ODU AMC® HIGH-DENSITY

ODU HIGH SPEED DATA TECHNOLOGY

www.odu-connectors.com

ODU AMC® HIGH-DENSITY

FEATURES

- High contact-density connector
- High-speed data transfer capability, including:
  – USB® 3.2 Gen 1×1
  – 10 Gbit Ethernet
  – HDMI®
- Rugged, robust housing with non-reflective surface plating
- Submersible, watertight protection classes IP6K8 / IP6K9K
- RoHS compliant
- Up to 5,000 mating cycles durability
- Break-Away for maximum safety
- Mechanical coding with color-coded visual indicator
- Contacts for solder cup and PCB termination

APPLICATIONS

- Tactical radios and accessories
- Ruggedized computers and tablets
- Power supply
- Unmanned systems
- Optical devices
- Software defined radios
- Defence and security systems

All shown connectors and cable assemblies are defined without breaking capacity (COC) according to IEC 61984:2008 (VDE 0627:2009).
All shown connectors and cable assemblies are rated to a safety extra low voltage (SELV) of less than 50 V AC / 75 V DC, according to IEC 61140:2016 (VDE 0140-1:2016). For more details, please refer to page 52.

DATA TRANSMISSION PROTOCOLS

The contact arrangement of an ODU data transmission connector differs from a standard data transmission connector due to the robust ODU specific design.
However, the ODU design meets the electrical specifications that are derived from the respective standard data transission protocol.

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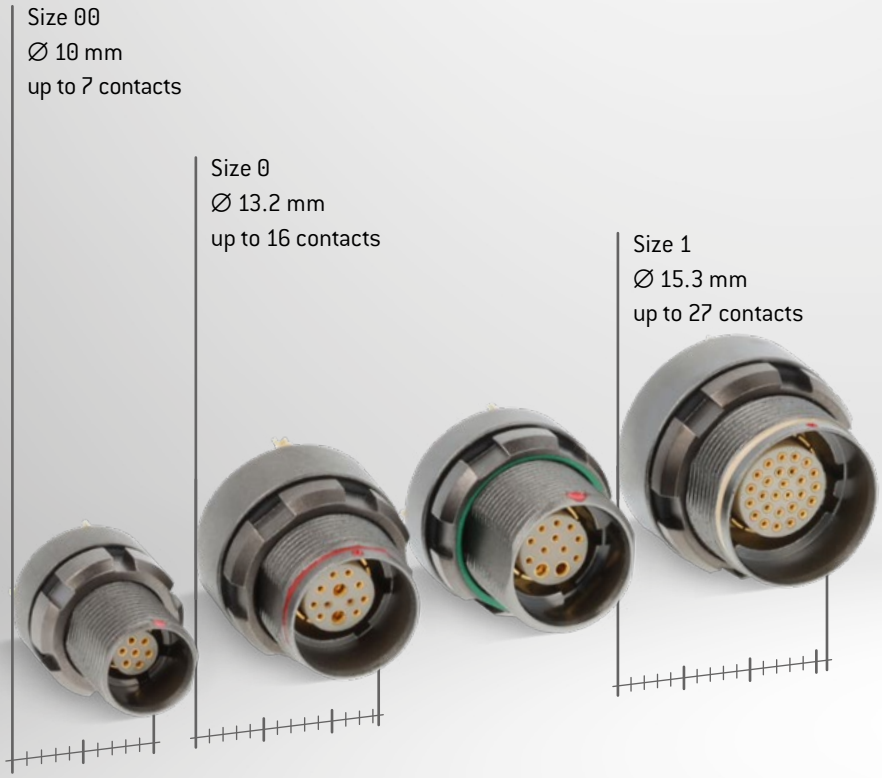
For assembly instructions please refer to our website: www.odu-connectors.com/downloads



ODU AMC® HIGH-DENSITY

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PRODUCT INFORMATION

ODU AMC® HIGH-DENSITY INTRODUCTION – A HIGHLY RELIABLE CONNECTOR SOLUTION

ODU AMC® High-Density is a rugged, ultra-miniature connector solution for extreme environments. Available in connector diameters as small as 7 mm, the ODU AMC® High-Density connector line proves that premium quality can also come in small packages.

In additional to compact signal options, the product line includes versions for "Power" (up to 15 A) and "Data Transfer" (USB® 3.2 Gen 1×1, 5 A power) in compact, high-density configurations.

The ODU AMC® High-Density connector offers an impressively long service life of more than 5,000 mating cycles, even under challenging conditions. Intuitive mate and demate operation, and mechanical color coding aid operators and reduce user error.

The connector is available in two locking styles standard. Break-Away connectors can be easily disconnected by tugging on the cable, and are ideal whenever the cable is a potential snag hazard. Screw-Lock connectors remain connected despite environmental conditions, including tension on the cable, shock and vibration.

ODU AMC® HIGH-DENSITY

VARIOUS SIZES AND CONFIGURATIONS AVAILABLE

- Metal connector plug housing deliverable in 3 sizes
- Outer diameter 7 mm to 15 mm
- Number of contacts 2 to 27
- Inserts for high-speed data transmission
- International protection class IP68 / IP6K9K
- Salt spray resistance
- Tested according to various MIL standards
- Uniform distance from mounting flange to PCB, allows multiple connectors to be placed on the same board

MATERIALS AND APPLICABILITY

The ODU AMC® High-Density connector series uses PEEK as the insulator material. The housings are made of brass, and plated with ruthenium over nickel (See page 47 for more information). Operating temperature range: –51 °C to +125 °C. This rugged and versatile connector series is ideal for defense & security applications as well as industrial electronics.

COMPLETE SYSTEM SOLUTION

Every connection has an unique cable requirement. Make no compromise when it comes to the quality of the complete interconnect system. ODU gives you the complete system solution from one source, without the need for an intermediary supplier. Services include:

- 100 % outgoing inspection
- ISO 14644-1:2015 clean room assembly availabe
- Factory-automated equipment and processes (cutting, stripping, etc.)
- Low- and high-pressure overmolding
- Ultrasonic welding
- EMI shielded enclosure assembly
- Custom labeling
- Various potting options for sealed systems
- Overmolded cable transitions (1-to-2, 1-to-3, etc.)

ODU AMC® HIGH-DENSITY CONNECTORS – LOCKING STYLE OPTIONS

	Coding	Size	No. of possible mechanical and optical codings	Plug diameter in mm	Max. cable diameter in mm	Number of max contacts	High-Speed inserts	Solder	PCB	International protection class A[1]
BREAK-AWAY 	Pin and groove	00	4	9.8	5.0	7	•	•	•	up to IP6K9K
		0		12.8	7.0	16				
		1		14.8	8.5	27				
BREAK-AWAY WITH SCREW-LOCK 	Pin and groove	00	4	9.8	5.0	7	•	•	•	up to IP6K9K
		0		12.8	6.5	16				
		1		14.8	8.0	27				

[1] International protection class in mated condition

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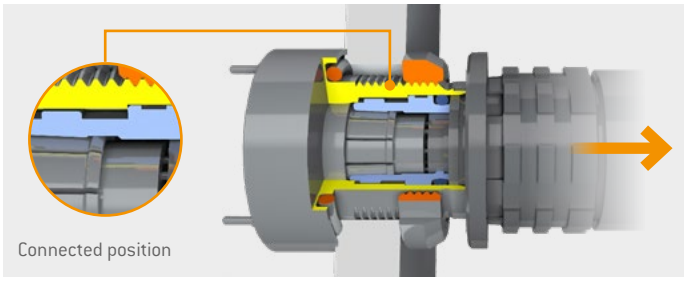
ODU AMC® HIGH-DENSITY LOCKING MECHANISMS

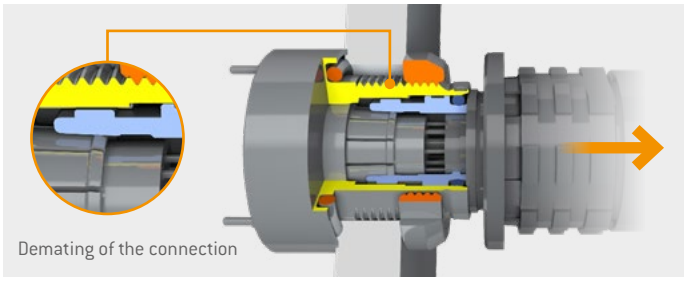
ODU offers you high-quality connectors and comprehensive service for the complete assembly. From connectors to submersible overmolded cable assemblies, we provide the complete system as an one-stop solution.

BREAK-AWAY FUNCTION

The break-away function allows connectors to be mated and unmated quickly and reliably. During the mating process, a locking ring inside the receptacle engages corresponding grooves on the plug. Once established, the connection will be maintained as long as axial tension on the plug is less than the release limit of the connector system.
The retention mechanism is strong enough to resist minor tension. Pulling lightly on the plug or cable assembly will have no impact on the connection.

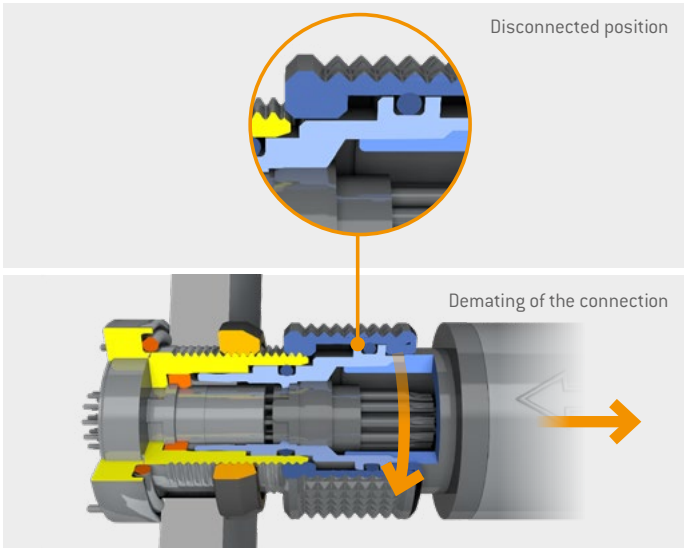


If the plug or cable assembly is pulled forcefully, and the release limit of the connector is exceeded the connectors will separate.
Features in the connector allow the plug and receptacle to separate when the either the plug or the plug cable assembly is pulled avially away from the receptacle with enough force to overcome the retention mechanism.



SCREW-LOCK FUNCTION

Just like in the break-away connectors described above, during the mating process a locking ring inside the receptacle engages corresponding grooves on the plug. Once the connector is fully engaged, an operator can engage the secondary screw-lock mechanism by rotating the outer coupling sleeve. Once engaged, the connector will stay mated until the screw-lock mechanism is disengaged. Pulling on the plug connector or plug cable assembly will not cause the connector to separate.



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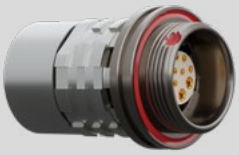
CONNECTOR VARIATIONS

RECEPTACLE IN-LINE RECEPTACLE		PLUG		BREAK-AWAY FUNCTION	SCREW-LOCK FUNCTION
	**Style GK** (Page 22)		**Style A1** (Page 20)	✓	
			**Style C1** (Page 24)	✓	
	**Style G6** (Page 23)		**Style A1** (Page 20)	✓	
			**Style C1** (Page 24)	✓	
	**Style K1** (Page 21)		**Style A1** (Page 20)	✓	
			**Style C1** (Page 24)	✓	
	**Style GC** (Page 26)		**Style A1** (Page 20)	✓	
			**Style C1** (Page 24)	✓	✓
	**Style GS** (Page 27)		**Style A1** (Page 20)	✓	
			**Style C1** (Page 24)	✓	✓
	**Style KC** (Page 25)		**Style A1** (Page 20)	✓	
			**Style C1** (Page 24)	✓	✓

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ODU AMC® HIGH-DENSITY

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CONFIGURATION GUIDELINE

Correct configuring – step by step

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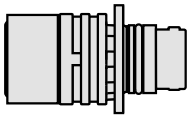
SAMPLE CONFIGURATION STEP BY STEP

The perfect product for you in just a few steps. These step-by-step instructions shows you how to configure your own individual product with the ODU part number key based on a sample configuration.

