



Littelfuse®



Carling Technologies®

A Littelfuse® Brand

GP-Series

Pushbutton Switch

PRODUCT WEBPAGE

request sample, configure part, watch video



GP-Series pushbutton latch switches are designed for in-cab installation for on- and off-highway vehicles. Featuring an internal PCB rated to 0.25A 24VDC, this 2-position, snap-in panel-mounted switch is available with ON-OFF or Momentary ON-OFF circuitry. Configurable with or without a red LED backlight, the durable polycarbonate switch can be laser-etched in red with one of several standard icons to match your application.

1

Pole

0.25

Amps

24

VDC

IP54 Sealing

for Above-Panel Components

Typical Applications

• Truck • Bus • Construction • Mining • Agriculture

Tech Specs

Electrical

Contact Rating	Internal PCB rated to 0.25A @ 24VDC
Initial Contact Resistance	50.0 miliOhms MAX
Life	50,000 cycles
Terminals	Staked, Bright Acid Tin over Copper quick connect
Reverse Polarity	Reverse Polarity Test per SAE J1455 REV AUG2012, Section 4.11.3.3
Inrush	Cold Cranking & Jump Starting Capability Tests per SAE J1455 REV AUG2012, Section 4.11.3.3

Mechanical

Endurance	438,000 actuations
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Environmental

Environmental	IP54 for above panel components of the actual switch, representing an index of protection as applied to electrical equipment in accordance with ISO 20653
Operating Temperature	-40°C to +85°C
Vibration	SAE J1455 Random Vibration (22 Hours per Axis) SAE J1455 Swept Sine Vibration (5g)
Shock	MIL-STD-202G Method 213b, 30G - 11ms duration
Handling/Drop	Installation Harness Shock Test per SAE J1455 REV AUG2012, Section 4.11.3.3
Temperature Cycle	Thermal Cycle Test per SAE J1455 Rev August 2012 Sec. 4.1.3.1 and Fig 2A
Thermal Shock	Test per SAE J1455 REV AUG2012 Sec 4.1.3.1, -40°C to +85°C
Moisture Resistance/ Humidity	SAE J1445 REV AUG2012 SEC. 4.2
Corrosion/Chemical Splash	SAE J1445 Rev AUG2012 Sec. 4.4; ISO 22241-1 Rec Oct2006
Dust	SAE J1455; Section 4.7; ISO 12103

Physical

Function	2 Position; Pushbutton Style
Operation	ON-OFF, and Momentary ON-OFF
Lighted	Right Angle SMD LED - rated to 100,000 hours 1/2 life
Seals	None
Mounting	Front Panel Push-In Acceptable Panel Thickness Range: .098 to .118 (2.50mm to 3.00mm) See Dimensional Specifications
Base	Nylon PA66 GF rated to UL94 HB
Actuator	Compound actuator structure molded of thermoplastic polycarbonate rated to UL94 V0 interlocked with a Nylon PA66 actuator rated to UL94 V2
Bracket	Acetal (Copolymer)
Laser Etched Pushbutton	Polycarbonate
Connector	Integrated female connector in switch base. Mates with Delphi Connector P/N 12064760, See circuit diagram for Pin Out.
Actuation Force	509-1019 gms (5-10N)
Movement	Vertical, max displacement: .256 [6.50] from OFF to maximum overtravel position .170 [4.32] from OFF to ON position
Weight	Approximately 1.2 ounces (34.47 g)

Ordering Scheme

Sample
Part No.

GP 1 B C B - A R MV 1

Selection

1

2

3

4

5

6

7

8

9

1. SERIES

GP Pushbutton Latch Switch

2. CIRCUIT

1 ON-OFF
2 (ON)-OFF

3. RATING

B .25A, 24VDC

4. BACKLIGHT COLOR

0 No LED
C Red

5. BRACKET COLOR

B Black

6. CAP COLOR/STYLE

A Black (Laser Etched)

7. LENS COLOR/STYLE

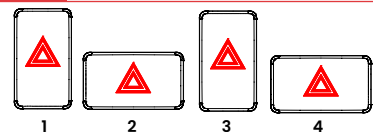
Z No Lens
R Red (Laser Etched)

8. LEGEND

00 No legend
MV Hazard Warning
For standard icons, see Standard Legends Code page.
For additional icons, please consult factory.

