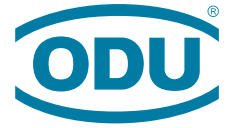
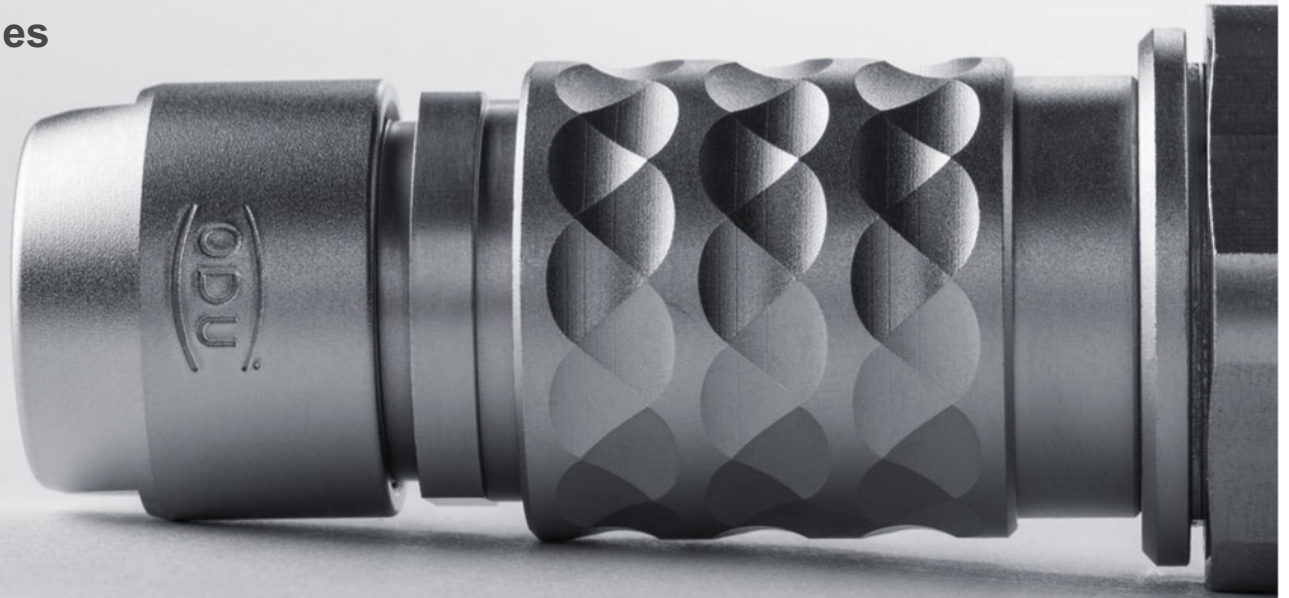


A PERFECT ALLIANCE.



ADVANCED CONNECTOR SOLUTIONS

Product Training Module
ODU MINI-SNAP® L Series



ODU MINI-SNAP[®] L Series

Purpose:

- Introduce the ODU MINI-SNAP[®] L Series connector

Objectives:

- Review: features and benefits
- ODU MINI-SNAP[®] L Series complete connector solution
- ODU MINI-SNAP[®] L Series plug housings models
- ODU MINI-SNAP[®] L Series receptacle housing models
- Contact configurations / technology
- Mechanical coding
- Cable collet system
- Part number configuration
- Accessories
- Target markets and applications
- Certifications
- Summary

Content:

- 22 pages



This presentation will go over the ODU MINI-SNAP[®] L Series circular Push-Pull locking connectors. It will cover the main features and benefits, as well as the variety in housing options and inserts available. The presentation will also provide an overview of the ODU MINI-SNAP[®] L Series main technology features, the part number configurator and the certifications.

