

Electrical

Contact Rating4VA @ 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	
# of gaskets	Acceptable Panel Thickness
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

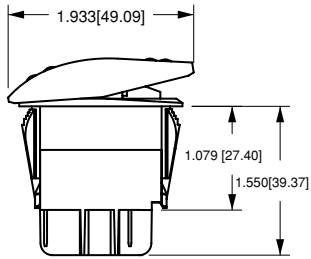
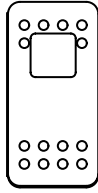
Environmental

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]

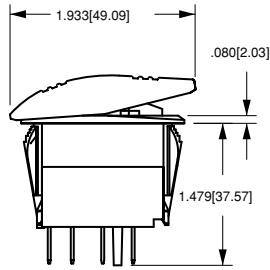
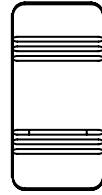
CONTURA II STYLE

SHOWN WITH SQUARE LENS



8 TERMINAL BASE W/BARRIERS

CONTURA III STYLE

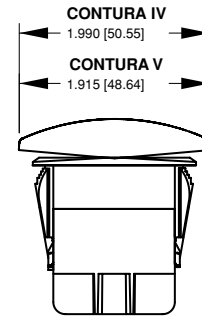
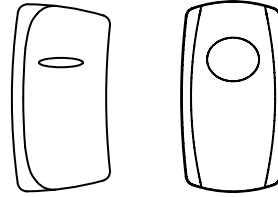


8 TERMINAL BASE W/O BARRIERS

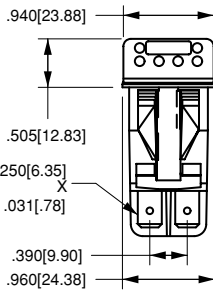
CONTURA IV & V STYLE

IV - SHOWN WITH BAR LENS

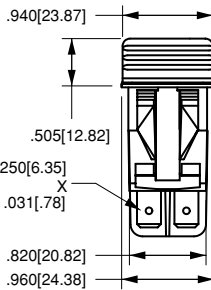
V - SHOWN WITH ROUND LENS



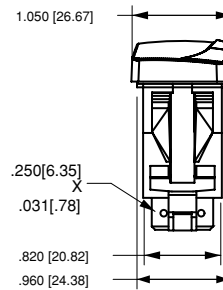
10 TERMINAL BASE W/BARRIERS



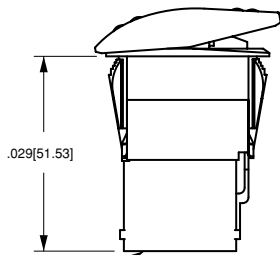
8 TERMINAL BASE W/BARRIERS



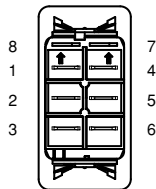
10 TERMINAL BASE W/O BARRIERS



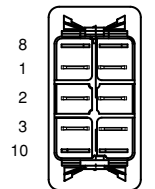
10 TERMINAL BASE W/O BARRIERS



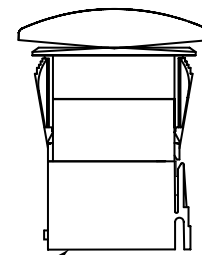
SWITCH SHOWN WITH VCH CONNECTOR 8 TERMINAL



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 - A R B 00 - 0 00

1 Series 2 Circuit 3 Rating 4 Termination Illumination 5 Lamp 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:

	1	2	3
SP	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

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

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 μ 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	6	Wire Leads no barriers	No
E	F	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		
A	1	# 1	Independent	8+ 7-
B	2	# 1	Down	3+ 7-
C	3	# 2	Up	3+ 7-
D	4	# 1	Down	3+ 7-
		& # 2	Down	1+ 7-
E	5	# 1	Up	1+ 7-
		& # 2	Up	3+ 7-
F	6	# 1	Independent	8+ 7-
		& # 2	Up	3+ 6-
G	7	# 1	Independent	8+ 7-
		& # 2	Up	3+ 7-
H	Z	# 2	Independent	8+ 7-
U	Y	# 1	Independent	8+ 7-
		& # 2	Independent	10+ 9-

Selections for Single Pole Switches Only:
J 8 # 1 Down 3+ 8-
K W # 1 Independent 6+ 7-
K W # 2 Independent 8+ 7-
K W # 2 Independent 6+ 7-

Selections for Double Pole Switches Only:
L 9 # 1 Down 3+ 6-
M R # 2 Up 3+ 6-
N T # 1 Down 3+ 6-
P V # 1 Up 1+ 4-
P V # 2 Up 1+ 4-
U Y # 1 Up 3+ 6-
U Y # 2 Independent 8+ 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 Red
6VDC B M G S
12VDC C N H T
24VDC D P J V
* Consult factory for "daylight bright" LED options. Typical current draw for LED is 20ma.