9. LEGEND ORIENTATION

0 No Legend
1 Orientation 1
2 Orientation 2
3 Orientation 3
4 Orientation 4



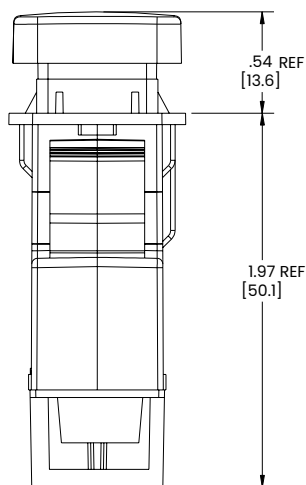
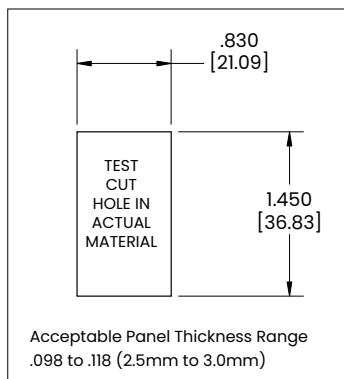
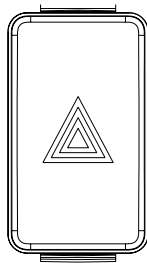
Notes:

1. "Tolerances For Image Size (Transfer or Laser) are +/- .020" Applicable on Field #7, Unless Otherwise Specified by customer".

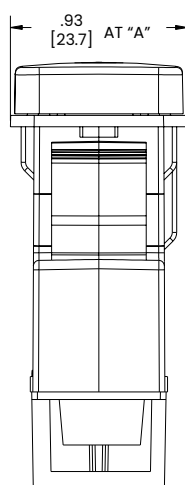
[Configure Complete Part Number >](#)

Dimensional Specs

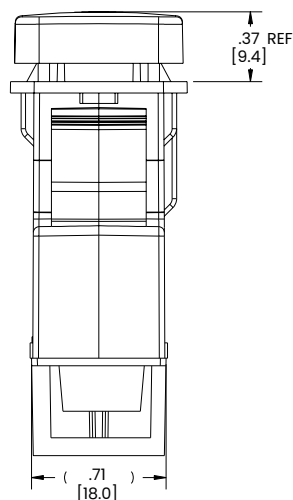
inches [millimeters]



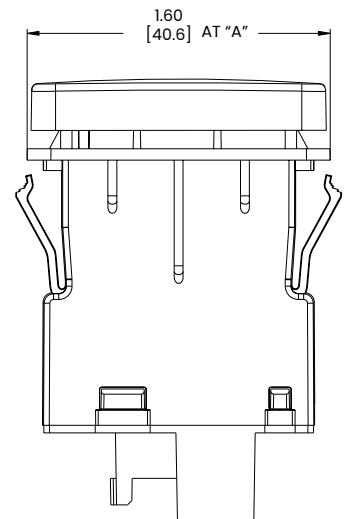
POS 1: "OFF"



POS 2: "Max Overtravel"

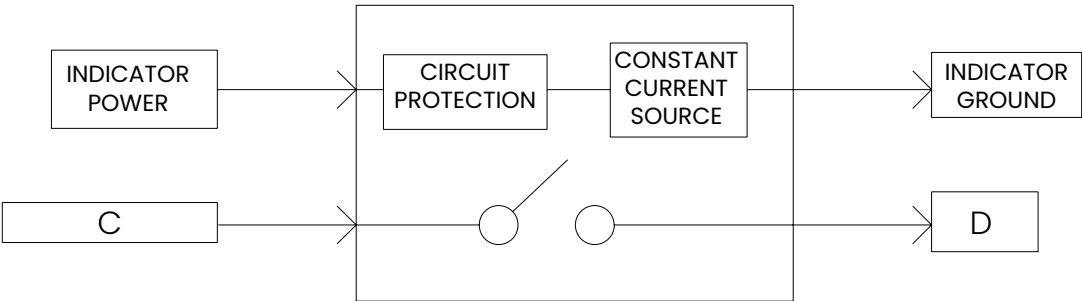


POS 3: "ON"



