

ADVANCED CONNECTOR SOLUTIONS



ODU CONNECTIVITY SOLUTIONS AND CAPABILITIES



- 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

- 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.



www.odu-usa.com

(+) ODU MINI-SNAP® PC (
 ODU MINI-SNAP® ODU MEDI-SNAP[®] ↔ ODU MINI-MED[®]

BUY ONLINE NOW store.odu-usa.com

	ODU Mini-Snap®	ODU MEDI-SNAP®	ODU MINI-MED®	ODU MINI-SNAP® PC	ODU AMC®	ODU AMC® High-Density	ODU Threaded Connector	ODU-MAC®	Electrical Contacts
Push-Pull locking	•	•		•	•				
Break-Away locking	•	•	•		•	•		•	•
Spindle or lever locking								•	
High-speed data transmission (> 480 Mbit/S)	•				•	•	•	•	
Mechanical coding	•	•	•	•	•	•	•	•	
Blind mate/ blind insertion	•	•	•	•	•	•	•	•	
360° Shielding	•				•	•	•	•	
Watertight	•	•	•	•	•	•	•	•	
High mating cycles (> 5,000)	•			•	•	•		•	•
High mating cycles (< 100,000 and more)								•	•
Vibration & shock resistant	•	•		•	•	•	•	•	•
Rack panel w/ docking frame								•	
Threaded technology							•		
Silicone overmold	•	•*				•**			

* Approved for ODU MEDI-SNAP® Break-Away Plugs in PSU ** Available in ODU-AMC[®] High-Density Chrome-Plated



ORDER SAMPLES NOW Email us at: sales@odu-usa.com

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 0DU has achieved
High current	2,400 A
High voltage	56 kV (DC) 36 kV (AC)
Water protection	IP67 / IP68 / IP689K / IP6K9K
Vacuum tightness	1 × 10 ⁻⁹ mbar I/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 µr < 1.0005
Environmental	Salt spray / fog, chemical resistance, UV, Arizona dust, radiation, sterlization
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)

¹These 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



ODU HIGH-DENSITY & LIGHTWEIGHT CONNECTOR PORTFOLIO



¹ These ODU specific connectors can transmit common data transmission protocols such as USB[®] 3.2 Gen 1x1, USB[®] 2.0 and HDMI[®], but they are not USB[®]- or HDMI[®]-standard connectors.

	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
	00		9.8	5.0	7					
е	0	4	12.8	7.0	16	•		•	IP6K8	IP68
•	1		14.8	8.5	27					
	00		9.8	5.0	7				IP6K8	1260
e	0	4	12.8	7.0	16	•		•	II OKO	IP68
e	0 1 1.5 2 3 4.5	4	14.0 15.9 16.5 19.6 23.9 33.0	5.5 6.5 8.0 10.0 11.5 17.5	10 16 19 26 37 55	•		•	Up to IP6K9K	IP68
е	0 1 1.5 2 3	4	11.9 13.9 15.9 17.6 21.9	5.5 6.5 8.0 10.0 11.5	10 16 19 26 37	•		•	Up to IP6K9K	IP68
е	0 1 1.5	4	11.9 13.9 15.9	5.5 6.5 8.0	7 16 19	•		•	Up to IP6K9K	IP6K8
	1.5		17.5	8.5	19					
e	3	2	24.9	12.8	26	•		•	IP6K8	IP68

ODU METAL CONNECTOR PORTFOLIO



 (\mathbf{f})

ODU MINI-SNAP[®]

