The CLM-Series is a 12 output, solid state power controller. It provides fast switching with low loss solid state On/Off functions, accurate current measurement, short circuit protection and Pulse-Width Modulation (PWM) function. The outputs can be connected in parallel for higher current capacity. The CLM-Series also provides interface with up to 7 discrete inputs. The discrete inputs can be configured as an active-high or active-low logic. The maximum current capacity of this unit is 75 Amps.

Relative to electromechanical relays, the CLM-Series can increase thermal efficiency by providing lower power dissipation and providing higher power-to-weight densities. The CLM-Series provides improved safety and reliability while reducing vessels down time, operator's work load, overall vessel weight and wiring complexity. The CLM-Series is available with Molex® and DEUTSCH connectors.

**Product Highlights:**
- CAN NMEA2000® communication
- Meets 100 V/m Electric Field
- Programmable trip level for each Electronic Circuit Breaker output
  - Resolution 1 Amp
- Six (6) outputs at 10 Amps max each
- Two (2) outputs at 15 Amps max each (A3660)
- Two (2) outputs at 12 Amps max each (A3670)
- Four (4) outputs at 5 Amps max each
- Voltage back feed blocking circuit for each output
- Short circuit protection circuit for each output

**Model Numbers:**
- CLMM12 – Marine, Molex® Connector, NMEA2000® certified
- CLMD12 - Marine, DEUTSCH Connector, NMEA2000® certified

Removal of OctoLite cover in the field will compromise the operation of the unit and voids warranties set forth by Carling Technologies.

*Manufacturer reserves the right to change product specification without prior notice. Please refer to our website for the latest details.*
Additional Features

- All outputs are PWM capable for light dimming
  - Frequency: 200Hz
  - Maximum PWM peak current: 3A
  - Inductive Loads (Motors) not recommended
  - Duty cycle adjustable from 5 to 100% at 1% resolution
- Current Measurement accuracy +/- 0.5 Amps (Typical)
- Current Measurement Resolution 0.1 Amps
- Minimum current measurement 0.5 Amps
- 75 Amps maximum capacity
- Seven (7) discrete inputs configurable as (Active High, Active Low, Open)
- NMEA2000® proprietary bootloader for software and configuration updates
- Low current LED modules require adding a 1 KΩ ±5% 2W resistor, this will prevent the LED from glowing when output power is OFF
- Real-time fault monitoring for all (12) outputs, including:
  - Open circuit detection (Open Load, loads must be greater than 1 Amp)
  - Short circuit/Over current
- Outputs can be paralleled for higher current capacity
  - Only parallel two channels with the same current rating.
  - Wiring recommendation: Run two outputs wire together with matched impedance.
  - Maximum current rating when two channels are paralleled is typically 180% of the single channel rating. (Example: 18A maximum for two 10A channels in parallel).
  - See tables below for recommended parallel channels:

### Paralleled Outputs

<table>
<thead>
<tr>
<th>Paralleled Outputs</th>
<th>Max Current</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output 7 (15A) &amp; Output 4 (15A)</td>
<td>27A</td>
</tr>
<tr>
<td>Output 9 (5A) &amp; Output 6 (5A)</td>
<td>9A</td>
</tr>
<tr>
<td>Output 6 (5A) &amp; Output 12 (5A)</td>
<td>9A</td>
</tr>
<tr>
<td>Output 3 (5A) &amp; Output 12 (5A)</td>
<td>9A</td>
</tr>
<tr>
<td>Output 5 (10A) &amp; Output 8 (10A)</td>
<td>18A</td>
</tr>
<tr>
<td>Output 2 (10A) &amp; Output 8 (10A)</td>
<td>18A</td>
</tr>
<tr>
<td>Output 2 (10A) &amp; Output 10 (10A)</td>
<td>18A</td>
</tr>
<tr>
<td>Output 1 (10A) &amp; Output 10 (10A)</td>
<td>18A</td>
</tr>
</tbody>
</table>

### A3670 Recommended Parallel Outputs

<table>
<thead>
<tr>
<th>Paralleled Outputs</th>
<th>Max Current</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output 7 (12A) &amp; Output 4 (12A)</td>
<td>22A</td>
</tr>
<tr>
<td>Output 9 (5A) &amp; Output 6 (5A)</td>
<td>9A</td>
</tr>
<tr>
<td>Output 6 (5A) &amp; Output 12 (5A)</td>
<td>9A</td>
</tr>
<tr>
<td>Output 3 (5A) &amp; Output 12 (5A)</td>
<td>9A</td>
</tr>
<tr>
<td>Output 5 (10A) &amp; Output 8 (10A)</td>
<td>18A</td>
</tr>
<tr>
<td>Output 2 (10A) &amp; Output 8 (10A)</td>
<td>18A</td>
</tr>
<tr>
<td>Output 2 (10A) &amp; Output 10 (10A)</td>
<td>18A</td>
</tr>
<tr>
<td>Output 1 (10A) &amp; Output 10 (10A)</td>
<td>18A</td>
</tr>
</tbody>
</table>

All illustrations are for reference purposes only. Nothing contained in this document shall replace or modify the requirements of Industry Standard(s) applicable to wire or other protection, including without limitation, those of the American Boat and Yacht Council (ABYC); the National Electric Code (NEC); and/or the National Fire Protection Association (NFPA). Failure to install the CLM System or any components thereof in compliance with any such Industry Standard may limit the warranties made by Carling Technologies, Inc.

