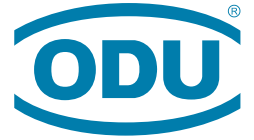


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ADVANCED CONNECTOR SOLUTIONS



⊕ CIRCULAR CONNECTORS



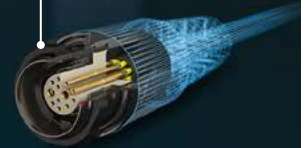
⊕ ELECTRICAL CONTACTS



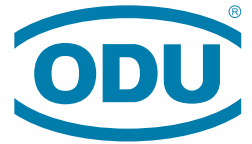
⊕ MODULAR CONNECTORS



⊕ CABLE ASSEMBLY

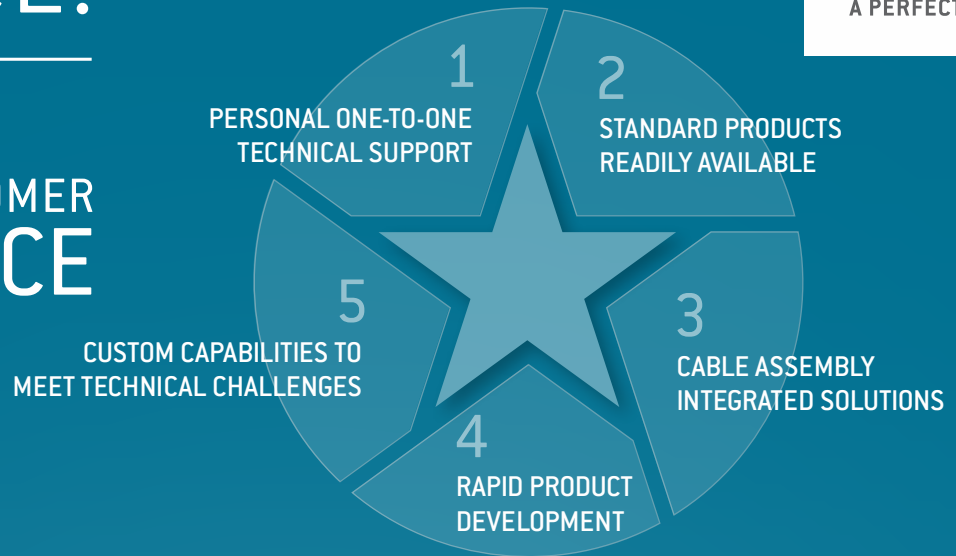


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ODU 5 STAR CUSTOMER EXPERIENCE



ODU GROUP OVERVIEW

- More than 80 years of experience in connector technology
- Over 2,300 employees worldwide
- 10 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 and measurement, industrial, energy, and automotive / emobility

As of February 2019

CERTIFIED QUALITY

- ISO 9001
- IATF 16949
- ISO 13485
- ISO 14001
- ISO 50001
- Wide range of UL, CSA, VG and VDE licenses
- UL certified cable assembly

For a complete list of our certifications, please visit our website.



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: myapplications@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	1×10^{-9} mbar l/s
Salt spray	700 hours
EMC / EMI protection	> 75 dB (0 – 5 MHz) / > 65 dB (5 MHz – 500 MHz)
High speed data rate	USB® 3.2 Gen 1x1 – 5 GBit/s ¹ / HDMI® – 14.4 Gbit/s ¹ / 10 Gbit Ethernet – 10 Gbit/s
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	LV214 Severity Level 4 (20 g, 10 – 2000 Hz, 22 h) Four-time multisinus per three-dimensional axis (16 g, 20 – 2000 Hz, 65 h per axis)
Mating cycles	> 1 Million
Hydraulic connection	25 bar (362 psi) operating
Pneumatic connection	20 bar (290 psi) operating
Fiber optic	< 1 dB typical @ 100,000 mating cycles single mode/multimode
Magnetic permeability	Magnetic permeability $\mu < 1.0005$
Environmental	Salt spray / fog, chemical resistance, UV, Arizona dust, radiation, sterilization
Shock	1,000 g
Contact density	1 contact/mm ²
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® 3.2 Gen 1x1 and HDMI®, but they are not USB®- or HDMI®-standard connectors.

