A PERFECT ALLIANCE.

ADVANCED CONNECTOR SOLUTIONS

1. PERSONAL ONE-TO-ONE TECHNICAL SUPPORT
2. STANDARD PRODUCTS READILY AVAILABLE
3. CABLE ASSEMBLY INTEGRATED SOLUTIONS
4. RAPID PRODUCT DEVELOPMENT
5. CUSTOM CAPABILITIES TO MEET TECHNICAL CHALLENGES

CIRCULAR CONNECTORS
ELECTRICAL CONTACTS
MODULAR CONNECTORS
CABLE ASSEMBLY

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ODU 5 STAR CUSTOMER EXPERIENCE

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ODU GROUP OVERVIEW
• More than 80 years of experience in connector technology
• Over 2,300 employees worldwide
• 15 sales subsidiaries in China, Denmark, France, Germany, Italy, Japan, Korea, Sweden, the UK and the US as well as 5 production and logistics sites
• All technologies under one roof: Design and development, machine tool and special machine construction, injection, stamping, turning, surface technology, assembly and cable assembly

We operate in the following markets: medical, military and security, test & measurement, industrial, energy, and emobility

As of January 2019

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ODU MINI-SNAP®
ODU MEDI-SNAP®
ODU MINI-MED®
ODU AMC®
ODU THREADED CONNECTOR
ODU-MAC®
ELECTRICAL CONTACTS
CABLE ASSEMBLY

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STANDARD PRODUCTS
READILY AVAILABLE

CERTIFIED QUALITY
• DIN EN ISO 9001
• IATF 16949
• DIN EN ISO 14001
• ISO 13485
• Wide range of UL, CSA, VDE and IEC licenses
• UL certified cable assembly

For a complete list of our certifications, please visit our website at www.odu-usa.com

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ODU CONNECTIVITY SOLUTIONS AND CAPABILITIES

Push-Pull locking
Break-Away locking
Spindle or lever locking
High-speed data transmission (>480Mbit/s)
Mechanical coding
Blind mate/ blind insertion
360° Shielding
Watteright
High mating cycles (<5,000)
High mating cycles (>100,000 and more)
Vibration & shock resistant
Rack panel w/ docking frame
Threaded technology

Electrical contacts
ODU Cable assembly integrated solutions

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**ODU CUSTOM CONNECTOR CAPABILITIES**

**EXTREME DESIGNS - PUSHING THE LIMITS**

See below some of our technical capabilities that have been used for specific custom applications. We continuously work with our customers to meet the most extreme technical challenges.

---

**CONTACT OUR ENGINEERING TEAM**

Email us at myapplication@odu-usa.com

---

** Requirement | Extremes ODU has achieved**
--- | ---
High current | 2,400 A
High voltage | 56 kV (DC) 36 kV (AC)
Water protection | IP67 / IP68 / IP69K / IP6K9K
Vacuum tightness | 1 x 10^-9 mbar l/s
Salt spray | 700 hours
EMC / EMI protection | >75dB (0 - 5MHz) / >65dB (5MHz - 500MHz)
High speed data rate | USB® 3.1 Gen 1 - 5 GBit/s¹ / HDMI® 2.0 - 14.4 Gbit/s¹ / 10 Gbit Ethernet - 10 Gbit/s¹
Operating temperature | Up to 300 °C
Pressure | 650 bar (9427 psi) operating receptacle / 500 bar (7251 psi) operating mated condition / 1,000 bar (14503 psi) burst
Vibration | 1xX14 Severity Level 4 (20g, 10 - 2000 Hz, 22h)
Mating cycles | >1 Million
Hydraulic connection | 25 bar (362 psi) operating
Pneumatic connection | 20 bar (290 psi) operating
Fiber optic | < 1dB typical @ 100,000 mating cycles single mode/multimode
Magnetic permeability | Magnetic permeability \( \mu_r < 1.005 \)
Environmental | Salt spray / fog, chemical resistance, UV, Arizona dust, radiation, sterilization
Impact | 1000g
Contact density | 1 contact/mm²
Smallest contact diameter | 0.3 mm
Smallest circular connector diameter | 5 mm
On driving test | Electric vehicle adapter
Self finding solutions | +/- 5 mm float (shield and tight)

---

1 These ODU specific connectors can transmit common data transmission protocols such as USB®, HDMI®, and Ethernet, but they are not USB®, HDMI®, and Ethernet standard connectors.

