	Polycarbonate or Nylon 6/6 glass filled
Bracket	PBT Polyester with V-0 flammability rating
Connector	Nylon 6/6 toughened
Function	Incremental or continuous dimming
Operation	Momentary
Weight	52 grams

Environmental

Operating Temperature . . .	-40° C to + 85° C												
Vibration	Resonance Search Individual resonance searches were conducted with vibration applied along each of the three mutually perpendicular axes. 24-50 Hz 0.40 DA 50-2000 \pm 10 G's peak Random Vibration The random vibration endurance test conditions were sequentially conducted in each of the three mutually perpendicular axes, 1hr/axis. 9.36 Grms <table> <tr> <th>Frequency (Hz)</th><th>PSD (G²/Hz)</th></tr> <tr> <td>24 Hz</td><td>0.06</td></tr> <tr> <td>60 Hz</td><td>0.50</td></tr> <tr> <td>100 Hz</td><td>0.50</td></tr> <tr> <td>1000 Hz</td><td>0.025</td></tr> <tr> <td>2000 Hz</td><td>0.025</td></tr> </table> During this test, all units were operated at a load current of 2A with 12.5 VDC.	Frequency (Hz)	PSD (G ² /Hz)	24 Hz	0.06	60 Hz	0.50	100 Hz	0.50	1000 Hz	0.025	2000 Hz	0.025
Frequency (Hz)	PSD (G ² /Hz)												
24 Hz	0.06												
60 Hz	0.50												
100 Hz	0.50												
1000 Hz	0.025												
2000 Hz	0.025												
Shock	Per Mil-Std 202F, Method 213B, Test Condition K @ 30G's. Tested with connector. Test criteria - No loss of circuit during test, pre, and post test contact resistance.												
Salt Spray	Per Mil-Std 202F, Method 101D, Test Condition A, 96 Hrs.												
Thermal Shock	Per Mil-Std 202F, Method 107F, Test Condition A, -55°C to 85°C. Test criteria - pre and post test contact resistance												
Moisture Resistance	Per Mil-Std 202F, Method 106E, Test Criteria - pre and post test contact resistance												
Dust	Per Mil-Std 810C, Method 510.2 Air velocity 300 \pm 200 ft/min, test duration 16 hr.												
Temperature Cycle.	Powered at 12 VDC and then placed in a chamber at 25°C. The temperature was then lowered to -40°C at a rate of 2°C/min. and stayed at this temperature for 4 hours at 85°C. The temperature was lowered to 25°C and maintained for 8 hrs. This cycle was repeated 5 times. All units functioned properly both before and after test.												

NOTES:
For more detailed specifications, consult factory.

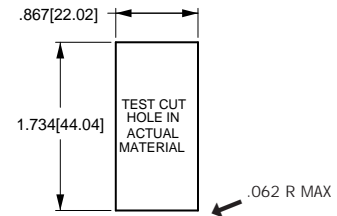
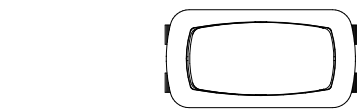
Warranty Policy

Carling Technologies, Inc. (Seller) warrants that goods sold hereunder shall be free of defects in material and workmanship for one year from date of shipment.

In the event of such defects, the Seller's only obligation shall be the replacement or the cost of the defective goods, themselves, excluding, without limitation, labor costs, which are or may be required in connection with the replacement or reinstallation of the goods. This warranty is the Seller's sole obligation and excludes all other remedies or warranties, express or implied, including warranties of merchantability and fitness for a particular purpose, whether or not purposes or specifications are described herein. This Warranty expressly excludes any and all incidental, special and/or consequential damages of any nature.

Seller further disclaims any responsibility for injury to person or damage to or loss of property or value caused by any product which has been subjected to misuse, negligence, or accident; or misapplied, or modified or repaired by a person or persons not authorized by the Seller or which have been improperly installed.

Electronic Dimmer Control Dimensional Specifications



MOUNTING HOLE

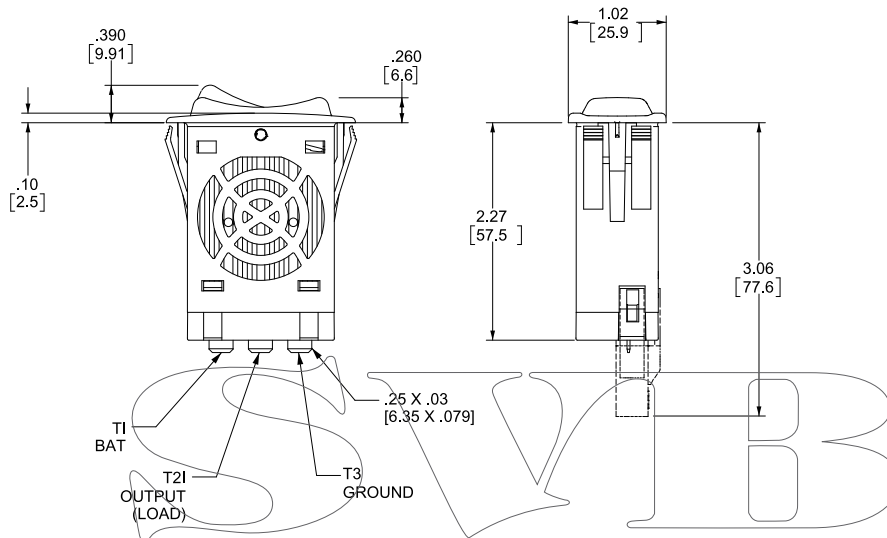
Panel Thickness Range

Acceptable Panel Thickness

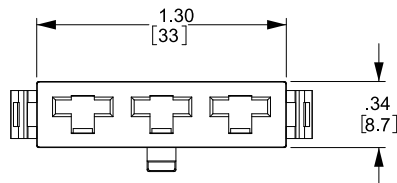
.030 to .156 (.76mm to 4.76mm)

Recommended:

.030, .062, .093, .125, and .156

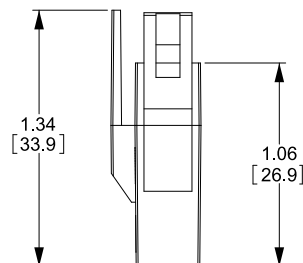
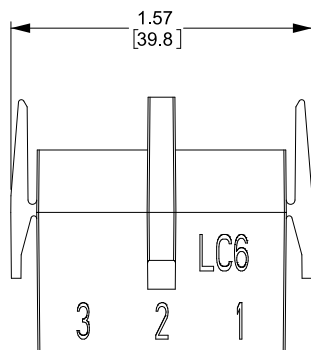


Electronic Dimmer Control Switch Connector Dimensional Specifications



Q.C. SELECTION GUIDE				
COMPANY SERIES	PART NO.		WIRE GAGE	
	PLAIN BRASS	TIN PLATED BRASS	AWG	MM2 (REF)
PACKARD METRI-PACK 630 SERIES		12084590	12	3.0
		12082224	12	3.0
		12015870	16-14	1.0-2.0
		12020035	(2)22-18	(2).5-8
	12015832	12015869	20-18	.5-8
		12052222	20-22	.35-5

NOTE:
CONSULT PACKARD ON ACTUAL PART NUMBER AND AVAILABILITY



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