Plug in style 1 / size 0 / series W / coding A / connector housing ruthenium over brass / insulator PEEK / 16 contacts / solder pin / contact diameter 0.3 / termination cross section AWG 28 /

STEP 1: SERIES (SEE POSITION 4)

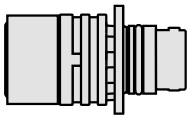
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
			W		M	–	P						0	–	0	0	0	



AMC® HIGH-DENSITY

STEP 2: STYLE (SEE POSITIONS 1 AND 2)

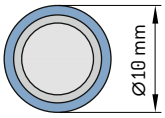
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
A	1		W		M	–	P						0	–	0	0	0	0



BREAK-AWAY PLUG

STEP 3: SIZE (SEE POSITION 3)

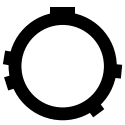
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
A	1	0	W		M	–	P						0	–	0	0	0	0



SIZE 0

STEP 4: CODING (SEE POSITION 5)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
A	1	0	W	A	M	–	P						0	–	0	0	0	0



CODING A = LIGHT BROWN

	Mechanical coding	Color coding	Color
A			Light brown
B			Red

	Mechanical coding	Color coding	Color
C			Blue
D			Green

STEP 5: PLATING & HOUSING MATERIAL (SEE POSITION 6)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
A	1	0	W	A	M	–	P						0	–	0	0	0	0

RU

RUTHENIUM OVER BRASS

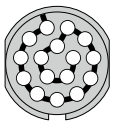
STEP 6: INSULATOR MATERIAL (SEE POSITION 8)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
A	1	0	W	A	M	–	P						0	–	0	0	0	0

PEEK

STEP 7: CONTACT INSERT (SEE POSITIONS 9 AND 10)

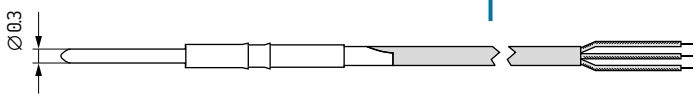
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
A	1	0	W	A	M	–	P	1	6				0	–	0	0	0	0



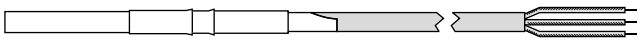
16 CONTACTS

STEP 8: SEE CONTACT CONFIGURATIONS FROM P. 30

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
A	1	0	W	A	M	–	P	1	6	X	B	C	0	–	0	0	0	0



SOLDER (PIN / SOCKET) – CONTACT DIAMETER 0.3 MM AWG 28



Product Finder

YOUR WAY TO AN INDIVIDUAL CONNECTION

HOW TO CONFIGURE WITH THE PART NUMBER KEY

This shows you how ODU's part number key is composed. In the first part of the configuration, select the connector plug housing (such as style and size) of the connector. In the middle part of the part number key, you configure the contact insert and then the cable entry.

Type	Style
A	1
C	1
G	6
G	C
G	K
G	S
K	1
K	C

Type
G = Receptacle
K = In-line receptacle
C = Break-away plug with Screw-Lock
A = Break-away plug

Size
C, 0, 1

Series
AMC® High-Density

Coding
Color & mechanical (A–D)

Plating & housing material
Ruthenium over brass

Material insulator
(PEEK = Standard)

Contact configuration
e.g. 16 contacts = 16

Contact configuration

Receptacle earth tag
Receptacle GC, GK = L
Default = 0

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
A	1	0	W	A	M	–	P	1	6	X	B	C	0	–	0	0	0	0

Connector plug housing
from page 17

Contact insert
from page 30

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MORE THAN A CONNECTION

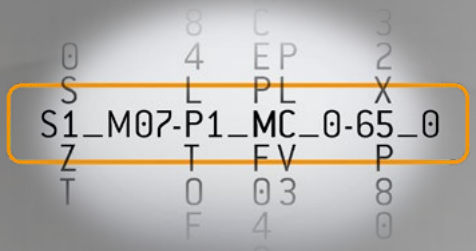
Contacts, connectors and cable assembly system solutions meeting the most demanding technical market requirements – ODU's connector solutions and value-added services are characterized by their exclusive focus on meeting the customer's requirements.

- Precise implementation of application-specific requirements regarding design, functionality, cost and exclusivity
- Modified connector solutions derived from standard products
- One-to-one local expertise and fair, friendly consulting
- Short product development and production paths

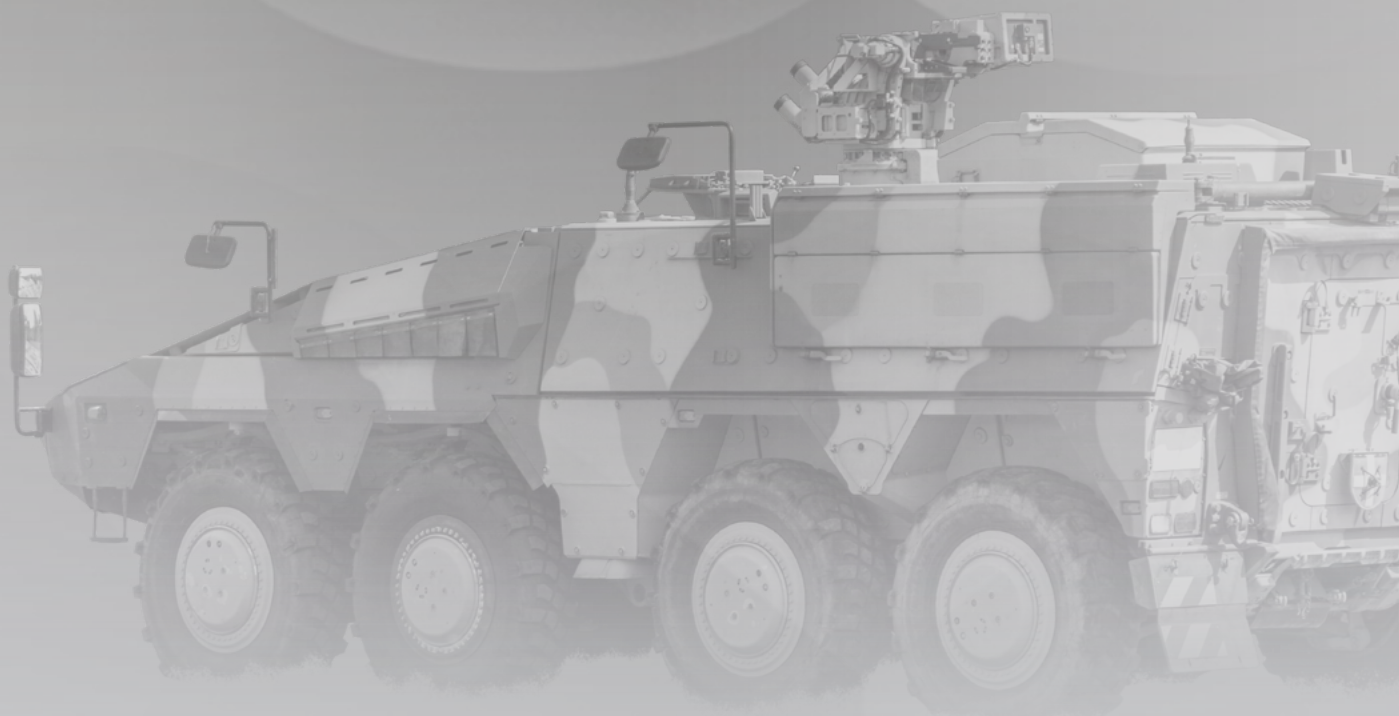
ODU PRODUCT FINDER

Use the intelligent part number and keyword search of the ODU Product Finder at: www.odu-productfinder.com to obtain information about the ODU product portfolio.

In the detailed product presentation you will find information on suitable assembly tools and accessories. accessories.



The buttons on the following pages lead directly to the **corresponding products** and **cable assemblies** in the **Product Finder.**
CONFIGURE YOUR PRODUCT AND CABLE ASSEMBLY ONLINE!



ODU AMC® HIGH-DENSITY

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ODU AMC® HIGH-DENSITY SERIES

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SUMMARY ODU AMC® HIGH-DENSITY

The ODU AMC® High-Density is coded by pin and groove. These highly robust miniature connector series can be configured in many different ways: a variety of sizes, termination types and contact inserts are available.

- Coding over pin and groove
- 2 – 27 contacts / mixed inserts
- Up to 3 sizes and 2 termination types
- International protection class up to IP68 / IP69
- Up to 5,000 mating cycles
- Contacts for solder and PCB termination

BREAK-AWAY PLUG P. 20

A 1

IN-LINE RECEPTACLE P. 21

K 1

PANEL MOUNT RECEPTACLES P. 22 / P.23

G K

G 6

For assembly instructions please refer to our website: www.odu-connectors.com/downloads

BREAK-AWAY PLUG WITH SCREW-LOCK P. 24

C 1

IN-LINE RECEPTACLE WITH SCREW-LOCK P. 25

K C

PANEL MOUNT RECEPTACLES WITH SCREW-LOCK P. 26 / P. 27

G C

G S

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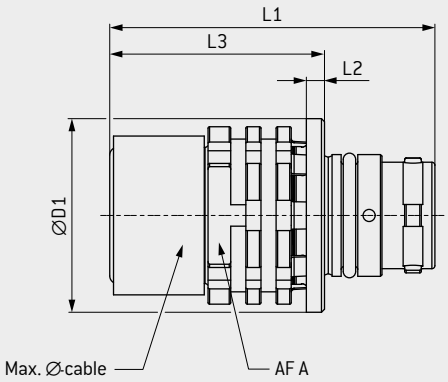
BREAK-AWAY PLUG

STYLE 1



Size		L1 mm	L2 mm	L3 mm	D1 mm	AF A mm	Max. Ø-cable mm
00	C	20.0	1.2	12.8	9.8	8	5.0
0	0	21.5	1.2	14.2	12.8	10	7.0
1	1	25.2	1.2	18.2	14.8	12	8.5

TECHNICAL DATA

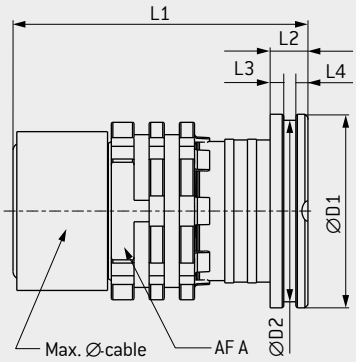
- IP68 in relation to end device
- Contact configuration see page 30
- Cable assembly information see ODU instruction: 010.650.001.000.001 in the download section

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
A	1		W		M	–	P						0	–	0	0	0	0

Product Finder

IN-LINE RECEPTACLE

STYLE 1



Size		L1 mm	L2 mm	L3 mm	L4 mm	D1 mm	D2 mm	AF A mm	Max. Ø-cable mm
00	C	18.7	2.5	0.8	0.8	9.8	9	8	5.0
0	0	19.5	2.5	0.8	0.8	12.8	12	10	7.0
1	1	23.5	2.5	0.8	0.8	14.8	14	12	8.5

TECHNICAL DATA

- IP68 in relation to end device
- Contact configuration see page 30
- Cable assembly information see ODU instruction 010.650.001.000.002 in the download section

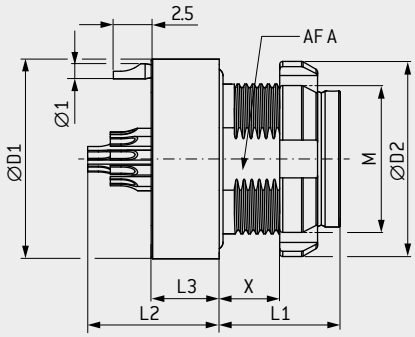
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
K	1		W		M	–	P						0	–	0	0	0	0

