# V-Series CONTURA II, III SWITCHES

The V-Series Contura II & III snap-in rocker switches offer countless unique options including choices for ratings, circuits, colors, illuminations and symbols. These single or double pole switches feature removable actuators in a choice of actuator styles and colors, and can be illuminated with either square or bar shaped lenses. Actuators may be purchased and stocked separately. An optional plug-in terminal connector enables pre-wiring of wire harnesses.

The Contura switches with sealed option, are certified to IP66/68, signifying complete protection against dust and prolonged spray and submersion under pressure, and are recognized to UL1500 - Ignition Protection for Marine Products. These switches are vibration, shock, thermoshock, moisture and salt spray resistant. Temperature ratings range from -40°C to +85°C.





**Resources:** Download 3D CAD Files

IGS > STP >

Watch Product Video



## **Product Highlights:**

- Countless options for ratings, circuits, colors, illuminations and legends
- Certified to IP66/68 for front panel components
- Vibration, shock, thermoshock, moisture and salt spray resistant
- Temperature range from -40°C to +85°C.

## **Typical Applications:**

- On/Off Highway Equipment
- Marine
- Military Armored Vehicles
- Mining Machinery and Equipment
- Any application requiring environmental protection



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## V-Series Switch DESIGN FEATURES

#### **INTERCHANGEABLE ACTUATORS**

Panel redesign is a snap with our wide range of rocker styles. Achieve maximum design variety with minimum inventory. Simply swap rockers to create an entirely new look for your panel.

#### **DUAL SEAL PROTECTION**

Seals out water, dust, debris, and enables switch certification to IP66/68 for front panel components.

#### **CLEAN CONNECTIONS**

Options for both eight and ten terminal base styles with AMP & Packard compatible connectors affords myriad circuit options while providing ease of assembly.

**OPTIONAL PANEL SEAL** 

Helps prevent water/dust ingress behind panel.

#### **MULTIPLE LIGHTING OPTIONS**

In addition to Incandescent lamps, our LED illumination is offered in a wide array of light intensities, colors, as well as dual level, tri-color, and flashing options.

#### **BRASS ROLLER PIN**

Robust mechanism eliminates the need for lubricants. Enables switch to withstand -40°C to +85°C temperatures.

#### SILVER PLATED BUTT CONTACT MECHANISM

Providing 50k to 100k electrical cycles and a variety of different electrical ratings.

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



#### Contura II & III

The Contura II & III actuators are constructed of thermoplastic polycarbonate and are offered with a hard nylon overlay or a "soft-touch" elastomer overlay. These models incorporate aesthetic designs on the top and bottom of the rocker featuring two rows of raised "bumps" on the Contura II and three "indented" lines on the Contura III.



#### **Contura X**

The raised bracket/bezel on the Contura X helps prevent inadvertent actuation of the rocker, as well as preventing debris from being trapped under the actuator. This curved rocker style is available with a variety of lenses and legends.



## **Contura IV**

The Contura IV's "Shape to create a Shape" actuator works with the curves, contours & advanced styling of the latest panel designs, flowing with these advanced curves & radii. This actuator style fits on the Contura flush bracket/bezel.



## **Contura XI**

Contura XII

The raised bracket/bezel on the Contura XI helps prevent inadvertent actuation of the rocker, as well as preventing debris from being trapped under the actuator. This convex style rocker is available with a wide variety of lenses and legends.



#### Contura V

The symmetrically curved Contura V actuator provides the perfect complement to the Contura IV's "Shape to create a Shape" design concept. With its flush style mounting bracket, Contura V can be mounted in between two Contura IV's, by itself, or in groups.



#### The Contura XII version features a paddle style actuator with the raised bracket/bezel of Contura X and XI. The contoured handle design provides intuitive recognition and ease of operation and is available with all Contura X and XI lens and legend offerings.



## Contura VI (WAVE)

The Contura VI WAVE sealed rocker switches, when used in a row, create an uniquely appealing "wave" design on your panel. A variety of colors and finishes are available for both rocker and wave insert. Contura VI features bar and oval lenses.



