

A PERFECT ALLIANCE.

ODU AMC[®] HIGH-DENSITY

Innovation in a compact package.

MINIATURE CONNECTORS





ODU – AN OVERVIEW

- More than 70 years of connector experience
- Turnover of € 135 million
- Over 1,650 employees worldwide
- 7 sales subsidiaries: China, Denmark, France, Italy, Sweden, UK and the USA
- Technologies: 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, measurement and testing, military and security, industrial, energy, automotive

Certified quality

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

CUSTOMER-SPECIFIC SOLUTIONS

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

- Precise implementation of the application-specific stipulations as regards to the design, function, cost and exclusivity
 - Customized connector solutions originated from standard products
 - Know-how and project dedicated resources under one roof
 - Fast prototyping and quick production turn around
-

CREATING CONNECTIONS, BUILDING ALLIANCES, RELYING ON EACH OTHER



Dr.-Ing. Kurt Woelfl

Managing Director
Research & Development
Design
Production
Finance & IT

Dr. Joachim Belz

Managing Director
Marketing & Sales
Product and Market Portfolio
Human Resources
Supply Chain Management

Technology that unites; connections that inspire

This is the driving force that we are committed to for more than 70 years: We provide high quality and innovative electrical connectors that create added value for our customers, and for all those that require the highest degree of efficiency and reliability in transmitting power, signals, data and media.

A PERFECT ALLIANCE – our belief is to develop the perfect connection. This translates not only in providing high quality and cost effective connector solutions, but also in developing strong partnerships based on trust and reliability as well as respect for our staff.

A PERFECT ALLIANCE based on mutual benefits, for products, companies and people.

ODU is one of the world's leading connector systems supplier and employs more than 1,650 people worldwide, generating sales of approximately 135 million Euros. Our products are technologically advanced and meet the highest quality standards. To achieve all this, we continuously invest in the development and production – ultimately in our very special expertise. In recent years numerous customer-tailored, application-specific connectors have led to an ongoing expansion of our standard product range, so that we now

cover a broad spectrum of application areas. The balance between project work with its customer-specific solutions and the design-in of standard connectors will continue to shape our business in the future. This not only applies to emerging markets such as medical, military and security, and energy, but also to the special requirements of industrial electronics, measurement and testing, and automotive technology.

A PERFECT ALLIANCE – ODU Group's future growth relies on providing reliable connector solutions for various challenging applications and on our commitment to continuously expand our technology portfolio. This company brochure is our invitation to discover more information about ODU Group. We are an international technology company that devoted itself to create high quality customer oriented connector solutions.

Our creativity and innovative drive shape the future of our company and creates significant value for our customers.

ODU – A PERFECT ALLIANCE.

A stylized blue ink signature of Dr. Joachim Belz.

Dr. Joachim Belz

A stylized blue ink signature of Dr.-Ing. Kurt Woelfl.

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.

SMALLEST DIMENSIONS

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



7 mm



COMPACT DESIGN

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



12 mm

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.

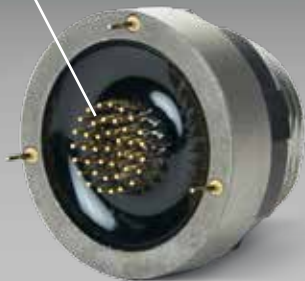
SYSTEM SOLUTION

Innovative options for assembly and extrusion for the cable strain relief



HIGH CONTACT DENSITY

Contact density up to 40 contacts in a minimum design



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



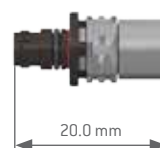
2014



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



FOUR SHELL SIZES FOR MAXIMUM FLEXIBILITY

SIZE 00

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



SIZE 0

- 9 way [15A Power + USB 2.0]
- 12 way [USB 3.0 + 5A 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

