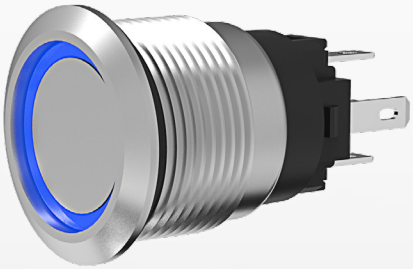
Carling Technologies®

AV/AVH-Series

Sealed Anti-Vandal Pushbutton Switches



PRODUCT WEBPAGE

request sample, configure part, watch video

The high powered AVH-Series also features ratings up to 30 amps, and safeguards internal switch circuitry with integrated overload protection and thermal cut off, while providing superior safety and performance capabilities. Switching options include ON-OFF, as well as progressive circuits perfectly suited for NAV/ANCHOR functions.

1	3-30	6-48	IP67 Sealing
Pole	Amps	VDC	Above-Panel

Typical Applications

- Marine
- Industrial Controls
- Security Panels
- Public Transit Systems
- Traffic Signals
- Emergency Phones
- Harsh and/or Outdoor Environments

www.carlingtech.com 860.793.9281 sales@carlingtech.com

Tech Specs

AV-Series

Electrical

Contact Rating	10.1A Resistive @ 12VDC
LED Ratings	12 VAC/DC @ 15mA
Dielectric Strength	1000V RMS 50~60 Hz
Insulation Resistance	50 M-ohms min. @500V DC
Initial Contact Endurance	≤10 mΩ
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
Lens	Polycarbonate, PC
Bushing	Stainless Steel 316
Actuation Force	7N max
Weight	18g

Mechanical

Endurance	10,000 ON-OFF operations @ 6 per minute; with rated current & voltage.
Trip Free	All D-Series circuit breakers will trip on overload, even when actuator is forcibly held in the ON position.
Trip Indication	The operating actuator moves positively to the OFF position when an overload causes the breaker to trip.

Environmental

Storage Temperature	-55°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, SAE J1171
Electro-Static Discharge	Compliant with EN61000-4-2 Discharge Level: Max. ±8KV; Discharge Level: Max. ±15KV

GPS-0003 Rev: C

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

4. CIRCUIT

A	Momentary NC / NO	**B**	Maintained NC / NO

5. RATING

1	10.1A Resistive, 6VDC	**4**	5A Resistive, 36VDC
2	10.1A Resistive, 12VDC	**5**	3A Resistive, 48VDC
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**	Amber	**E**	Blue