ODU MINI-SNAP[®] L Series

Review Features and Benefits

Series Overview:

- Circular connector series in a robust metal housing
- Up to 6 sizes
- Push-Pull locking mechanism
- Quick and easy mating and demating
- IP50 protection, IP68 on select panel receptacle housings
- Up to 5,000 mating cycles
- 2 to 40 contacts/mixed configurations
- 12 mechanical coding options
- Terminations types – solder, crimp, PCB



The ODU MINI-SNAP[®] is an ideal self-locking circular connector for a wide range of applications due to its robust metal housing and wide range of sizes. Push-Pull locking mechanism for easy and secure mating and demating. IP50 protection - up to IP68 on select panel receptacle housings, up to 5,000 mating cycles, 2-40 contacts and mixed configurations possible with 12 mechanical coding options. The ODU MINI-SNAP[®] L Series can be terminated in solder, crimp and PCB.

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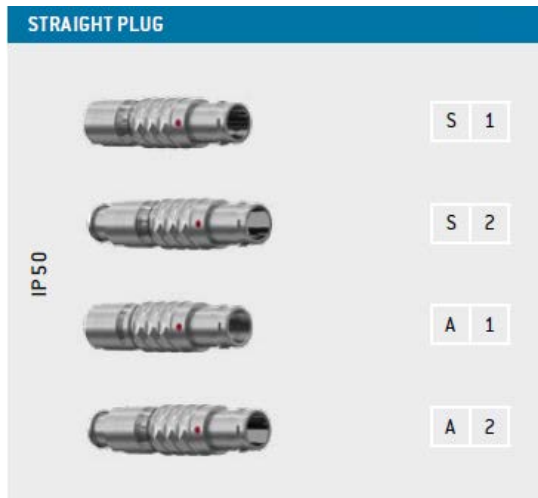
ODU MINI-SNAP[®] L Series Complete Connector Solution



ODU offers high-quality connectors and comprehensive service for the complete assembly. Anything from connectors to watertight grouting, we provide the complete system from a single source.

ODU MINI-SNAP® L Series

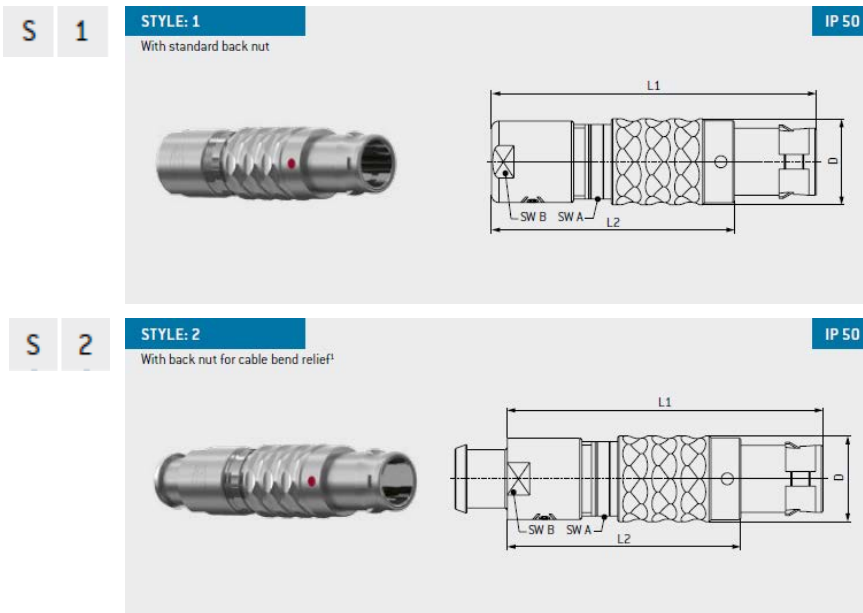
Plug Housing Models



The ODU MINI-SNAP® L Series is available in a variety of styles and 6 different standards sizes from 6.4 mm to 25 mm. Housing is made of brass, nickel plated and then matte chrome plated, while the plug internals are made of nickel plated brass. Straight and right-angles plugs are IP50 rated and panel-mounted plugs are available with IP68 rating. S1/S2 plug housings and G1/G5 panel receptacle housing are readily available via distribution.

ODU MINI-SNAP[®] L Series











Plug Housing Models



Size	L1 mm	L2 mm	D mm	SW A mm	S1 SW B mm	S2 SW B mm
00	≈ 28	≈ 20	6.4	5.5	5	5
0	≈ 36	≈ 26	9	8	7	7
1	≈ 43	≈ 32	11.5	10	10	10
2	≈ 50	≈ 38	14.5	13	12	13
3	≈ 61	≈ 46	17.5	15	14	15
4	≈ 76	≈ 58	25	21	20	20

The Style 1 and Style 2 shown here are the two most commonly used straight plug housing styles.