ODU PRODUCT AVAILABILITY



CIRCULAR



MODULAR



ELECTRICAL CONTACTS



CUSTOM SOLUTIONS



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		Coding	Sizes	No. of possible mechanical coding	Diameter plug (mm)	Max. cable diameter (mm)	Max. no. of contacts	Solder	Crimp	Print	IP Class in mated condition	IP Class in unmated condition					
ODU MINI-SNAP® L <ul style="list-style-type: none"> IP50 5,000 mating cycles Hermetically sealed option USB® 3.1 Gen 1¹ + USB® 2.0¹ + Ethernet 		Pin and groove	00	4	6.4	3.5	04	•	•	•	IP50	Up to IP68					
			0		9	5.6	10										
			1	8	11.5	7.7	16						•	•	•	IP68	Up to IP68
			2		14.5	9.9	26										
			3		17.5	11.9	30										
			4		25.0	16.0	40										
ODU MINI-SNAP® K <ul style="list-style-type: none"> IP68 5,000 mating cycles USB® 2.0¹ + Ethernet 		Pin and groove	0	8	11.0	5.0	10	•	•	•	IP68	Up to IP68					
			1		13.0	7.0	16										
			2		16.0	9.0	26										
			3		19.0	10.5	30										
			4		25.0	14.0	40										
ODU MINI-SNAP® B <ul style="list-style-type: none"> IP68 5,000 mating cycles USB® 2.0¹ + Ethernet 		Pin and groove	0	8	9.4	5.0	10	•	•	•	IP68	Up to IP68					
			1		12.0	7.0	16										
			2		15.0	9.0	26										
			3		18.0	10.5	30										
ODU MINI-SNAP® S <ul style="list-style-type: none"> IP50 and IP68 Coax and triax 		Insulator	0	1	9.4	5.0	04	•	•	•	Up to IP68	Up to IP68					
			1		12.0	7.0	06										
			2		15.0	9.0	10										
ODU MINI-SNAP® F <ul style="list-style-type: none"> IP50 and IP68 5,000 mating cycles Ethernet 		Half shell	0	3	9.4	5.0	09	•	•	•	Up to IP68	Up to IP68					
			1		12.0	7.5	14										
			1.5		13.0	7.5	19										
			2		15.0	9.5	19										
			3		18.0	11.5	27										

¹ These ODU specific connectors can transmit common data transmission protocols such as USB® 3.1 Gen 1 and USB® 2.0, but they are not USB®- standard connectors.

ODU MODULAR / RECTANGULAR CONNECTOR PORTFOLIO

100,000
mating cycles
and more



ODU-MAC® Silver-Line
Automatic docking.

100,000
mating cycles
and more



ODU DOCK Silver-Line
Automatic docking & robot systems.

	ODU-MAC® Silver-Line	ODU DOCK Silver-Line
Mating cycles	> 100,000	> 100,000
Mating principle	Automatic docking	Automatic docking
Automatic docking	6 Frame varieties, Quick-change head option	3 Sizes Quick change head option
Locking		
Housing	Metal frame	3 housing varieties available in plastic and metal
Strain relief	•	•
Highest packing density on the market	•	•
Non-magnetic version	•	

VARIETY OF MODULES

Signal	Up to 27 A / 1.5 mm ²	Up to 27 A / 1.5 mm ²
Power	Up to 119 A / 16 mm ²	Up to 119 A / 16 mm ²
High current	Up to 225 A / 50 mm ²	Up to 225 A / 50 mm ²
High voltage	Up to 6.3 kV / 1.5 mm ²	Up to 2.5 kV / 1.5 mm ²
Coax	Up to 9.0 GHz	Up to 9.0 GHz
Compressed air	Up to 25 bar	Up to 25 bar
Fluid	Up to 25 bar	Up to 25 bar
Fiber optic POF / GOF	•	•
Transfer rates / high-speed	CAT 6 _A / USB ^{®1} / HDMI ^{®1}	CAT 6 _A / USB ^{®1} / HDMI ^{®1}
Optional pin protection	Module can be freely positioned	
Termination technology	Crimp / solder / print	Crimp / solder

