



**Product Type**  
**Sealed Rocker Switches**

**Product Series**  
**V-Series: Contura IV & V**

The V-Series Contura IV & V 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 oval or bar shaped lenses. Actuators may be purchased and stocked separately. An optional plug-in terminal connector enables pre-wiring of wire harness.

Contura IV's asymmetrical "orange wedge" curved actuator affords new mounting options including half-moon, triangle, pyramid or stack. And the symmetrically curved Contura V provides the perfect complement to the Contura IVs "Shape to create a Shape" design concept.

The Contura switches, with sealed front panel components, are certified to IP66 and IP68, 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.

<b>Certifications</b>	UL CSA VDE DEMKO SEMKO NEMKO FIMKO BEAB
<b>Number of Poles</b>	1-2 poles
<b>Ratings</b>	10A 250VAC
	15A 125VAC
	1/2HP
	15A 125VAC
	1/2HP
	12(2)A 125VAC uT85
	15A 125VAC
	1/2HP
	12(6)A 125VAC T85
	10A 250VAC
	15A 125VAC
	1/2HP 125-250VAC
	12(2)A 250VAC uT85
	10A 250VAC
	15A 125VAC
	1/2HP 125-250VAC
	12(6)A 250VAC T85
	15A 24V
	20A 18V
	20A 12V
	20A 6V

	20A 3V
<b>Dielectric Strength</b>	2,000 V RMS opposite polarity 4,000 V RMS between live parts and operator accessible surface
<b>Insulation Resistance</b>	50 megohms (minimum)
<b>Base Material</b>	Polyester
<b>Actuator Style</b>	Asymmetrical curved rocker with oval lens (es) Asymmetrical curved rocker with bar lens (es) Asymmetrical curved rocker with combination oval and bar lenses. Asymmetrical curved locking rocker with or without lens Symmetrical curved rocker with oval lens (es) Symmetrical curved rocker with bar lens (es) Symmetrical curved rocker with combination oval and bar lenses.
<b>Actuator Material</b>	Underlay/lens - Polycarbonate Hard overlay - Nylon Soft Touch overlay - Thermoplastic elastomer
<b>Bracket/Bezel Material</b>	Nylon
<b>Terminal Options</b>	.250 QC Tabs
<b>Mounting Method</b>	Snap-In
<b>Mounting Hole Dimensions</b>	.83" x 1.45" ; 21.08mm x 36.83mm
<b>Value Added</b>	Custom colors and legends available Special circuits Hazard warning circuits Modular or single piece mounting brackets Optional lock-on terminal connector Hole Plug Actuator removal tool

**Whatever your application, our Contura switches deliver the performance you demand**

— and the flexibility you need. There's no challenge these sealed switches can't help you address. Especially since they're IP66/IP68 certified, UL1500 recognized, and able to withstand temperatures from -40°C to +85°C. Never have such rugged switches been available in such attractive packages. A dazzling array of light, lens and legend options on several actuator styles, plus countless circuit combinations, and valuable accessories, make our Contura switches the ideal choice.

**Maximum Design Options with minimum inventories**

Panel redesign is a snap, requiring no tooling change, with our removable interchangeable actuators. A unique balance between aesthetics and functionality.

**Withstands Extreme Temperatures**

Roller pin mechanism eliminates need for lubricants, so it can withstand from -40°C to +85°C.

**Seals out water, dust and debris**

Dual seal protection locks out elements. Certified to IP66/IP68.

