

LD-Series

ELECTRONIC DIMMER CONTROLS

The LD-Series represents a dynamic breakthrough in dashboard technology, with its programmable circuitry, superior design, and unparalleled performance that affords seamless integration into most any dash panel. A variety of options, along with superior performance, functionality, and aesthetics assure compliance with the most stringent customer requirements. Key features include: robust design package with all components encased in switch housing, eliminating wire chafing, providing cost-savings as well; minimized electrical connections; IP67 sealing which prevents PCB degradation and eliminates short circuit potential. Superior heat dissipation is achieved with a heat sink mass which is over 50% larger than competitive products. Fully programmable circuitry lets the designer decide illumination levels and detent positions. EMC eliminates electrical “noise” and provides interference-free radio signals. Ease of assembly is accommodated with polarized integral connectors and an industry standard mounting hole.



Product Highlights:

- ♦ 3 Choices for incremental dimming rates
- ♦ 12 or 24 Volts
- ♦ Laser Etched or Lens Illumination
- ♦ IP67 Sealing

Typical Applications:

- ♦ On/Off-Highway Equipment
- ♦ Agricultural Equipment
- ♦ Construction Equipment



Electrical

Contact Rating	.4VA @ 24VDC (MAX) resistive 15 amps, 125VAC 10 amps, 250VAC 20 amps, 4-14VDC 15 amps, 15-28VDC
Dielectric Strength	1250 Volts RMS between pole to pole 3750 Volts RMS between live parts and accessible surfaces
Insulation Resistance	50 Megaohms
Initial Contact Resistance	10 milliohms max. @ 4VDC
Life	100,000 cycles maintained, 50,000 cycles momentary at rated voltage and current
Contacts	90/10 silver-nickel, silver tin-oxide, gold
Terminals	Brass or copper/silver plate .230 (5.84 mm) Quick Connect terminations standard.

Mechanical

Endurance	.250,000 cycles minimum
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Physical

Lighted	Incandescent - rated 10,000 hours LED - rated 100,000 hours 1/2 life (LED is internally ballasted for voltages to 24 VDC)
Seals	Rocker, base & bracket are sealed
Base	Nylon 66 GF rated to 85°C with a flammability rating of 94V0
Rocker	Nylon 66 Reinforced, rated to 105°C (modular lens). Locking rocker, standard rocker & paddle. Laser etching with a polycarbonate actuator
Lock	Acetal
Lens	Polycarbonate rated at 100°C
Bracket	Nylon Zytel
Connector	Nylon 66 rated at 85°C. Polarized

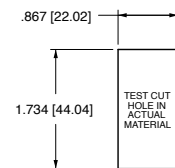
Actuator Travel (Angular Displacement)

2 position	26°
3 positions	13° from center

Environmental

Environmental	IP67 for above panel components of the actual switch, representing an index of protection as applied to electrical equipment in accordance with IEC 529, BS 5490, DIN 400 50 & NFC 20 010.
Corrosion	Mixed Flowing Gas MFG Class III per ASTM B-827 & B-845, Method H, with 3 years exposure
Operating Temperature	-40°C to + 85°C
Vibration 1	Per Mil-Std 202F, Method 204D Test Condition A 0.06 DA or 10G's 10-500 Hz. Tested with VCH connector. Test criteria - No loss of circuit during test and pre and post test contact resistance
Vibration 2	24-50 Hz 0.40 DA 50-2000 ±10 G's peak Results Horizontal Axis 3-5 G's max. Random 24 Hz 0.06 PSD-Gsq/Hz 60 Hz 0.50 100 Hz 0.50 200 Hz 0.025 2000 Hz 0.025 No loss of circuit during test; <10µ chatter.
Shock	Per Mil-Std 202F, Method 213B, Test Condition K @ 30G's. Tested with VCH 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, 48 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 106F, Test Criteria - pre and post test contact resistance

Mounting Specifications



MOUNTING HOLE

Panel Thickness Range
Acceptable Panel Thickness
.030 to .156 (.76mm to 3.96mm)
Recommended:
.030, .062, .093, .125 and .156