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

ODU ELECTRICAL CONTACT PORTFOLIO

 ODU SPRINGTAC®

 ODU TURNTAC®

 ODU SPRINGTAC®
Flatsocket

 ODU LAMTAC®

 ODU STAMPTAC®



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	ODU SPRINGTAC®	ODU SPRINGTAC® Flatsocket	ODU LAMTAC®	ODU TURNTAC®	ODU STAMPTAC®
Contact technology	Springwire technology	Springwire technology	Lamella technology	Turned, slotted contacts	Stamping technology
Contact security	•••	•••	••	•	••
Contact diameter	From Ø 0.76 mm	From 0.64 x 0.64 mm	From Ø 1.5 mm	From Ø 1.5 mm	Ø 3 and Ø 6 mm
Mating cycles	> 100,000 (up to 1 million)	> 50,000	> 10,000	> 10,000	> 10,000
Operating temperature range	-40° C to +125° C	-40° C to +125° C	-40° C to +150° C	-40° C to +125° C	-40° C to +105° C
High temperature range	Up to +300° C (on request)		Up to +150° C		
Surfaces	Ag / Au	Ag / Au	Ag / Au	Ag / Au	Ag / Au
Termination technologies	Crimp / screw / solder	Crimp	Crimp / screw / solder	Crimp / screw / solder	Crimp
Current (6 mm) per IEC 60512-5-2:2002	100 A		115 A – 145 A	100 A	
Angular misalignment	+/- 1°		+/- 1°	Up to 5°	+/- 1°
Contact material	CuSn alloy or CuBe		CuBe alloy	CuZnPb	CuSn alloy
Primary attribute	High mating cycles	Test & Measurement	High current	High volume	High volume
Points of contact	360° circular	Single or double sided	360° circular	1,2,4,6 Tines circular	2,4,6 Tines circular

ODU CABLE ASSEMBLY SOLUTIONS & CONN

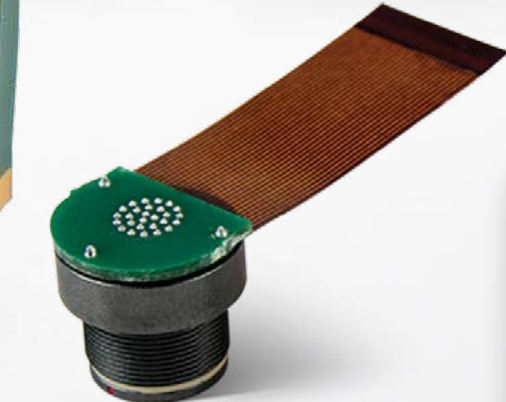
OVERMOLDS WITH SILICONE, TPE, TPU & TPV



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- Data rate testing
- 100% final inspection
- EMC compatible assembly

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WORLDWIDE PRESENCE SERVING LOCAL MARKETS

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NORTH AMERICA / MEXICO

ODU NORTH AMERICA CABLE ASSEMBLY FACILITY

VALUE ADDED SERVICES

The ODU North America facility specializes in rapid prototyping and projects ranging from medium to large sized volumes.

ADVANCED CUSTOMER BENEFITS

- One-to-one technical support
- Global & regional footprint
- Rapid product development
- Vertically integrated connector manufacturer

ISO 9001 | IATF 16949 | ISO 13485 | ISO 14001 | ISO 50001 | UL Certified Cable Assembly | ITAR Authorized Operation

ODU COMPLETE CABLE ASSEMBLY SOLUTIONS ACROSS MULTIPLE MARKETS:

MEDICAL



MILITARY AND SECURITY



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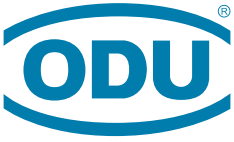


AUTOMOTIVE



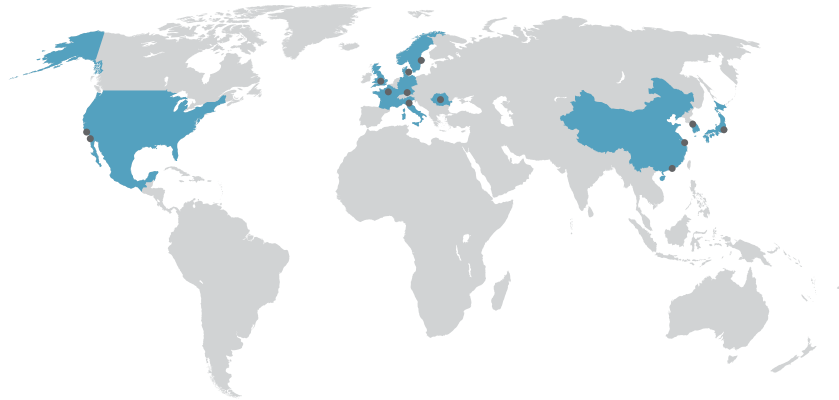
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www.odu.de

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