Circuit Diagram

“ON - OFF” CODE 1



“(ON) - OFF” CODE 1

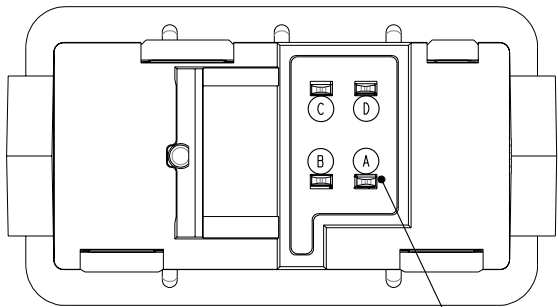
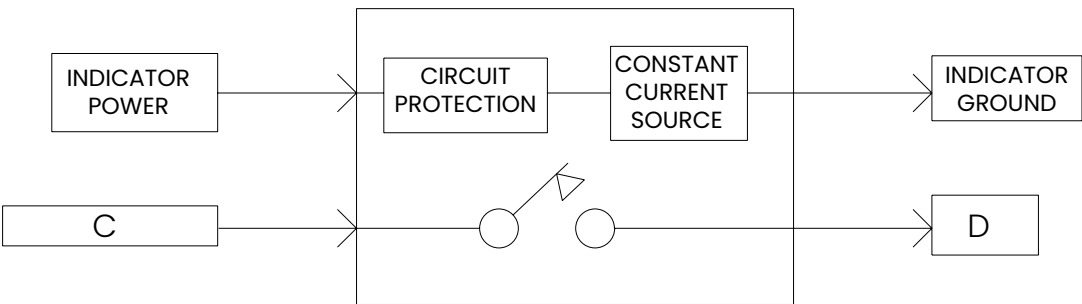


Table 2	
Pin Outs	
PIN	Description
A	Indicator Ground
B	Indicator Power
C	---
D	---

SEE NOTE 1, TABLE 2

- Notes:
1. Switch Mates with Delphi Connector P/N: 12064760 Terminal Plating: TIN

Standard Legend Codes

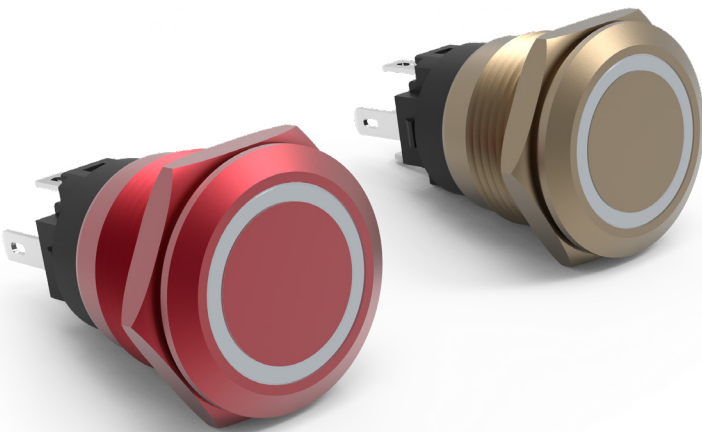
YK	UA	UB	US	UV	UW	UX	UY	MP	MR	PX	MS	MT
VU	MW	NZ	NX	NY	YM	VW	PS	PW	PZ	WG	WM	RN
			NAV LIGHTS	COURT LIGHTS	PANEL LIGHTS	ANCH LIGHTS	HEAD LIGHTS	FOG LIGHTS	DASH LIGHTS	DOCK LIGHTS	BEACON	LIGHT
RP	YG	TX	VD	VE	VF	VG	SH	SM	SN	SP	SR	SY
DIM	BRIGHT						BILGE PUMP	BILGE				
WY	WZ	UH	UJ	PD	PE	PF	VC	VJ	UF	UG	MU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

AV/AVH-Series

Sealed Anti-Vandal Pushbutton Switches

PRODUCT WEBPAGE

request sample, configure part, watch video



The AV/AVH-Series sealed switch product line features a sleek design with various LED illumination options. The bushing/button is available in stainless steel, or black, red and gold anodized. These single-pole switches are available with momentary and maintained circuits, with quick connect tab terminals for easy installation and daisy-chaining.

