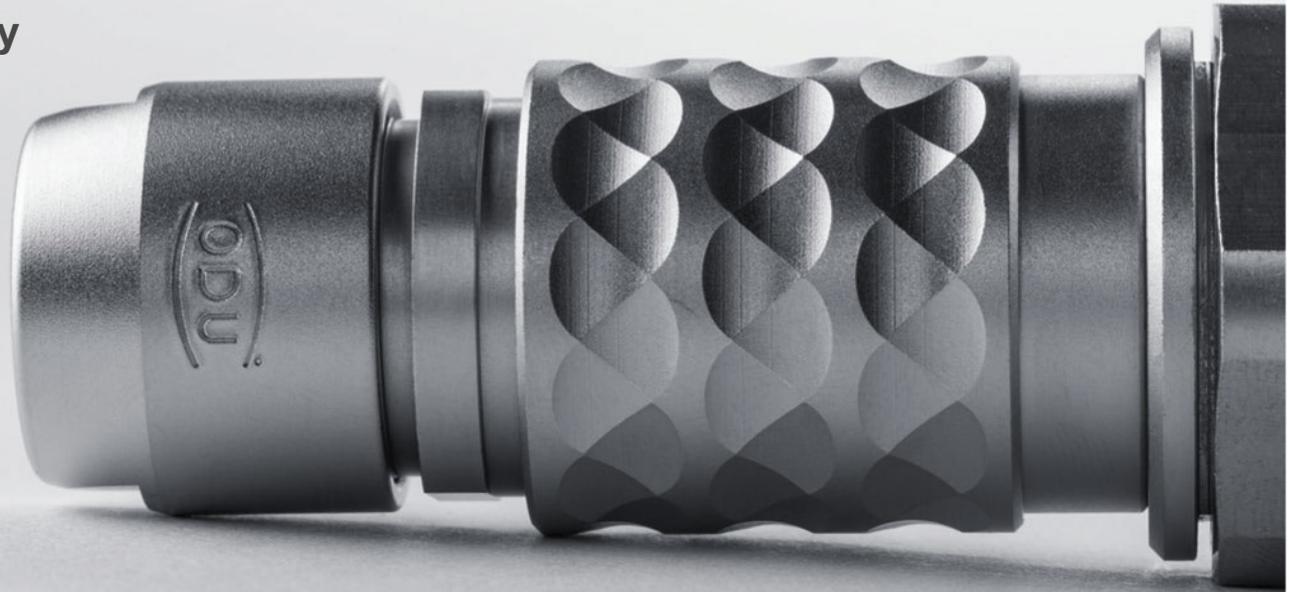


A PERFECT ALLIANCE.



ADVANCED CONNECTOR SOLUTIONS

Product Training Module
ODU AMC[®] High-Density



ODU AMC[®] High-Density

Purpose:

- Introduce the ODU AMC[®] High-Density line

Objectives:

- Features & benefits at a glance
- ODU AMC[®] High-Density
- Complete connector solutions
- ODU AMC[®] High-Density variations
- Sizing & coding
- Configuration overview
- Accessories
- High performance data transfer
- Applications
- Certifications
- Summary

Content:

- 17 pages



This presentation will go over the ODU AMC[®] High-Density connectors. It will cover the main features and benefits, as well as the variety in configurations and termination types. The presentation will also provide an overview of the ODU AMC[®] High-Density's main technology features, high-performance data transfer and the certifications.

ODU AMC[®] High-Density

Review Features and Benefits

ODU AMC[®] High-Density at a glance:

- Electrically & mechanically robust connector in compact design
- Up to 4 sizes
- Quick and easy Break-Away mating and demating
- High performance data transmission: USB[®] 3.2 Gen 1x1¹ up to 5 Gbit/s, USB[®] 2.0¹ up to 480 Mbit/s, HDMI^{®1} up to 8.16 Gbit/s, Ethernet CAT5 data transfer up to 1 Gbit/s
- IP6K8 (up to 20m submersible) and IP69 rated
- Up to 5,000 mating cycles
- 2 to 40 contacts/mixed configurations
- 4 mechanical coding options with matched color code
- Terminations types – Solder, PCB



