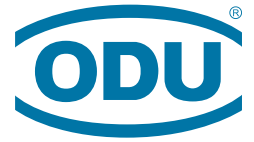


A PERFECT ALLIANCE.



ODU AMC[®] HIGH-DENSITY

Innovation in a compact package.

MINIATURE CONNECTORS



A PERFECT ALLIANCE.



ODU – AN OVERVIEW

- More than 70 years of connector experience
- € 146 million in turnover
- Over 1,650 employees worldwide
- 9 sales subsidiaries: China, Denmark, France, Germany, Italy, Japan, Sweden, UK and USA
- Technologies: Design and development, machine tool and special machine construction, injection, stamping, turning, surface technology, assembly and cable assembly

Status: February 2016

CUSTOMER-SPECIFIC SOLUTIONS

Contacts, connectors and cable assembly to meet the highest technical requirements – ODU's products and services are characterized by their uncompromising customer and results-oriented focus.

- Precise implementation of application-specific requirements for design, usage, cost and exclusivity
- Customized connector solutions originating from standard products
- Project-dedicated resources and expertise under one roof
- Quick prototyping and product turnaround

CERTIFIED QUALITY

- DIN EN ISO 9001
- DIN ISO TS 16949
- DIN EN ISO 14001
- ISO 13485
- Vast range of UL, CSA, VG and VDE approvals
- UL-certified cable assembly

For a complete list of all our certifications, please refer to our website.



CREATING CONNECTIONS, BUILDING ALLIANCES, RELYING ON EACH OTHER



Dr.-Ing. Kurt Woelfl
Managing Director
Research & Development
Design
Production
Finance & IT
Region Americas

Dr. Joachim Belz
Managing Director
Marketing & Sales
Product and Market Portfolio
Human Resources
Supply Chain Management
Region Asia

TECHNOLOGY THAT UNITES – CONNECTIONS THAT INSPIRE

That is the driving force we have been committed to for more than 70 years. We provide top-quality, innovative electrical connectors, creating added value for our customers – and for anyone seeking for outstanding efficiency and reliability for power, signal, data and media transfer.

A PERFECT ALLIANCE – We develop high quality connector solutions. This reflects in the top quality of our products, cost-effective solutions, as well as in the strong partnerships we develop – partnerships based on trust, reliability and respect for our staff. A PERFECT ALLIANCE – which is mutually beneficial for products, companies and people.

ODU is one of the world's leading suppliers of connector systems, employing over 1,650 people worldwide and generating approximately € 146 million in sales. To ensure our cutting-edge products meet the highest quality standards possible, we continuously invest in development and production – ultimately, in our very unique expertise. Over the past few years, our development of customer and application-specific connectors has led to a continued expansion of our standard product range. We now cover a broad spectrum of application areas. A balance between project work, including customer-specific

solutions, and standard connector design will continue to shape our future business. This is not only the case for emerging markets such as the medical technology, military and security, and energy, but also for the special requirements of industrial electronics, measurement and testing, and e-mobility.

A PERFECT ALLIANCE – The future growth of ODU depends on our capability to provide reliable connector solutions for a variety of challenging applications and our commitment to continuously expanding our technology portfolio. The ODU Group is an international technology company devoted to creating top-quality, customer-oriented connector solutions. This brochure is an invitation for you to discover more about who we are and what we do.

We're shaping the future of our company with creativity and innovation to serve you, our valued customers.

ODU – A PERFECT ALLIANCE.

Managing Directors:
Dr. Joachim Belz and **Dr.-Ing. Kurt Woelfl**

MILITARY AND SECURITY – UNCOMPROMISING QUALITY



Whether extreme environmental conditions or high mechanical stress: functionality under the most difficult conditions is a basic requirement for all connector technologies used in military applications.

ODU connectors ensure a fast information flow with robust and reliable high-tech products. We provide connectors in places where the highest security level is the standard.

ODU is involved in many soldier modernisation programmes – worldwide. In this field, connectors must fulfil a number of rigorous criteria including easy-to-use and reliability under the most extreme conditions. ODU connectors meet and often exceed these requirements by providing a reliable connection even in the toughest of situations.

If you are looking for an innovative, robust, secure and reliable connector solution in the military/defence area – ODU is your partner!