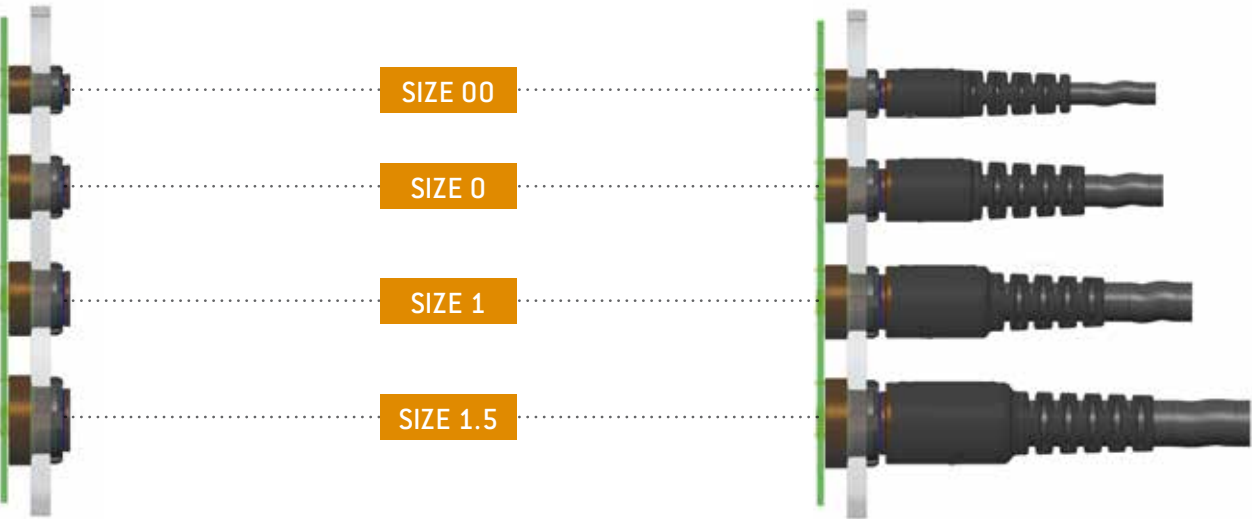
PANEL CUT-OUT DIAMETER



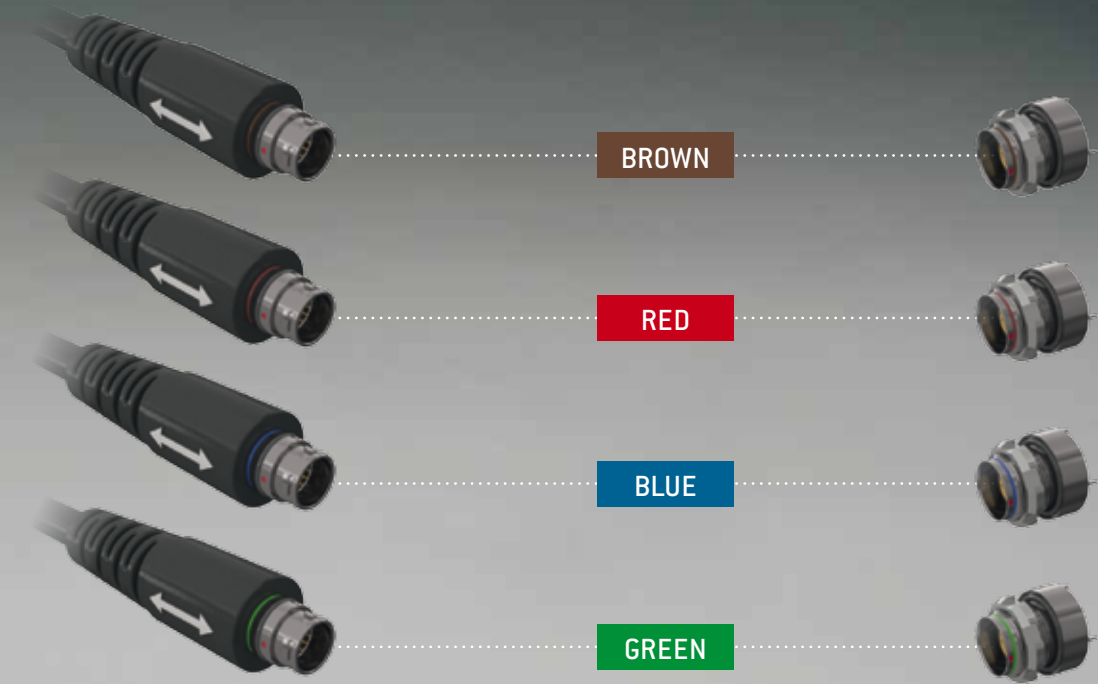
ONE PC-BOARD FITS ALL SIZES

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.