8 FLUSH BRACKET COLOR¹, PANEL SEAL

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

9 ACTUATOR
No Actuator 0
Contura II A
Contura III B D

Actuator orientation above terminals: 3,6 1,4

10 LENS⁴
Lens color for LEDs must be clear, white, or match color of LED. Green or blue lenses are not recommended with Neon lamps.
0 - No Actuator Z - No Lens
Clear White Amber Green Red Blue
1 6 B G M T
2 7 C H N U
3 8 D J P V
Square lens options available only for Contura II:
4 9 E K R W
5 A F L S Y

11 ACTUATOR COLOR¹ AND TEXTURE
0 - No Actuator
Soft Surface Black Gray Red White
Hard Surface B G R W
C H S Y

12 ACTUATOR LENS OR BODY LEGENDS²
00 - No Legend this location/No actuator
11 ON 12 OFF 13 I 14 O
OFF ON O I
15 O O 16 O O 17 O I 18 I O
F N N F
F F

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

13 LEGEND ORIENTATION
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 LEGEND²
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.
For legend options & codes, see page 69 of this catalog

NOTES
Consult factory to verify horsepower rating for your particular circuit choice.
1 Custom colors are available. Consult factory.
2 Body legends not available on Soft surface actuators; White imprinting is standard on black actuators; Black imprinting is standard on white, red and gray actuators; Custom colors are available, consult factory.
3 Additional ratings available. See page 57.
4 Contura II available with two square lenses. Consult factory for details.
5 Rating 9 only available with circuits 1, 4, A & D.

V 1 D A S W O B - A Z E 00 - 0

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

1 SERIES
V

2 CIRCUIT
Terminal Connections as viewed () - momentary from bottom of switch:

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

Position:

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

SPECIAL CIRCUITS

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

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 μ 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. Rating 9 is only available with circuits 1, 4, A & D. 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	6	Wire Leads no barriers	No
E	F	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		
C	3	# 2	Up	3+ 7-
H	Z	# 2	Independent	8+ 7-

Selections for Double Pole Switches Only:

M	R	# 2	Up	3+ 6-
---	---	-----	----	-------

6 LOCK
Lock above terminals 1 & 4 end of switch.

W	lock
---	------

7 LAMP
Lamp above terminals 3 & 6 end of switch.

No lamp	0
Neon	1 125VAC 2 250VAC
Incandescent	4 3V 5 6V 6 12V 7 18V 8 24V
LED*	superbright superbright
	Green Red
2VDC	A Red L Amber F Green R Red
6VDC	B C M G S
12VDC	C N H T
24VDC	D P J V

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

8 FLUSH BRACKET COLOR, PANEL SEAL

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

9 HARD SURFACE ACTUATOR¹

Contura II	Black A	Gray B	Red G	White H
Contura III	C	D	E	F

Actuator orientation above terminals: 3, 6 1, 4

10 LENS
Lens color for LEDs must be clear, white, or match color of LED. Green or blue lenses are not recommended with Neon lamps.

Z - No Lens	
Clear	White 8
3	Amber D
	Green J
	Red P
	Blue V

11 ACTUATOR LOCK FUNCTION AND COLOR¹

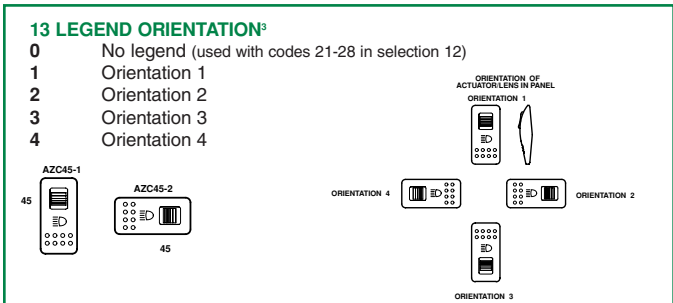
Lock Color	Up	Down	Up & Down	Center ³
Match Actuator	A	H	R	1
Black	B	J	S	2
White	C	K	T	3
Red	D	L	V	4
Safety Orange	E	M	W	5

12 ACTUATOR LENS OR BODY LEGEND²

00 - No Legend

21	OFF	22 ON	23 O	24 I
25 O	26 O	27 O	28 I	
F	N			

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



- 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.
 - Only available with 3 position circuits. Center OFF and special circuits only available with center position lock function.
 - Additional ratings available. See page 57.