Receptacle Housing Models

RECEPTACLE	RECEPTACLE	RECEPTACLE (RIGHT-ANGLED)
 G 1	IP 50  G H  G K	 G F
 G 5  G 6		IP 68 ¹  G L
 G 8		RECEPTACLE (PCB)
 G A		IP 50  G P

There are a variety of housing models available for the ODU MINI-SNAP® L Series. IP50 and IP68. Rating are possible in reference to the end device and also in unmated form. Visual red dot indicates 12 o'clock position. Both front and rear panel mounted receptacles are available.

Receptacle Housing Models

G 1 **STYLE: 1** **IP 50**

Installation from front of panel

Size	L1 ¹ mm	L2 mm	L3 ² mm	M mm	D mm	SW A mm	SW B mm	C mm	Panel cut-out	
									SW mm	Ø mm
00	≈ 16	≈ 7	12	7 × 0.5	8	9	6.3	1	6.4	7.1
0	≈ 20	≈ 9	14.5	9 × 0.5	10	11	8.2	1.5	8.3	9.1
1	≈ 24	≈ 8	16.5	12 × 1	14	14	10.5	1.5	10.6	12.1
2	≈ 27	≈ 10	18.5	15 × 1	18	17	13.5	1.8	13.6	15.1
3	≈ 30.5	≈ 13	22.5	18 × 1	22	22	16.5	2	16.6	18.1
4	≈ 35	≈ 13	27	25 × 1	28	30	23.5	2.5	23.6	25.1

G 5 **STYLE: 5** **IP 50**

Receptacle with continuous thread, installation from front or rear of panel, with optimal distance adjustment

Size	L1 ¹ mm	L2 mm	L3 ² mm	M mm	D mm	SW A mm	SW B mm	SW C mm	C mm	Panel cut-out	
										SW mm	Ø mm
00	≈ 16	≈ 6	12	7 × 0.5	9	9	6.3	8	2	6.4	7.1
0	≈ 20	≈ 8	14.5	9 × 0.5	11.5	11	8.2	10	2.5	8.3	9.1
1	≈ 24	≈ 8	16.5	12 × 1	15	14	10.5	13	4	10.6	12.1
2	≈ 27	≈ 10	18.5	15 × 1	20	17	13.5	17	3.8	13.6	15.1
3	≈ 30.5	≈ 12	22.5	18 × 1	23	22	16.5	20	5	16.6	18.1
4	≈ 35	≈ 10.5	27	25 × 1	30	30	23.5	27	4.5	23.6	25.1

The Style 1 and Style 5 shown here are the two most commonly used receptacle housing styles. Style 1 is a front mount solution only while the style 5 can be front or rear mounted.

Contact Configurations

TERMINATION TECHNOLOGIES FOR TURNED CONTACTS

Solder termination

The contacts are mounted in the insulator before the single connectors are assembled. An insulator with pre-installed contacts is referred to as a contact insert.

Crimp termination

Here, the individual contact is connected to the individual wires via deformation in the termination area. Then the contacts are individually installed in the insulator. 8-point deformation is generally used for turned crimp contacts.

PCB Termination

This is only used in the receptacle if the receptacle is to be mounted directly on a printed circuit board (PCB). Further information is available upon request.

