

# HR-Series

## HALO ILLUMINATED SEALED ROCKER SWITCH

The HR-Series is a perimeter illuminated, IP68 sealed rocker switch, featuring a stylish, low profile actuator that is available in either two or three positions. These rocker switches have a variety of dependent and independent illumination options; momentary and maintained circuits; and up to two customizable laser-etched legends.

The patented design supports the various illumination options and allows the switch to be rated up to 20 amps, eliminating the need for relays. Additionally, these low profile rocker switches fit the industry standard cutout.



### Resources:

[Download 3D CAD Files](#)

[IGS >](#)

[STP >](#)

[Watch Product Video](#)



### Product Highlights:

- Dynamic Perimeter Illumination
- IP68 Above Panel Sealing Protection
- 20A 12VDC
- Maintained and Momentary Circuits
- Various Illumination Options
- Single and Double Pole

### Typical Applications:

- Marine
- On/Off-Highway
- Lawn Equipment
- Golf Carts
- Outdoor Construction Signage
- Any Application Requiring Sealing Protection



**Carling Technologies®**

Innovative Designs. Powerful Solutions.

**Carling Technologies, Inc.**  
60 Johnson Avenue, Plainville, CT 06062  
Email: [sales@carlingtech.com](mailto:sales@carlingtech.com)  
Application Support: [team2@carlingtech.com](mailto:team2@carlingtech.com)  
Phone: 860.793.9281 Fax: 860.793.9231

[www.carlingtech.com](http://www.carlingtech.com)

# HR-Series Switch

## DESIGN FEATURES

### 20A 12VDC RATING

Robust construction to handle a multitude of electrical loads.

### SNAP-IN MOUNTING

Fits into an industry standard mounting hole of 1.450 x .830 in. (Same as V-Series and W-Series)

### PERIMETER ILLUMINATION

Choice of independent (full) or dependent (half) lighting, in a variety of colors.

### IP68 ABOVE PANEL SEALING

Seals out dust and moisture.



### .110 TERMINALS

With dedicated TE connector for ease of installation. Sold Separately. (See General Specs for TE Part Numbers).

### MAINTAINED/ MOMENTARY

Circuits available in 2 or 3 positions.

### LASER ETCHED LEGENDS

Rocker icons convey a clean, sleek OEM look, with independent or dependent illumination.

### Electrical

Operating Voltage	Designed for 12 Volt systems 9-16 VDC operating
Contact Rating	Maximum 20 amps at 12 VDC
Supply Voltage ratings	The switch passes the following supply voltage testing: SAE J1455 section 4.13.1 for power up, operating voltage, over voltage, reverse polarity, and short circuit
Dielectric Strength	Across open contacts: 500 V RMS AC for 1 minute From pole to pole (on multi pole variants) 500 V RMS AC for 1 min.
Insulation Resistance	50 Megaohms
Initial contact resistance	10 milliohms max
Life	Up to 100,000 cycles, circuit and load dependent
Contacts	Silver tin-oxide
Terminals	Up to 10 external connector terminals 0.110" wide silver-plated copper terminals

### Mechanical

Endurance	200,000 cycles minimum, circuit dependent
-----------	---

### Physical

Illumination	One or two LED backlit laser marked icons (configurable to be independent or dependent) Uniform full or half perimeter (configurable to be independent or dependent) Dimmable illumination (icons and perimeter), controlled by supply voltage LEDs rated for 50,000 hour life
illumination	Internal
Seals	Nylon, V-0 UL flammability rating
Base	Polycarbonate, V-2 UL flammability rating, painted and laser marked
Actuator	Polycarbonate, V-2 UL flammability rating
Perimeter lens	Polycarbonate polyester blend, V-0 UL flammability rating
Bracket/Bezel	Polycarbonate polyester blend, V-0 UL flammability rating

### Mounting Specifications

Panel thickness range	0.062" to 0.187"
Panel cutout	0.830" x 1.450" See Dimensional Specs (same as V-Series and W-Series)