**Clean Connections**

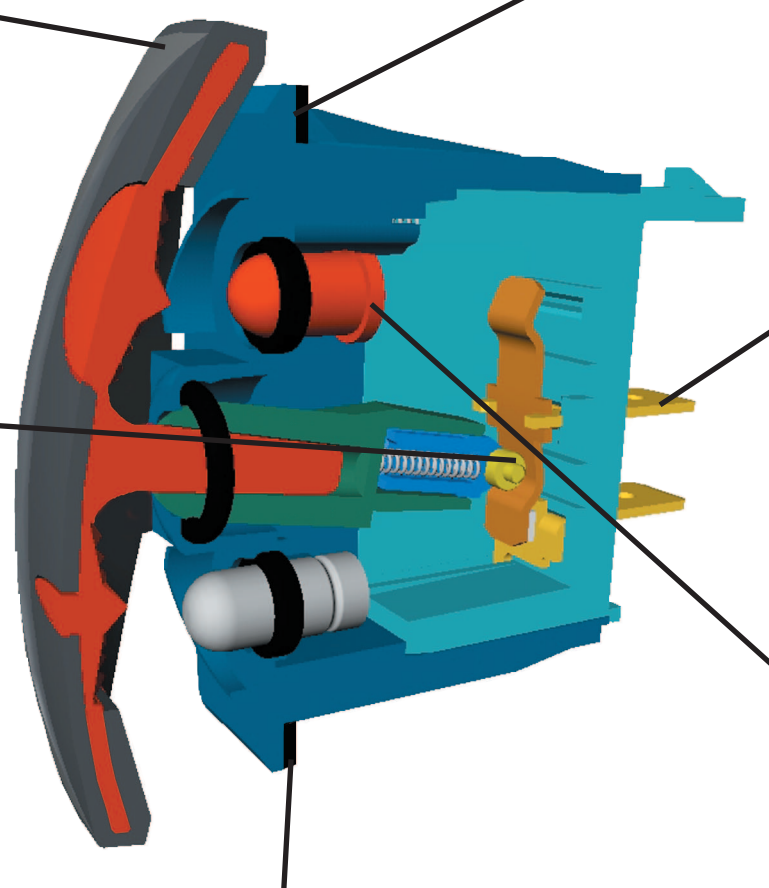
Offered in both eight and ten terminal base options. AMP & Packard compatible connectors available.

**Multiple Lighting Options**

Incandescent lamps & LED illumination. Our LED illumination is offered in a wide array of light intensities, colors, as well as dual level illumination and flashing options.

**Optional Panel Seal**

Prevents water/dust egress behind panel.



## V-Series Contura Switches

V-Series switches offer countless unique options including choices for ratings, colors, illuminations and symbols. These switches feature removable actuators in a choice of actuator styles and colors, and are available in single or double pole configurations. The V-Series switches can be illuminated with either square, oval and/or bar shaped lenses.



### Contura II

The Contura II actuators are constructed of thermoplastic polycarbonate, and are offered with either a hard nylon overlay, or a “soft-touch” elastomer overlay. The Contura II incorporates an aesthetic design of two rows of raised “bumps” on the top and bottom of the rocker.

### Contura III

The Contura III actuators are constructed of thermoplastic polycarbonate, and are offered with either a hard nylon overlay, or a “soft-touch” elastomer overlay. The Contura III incorporates three rows of bars on the top and bottom of the rocker.

### Contura IV

The Contura IV’s “Shape to create a Shape” actuator supports the designer, by working with the curves, contours and advanced styling of the latest panel designs, flowing with these advanced curves and radii. This actuator style fits on the Contura II & III flush bracket/bezel.

### Contura V

The symmetrically curved Contura V actuator provides the perfect complement to the Contura IV’s “Shape to create a Shape” design concept. It can be mounted in between two Contura IV’s, by itself, or in groups. This actuator style is available with all flush style mounting brackets.



### 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. The conventionally designed actuators are available with one-piece bar lenses, or square lenses in either one or two part construction with backlit legends, for increased durability of lens symbols.

### Contura XI

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. The actuators are available with one-piece bar lenses, or square lenses in either one or two part construction with backlit legends, for increased durability of lens symbols.

### Contura XII

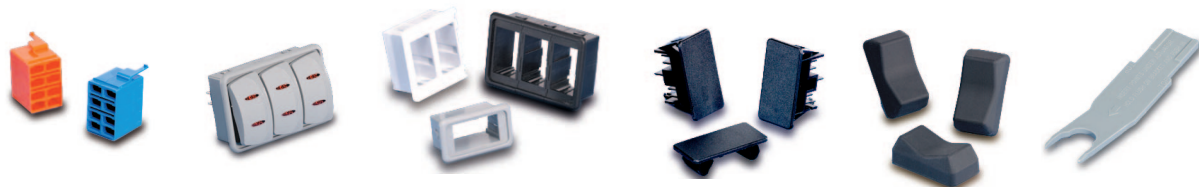
The Contura XII version incorporates a paddle style handle on the raised bracket/bezel, also used in the Contura X and XI switch. The contoured handle design provides intuitive recognition and ease of operation for a variety of transportation related applications, and is available with all Contura X and XI lens and legend offerings.