Product Finder

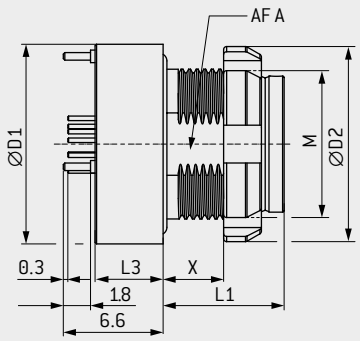
PANEL MOUNT RECEPTACLE

STYLE K

SOLDER

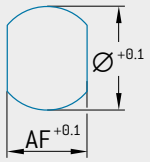


PCB



Size		L1 mm	L2 max. mm	L3 mm	X max. mm	D1 mm	D2 mm	AF A mm	M mm	Panel cut out AF	Panel cut out Ø
00	C	8	8.7	4.5	4	10.0	10	6.5	7 × 0.5	6.6	7.1
0	0	8	8.7	4.5	4	13.2	13	9.0	10 × 0.5	9.1	10.1
1	1	8	10.2	4.5	4	15.3	15	11.5	12 × 0.5	11.6	12.1

Panel cut out



TECHNICAL DATA

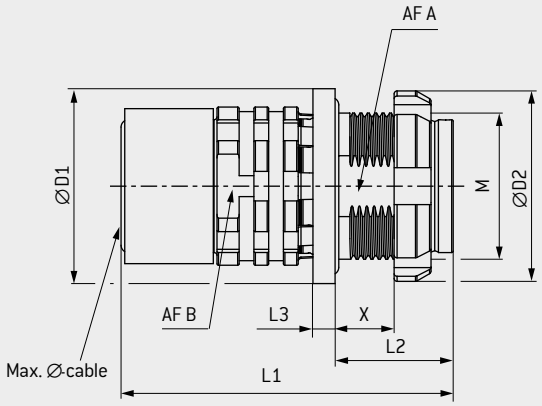
- IP68 in relation to end device, also in unmated condition
- Contact configuration see page 30
- PCB-Layouts see page 31

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
G	K		W		M	–	P						0	–	0	0	0	L

Product Finder

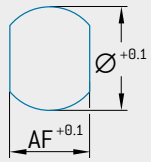
PANEL MOUNT RECEPTACLE

STYLE 6



Size		L1 mm	L2 mm	L3 mm	X max. mm	D1 mm	D2 mm	AF A mm	AF B mm	M mm	Panel cut out AF	Panel cut out Ø	Max. Ø-cable
00	C	21.0	8	1.5	4	9.9	10	6.5	8	7 × 0.5	6.6	7.1	5.0
0	0	22.5	8	1.5	4	13.2	13	9.0	10	10 × 0.5	9.1	10.1	7.0
1	1	26.5	8	1.5	4	15.3	15	11.5	12	12 × 0.5	11.6	12.1	8.5

Panel cut out



TECHNICAL DATA

- IP68 in relation to end device, also in unmated condition
- Contact configuration see page 30
- Cable assembly information see ODU instruction: 010.650.001.000.006 in the download section

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
G	6		W		M	–	P						0	–	0	0	0	0

Product Finder

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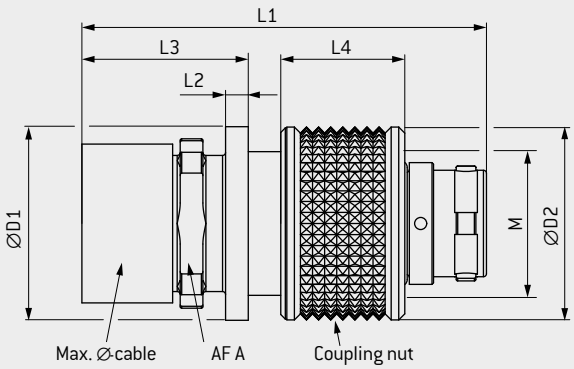
BREAK-AWAY PLUG WITH SCREW-LOCK

STYLE 1



Size		L1 mm	L2 mm	L3 mm	L4 mm	D1 mm	D2 mm	AF A mm	M mm	Max. Ø-cable mm
00	C	25.5	1.0	10.1	8.1	9.8	10.5	6.5	7 × 0.5	5.0
0	0	26.8	1.5	11.0	8.2	12.8	12.8	9.0	10 × 0.5	6.5
1	1	27.8	1.5	12.0	8.3	14.8	15.2	11.0	12 × 0.5	8.0

TECHNICAL DATA

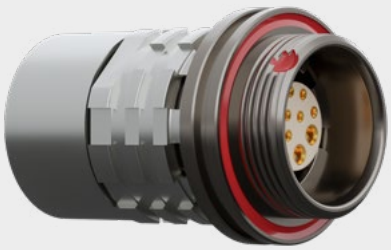
- IP68 in relation to end device
- Contact configuration see page 30
- Cable assembly information see ODU instruction: 010.650.001.000.011 in the download section

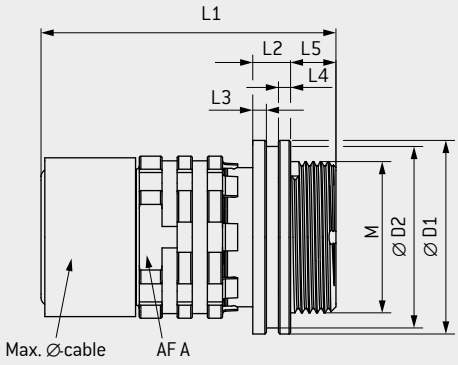
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
C	1		W		M	–	P						0	–	0	0	0	0

Product Finder

IN-LINE RECEPTACLE FOR SCREW-LOCK

STYLE C





Size		L1 mm	L2 mm	L3 mm	L4 mm	L5 mm	D1 mm	D2 mm	AF A mm	M mm	Max. Ø-cable mm
00	C	18.7	2.5	0.9	0.8	3.0	9.8	8.5	6.5	7 × 0.5	5.0
0	0	19.5	2.5	0.9	0.8	3.0	12.8	12.0	10.0	10 × 0.5	7.0
1	1	23.5	2.5	0.9	0.8	3.0	14.8	14.0	12.0	12 × 0.5	8.5

TECHNICAL DATA

- IP68 in relation to end device
- Contact configuration see page 30
- Cable assembly information see ODU instruction: 010.650.001.000.012 in the download section

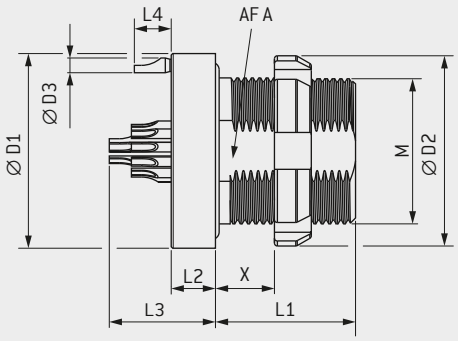
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
K	C		W		M	–	P						0	–	0	0	0	0

Product Finder

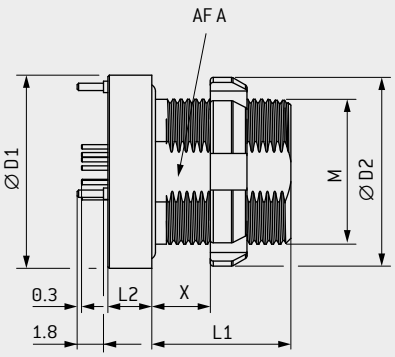
PANEL MOUNT RECEPTACLE FOR SCREW-LOCK

STYLE C

SOLDER

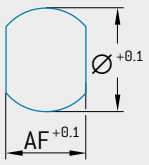


PCB



Size		L1 mm	L2 max. mm	L3 max. mm	L4 mm	X max. mm	D1 mm	D2 mm	D3 mm	AF A mm	M mm	Panel cut out AF	Panel cut out Ø
00	C	9.5	3.0	7.2	2.5	4.0	9.9	10.0	1.0	6.5	7 × 0.5	6.6	7.1
0	0	9.5	3.0	7.2	2.5	4.0	13.2	12.9	1.0	9.0	10 × 0.5	9.1	10.1
1	1	9.5	3.0	8.7	2.5	4.0	15.3	14.9	1.0	11.5	12 × 0.5	11.6	12.1

Panel cut out



TECHNICAL DATA

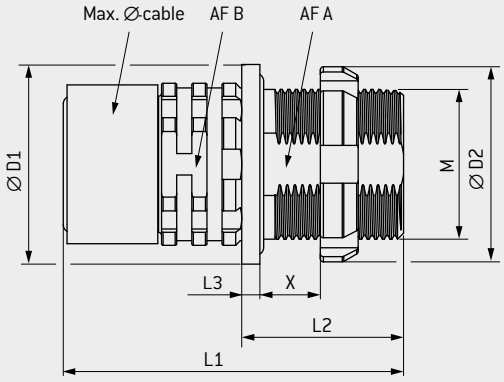
- IP68 in relation to end device, also in unmated condition
- Contact configuration see page 30
- PCB-Layouts see page 31

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
G	C		W		M	–	P						0	–	0	0	0	L

Product Finder

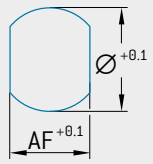
PANEL MOUNT RECEPTACLE FOR SCREW-LOCK

STYLE S



Size		L1 mm	L2 mm	L3 mm	X max. mm	D1 mm	D2 mm	AF A mm	AF B mm	M mm	Panel cut out AF	Panel cut out Ø	Max. Ø-cable
00	C	22.0	10.7	1.2	4.0	9.9	10.0	6.5	8	7 × 0.5	6.6	7.1	5.0
0	0	22.5	10.7	1.2	4.0	13.2	12.9	9.0	10	10 × 0.5	9.1	10.1	7.0
1	1	26.5	10.7	1.5	4.0	15.3	14.9	11.5	12	12 × 0.5	11.6	12.1	8.5

Panel cut out



TECHNICAL DATA

- IP68 in relation to end device, also in unmated condition
- Contact configuration see page 30
- Cable assembly information see ODU instruction: 010.650.001.000.013 in the download section

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
G	S		W		M	–	P						0	–	0	0	0	0

Product Finder

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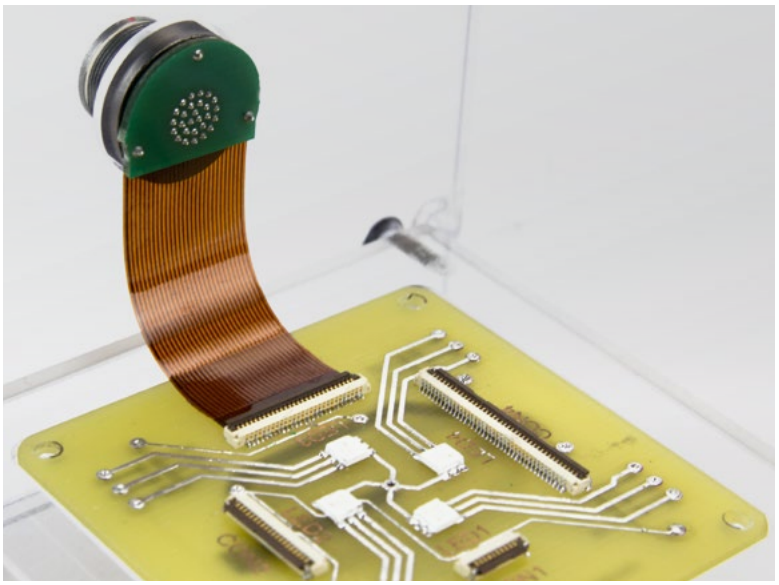
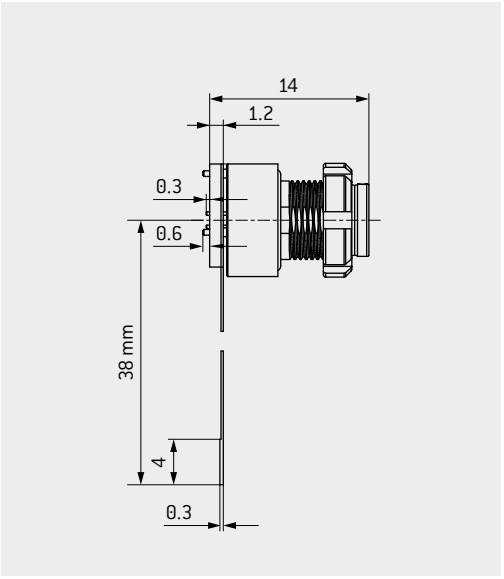
FACTORY-TERMINATED FLEX ASSEMBLIES

TERMINATION PC-BOARDS

ODU AMC® High-Density device components can be supplied for direct attachment to the board or as rigid-flex-solution.
The solder process is tested and suitable for all available inserts.