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

The ODU AMC[®] High-Density is a robust & lightweight circular connector, ideal for a wide range of military applications and demanding environments where high reliability is a must. Available in 4 compact sizes, the robust and non-reflective housing is IP6K8 rated and supports high speed data transfer: USB[®] 3.2 Gen1x1¹ up to 5 Gbit/s, USB[®] 2.0¹ up to 480 Mbit/s, HDMI[®] ¹ up to 8.16 Gbit/s, Ethernet CAT5 data transfer up to 1 Gbit/s. High contact density of up to 40 contacts with shell diameters from 10 mm up to 18.5 mm. The ODU AMC[®] High-Density can be terminated in solder and PCB.

ODU AMC[®] High-Density

Complete Connector Solution

- + Custom turnkey solutions
- + Rapid product development
- + Thermoplastic injection molding design & fabrication
- + Bonding & laser etching
- + Private labeling
- + Factory direct
- + ITAR regulated facility
- + One stop shop
- + Solder, crimp and PCB terminations
- + Overmolding with TPE, TPU, PVC and silicone
- + Customizable overmolding
- + EMC-compatible assembly
- + 100% final inspection
- + Custom specific testing options available



ODU offers high-quality connectors and comprehensive service for the complete assembly. Anything from connectors to watertight potting or cable assembly, we provide in-house for a complete system solution from a single source.

ODU AMC[®] High-Density

Styles Overview



The ODU AMC[®] High-Density is available in a variety of styles and termination options, including wire, PCB and cable termination.

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ODU AMC[®] High-Density

Plug Housing Models

FOUR SHELL SIZES FOR MAXIMUM FLEXIBILITY

SIZE 00

- 2 way
- 4 way
- 7 way
- 4 way USB[®] 2.0¹

SIZE 0

- 9 way (15A Power + USB[®] 2.0)
- 12 way (USB[®] 3.1 Gen 1¹ + 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

7 mm

10 mm

12 mm

14 mm

RELIABLE AND ROBUST CODING

BROWN

RED

BLUE

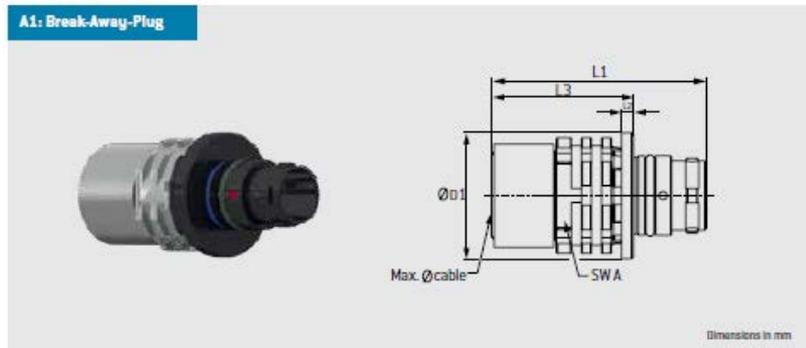
GREEN

The ODU AMC[®] High-Density is available in four shell sizes, starting as small as 10 mm up to 18.5 mm. Shells are keyed and color-coded for reliability and intuitive handling.