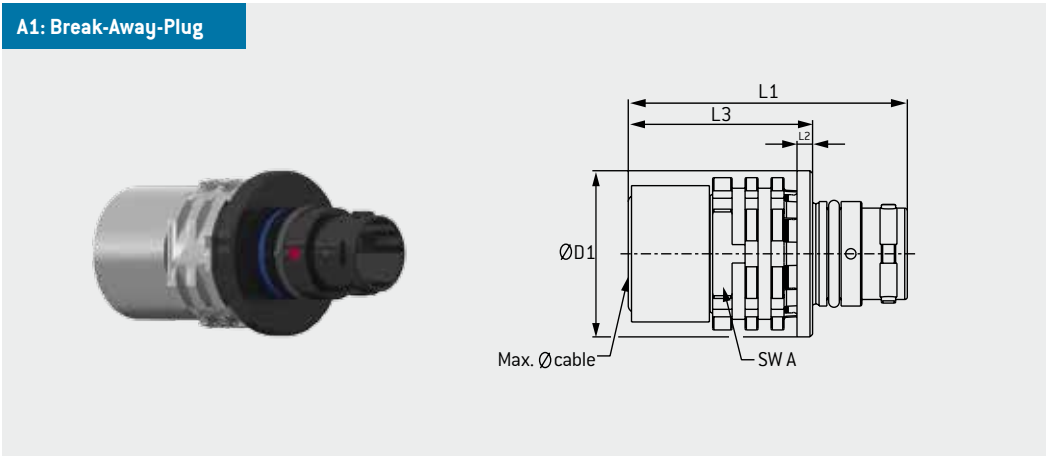


RELIABLE AND ROBUST CODING



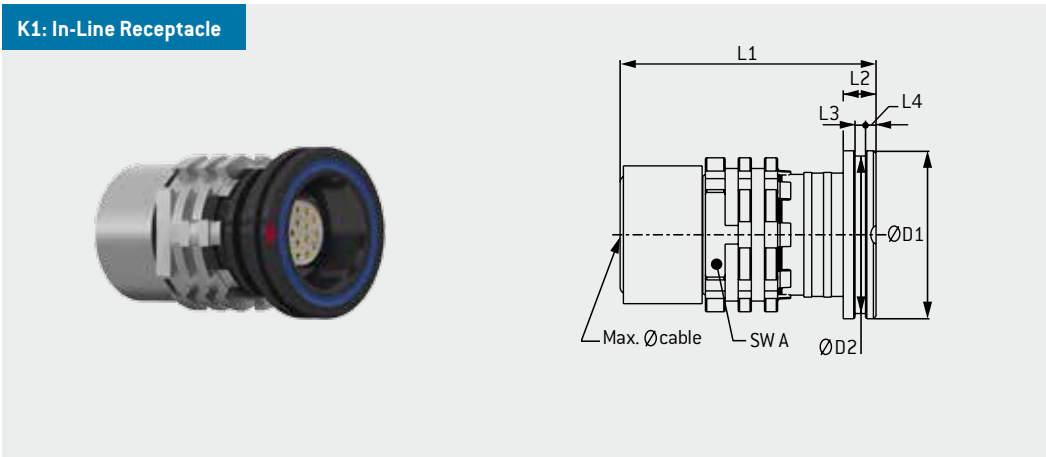
DIMENSIONS AND CONTACT DETAILS

A1: Break-Away-Plug



Size	L1	L2	L3	D1	SW A	Max. Ø cable
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