Size	Partnumber	AMC® High-Density Connector (Included)	Number of contacts	Connector coding	Locking Function		Suitable for
					Break-away	Screw-lock	
00	CGKCWAM040001000038	GKCWAM-P04UB00-000L	04	A	•	–	–
	CGCCWAM040001000038	GCCWAM-P04UB00-000L	04	A	•	•	–
	CGKCWAM070001000038	GKCWAM-P07UB00-000L	07	A	•	–	–
	CGCCWAM060001000038	GCCWAM-P07UB00-000L	07	A	•	•	–
0	CGK0WCM120001000038	GK0WCM-P12UM00-000L	12	C	•	–	USB® 3.2 Gen 1 × 1 + Power
	CGC0WCM120001000038	GC0WCM-P12UM00-000L	12	C	•	•	USB® 3.2 Gen 1 × 1 + Power
	CGK0WAM160001000038	GK0WAM-P16UB00-000L	16	A	•	–	–
	CGC0WAM160001000038	GC0WAM-P16UB00-000L	16	A	•	•	–
	CGK0WBM160001000038	GK0WBM-P16UB00-000L	16	B	•	–	–
	CGC0WBM160001000038	GC0WBM-P16UB00-000L	16	B	•	•	–
1	CGK1WAM270001000038	GK1WAM-P27UB00-000L	27	A	•	–	–
	CGC1WAM270001000038	GC1WAM-P27UB00-000L	27	A	•	•	–

Additional lengths, configurations and codings available on request. Contact ODU for more information.
Flex is designed to work with suitable ZIF connector (not supplied). Contact ODU for more information.

FLASH-DRIVE 756.271.120.001.359

- USB® 3.1 Gen 1x1 (read 180 MB / s, write 133 MB / s)
- Robust mechanical and optical coding
- Protection class IP68 / 69K in mated condition
- Temperature range –40 °C to +85 °C
- pSLC (Pseudo Single Level Cell) technology

ADAPTER CABLE CG60WCM124IYV000300

- Adapter cable length 300 mm
- Receptacle G60WCM-P12WMM0-0000

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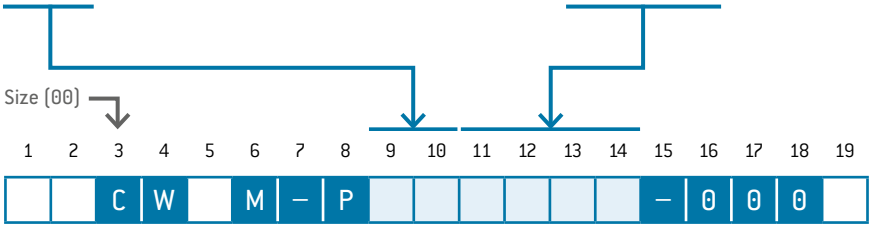
CONTACT CONFIGURATIONS (SIZE 00)

Number of contacts[1]		Available connector styles						Contact type		Contact configuration				Contact diameter	Contact current recommend[2]	Test voltage[3]	Termination diameter	Termination cross section	
									Termination					mm	A	VDC	mm	AWG	mm²
0	2	K1	KC	G6	GK	GC	GS	Socket	Solder	W	C	E	0	0.5	3	1,200	–	24	0.25
		–	–	–			–		Print / PCB	U	C	0	0				0.6	–	–
		A1	–	–	–	C1	–	Pin	Solder	X	C	E	0				–	24	0.25
0	4	K1	KC	G6	GK	GC	GS	Socket	Solder	W	B	C	0	0.3	1	900	–	28	0.08
		–	–	–			–		Print / PCB	U	B	0	0				0.3	–	–
		A1	–	–	–	C1	–	Pin	Solder	X	B	C	0				–	28	0.08
0	7	K1	KC	G6	GK	GC	GS	Socket	Solder	W	B	C	0	0.3	1	750	–	28	0.08
		–	–	–			–		Print / PCB	U	B	0	0				0.3	–	–
		A1	–	–	–	C1	–	Pin	Solder	X	B	C	0				–	28	0.08

HIGH-SPEED INSERTS (OR SPECIFIC INSERTS FOR HIGH DATA TRANSMISSION RATES)

U	4	K1	KC	G6	GK	GC	GS	Socket	Solder	W	B	M	0	0.3	1	750	–	28	0.08
		A1	–	–	–	C1	–	Pin		X	B	M	0		3		–	24	0.25
0	4	–	–	–	GK	GC	–	Socket	Print / PCB	U	B	0	0	0.3	3[4]	750	0.3	–	–



[1] Other contact configurations on request
[2] Suitable wire (size and characteristics) considering the derating factor on page 51
[3] Acc. to EIA-364-20F:2019-02, further infomation on voltage rating on page 52
[4] 3A possible when using U4 counter part

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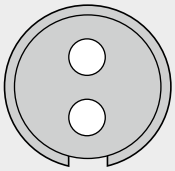
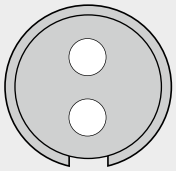
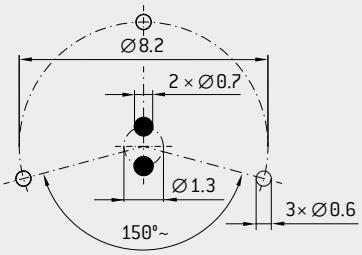
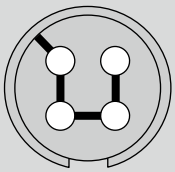
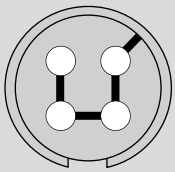
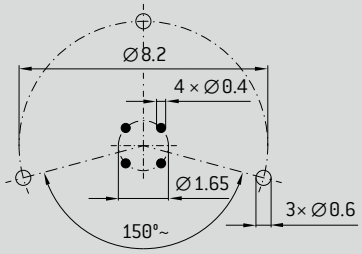
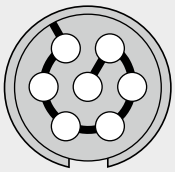
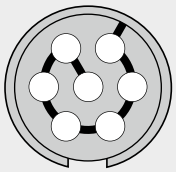
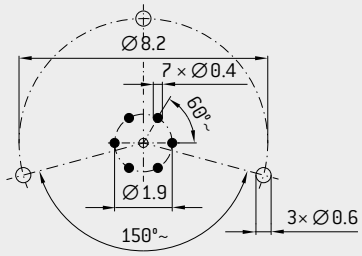
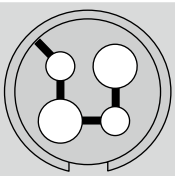
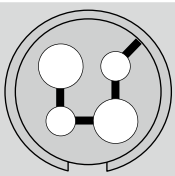
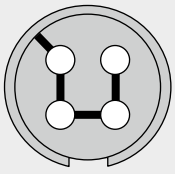
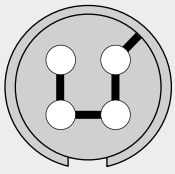
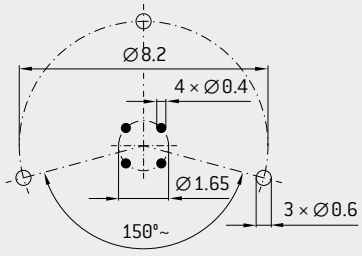
PCB LAYOUT PRINT CONTACTS SIZE 00

View on termination area		Data transmission protocols	Number of contacts	
Pin side	Socket side			
			2 pos.	
			4 pos.	
			7 pos.	

HIGH-SPEED INSERTS

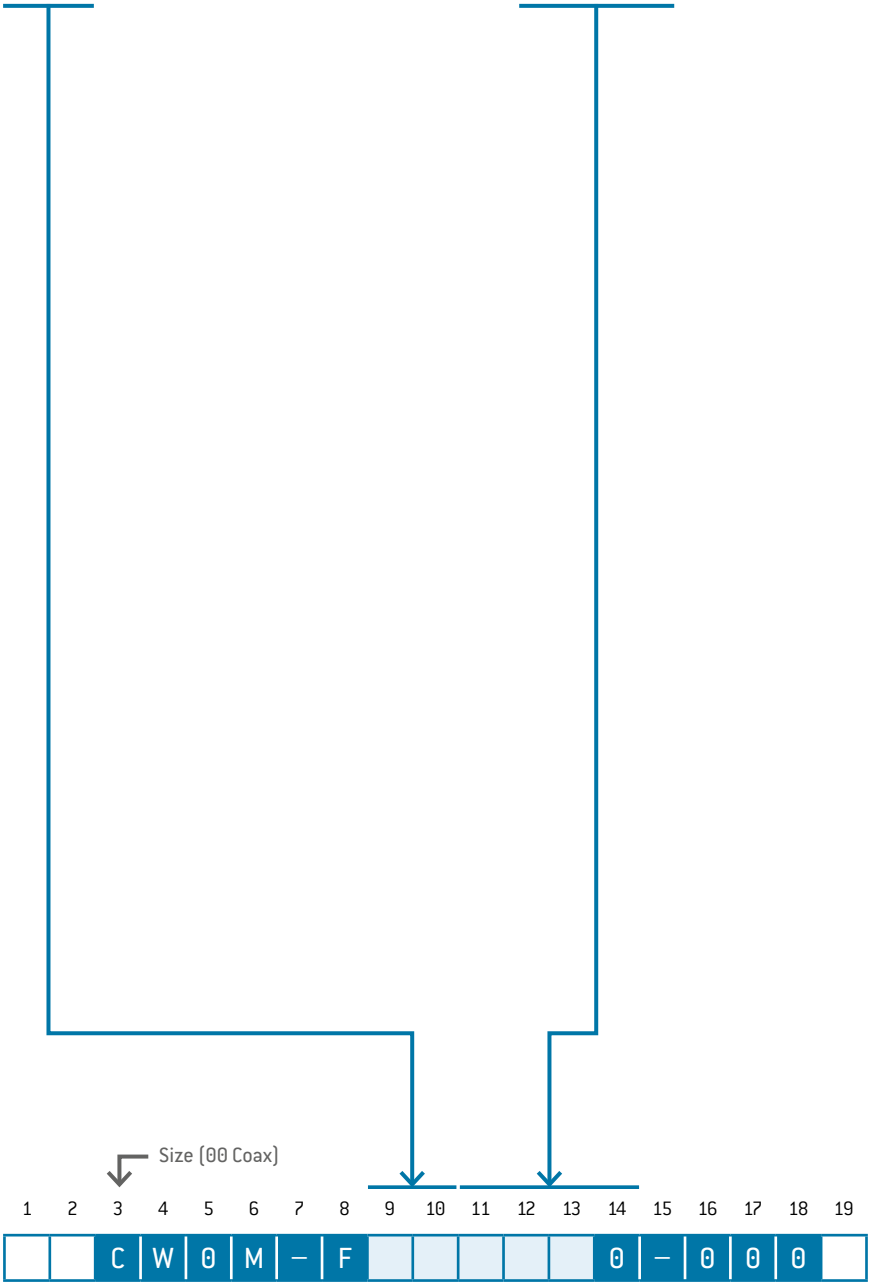
		USB® 2.0[5]		
		USB® 2.0[5]	High speed 4 pos.	