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ODU AMC[®] High-Density

A1: BREAK-AWAY PLUG DIMENSIONS AND DETAILS



Size	L1	L2	L3	ØD1	SWA	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

CONTACT CONFIGURATIONS

Shell size	Part number	Layout	Number of contacts	Max. current*		Suitable for
				Single contact load	Soldercup	
00	A10W*M-P02XCE0-0000		02	3A	2 x AWG 24 (Power)	Power
	A1CW*M-P04XBC0-0000		04	1A	4 x AWG 28	Signal
	A1CW*M-PU4XBM0-0000		04	1A 3A	2 x AWG 28 (Signal Lines) 2 x AWG 24 (Power)	USB [®] 2.0 ⁺
	A1CW*M-P07XBC0-0000		07	1A	7 x AWG 28	Signal
0	A10W*M-P09XMM0-0000		09	1A 5A	3 x AWG 28 (Signal Lines) 6 x AWG 22 (Power)	USB [®] 2.0 ⁺ + Power
	A10W*M-P12XMM0-0000		12	1A 5A	10 x AWG 28 (Signal Lines) 2 x AWG 22 (Power)	USB [®] 3.1 Gen 1 ⁺ + Power
	A10W*M-P16XBC0-0000		16	1A	16 x AWG 28	Signal
1	A11W*M-P27XBC0-0000		27	1A	27 x AWG 28	Signal
1.5	A14W*M-P40XBC0-0000		40	1A	40 x AWG 28	Signal

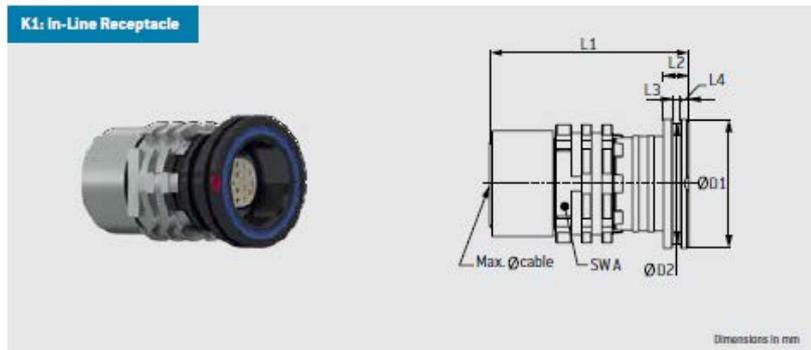
For any electrical system to be complete, it requires both a plug and receptacle.

A1 plugs feature solder cup contacts and can be terminated to either discrete wires or shielded, jacketed cable. These plugs can mate to any of the receptacles in the series.

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ODU AMC[®] High-Density

K1: IN-LINE RECEPTACLE DIMENSIONS AND DETAILS



Size	L1	L2	L3	L4	D1	D2	SWA	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

CONTACT CONFIGURATIONS

Shell size	Part number	Layout	Number of contacts	Max. current ²		Suitable for
				Single contact load	Soldercup	
00	K1CW*M-P02WCE0-0000		02	3A	2 x AWG 24 (Power)	Power
	K1CW*M-P04WBC0-0000		04	1A	4 x AWG 28	Signal
	K1CW*M-PU4WBM0-0000		04	1A	2 x AWG 28 (Signal Lines)	USB [®] 2.0 ¹
				3A	2 x AWG 24 (Power)	
0	K1CW*M-P07WBC0-0000		07	1A	7 x AWG 28	Signal
	K10W*M-P09WMM0-0000		09	1A	3 x AWG 28 (Signal Lines)	USB [®] 2.0 ¹ + Power
				5A	6 x AWG 22 (Power)	
K10W*M-P12WM M0-0000		12	1A	10 x AWG 28 (Signal Lines)	USB [®] 3.1 Gen 1 ¹ + Power	
			5A	2 x AWG 22 (Power)		
K10W*M-P16WBC0-0000		16	1A	16 x AWG 28	Signal	
1	K11W*M-P27WBC0-0000		27	1A	27 x AWG 28	Signal
1.5	K14W*M-P40WBC0-0000		40	1A	40 x AWG 28	Signal

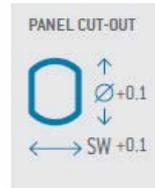
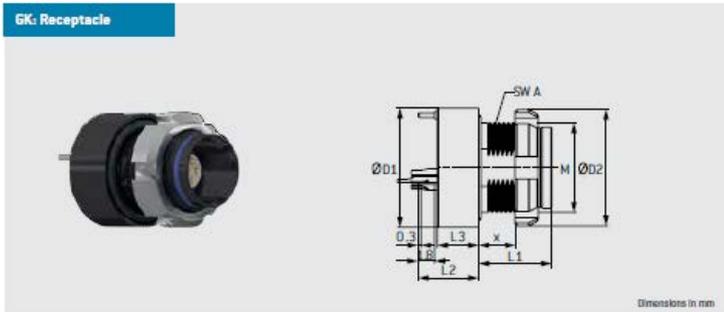
K1 in-line receptacles feature solder cup contacts and can be terminated to either discrete wires or shielded, jacketed cable.

