

A PERFECT ALLIANCE.

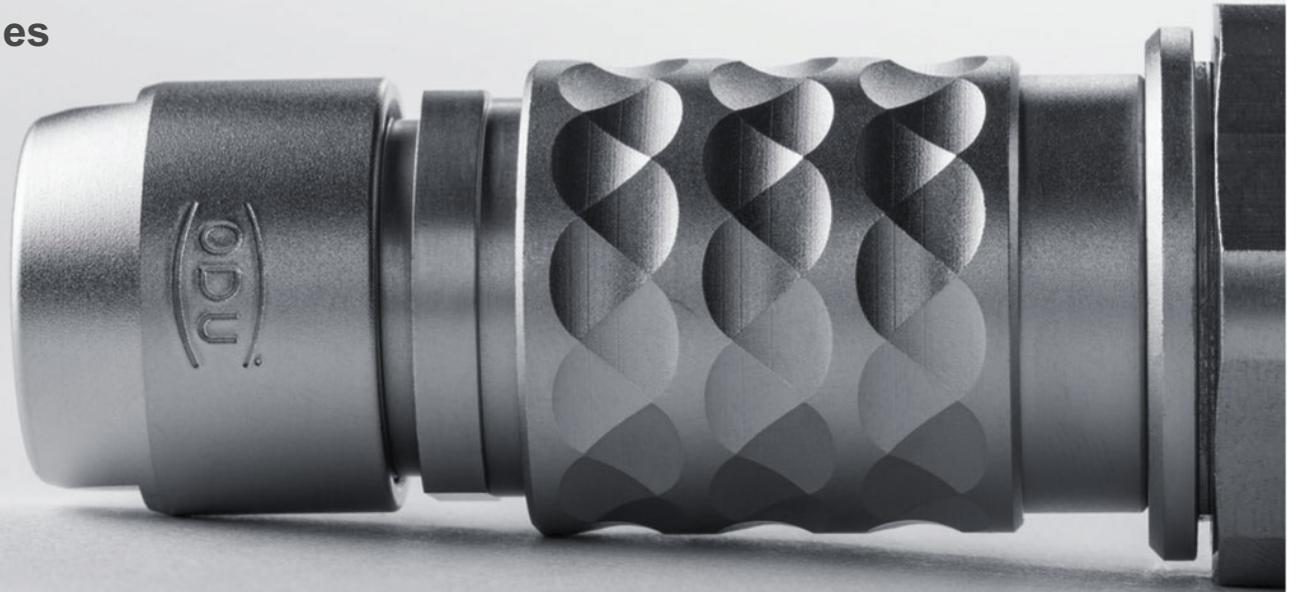


---

# ADVANCED CONNECTOR SOLUTIONS

---

Product Training Module  
ODU MINI-SNAP® F Series



## ODU MINI-SNAP® F Series

### Purpose:

- Introduce the ODU MINI-SNAP® F Series connector

### Objectives:

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

### Content:

- 21 pages



This presentation will go over the ODU MINI-SNAP® F 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® F Series main technology features, the part number configurator and the certifications.