[5] Acc. Universal Serial Bus 3.2 Spec.: 2017, further information on request.

CONTACT CONFIGURATIONS (SIZE 00 COAX)[1]

Number of contacts		Available connector styles					Contact type	Contact type: Termination	Contact configuration				Contact diameter mm	Contact current recommend[2] A	Test voltage[3] VDC	Termination diameter mm	Termination cross section AWG	Termination cross section mm²
K	1[1]	–	G6	–	–	–	Socket	Solder	W	F	G	0	0.7	7	750	–	22	0.34
		A1	–	–	–	–	Pin		X	F	G	0						

[1] Impedance 50 Ohm
VSWR < 1.25 up to 3 GHz with cable RD316
[2] Suitable wire (size and characteristics) considering the derating factor on page 51
[3] Acc. to EIA-364-20F:2019-02, further information on voltage rating on page 52



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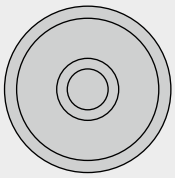
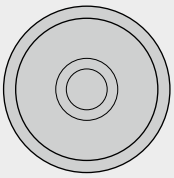
View on termination area		Data transmission protocols
Pin side	Socket side	
		

CONTACT CONFIGURATIONS (SIZE 0)

Number of contacts[1]		Available connector styles						Contact type		Contact configuration				Contact diameter	Contact current recommend[2]	Test voltage[3]	Termination diameter	Termination cross section	
									Termination					mm	A	VDC	mm	AWG	mm²
0	7	K1	KC	G6	GK	GC	GS	Socket	Solder	W	B	E	0	0.7	5	750	–	22	0.38
		–	–	–			–		Print / PCB	U	B	0	0				0.8	–	–
		A1	–	–	–	C1	–	Pin	Solder	X	B	E	0				–	22	0.38
D	8	K1	KC	G6	GK[5]	GC[5]	GS	Socket	Solder	W	B	E	0	0.3	1	750	–	24	0.25
		–	–	–			–		Print / PCB	U	B	0	0				0.3	–	–
		A1	–	–	–	C1	–	Pin	Solder	X	B	E	0				–	24	0.25
0	9	K1	KC	G6	GK	GC	GS	Socket	Solder	W	M	M	0	3 × 0.3 6 × 0.7	1 5	750	–	28 22	0.08 0.38
		–	–	–			–		Print / PCB	U	M	0	0				0.3 0.8	–	–
		A1	–	–	–	C1	–	Pin	Solder	X	M	M	0				–	28 22	0.08 0.38
D	1	K1	KC	G6	GK	GC	GS	Socket	Solder	W	M	M	0	10 × 0.3 2 × 0.7	1 5	750	–	28 22	0.08 0.38
		–	–	–			–		Print / PCB	U	M	0	0				0.3 0.8	–	–
		A1	–	–	–	C1	–	Pin	Solder	X	M	M	0				–	28 22	0.08 0.38
1	6	K1	KC	G6	GK	GC	GS	Socket	Solder	W	B	C	0	0.3	1	750	–	28	0.08
		–	–	–			–		Print / PCB	U	B	0	0				0.3	–	–
		A1	–	–	–	C1	–	Pin	Solder	X	B	C	0				–	28	0.08

Size (0)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
		0	W		M	–	P						0	–	0	0	0	

[1] Other contact configurations on request
[2] Suitable wire (size and characteristics) considering the derating factor on page 51
[3] Acc. to EIA-364-20F:2019-02, further information on voltage rating on page 52

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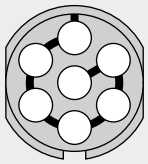
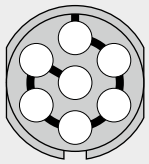
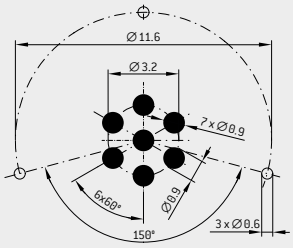
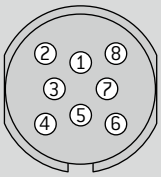
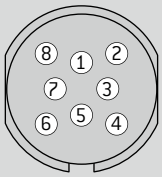
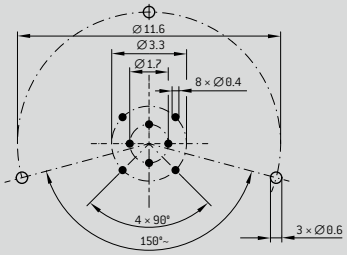
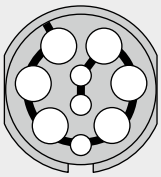
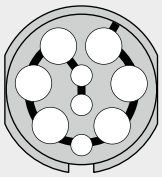
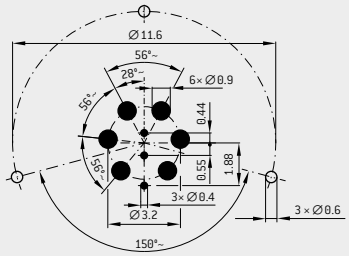
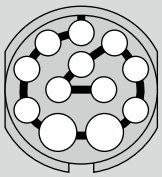
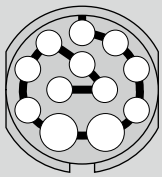
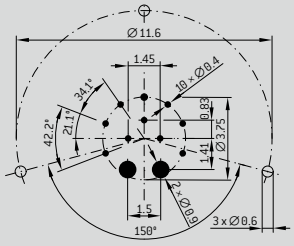
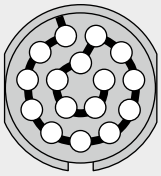
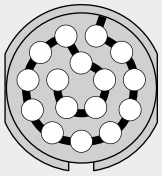
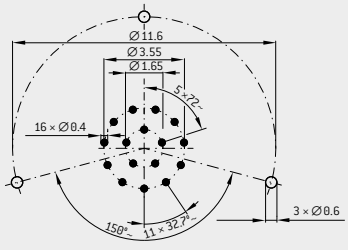
PCB LAYOUT PRINT CONTACTS SIZE 0

View on termination area		Data transmission protocols	Number of contacts	
Pin side	Socket side			
			7 pos.	
		Ethernet Class E_A [4, 5] Channel up to 80 m 10 Gbit[5]	8 pos.	
		USB® 2.0 + Power	9 pos.	
		USB® 3.2 Gen 1 x 1 + Power	12 pos.	
		Ethernet Typ CAT 5e[4] up to 1 Gbit	16 pos.	

[4] ISO / IEC 11801:2017, further information on request
[5] PCB versions recommended for RF data transmission

CONTACT CONFIGURATIONS (SIZE 1)

Number of contacts[1]		Available connector styles						Contact type		Contact configuration				Contact diameter mm	Contact current recom-mend[2] A	Test voltage[3] VDC	Termination diameter mm	Termination cross section AWG	Termination cross section mm²
									Termination										
1	7	K1	KC	G6	GK[4]	GC[4]	GS	Socket	Solder	W	M	M	0	15 x 0.3 2 x 0.7	1 5	750	–	28 22	0.08 0.38
		–	–	–			–		Print / PCB	U	M	0	0				0.3 0.8	–	–
		A1	–	–	–	C1	–	Pin	Solder	X	M	M	0				–	28 22	0.08 0.38
2	0	K1	KC	G6	GK	GC	GS	Socket	Solder	W	M	M	0	16 × 0.3 4 × 0.7	1 5	750	–	28 22	0.08 0.38
		–	–	–			–		Print / PCB	U	M	0	0				0.3 0.8	–	–
		A1	–	–	–	C1	–	Pin	Solder	X	M	M	0				–	28 22	0.08 0.38
2	7	K1	KC	G6	GK[4]	GC[4]	GS	Socket	Solder	W	B	C	0	0.3	1	750	–	28	0.08
		–	–	–			–		Print / PCB	U	B	0	0				0.3	–	–
		A1	–	–	–	C1	–	Pin	Solder	X	B	C	0				–	28	0.08

[1] Other contact configurations on request
[2] Suitable wire (size and characteristics) considering the derating factor on page 51
[3] Acc. to EIA-364-20F:2019-02, further information on voltage rating on page 52
[4] PCB versions recommended for RF data transmission

Size (1)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
		1	W		M	–	P						0	–	0	0	0	

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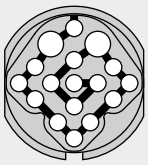
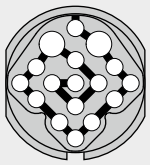
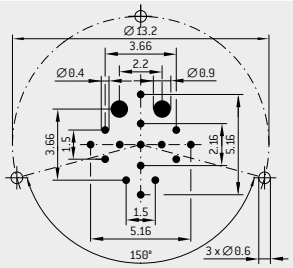
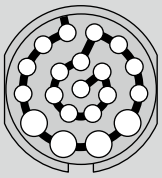
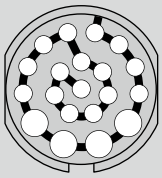
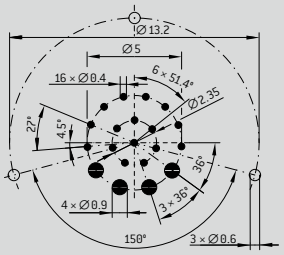
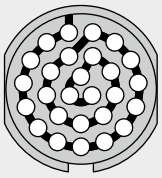
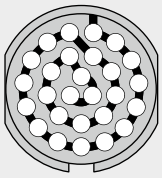
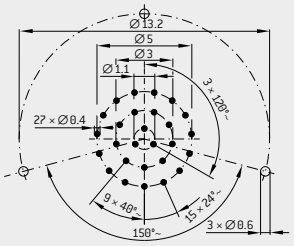
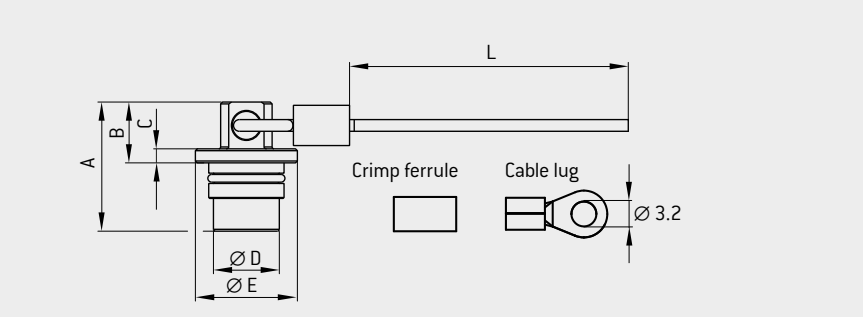
PCB LAYOUT PRINT CONTACTS SIZE 1

View on termination area		Data transmission protocols	Number of contacts	
Pin side	Socket side			
		HDMI®	17 pos.	
			20 pos.	
		HDMI®	27 pos.	

PROTECTIVE CAPS

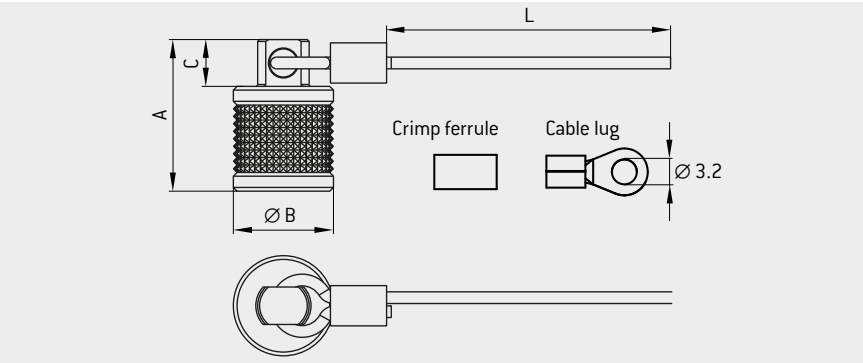
FOR RECEPTACLES AND IN-LINE RECEPTACLES



Size	Part number	Dimensions in mm					
		A	B	C	D	E	L
00	713.650.097.002.359	13.8	6.5	1.5	4.50	8.5	200
0	700.650.097.002.359	13.8	6.5	1.5	7.04	10.9	200
1	701.650.097.002.359	13.8	6.5	1.5	9.02	13.5	200

Crimp ferrule and lug are included.