1
Pole

3-30
Amps

6-48
VDC

IP67 Sealing
Above-Panel

Typical Applications

- Marine
- Charging Stations
- Security Panels
- Harsh and/or Outdoor Environments
- EV Infrastructure
- Industrial Automation
- Public Transit Systems

Tech Specs

AV-Series

Electrical

Contact Rating	10.1A @ 6~24VDC; 5A @ 36VDC 3A @ 48VDC
LED Voltage/Current	6 VDC @ 15mA; 12 VDC @ 15mA; 24 VDC @ 10mA; 36 VDC @ 10mA; 48 VDC @ 5mA
Dielectric Strength	1000V RMS 50~60 Hz
Insulation Resistance	50 M-ohms min. @500V DC
Initial Contact Endurance	≤10 mΩ
Life	1 seconds ON and 3 seconds OFF per operation, Resistive load with Rated current & voltage. 10.1A @ 6~24VDC. Total 25K cycles at full load, including 5K at +70°C, 15K at ambient, 5K at -30°C; 1 seconds ON and 3 seconds OFF per operation, Resistive load with Rated current & voltage. 5A @ 36VDC. Total 15K cycles at full load, including 3K at +70°C, 9K at ambient, 3K at -30°C; 1 seconds ON and 3 seconds OFF per operation, Resistive load with Rated current & voltage. 3A @ 48VDC. Total 15K cycles at full load, including 3K at +70°C, 9K at ambient, 3K at -30°C.
Electrical Endurance	Up to 25K Cycles
Contacts	Silver alloy
Terminals	110" x 0.020 [2.79 x 0.5 mm] plug-in terminal, copper alloy silver plate.

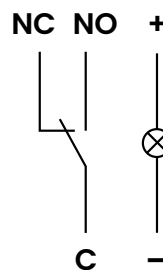
Physical

Function	NO / NC contact (changeover)
Operation	Momentary or maintained
Illumination	Independent LED (Red, Green, Amber, White, Blue)
Seals	Silicone, Bezel and Button
Mounting	M19-P1.0 Nut (SUS316), Tightening torque: 2~3Nm
Base	Glass filled Nylon
Actuator	Stainless Steel 316 or Aluminum Anodized
Lens	Polycarbonate, PC
Bushing	Stainless Steel 316 or Aluminum Anodized
Actuation Force	7N max
Weight	18g

Environmental

Storage Temperature	-40°C to +85°C
Operating Temperature	-30°C to +70°C (may affect endurance)
Vibration, High Frequency	Mil-Std 202G, Method 204D, Test Condition A 0.06 DA or 10G' s 10-500 Hz. Test criteria- No loss of circuit during test and pre and post test contact resistance.
Vibration, Random	Mil-Std 202G, Method 214A, Test Condition I and B 7.56G' s RMS. 8-hours in each of the 3 mutually perpendicular axes. Test criteria- No loss of circuit during test and pre and post test contact resistance.
Thermal Shock	MIL-STD 202G Method 107G, Condition A (Five cycles @ -55°C to +25°C to +85°C to +25°C)
Moisture Resistance	MIL-STD 202G Method 106G, i.e. 10~24-hour cycles @ +25°C to +60°C, 80~90% RH.
Sealing	IP67, for above-panel components of the actual switch; compliant with IEC 60529.
Ignition Protection	UL1500, ISO 8846
Electro-Static Discharge	Compliant with EN61000-4-2 Discharge Level: Max. ±8KV; Discharge Level: Max. ±15KV

Wiring Diagram



Ordering Scheme

Sample
Part Number

AV 1 - 1 A 2 1 1 A - R 00

Selection

1

2

3

4

5

6

7

8

9

10

1. SERIES

AV Anti-Vandal Pushbutton Switch

2. MOUNTING

1 M19 Threaded Bushing

3. MATERIAL / FINISH

1 Stainless Steel Bushing / Button
2 Black Anodized Bushing / Button
3 Red Anodized Bushing / Button
4 Gold Anodized Bushing / Button