*Manufacturer reserves the right to change product specification without prior notice. Please refer to our website for the latest details.*
## General Specifications

### Electrical
- **Voltage Input**: 6.5 to 32 VDC
- **Max Current Capacity**: 75 Amps
- **Serial Communication**: CAN NMEA2000®
- **2 High Side Outputs**: 15 Amps each (A3660)
- **6 High Side Outputs**: 10 Amps each
- **4 High Side Outputs**: 5 Amps each
- **7 Discrete Inputs**: Active High, Active Low, Open

### Environmental
- **High Temperature Soak**: EN 60068-2-2:2007 Section 2 or 4
- **Low Temperature Soak**: EN 60068-2-1:2007
- **Temp. Cycling (Operational)**: IEC 60068-2-14:2009 Test Nb
- **Temp. Shock (Storage)**: IEC 60068-2-14:2009 Test Na
- **Simulated Solar Radiation**: EN 60068-2-5:2010 Procedure B
- **Altitude (Transport)**: EN 60068-2-13:1999
- **Altitude (Operational)**: EN 60068-2-13:1999
- **Humidity (Soak)**: EN 60068-2-78:2002
- **Humidity (Cyclic)**: EN 60068-2-30:2005
- **Dust Ingress**: IEC 60529:2001 Section 13
- **Water Ingress**: DIN 40050-9:1993

### Mechanical (A3660)
- **Dimensions (L x W x H)**: 5.7” x 4.2” x 1.33”
- **Weight (max)**: 1.25lbs (0.567 kg)
- **Degree of protection**: IP69K
- **Torque Value (voltage input stud)**: 20 in-lbs. (2.26 N/m)
- **J2 Mating connector**: Molex P/N 0334721201
- **J1 Mating connector**: Molex P/N 0334721601

### Mechanical (A3670)
- **Dimensions (L x W x H)**: 5.7” x 5” x 1.6”
- **Weight (max)**: 1.32 lbs (0.599 kg)
- **Degree of protection**: IP67
- **Torque Value (voltage input stud)**: 20 in-lbs. (2.26 N/m)
- **J1 Mating Connector**: Deutsch DT06-12SA
- **J1 Socket**: Deutsch 0462-209-16141 (14 AWG)
- **J1 Wedge**: Deutsch W12S
- **J2 Mating Connector**: Deutsch DT06-08SA-E003
- **J2 Socket**: Deutsch 0462-201-16141 (16 – 20 AWG)
- **J2 Wedge**: Deutsch W8S
- **J3 Mating Connector**: Micro-C Male

### Certifications
- **NMEA2000®**: Category B
- **CE**: IEC 60533 Electrical and Electronic Installations in Ships
- **IEC 60945**: Maritime Navigation and Radio Communication Equipment and Systems
Dimensional Specifications  in. [mm]

NOTES:
1. WEIGHT: 1.25 LBS. (0.567 KG.) MAX.
2. TEMPERATURE: OPERATING -40°C TO 55°C.
   STORAGE -65°C TO 85°C.
3. MATING CONNECTIONS:
   J1 - DEUTSCH P/N DT06-12SA
   J2 - DEUTSCH P/N DT06-08SA-E003
   J3 - MICRO-C MALE CONNECTOR, M12 X 1

A3670
Dimensional Specifications in. [mm]

NOTES:
1. WEIGHT: 1.25 LBS. (0.567 KG.) MAX.
2. TEMPERATURE: OPERATING -40°C TO 55°C.
   STORAGE -55°C TO 85°C.
3. MATING CONNECTIONS:
   J1 - MOLEX PN 0334721601
   J2 - MOLEX PN 0334721101

MOUNTING HOLE PATTERN
SCALE 1.000
Dimensional Specifications in. [mm]

VIEW SHOWING TYPICAL CABLE INSTALLATIONS TO THE DC DISTRIBUTION BOX (A3660)

A3700
OUTPUT FLYING LEADS CABLE ASSEMBLY (J2)

A3701-2
INPUT FLYING LEADS CABLE ASSEMBLY (J1)
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