### Environmental

Sealing	IP68 per ISO 20653. This rating applies to front panel components of the actual switch only
Operating Temp.	-40°C to 85°C The following codes were passed: Cold Soak (IEC 60068-2-1) Heat Soak (IEC 60068-2-2) Cycling/Shock (IEC 60068-2-14) General: IEC 60068-2-6, Swept sine wave section 8.2, 5 - 500 Hz 20 cycles 10g acceleration Resonance: IEC 60068-2-6, Vibration sinusoidal, section 8.1, 10 - 2000 Hz, 5g acceleration Random: IEC 60068-2-64, Method 1, random excitation, 10 - 350 Hz, 5 hours in each axis
Vibration	IEC 60068-2-27, Shock 500 m/s <sup>2</sup> 11 milliseconds, Bump 200 m/s <sup>2</sup> 6 milliseconds 600 cycles
Shock and Bump	IEC 60068-2-52, Test Kb, Severity level 4 (test duration 336 hours)
Salt Spray (Corrosion resistance)	MIL-STD-202 Method 103B, Test Condition A (240 hours)
Moisture resistance	IEC 60068-2-5, procedure B, 10 cycles, Total irradiation per cycle = 22.4 kWh/m <sup>2</sup>
Solar Radiation	ISO 16750-5, spray or brush method. Gasoline, diesel fuel, motor oil, brake fluid, Armour all, Windex
Chemical Resistance	ASTM D1171-99, method A, 72 hours
Weathering/Cracking Resistance	40 cycles of ASTM F2357 testing with 0.25" paper at 175 grams of force
Abrasion/Wear Resistance	

### Connector

Switch mates with TE connector housing part number 1418994-1. Based on application wire size choose receptacle part number below (or equivalent):

1-968880-1	20-24 AWG wire
1-968849-1	17-20 AWG wire
1-968851-1	13.5-17 AWG wire
1-968853-1	12 AWG wire

### Actuator Travel (Angular Displacement)

2 position	24°
3 positions	12° from center

\*Manufacturer reserves the right to change product specification without prior notice.  
GPS-0014 Rev: A



**1 SERIES**  
**HR** HR-Series Halo Illuminated Rocker Switch

**6 PERIMETER STYLE**  
**1** Full Ring

**2 CIRCUIT**

Position:	1	2	3
Single Pole	5&7, 6&8	Connected Terminals	3&5, 4&6
<b>11</b>	<b>21</b> ON	<b>NONE</b>	<b>OFF</b>
<b>12</b>	<b>22</b> (ON)	<b>NONE</b>	<b>OFF</b>
<b>14</b>	<b>24</b> ON	<b>NONE</b>	<b>ON</b>
<b>15</b>	<b>25</b> ON	<b>NONE</b>	<b>(ON)</b>
<b>16</b>	<b>26</b> ON	<b>OFF</b>	<b>ON</b>
<b>18</b>	<b>28</b> (ON)	<b>OFF</b>	<b>(ON)</b>

**7 PERIMETER ILLUMINATION COLOR**  
**B** Blue  
**G** Green

**3 RATING**  
**D** 20A 12V

**8 ROCKER ILLUMINATION COLOR**  
**Z** None  
**W** White  
**B** Blue  
**G** Green  
**A** Amber  
**R** Red

**4 TERMINAL / BASE STYLE**  
**1** .110 TAB (QC)

**9 BRACKET COLOR**  
**1** Painted Black  
**2** Painted Silver

**5 ILLUMINATION CIRCUIT 1, 2, 3**  
 Terminal Connections as viewed from back of switch:

**FULL PERIMETER ILLUMINATION**  
**Perimeter Illumination:** Independent 9(+) 1(-) for codes **A1 to A7**

**Rocker Illumination:**  
*2 and 3 Position Switches*  
**A1** Independent LED 1: 10(+) 1(-) LED 2: 2(+) 1(-)  
**A2** Independent LED 1: 10(+) 1(-) No Illumination  
**A3** No Illumination

