

AV-Series

AV/AVH-Series

ANTI-VANDAL PUSHBUTTON SWITCHES

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

The AV-Series is rated up to 10.1 amps at 6/12/24VDC but can be outfitted with a circuit board for higher amperage performance. This combination is featured in the AVH-Series, which is rated up to 30 amps at 12VDC.

In addition to higher amperage ratings, the AVH-Series also features overload protection, thermal cut off, and reset-ability providing superior safety and performance capabilities. Moreover, the AVH-Series can be outfitted to become a navigation/anchor switch furthering the versatility of this product line.



Product Highlights:

- IP67 Sealing Protection
- High Current Ratings
- Momentary and Maintained Circuits
- LED Halo Illumination
- UL1500 Ignition Protection

Typical Applications:

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



Electrical

Contact Rating	10.1A Resistive @ 6VDC/12VDC (25k cycles) 5A Resistive @ 6VDC/12VDC (50k cycles)
LED Rating	6 VAC/DC @ 15mA; 12 VAC/DC @ 15mA; 24 VAC/DC @ 10mA; 36 VAC/DC @ 10mA; 48 VAC/DC @ 5mA; 120 VAC @ 2mA; 240 VAC @ 1mA
Dielectric Strength	1000V RMS 50~60 Hz
Insulation Resistance	50 M-ohms min. @ 500VDC
Initial Contact Resistance	≤10 mΩ,
Life	Total 50K cycles at full load including 10K at +85°C, 30K at ambient, 10K at -30°C; 5ms time constant at ambient
Contacts	Silver alloy
Terminals	.110" x 0.020 [2.79 x 0.5 mm] plug-in terminal, brass or copper/silver plate.

Mechanical

Endurance	100,000 cycles including 20K at +85°C, 60K at ambient, 20K at -30°C.
Handling / Drop	Fully functional after 3 drops from 1 meter height. Surface damage may occur

Physical

Function	NO / NC contact
Operation	Momentary or maintained
Travel	Total Travel: max. 0.125". Travel to Operating Point: min. 0.065"
LED	Red, Green, Amber, White, Blue
Seals	Silicone button and bezel gasket
Mounting	M19-P1.0 Nut, Tightening torque: 2~3Nm.
Base	glass filled Nylon
Actuator	316 Stainless steel
Lens	Polycarbonate, PC
Bushing	316 stainless steel
Actuation Force	7N max
Weight	18g

Environmental

Operating Temperature	-30°C to +70°C (-22°F to 158°F)
Storage Temperature	-40°C to +85°C (-40°F to 185°F)
Vibration, High Frequency	Mil-Std 202G, Method 204D, Test Condition A 0.06 DA or 10G ² 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 ² 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)
Moisture Resistance	MIL-STD 202G Method 106G, i.e. 10~24-hour cycles @ +25°C to +60°C, 80-90% RH.
Sealing	IP67 above panel with gasket; According IEC 60529.
Salt Spray	Mil STD 202G Method 101E, Test Condition A. 200 hrs at a temperature of 95°F±5 °F (35 °C±3 °C), with a NaCl contact of from 4 to 6 percent.
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. Consult Factory for chemical details
Ignition Protection	Per UL1500/ISO8846, in addition to conformance with EC directive 94/25/EC for marine products.
Electro-Static Discharge	Per EN61000-4-2, Test condition: 1) Contact discharge: all accessible metal parts; Discharge Level: Max. ±8KV; 2) Air discharge: all insulated enclosure & seams; Discharge Level: Max. ±15KV; No noticeable degradation of light intensity.