ODU SOLUTIONS FOR EVERY DEPLOYMENT SITUATION

ODU AMC®



GROUP VOICE AND DATA RADIO

- Excellent shielding and data transmission up to 10 GBit



RIGHT-ANGLED CONNECTOR

- Compact design



PERSONAL COMPUTER

- Small and light



NAVIGATION MODULE

- Easy-Clean version



GPS ANTENNA

- Coax Size 0



SOLDIER CONTROL UNIT

- Cable-to-cable connection



VEHICLE ADAPTION

- Robust and reliable

ODU MINI-SNAP®



ODU MINI-SNAP SERIES F



ODU MINI-SNAP SERIES K



ODU MINI-SNAP SERIES B SUPER-SHORTY

ODU AMC[®] HIGH-DENSITY

Miniaturization – the trend towards perfection in the smallest design.

INNOVATION IN A COMPACT PACKAGE

SMALLEST DIMENSIONS

Diameter less than 10 mm (Size 00, 7 contacts)



7 mm



12 mm

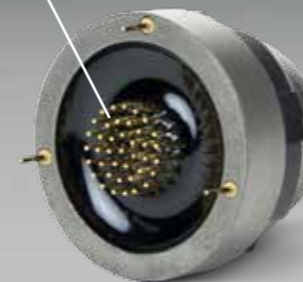
COMPACT DESIGN

Reliability as well as electrical and mechanical robustness in spite of the compact design



HIGH CONTACT DENSITY

Contact density up to 40 contacts in a minimum design



SYSTEM SOLUTION

Innovative options for assembly and extrusion for the cable strain relief



fig. approx. 2:1

From medical technology to consumer electronics to automotive technology: the trend toward miniaturization continues. High-Density connectors provide the highest possible number of contacts in the most compact space. It gives developers new possibilities and solutions while simultaneously challenging the manufacturer. Because the connectors' reliability and electrical and mechanical robustness must remain intact in spite of the compact size.

ODU created a highly robust miniature connector series that absolutely fulfils these demands: With a diameter of less than 10 mm to 18.5 mm and a contact density of up to 40 contacts, the ODU AMC High-Density series proves that premium quality can also come in small packages. In addition to the High-Density signal connector, the range also includes versions for "Power" (up to 15 A) and "Data Transfer" (USB 3.0 with 5A power) in the most compact space. The ODU AMC High-Density connectors offer an impressively long service life of more than 5,000

mating cycles even under challenging conditions. Blind mating and optimized mechanical and colour coding ensure reliable and simple handling. Thanks to the Break-Away function, the reliable connection can be released with just a tug on the cable, which makes it possible to change or separate connections in a second.

COMPREHENSIVE MANUFACTURING COMPETENCE FROM ONE SUPPLIER

Miniaturization demands solutions in all manufacturing areas, from the contact technology all the way through to assembly. We consolidate all relevant competencies and key technologies in one company. We offer more than just connectors in the most compact sizes: we also supply the matching system solutions.

Upon request, we will naturally also develop miniature connectors to customer specifications – and consequently create A PERFECT ALLIANCE around the world.

THE EVOLUTION OF MINIATURIZATION

2000

ODU MINI-SNAP[®] Series K

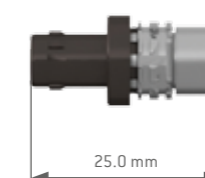
Size 0/7 contacts/IP 68



2010

ODU AMC[®]

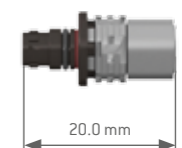
Size 0/7 contacts/IP 68
45% space savings in comparison with ODU MINI-SNAP series K