## Contura XIV

The Contura XIV represents a sleek new crossover rocker design which should appeal to Trucks, Buses and Heavy Vehicles as well as the Marine Industry. Intuitive feel is provided by recessed ridges along with a Center Groove which effectively defines the boundary between top and bottom switch functions.



#### Contura VII

Contura VII featuring gently curved corners and edges assuring compatibility with most any panel design. Intuitive feel is maximized by the use of 2 embossed circular pads located at opposite ends of the rocker. Any combination of Bar or Oval style lenses can be located in the pads providing a truly unique look, exclusive to Contura VII.



## Illuminated Indicators & Accessories

Alert operator of systems functions or malfunctions, are offered with removable/replaceable lamps in Contura II, II, V or X styles. Accessories include connectors, mounting panels, hole plugs, panel seals, and actuator removal tools. Refer to accessories page for full details

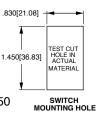
Electrical		Agency Certifica	ations
Contact Rating	.4VA @ 24VDC (MAX) resistive 15 amps, 125VAC 10 amps, 250VAC 1/2 HP 125-250VAC 20 amps, 4-14VDC	<b>AI</b> ° (\$ <b>B</b>	
	15 amps, 15-28VDC	Environmental	
Dielectric Strength	10A, 14VT 6A, 125VAC L 1500 Volts RMS	Sealing	Sealed version: IP66/68, this applies to front panel compo the actual switch only, and si complete protection against
Insulation Resistance Initial Contact Resistance Life	50 Megohms 10 milliohms max. @ 4VDC 50,000 - 100,000 cycles circuit dependent	Corrosion	well as powerful jets of water. Mixed Flowing Gas (MFG) Cl 3 year accelerated exposure ASTM B-827, B-845 Silver and
Contacts	Silver alloy, silver tin-oxide, fine		contacts
Terminals	silver Brass or copper/silver plate 1/4" (6.3mm) Quick Connect terminations standard. Solder lug, Wire Lead	Operating Temp. Vibration 1	-40°C to +85°C Per Mil-Std 202F, Method 204 Test Condition A 0.06 DA or 10-500 Hz. Tested with VCH c Test criteria - No loss of circu test, pre and post test contact
Mechanical			resistance.
Endurance	150,000 cycles minimum circuit dependent	Vibration 2	Resonance search 24-50 Hz 0.40 DA 50-2000 Hz ±10 G's peak Horizontal Axis 3-5 G's max.
Physical			Random
Lighted	Incandescent - rated 10,000 hours Neon - rated 25,000 hours LED - rated 100,000 hours 1/2 life (LED is internally ballasted for voltages to 24VDC)		24 Hz 0.06 PSD-Gsq/Hz 60 Hz 0.50 100 Hz 0.50 200 Hz 0.025 2000 Hz 0.025 No loss of circuit during test;
Seals Base	Internal Optional external gasket panel seal Polyester blend rated to 125°C with	Shock	seconds chatter. Per Mil-Std 202F, Method 213 Condition K @ 30G's. Tested
Contura II,III,IV,V,	a UL flammability rating of 94V0. Hard Surface: Basic actuator		VCH connector. Test criteria of circuit during test, pre and
VI, VII Actuator	structure molded of thermoplastic polycarbonate with a hard Nylon 66	Salt Spray	test contact resistance. Per Mil-Std 202F, Method 101 Condition A, 96 Hrs. Sealed ver
	thermoplastic surface overlay.	Dust	Mil STD 810, Method 510.2 Ai
	<b>Soft Surface</b> : Basic actuator structure molded of thermoplastic polycarbonate with an elastomer overlay.	Thermal Shock	300 Ft/Min Duration 16Hr Per Mil-Std 202F, Method 107 Cond. A, -55°C to +85°C. Tes
	Nylon 66 Reinforced rated to 105°C		pre and post test contact res
Lens Contura XIV	Polycarbonate rated at 100°C Polycarbonate lens/sub-rocker with ABS shell	Moisture Resistance	Per Mil-Std 202F, Method 106 Criteria - pre and post test co resistance
		Ignition Protection	All Contura switches with sea
Actuator Travel (A	ngular Displacement)		construction meet the require

