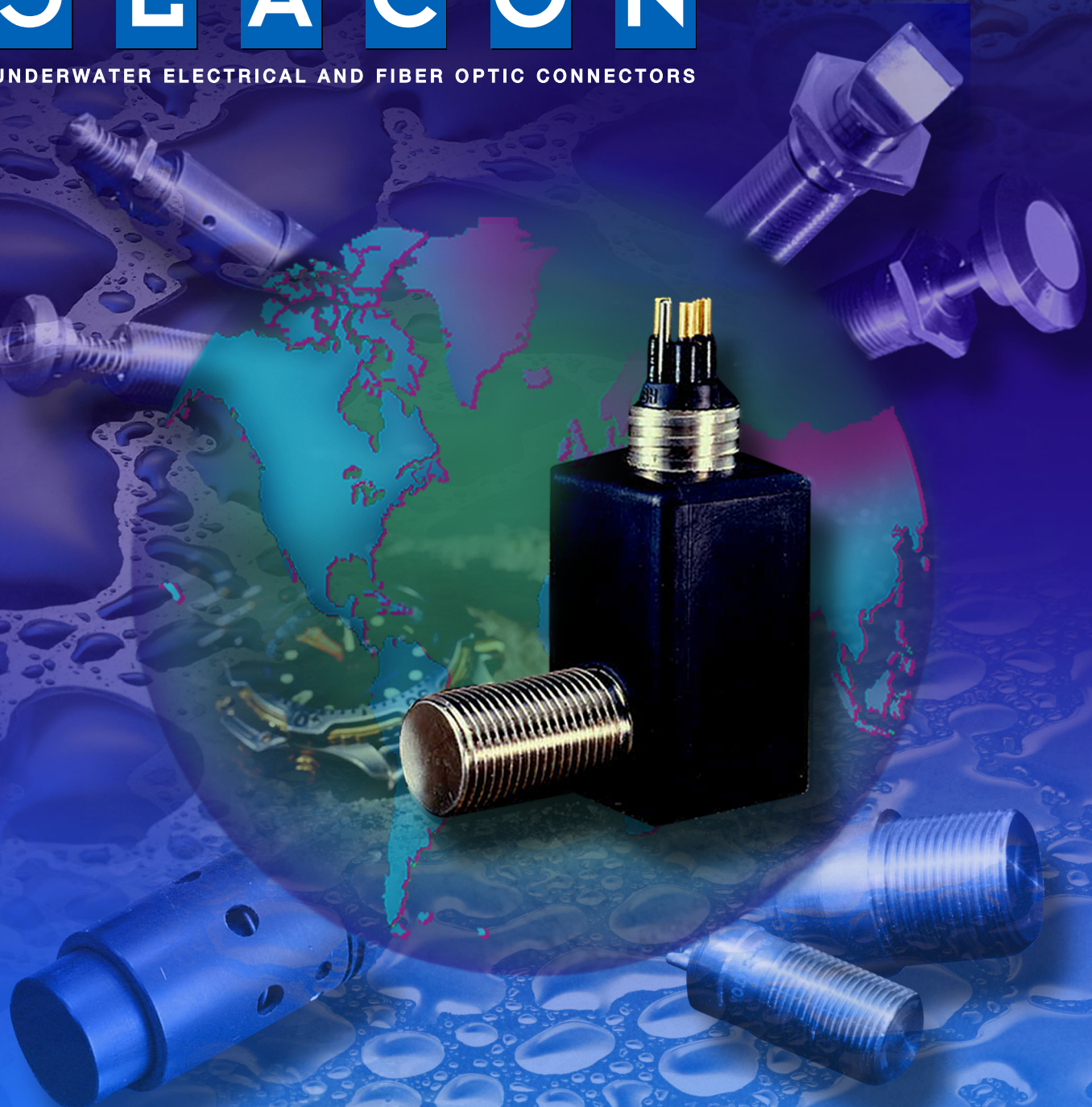


# SEACON<sup>®</sup>

UNDERWATER ELECTRICAL AND FIBER OPTIC CONNECTORS



## SWITCHES

HIGH INTEGRITY UNDERWATER SWITCHES

**SEACON**  
advanced  
PRODUCTS





## High Integrity Underwater Switches

### Limit Switch

- Hermetically sealed
- Pressure rated up to 6,000 psi
- Rated for greater than 50,000 cycles
- Load capacities; 1 and 7 amps
- Single pole, double throw
- Refer to datasheet SAPL-DS-0020



### Plastic Limit Switch

- Rated for greater than 50,000 cycles
- Pressure rated up to 500 feet (152 meters)
- Load capacities 1 and 7 amps
- Single pole, double throw
- Refer to datasheet SAPL-DS-0021



### Positive Action Switch

- Hermetically sealed
- Pressure rated up to 6,000 psi
- Load capacities 1 and 7 amps
- Rated for greater than 50,000 cycles
- Single pole, double throw
- Refer to datasheet SAPL-DS-0022



### Proximity Switch

- Hermetically sealed
- Pressure rated up to 6,000 psi
- Load capacities 1 and 7 amps
- Rated for greater than 50,000 cycles
- Standard proximity and hall effect
- Refer to datasheet SAPL-DS-0023



### Modular Proximity Switch

- Hermetically sealed
- Pressure rated up to 6,000 psi
- Load capacities 1 and 7 amps
- Rated for greater than 50,000 cycles
- Standard proximity and hall effect
- Incorporates MC-BH-3M connector
- Refer to datasheet SAPL-DS-0024





With manufacturing now based at our facility in Texas, **SEA CON**<sup>®</sup> manufacture a full line of hermetically sealed limit switches, proximity switches, potentiometers and magnetic couplings. In addition to this **SEA CON**<sup>®</sup> is able to offer a range of plastic switches and has also developed a proximity switch utilizing it's connector technology.

All switches are qualified for successful deployment on Submarines, ROV's, AUV's, UUV's, hulls, submersibles of all types, buoys, underwater communication systems, surveillance devices, oceanographic equipment, on deck and wherever equipment is exposed to severe marine and other hostile environments. These switches are also used in oil well logging, well head controls, dredging, fishery gates, and underwater Christmas Trees.