SOLDER TERMINATION



CRIMP-CLIP-CONTACT FOR PEEK INSULATOR



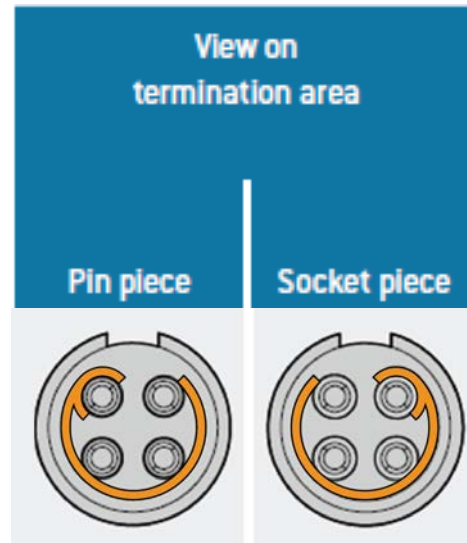
PRINT TERMINATION



Insulators with pin contacts fit into the receptacle or in-line receptacle, as well as into the plug. The same applies to insulators with socket contacts. In general, insulators with socket contacts are installed in the live part (to provide protection from accidental touch). The way of mounting the contacts in the insulator is important because of the termination technology. The termination technology for ODU MINI-SNAP® includes: soldering, crimping and PCB. Contacts are turned brass contacts, nickel plated with a gold finish – available in .5 mm to 2 mm diameter, and rated for 5,000 mating cycles.

Contact Configurations

Pin Out Markings









(example of pin guide markings)

Contact configurations are simple to understand following the visual cues. Pin #1 is always designated by the half moon marking and the other pin numbers are determined by following the line around or inward to the last pin as shown on the example via the orange marking.

Contact Configurations

Size 00 insert configurations

Number of contacts		Contact diameter	Termination cross-section		View on termination area	
			mm	AWG	mm ²	Pin piece
0	2	0.5	28	0.08		
			-	-		
0	3	0.5	28	0.08		
			-	-		
0	4	0.5	28	0.08		
			-	-		

Size 00 contact configurations shown here come in 2, 3 or 4 pin configurations and are all able to accommodate 28 AWG.

Contact Configurations

Size 0 insert configurations

Number of contacts	Contact diameter		Termination cross-section		View on termination area	
	mm	AWG	mm ²	Pin piece	Socket piece	
0	2	0.9	22	0.38		
			20-24	0.50-0.25		
			22-26	0.38-0.15		
0	3	0.9	22	0.38		
			20-24	0.50-0.25		
			22-26	0.38-0.15		
0	4	0.7	22	0.38		
			26	0.15		
			22-26	0.38-0.15		
			28-32	0.09-0.04		
0	5	0.7	22	0.38		
			26	0.15		
			22-26	0.38-0.15		
			28-32	0.09-0.04		
0	6	0.5	28	0.08		

Number of contacts	Contact diameter	Termination cross-section		View on termination area		
		mm	AWG	mm ²	Pin piece	Socket piece
0	7	0.5	28	0.08		
0	9	0.5	28	0.08		
1	0 ^B	0.5	28	0.08		

Size 0 contact configurations shown here come in 2 – 16 pin configurations and will accommodate 20 AWG to 28 AWG, with .5 mm to 1.3 mm contact diameters available.

Contact Configurations

Size 1 insert configurations

Number of contacts	Contact diameter	Termination cross-section		View on termination area		
		mm	AWG	mm ²	Pin piece	Socket piece
0	2	1.3	18	1		
			20	0.5		
			18-20	1.00-0.50		
			-	-		
0	3	1.3	18	1		
			20	0.5		
			18-20	1.00-0.50		
			-	-		
0	4	0.9	22	0.38		
			20-24	0.50-0.25		
			22-26	0.38-0.15		
			-	-		
0	5	0.9	20	0.50		
			22	0.38		
			20-24	0.50-0.25		
			22-26	0.38-0.15		
0	6	0.7	22	0.38		
			26	0.15		
			22-26	0.38-0.15		
			28-32	0.09-0.04		

Number of contacts	Contact diameter	Termination cross-section		View on termination area		
		mm	AWG	mm ²	Pin piece	Socket piece
0	7	0.7	22	0.38		
			26	0.15		
			22-26	0.38-0.15		
			28-32	0.09-0.04		
0	8	0.7	22	0.38		
			26	0.15		
			22-26	0.38-0.15		
			28-32	0.09-0.04		
1	0	0.5	26	0.15		
			28	0.08		
			-	-		
1	4	0.5	28	0.08		
			-	-		
			-	-		
1	6	0.5	28	0.08		
			-	-		
			-	-		

Size 1 contact configurations shown here come in 2 – 16 pin configurations and will accommodate 20 AWG to 28 AWG, with .5 mm to 1.3 mm contact diameters available.

