W-Series
SEALED ROCKER SWITCHES

Carling Technologies set the standard for performance and aesthetics with the widely successful, often imitated, but never duplicated, V-Series rocker switches. Building further upon that platform, Carling has once again raised the bar with the fully sealed W-Series. The W-Series’ traditional appearance features complete IP68 protection, including below the panel, where the critical connection is made from the wiring harness. When used in conjunction with the integrated connector, the totally submersible W-Series provides a seal for up to ten individual wires, assuring compatibility with even the most complex circuitry.

The W-Series also offers a wide variety of accoutrements, including endless illumination options featuring dual level and multicolor LEDs, progressive and hazard warning circuits, ratings up to 10A 24V, choice of paddle, rocker, locking or laser etched actuators, hundreds of standard legend choices and the electrical performance and reliability that is the hallmark of Carling Technologies products.

Product Highlights:
• Fully sealed and submersible
• IP68 protection, including below the panel
• Tri-seal design
• Connector with twin locking tabs

Typical Applications:
• Marine equipment
• ON/OFF Highway equipment
W-Series Switch
DESIGN FEATURES

**BODY**
One piece polyester 94V0 seamless body acts as an umbrella to protect critical internal components.

**ILLUMINATION**
Choice of highly reliable SMT LED or incandescent lighting with 21 dependent or independent circuit options.

**TRI-SEAL DESIGN**
Sealing at actuator, an insert molded neoprene base seal, along with wire lead seals, assures water tight, fully submersible protection.

**ROLLER PIN**
Proven reliable mechanism is lubricant free and allows for 100k electrical and 250k mechanical cycles, and withstands extreme temperatures from -40˚C to +85˚C.

**INTEGRATED CONNECTOR**
Accommodates Tyco/Amp .110 junior power timer contacts with twin locking tabs to provide a safe, secure, sealed connection.
W-Series - Fully Sealed Rocker Switches - General Specifications

**Electrical**
- **Contact Rating**: 0.4VA @ 24VDC
- **Dielectric Strength**: 1500 Volts RMS
- **Insulation Resistance**: 50 Megohms
- **Initial Contact Resistance**: 10 millionms max. @ 4 VDC
- **Life**: 100,000 cycles
- **Contacts**: Silver tin-oxide, 88/12
- **Terminals**: Copper with silver or gold plating
- **Quick**: Connect terminations.
- **Voltage**: 3-24 VDC
- **Overcurrent**: 15A for 50 cycles

**Mechanical**
- **Endurance**: 250,000 cycles minimum

**Physical**
- **Lighted**: LED - rated 100,000 hours 1/2 life (LED is internally ballasted for voltages to 24 VDC)
- **Seals**: Neoprene
- **Base**: Polyester blend rated to 125°C with a UL flammability rating of 94V0.
- **Actuator**: Basic actuator structure molded of thermoplastic polycarbonate with a hard Nylon 66 thermoplastic surface overlay.
- **Lens**: Polycarbonate rated at 100°C
- **Function**: 2 & 3 Position Rocker Style
- **Operation**: Maintained & Momentary
- **Base**: PA 6/6 30GF (glass filled)
- **Actuator**: PA 6/6 13GF
- **Bracket**: PBT 10GF
- **Connector**: PBT 10GF, polarized

**Actuator Travel (Angular Displacement)**
- 24° full throw

**Environmental**
- **Environmental**: IP68, Fully sealed
- **Corrosion/Chemical Splash**: Flowing Mixed Gas (FMG)
- **Operating Temperature**: -40°C to +85°C, 22 cycles, 300 hours
- **Vibration 1**: Per Mil-Std 202F, Method 204D Test Condition A 0.06 DA or 10G's 10-500 Hz.
- **Vibration 2**: Resonance search 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
- **Handling/Drop**: One meter onto concrete floor Per Mil-Std 202F, Method 101D, Test Condition A, 48 Hrs.
  - IP6X
  - Per Mil-Std 202F, Method 107F, Test Condition A, -55°C to 85°C Test criteria - pre and post test contact resistance
  - Moisture Resistance/Humidity: Per Mil-Std 202F, Method 106F, Test Criteria - pre and post test contact resistance

**Mounting Specifications**
- **Panel Thickness Range**: .032 to .125
  - For optimum panel fit, the following panel thicknesses are suggested: .032, .062, .093, .125

*Manufacturer reserves the right to change product specification without prior notice.*
**6.7 LAMP (SAME CODING FOR BOTH SELECTIONS)**

Selection 6: above terminals 1 & 4; Selection 7: above terminals 3 & 6

<table>
<thead>
<tr>
<th>Lamp</th>
<th>LED*</th>
</tr>
</thead>
<tbody>
<tr>
<td>No lamp</td>
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<tr>
<td>Red</td>
<td>Amber</td>
</tr>
<tr>
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<tr>
<td>24VDC</td>
<td>D</td>
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</table>

* Consult factory for “daylight bright”, blue/green and white LED options. Typical current draw for LED is 20mA.

**8 BRACKET COLOR**

1. Black

**9 ACTUATOR**

3. Black with Laser Etched

**12 ACTUATOR LENS OR BODY LEGEND**

0. No Legend this location/no actuator

<table>
<thead>
<tr>
<th>Legend</th>
<th>Actuator Legend</th>
<th>Lens Legend</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
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<tr>
<td>3</td>
<td>D</td>
<td>J</td>
</tr>
<tr>
<td>4</td>
<td>E</td>
<td>K</td>
</tr>
</tbody>
</table>

Lens color for LEDs must be clear, white, or match color of LED.