#### Actuator Travel (Angular Displacement)

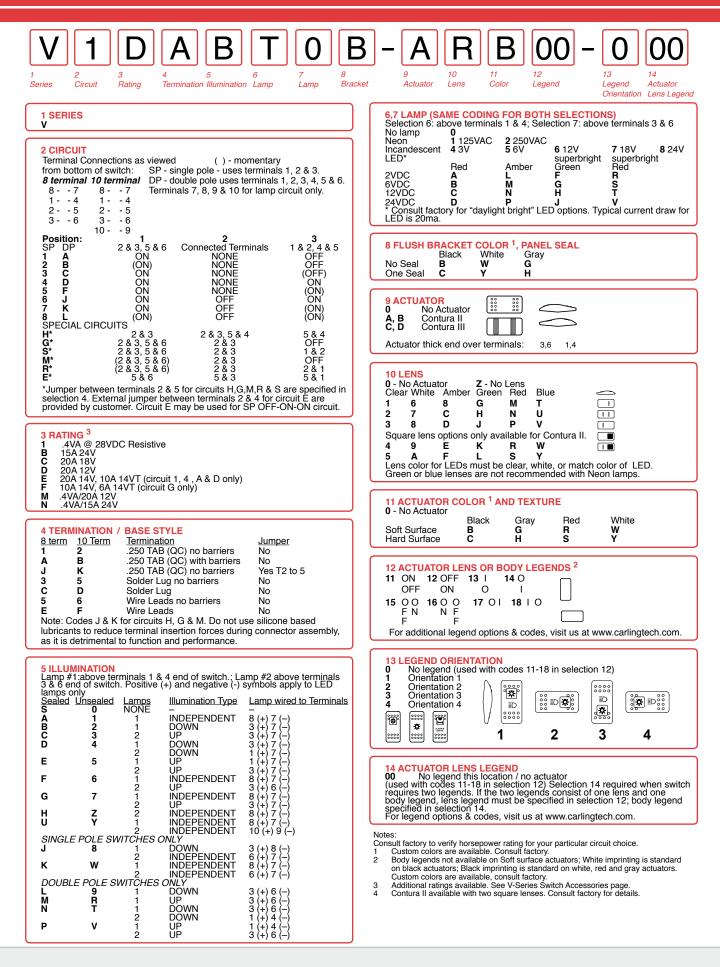
2 position 3 positions 18° 9° from center