---

**ODU PRODUCT AVAILABILITY**

[Contact Us](sales@odu-usa.com)

---

**ODU AMC® High-Density**

- 70% weight and size reduction
- Cable assembly solutions
- IP68 (20m submersion)
- USB® 3.1 Gen1 + USB® 2.0 + HDMI® 2.0 + Ethernet

**Pin and groove**

<table>
<thead>
<tr>
<th>Size</th>
<th>Diameter (mm)</th>
<th>Max. cable (mm)</th>
<th>No. of contacts</th>
<th>IP Protection</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>4</td>
<td>9.8</td>
<td>5.0</td>
<td>7</td>
</tr>
<tr>
<td>1.5</td>
<td>14.8</td>
<td>8.5</td>
<td>27</td>
<td>IP68</td>
</tr>
<tr>
<td>1.5</td>
<td>16.8</td>
<td>10.5</td>
<td>40</td>
<td>IP68</td>
</tr>
</tbody>
</table>

---

**ODU AMC® Push-Pull**

- IP68 and IP69
- >5,000 mating cycles
- High speed data technology
- Quick and easy mating and locking

**Pin and groove**

<table>
<thead>
<tr>
<th>Size</th>
<th>Diameter (mm)</th>
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<td>10.0</td>
<td>26</td>
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</tr>
<tr>
<td>4</td>
<td>23.9</td>
<td>11.5</td>
<td>37</td>
<td>IP68</td>
</tr>
</tbody>
</table>

---

**ODU AMC® Break-Away**

- IP68 and IP69
- >5,000 mating cycles
- High speed data technology
- Quick and easy demating and locking

**Pin and groove**

<table>
<thead>
<tr>
<th>Size</th>
<th>Diameter (mm)</th>
<th>Max. cable (mm)</th>
<th>No. of contacts</th>
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</tr>
</tbody>
</table>

---

**ODU AMC® Easy-Clean**

- Fast and easy cleaning
- Break-Away function
- >5,000 mating cycles
- Contact inserts with pogo pins

**Pin and groove**

<table>
<thead>
<tr>
<th>Size</th>
<th>Diameter (mm)</th>
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</tbody>
</table>

---

**ODU AMC® TWISTED WIRE**

- High shock and vibration
- Signal and power

**Pin and groove**

<table>
<thead>
<tr>
<th>Size</th>
<th>Diameter (mm)</th>
<th>Max. cable (mm)</th>
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**Notes:**

1. These ODU specific connectors can transmit common data transmission protocols such as USB®, HDMI® and Ethernet, but they are not USB®, HDMI® and Ethernet standard connectors.
2. IP Protection class in mated condition.
3. IP Protection class in unmated condition to the end device.
4. Additional sizes available on request.

---

**ODU AMC® High-Density**

**Pin and groove**

<table>
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<tr>
<th>Size</th>
<th>Diameter (mm)</th>
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**ODU AMC® Push-Pull**

**Pin and groove**

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**ODU AMC® Break-Away**

**Pin and groove**

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**ODU AMC® Easy-Clean**

**Pin and groove**

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**ODU AMC® TWISTED WIRE**

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2. IP Protection class in mated condition.
3. IP Protection class in unmated condition to the end device.
4. Additional sizes available on request.
## ODU METAL CONNECTOR PORTFOLIO

![ODU MINI-SNAP® L](image1)

**IP Protection class in mated condition.**

**IP Protection class in unmated condition to the end device.**

<table>
<thead>
<tr>
<th>Coding</th>
<th>Pin and groove</th>
<th>No. of possible mechanical coding</th>
<th>Diameter plug (mm)</th>
<th>Max. cable (mm)</th>
<th>Max. no. of contacts</th>
<th>Solder</th>
<th>Crimp</th>
<th>Print</th>
<th>IP Protection class 1</th>
<th>IP Protection class 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>OD M S N A P L</td>
<td>00 4</td>
<td>6.4</td>
<td>3.5</td>
<td>04</td>
<td>IP50 up to IP68</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>9</td>
<td>5.6</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>1</td>
<td>11.6</td>
<td>7.7</td>
<td>16</td>
<td></td>
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<td></td>
<td></td>
<td></td>
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<td></td>
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</tr>
</tbody>
</table>