2 Position Switch	Position 1	Position 3
<b>A4</b> Dependent	LED 1: 5(+) 1(-)	LED 2: 5(+) 1(-)
<b>A5</b> Dependent	LED 1: 10(+) 1(-)	LED 2: 5(+) 1(-)
<b>A6</b> Dependent	LED 1: 5(+) 1(-)	No Illumination

3 Position Switch	Position 1	Position 2	Position 3
<b>A7</b> Dependent	LED 1: 5(+) 1(-)	No Illumination	LED 2: 5(+) 1(-)

**HALF PERIMETER ILLUMINATION**  
**Rocker Illumination:** LED 1 and 2: 10(+) 1(-)

**Perimeter Illumination:**

3 Position Switch	Position 1	Position 2	Position 3
<b>B1</b> Dependent	Top Half On 10(+) 2(+) 1(-)	Full Illumination 10(+) 1(-)	Bottom Half On 10(+) 9(+) 1(-)

For a visual representation of the illumination options, see next page.  
 For custom illumination options, please consult factory.

**10 ROCKER COLOR**  
**1** Painted Black  
**2** Painted Silver

**11 ROCKER STYLE**  
**1** Laser Etch

**12 LEGEND**  
**00** No Legend  
 For standard legends, see "Standard Legend Codes" page.  
 For additional legends, please consult factory

**13 LEGEND**  
**00** No Legend  
 For standard legends, see "Standard Legend Codes" page.  
 For additional legends, please consult factory

**10 LEGEND ORIENTATION**

<b>0</b>	No Legend
<b>1</b>	Orientation 1
<b>2</b>	Orientation 2
<b>3</b>	Orientation 3
<b>4</b>	Orientation 4

Notes:  
 1 Code (A4) only available with 2 Position Circuits (14, 15, 24, 25)  
 2 Codes (A5, A6) only available with 2 Position Circuits (11, 12, 13, 14, 15, 21, 22, 23, 24, 25)  
 3 Codes (A7, B1) only available with 3 Position Circuits (16, 17, 18, 26, 27, 28)

**Independent Illumination:**

		2 Position Switch		3 Position Switch		
		Position 1	Position 3	Position 1	Position 2	Position 3
A1						
	A2					
	A3					

**Dependent Illumination:**

		2 Position Switch		3 Position Switch		
		Position 1	Position 3	Position 1	Position 2	Position 3
A4						
	A5					
	A6					

LEGEND: Used for illumination representation only.  
Refer to legend code page for complete list if standard legends.

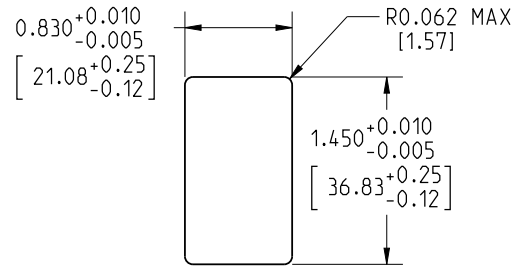
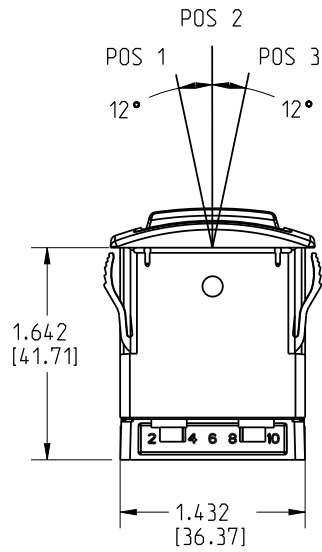
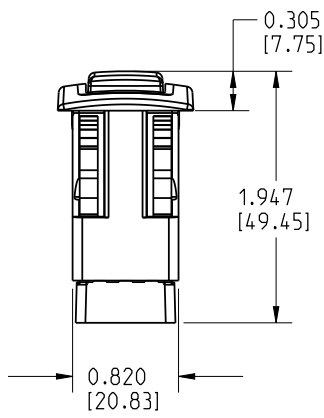
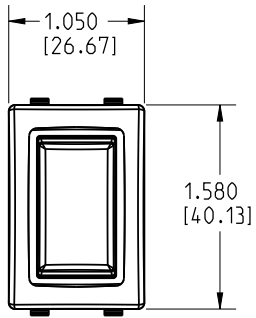
Standard Legend Codes:

YK	UA	UB	US	UV	UW	UX	UY	MP	MR	PX	MS	MT
VU	MW	NZ	NX	NY	YM	VW	PS	PW	PZ	WG	WM	RN
RP	YG	TX	NAV LIGHTS VD	COURT LIGHTS VE	PANEL LIGHTS VF	ANCH LIGHTS VG	HEAD LIGHTS SH	FOG LIGHTS SM	DASH LIGHTS SN	DOCK LIGHTS SP	BEACON SR	LIGHT SY
DIM WY	BRIGHT WZ	UH	UJ	PD	PE	PF	BILGE PUMP VC	BILGE VJ	UF	UG	MU	TN
NS	PB	WIPER SE	VZ	YE	NN	RW	PU	WA	YN	UE	NM	RJ
NR	YD	TL	VR	ENG FAN SL	BLWR VA	UC	VN	PK	VY	HORN UZ	RH	NU
NV	RB	RC	RK	RL	MZ	RG	UP WS	DOWN WT	UD	UR	WD	TY
PA	UK	WATER PUMP WR	UU	UT	ANCHOR YR	PM	VV	WB	TB	TC	TD	TE
MY	PV	TA	TZ	WC	PT	PN	PH	RA	TU	TT	ENG HATCH YL	ENG BRAKE SK
VS	UL	UM	WK	TS	VT	TCS WL	VP	YJ	PJ	RY	UP	NW
NP	RE	RF	PP	PR	TV	PC	YT	YU	PL	WJ	MV	RR
TK	RT	SEAT SZ	VX	WF	WH	PG	CRUISE SJ	YA	YB	RM	TM	RD
RS	UN	TP	TR	NT	MX	YC	TW	TJ	YF	TH	TF	TG
YS	YH	AUX SX	ON OFF RZ	OFF ON YP	I O WN	O I WP	OFF ON WW	ON WX	OFF SA	I SB	O SC	II SD
RAISE ST	LOWER SU	HIGH WU	LOW WV	FWD SV	REV SW	DEPTH VB	TRIM TAB VH	ACC VK	NAV ANCH VL	WIND LASS UP/DN VM	LIVE WELL WE	REAR SF
PARK SG	AUTO SS	RU	RV	RX								

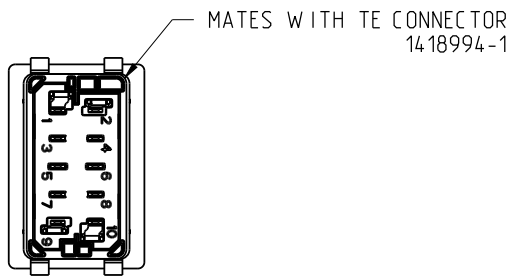
Notes:

- 1 ISO compliant symbols. Consult factory for custom legends.
- 2 New legend codes recommended for new part set ups. Previous codes still valid for existing customers.

**Dimensional Specifications: in. [mm]**



PANEL CUTOUT



**Circuit Diagrams:**

Circuit Code	CIRCUIT DIAGRAM
11	
12	
14	
15	
16	
18	

Circuit Code	CIRCUIT DIAGRAM
21	
22	
24	
25	
26	
28	



**Illumination Circuit Diagrams:**

Illumination Code	ILLUMINATION CIRCUIT DIAGRAM
<b>A1</b>	
<b>A2</b>	
<b>A3</b>	
<b>A4</b>	

Illumination Code	ILLUMINATION CIRCUIT DIAGRAM
<b>A5</b>	
<b>A6</b>	
<b>A7</b>	
<b>B1</b>	

## Authorized Sales Representatives and Distributors

Click on a region of the map below to find your local representatives and distributors 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)

## **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:** mrrsm@carlingtech.com  
**West Region Sales Office:** wrsm@carlingtech.com  
**Latin America Sales Office:** larsm@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®**

Innovative Designs. Powerful Solutions.