2014

ODU AMC[®] High-Density

Size 00/7 contacts/IP 68
35% space savings in comparison with ODU AMC series



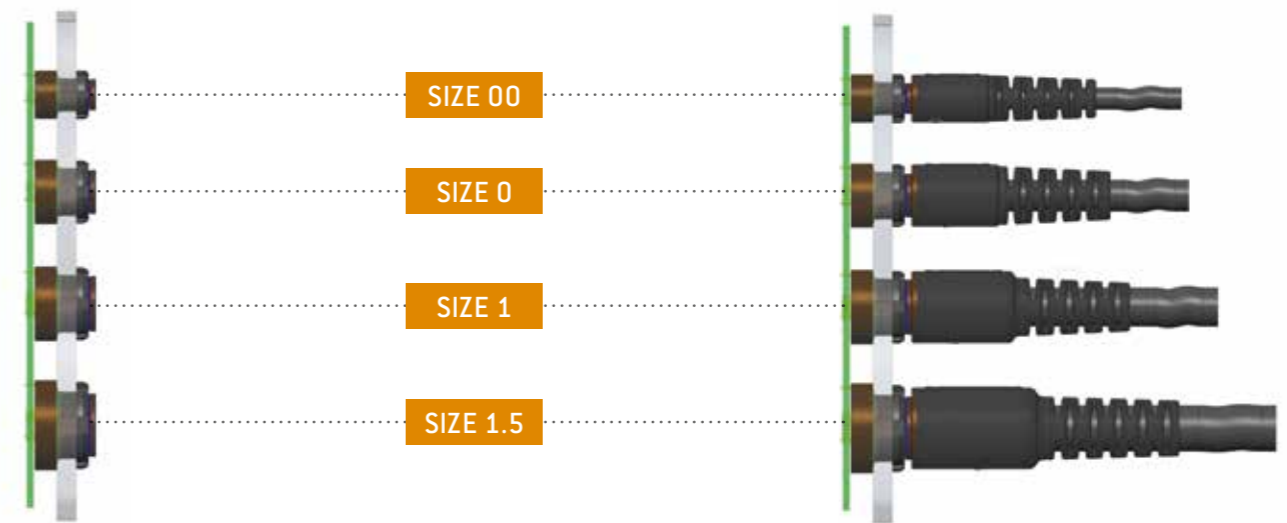
ODU AMC® HIGH-DENSITY AT A GLANCE



ONE PC-BOARD FITS ALL SIZES

All standard sizes can be processed at the same connection level.

This allows us to place signals, data and power in various connector sizes on one PCB height – as a basic requirement for a compact system design.



FOUR SHELL SIZES FOR MAXIMUM FLEXIBILITY

SIZE 00

- 2 way
- 4 way
- 7 way
- 4 way USB 2.0

SIZE 0

- 9 way (USB 2.0 + Power)
- 12 way (USB 3.0 + Power)
- 16 way (Signal + Data)

SIZE 1

- 27 way (Signal + Data)

SIZE 1.5

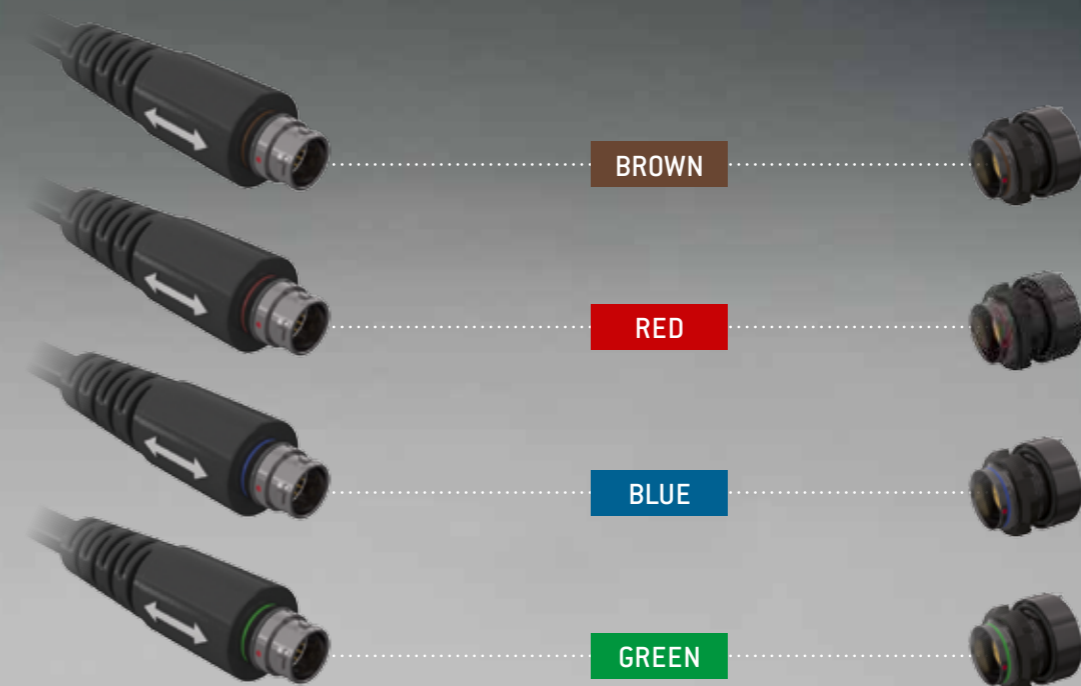
- 40 way
- Multi I/O (Signal + Data)