## ODU MINI-SNAP® F Series

### Review Features and Benefits

#### Series Overview:

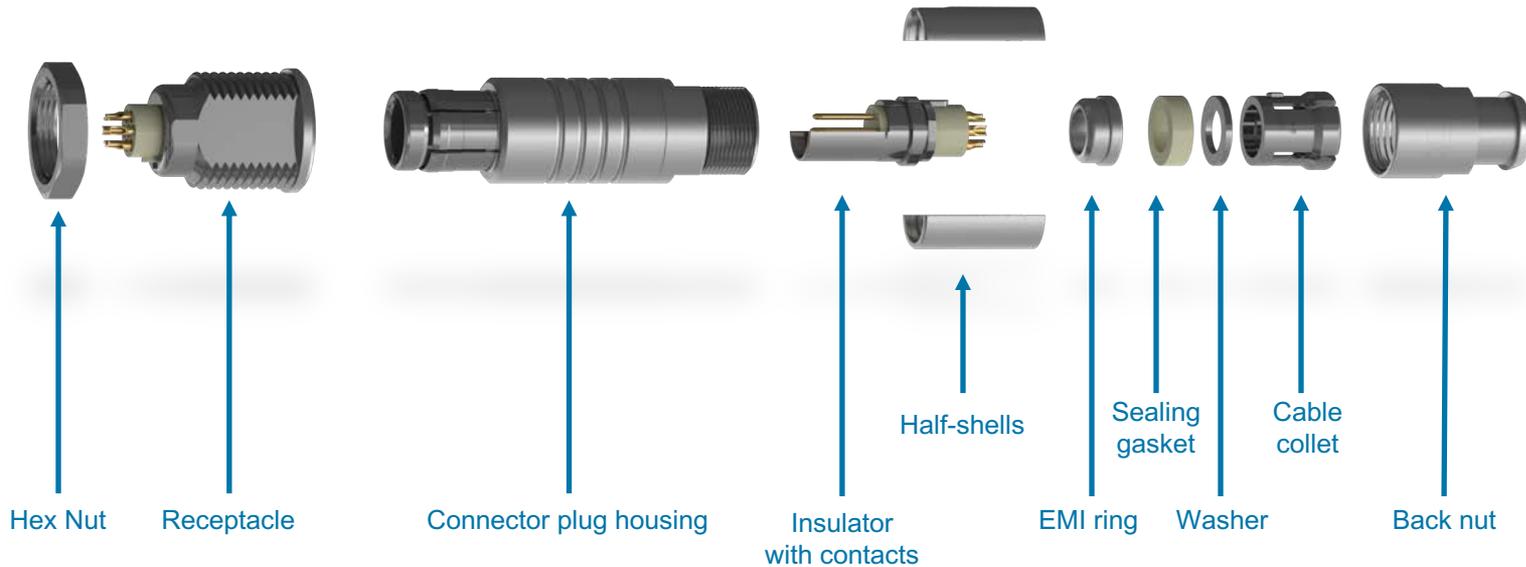
- Circular connector series in a robust metal housing
- Up to 5 sizes
- Push-Pull locking mechanism
- Quick and easy mating and demating
- IP50 and IP68 protection
- Up to 5,000 mating cycles
- 2 to 27 contacts/mixed configurations
- 3 different mechanical coding options
- Terminations types – solder, crimp, PCB



The ODU MINI-SNAP® F Series 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 plug and receptacle housings, up to 5,000 mating cycles, 2-27 contacts and mixed configurations possible with 3 half shell coding options. The ODU MINI-SNAP® F Series can be terminated in solder, crimp and PCB.

# ODU MINI-SNAP<sup>®</sup> F 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® F Series

## Plug Housing Models

STRAIGHT PLUG		RIGHT-ANGLED PLUG		PANEL MOUNTED PLUG				
IP 50		S 1	IP 50		W 1	IP 50		A A
		S 2			W 2		IP 68	
IP 68		S 3	IP 68		W 3	SUPER SHORTY PUSH-PULL PLUG		
		S 4			W 4	IP 68		S S
BREAK-AWAY CONNECTOR								
IP 68		A 5						
		A 6						
IP 50		A 7						
		A 8						
						 A S		

The ODU MINI-SNAP® F Series is available in a variety of styles and 5 different standards sizes. Housing is made of brass, nickel plated and then matte chrome plated, while the plug internals are made of nickel plated brass. IP50 and IP68 housing are available in the F series. The S1/S2/S3/S4 housings are readily available with distribution.

# ODU MINI-SNAP<sup>®</sup> F Series

## Plug Housing Models



The Style S1/S2 and S3/S4 shown here are the two most commonly used straight plug housing styles. Housings styles S1 and S2 are IP 50 protected where styles S3 and S4 are IP68 protected in mated condition.

A PERFECT ALLIANCE.

# ODU MINI-SNAP® F Series

## Receptacle Housing Models



There are a variety of housing models available for the ODU MINI-SNAP® F 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.

A PERFECT ALLIANCE.