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ODU AMC[®] High-Density

GK: PANEL MOUNT RECEPTACLE WIRE TERMINATION

DIMENSIONS AND 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	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

CONTACT CONFIGURATIONS

Shell size	Part number	Layout	Number of contacts	Max. current ²	Max. wire size	Suitable for
				Single contact load	Soldercup	
00	GKCW*M-P02WCE0-000L		02	3 A	2 x AWG 24 (Power)	Power
	GKCW*M-P04WBC0-000L		04	1 A	4 x AWG 28	Signal
	GKCW*M-P04WBM0-000L		04	1 A	2 x AWG 28 (Signal Lines)	USB [®] 2.0 ¹
	GKCW*M-P07WBC0-000L		07	3 A	2 x AWG 24 (Power)	
0	GKDW*M-P09WMM0-000L		09	1 A	3 x AWG 28 (Signal Lines)	USB [®] 2.0 ¹ + Power
	GKDW*M-P12WMM0-000L		12	5 A	6 x AWG 22 (Power)	
	GKDW*M-P16WBC0-000L		16	1 A	10 x AWG 28 (Signal Lines)	USB [®] 3.1 Gen 1 ¹ + Power
1	GK1W*M-P27WBC0-000L		27	1 A	2 x AWG 22 (Power)	Signal
	GKAW*M-P40WBC0-000L		40	1 A	16 x AWG 28	Signal

GK panel mount receptacles can be mounted on a panel or enclosure and locked in place with the included jam nut. They feature either solder cups for termination to discrete wires ...[cont. on next slide]

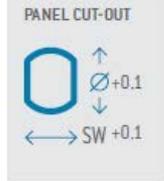
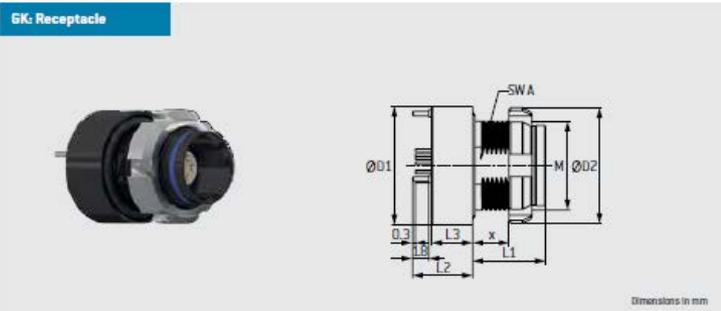
A PERFECT ALLIANCE.

ODU AMC[®] High-Density

GK: PANEL MOUNT RECEPTACLE FOR PCB TERMINATION

DIMENSIONS AND DETAILS

GK Receptacle



Size	L1	L2 ¹	L3	X max.	D1	D2	SWA	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

CONTACT CONFIGURATIONS

Shell size	Part number	Layout	Number of contacts	Max. current ²		Suitable for
				Single contact load		
00	GKCW*M-P02UC00-000L		02	3 A		Power
	GKCW*M-P04UB00-000L		04	1 A		Signal
	GKCW*M-P04UB00-000L		04	1 A		USB [®] 2.0 ¹
				3 A		
0	GKCW*M-P07UB00-000L		07	1 A		Signal
	GK0W*M-P09UM00-000L		09	1 A		USB [®] 2.0 ¹ + Power
				5 A		
0	GK0W*M-P12UM00-000L		12	1 A		USB [®] 3.1 Gen 1 ¹ + Power
				5 A		
		GK0W*M-P16UB00-000L		16	1 A	
1	GK1W*M-P27UB00-000L		27	1 A		Signal
1.5	GKAW*M-P40UB00-000L		40	1 A		Signal

...or PCB tails for termination to a rigid or flexible printed circuit board.