	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		00	4	6.4	3.5	04							
• IP50		0		9	5.6	10							
• 5,000 mating cycles	Pin and	1		11.5	7.7	16	•	•	•	IP50	Up to		
 Hermetically sealed option USB[®] 3.1 Gen 1¹ + USB[®] 2.0¹ + Ethernet 	groove	2	8	14.5	9.9	26					IP68		
		3 4		17.5 25.0	11.9 16.0	30 40							
ODU MINI-SNAP [®] K		4		11.0	5.0	10							
AVAILABLE IN		1		13.0	7.0	16							
• IP68	Pin	2	8	16.0	9.0	26				IP68	Up to		
 5,000 mating cycles USB[®] 2.0¹ + Ethernet 	and groove		8				•	•	•	11 00	IP68		
		3		19.0	10.5	30							
		4		25.0	14.0	40							
ODU MINI-SNAP [®] B		0	8	9.4	5.0	10							
• 1P68	Pin and groove	and	1	9	12.0	7.0	16					Up to	
 5,000 mating cycles USB[®] 2.0¹ + Ethernet 						2	10	15.0	9.0	26	• •	•	•
		3	13	18.0	10.5	30							
ODU MINI-SNAP [®] S			0		9.4	5.0	04						
• IP50 and IP68	Insulator	1	1	12.0	7.0	06	•		•	Up to IP68	Up to		
Coax and triax	2		15.0	9.0	10				IP68	IP68			
ODU MINI-SNAP [®] F		0		9.4	5.0	09							
		1		12.0	7.5	14							
 IP50 and IP68 5,000 mating cycles 	Half shell			1.5	3	13.0	7.5	19	•	•	•	Up to IP68	Up to IP68
Ethernet		2		15.0	9.5	19				IP68	11 00		
		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 PLASTIC CONNECTOR PORTFOLIO



¹ Up to 2 MOPP / 2 MOOP

	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
	1	6	13.7		14	•	•	•	Up to IP64	IP68
è	2	3	18.5	9.2	26	•	•	•	IP64	1100

	1	6	15.8	5.5	14				Up to IP67	IP68
9	2	1	18.3	11.5	26	•			Up to IP64	IP68
9	2	3	18.5	9.2	5	•			Up to IP64	IP50
9	1	1	11.5/ 11.2	4.4	6	•			IP67	IP50
	1		12.5	6.0	14					
	2	3	15.7	9.0	19	•	•	•	Up to IP67	IP50
	3		18.7	10.5	27					

ODU MODULAR / RECTANGULAR CONNECTOR PORTFOLIO



ODU-MAC[®] Silver-Line

Automatic docking.

to the second se

ODU DOCK Silver-Line Automatic docking & robot systems.



ODU-MAC[®] white-Line

Manual mating.



ODU-MAC[®] Blue-Line A new performance class.

ODU-MAC[®] Silver-Line ODU DOCK Silver-Line ODU-MAC[®] White-Line ODU-M/ > 100,000 > 100,000 Mating cycles > 100,000 > Manu Automatic docking Automatic docking Mating principle Manual mating automa 6 Frame varieties, 3 Sizes Automatic docking 1 Frame v Quick-change head option Quick change head option Spindle/leverlocking Locking Spindle Snap-In (ZERO) 3 housing varieties avaliable Avaliable in plastic and metal Avaliable in Housing Metal frame in plastic and metal Strain relief • • . Highest packing density on the market ٠ Non-magnetic version . •