### Illuminated Plug

The Illuminated Plug is offered with removable/replaceable lamps, Contura II, V and X styling, and LED illumination. As a critical safety feature, it’s illumination alerts the operator of essential system functions or malfunctions like: oil pressure, high temperature, transmission or other fluid levels, parking brake, or general system malfunction.

## V-Series Accessories/Options

Carling Technologies also offers many V-Series accessories including connectors, mounting panels, hole plugs, panel seals, and actuator removal tools.



## Electrical

Contact Rating . . . . .	.4VA @ 24VDC (MAX) resistive 15 amps, 125 VAC 10 amps, 250 VAC 1/2 HP 125-250 VAC 20 amps, 4-14 VDC 15 amps, 15-28 VDC 10A 14VT 6A 125 VAC L
Dielectric Strength . . . . .	1500 Volts RMS
Insulation Resistance . . . . .	50 Megohms
Initial Contact Resistance. . . . .	10 milliohms max. @ 4 VDC
Life . . . . .	50,000- 100,000 cycles circuit dependent
Contacts . . . . .	Silver cad-oxide, silver tin-oxide, fine silver
Terminals . . . . .	Brass or copper/silver plate 1/4" (6.3mm) Quick Connect terminations standard. Solder lug, Wire Lead

## Mechanical

Endurance . . . . . 150,000 cycles minimum

## Physical

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 24 VDC)
Seals . . . . .	Internal Optional external gasket panel seal
Base . . . . .	Polyester blend rated to 125C with a UL flammability rating of 94 V-O.
Contura II, III, IV, V Actuator . . . . .	Hard Surface: Basic actuator structure molded of thermoplastic polycarbonate with a hard Nylon 66 thermoplastic surface overlay. Soft Surface: Basic actuator structure molded of thermoplastic polycarbonate with an elastomer overlay.
Contura X, XI, XII Actuator, VP . . . . .	Nylon 66 Reinforced rated to 105°C
Lens . . . . .	Polycarbonate rated at 100°C

## Actuator Travel (Angular Displacement)

2 position . . . . .	18°
3 positions . . . . .	9° from center

## Mounting Specifications

Panel Thickness Range	
<b># of gaskets</b>	<b>Acceptable Panel Thickness</b>
0	.030 to .250 (.76mm to 4.76mm)
1	.030 to .109 & .147 to .157 (.76 to 2.77mm & 3.73 to 3.98mm)
Recommended: No gasket with panel thickness of .032, .062, .093, .125, .187 or .250	

## Agency Certifications



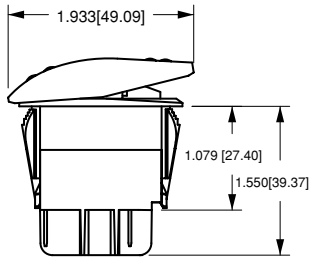
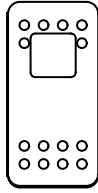
## Environmental