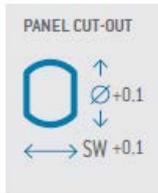
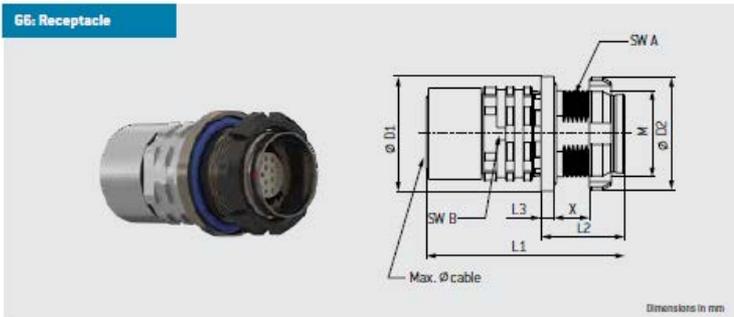
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ODU AMC[®] High-Density

G6: PANEL MOUNT RECEPTACLE FOR CABLE TERMINATION

DIMENSIONS AND DETAILS

G6: Receptacle



Size	L1	L2 ¹	L3	X max.	D1	D2	SW A	SW B	M	MAX Ø CABLE	Panel cut-out	
											SW	Ø
00	21	1.5	8	4	9.9	10	6.5	8	7 x 0.5	5	6.6	7.1
0	22.5	1.5	8	4	13.2	12.9	9	10	10 x 0.5	7	9.1	10.1
1	26.5	1.5	8	4	15.3	14.9	11.5	12	12 x 0.5	8.5	11.6	12.1
1.5	30.5	1.5	8	4	18.5	17.9	13	14	14 x 0.5	10.5	13.1	14.1

CONTACT CONFIGURATIONS

Shell size	Part number	Layout	Number of contacts	Max. current ²	Max. wire size	Suitable for
				Single contact load	Soldercup	
00	G6CW*M-P02WCE0-0000		02	3A	2 x AWG 24 (Power)	Power
	G6CW*M-P04WBC0-0000		04	1A	4 x AWG 28	Signal
	G6CW*M-PU4WBM0-0000		04	1A	2 x AWG 28 (Signal Lines)	USB [®] 2.0 ¹
				3A	2 x AWG 24 (Power)	
0	G6CW*M-P07WBC0-0000		07	1A	7 x AWG 28	Signal
	G60W*M-P09WMM0-0000		09	1A	3 x AWG 28 (Signal Lines)	USB [®] 2.0 ¹ + Power
				5A	6 x AWG 22 (Power)	
0	G60W*M-P12WMM0-0000		12	1A	10 x AWG 28 (Signal Lines)	USB [®] 3.1 Gen 1 ¹ + Power
				5A	2 x AWG 22 (Power)	
	G60W*M-P16WBC0-0000		16	1A	16 x AWG 28	Signal
1	G61W*M-P27WBC0-0000		27	1A	27 x AWG 28	Signal
1.5	G6AW*M-P40WBC0-0000		40	1A	40 x AWG 28	Signal

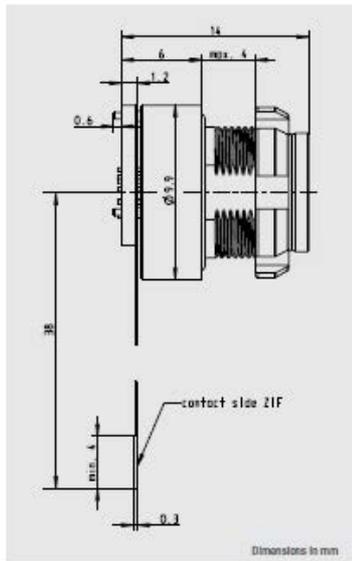
G6 panel mount receptacles can be mounted on a panel or enclosure and locked in place with the included jam nut. They feature solder cup contacts and include a crimp-ring for attachment and termination of a shielded, jacketed cable.