4. CIRCUIT

A Momentary Off-(On) B Maintained Off-On

5. RATING

2 10.1A Resistive, 12VDC 3 10.1A Resistive, 24VDC

6. TERMINATION

1 .110" Quick Connect Tabs - Silver Plated

7. LENS / BUTTON

1 Flush

8. LED COLOR

N No LED B Green D White
A Red C Amber¹ E Blue

9. ILLUMINATION STYLE

N None R Ring

10. AGENCY APPROVAL

00 No Legend

01 On/Off



02 Stand By



03 Light



04 Bell



05 Door Open



06 Information



07 Horn



Notes:

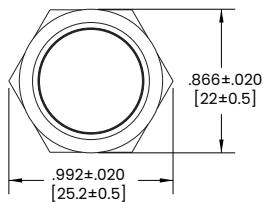
1. Only available with rating 2

[Configure Complete Part Number >](#)

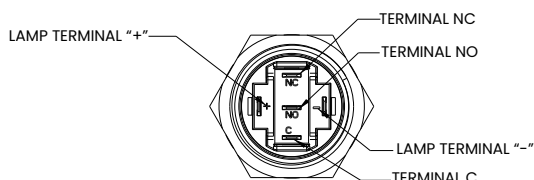
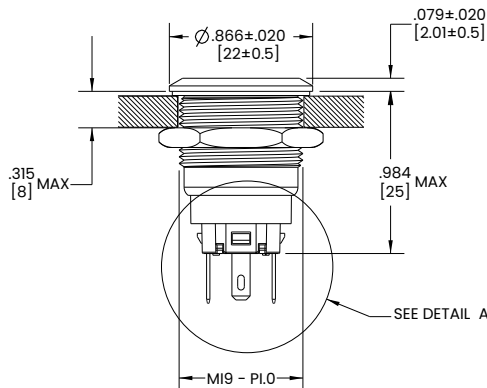
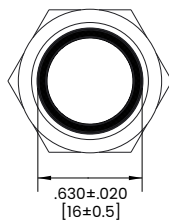
Dimensional Specs

inches [millimeters]

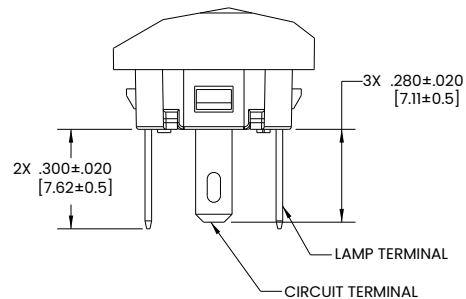
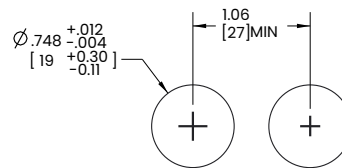
NON-ILLUMINATED WITH NUT



RING-ILLUMINATED WITH NUT



MOUNTING CUT-OUTS (RECOMMENDED SWITCH SPACING)



DETAIL A SCALE 3.000

Tech Specs

AVH-Series

Electrical

Supply Voltage Range	9VDC – 16VDC
Reverse Polarity Protection	16 VDC
Insulation Resistance	50 MΩ min. @500VDC
Initial Contact Resistance	≤10 mΩ
Electrical Endurance	50K Total Cycles; 30K at ambient, 10K at -30°C, 10K at 70°C