Contact Configurations

Size 2 - 4 insert configurations

Number of contacts	Contact type			Part number key	Contact diameter	Single contact nominal current ¹	Clearance and creepage distance		Test voltage ²	Nominal voltage ³	Termination diameter	Termination cross-section			View on termination area	
	Termination	Socket	Pin				mm	A				mm	AWG	mm ²	Pin piece	Socket piece
0 2	Solder	L M	T S O	T 0 0	2	24	1.3	0.9	1.800	0.600	2.4	12	2.5	Pin piece	Socket piece	
		T O 0	1.85									14	1.5			
0 3	Solder	L M	T S O	T 0 0	2	18	1.6	1.2	2.100	0.700	0.7	14-18	1.50-1.00	Pin piece	Socket piece	
		T O 0	0.7										14-18			1.50-1.00
0 4	Solder	L M	T S O	T 0 0	2	16	1.7	1.5	2.400	0.800	1.4	18	1.00	Pin piece	Socket piece	
		T O 0	0.7										18			1.00
0 5	Solder	L M	T S O	T 0 0	2	16	1.7	1.5	2.400	0.800	0.7	18-20	1.00-0.50	Pin piece	Socket piece	
		T O 0	0.7										18-20			1.00-0.50
0 6	Solder	L M	T S O	T 0 0	2	15	1.5	1.3	1.800	0.600	1.4	18	1.00	Pin piece	Socket piece	
		T O 0	0.7										18			1.00
0 7	Solder	L M	T S O	T 0 0	2	12	1.8	1.6	1.950	0.650	1.1	20	0.50	Pin piece	Socket piece	
		T O 0	0.7										20			0.50
0 8	Solder	L M	T S O	T 0 0	2	15	1.1	1.2	1.500	0.500	1.4	18	1.00	Pin piece	Socket piece	
		T O 0	0.7										18			1.00

Number of contacts	Termination	Socket	Pin	Part number key	Contact diameter	Single contact nominal current ¹	Clearance and creepage distance		Test voltage ²	Nominal voltage ³	Termination diameter	Termination cross-section			View on termination area	
							mm	A				mm	AWG	mm ²	Pin piece	Socket piece
0 3	Solder	L M	T S O	T 0 0	2	24	1.8	1.5	1.800	0.600	2.4	12	2.5	Pin piece	Socket piece	
		T O 0	1.85									14	1.5			
0 4	Solder	L M	T S O	T 0 0	2	18	1.6	1.4	1.650	0.550	2.4	12	2.5	Pin piece	Socket piece	
		T O 0	1.85									14	1.5			
0 7	Solder	L M	T S O	T 0 0	2	16	1.5	1.6	1.800	0.600	1.4	18	1.00	Pin piece	Socket piece	
		T O 0	0.7										18			1.00
0 8	Solder	L M	T S O	T 0 0	2	12	1.8	1.6	1.950	0.650	1.1	20	0.50	Pin piece	Socket piece	
		T O 0	0.7										20			0.50
1 0	Solder	L M	T S O	T 0 0	2	15	1.1	1.2	1.500	0.500	1.4	18	1.00	Pin piece	Socket piece	
		T O 0	0.7										18			1.00
1 4	Solder	L M	T S O	T 0 0	2	15	1.1	1.3	1.350	0.450	1.1	20	0.50	Pin piece	Socket piece	
		T O 0	0.7										20			0.50
1 6	Solder	L M	T S O	T 0 0	2	10	0.7	0.9	1.000	0.333	1.1	20	0.50	Pin piece	Socket piece	
		T O 0	0.7										20			0.50
1 8	Solder	L M	T S O	T 0 0	2	7.5	0.9	1.1	1.350	0.450	0.85	22	0.38	Pin piece	Socket piece	
		T O 0	0.7										22			0.38
2 0	Solder	L M	T S O	T 0 0	2	6	1	1.4	1.100	0.366	0.6	26	0.15	Pin piece	Socket piece	
		T O 0	0.7										26			0.15
2 2	Solder	L M	T S O	T 0 0	2	7.5	0.7	1	1.000	0.333	0.85	22	0.38	Pin piece	Socket piece	
		T O 0	0.7										22			0.38
3 0	Solder	L M	T S O	T 0 0	2	7.5	0.4	1	0.900	0.300	0.85	22	0.38	Pin piece	Socket piece	
		T O 0	0.6										26			0.15







Additionally, there is a wide range of contact configurations for sizes 2-4, with contact diameters available from .5 mm to 2.0 mm.