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 1

12 Legend Orientation

13 Legend 2

1 SERIES

LD Electronic Dimmer Control

2 RATING

1 4A, 12 volts **A** 2A, 24 volts
2 10A, 12 volts **C** 5A, 24 volts

3 DIMMING RATE

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

4 TERMINATION

1 .230 TABS (5.84 mm)

5 & 6 ILLUMINATION

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

7 BRACKET COLOR ¹

1 Black 2 White 3 Gray

8 ACTUATOR STYLE / COLOR ¹

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

9 & 10 LENS COLOR

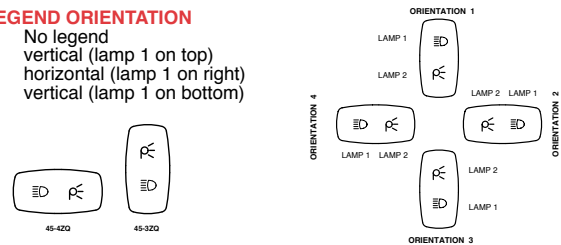
Z No Lens
Clear White Amber Green Red Blue
1 - **B** **G** **M** **T** Lens Style
- 7 **C** **H** **N** **U** Large Transparent
3 - **D** **J** **P** **V** Large Translucent
- 9 **E** **K** **R** **W** Bar Transparent
5 **A** - - - Laser Etch

11 LEGEND #1

00 No legend **FC** Dim **FE** Bright
For legend options, visit us at carlingtech.com

12 LEGEND ORIENTATION

0 No legend
1 vertical (lamp 1 on top)
2 horizontal (lamp 1 on right)
3 vertical (lamp 1 on bottom)

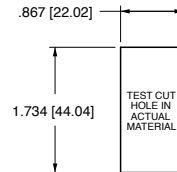
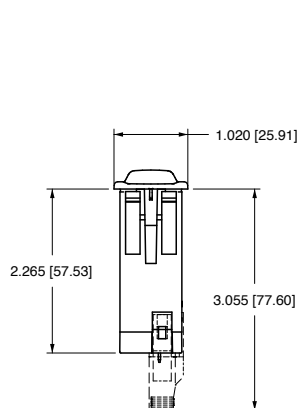
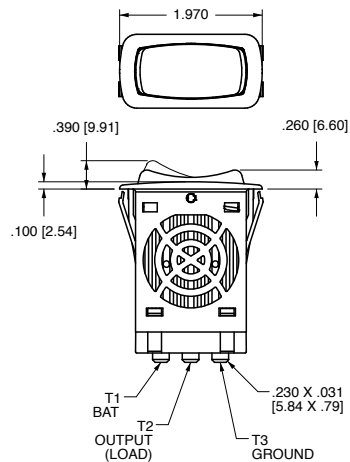


13 LEGEND #2

00 No legend **FC** Dim **FE** Bright
For legend options, visit us at carlingtech.com

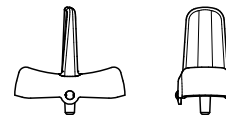
Notes:

¹ Custom colors are available. Consult factory.

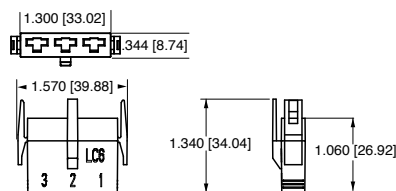


MOUNTING HOLE

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PADDLE STYLE ACTUATOR



Q.C. SELECTION GUIDE			
COMPANY SERIES	PACKARD PART NO.	WIRE GAGE	
		AWG	MM ²
PACKARD METRI-PACK 630 SERIES TIN PLATED BRASS	12084590	12	3.0
	12052224	12	3.0
	12015870	16-14	2.0-1.0
	12015869	20-18	1.0-.80
	12020035	22-18 (2 REQ'D)	.80-.50 (2 REQ'D)
	12052222	20-22	.50-.35

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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.

To view all of Carling's environmental, quality, health & safety certifications please visit www.carlingtech.com/environmental-certifications

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