**IP68 and IP64**

- Autoclavable
- Disposable connector

**Space saving design**
- Pre-assembled solution
- Up to 1,000 mating cycles

---

### ODU PLASTIC CONNECTOR PORTFOLIO

![ODU MINI-SNAP® K](image2)

**IP Protection class in mated condition.**

**IP Protection class in unmated condition to the end device.**

<table>
<thead>
<tr>
<th>Coding</th>
<th>Pin and groove</th>
<th>No. of possible mechanical coding</th>
<th>Diameter plug (mm)</th>
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<th>Max. no. of contacts</th>
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<th>Print</th>
<th>IP Protection class 1</th>
<th>IP Protection class 2</th>
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<tbody>
<tr>
<td>OD M S N A P K</td>
<td>00 8</td>
<td>11.0</td>
<td>5.0</td>
<td>10</td>
<td>IP50 up to IP68</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td></td>
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**IP68 and IP64**

- Autoclavable
- Disposable connector

**Space saving design**
- Pre-assembled solution
- Up to 1,000 mating cycles

---

### ODU MEDI-SNAP® Break-Away

![ODU MEDI-SNAP®](image3)

**IP50 and IP67**

- Autoclavable
- Disposable connector

**Space saving design**
- Pre-assembled solution
- Up to 1,000 mating cycles

---

### ODU MINI-MED®

![ODU MINI-MED®](image4)

**Space saving design**
- Pre-assembled solution
- Up to 1,000 mating cycles

---

### FAST SAMPLE AVAILABILITY

Email us at: sales@odu-usa.com

---

### ODU MINI-SNAP® PC

![ODU MINI-SNAP® PC](image5)

**Plastic connector**
- IP50 and IP67
- Shielded version available

**Space saving design**
- Pre-assembled solution
- Up to 1,000 mating cycles

---

### ODU METAL CONNECTOR PORTFOLIO

- **ODU MINI-SNAP® L**
- **ODU MINI-SNAP® K**
- **ODU MINI-SNAP® B**
- **ODU MINI-SNAP® S**
- **ODU MINI-SNAP® F**

### ODU PLASTIC CONNECTOR PORTFOLIO

- **ODU MEDI-SNAP®**
- **ODU MINI-MED®**
- **ODU MINI-SNAP® PC**

---

1. IP protection class in mated condition.
2. IP protection class in unmated condition to the end device.
**ODU MODULAR / RECTANGULAR CONNECTOR PORTFOLIO**

**Automatic docking. Manual mating. A new performance class.**

<table>
<thead>
<tr>
<th>Feature</th>
<th>ODU-MAC® Silver-Line</th>
<th>ODU-MAC® White-Line</th>
<th>ODU-MAC® Blue-Line</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mating cycles</td>
<td>&gt; 100,000</td>
<td>&gt; 100,000</td>
<td>&gt; 10,000</td>
</tr>
<tr>
<td>Automatic docking</td>
<td>6 frame varieties, individual length, Quick-change head option</td>
<td>1 frame variety, 4 sizes</td>
<td></td>
</tr>
<tr>
<td>Locking</td>
<td>Spindle / lever locking, Snap-In (ZERO)</td>
<td>Spindle / lever locking</td>
<td></td>
</tr>
<tr>
<td>Housing</td>
<td>Available in plastic and metal, Available in plastic and metal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strain relief housing</td>
<td>● ●</td>
<td>● ●</td>
<td></td>
</tr>
<tr>
<td>Highest packing density on the market</td>
<td>● ●</td>
<td>● ●</td>
<td></td>
</tr>
<tr>
<td>Non-magnetic version</td>
<td>● ●</td>
<td>● ●</td>
<td></td>
</tr>
</tbody>
</table>