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ODU AMC[®] High-Density

FACTORY TERMINATED FLEX ASSEMBLIES

DIMENSIONS AND DETAILS



Part number	AMC High Density Connector (Included)	Number of contacts	Connector Shell Size	Connector Keying
C00.71C.100.040.001	GKCWAM-P04UB00-000L	04	00	A
C00.71C.100.070.001	GKCWAM-P07UB00-000L	07	00	A
C00.701.100.160.001	GKOWAM-P16UB00-000L	16	0	A
C00.716.100.400.001	GKAWAM-P40UB00-000L	40	1.5	A
C00.711.100.270.001	GK1WAM-P27UB00-000L	27	1	A

Notes:

Additional lengths, configurations and keyings available on request.
Contact ODU for more information.

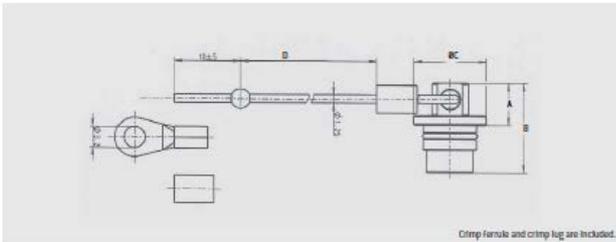
Flex is designed to work with suitable ZIF connector (not supplied).
Contact ODU for more information.

ODU also offers GK panel mount receptacles pre-terminated to rigid flex boards, for easier integration into your system.

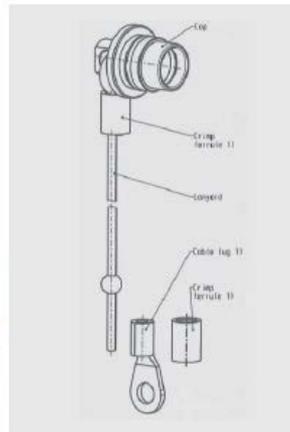
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ODU AMC[®] High-Density ACCESSORIES PROTECTIVE CAPS

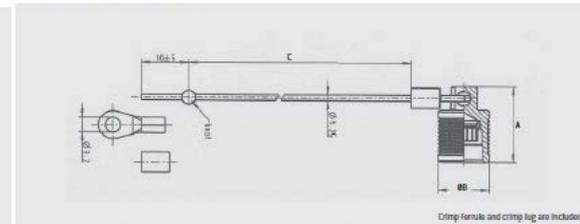
FOR RECEPTACLE GK AND IN-LINE RECEPTACLE



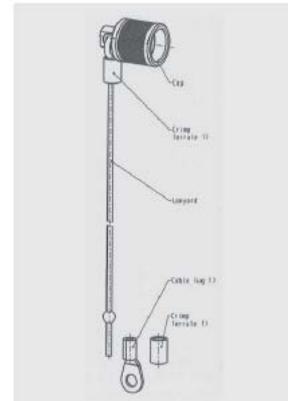
Size	Part Number	Dimensions in mm			
		A	B	C	D
00	713.650.097.002.359	6.5	13.8	8.5	200
0	700.650.097.002.359	6.5	13.8	10.9	200
1	701.650.097.002.359	6.5	13.8	13.5	200
1.5	715.650.097.002.359	6.5	13.8	14.9	200



FOR BREAK-AWAY PLUG



Size	Part Number	Dimensions in mm		
		A	B	C
00	713.650.097.001.359	16.2	8.6	200
0	700.650.097.001.359	16.2	10.7	200
1	701.650.097.001.359	16.2	13.5	200
1.5	715.650.097.001.359	16.2	14.8	200



MATERIALS

Part	Material
Cap	Brass / ruthenium coated nickel
Lanyard	Aramid / black
Crimp ferrule, cable lug	Brass, copper / zinc-nickel, black
Shrinktube	FPO (RNF-100) / black

ENVIRONMENTAL AND ELECTRICAL CHARACTERISTICS

Type	Performance
Tightness	IP68 (20 m)

Protective caps are available to prevent damage and dirt during times when the connectors are not in use.

A PERFECT ALLIANCE.