fig. approx. 1:1

PANEL CUT-OUT DIAMETER

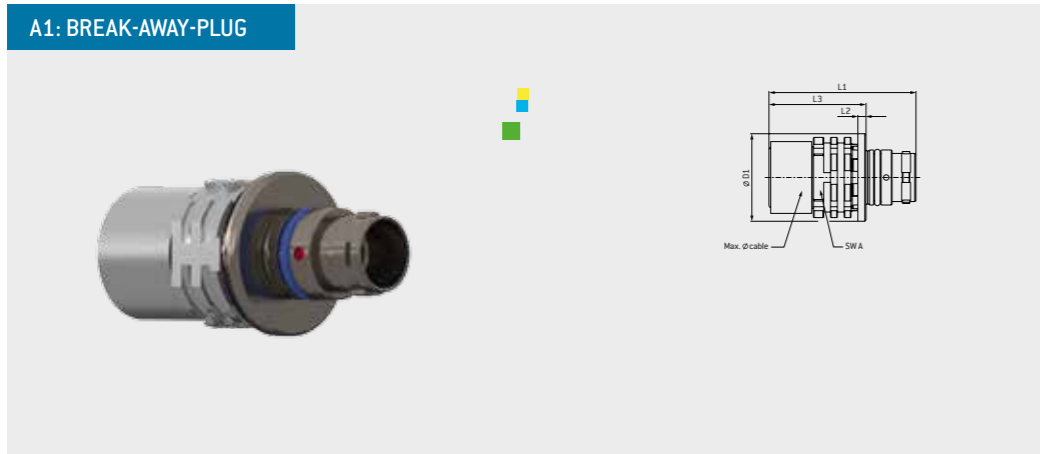


RELIABLE AND ROBUST CODING



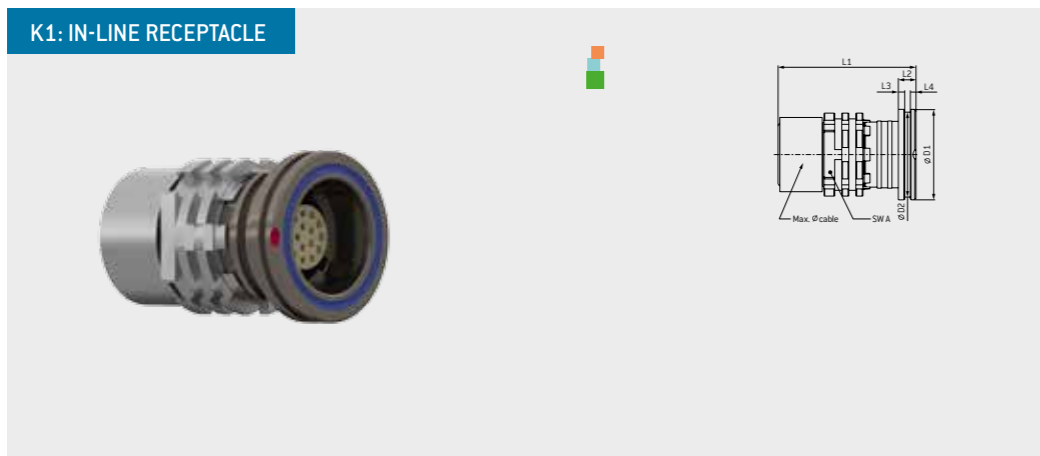
DIMENSIONS AND CONTACT DETAILS

A1: BREAK-AWAY-PLUG



Size	L1 mm	L2 mm	L3 mm	D1 mm	SWA mm	Max. Ø cable mm
00	20.0	1.2	12.8	9.8	8.0	5.0
0	21.5	1.2	14.2	12.8	10.0	7.0
1	25.2	1.2	18.0	14.8	12.0	8.5
1.5	29.2	1.2	22.0	16.8	14.0	10.5