Environmental

Storage Temperature	-55°C to +85°C
Operating Temperature	-30°C to +70°C
Vibration, high frequency	Mil-Std 202G, Method 204D, Test Condition A 0.06 DA or 10G's 10-500 Hz. Test criteria- No loss of circuit during test and pre and post test contact resistance.
Vibration, Random	Mil-Std 202G, Method 214A, Test Condition I and B 7.56G's RMS. 8-hours in each of the 3 mutually perpendicular axes. Test criteria- No loss of circuit during test and pre and post test contact resistance.
Shock	Mil-Std 202G, Method 213B, Test Condition K@ 30g's 11ms normal duration. No resistance value loss pre and post test and no function malfunction. No loss of contact or unintended contact making.
Thermal Shock	MIL-STD 202G Method 107G, Condition A (Five cycles@ -55°C to +25°C to +85°C to +25°C TR-2131)
Handling/Drop	1 Meter Drop onto Hard Surface. 10 drops at random orientation. Cosmetic damage acceptable. No loss of function.
Moisture Resistance/Humidity	MIL-STD 202G Method 106G, i.e., 10-24-hour cycles @ +25°C to +60°C, 80-90% RH.
Sealing	IP67 above panel, According IEC 60529.
Salt Spray	Mil STD 202G Method 101E, Test Condition A. 96 hrs. at a temperature of 95°F±5 °F (35 °C±3 °C), with a NaCl contact of from 4 to 6 percent. The test specimens shall be subjected to the inspections specified upon completion of the salt exposure.
Corrosion/Chemical	No permanent discoloration, loss of function, distortion, failure of adhesive bonds, obvious loss of sealing, corrosion, softening or embrittlement after being brushed for 10 minutes to completely wet all exposed surfaces. Relevant chemical compatibility documentation may be used in place of testing.
Ignition Protection	UL1500, ISO 8846, SAE J1171 TR-2417

High-Current Momentary: Circuit A

Current Rating	20A @ 12VDC, 80A surge (300 ms)
Function	Off-(On) (momentary)
Connections Options	6" 14 AWG Lead Wires w/0.187" PC Quick-Fit Ground Terminal 6" 14 AWG Lead Wires w/6" 20 AWG Ground Wire

High-Current Latching: Circuit B

Current Rating	20A @ 12VDC, 80A surge (300 ms)
Function	Off-On (maintained)
Connections Options	6" 14 AWG Lead Wires w/0.187" PC Quick-Fit Ground Terminal 6" 14 AWG Lead Wires w/6" 20 AWG Ground Wire

Nav-Anchor: Circuit C

Current Rating	10A total, 5A each Output; 10A surge each Output (300 ms) TR-2113
Function	V-ANC, first press: Load 1 ON & Load 2 ON, Red Ring Illuminated Second press: Load 1 ON, Load 2 OFF, Blue Ring Illuminated Third Press: OFF
Overload Protection	≥60A, Output does not function. Switch reset by cycling through OFF position (unless overload continues)
Connections Options	6" 16 AWG Lead Wires w/0.187" PC Quick-Fit Ground Terminal

Dual-Output: Circuit D

Current Rating	10A total, 5A each Output; 10A surge each Output (300 ms) TR-2113
Function	First press: OFF Second press: Load 1 ON, Load 2 OFF, Red Ring Illuminated Third Press: Load 1 OFF, Load 2 ON, Blue Ring Illuminated
Overload Protection	≥60A, Output does not function. Switch reset by cycling through OFF position (unless overload continues)
Connections Options	6" 16 AWG Lead Wires w/0.187" PC Quick-Fit Ground Terminal