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



1 SERIES
AV Anti-Vandal Pushbutton Switch

2 MOUNTING
1 M19 Bushing Thread

3 MATERIAL
1 Stainless Steel Bushing / Button

4 CIRCUIT
A Momentary (ON)-OFF
B Maintained ON-OFF

5 RATING
2 10.1A 6VDC / 12VDC Resistive

6 TERMINATION
1 .110" Quick Connect Tab - Silver Plated

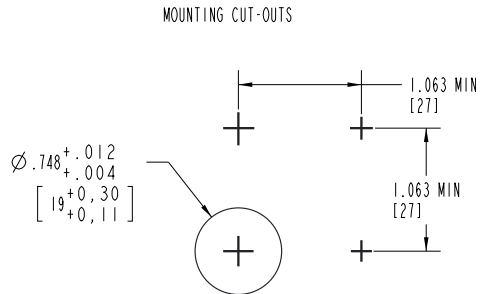
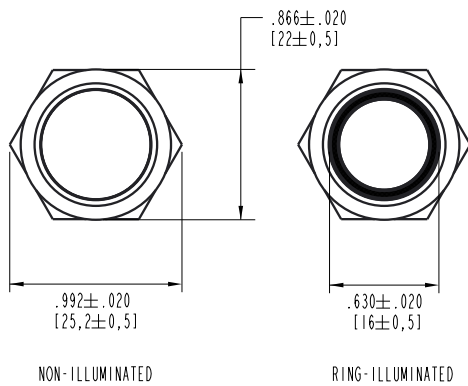
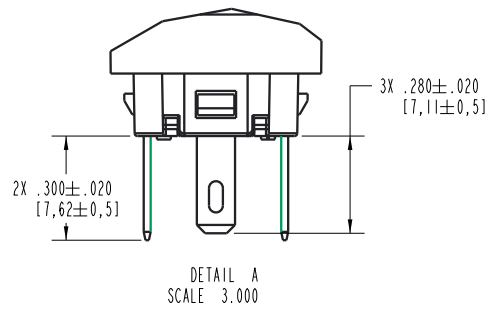
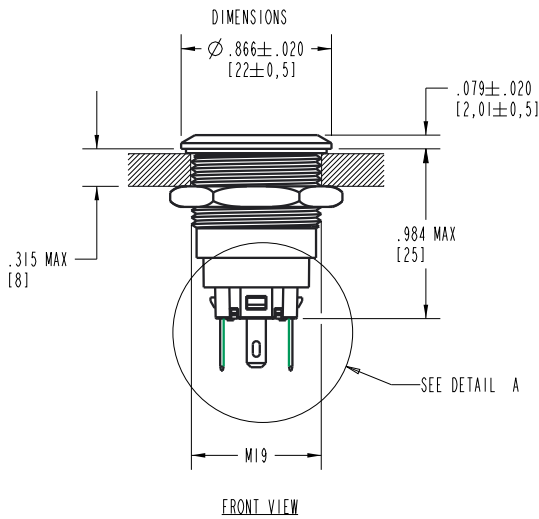
7 LENS / BUTTON
1 Flush

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

9 ILLUMINATION
N No LED
R Ring

10 LEGEND
00 No Legend

Dimensional Specifications: in. [mm]



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AVH-Series

Electrical

Contact Rating	25A @ 12VDC
Dielectric Strength	1500V RMS 50~60 Hz
Insulation Resistance	50 M-ohms min. @500V DC
Initial Contact Resistance	≤10 mΩ,
Life	50,000 cycles at full load.
Contacts	Silver alloy
Terminals	.110" X 0.020 [2.79 X 0.5 mm] plug-in terminal, Brass or copper/silver plate.

Mechanical

Endurance	250,000 cycles
Impact Resistance	IK10, according to IEC 62262
Handling Shock	Fully functional after 3 drops from 1 meter height. Surface damage may occur

Physical

Function	NO / NC contact (changeover)
Operation	Momentary or maintained
Travel	Total Travel: max. 0.135". Travel to Operating Point: min. 0.09".
LED	Red, Green, Orange, White, Blue
Seals	Silicone button gasket
Mounting	Φ19mm
Base	Nylon 6 +20% glass filled, PA6+20GF
Actuator	Stainless steel
Lens	Polycarbonate, PC
Bushing	Stainless steel
Actuation Force	7N max

Environmental

Operating Temperature	-40°C to +85°C
Storage Temperature	-55°C to +85°C
Vibration	Mil-Std 202G, Method 204D, Test Condition A 0.06 DA or 10G ² s 10-500 Hz. Test criteria- No loss of circuit during test and pre and post test contact resistance.
Vibration, Random	Resonance search 24-50 Hz, 0.40 DA: 50-2000 ±10 G's peak. Results on 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	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 above panel with gasket; According IEC 60529.
Salt Spray	Mil STD 202G Method 101E, Test Condition A. 200 hrs at a temperature of 95°F±5 °F (35 °C±3 °C), with a NaCl contact of from 4 to 6 percent.
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	Per UL1500/ISO8846, in addition to conformance with EC directive 94/25/EC for marine products.
Electro-Static Discharge	Three discharges of +/- 15KV applied to illuminated pushbutton and bezel during normal operation; applied to exposed terminals for LED. No noticeable degradation of light intensity.