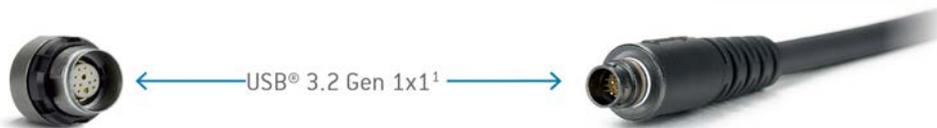
ODU AMC[®] High-Density

HIGH SPEED DATA TRANSMISSION AT A GLANCE

SIZE 00
USB[®] 2.0¹
480 MBit/s



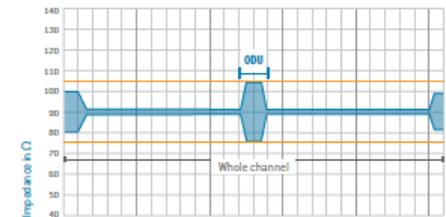
Size 0
USB[®] 3.2 Gen 1x1¹
5 GBit/s



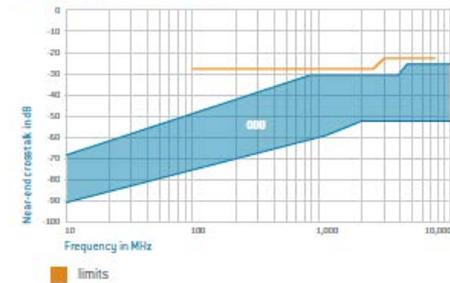
- USB[®] 3.2 Gen 1x1¹ data transfer rates up to 5 Gbit/s
- USB[®] 2.0¹ data transfer rates up to 480 Mbit/s
- Ethernet CAT5 data transfer rates up to 1 Gbit/s
- HDMI[®] 2.0¹ data transfer rates up to 8.16 Gbit/s

CHARACTERISTIC IMPEDANCE

High-Density connector with 3 m cable in total and 2x USB[®] 3.1 Gen 1¹ Type A connector



NEAR-END CROSSTALK



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

The ODU AMC[®] High-Density can transmit common data transmission protocols such as USB[®] 3.2 Gen 1x1 up to 5 Gbit/s, USB[®] 2.0 up to 480 Mbit/s, HDMI[®] up to 8.16 Gbit/s, and Ethernet CAT5 up to 1 Gbit/s.

A PERFECT ALLIANCE.

ODU AMC[®] High-Density



PERSONAL COMPUTER

- Small and light



VEHICLE ADAPTION

- Robust and reliable



GROUP VOICE AND DATA RADIO

- Excellent shielding and data transmission up to 10 GBit



RIGHT-ANGLED CONNECTOR

- Compact design



NAVIGATION MODULE

- Easy-Clean version



SOLDIER CONTROL UNIT

- Cable-to-cable connection



- Helmet-Mounted Camera
- Helmet-Mounted Display
- Headset
- Battery Pack (Back Mounted)
- GPS
- Computer /PAN
- Body Diagnostic Sensors
- Radio
- Wrist-Worn Display
- Rifle-Mounted Systems



ODU AMC[®] High-Density is a versatile solution for a variety of not only military applications, but also that require a robust, lightweight and compact performance connector. Ideal for a large range of demanding applications including soldier wearables, UAVs, ground vehicles and navigation modules.

Certifications

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



ODU provides a large portfolio of quality certifications including ISO 9001, IATF 16949, ISO 13485, 14001 and 50001 and also UL, CSA, VG and VDE licenses. ODU cable assemblies are all UL certified.

Summary

ODU AMC[®] High-Density offers:

- Compact & lightweight high-performance solution
- Robust miniature connector
- IP6K8 (20 m submersion)
- High-speed data transfer
- > 5,000 mating cycles
- Multiple coding options to prevent cross connection
- Up to 4 sizes and various termination options



The ODU AMC[®] High-Density is a rugged and compact watertight (up to 20 m) miniature connector. IP6K8 rated and available in 4 sizes and a variety of termination options, it's ideal for a wide range of demanding applications where space and weight are crucial.

ODU offers complete system solutions for all our connectors including cable assembly, overmolding, and rapid prototyping.