Environmental . . . . .	Sealed version: IP68, in accordance with IEC 529, BS 5490, DIN 400 50 & NFC 20 010. This rating applies to front panel components and signifies protection against dust and the prolonged effects of immersion under pressure. The standard test for immersion under pressure requires submersion under one meter of water for 30 minutes. The V-Series switch has exceeded these parameters, having been actuated and illuminated during submersion. NOTE: Sealed switch with optional panel gasket will meet IP67 rating.
Corrosion . . . . .	Flowing Mixed Gas (FMG) Class III 3 year accelerated exposure per ASTM B-827, B-845 Silver and gold contacts
Operating Temperature . . . . .	-40° C to + 85° C
Vibration 1 . . . . .	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 and pre and post test contact resistance.
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 No loss of circuit during test; <10µ seconds chatter.
Shock . . . . .	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 test contact resistance.
Salt Spray . . . . .	Per Mil-Std 202F, Method 101D, Test Condition A, 48 Hrs. Sealed version only.
Dust . . . . .	Per Mil-Std 810C, Method 510.2 Air Velocity 300 ±200 Feet/Min, Test Duration 16 Hrs.
Thermal Shock . . . . .	Per Mil-Std 202F, Method 107F, Test Condition A, -55°C to 85°C. Test criteria - pre and post test contact resistance
Moisture Resistance . . . . .	Per Mil-Std 202F, Method 106F, Test Criteria - pre and post test contact resistance
Ignition Protection . . . . .	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.

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

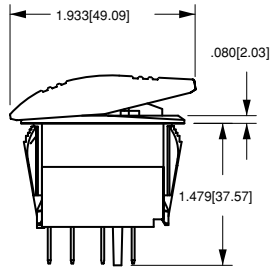
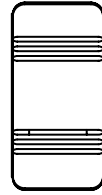
**CONTURA II STYLE**

SHOWN WITH SQUARE LENS



**8 TERMINAL BASE W/BARRIERS**

**CONTURA III STYLE**

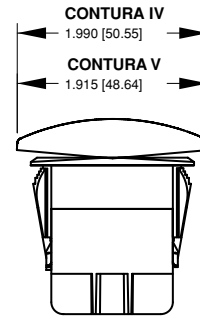
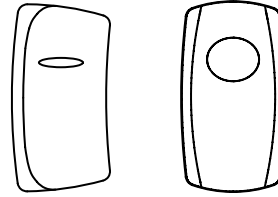


**8 TERMINAL BASE W/O BARRIERS**

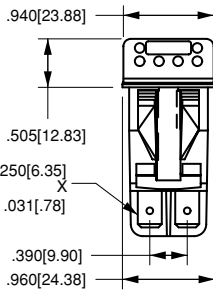
**CONTURA IV & V STYLE**

IV - SHOWN WITH BAR LENS

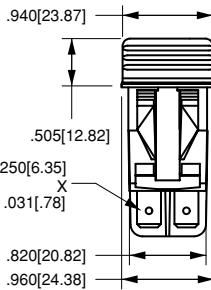
V - SHOWN WITH ROUND LENS



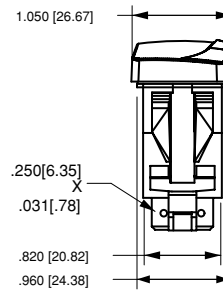
**10 TERMINAL BASE W/BARRIERS**



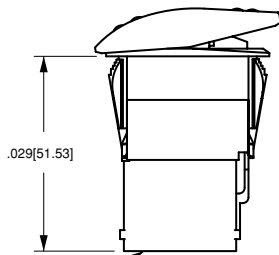
**8 TERMINAL BASE W/BARRIERS**



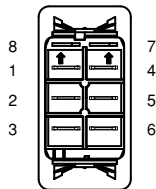
**10 TERMINAL BASE W/BARRIERS**



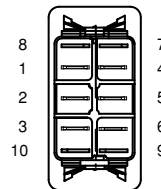
**10 TERMINAL BASE W/O BARRIERS**



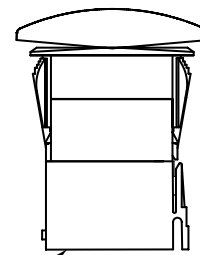
**SWITCH SHOWN WITH VCH CONNECTOR 8 TERMINAL**



**BOTTOM VIEW TERMINAL ARRANGEMENT 8 TERMINAL BASE**



**BOTTOM VIEW TERMINAL ARRANGEMENT 10 TERMINAL BASE**



**SWITCH SHOWN WITH VC1 CONNECTOR 10 TERMINAL**

**V 1 D A B T O B - E R B 00 - 0 00**

1 Series 2 Circuit 3 Rating 4 Termination 5 Illumination 6 Lamp 7 Lamp 8 Bracket 9 Actuator 10 Lens 11 Color 12 Legend 13 Legend Orientation 14 Actuator Lens Legend