K1: IN-LINE RECEPTACLE



Size	L1 mm	L2 mm	L3 mm	L4 mm	D1 mm	D2 mm	SWA mm	Max. Ø cable mm
00	18.7	2.5	0.8	0.8	9.8	9.0	8.0	5.0
0	19.5	2.5	0.8	0.8	12.8	12.0	10.0	7.0
1	23.5	2.5	0.8	0.8	14.8	14.0	12.0	8.5
1.5	27.5	2.5	0.8	0.8	16.8	16.0	14.0	10.5

DIMENSIONS AND CONTACT DETAILS

GK: RECEPTACLE



PANEL CUT-OUT

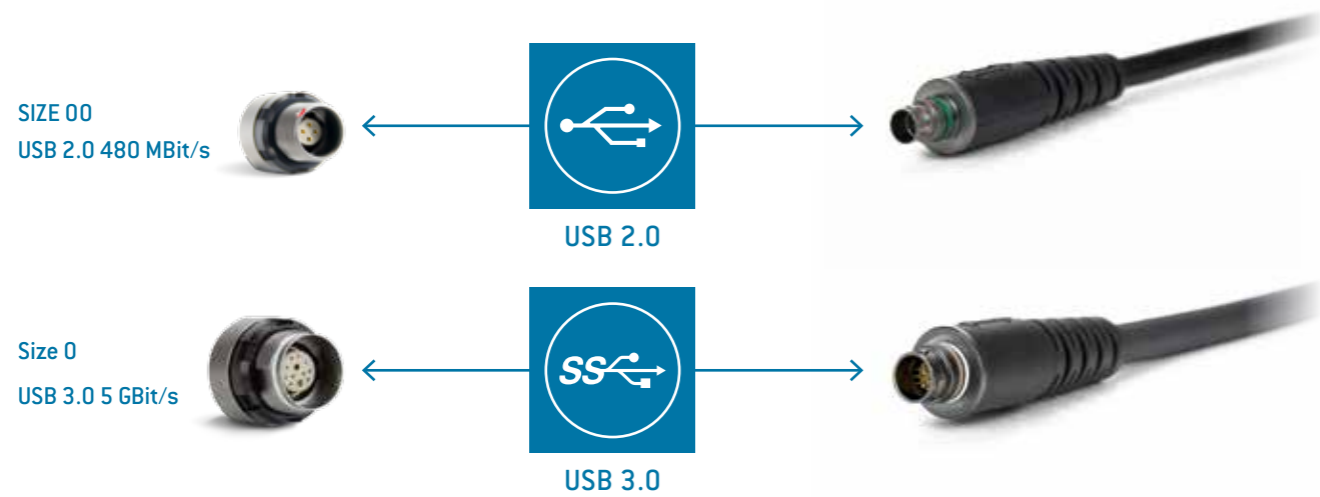


Size	L1 mm	L2 ¹ mm	L3 mm	X max. mm	D1 mm	D2 mm	SWA mm	M mm	Panel cut-out	
									SW mm	Ø mm
00	8.0	6.6	4.5	4.0	10.0	10.0	6.5	7x0.5	6.6	7.1
0	8.0	6.6	4.5	4.0	13.2	13.0	9.0	10x0.5	9.1	10.1
1	8.0	6.6	4.5	4.0	15.3	15.0	11.5	12x0.5	11.6	12.1
1.5	8.0	6.6	4.5	4.0	18.5	18.0	13.0	14x0.5	13.1	14.1

¹ For solder cup version: Details on request.