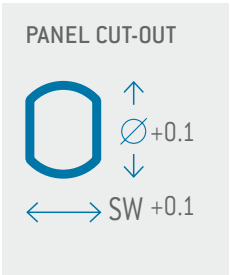
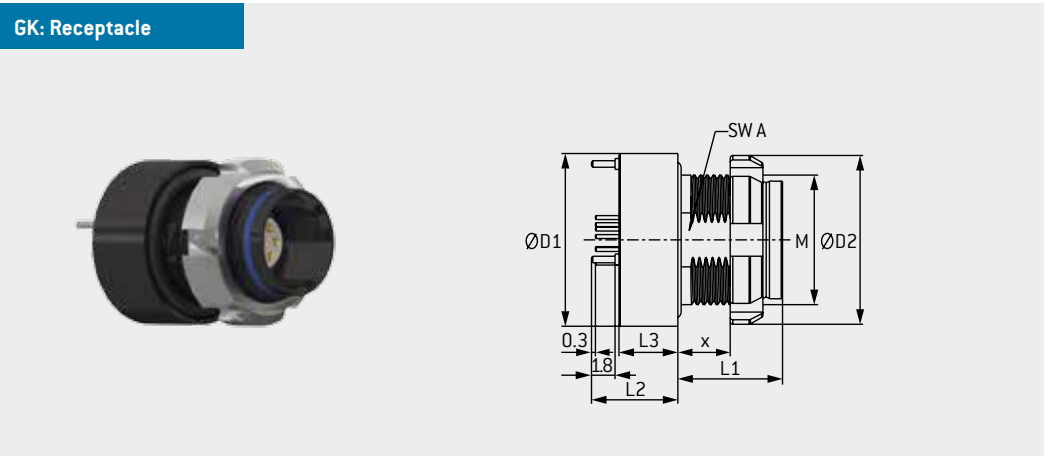
K1: In-Line Receptacle



Size	L1	L2	L3	L4	D1	D2	SW A	Max. Ø cable
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 in mm

DIMENSIONS AND CONTACT DETAILS



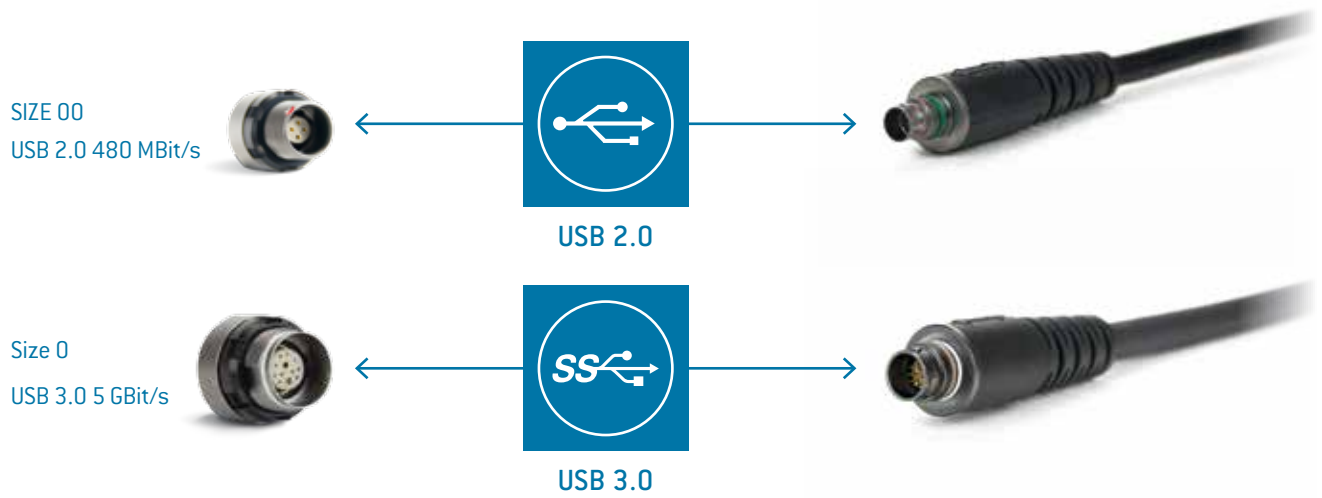
Size	L1	L2 ¹	L3	X max.	D1	D2	SW A	M	Panel cut-out	
									SW	Ø
00	8.0	6.6	4.5	4.0	10.0	10.0	6.5	7 x 0.5	6.6	7.1
0	8.0	6.6	4.5	4.0	13.2	13.0	9.0	10 x 0.5	9.1	10.1
1	8.0	6.6	4.5	4.0	15.3	15.0	11.5	12 x 0.5	11.6	12.1
1.5	8.0	6.6	4.5	4.0	18.5	18.0	13.0	14 x 0.5	13.1	14.1

¹ For solder cup version:
Details on request.