**SEA CON**<sup>®</sup> Switches are USED ALL OVER THE WORLD and our corporate philosophy emphasizes flexibility, responsiveness, staying ahead of market requirements, quality assurance and service after sale.

The **SEA CON**<sup>®</sup> Group has an extensive and comprehensive agency network able to supply our full range of products which covers every continent or area across the globe. To find a representative in your area please contact our sales department or refer to our catalogue.



## Limit Switches



### Description

SEACON® offers a variety of Limit Switches to meet demanding needs. Limit Switches are designed to give a signal to a control system when a moving component like an overhead door or piece of machinery has reached the end point (or limit) of its travel or just a specific point of its journey.

### Key Features

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>• Load capacities                     <ul style="list-style-type: none"> <li>➢ Light duty (LD – 1 amp)</li> <li>➢ Standard Duty (SD – 7 amp)</li> </ul> </li> <li>• AU series switches are rated to 6,000 psi (4000 m) and available in LD and SD.</li> </ul> | <ul style="list-style-type: none"> <li>• BU series are rated to 2,500 psi (1,700 m) and available in LD and SD.</li> <li>• Hermetically sealed</li> <li>• 316 Stainless Steel or Titanium</li> <li>• Single Pole Double Throw</li> <li>• BU series available in bulkhead or molded</li> </ul> |
|--|---|

### Materials

- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li>• 316 Stainless steel - AU, AU-LSW, AU-LS 10K, BU</li> </ul> | <ul style="list-style-type: none"> <li>• Titanium - AU, WT-90, AU-LS 10K, AU-LSW, BU</li> </ul> |
|---|---|

### Configurations

AU Series, BU Series, WT-90, AU-LSW, AU-LS 10K.