**1 SERIES**  
V

**2 CIRCUIT**  
Terminal Connections as viewed from bottom of switch:  
8 terminal 10 terminal  
8 - -7 8 - -7  
1 - -4 1 - -4  
2 - -5 2 - -5  
3 - -6 3 - -6  
10 - -9

( ) - momentary  
SP - single pole - uses terminals 1, 2 & 3.  
DP - double pole uses terminals 1, 2, 3, 4, 5 & 6.  
Terminals 7, 8, 9 & 10 for lamp circuit only.

**Position:**

SP	DP	2 & 3, 5 & 6	Connected Terminals	1 & 2, 4 & 5
1	A	ON	NONE	OFF
2	B	(ON)	NONE	OFF
3	C	ON	NONE	(OFF)
4	D	ON	NONE	ON
5	F	ON	NONE	(ON)
6	J	ON	OFF	ON
7	K	ON	OFF	(ON)
8	L	(ON)	OFF	(ON)

**SPECIAL CIRCUITS**

H*	G*	S	M*	R*	E*
2 & 3	2 & 3	2 & 3, 5 & 6	2 & 3	2 & 3	5 & 4
2 & 3	2 & 3	2 & 3, 5 & 6	2 & 3	1 & 2	OFF
(2 & 3, 5 & 6)	2 & 3	(2 & 3, 5 & 6)	2 & 3	OFF	OFF
(2 & 3, 5 & 6)	2 & 3	(2 & 3, 5 & 6)	2 & 3	1 & 2	OFF
5 & 6	5 & 3	5 & 6	5 & 3	5 & 1	5 & 1

\*Jumper between terminals 2 & 5 for circuits H, G, & M are specified in selection 4.  
External jumper between terminals 2 & 4 for circuit E are provided by customer. Circuit E may be used for SP OFF-ON-ON circuit. Circuits H, M & E not available with ratings 5 - 9.

**3 RATING<sup>4,5</sup>**

1	.4VA @ 28VDC Resistive
4	10A 250VAC 1/2 HP, 15A 125VAC 1/2 HP, No Listings
5	10A 250VAC 1/2 HP, 15A 125VAC 1/2 HP, UL Recognized, CSA Certified
8*	10A 250VAC, 15A 125VAC, 1/2 HP 125-250VAC, 12(2)A 250 VAC $\mu$ T85
9*	10A 250VAC, 15A 125VAC, 1/2 HP 125-250 VAC, 12(6)A 250 VAC T85
B	15A 24V
C	20A 18V
D	20A 12V

\* Ratings 8 & 9 are UL, CSA, VDE, DEMKO, SEMKO, NEMKO, FIMKO & BEAB certified, require terminations A or B for double pole circuits, & are not available with illumination circuits 4, 8, D, J, N, & T or with wire lead or solder lug terminations. Circuits 1, 4, A & D are not available with rating 8. Ratings 8 & 9 must specify lamp code 2 (250VAC neon).

**4 TERMINATION/BASE STYLE**

8 term	10 term	Termination	Jumper
1	2	.250 TAB (QC) no barriers	No
A	B	.250 TAB (QC) with barriers	No
J	K	.250 TAB (QC) no barriers	Yes T2 to 5
3	4	Solder Lug no barriers	No
C	D	Solder Lug	No
5	F	Wire Leads no barriers	No
E	6	Wire Leads	No

Note: Codes J & K for circuits H, G & M. Ratings 8 & 9 require terminations A or B only.