# ODU MINI-SNAP® F Series

## Receptacle Housing Models

**STYLE: 1**

Installation from front of panel

**STYLE: 5**

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

**STYLE: 8**

Installation from rear of panel, with designer nut

Size	L1 <sup>1</sup> mm	L2 max. mm	L3 <sup>2</sup> mm	M mm	D mm	SW A mm	SW B mm	C mm	SW mm	Panel cut-out Ø mm	Type
0	≈ 20	≈ 9	14.5	9 × 0.5	10	8.2	11	1.5	8.3	9.1	A
1	≈ 24	≈ 8	16.5	12 × 1	14	10	14	1.5	10.1	12.1	A
1.5	≈ 25	≈ 8	15.5	14 × 1	16	12	17	2	12.1	14.1	D
2	≈ 27	≈ 10	18.5	15 × 1	18	14.1	17	2	14.2	15.1	B
3	≈ 30.5	≈ 13	22.5	18 × 1	22	16.5	22	2	16.6	18.1	A

Size	L1 <sup>1</sup> mm	L2 max. mm	L3 <sup>2</sup> mm	M mm	D mm	SW A mm	SW B mm	SW C mm	C mm	SW mm	Panel cut-out Ø mm	Type
0	≈ 20	≈ 8	14.5	9 × 0.5	11.5	11	8	10	2.5	8.1	9.1	A
1	≈ 24	≈ 8	16.5	12 × 1	15	14	10	13	4	10.1	12.1	A
1.5	≈ 25	≈ 7	15.5	14 × 1	19	17	12	17	3	12.1	14.1	A
2	≈ 27	≈ 10	18.5	15 × 1	20	17	13.5	17	4	13.6	15.1	A
3	≈ 30.5	≈ 12	22.5	18 × 1	23	22	16.5	20	5	16.6	18.1	A

Size	L1 <sup>1</sup> mm	L2 max. mm	L3 <sup>2</sup> mm	M mm	D1 mm	D2 mm	SW A mm	SW B mm	C mm	SW mm	Panel cut-out Ø mm	Type
0	≈ 22.5	≈ 3.5	17	9 × 0.5	12	14	8.2	11	6.5	8.3	9.1	D
1	≈ 27.5	≈ 4	21	14 × 1	18	18	12	–	8	12.1	14.1	A
1.5	≈ 27	≈ 3	19.5	14 × 1	18	19	12	–	7	12.1	14.1	D
2	≈ 29.5	≈ 3	23	16 × 1	22	21	14.3	–	8	14.4	16.1	A
3	≈ 32	≈ 6	26.5	20 × 1	25	26	18	–	11	18.1	20.1	A

The Style G1/G5/G8 shown here are the two most commonly used receptacle housing styles. Style G1 is a front mount solution only while the style G5 can be front or rear mounted. Style G8 is a rear mount solution that is IP68 protected.

## 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



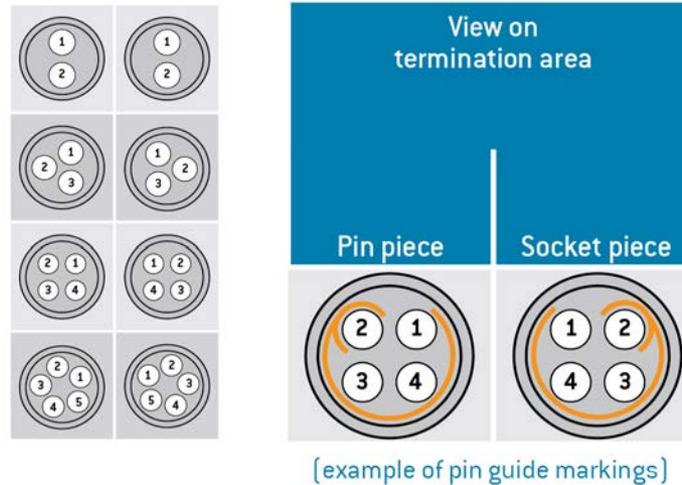
PRINT TERMINATION



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 3 mm diameter, and rated for 5,000 mating cycles.