- Mounting type
  - 3/4" – 16 UNF for AU.
  - BU Standard 3/4" - 14 NPSM-2A (nominal OD 1 in) - for all sizes.
  - Bulkhead available for BU series.
  - Molded cable available for all series.
  - Oil filled cable available for AU series.

### Design Ratings & Testing

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>• Pressure Rating:           <ul style="list-style-type: none"> <li>➢ 2,500 PSI - BU</li> <li>➢ 6,000 PSI - AU, WT-90 and AU-LSW.</li> <li>➢ 10,000 PSI – AU-LS 10K</li> </ul> </li> <li>• Power load:           <ul style="list-style-type: none"> <li>➢ Light Duty = 1 amp (115 VAC/28 VDC) –</li> <li>➢ Standard Duty = 7 amp (115 VAC/28 VDC) –</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>• Minimum cycles: All series greater than 50,000</li> <li>• Button options: Large (1.5 in), Medium (.65 in), Small (.375 rad.) – Available for AU, BU and WT-90 series 1.5 and .375.</li> <li>• Standard temperature range:           <ul style="list-style-type: none"> <li>➢ -65° to +185°f available only for BU series.</li> <li>➢ -65° to +400°f available for AU, WT-90, AUL-SW and AU-LS 10K.</li> </ul> </li> </ul> |
|---|--|

### Operation

Full stroke of Plunger:

- AU series, BU series and WT-90 - 0.4 in. (10.2 mm)

### Principal of Operation

A Limit Switch uses a mechanism moving against a spring to move a magnet which is than placed either in attraction or repulsion, to open or close an electrical circuit. All switches are single pole double throw.



## Plastic Limit Switches



### Description

SEA CON® has developed various forms of Switches. This Limit Switch is ideally suited for diver applications. Rated to 500 feet (152 meters), this durable switch fits nicely into a gloved hand. Originally designed as a push to talk button, this switch has a wide variety of uses.

The switch is made of durable Black Acetal (ASTM D418, POM111 or 211). It is available in either light (1 amp.) or standard duty (up to 7 amp.).

### Key Features

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>• Black Acetal (Delrin® - (DuPont trademark for Acetal Resin)) Construction</li> <li>• Single Pole Double Throw</li> </ul> | <ul style="list-style-type: none"> <li>• Available in light and standard duty</li> <li>• Load capacities;                     <ul style="list-style-type: none"> <li>➢ Light duty (LD -1 amp)</li> <li>➢ Standard duty (SD – 7 amp)</li> </ul> </li> </ul> |
|---|--|

**Materials**

- Black Acetal (Delrin®) ASTM D4181, POM111 OR 211

**Configurations**

- Part number AU-PLS-(LD OR SD) -C

**Design Ratings & Testing**

- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li>• Pressure rating:               <ul style="list-style-type: none"> <li>➢ 500 feet (152 meters)</li> </ul> </li> <li>• Power load:               <ul style="list-style-type: none"> <li>➢ Light duty = 1 Amp. (115 VAC/28 VDC)</li> <li>➢ Standard duty = 7 Amp. (115 VAC/28 VDC)</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>• Minimum cycles: Greater than 50,000</li> </ul> |
|---|---|

**Operation**

- Full Stroke of Plunger:
- 0.30 inches





## Positive Action Switches



### Description

SEA CON® offers a variety of Switches, including Positive Action Switches to meet the demanding needs of our customers.

Positive Action Switches are designed to give a continuous signal when the switch is activated. Various configurations are available including Rotary and Push and Pull (Kill Switches).

