

# 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 and providing cost-savings as well with 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	9-16VDC, 2-10Amp.
Terminals	6.3mm (0.250" TAB)
Contacts	solid-state load switching
Output	PWM 200 Hz.
EMI/EMC	SAE J 1113 and SAE J 1455 Conducted Transient Emissions RF Conducted Emissions Conducted Susceptibility: Test pulse #1 Test pulse #2 Test pulse #3a, #3b Load Dump: Test Pulse #5 Power lead Disturbance (Power Dips) AF Conducted Immunity Direct RF Injection (DRFI) Abnormal Vehicle Operating Conditions RF Radiated Emissions Radiated Immunity-Absorber Lined Chamber Electrostatic Discharge: Shipping / handling Electrostatic Discharge: Human Static Discharge
Dielectric Strength	1000V @ 60 Hz was applied for each unit for 1 minute
Reverse Polarity	24VDC for 5 minutes

### 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 0.40DA 50-2000 Hz ± 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 Freq. (Hz) PSD (G <sup>2</sup> /Hz) 9.36 grms 24 Hz 0.06 60 Hz 0.50 100 Hz 0.025 1000 Hz 0.025 2000 Hz 0.025 During the test, all units were operated at a load current of 2A with 12.5VDC.
Salt Spray	Per Mil-Std 202F, Method 101D, Test Condition A. Duration 96 hrs.
Dust	Per Mil-Std 810C, Method 510.2. Air velocity 300 ± 200 Feet/Min., Test Duration 16 Hr.
Moisture Resistance	Per Mil-Std 202F, Method 106E. Test Criteria-pre and post test operation of switch.

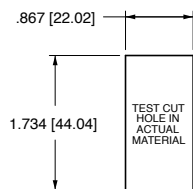
### Mechanical

Endurance	100,000 cycles minimum
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### Physical

Function	Incremental for continuous dimming
Operation	Momentary
Lighted	LED's internally dimmed
Base	PBT Polyester V-0 flammability
Rocker	Polycarbonate or Nylon 6/6 Glass filled
Bracket	PBT Polyester V-0 flammability
Connector	Nylon 6/6 toughened
Actuation Force	300 gm ± 50 gm
Weight	52 grams

### 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    Red N    Amber H    Green J  
24V LED D    P    J

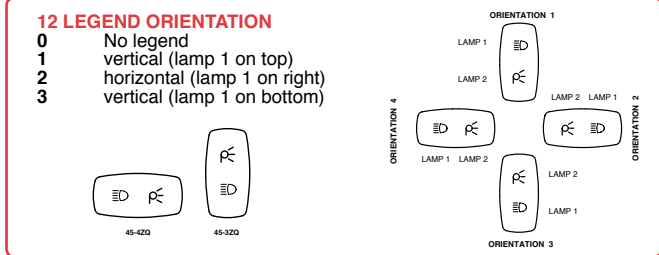
**7 BRACKET COLOR 1**  
1 Black    2 White    3 Gray

**8 ACTUATOR STYLE / COLOR 1**  
Rocker 3 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 - 7 C B G M T  
3 - 9 D E H N U  
5 A - - J K P R V  
- - - - - W

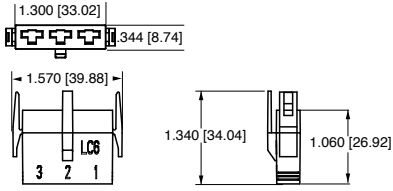
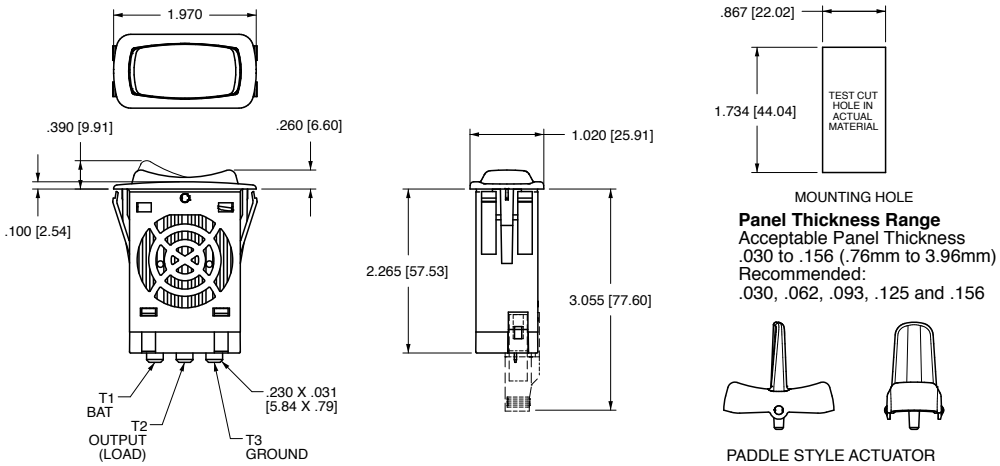
Lens Style  
Large Transparent  
Large Translucent  
Bar Transparent  
Bar Translucent  
Laser Etch

**11 LEGEND #1**  
00 No legend    FC Dim    FE Bright  
For legend options, visit us at [carlingtech.com](http://carlingtech.com)



**13 LEGEND #2**  
00 No legend    FC Dim    FE Bright  
For legend options, visit us at [carlingtech.com](http://carlingtech.com)

Notes:  
1 Custom colors are available. Consult factory.



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



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