Contact Configurations





High Data Inserts

SPECIFIC INSERTS FOR HIGH DATA TRANSMISSION RATES





Size 0

Number of contacts		View on termination area	
		Pin piece	Socket piece
0	4		
U	4		
0	4		
1	0 ¹		

Size 1

Number of contacts		View on termination area	
		Pin piece	Socket piece
0	4		
0	8		

Size 2

Number of contacts		View on termination area	
		Pin piece	Socket piece
0	4		
0	8		

High speed data transfer solutions are also available in multiple housing sizes, with data transfer speeds of Ethernet Type CAT5 up to 100 Mbit, USB[®] 2.0* and USB[®] 3.2 Gen 1x1* for size 0, Ethernet Type CAT5 up to 100 Mbit and Ethernet Type CAT5e up to 1 Gbit for size 1, Ethernet Type CAT6 up to 10 Gbit for size 2.

*These ODU specific connectors can transmit common data transmission protocols such as USB[®] 2.0, USB[®] 3.0 but they are not USB[®]-standard connectors.



Contact Configurations

Hybrid configurations



ODU provides a wide range of custom connector solutions that can accommodate multiple pin counts and contact combinations. ODU's customer orientated connector systems ensure a reliable transmission of power, signal, data and media for a large variety of demanding applications. We provide all relevant areas of expertise and key technologies including design and development, machine tool and special machine construction, injection, stamping, turning, surface technology, assembly and cable assembly. Our advanced customer benefit portfolio include: competitive lead time, rapid prototyping & product development, local one-to-one engineering support, cable assembly integrated solutions and custom connector capabilities - all factory direct.

Mechanical Coding

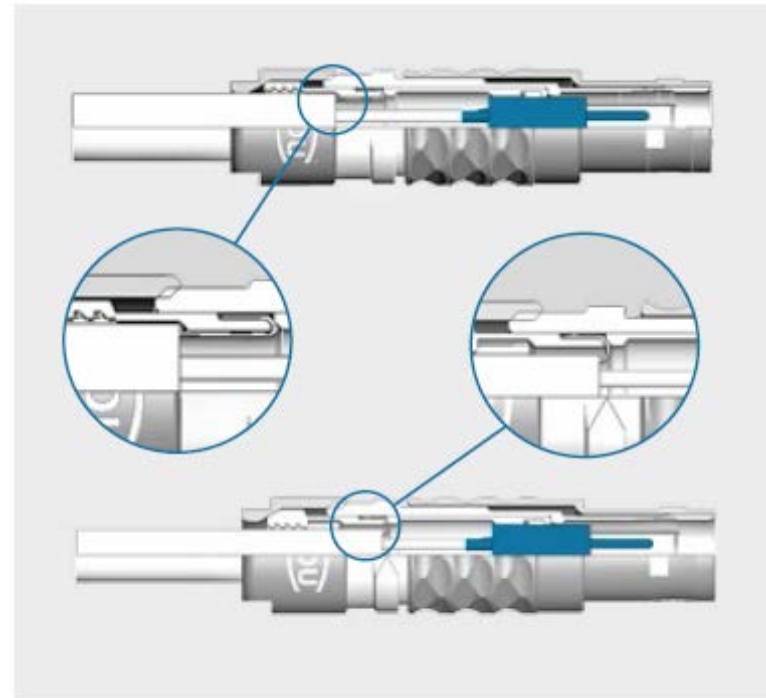
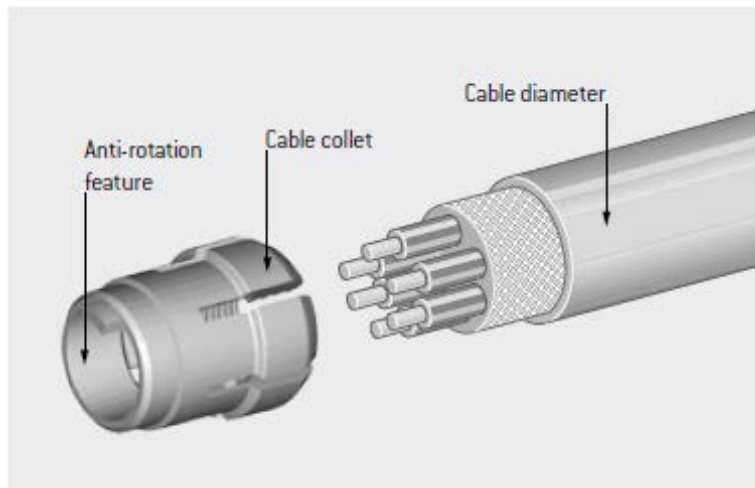
	Angle	Receptacle front view	Size					
			00	0	1	2	3	4
0	0°		•	•	•	•	•	•
A	30°		•	•	•	•	•	o