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1 SERIES
AVH Anti-Vandal High Current Pushbutton Switch

2 MOUNTING
1 M19 Bushing Thread

3 MATERIAL
1 Stainless Steel Bushing

4 CIRCUIT 1, 2, 7
B Maintained ON - OFF
C Momentary (ON) - (ON) - OFF *
 * Nav/Anchor Circuit

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

6 WIRE LENGTH
6 6 Inches (152.40 mm)

7 ILLUMINATION 4
N No LED
R Ring

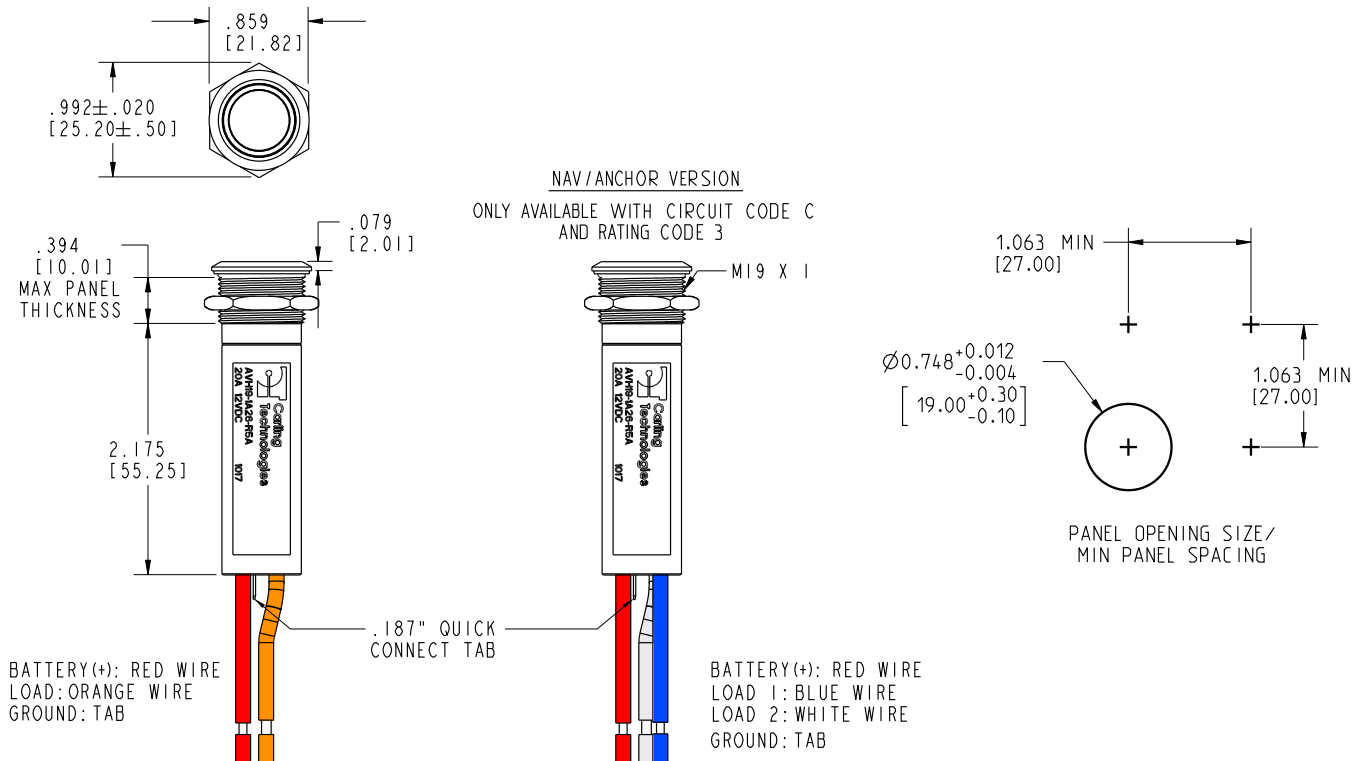
8 POSITION 1 LED COLOR
N No LED **B** Green **D** White
A Red **C** Amber **E** Blue

9 POSITION 2 LED COLOR 5, 6
N No LED
E Blue

10 ILLUMINATION 8
N None
A Dependent (LED illuminates when the specified output is "ON")

- Notes:
- 1 Code B available with rating codes 1 or 2 only in box 5
 - 2 Code C rating code 3 only in box 5
 - 3 Rating will determine the wire gauge used. (Rating code 1 = 12 AWG); (Rating code 2 = 14 AWG); (Rating code 3 = 16 AWG)
 - 4 Illumination Type code N specify N in boxes 9 and 10
 - 5 Code C only available with code E in box 9
 - 6 Code B only available with code N in box 9
 - 7 Codes A, B, C, D, E only available with code B in box 4.
 - 8 Other lighting options available: Consult Factory

Dimensional Specifications: in. [mm]



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To view all of Carling's environmental, quality, health & safety certifications please visit www.carlingtech.com/environmental-certifications

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