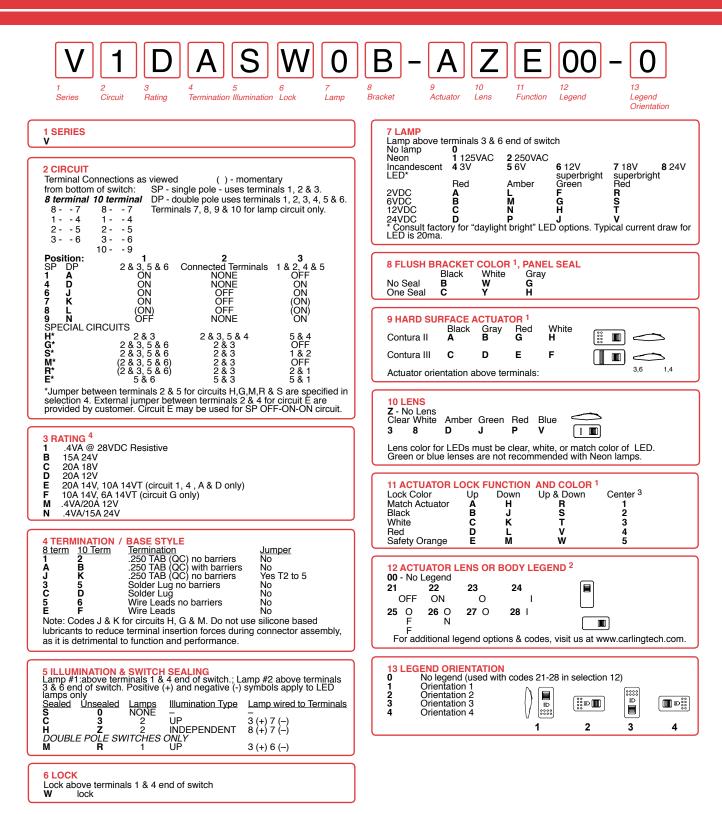
## **Mounting Specifications**

Panel Thickness Range Gaskets Acceptable Panel Thickness 0 .030 to .250 (.76 to 6.35mm) 1 .030 to .109 & .147 to .157 1.450[36.83] (.76 to 2.77mm & 3.73 to 3.98mm) Recommended: No gasket with panel thickness of .032, .062, .093, .125, .187 or .250



micitai	
	Sealed version: IP66/68, this rating applies to front panel components of the actual switch only, and signifies complete protection against dust as well as powerful jets of water.
I	Mixed Flowing Gas (MFG) Class III 3 year accelerated exposure per ASTM B-827, B-845 Silver and gold contacts
g Temp. 1	-40°C to +85°C 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, pre and post test contact resistance.
2	Resonance search 24-50 Hz 0.40 DA 50-2000 Hz ±10 G's peak 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
	No loss of circuit during test; <10µ seconds chatter. 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
ý	test contact resistance. Per Mil-Std 202F, Method 101D, Test Condition A, 96 Hrs. Sealed version only. Mil STD 810, Method 510.2 Air Velocity 300 Ft/Min Duration 16Hr
Shock	Per Mil-Std 202F, Method 107F, Test Cond. A, -55°C to +85°C. Test criteria - pre and post test contact resistance
Resistance	Per Mil-Std 202F, Method 106F, Test Criteria - pre and post test contact resistance
rotection	All Contura switches with sealed construction meet the requirements of UL1500/ISO8846 for ignition protection, in addition to conformance with EC directive 94/25/EC for marine products.