9. ILLUMINATION STYLE

N	None	**R**	Ring

10. AGENCY APPROVAL

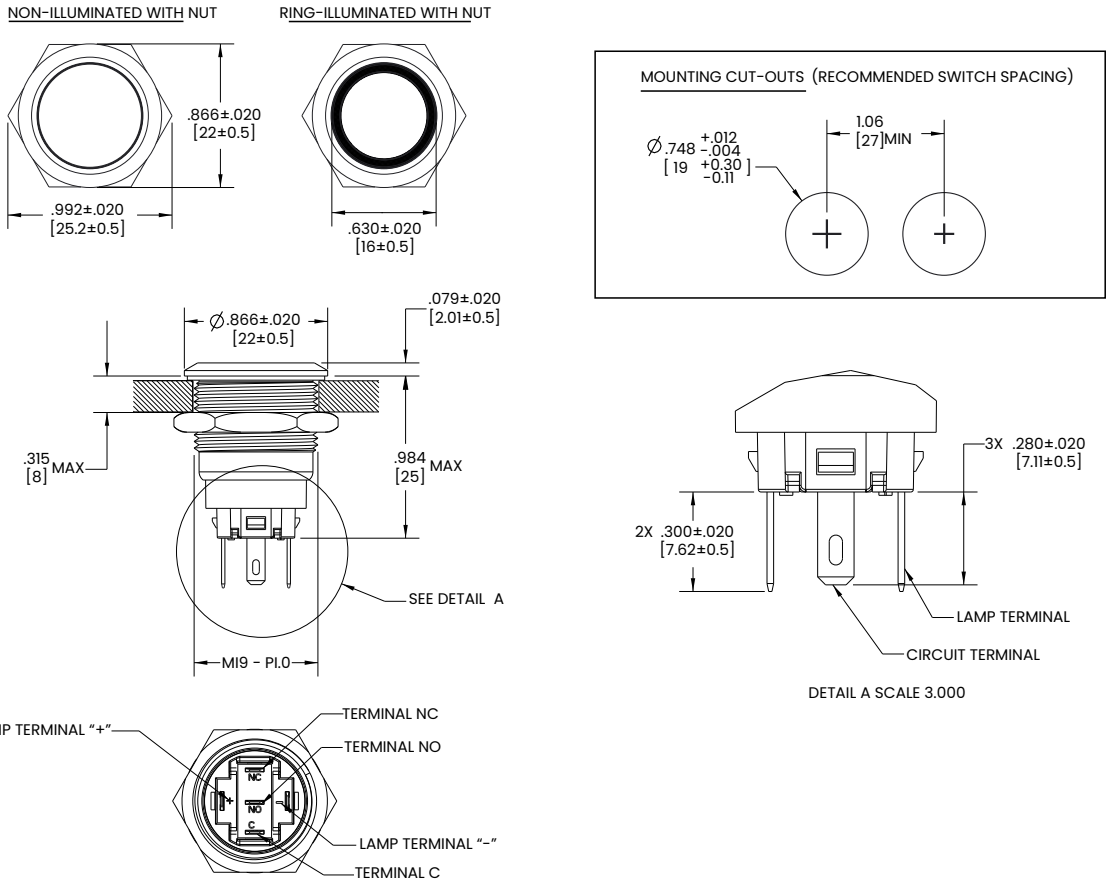
00 No Legend

01	On/Off	**02**	Stand By	**03**	Light	**04**	Bell
05	Door Open	**06**	Information	**07**	Horn		

Configure Complete Part Number >

Dimensional Specs

inches [millimeters]



COS-0086 Rev: E, CLA-0142 Rev: A

Tech Specs

AVH-Series

Electrical

Supply Voltage Range	9VDC – 16VDC
Overtemp. Protection	≥150°C (SmartFET temperature), Latched status signal
Reverse Polarity Protection	16 VDC
Insulation Resistance	50 M-ohms min. @500VDC
Initial Contact Resistance	≤10 mΩ
Electrical Endurance	Up to 50K Cycles

Circuit B (High-Current Latching) 1

Current Rating	20A 12VDC, 80A surge (300 ms), 14 AWG lead wire 30A 12VDC, 100A surge (300 ms), 12 AWG lead wire Function ON / OFF
Function	ON / OFF
Overload Protection	≥135A, Output does not function. Switch reset by cycling through OFF position (unless overload continues).
Connections	14AWG, 12 AWG Lead Wire (20A, 30A, respectively), 6" Lg. 0.187" PC Quick Connect Terminal Ground Connection.

Circuit C (Nav-Anchor) 2

Current Rating	10A total, 5A each Output; 10A surge each Output (300 ms)
Function	NAV-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	16AWG, 5A per Output, 6" Lg. 0.187" PC Quick Connect Terminal Ground Connection.

Circuit D (Dual-Output) 2

Current Rating	10A total, 5A each Output; 10A surge each Output (300 ms)
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	16AWG, 5A per Output, 6" Lg. 0.187" PC Quick Connect Terminal Ground Connection.