VARIETY OF MODULES

Signal	Up to 27 A/1.5 mm ²	Up to 27 A/1.5 mm ²	Up to 27 A/1.5 mm ²	Up to 33 A/2.5 mm ²	Up to 33 A/2.5 mm ²
Power	Up to 119 A/16 mm²	Up to 119 A/16 mm ²	Up to 119 A/16 mm²	Up to 58 A/6 mm²	Up to 58 A/6 mm ²
High current	Up to 225 A/50 mm²	Up to 225 A/50 mm ²	Up to 225 A/50 mm ²	Up to 225 A/50 mm ²	Up to 58 A/6 mm ²
High voltage	Up to 6.3 kV/1.5 mm ²	Up to 2.5 kV/1.5 mm ²	Up to 6.3 kV/1.5 mm ²	Up to 2.5 kV/6 mm ²	Up to 2.5 kV/6 mm ²
Coax	Up to 9.0 GHz	Up to 9.0 GHz	Up to 9.0 GHz	Up to 12 GHz	Up to 12 GHz
Compressed air	Up to 25 bar	Up to 25 bar	Up to 25 bar	Up to 16 bar	Up to 16 bar
Fluid	Up to 25 bar	Up to 25 bar	Up to 25 bar	Up to 16 bar	Up to 16 bar
Fiber optic POF/GOF	•	•	•	● (GOF only on request)	• (GOF only on request)
Transfer rates / high-speed	$CAT 6_A / USB^{\otimes 1} / HDMI^{\otimes 1}$	$CATG_{A}/USB^{\circledast_1}/HDMI^{\circledast_1}$	$CAT 6_A / USB^{@1} / HDMI^{@1}$	$CAT 6_A / USB^{\odot 1}$	CAT 6 _A / USB®1
Optional pin protection	Module can be freely positioned		Module can be freely positioned	Integrated with 20-pin signal module	Integrated with 20-pin signal module
Termination technology	Crimp / solder / print	Crimp / solder	Crimp / solder / print	Crimp/solder/print through PCB termination modules	Crimp/solder/print through PCB termination modules

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.

8 *Exceeds market standards



ODU-MAC[®] **Blue-Line** PUSH-LOCK Easy one handed operation.

AC® Blue-Line	ODU-MAC [®] Push-Lock Blue-Line
10,000	5,000
ual mating, natic docking	Manual mating
variety, 4 sizes	
/leverlocking	Push-locking
plastic and metal	Plastic Plastic sleeve / Metal frame
•	•
•*	•

ODU ELECTRICAL CONTACT PORTFOLIO



ORDER SAMPLES NOW

	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 AUTOMOTIVE CONNECTOR SOLUTIONS



ODU DOCKING MATE®

Tolerance compensating connector systems enable a wide range of applications

- Compensation of tolerances up to +/- 5 mm possible
- Custom power & signal combinations available
- Ideal for hot swapping / blind mating applications



ODU GEN2 – 2 POLE HV CONNECTOR SYSTEM

• Trouble-free: Shielding attenuation > 60 db

- **Tested**: As per the requirements of LV215
- Sealing: IP6K9K sealing class

ODU POWER MATE[®] 400

- Up to 400 A
- 1000 V
- Up to 95 mm² cable
- Extremely low profile
- Ideal for HV battery / inverter applications specifically where space is critical



IEC CHARGING CONNECTOR

- Rugged ODU TURNTAC[®] contact system suitable for
- 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

Visit: www.oduautomotive.com

Low Profile High Voltage

ODU CABLE ASSEMBLY SOLUTIONS & CONNECTORS FROM ONE SOURCE



REQUEST A QUOTE Email us at: sales@odu-usa.com



ASK OUR ENGINEERS Email us at: sales@odu-usa.com

ODU CABLE ASSEMBLY SERVICES WORLDWIDE PRESENCE SERVING LOCAL MARKETS

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.

GERMANY

ADVANCED CUSTOMER BENEFITS

CHINA

- 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:



ODU SILICONE CABLE ASSEMBLY SOLUTIONS

CUSTOMER BENEFITS

- Up to 500 autoclave cycles
- Approved LSR and HCR processes globally available
- Tested for medical technology use





AUTOCLAVABILITY

PREVENTION OF THE STICK-SLIP EFFECT

ODU NORTH AMERICA CAPABILITIES

- Environmentally controlled presurized workroom
- Dedicated silicone overmold work area
- ARBURG-ALLROUNDER 275 V:
- Vertical free-space system
- Clamping force: 28 tones
- Injection unit: 1.4 oz, 2.3 oz

ODU INTERNATIONAL CAPABILITIES



- Cleanroom EN ISO14644-1
 - ISO 13485
 - Tool shop customized molds
 - Electroplating shop: The turned or stamped contact can be coated based on customer requirements
 - On-site laboratory
 - On-site technology test center

TEST AND VALIDATION

ISO 10993-5 CERTIFIED

- Cytotoxicity test according to DIN EN ISO 10993-5
- Management system certified according to ISO 9001
- Documentation of tests available

ASK OUR ENGINEERS Email us at: sales@odu-usa.com

REQUEST A QUOTE Email us at: sales@odu-usa.com



- High-voltage and insulation tests
- Functional and component tests for cable systems
- Runtime measurement
- Tensile strength tests
- Torsional and bending fatigue tests
- Leakage tests for molded components
- * Available upon request



A PERFECT ALLIANCE.