### Key Features

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>• Load capacities                     <ul style="list-style-type: none"> <li>➢ Light duty (LD – 1 Amp)</li> <li>➢ Standard Duty (SD – 7 Amp)</li> </ul> </li> <li>• Hermetically sealed</li> <li>• 316 Stainless Steel or Titanium</li> </ul> | <ul style="list-style-type: none"> <li>• AU series switches are rated to 6,000 psi (4,000 m) and available in LD and SD</li> <li>• BU series are rated to 2,500 psi (1,700 m) and available in LD and SD</li> <li>• Single Pole Double Throw</li> </ul> |
|--|---|

### Materials

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>• 316 Stainless steel - AU, AU-LSW, AU-LS 10K, BU</li> </ul> | <ul style="list-style-type: none"> <li>• Titanium - AU, AU-LS 10K, AU-LSW, BU</li> </ul> |
|---|--|

### Configurations

AU Series, BU Series.

- Mounting type
  - 3/4” – 16 UNF for AU
  - BU Standard 3/4” – 14 NPSM-2A (nominal OD 1in) - for all sizes
  - Bulkhead available for AU and BU series
  - Cable moulding and PBOF options available

### Design Ratings & Testing

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>• Pressure Rating:                     <ul style="list-style-type: none"> <li>➢ 2,500 PSI - BU</li> <li>➢ 6,000 PSI - AU and AU-LSW</li> <li>➢ 10,000 PSI – AU-LS 10K</li> </ul> </li> <li>• Power load:                     <ul style="list-style-type: none"> <li>➢ Light Duty = 1 Amp(115 VAC/28 VDC) – Available for all series</li> <li>➢ Standard Duty = 7 Amp (115 VAC/28 VDC) – Available for all series</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>• Button options: Large (1.5 in), Medium (.65 in), Small (.375 rad.) – Available for AU and LS 1.5 and .375. BU series .375</li> <li>• Standard temperature range:                     <ul style="list-style-type: none"> <li>➢ -65° to +185°f available only for BU series.</li> <li>➢ -65° to +400°f available for AU, AUL-SW and AU-LS 10K</li> </ul> </li> <li>• Minimum cycles: All series greater than 50,000</li> </ul> |
|--|---|

### Operation

- Switches incorporate Detent features

### Principal of Operation

A Positive Action Switch uses a mechanism (Rotary or Linear) to move a magnet which is than placed either in attraction or repulsion, to open or close an electrical circuit. All switches are single pole double throw.



## Proximity Switches



### Description

SEA CON® offers a variety of Switches. The Proximity Switch uses magnets, either in attraction or repulsion, to open or close an electrical circuit. Several types are available to meet customer's needs. All switches are single pole double throw.

### Key Features

- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li>• Load capacities             <ul style="list-style-type: none"> <li>➢ Light duty (LD – 1 Amp)</li> <li>➢ Standard Duty (SD – 7 Amp)</li> </ul> </li> <li>• Hermetically sealed</li> <li>• No O-rings or Gaskets</li> </ul> | <ul style="list-style-type: none"> <li>• Single Pole Double Throw</li> <li>• Proximity Switch meets NAVSEA 5162424-102-11</li> </ul> |
|--|--|

### Materials

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>• 316 Stainless Steel - Available for all series</li> </ul> | <ul style="list-style-type: none"> <li>• Titanium - Available for all series</li> </ul> |
|--|---|

### Configurations

AU-VM Series, AU-VME Series, BU-VM Series.

- |                                |  |
|--------------------------------|--|
| Standard Proximity -           | The switch can be normally open or closed. When a magnet is presented the switch will either open or close the circuit.                      |
| Sinking Hall Effect -          | The sensor is normally closed. When a magnet is present the sensor opens at a very high rate of speed.                                       |
| Sinking/Sourcing Hall Effect - | The switch is normally open and will gradually close as the magnet is brought closer to the switch. This is ideal for lining up two objects. |
| Latching Hall Effect -         | The circuit is closed when a South magnet is present and opens when a North magnet is presented.   |