**13 LEGEND ORIENTATION**

0. No legend (used with codes 11-18 in selection 12) Selection 14 required when switch requires two legends. If the two legends consist of one lens & one body legend, lens legend must be specified in selection 12; body legend specified in selection 14. For legend options & codes, visit us at carlingtech.com

**14 ACTUATOR LENS LEGEND**

0. No Legend this location/no actuator (used with codes 11-18 in selection 12)

Notes:
1. Custom colors are available. Consult factory.
2. White imprinting is standard on black actuators; Black imprinting is standard on white, red & gray actuators; Custom colors are available, consult factory.
3. 4VA @ 24VDC rating is available, consult factory for circuit compatibility.
### W-Series - Fully Sealed Rocker Switches - Locking - Ordering Scheme

#### 1 SERIES
- **Series (W)**

#### 2 CIRCUIT
- **Circuit**: ( ) - momentary
- **Position**: SP DP 2 & 3, 5 & 6
- **Rating**: 1 & 2, 4 & 5

#### 3 RATING
- **B**: 10A 24V
- **D**: 10A 12V
- **G**: 10A 6V
- **H**: 10A 3V

#### 4 TERMINATION / BASE STYLE
- **Termination**: .110 TAB (QC)

#### 5 ILLUMINATION
- **Lamp #1**: above terminals 1&4 end of switch.
- **Lamp #2**: above terminals 3&6 end of switch.
- **Actuator Lens Position**: O - NONE
  - C - # 2
  - H - # 2

#### 6 LOCK
- **W**: Lock Option

#### 7 LAMP #2
- **No lamp**: 0 Red
- **LED**: A L F 4
- **2VDC**: B M G 5
- **6VDC**: C N H 6
- **12VDC**: D P J 8

#### 8 BRACKET COLOR
- **J**: Black

#### 9 ACTUATOR
- **P**: Black
- **R**: Red

#### 10 LENS
- **Z**: No Lens
- **Clear White**: B G M T
- **Amber**: C H N U
- **Green**: D J P V
- **Red**: E K R W
- **Bar**: 2VDC, 6VDC, 12VDC, 24VDC
  - **A**: Red
  - **B**: Green
  - **C**: Black
  - **D**: White
  - **J**: Blue
  - **L**: Safety Orange
  - **M**: Safety Orange

#### 11 LOCK FUNCTION
- **Up**: B J Black
- **Down**: C K White
- **Lock Color**: D L Red
- **Lock Color**: E M Safety Orange

#### 12 LASER ETCHED, LENS OR BODY LEGEND
- **00**: No legend this location / no actuator

#### 13 LEGEND ORIENTATION
- **Orientation**: 1
- **Orientation**: 2
- **Orientation**: 3
- **Orientation**: 4

**Notes:**
- 1 White imprinting is standard on black actuators; Black imprinting is standard on white, red & gray actuators; Custom colors are available, consult factory.

Typical current draw for LED is 20ma.
**Dimensional Specifications: in. [mm]**

**SWITCH SHOWN WITH CONNECTOR INSTALLED**

**KEYING FEATURE**

WCH CONNECTOR (190-31214-001)

**TERMINAL ARRANGEMENT**

Notes:

WCH connector is intended for use with Tyco/Amp .110 Junior Power Timer, female contacts, and wire seals.

For 14-16 awg wire, specify Tyco/Amp P/N 927776-3
For 16-20 awg wire, specify Tyco/Amp P/N 927770-3
Tyco/Amp cable seal P/N 828904-1 (20-18 awg wire) or P/N 828905-1 (16-14 awg wire) is required for each individual wire lead, and Tyco/Amp cable plug, P/N 828922-1, is required to seal each unused connector opening. Consult Tyco/Amp for the cable seal recommended for your specific wire gauge and thickness.
## Circuit Diagrams:

<table>
<thead>
<tr>
<th>CIRCUIT CODE</th>
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<td><img src="image2" alt="Circuit Diagram 23" /></td>
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### Lamp Circuit Diagrams:

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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
Worldwide Headquarters
Carling Technologies, Inc.
60 Johnson Avenue, Plainville, CT 06062
Phone: 860.793.9281   Fax: 860.793.9231
Email: sales@carlingtech.com

Northern Region Sales Office: nrsm@carlingtech.com
Southeast Region Sales Office: sersm@carlingtech.com
Midwest Region Sales Office: mrsm@carlingtech.com
West Region Sales Office: wrsm@carlingtech.com
Latin America Sales Office: larms@carlingtech.com

Asia-Pacific Headquarters
Carling Technologies, Asia-Pacific Ltd.,
Suite 1607, 16/F Tower 2, The Gateway,
Harbour City, 25 Canton Road,
Tsimshatsui, Kowloon, Hong Kong
Phone: Int + 852-2737-2277   Fax: Int + 852-2736-9332
Email: sales@carlingtech.com.hk

Shenzhen, China: shenzhen@carlingtech.com
Shanghai, China: shanghai@carlingtech.com
Pune, India: india@carlingtech.com
Kaohsiung, Taiwan: taiwan@carlingtech.com
Yokohama, Japan: japan@carlingtech.com

Europe | Middle East | Africa Headquarters
Carling Technologies LTD
4 Airport Business Park, Exeter Airport,
Clyst Honiton, Exeter, Devon, EX5 2UL, UK
Phone: Int + 44 1392.364422   Fax: Int + 44 1392.364477
Email: ltd.sales@carlingtech.com

Germany: gmbh@carlingtech.com
France: sas@carlingtech.com

Carling Technologies®

www.carlingtech.com