FOR PLUGS



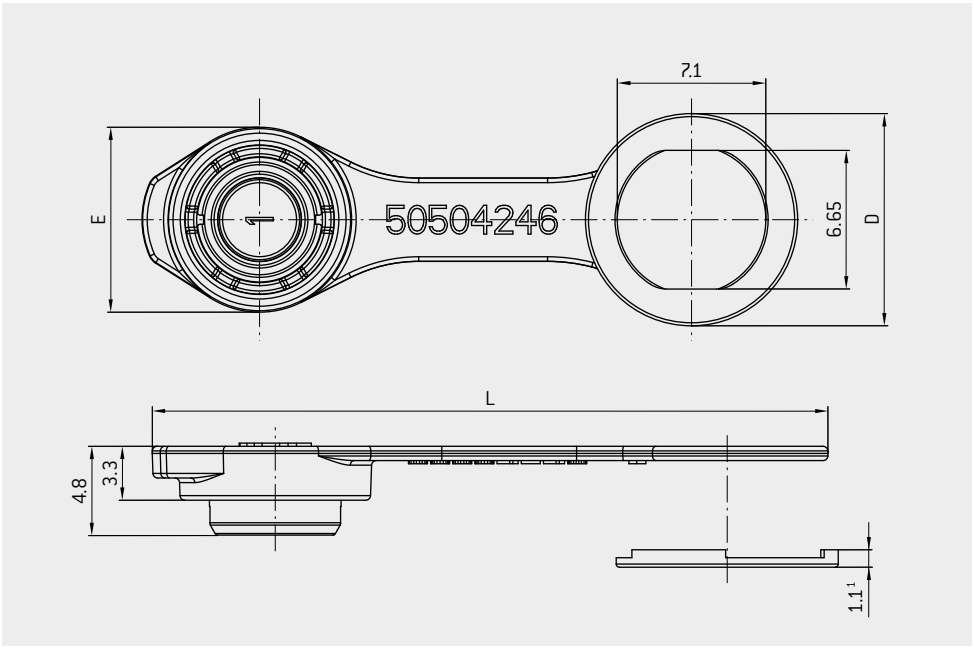
Size	Part number	Dimensions in mm			
		A	B	C	D
00	713.650.097.001.359	16.2	8.6	5	200
0	700.650.097.001.359	16.2	10.7	5	200
1	701.650.097.001.359	16.2	13.5	5	200

Crimp ferrule and lug are included.

Assembly information including tools see ODU instruction 010.650.001.000.003 (available at www.odu-connectors.com/downloads).

RUBBER CAPS

FOR PANEL MOUNTED RECEPTACLES



Size	Part number	Dimensions in mm		
		D	E	L
00	713.650.097.004.945	10.8	9.0	32.8
0	700.650.097.004.945	14.0	12.2	42.6
1	701.650.097.004.945	16.2	14.2	50.5

[1] The cap with support ring has a thickness of 1.1 mm when assembled. This reduces the maximum housing wall thickness from max. 4 mm to max. 2.9 mm.
For more details see document 009.410.020.005.000

CUSTOM PARTS

40 POSITIONS / SIZE 1.5

- ∅ 16.8 mm and a panel cut-out of ∅ 14 mm
- Special cable assembly and potting needed

ROBUST, MINIATURE, LOW SPACE

- Miniature connector
- Reduced outside dimension ∅ 6.5 mm

MINIATURE COAX CONNECTOR WITH SCREW LOCKING

- Cable assembly straight and right-angle
- Watertight

ODU AMC® HIGH-DENSITY WITH CUSTOMIZED CABLE ASSEMBLY

- Space saving cable assembly and overmolding

CUSTOMIZED LOW PROFILE SOLUTION

- Very small receptacle with chrome surface
- Plug with special customized design
- Very space safing overmolding and cable assembly
- Space saving 90° overmolding and cable assembly

- Space saving 90° cable assembly and overmolding
- Max. 6 positons

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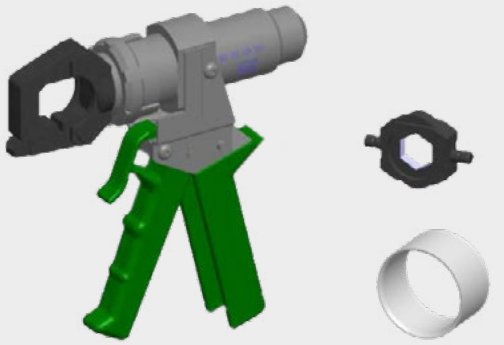
ASSEMBLY AND CRIMP TOOLS

CRIMP TOOL



PART NUMBER HAND CRIMP TOOL (ALL SIZES)
080.000.026.000.000

CRIMP DIES

Size	Part number
00 (C)	080.000.026.713.001
0	080.000.026.701.000
1	080.000.026.715.000

CRIMP TOOL FOR CAPS

PART NUMBER HAND CRIMP TOOL (ALL SIZES)
080.000.061.000.000

CRIMP RANGE

Part	Tool adjustment
Cable lug	0.25 – 1.5
Crimp ferrule	0.25 – 1.5

BAND-IT BANDS

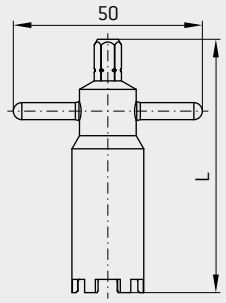
PART NUMBER HAND CRIMP TOOL (ALL SIZES)
080.000.058.000.000

PART NUMBER TIE-DEX MICRO BAND (ALL SIZES)
921.000.004.000.248

To connect the shielding with the crimp adapter, use a **Tie-Dex Micro Band**.

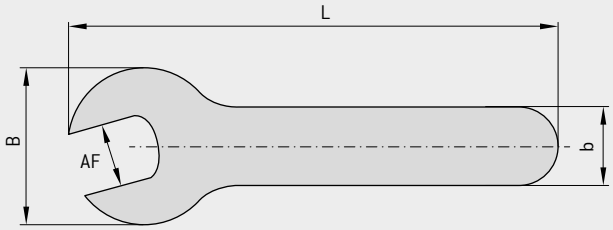
ASSEMBLY AND CRIMP TOOLS

NUTDRIVER FOR SLOTTED NUT



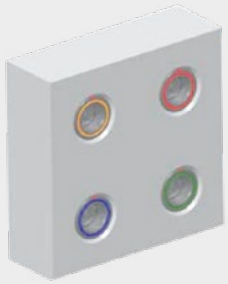
Size	Part number	L	Hex drive	Torque Nm
00 (C)	713.098.001.000.010	57	6.3 / 6.35	0.5
0	700.098.005.000.010	59	6.3 / 6.35	1.0
1	700.098.001.000.010	57	6.3 / 6.35	1.0

SPANN WRENCH

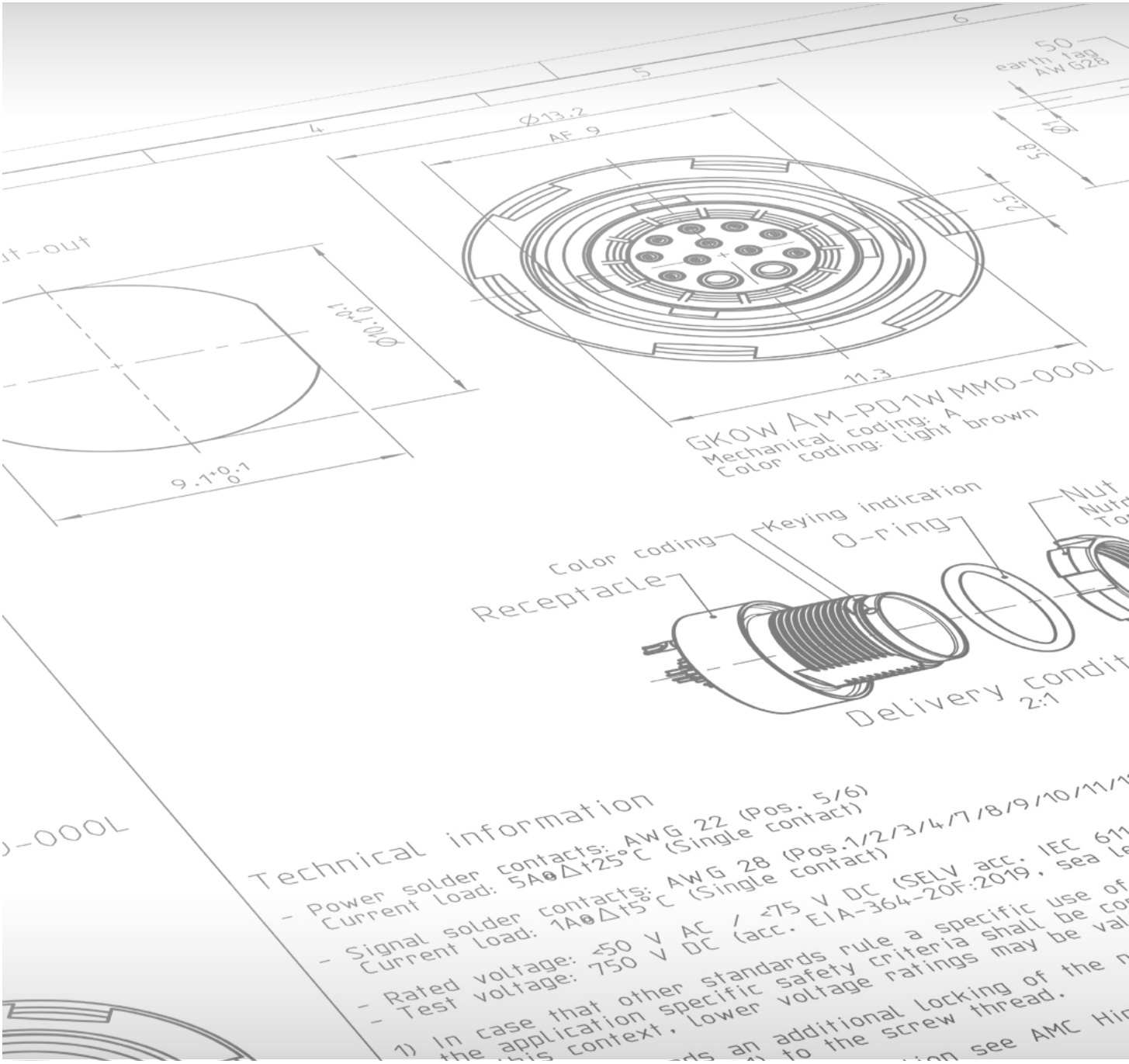


Size	Part number	Wrench size (AF)
00 (C)	598.700.001.001.000	8
0	598.700.001.002.000	10
1	598.700.001.003.000	12

ASSEMBLY TOOL



Size	Part number
00 (C)	713.650.900.000.000
0	700.650.900.000.000
1	701.650.900.000.000



ODU AMC® HIGH-DENSITY

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TECHNICAL INFORMATION

ODU connectors ensure perfect and reliable transmission of power, signal, data and other media in a wide variety of applications.

Further information can be found on the following pages.