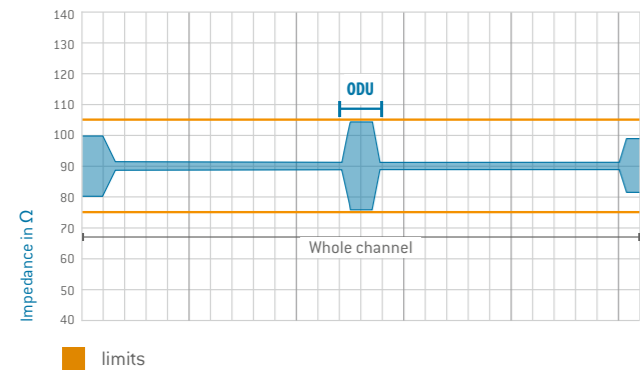


HIGHSPEED DATA TRANSMISSION AT A GLANCE

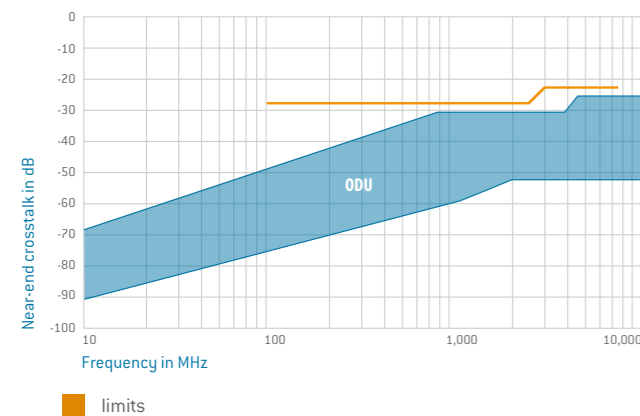


CHARACTERISTIC IMPEDANCE

ODU AMC[®] High-Density connector with 3 m cable in total and 2x USB 3.0 Type A connector



NEAR-END CROSSTALK



Secure data transmission has become indispensable in military actions.

CONTACT CONFIGURATIONS

Shell size	Layout	Number of contacts	Suitable for	Termination		Max. wire size Soldercup	Max. current ²	Test voltage acc. SAE 13441	Rated voltage ³
				PCB ¹ only GK style	Soldercup				
00		02	Power	●	●	2 x AWG 24 (Power)	3 A	1,200	300
		04	Signal	●	●	4 x AWG 28	1 A	900	300
		04	USB 2.0	○	●	2 x AWG 28 (Signal Lines) 2 x AWG 24 (Power)	1 A 3 A	750	250
		07	Signal	●	●	7 x AWG 28	1 A	750	250
0		09	USB 2.0 + Power	○	●	3 x AWG 28 (Signal Lines) 6 x AWG 22 (Power)	1 A 5 A	750	250
		12	USB 3.0 + Power	○	●	10 x AWG 28 (Signal Lines) 2 x AWG 22 (Power)	1 A 5 A	750	250
		16	Signal	●	●	16 x AWG 28	1 A	750	250
1		27	Signal	●	●	27 x AWG 28	1 A	750	250
1.5		40	Signal	●	●	40 x AWG 30	1 A	750	250

¹ Layouts on request

² Single contact load

³ Maximal operating voltage at sea level up to 2000 m acc. To SAE 13441.

For various applications the safety requirements regarding the operating voltage is even more severe. This must be evaluated during the time of equipment engineering.

⁴ on request

SPECIAL APPLICATIONS NEED SPECIAL SYSTEM SOLUTIONS

Every connection also needs its cable. In addition to high quality connectors, ODU also offers a comprehensive assembly service from one supplier. At the connectors side it means innovative options for assembly and extrusion for the cable bend relief, as

well as connections to flex and PCB solutions on the device side. Our component assembly team tests the complete system to our specifications and promises you the same quality found in our connectors – without compromises.