- Mounting type
  - BU Standard 3/4" - 16 UNF-AU (nominal OD 1in) - for all sizes. Bulkhead available for BU series.
  - Molded cable available for all series

### Design Ratings & Testing

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>• Pressure rating:                     <ul style="list-style-type: none"> <li>➤ 2,500 PSI - BU-VM Series</li> <li>➤ 6,000 PSI - VM-series, VME series.</li> <li>➤ 10,000 PSI - VME series.</li> </ul> </li> <li>• Power load:                     <ul style="list-style-type: none"> <li>➤ Light duty = 1 amp (115 VAC/28 VDC) - Available for all series</li> <li>➤ Standard Duty = 7 amp (115 VAc/28 VDC) - Available for all series</li> </ul> </li> <li>• Minimum cycles: All series greater than 50,000</li> </ul> | <ul style="list-style-type: none"> <li>• Standard Temperature range:                     <ul style="list-style-type: none"> <li>➤ -65° to +185°f available only for BU-VM series</li> <li>➤ -65° to +400°f available for VM and VME series</li> </ul> </li> </ul> |
|--|---|

### Operation

Magnets in repulsion for AU and BU series

### Qualifications

Proximity Switch meets NAVSEA 5162424-102-11

### Principal of Operation

A Proximity Switch uses magnets, either in attraction or repulsion, to open or close an electrical circuit. Except for hall effect, all switches are single pole double throw.



## Modular Proximity Switches



*Modular Proximity Switch*

### Description

SEA CON® offers a variety of Switches. This Modular Proximity Switch utilizes many of our proven proximity switches and integrates them with a SEA CON® Micro WET-CON, underwater plugable connector.

Installation has never been easier. Once the switch is mounted the cable can easily be added. Because a wet plugable connector is used, this can be done in any conditions, even submerged.

As a result of this modular design, switches become interchangeable. Simply replace the cable and the switch can be used elsewhere. This is particularly useful when taking spares to sea.

### Key Features

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>• Hermitically sealed</li> <li>• No O-rings or gaskets</li> <li>• Single Pole Double Throw</li> </ul> | <ul style="list-style-type: none"> <li>• Reinforced Neoprene Mold</li> <li>• Integrated Underwater Plugable connector incorporating MC-BH-3M</li> </ul> |
|--|---|

## Configurations

AU-VM Series, AU-VME Series, BU-VM Series.

- |                                |  |
|--------------------------------|--|
| Standard Proximity -           | The switch can be normally open or closed. When a magnet is presented the switch will either open or close the circuit.                      |
| Sinking Hall Effect -          | The sensor is normally closed. When a magnet is present the sensor opens at a very high rate of speed.                                       |
| Sinking/Sourcing Hall Effect - | The switch is normally open and will gradually close as the magnet is brought closer to the switch. This is ideal for lining up two objects. |
| Latching Hall Effect -         | The circuit is closed when a South magnet is present and opens when a North magnet is presented.   |
- Mounting type
    - Standard 3/4" – 14 NPSM-2A (nominal OD 1in) - for all sizes. Bulkhead available for BU series.
    - Molded available for all series

## Design Ratings & Testing

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>• Pressure rating:                     <ul style="list-style-type: none"> <li>➤ 6,000 PSI - All series.</li> <li>➤ 10,000 PSI - VME series</li> </ul> </li> <li>• Power load:                     <ul style="list-style-type: none"> <li>➤ Light duty = 1 Amp - Available for all series</li> <li>➤ Standard duty = 7 Amp - Available for all series</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>• Standard Temperature range: -65° to +150°f - Available for all series</li> </ul> |
|--|---|

## Qualifications

Proximity Switch meets NAVSEA 5162424-102-11	Micro Switch design to MIL-S-8805
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## Principal of Operation

A Modular Proximity Switch uses magnets, either in attraction or repulsion, to open or close an electrical circuit. Except for hall effect, all switches are single pole double throw.

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