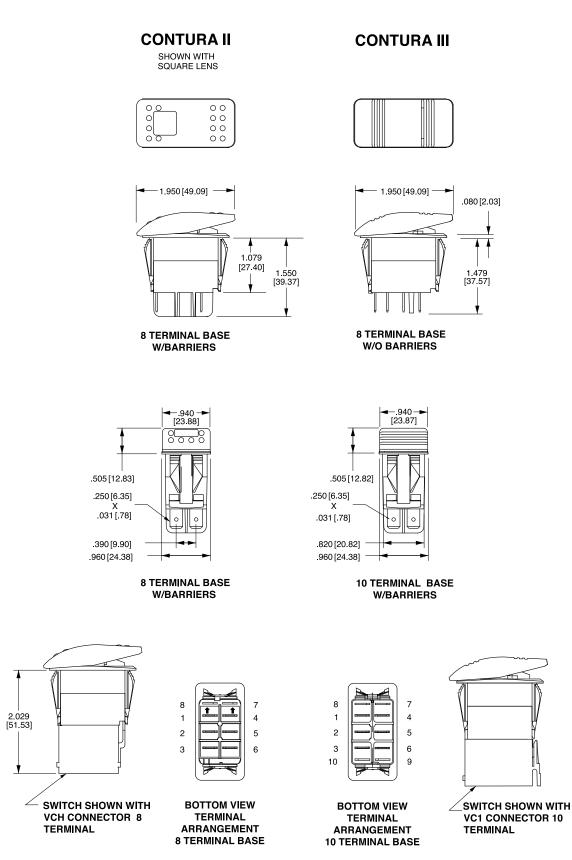




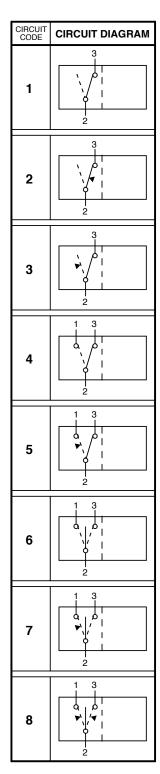
Notes

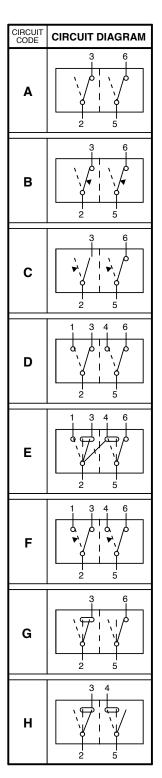
- Consult factory to verify horsepower rating for your particular circuit choice.
- Custom colors are available. Consult factory. White imprinting is standard on black actuators; Black imprinting is standard on white, 2
- red and gray actuators. Custom colors are available, consult factory. Only available with 3 position circuits. Center OFF and special circuits only available with center position lock function. Additional ratings available. See V-Series Switch Accessories page. 3
- 4

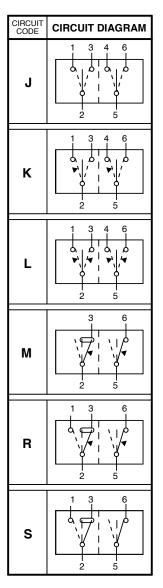
#### Dimensional Specifications: in. [mm]



## **Circuit Diagrams:**

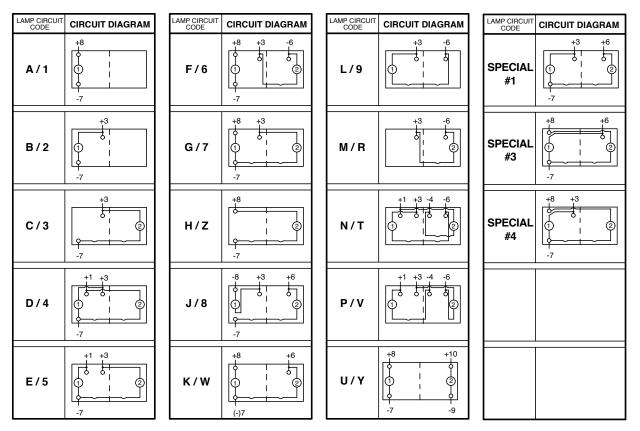




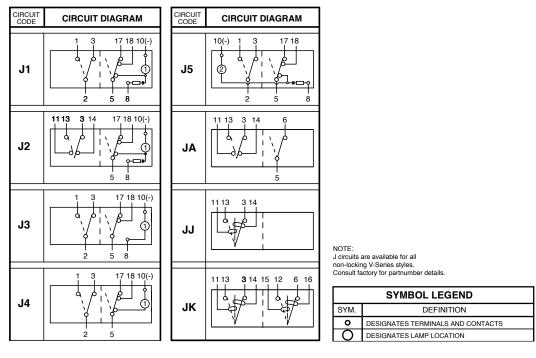


SYMBOL LEGEND					
SYM.	DEFINITION				
0	DESIGNATES TERMINALS AND CONTACTS				
° <b>—</b> 0	DESIGNATES MAINTAINED CIRCUITS				
	DESIGNATES OTHER POSITION				
₀0	DESIGNATES MOMENTARY CIRCUITS				
0	DESIGNATES TWO POSITION CONNECTION				
	DESIGNATES EXTERNAL JUMPER PROVIDED BY CUSTOMER				