Dimensions in mm

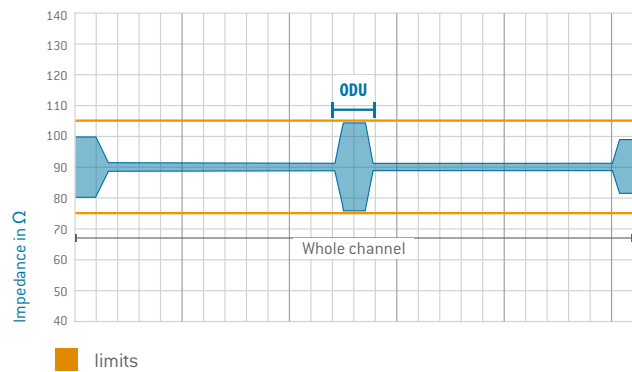


HIGHSPEED DATA TRANSMISSION AT A GLANCE

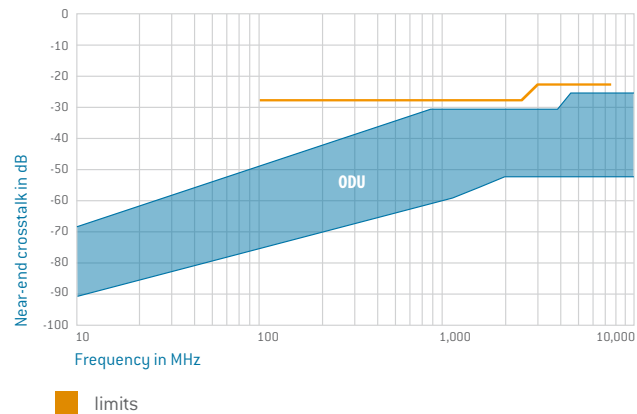


CHARACTERISTIC IMPEDANCE

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

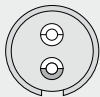
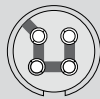
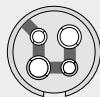
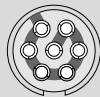
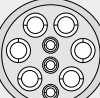
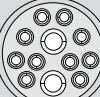


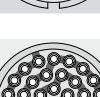


NEAR-END CROSSTALK



Secure data transmission has become indispensable in military actions.

CONTACT CONFIGURATIONS

Shell size	Layout	Number of contacts	Suitable for	Termination		Max. wire size	Max. current ²	Test voltage acc. SAE 13441	Rated voltage ³
				PCB ¹ only GK style	Soldercup				
00		02	Power	● Ø 0.5	●	2 x AWG 24 (Power)	3 A	1,200	300
		04	Signal	● Ø 0.3	●	4 x AWG 28	1 A	900	300
		04	USB 2.0	0	●	2 x AWG 28 (Signal Lines) 2 x AWG 24 (Power)	1 A 3 A	750	250
		07	Signal	● Ø 0.3	●	7 x AWG 28	1 A	750	250
0		09	USB 2.0 + Power	0	●	3 x AWG 28 (Signal Lines) 6 x AWG 22 (Power)	1 A 5 A	750	250
		12	USB 3.0 + Power	0	●	10 x AWG 28 (Signal Lines) 2 x AWG 22 (Power)	1 A 5 A	750	250
		16	Signal	● Ø 0.3	●	16 x AWG 28	1 A	750	250
1		27	Signal	● Ø 0.3	●	27 x AWG 28	1 A	750	250
1.5		40	Signal	● Ø 0.3	●	40 x AWG 28	1 A	750	250

¹ Layouts on request² Single contact load³ Maximal operating voltage at sea level up to 2000 m acc. To SAE 13441.