ODU GROUP WORLDWIDE



ODU USA

ODU-USA, Inc.

300 Camarillo Ranch Road, Suite A, Camarillo, CA 93012, United States of America Phone: +1 805 484 - 0540, Fax: +1 805 484 - 7458, E-mail: sales@odu-usa.com

HEADQUARTERS

DDU GmbH & Co. KG Pregelstraße 11 84453 Mühldorf a. Inn, Germany Phone: +49 8631 6156-0 Fax: +49 8631 6156-49 E-mail: sales@odu.de www.odu.de

PRODUCTION AND LOGISTICS SITES

Germany	Otto Dunkel GmbH
China	ODU (Shanghai) Connectors
	Manufacturing Co.Ltd
Mexico	ODU Mexico Manufacturing
	S.R.L. de C.V.
Romania	ODU Romania
	Manufacturing S.R.L.
USA	ODU North American Logistics

Further information and specialized representatives can be found at: www.odu-usa.com/contact



Simply scan the QR code to download the entire brochure.

SALES LOCATIONS

ODU (Shanghai) International Trading Co., Ltd. Phone: +86 21 58347828-0 E-mail: sales@odu.com.cn www.odu.com.cn

ODU (HK) Trading Co., Ltd. Phone: +852 3963 9588 E-mail: sales@odu.hk www.odu.hk

ODU Denmark ApS Phone: +45 2233 5335 E-mail: sales@odu-denmark.dk www.odu-denmark.dk

ODU France SARL Phone: +33 1 3935-4690 E-mail: sales@odu.fr www.odu.fr

DDU Italia S.R.L. Phone: +39 331 8708847 E-mail: sales@odu-italia.it www.odu-italia.it

ODU Japan K.K.

Phone: +81 3 6441 3210 E-mail: sales@odu.co.jp www.odu.co.jp

ODU Korea Inc.

Phone: +82 2 6964 7181 E-mail: sales@odu-korea.kr www.odu-korea.kr

ODU Romania Manufacturing SRL Phone: +40 269 704638

E-mail: sales@odu-romania.ro www.odu-romania.ro

ODU Scandinavia AB

Phone: +46 176 18262 E-mail: sales@odu.se www.odu.se

ODU-UK Ltd.

Phone: +44 330 002 0640 E-mail: sales@odu-uk.co.uk www.odu-uk.co.uk B/ © 2021 0DU-USA

CONNECTOR SOLUTIONS PORTFOLIO / 0521 /

All dimensions are in mm. Some figures are for illustrative purposes only. Subject to change without notice. Errors and omissions excepted. We reserve the right to change our products and their technical specifications at any time in the interest of technical improvement. This publication supersedes all prior publications. This publication is also available as a PDF file that can be downloaded from www.odu-usa.com



Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

ODU USA:

 GA1M07-P08QF00-0000
 S10YAR-FK1WJH0-00U0
 S11LAC-P04PJH0-7200
 S11M08-P03MPH9-5280
 S11M08

 P04MJG0-3980
 S12LBC-P06NPL0-6200
 S20F1C-P07LCC0-250S
 S20LCC-P02LJG0-560S
 S22L0C-P06LPH0-520S

 S23L0C-P04MTQ0-520S
 S30F1C-P04PFG0-5000
 S40B0C-P05MFD0-500S
 S41B0C-P04MJG0-600S
 S41B0C

 P10MCC0-600S
 S40B0C-P05MFD0-500S
 S41B0C-P04MJG0-600S
 S41B0C