**5 ILLUMINATION & SWITCH SEALING**  
Lamp #1: above terminals 1 & 4 end of switch.; Lamp #2 above terminals 3 & 6 end of switch.  
Positive (+) and negative (-) symbols apply to LED lamps only

Sealed	Unsealed	Lamps	Actuator Lens position when illuminated	Lamp wired to Terminals
S	0	None	Independent	8+ 7-
A	1	#1	Down	3+ 7-
B	2	#2	Up	3+ 7-
C	3	#1	Down	1+ 7-
D	4	#2	Up	1+ 7-
E	5	#1	Down	1+ 7-
F	6	#2	Up	1+ 7-
G	7	#1	Independent	3+ 6-
H	Z	#2	Up	3+ 7-
U	Y	#1	Independent	3+ 7-
		#2	Independent	10+ 9-

**Selections for Single Pole Switches Only:**

J	8	#1	Down	3+ 8-
		#2	Independent	3+ 7-
K	W	#1	Independent	3+ 7-
		#2	Independent	6+ 7-

**Selections for Double Pole Switches Only:**

L	9	#1	Down	3+ 6-
M	R	#1	Up	3+ 6-
N	T	#2	Down	1+ 4-
		#1	Down	1+ 4-
P	V	#2	Up	3+ 6-
		#1	Independent	3+ 7-
U	Y	#2	Independent	10+ 9-

**6,7 LAMP (same coding for both selections)**  
Selection 6: above terminals 1 & 4; Selection 7: above terminals 3 & 6

No lamp 0  
Neon 1 125VAC 2 250VAC  
Incandescent 4 3V 5 6V 6 12V 7 18V 8 24V

LED\*  
2VDC A Red L Amber F Green R superbright  
6VDC B Red M Amber G Green S Red superbright  
12VDC C Red N Amber H Green T Red superbright  
24VDC D Red P Amber J Green V Red superbright

\* Consult factory for "daylight bright" LED options. Typical current draw for LED is 20ma.


**8 FLUSH BRACKET COLOR<sup>1</sup>, PANEL SEAL**

No Seal	B Black	W White	G Gray
One Seal	C Black	Y Yellow	H Gray

**9 ACTUATOR**

No Actuator 0  
Contura IV, left orientation E  
Contura IV, left orientation, laser etched T  
Contura IV, right orientation F  
Contura IV, right orientation, laser etched R

Actuator orientation above terminals: 3,6 1,4



**10 LENS**

0 - No Actuator	White	Z - No Lens	Amber	Green	Red	Blue
1	6	B	G	M	T	
2	7	C	H	N	U	
3	8	D	J	P	V	
4	9	E	K	R	W	
5	A	F	L	S	Y	


Green or blue lenses are not recommended with Neon lamps.

**11 ACTUATOR COLOR<sup>1,6,7</sup>**

No Actuator 0 Black C Gray H Red S White Y Nickel D Pewter E

**12 ACTUATOR LENS OR BODY LEGEND<sup>2</sup>**

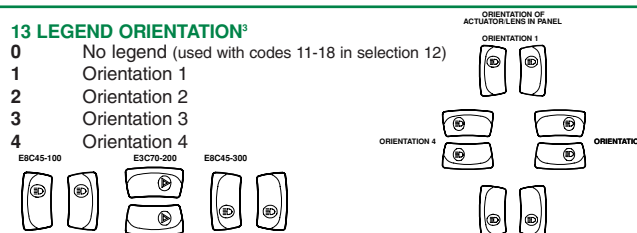
00 - No Legend this location/No actuator  
11 ON 12 OFF 13 I 14 O  
OFF ON O I



For additional legend options & codes, see page 69 of this catalog

**13 LEGEND ORIENTATION<sup>3</sup>**

0 No legend (used with codes 11-18 in selection 12)  
1 Orientation 1  
2 Orientation 2  
3 Orientation 3  
4 Orientation 4



**14 ACTUATOR LENS LEGEND**  
00 No legend this location / no actuator  
(used with codes 11-18 in selection 12) Selection 14 required when switch requires two legends. If the two legends consist of one lens and one body legend, lens legend must be specified in selection 12; body legend specified in selection 14.

- 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, red and gray actuators; Custom colors are available, consult factory.
  - Gloss brow is on left side of E actuator and right side of F actuator.
  - Additional ratings available. See page 57.
  - Rating 9 only available with circuits 1, 4, A & D.
  - Laser etched rocker only available with lens code Z & actuator colors black, nickel or pewter.
  - Pewter and nickel colors only available with laser etched actuator.