**VARIETY OF MODULES**

- **Signal**: up to 27 A / 1.5 mm², up to 33 A / 2.5 mm²
- **Power**: up to 119 A / 16 mm², up to 58 A / 6 mm²
- **High current**: up to 220 A / 50 mm², up to 225 A / 25 mm²
- **High voltage**: up to 6.3 kV / 1.5 mm², up to 2.5 kV / 6 mm²
- **Coax**: up to 9.0 GHz
- **Compressed air**: up to 25 bar
- **Fluid**: up to 25 bar
- **Fiber optic POF / GDF**: ● (GDF only on request)
- **Transfer rates / high-speed**: CAT 6A / USB® / HDMI®
- **Optional pin protection**: Module can be freely positioned
- **Termination technology**: Crimp / solder / print through PCB termination modules

**ODU ELECTRICAL CONTACT PORTFOLIO**

**Contact technology**
- ODU SPRINGTAC®: Springwire technology
- ODU SPRINGTAC® Flatsocket: Springwire technology
- ODU LAMTAC® HTC: Lamella technology
- ODU TURNTAC®: Turned, slotted contacts
- ODU STAMPTAC®: Stamping technology

**Contact security**
- ● ● ● ● ● ● ● ● ● ● ●

**Contact diameter**
- from 0.76 mm
- from 0.64 x 0.64 mm
- from 1.5 mm
- from 1.5 mm
- 3 and 6 mm

**Mating cycles**
- > 100,000 (up to 1 million)
- > 50,000
- > 10,000
- > 10,000
- > 10,000

**Operating temperature range**
- −40 °C to +120 °C
- −40 °C to +200 °C
- −40 °C to +105 °C

**High temperature range**
- up to +300 °C (on request)
- up to +200 °C (on request)

**Surfaces**
- Ag (Au up to 1.02 mm)
- Ag / Au
- Ag
- Ag
- Ag

**Termination technologies**
- Crimp / screw / solder
- Crimp / screw / solder
- Crimp / screw / solder
- Crimp

**Current (6mm) per IEC 60521-2-2 2002**
- 95A
- 130A
- 90A

**Angular misalignment**
- ± 1°
- ± 1°
- ± 5°

**Contact material**
- CuSn alloy or CuBe
- CuBe alloy
- CuZnPb

**Primary attribute**
- High mating cycles
- Test & Measurement
- High-current
- High volume

**Points of contact**
- 360° circular
- Single or double sided
- 360° circular
- 1, 2, 4, 6 times circular

*These ODU specific connectors can transmit common data transmission protocols such as HDMI®, USB® and CAT 6A, but they are not HDMI®, USB® and CAT-standard connectors.

*Exceeds market standards
**ODU EMOBILITY CONNECTOR SOLUTIONS**

- **ODU POWER MATE 400**
  - Low Profile High Voltage
  - up to 400 amps
  - 1000 volts
  - Up to 95mm² cable
  - Extremely low profile
  - Ideal for HV battery / inverter applications specifically where space is critical

- **ODU DOCKING MATE**
  - Tolerance compensating connector systems enable a wide range of applications
  - Compensation of tolerances up to +/- 5mm possible.
  - Custom power & signal combinations available.
  - Ideal for hot swapping / blind mating applications.

- **IEC CHARGING CONNECTOR**
  - Rugged ODU TURNJAC contact system suitable for harsh environments.
  - Rated up to 10,000 cycles.
  - Mating possible at angle of up to 5° making this an ideal contact for charging applications.
  - Custom charging handles available upon request.

- **2-PIN HV CONNECTOR SYSTEM – ODU GEN2**
  - Trouble-free: Shielding attenuation > 60 db
  - Tested: as per the requirements of LV215
  - Sealing: IP6K9K sealing class

**ODU CABLE ASSEMBLY SOLUTIONS**

- Custom turnkey solutions
- Rapid product development
- Thermoplastic injection molding design & fabrication
- Bonding & laser etching
- Private labeling
- Factory direct
- ITAR regulated facility
- One stop shop
- Solder, crimp and PCB terminations
- Overmolding with TPE, TPU, PVC and silicone
- Customizable overmolding
- EMC-compatible assembly
- 100% final inspection
- Custom specific testing options available

**APPLICATIONS**

- MEDICAL
- TEST & MEASUREMENT
- MILITARY & SECURITY
- INDUSTRIAL
- ENERGY
- EMOBILITY

REQUEST A QUOTE
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