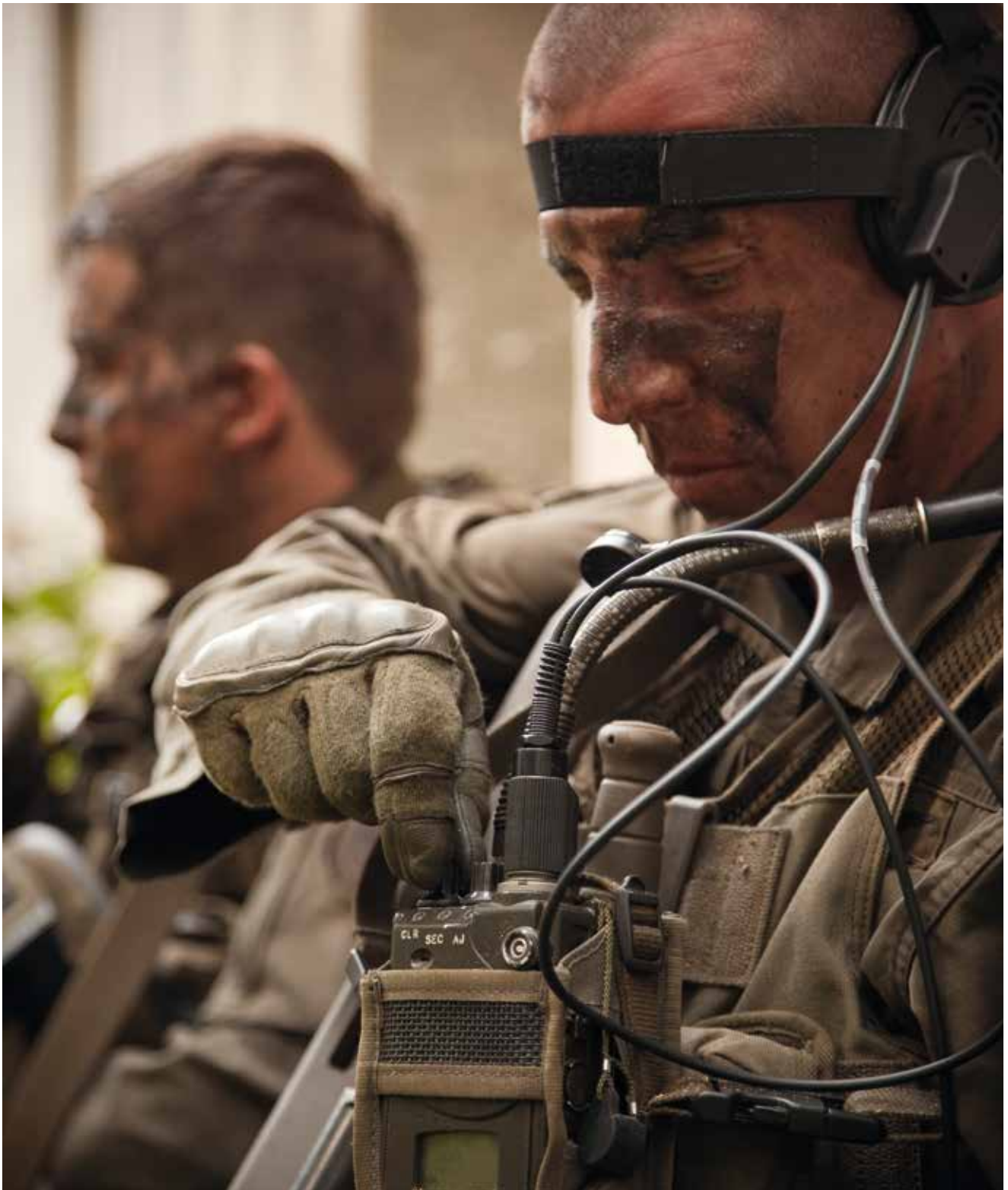
For various applications the safety requirements regarding the operating voltage is even more severe. This must be evaluated during the time of equipment engineering.