• Standard
o On request

Additional layer of security is provided through the mechanical pin and groove coding. 12 different coding options are available with 0° and 30° degrees being the standard.

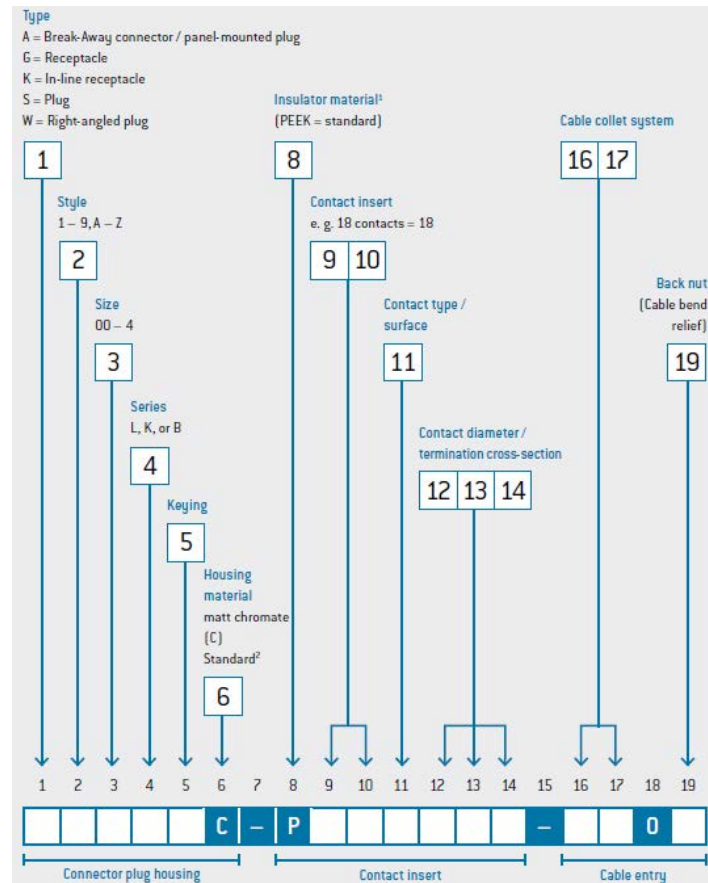
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Cable Collet



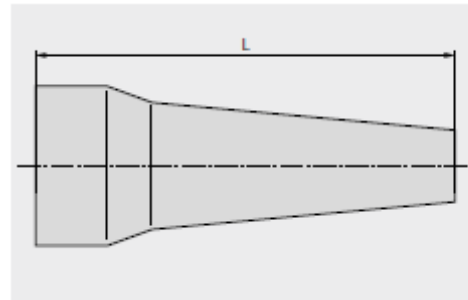
The cable collet components shown here saves the cable from being pulled out from the connector and damaging the termination points. Cable collets are used in all straight and in-line receptacles. It's important to correctly identify outer cable diameter measurements to match it to the correct collet size.