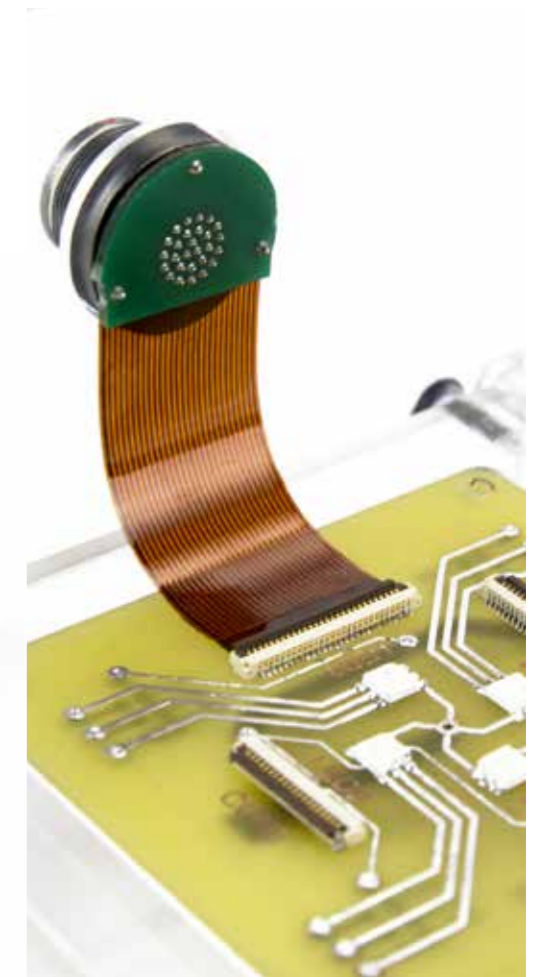
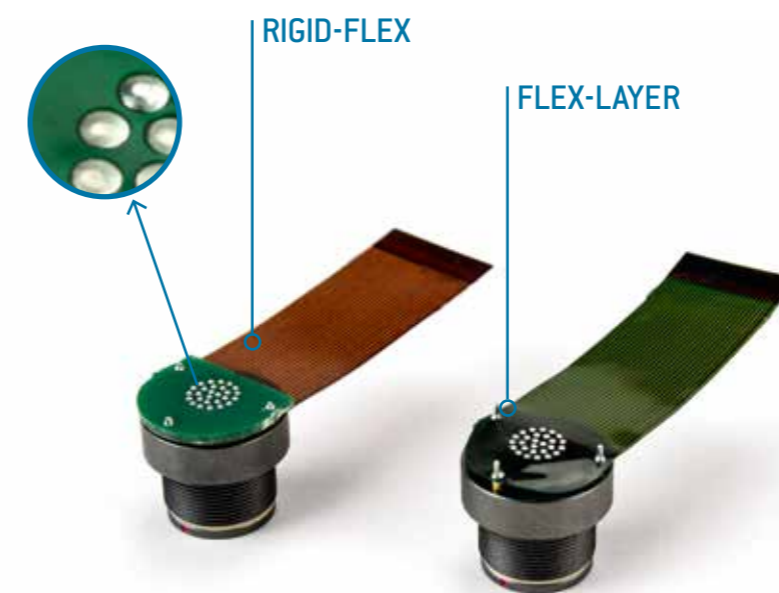
A CONNECTION YOU CAN COUNT ON

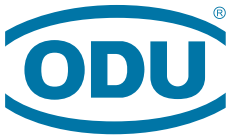
- Close cooperation with our customers to find the optimal solution
- ODU handles the complete processing, from procuring the cable and assembly up to individual potting or overmouldings
- 100% inspection
- The connectors are also able to be assembled by customers – supported by the ODU experts



TERMINATION PC-BOARD

ODU AMC High-Density receptacles can be terminated with PC-boards, flex-layers or rigid-flex solutions. The solder process is tested and qualified for all available inserts.





A PERFECT ALLIANCE.

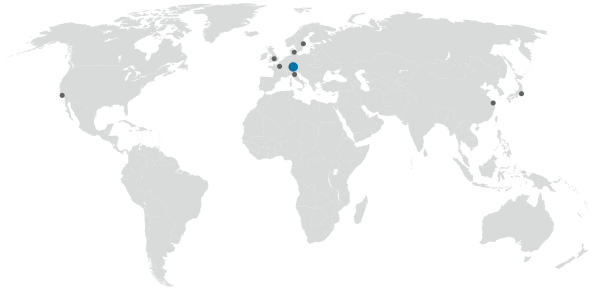
ODU GROUP WORLDWIDE

HEADQUARTERS

ODU GmbH & Co. KG

Pregelstraße 11
84453 Mühldorf a. Inn
Germany

Phone: +49 8631 6156 - 0
Fax: +49 8631 6156 - 49
E-mail: zentral@odu.de



GRASWILD • HELICTAG | Passau

SALES SUBSIDIARIES

ODU Denmark ApS

Phone: +45 2233 5335
E-mail: odu.denmark@odu.de
www.odu-denmark.dk

ODU France SARL

Phone: +33 1 3935 - 4690
E-mail: odu@odu.fr
www.odu.fr

ODU 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 Skandinavia AB

Phone: +46 176 18261
E-mail: sales@odu.se
www.odu.se

ODU (Shanghai)

International Trading Co., Ltd.
Phone: +86 21 58347828 - 0
E-mail: oduchina@odu.com.cn
www.odu.com.cn

ODU-UK Ltd.

Phone: +44 1509 266433
E-mail: sales@odu-uk.co.uk
www.odu-uk.co.uk

ODU-USA Inc.

Phone: +1 805 4840540
E-mail: sales@odu-usa.com
www.odu-usa.com

**Further information and specialized
representatives can be found at:**

www.odu.de/sales



Simply scan the QR code
to download the entire brochure.

The right is reserved to modify product and technical data.

AMCHD / B / 0215 / E