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TECHNICAL DATA
ODU AMC® HIGH-DENSITY

ENVIRONMENTAL AND TESTING

Type	Performance	Standard
Tightness	IPX8 / 20 m 120 min IPX9K	ISO 20653:2013-02 MIL-STD-810G:2008-10 512.5 ISO 20653: 2013-02
Sand and dust	Blowing sand and dust IP6KX (settling dust)	MIL-STD-810G:2008-10 510.5 Procedure I / II ISO 20653:2013-02
Operating temperature	–51 °C up to +125 °C [1]	IEC 60068-2-1:2007-05 IEC 60068-2-2:2007-10
Thermal shock	–51 °C up to +125 °C	MIL-STD-810G:2014-04 503.6
Humidity cyclic	85 % r.h. up to 95 % r.h., +28 °C up to +71 °C	EIA-364-31E:2017-04 Method V
Low pressure (rapid decompression)	59.1 kPa to 18.8 kPa	NATO-AECTP 300:2006-01 312 Procedure III
Low pressure (operation)	57.2 kPa, –55 °C	MIL-STD-810G:2008-10 500.5
Icing	Rime ice 6 mm	MIL-STD-810G:2008-10 521.3
Corrosion resistance	96 h salt mist, 5 % salt solution, +35 °C (2 cycles – 24h spray / 24h dry)	MIL-STD-810G:2008-10 509.5
Mould growth	European fungus	IEC 60068-2-10:2005-06
Solar radiation	Ground level, procedure A	IEC 60068-2-5:2018-04

[1] Including temperature rise due to contact load.

MECHANICAL DATA

Type	Performance	Standard
Mechanical endurance	5.000 mating cycles	IEC 60512-9-1:2010-03
Vibration	15 g (sine) 10 – 2,000 Hz No discontinuity > 1 µs	EIA-364-28F:2011-02
Shock	50 g amplitude, half sine pulse of 6 ms, no discontinuity > 1 µs	EIA-364-27C:2011-06

ELECTRICAL DATA

Type	Performance	Standard
Contact resistance (fig. 1) over 5,000 mating cycles	Contact diameter / resistance Ø 0.3 mm < 10 mOhm Ø 0.5 mm < 5 mOhm Ø 0.7 mm < 4 mOhm	IEC 60512-2-1: 2002-02
Shell resistance (fig. 2)	< 5 mOhm	IEC 60512-2-1: 2002-02
Insulation resistance	> 100 mOhm	IEC 60512-3-1: 2002-02
Shielding effectiveness	> 65 dB Connector pair A10W + K10W	IEC 62153-4-4: 2015-04

MEASUREMENT POINTS

FIG. 1

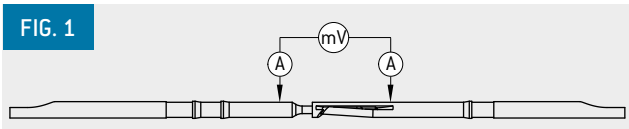
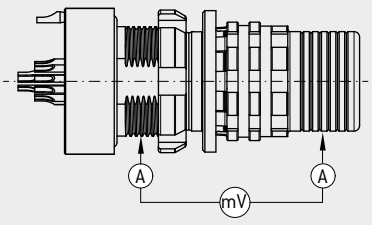


FIG. 2



RoHS-COMPLIANT MATERIAL AND SURFACE TREATMENT

Component	Material	Standard		Surface	Standard	Flammability
		EU	US			
Housing, back-shell (style C1), outer sleeve	CuZn39Pb3	CW614N (2.0401)	C38500	Ruthenium over nickel		
Grooved nut	CuZn39Pb3	CW614N (2.0401)	C38500	Anthracite tin-nickel over nickel		
Backshell, grounding ring, press ring	CuZn39Pb3	CW614N (2.0401)	C38500	Nickel		
EMI-locking ring	CuBe2	CW102C (2.1248)	C17300	Gold over nickel		
Crimp sleeve	CuZn38Pb2	CW608N (2.0371)	C35300	Nickel		
Outer press ring	CuZn39Pb3	CW614N (2.0401)	C38500	Black zinc-nickel over nickel		
Insulator	PEEK					UL94 (V0)
Insulator (for coax)	PTFE					UL94 (V0)
Pin contact	CuZn39Pb3	CW614N (2.0401)	C38500	1.27 µm gold over nickel	MIL-G-45204D	
Socket contact	CuSn4Pb4Zn4	CW456K (2.1076)	C54400	1.27 µm gold over nickel	MIL-G-45204D	
Half shells (for coax)	CuZn39Pb3	CW614N (2.0401)	C38500	Gold over nickel		
O-Rings	FVMQ, FKM					
Potting	potting compound					UL94 (V0)
Overmolding material	TPU					UL94 (HB)
Shrink boots	Polyester-elastomer					acc. to VG95343

INTERNATIONAL PROTECTION CLASSES

ISO 20653:2013 (VDE 0470-1:2014-09)

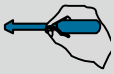
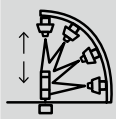
Code letters (International Protection) IP	First code number (Degrees of protection against access to hazardous parts respectively against solid foreign objects) 6			Second code number (Degrees of protection against water) 5			
Code no.	Protection against access to hazardous parts / Protection against ingress of solid foreign objects			Code no.	Protection against harmful effects due to the ingress of water		
0	No protection		No protection against contact / No protection against solid foreign objects	0	No protection against water		No protection against water
1	Protection against contact with the back of hand (no protection against intentional contact)		Test probe with diameter 50 mm shall not penetrate completely and maintain sufficient distance from hazardous parts.	1	Protection against dripping water		Vertical drips shall not have any harmful effects or impair performance.
2	Protection against finger contact		Jointed test finger with diameter 12.5 mm may penetrate completely, but shall maintain a sufficient distance from hazardous parts.	2	Protection against dripping water (tilted)		Vertical drips shall not have any harmful effects or impair performance when the enclosure is tilted at any angle up to 15° on either side of the vertical
3	Protection against penetration of tools (e.g. screwdrivers)		Test probe with diameter 2.5 mm, may penetrate completely, but shall maintain a sufficient distance from hazardous parts.	3	Protection against spray water		Water spray at an angle up to 60° on either side of the vertical shall have no harmful effects or impair performance
4	Protection against granular foreign objects		Test probe with diameter 1.0mm, may penetrate completely, but shall maintain a sufficient distance from hazardous parts	4	Protection against splashing water		Water which splashes against the enclosure from any direction with increased pressure shall not have any harmful effects or impair performance
				4K	Protection against splashing water with increased pressure		Water which splashes against the enclosure from any direction with increased pressure shall not have any harmful effects or impair performance
5K	Protection against dust		Dust shall only penetrate in quantities which do not impair performance and safety.	5	Protection against high-velocity water		Water which is directed against the enclosure from any direction as a jet shall not have any harmful effects or impair performance
				6	Protection against powerful water jet		Water which is directed against the enclosure from any direction as a strong jet shall not have any harmful effects or impair performance
6K	Protection against ingress of dust		Dust shall not penetrate	6K	Protection against strong high-velocity water with increased pressure		Water which is directed against the enclosure from any direction as a strong jet with increased pressure shall not have any harmful effects or impair performance
				7	Protection against the effects of temporary immersion in water		Water shall not penetrate in a quantity causing harmful effects or impair performance if the enclosure is immersed in water temporarily under specified pressure and time conditions
				8	Protection against the effects of continuous immersion in water		Water shall not penetrate in a quantity causing harmful effects if the enclosure is continuously immersed in water under conditions which shall be specified by the manufacturer
				9K	Protection against water during high-pressure/steam-jet cleaning		Water which is directed against the enclosure from any direction shall not have any harmful effects or impair performance

Table of contents

PROTECTION OF ODU AMC® HIGH-DENSITY

IP RATING ACC. TO. ISO 20653:2013 // IMMERSION ACC. TO. MIL-STD-810H:2019 512.5 //
SAND AND DUST ACC. TO. MIL-STD-810H:2019 510.5

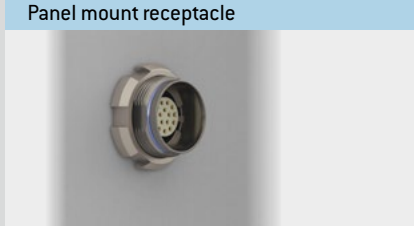
OPEN FACE

IP68[2]

Break-away plug

In-line receptacle

Panel mount receptacle



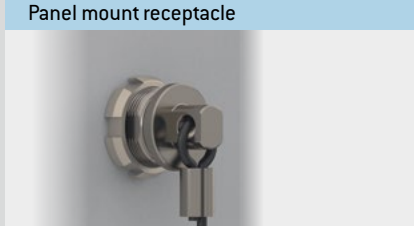
MATED WITH METAL CAP

IP6K8 / IP6K9K immersion sand and dust acc. to MIL[1]

Break-away plug

In-line receptacle

Panel mount receptacle



MATED

IP6K8 / IP6K9K immersion sand and dust acc. to MIL[1]

Plug with in-line receptacle

Plug with panel mount receptacle

MATED WITH RUBBER CAP

IPXK7[3]

Panel mount receptacle

[1] Full protection
[2] Contact area not IP protected
[3] 0.2bar / 120 min, operating temperature –51 °C to +71 °C

The protection is only assured when backshell potted during cable assembly, according to ODU AMC® High-Density assembly instructions.

CONVERSIONS / AWG (AMERICAN WIRE GAUGE)

Circular wire					
AWG	Diameter		Cross-section	Weight	Max. resistance
	Inch	mm	mm^2	kg / km	Ω / km
22 (1)	0.0253	0.643	0.324	2.883	57.7
22 (7/30)	0.0288	0.732	0.324	2.965	54.8
22 (19/34)	0.033	0.838	0.382	3.395	51.8
24 (1)	0.0197	0.5000	0.1960	1.830	91.20
24 (7/32)	0.0230	0.5850	0.2270	2.080	86.00
24 (19/36)	0.0252	0.6400	0.2400	2.160	83.30
26 (1)	0.1570	0.4000	0.1220	1.140	147.00
26 (7/34)	0.0189	0.4800	0.1400	1.290	140.00
26 (19/38)	0.0192	0.4870	0.1500	1.400	131.00
28 (1)	0.0126	0.3200	0.0800	0.716	231.00
28 (7/36)	0.0150	0.3810	0.0890	0.813	224.00
28 (19/40)	0.0151	0.3850	0.0950	0.931	207.00
30 (1)	0.0098	0.2500	0.0506	0.451	374.00
30 (7/38)	0.0115	0.2930	0.0550	0.519	354.00
30 (19/42)	0.0123	0.3120	0.0720	0.622	310.00
32 (1)	0.0080	0.2030	0.0320	0.289	561.00
32 (7/40)	0.0094	0.2400	0.0350	0.340	597.10
32 (19/44)	0.0100	0.2540	0.0440	0.356	492.00
34 (1)	0.0063	0.1600	0.0201	0.179	951.00
34 (7/42)	0.0083	0.2110	0.0266	0.113	1,491.00
36 (1)	0.0050	0.1270	0.0127	0.072	1,519.00
36 (7/44)	0.0064	0.1630	0.0161	0.130	1,322.00
38 (1)	0.0040	0.1000	0.0078	0.072	2,402.00
40 (1)	0.0031	0.0800	0.0050	0.043	3,878.60
42 (1)	0.0028	0.0700	0.0038	0.028	5,964.00
44 (1)	0.0021	0.0540	0.0023	0.018	8,660.00

Source: ASTM

The American Wire Gauge (AWG) is based on the principle that the cross-section of the wire changes by 26 % from one gauge number to the next. The AWG numbers decrease as the wire diameter increases, while the AWG numbers increase as the wire diameter decreases. This only applies to solid wire.