Tech Specs continued on next page

Tech Specs

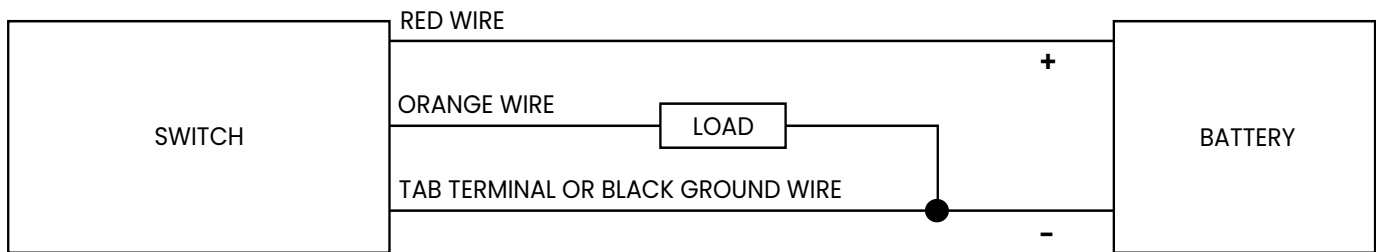
AVH-Series

Physical

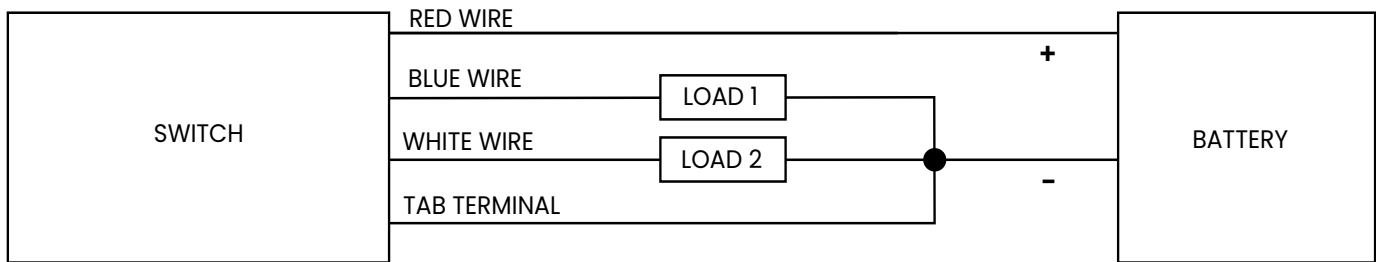
Operation	Pushbutton, Momentary (Circuits A, C & D), Pushbutton Maintained (Circuit B)
Illumination	Dependent LED
Seals	Gasket, bezel silicone, potted housing
Mounting	M19-PI.0 Nut, Tightening torque: 2~3Nm
Housing	Aluminum 6061 T6, Anodized per MIL-STD-8625, Type II, Class 2; Black
Actuator	Stainless steel 316 or Aluminum Anodized
Lens	Polycarbonate, PC
Bushing	Stainless steel 316 or Aluminum Anodized
Actuation Force	7N max
Weight	45~50g

Wiring Diagrams

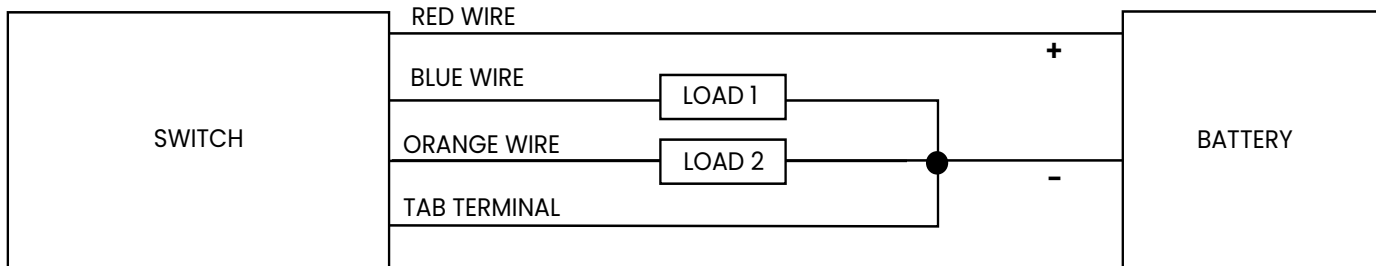
Single Output (Circuit A & B)



Nav-Anchor (Circuit C):



Dual-Output (Circuit D):



Ordering Scheme

Sample Part Number **AVH 1 - 1 B 2 6 - R E N A**

Selection 1 2 3 4 5 6 7 8 9 10

1. SERIES

AVH Anti Vandal High Current

2. MOUNTING

1 M19 Threaded Bushing

3. MATERIAL / FINISH

1 Stainless Steel
2 Aluminum Anodized - Black
3 Aluminum Anodized - Red
4 Aluminum Anodized - Golden

4. CIRCUIT

1,2

A Momentary Off-(On) (None - Output 1)
B Latching Off-On (None - Output 1)
C Momentary Off-(On) - (On) (None - Output 1&2 - Output 1)
D Momentary Off-(On) - (On) (None - Output 1 - Output 2)