° 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.



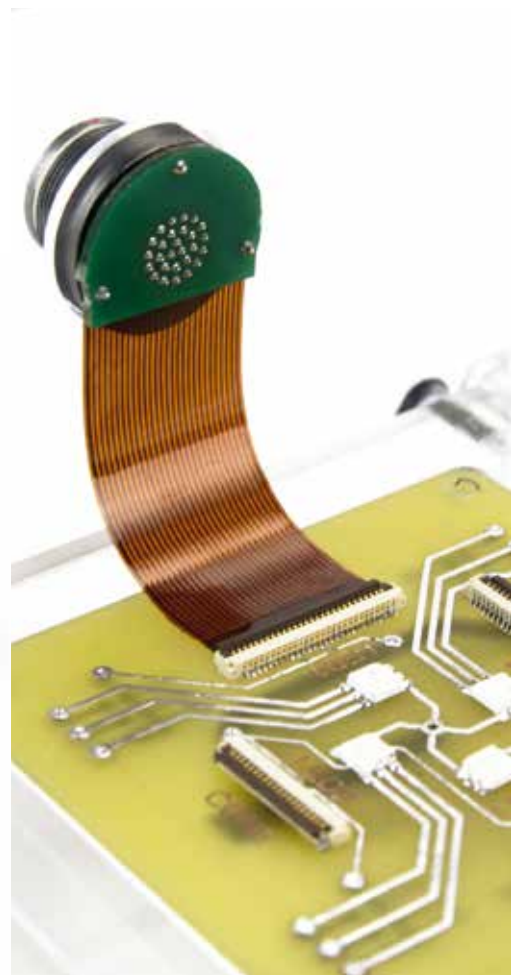
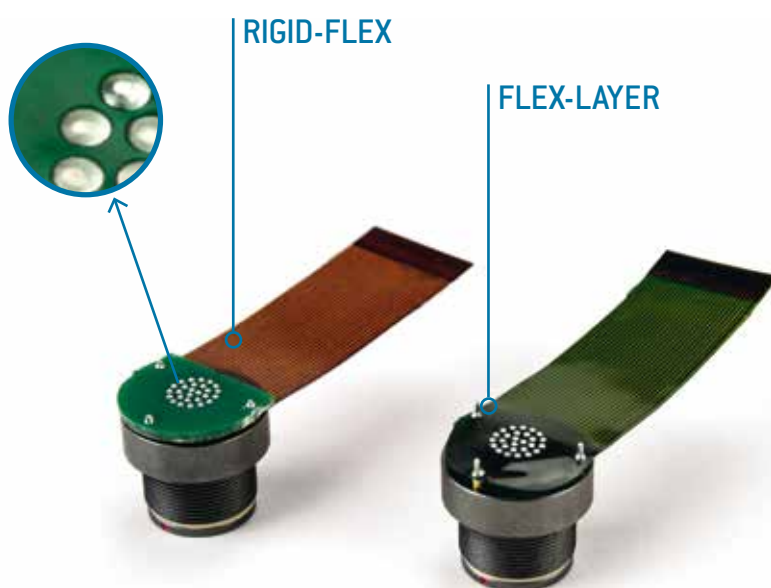
A CONNECTION YOU CAN COUNT ON

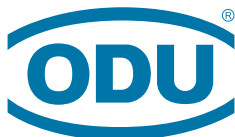
- Close cooperation with our customers to find the optimal solution
- ODU handles the complete processing, from procuring the cable and assembly up to individual potting or overmouldings
- 100% inspection
- The connectors are also able to be assembled by customers – supported by the ODU experts



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

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Pregelstr. 11

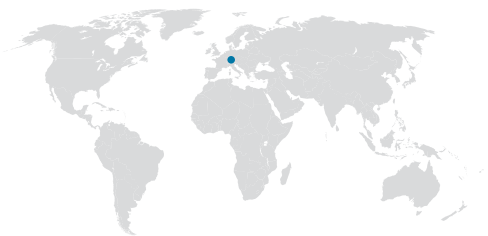
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