Part Number Configuration



The part number configurator breaks down ODU's part number layout. Begin by selecting the plug housing style and size of the connector, followed by the contact insert details and finally the cable entry type.

Accessories



TEMPERATURE RANGE

Silicone: -50 °C up to +200 °C, short-term up to +230 °C
Autoclaveable

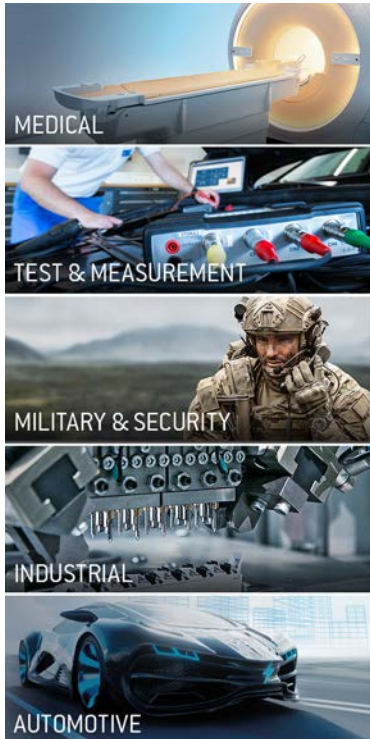
COLORS

Color code	Color	RAL no. ¹ (minia)
202	Red	3020
203	White	9010
204	Yellow	1016
205	Green	6029
206	Blue	5002
207	Gray	7005
208	Black	9005

Silicone bend sleeves are available for all plug and in-line housing sizes and come in 7 different colors.

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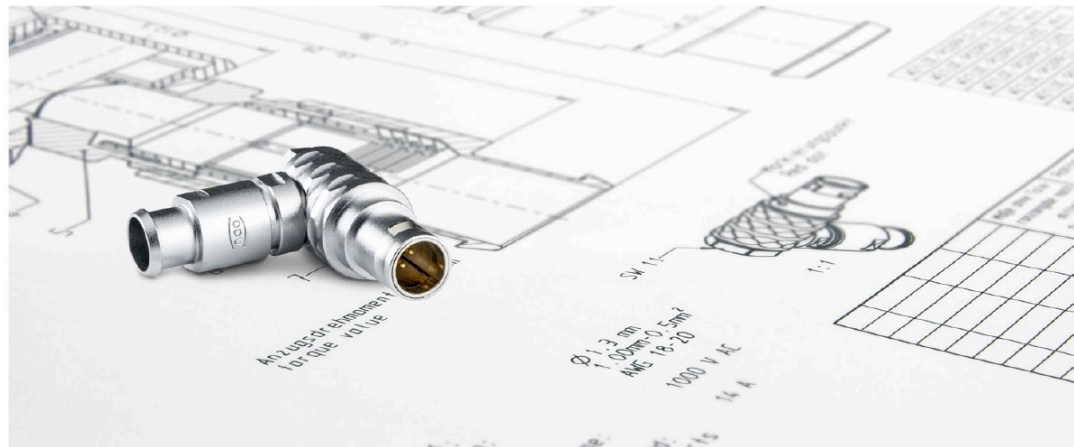
Markets and Applications



ODU MINI-SNAP® L Series is valuable to a wide range of applications from the medical, industrial, test and measurement, military and security, and automotive applications including but not limited to: treatment and surgery, diagnostics, patient monitoring, hand-pulse oximeters, portable scanners, measuring sensors, data acquisition systems, thermal imaging cameras, high speed cameras, mobile security systems, video equipment, LiDAR systems, etc.

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 MINI-SNAP® L Series offers:

- Circular Push-Pull locking connector solution
- Robust metal housing
- IP50 rated
- Wide range of contact configurations
- Hybrid and high speed insert solutions available
- Multiple coding options to prevent cross connection
- Up to 6 sizes and three termination types



The ODU MINI-SNAP® L Series is a versatile circular Push-Pull locking connector solution with a robust metal housing that is IP50 rated. Ideal for a wide range of applications due to its many contact configurations including its hybrid and high speed inserts. Available in 6 sizes, multiple coding options and 3 termination types, it becomes a viable solution for applications with specific requirements.