5. RATING

3

1 30A 12VDC (Per Output)
2 20A 12VDC (Per Output)
3 5A 12VDC (Per Output) / 10A 12VDC (Total)

6. WIRE LENGTH

9

2 6 Inches (152.4mm), Ground, 18 AWG Wire
6 6 inches (152.4 mm) with 0.187" (4.8mm) Ground Tab Terminal

7. ILLUMINATION STYLE

4

N None **R** Ring

8. POSITION 1 LED COLOR

7,8

N No LED **B** Green **D** White
A Red **C** Amber **E** Blue

9. POSITION 2 LED COLOR

5,6

N No LED **E** Blue

10. ILLUMINATION TYPE

8

N None
A Dependent (LED illuminates when the specified output is "ON")

Notes:

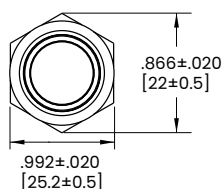
- 1 Circuit codes (A & B) require rating codes (1 or 2) only
- 2 Circuit codes (C & D) require rating code (3)
- 3 Rating will determine the wire gauge used.
- 4 Illumination Style code (N) requires: Pos 1 LED Color (N); Pos 2 LED Color code (N); Illumination type code (N)
- 5 Circuit code (C & D) requires Position 2 LED Color (E)
- 6 Circuit code (B) requires Position 2 LED Color code (N)
- 7 Codes (A,B,C,D,E) not available with Circuit code (B)
- 8 Other lighting options available: Consult Factory
- 9 Wire length code (2) only available with Circuit codes (A & B)

[Configure Complete Part Number >](#)

Dimensional Specs

inches [millimeters]

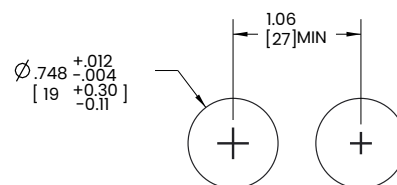
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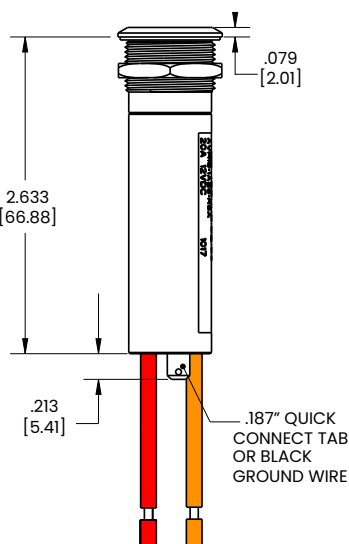
RING-ILLUMINATED WITH NUT



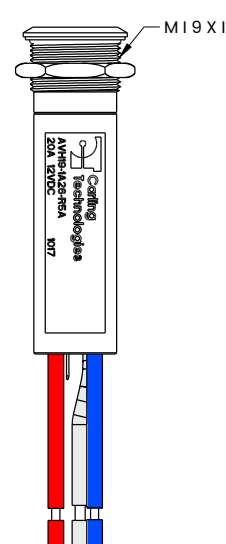
MOUNTING CUT-OUTS (RECOMMENDED SWITCH SPACING)



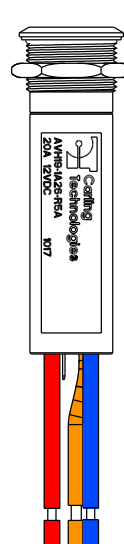
CIRCUIT A, B



CIRCUIT C



CIRCUIT D



CIRCUIT A, B: BATTERY (+): RED WIRE
LOAD 1: ORANGE WIRE
GROUND: TAB OR BLACK WIRE

CIRCUIT C: BATTERY (+): RED WIRE
LOAD 1: BLUE WIRE
LOAD 2: WHITE WIRE
GROUND: TAB

CIRCUIT D: BATTERY (+): RED WIRE
LOAD 1: BLUE WIRE
LOAD 2: ORANGE WIRE
GROUND: TAB