### Lamp Circuit Diagrams:



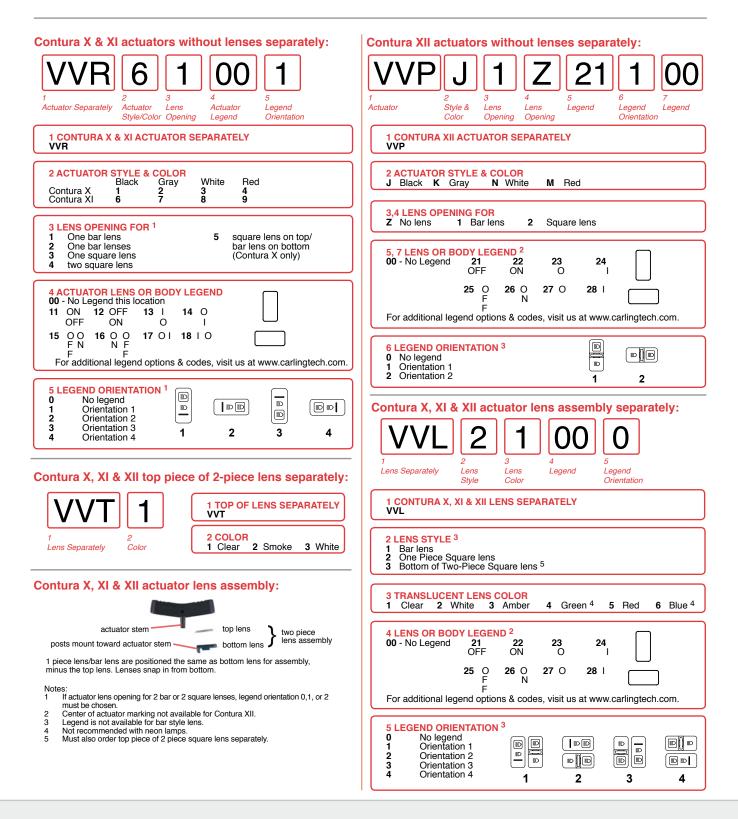
## J-Series Hazard Warning Circuit Diagrams:



#### Reduce inventory levels and cost by stocking actuators and base switches separately.

Contura II, III, IV, V, VI, VI, X, XI, XIV Base switches separately: specify V with code selections 2-8 in the ordering schemes. Contura II, III, IV, V Actuator only: VV with code A or C for selection 9, & with selections 10-14 in the ordering schemes. Contura VI Actuator with lenses and inserts only: VV with code selections 9-16

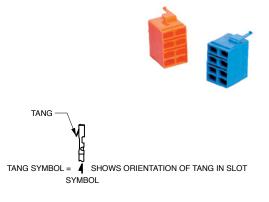
Contura II, III, IV, V, VII Actuator only: VV with code A, C, E, G, P or Z for selection 9 & with selections 10-14 in the ordering schemes. Contura X, XI, XII, XIV actuators with lenses separately: VV with code selections 9-14 in the ordering schemes. Panel Seal: VPS



### Easily integrate Contura products into your system, with Contura Accessories

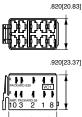
#### **Contura Connectors**

Q.C. SELECTION GUIDE						
	PART NO		WIRE RANGE			
COMPANY SERIES	PLAIN BRASS	TIN PLATED BRASS	AWG	MM <sup>2</sup> (REF)	ORIEN- TATION	
	02965580		12	3.0		
	02965471	12010601	(2)16-14	(2)1.0-2.0		
PACKARD 58 SERIES	02965470		16-14	1.0-2.0	В	
SOBETTIES	02965469	06288318	20-18	.58		
		12084590	10	5.0		
PACKARD METRI-PACK 630 SERIES		12052224	12	3.0		
		12015870	16-14	1.0-2.0		
		12020035	(2)22-18	(2).58	А	
	12015832	12015869	20-18	.58		
		12052222	20-22	.355		
AMP 250 SERIES FASTIN-FASTON	60253-1	60253-1 60253-2	16-12	1.3-3		
	00200-1		(2) 16	(2) 1.3	в	
	42100-1	42100-2	18-14	.8-2	В	
	60295-1	60295-2	22-18	.39		



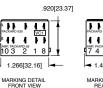
NOTE: Consult Delphi Packard and/or Amp on actual part numbers and availability. AMP is a registered trademark of AMP Inc. Harrisburg, PA Delphi Packard is a registered trademark of Delphi-Packard Electrical Systems Warren, Ohio