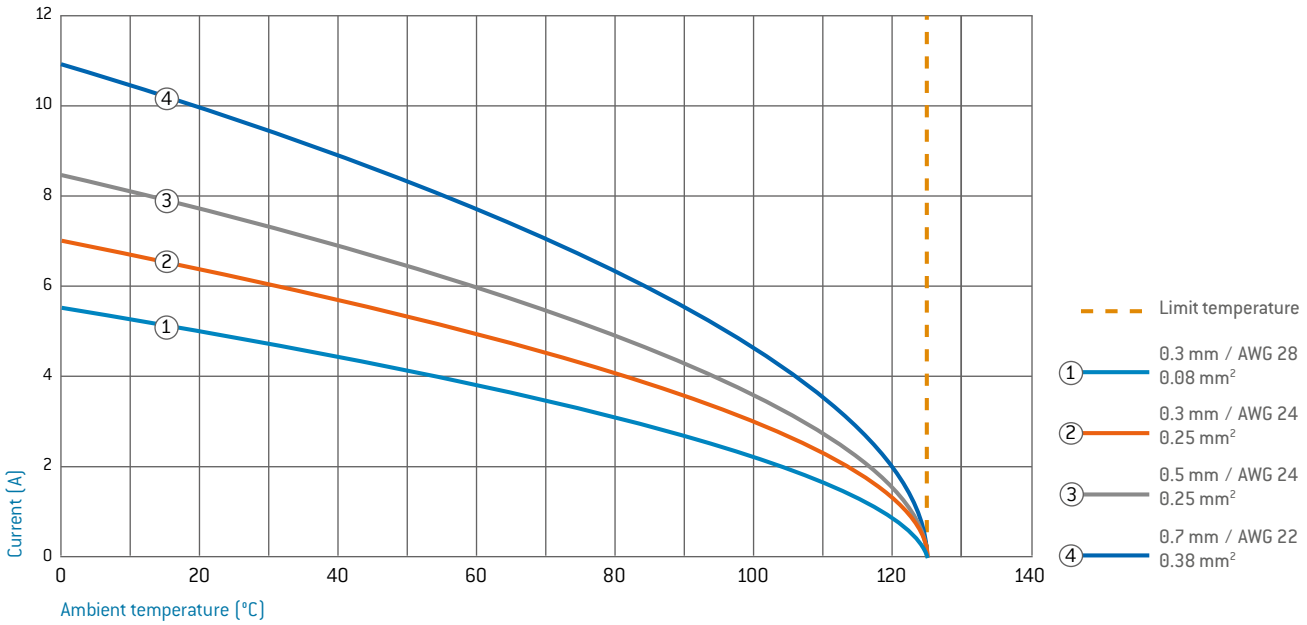
However, stranded wire is predominately used in practice. This has the advantage of a longer service life under bending and vibration as well as greater flexibility in comparison with solid wire.

Stranded wires are made of multiple, smaller-gauge wires (higher AWG number). The stranded wire then receives the AWG numbers of a solid wire with the next closest cross-section to that of the stranded wire. In this case, the cross-section of the stranded wire refers to the sum of the copper cross-sections of the individual wires.

Accordingly, strands with the same AWG number but different numbers of wires differ in cross-section. For instance, an AWG 20 strand of 7 AWG 28 wires has a cross-section of 0.563 mm^2, while an AWG 20 strand of 19 AWG 32 wires has a cross-section of 0.616 mm^2.

CURRENT LOAD OF TURNED CONTACTS

Nominal single contact current load for pin / slotted socket (nominal diameter 0.3 mm – 0.7 mm)



UPPER LIMIT TEMPERATURE OF STANDARD CONTACTS: +125 °C

The wire cross-section shown in the legend was connected as test cable. In the case of multi-position connectors and cables, the heating is greater than it is with individual contacts. For that reason, it is calculated with a reduction factor.
For connectors, the reduction factors for multi-core cables pursuant to DIN VDE 0298-4:2013-06 are applied. The reduction factor is factored in at 5 live wires and up.

DERATING CURVE

The corrected current-carrying capacity curve, derived from the base curve determined (0.8 × measured current). It factors in manufacturing tolerances as well as uncertainties in temperature measurement and measurement arrangement. See derating measurement method.

DERATING FACTOR

Number of loaded wires	Derating factor
5	0.75
7	0.65
10	0.55
14	0.50
19	0.45
24	0.40

EXPLANATIONS AND INFORMATION TO VOLTAGE RATINGS AND SAFETY REQUIREMENTS

OPERATING VOLTAGE (RATED VOLTAGE)

All shown connectors and cable assemblies are rated to a safety extra low voltage (SELV) of less than 50 V AC / 75 V DC, according to IEC 61140:2016 (VDE 0140-1:2016) Protection against electric shock – Common aspects for installation and equipment. In case other standards rule a specific use of the connectors and cable assemblies, the application specific safety criteria shall be considered first. In this context, lower voltage ratings may be valid.
If a higher operating voltage is needed, please refer to chapter "Voltage rating according EIA-364-20F:2019".

VOLTAGE RATING ACCORDING EIA-364-20F:2019-02 (TEST VOLTAGE / WITHSTANDING VOLTAGE)

WARNING:
Danger to life for operating voltages above 50 V AC / 120 V DC!
The subsequently explained procedure according EIA-364-20F:2019 does not consider protection against electric shock. Suitable precautions (protective measures) such as touch protection, protective insulation, protective separation, protective earth conductor etc. must be implemented.

In case other standards rule a specific use of the connectivity solutions, the application specific safety criteria shall be considered first. This must be evaluated by the customer during the equipment engineering process.
For any advice on how the proper connectors and cable assemblies shall be chosen, please consult us and indicate the safety standard which your product has to meet.

EIA-364-20F:2019-02 "WITHSTANDING VOLTAGE – TEST PROCEDURE FOR ELECTRICAL CONNECTOR, SOCKETS AND COAXIAL CONTACTS"

The test voltage values in the catalog are determined according to EIA-364-20F:2019-02 method A, test condition I (sea level up to 2000m) "Withstanding Voltage – Test Procedure for Electrical connectors, Sockets and Coaxial Contacts".
The test voltage represents the physical limit of the connector and is usually set at 75 % of the break-down voltage.
According to EIA-364-20F:2019-02 and former MIL-STD-1344 method 3001 it is specified to set the operating voltage (rated voltage) to ⅓ of the test voltage acc. to EIA-364-20F:2019-02.

Example:

Breakdown voltage	1000 V DC × 0.75 =
Test voltage	750 V DC × 0.33 =
operating voltage	250 V DC

TECHNICAL TERMS

AMBIENT TEMPERATURE

Temperature of the air or other medium in which a connector or a corresponding cable assembly is intended to be used.

AWG

American Wire Gauge – see page 50.

BASE CURVE

See page 51.

A current-carrying capacity curve metrologically determined according to the method described in IEC 60512-5-2:2002 (DIN EN 60512-5-2:2003-01) depending on the permissible limit temperature of the materials.

CHEMICAL RESISTANCE

Chemical resistance is the ability of a material to protect itself against chemical attack or solvent reaction. In contrast to corrosion, there is no material removal, which is particularly typical for plastics and elastomers.

Adhesives, cleaning agents or other chemicals are often used on our products within the scope of general deployment and further handling. Contact with unsuitable chemicals may have an adverse effect on the mechanical and electrical properties of the insulation and housing materials. The connector specifications may no longer be sustainable. Please observe our handling suggestions and technical instructions as given in this catalog or corresponding assembly instructions.

CLEARANCE DISTANCE

The shortest distance by air between two conductive parts (according to IEC 60664-1:2007).

CODING (ORIENTATION)

Geometry detail that prevents interchangeability of otherwise identical connectors.This is useful when two or more identical connectors are attached to the same device.

CONNECTORS

An element which enables electrical conductors to be connected and is intended to create and/or separate connections with a suitable counterpart (according to IEC 61984:2008 (VDE 0627:2009-11)). If not otherwise specified, these are connectors without breaking capacity (COC).

CONTACT RESISTANCE

The contact resistance is the resistance at the contact zone of an electrical contact pair. The contact resistance is significantly lower than the total resistance (refer to total resistance). The specifications are average values.

CONNECTORS WITHOUT BREAKING CAPACITY (COC)

Connectors which is not deemed to be engaged or disengaged in normal use when live or under load.

CORES

Electrical conductor, solid wire or multi-wire strand, with insulation as well as any conductive layers. Cables or leads may have one or more cores.

CREEPAGE DISTANCES

The shortest distance between two conductive parts along the surface of a solid insulation material (according to IEC 60664-1:2007). This factors in all elevations and recesses in the insulator, as long as defined minimum dimensions are on hand.

CRIMP BARREL

A terminal sleeve which can accommodate one or more conductor and be crimped by a crimping tool.

CRIMPING AREA

The specified area of the crimp barrel in which the crimp termination is executed by means of deforming or shaping the barrel under pressure around the conductor. See page 42.

POLLUTION DEGREE

Numerical value indicating the expected pollution of the micro-environment. The pollution levels 1–4 were defined.

(Pollution: any deposit of solid, liquid or gaseous foreign matter that may reduce the electrical strength or surface resistance of the insulation; micro-environment: immediate vacinity of the insulation, which in particular influences the dimensioning of the creepage distances).

See IEC 60664-1:2007 (VDE 0110-1:2008-01).

DELIVERY FORM

Connectors can be delivered in assembled form or as individual parts.

DERATING CURVE

See page 51.

TECHNICAL TERMS

DERATING MEASUREMENT METHOD IEC 60512-5-2:2002 (DIN EN 60512-5-2:2003-01)

See page 51.

INSULATOR

Part of a connector that separates conductive parts with different potential, usually identical to the contact carrier.

LOWERMOST LIMIT TEMPERATURE

The lowest permissible temperature at which a connector may be operated.

MATING CYCLES

A mating cycle consists of one insertion and withdrawal action of both connector parts with each other. The given values are only valid under the following conditions: clean environment, adequate radial alignment, flawless counter contact pins.

MAX. CONTINUOUS CURRENT

The metrologically determined amperage at room temperature (approx. +20 °C) which increases the contact temperature to the limit temperature. The values specified in the catalog apply to either individual contacts or completely assembled inserts / modules, as indicated.

NOMINAL SINGLE CONTACT CURRENT LOAD

The current-carrying capacity which each individual contact can be loaded with on its own (see page 51).

OPERATING TEMPERATURE FOR ODU AMC® HIGH-DENSITY

Permissable temperature range between the uppermost and lowermost limits. This includes contact heating through current-carrying capacity.

PCB (A.K.A. "PRINTED CIRCUIT BOARD")

A PCB is a carrier for electronic components. It serves the purposes of mechanical mounting and electrical connection.

PCB TERMINATION

A conductive connection between the PCB and an element in through-hole assembly, THT (through-hole technology).

RATED VOLTAGE

The voltage which the manufacturer specifies for a connector and which the operating and performane features relate to.

REDUCTION FACTOR

Based on VDE 0298-4:2013-06, connectors and cables with more than 5 contacts have a higher heating rate compared to individual contacts. For this reason, the aforementioned standard is calculated with a reduction.

SOLDER CONNECTION (SOLDER TERMINATION)

Termination technology in which a molten additional metal (solder) with a lower melting point than the base materials to be connected is used to attach two metallic materials to one another.

TERMINATION CROSS-SECTION

The specified cross-sections correspond to a a "fine-wire" conductor structure (7 / 19 wire) according to AWG (ASTM B258-14) or to a "fine-wire" conductor structure pursuant to IEC 60228:2004 (VDE 0295:2005-09; Class 5), borderline conductor structures require a separate review.

TERMINATION TECHNOLOGIES

Methods for connecting the leads to the electro-mechanical element, such as solder-free connections pursuant to IEC 60352 (DIN EN 60352): crimp, screw connection etc. or soldering connection.

TEST VOLTAGE

The test voltage which a connector or a corresponding cable assembly can withstand under defined conditions without dielectric breakdown or flashover.

TIGHTNESS ISO 20653:2013

See protection types on page 49.

UPPERMOST LIMIT TEMPERATURE

The maximum permissible temperature at which a connector may be operated. It includes contact heating through current-carrying capacity.

WIRE

Wires (solid conductors) are available with an insulator sleeve and / or electrical shielding. Cables or conductors may be made up of one or more wires.

TECHNICAL TERMS

GENERAL NOTE

The connectors and cable assemblies listed in this catalog are generally designed as connectors without breaking capacity unless otherwise stated. The rated voltage specification given on the respective data sheet must be respected. Suitable precautionary measures must be taken to ensure that people do not come into contact with live conductors during installation and operation. All entries in this catalog were thoroughly reviewed before printing. ODU reserves the right to make changes based on the current status of knowledge without prior notice and without being obliged to provide replacement deliveries or refinements of older designs.

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