

# 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



**Carling Technologies™**  
Innovative Designs. Powerful Solutions.

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## Electrical

|                            |                                                                                                             |
|----------------------------|-------------------------------------------------------------------------------------------------------------|
| Contact Rating             | .4VA @ 24VDC (MAX) resistive<br>15 amps, 125VAC<br>10 amps, 250VAC<br>20 amps, 4-14VDC<br>15 amps, 15-28VDC |
| Dielectric Strength        | 1250 Volts RMS between pole to pole<br>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,<br>50,000 cycles momentary at rated voltage and current                          |
| Contacts                   | 90/10 silver-nickel, silver tin-oxide, gold                                                                 |
| Terminals                  | Brass or copper/silver plate<br>.230 (5.84 mm) Quick Connect terminations standard.                         |

## Mechanical

|           |                         |
|-----------|-------------------------|
| Endurance | .250,000 cycles minimum |
|-----------|-------------------------|

## Physical

|           |                                                                                                                                           |
|-----------|-------------------------------------------------------------------------------------------------------------------------------------------|
| Lighted   | Incandescent - rated 10,000 hours<br>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.<br>Polarized                                                                                                      |

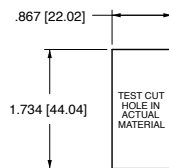
## Actuator Travel (Angular Displacement)

|             |                 |
|-------------|-----------------|
| 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<br>50-2000 ±10 G's peak<br>Results Horizontal Axis 3-5 G's max. Random<br>24 Hz 0.06 PSD-Gsq/Hz<br>60 Hz 0.50<br>100 Hz 0.50<br>200 Hz 0.025<br>2000 Hz 0.025<br>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

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

**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 <sup>1</sup>

1 Black      2 White      3 Gray

#### 8 ACTUATOR STYLE / COLOR <sup>1</sup>

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

#### 9 & 10 LENS COLOR

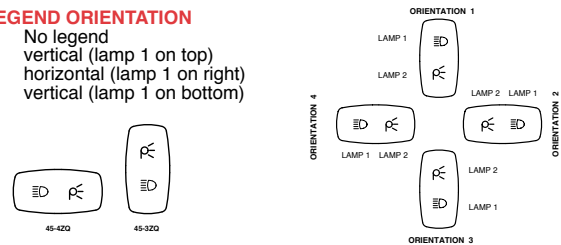
**Z** No Lens  
Clear White Amber Green Red Blue  
1 - **B** **G** **M** **T** Lens Style  
- 7 **C** **H** **N** **U** Large Transparent  
3 - **D** **J** **P** **V** Large Translucent  
- 9 **E** **K** **R** **W** Bar Transparent  
5 **A** - - - Laser Etch

#### 11 LEGEND #1

**00** No legend      **FC** Dim      **FE** Bright  
For legend options, visit us at [carlingtech.com](http://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)

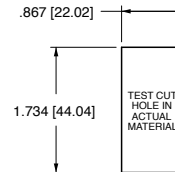
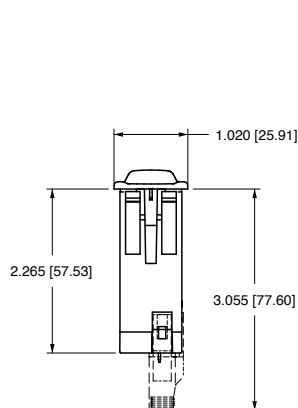
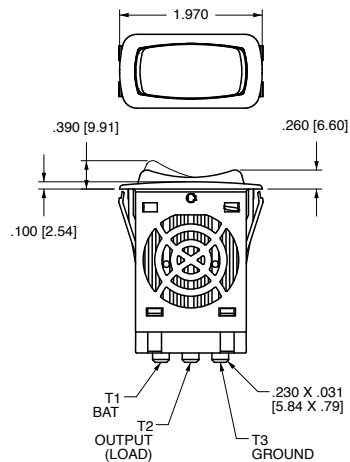


#### 13 LEGEND #2

**00** No legend      **FC** Dim      **FE** Bright  
For legend options, visit us at [carlingtech.com](http://carlingtech.com)

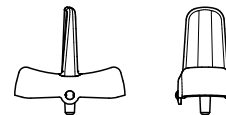
Notes:

<sup>1</sup> Custom colors are available. Consult factory.

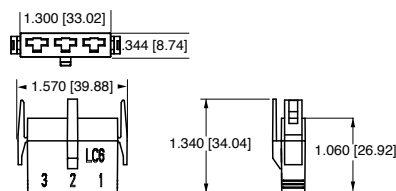


MOUNTING HOLE

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PADDLE STYLE ACTUATOR



| Q.C. SELECTION GUIDE                           |                  |                 |                   |
|------------------------------------------------|------------------|-----------------|-------------------|
| COMPANY SERIES                                 | PACKARD PART NO. | WIRE GAGE       |                   |
|                                                |                  | AWG             | MM <sup>2</sup>   |
| 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           |



## Authorized Sales Representatives

Click on the group name on the map below to find your local representative or visit [www.carlingtech.com/findarep](http://www.carlingtech.com/findarep).



## 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](http://www.carlingtech.com/company-profile).

To view all of Carling's environmental, quality, health & safety certifications please visit [www.carlingtech.com/environmental-certifications](http://www.carlingtech.com/environmental-certifications)

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Innovative Designs. Powerful Solutions.



Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
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- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



#### Как с нами связаться

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