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VC1

CONNECTOR HOUSING



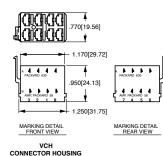




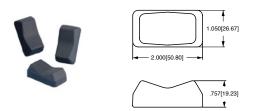


MARKING DETAIL FRONT VIEW

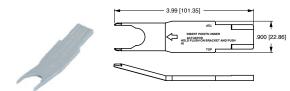
VC2 CONNECTOR HOUSING (For AMP terminals only)



#### Contura X Boot (P/N VB1-01)



## Contura II, III, IV, V, VI & VII Actuator **Removal Tool (P/N VRT)**



## Additional V-Series Ratings

4VA @ 28VDC Resistive

VC2

• 69

1.466[37.24] +

MARKING DETAIL REAR VIEW

- 10A 250VAC 1/2 HP, 15A 125 VAC 1/2 HP, No Agency Listings 51
  - 10A 250VAC 1/2 HP, 15A 125 VAC 1/2 HP, UL Recognized, CSA Certified 15A 24V
- В 20A 18V

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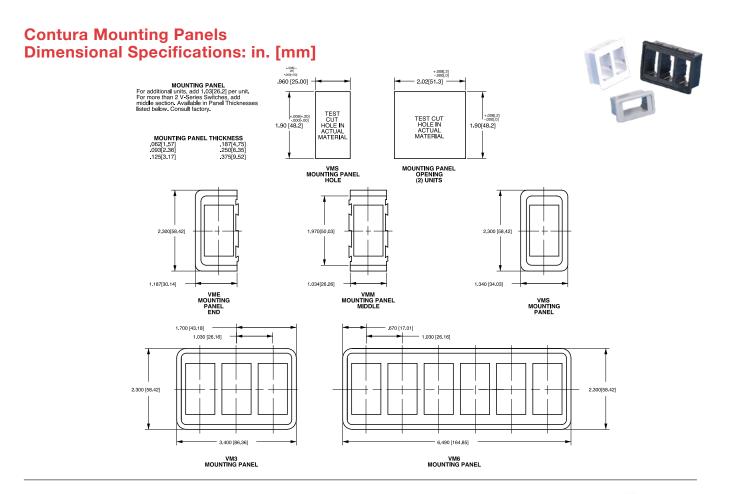
- С D 20A 12V
  - 20A 14V, 10A 14VT (circuits 1, 4, A, & D only)
  - 10A 14V, 6A, 14VT (circuit G only)
- G 20A 6V
- н 20A 3V L 2 15A 125 VAC, 10A 250VAC, 1/2 HP 125-250 VAC; 6A 125 VAC L
- .4VA/20A 12V (combi-contact) М
- (combination gold/silver contacts for borderline dry circuit applications) .4VA/15A 24V (combi-contact) Ν

(combination gold/silver contacts for borderline dry circuit applications)

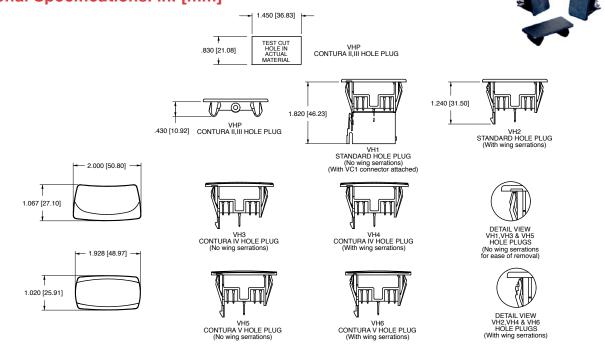
#### NOTES

Consult factory to determine availability for individual circuits and their HP rating.

- Not available with Contura 7 or 14 rocker styles. 1. 2.
- Rating L available with circuits 1, 4, A & D only.



#### Contura Hole Plug Dimensional Specifications: in. [mm]



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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** 

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