Physical

Operation	Push button, Momentary (Circuit C & D), Maintained (Circuit B)
Illumination	Dependent LED
Seals	Gasket, bezel silicone, potted housing
Mounting	M19-P1.0 Nut, Tightening torque: 2~3Nm
Housing	Aluminum 6061 T6, Anodized per MIL-STD-8625, Type II, Class 2; Black
Actuator	Stainless steel 316
Lens	Polycarbonate, PC
Bushing	Stainless steel 316
Actuation Force	7N max
Weight	45-50g

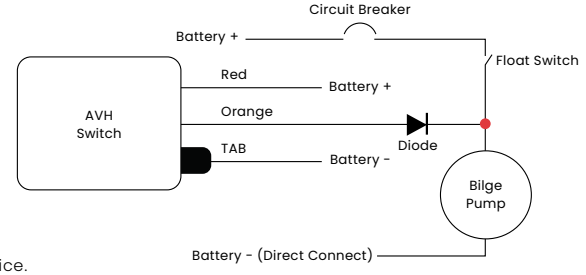
Environmental

Storage Temperature	-55°C to +85°C
Operating Temperature	-30°C to +70°C (may affect endurance)
Vibration	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 & 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)
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, SAE J1171

Notes:

1 The switch was designed to directly control the load and is not recommended for any application where the load may be removed via another switch.

2 For backfeed protection, it is recommended to use a diode in series for pump control circuits as shown below.



GPS-0019 Rev: A

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

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 Pushbutton Switch

2. MOUNTING

1	M19 Threaded Bushing

3. MATERIAL / FINISH

1	Stainless Steel Bushing / Button

4. CIRCUIT [1,2]

B	ON - OFF	(Output 1 - None)	Maintained
C	ON - ON - OFF	(Output 1&2 - Output 1 - None)	Momentary
D	OFF - ON - ON	(None - Output 1 - Output 2)	Momentary

5. RATING [3]

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

6. WIRE LENGTH

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

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 [7]

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

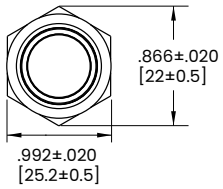
Notes:
1. Circuit code B requires rating code 1 or 2 only.
2. Circuit codes C & D require rating code 3.
3. Rating will determine the wire gauge used.
4. Illumination Style code N requires: Position 1 LED Color N; Position 2 LED Color code N; Illumination Type code N.
5. Circuit codes C & D require Position 2 LED color E.
6. Circuit code B requires Position 2 LED Color code N.
7. Other lighting options available: Consult Manufacturer.

Configure Complete Part Number >

Dimensional Specs

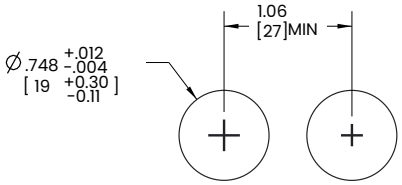
inches [millimeters]

NON-ILLUMINATED WITH NUT

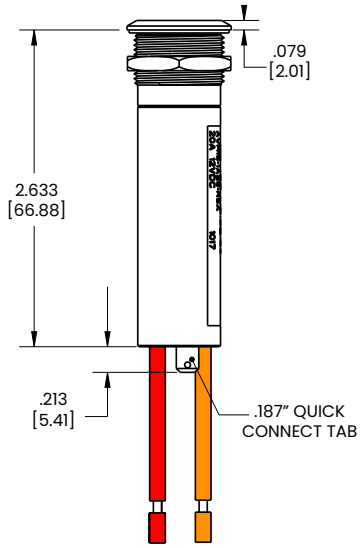


RING-ILLUMINATED WITH NUT

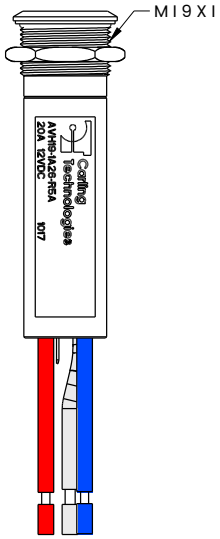
MOUNTING CUT-OUTS (RECOMMENDED SWITCH SPACING)



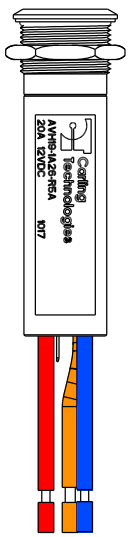
CIRCUIT B



CIRCUIT C



CIRCUIT D



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

COS-0089 Rev: B, CLA-0155 Rev: C

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

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**.

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 six ISO9001 and IATF16949 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**.