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

Contura II, III, IV, V, X, XI, XII Base switches separately: specify V with code selections 2-8 in the ordering schemes.

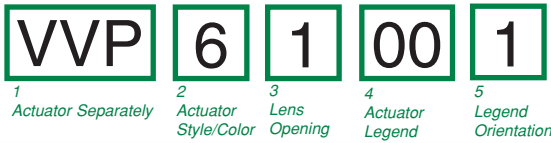
Contura II, III, IV, V Actuator only: VV with code A or C for selection 9, & with selections 10-14 in the ordering schemes.

Panel Seal: VPS

Contura II, III, IV, V Actuator only: VV with code A, C, E, G or P for selection 9 & with selections 10-14 in the ordering schemes.

Contura X, XI, XII actuators with lenses separately: VV with code selections 9-14 in the ordering schemes.

Contura X & XI actuators without lenses separately:



1 CONTURA X & XI ACTUATOR SEPARATELY VVP								
2 ACTUATOR STYLE & COLOR								
	Black	Gray	White	Red				
Contura X	1	2	3	4				
Contura XI	6	7	8	9				
3 LENS OPENING FOR¹								
1	One bar lens	4	Two Square lens					
2	One bar lenses	5	Square lens on top/ bar lens on bottom (Contura X only)					
3	One Square lens							
4 ACTUATOR LENS OR BODY LEGEND								
00 - No Legend this location								
11	ON	12	OFF	13	I	14	O	
	OFF		ON		O		I	
15	O	16	O	17	O	18	I	O
	F		N		N		F	
	F		F		F			
For additional legend options & codes, see page 69 of this catalog								
5 LEGEND ORIENTATION²								
0	No legend							
1	Orientation 1							
2	Orientation 2							
3	Orientation 3							
4	Orientation 4							

Contura X, XI & XII top piece of 2-piece lens separately:

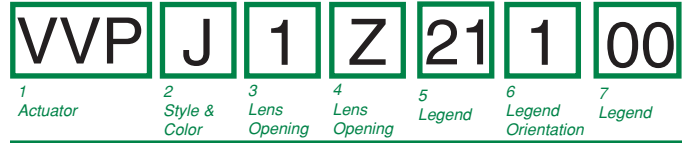
VVT 1		1 TOP OF LENS SEPARATELY VVT
1 Lens Separately	2 Color	
		2 COLOR
		1 Clear 2 Smoke 3 White

Contura X, XI & XII actuator lens assembly:

1 piece lens/bar lens are positioned the same as bottom lens for assembly, minus the top lens. Lenses snap in from bottom.

- NOTES**
- 1 If actuator lens opening for 2 bar or 2 square lenses, legend orientation 0, 1, or 2 must be chosen.
 - 2 Center of actuator marking not available for Contura XII.
 - 3 Legend is not available for bar style lens.
 - 4 Not recommended with neon lamps.
 - 5 Must also order top piece of 2 piece square lens separately.

Contura XII actuators without lenses separately:



1 CONTURA XII ACTUATOR SEPARATELY VVP										
2 ACTUATOR STYLE & COLOR										
J	Black	K	Gray	N	White	M	Red			
3,4 LENS OPENING FOR										
Z	No lens	1	Bar lens	2	Square lens					
5, 7 LENS OR BODY LEGEND²										
00	no legend	21	OFF	22	ON	23	O	24	I	
		25	O	26	O	27	O	28	I	
			F		F		N			
For additional legend options & codes, see page 69 of this catalog.										
6 LEGEND ORIENTATION³										
0	No legend									
1	Orientation 1									
2	Orientation 2									

Contura X, XI & XII actuator lens assembly separately:

VVL 2 1 00 0											
1 Lens Separately	2 Lens Style	3 Lens Color	4 Legend	5 Legend Orientation							
1 CONTURA X, XI & XII LENS SEPARATELY VVL											
2 LENS STYLE³											
1	Bar lens	2	One Piece Square lens	3	Bottom of Two-Piece Square lens ⁵						
3 TRANSLUCENT LENS COLOR											
1	Clear	2	White	3	Amber	4	Green ⁴	5	Red	6	Blue ⁴
4 LENS OR BODY LEGEND²											
00	No legend										
21	OFF	22	ON	23	O	24	I				
	25	O	26	O	27	O	28	I			
		F		N		F					
For additional legend options & codes, see page 69 of this catalog.											
5 LEGEND ORIENTATION³											
0	No legend										
1	Orientation 1										
2	Orientation 2										
3	Orientation 3										
4	Orientation 4										