# Contact Configurations

## Pin Out 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 0 insert configurations

Number of contacts		Contact diameter		Termination cross section		View on termination area	
		mm	mm	AWG	mm <sup>2</sup>	Pin piece	Socket piece
0	2	0.9		22	0.38		
				–	–		
0	3	0.9		22	0.38		
				–	–		
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		
				–	–		
0	7	0.5		28	0.08		
				–	–		
0	9	0.5		28	0.08		
				–	–		

Size 0 contact configurations shown here come in 2 – 9 pin configurations and will accommodate 22 AWG to 28 AWG, with .5 mm to .9 mm contact diameters available.

# Contact Configurations

## Size 1 insert configurations

Number of contacts	Contact diameter	Termination cross section		View on termination area		Number of contacts	Contact diameter	Termination cross section		View on termination area		Number of contacts	Contact diameter	Termination cross section		View on termination area				
		mm	AWG	mm <sup>2</sup>	Pin piece			Socket piece	mm	AWG	mm <sup>2</sup>			Pin piece	Socket piece	mm	AWG	mm <sup>2</sup>	Pin piece	Socket piece
0	2	1.3	18	1.0			0	6	0.7	22	0.38			1	0 <sup>6</sup>	0.5	26	0.15		
			20	0.5						26	0.15						28	0.08		
			–	–						–	–									
0	3	1.3	18	1.0			0	6	0.7	22	0.38			1	0 <sup>6</sup>	0.5	26	0.15		
			20	0.5						26	0.15						28	0.08		
			–	–						–	–									
0	4	0.9	22	0.38			0	7	0.7	22	0.38			1	2	0.5	28	0.08		
			20–24	0.50–0.25						26	0.15						–	–		
			22–26	0.38–0.15						22–26	0.38–0.15						28–32	0.09–0.04		
			–	–						–	–									
0	5	0.9	20	0.50			0	8	0.7	22	0.38			1	4 <sup>6</sup>	0.5	28	0.08		
			22	0.38						26	0.15						–	–		
			20–24	0.50–0.25						22–26	0.38–0.15						28–32	0.09–0.04		
			22–26	0.38–0.15						–	–									
			–	–						–	–									

Size 1 contact configurations shown here come in 2 – 14 pin configurations and will accommodate 18 AWG to 28 AWG, with .5 mm to 1.3 mm contact diameters available.



# Contact Configurations

## High Data Insert

### SPECIFIC INSERTS FOR HIGH DATA TRANSMISSION RATES

Ethernet  
Type CAT5  
up to 1 Gbit

Number of contacts		Contact type			Part number key			Contact diameter mm	Single contact nominal current <sup>1</sup> A	Clearance and creepage distance		Test voltage <sup>2</sup> kVeff	Nominal voltage <sup>3</sup> kVrms	Termination diameter mm	Termination cross section		View on termination area	
		Termination	Socket	Pin						Contact to contact mm	Contact to housing mm				AWG	mm <sup>2</sup>	Pin piece	Socket piece
D	8 <sup>6</sup>	Solder	L	–	F	G	9	0.9	7.5	0.7	1.8	1.200	0.400	0.85	22	0.38		
		PCB <sup>4</sup>	Q	–	F	0	9			1.4	1.2							
		Solder	–	M	F	G	9			0.7	0.7							

High speed data transfer solutions are also available with data transfer speeds of Ethernet Type CAT5 up to 1 Gbit.

## Contact Configurations

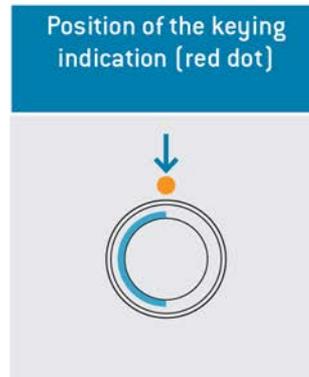
### Hybrid configurations



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 product development, local one-to-one engineering support, cable assembly integrated solutions and custom connector capabilities - all factory direct.

---

# Mechanical Coding



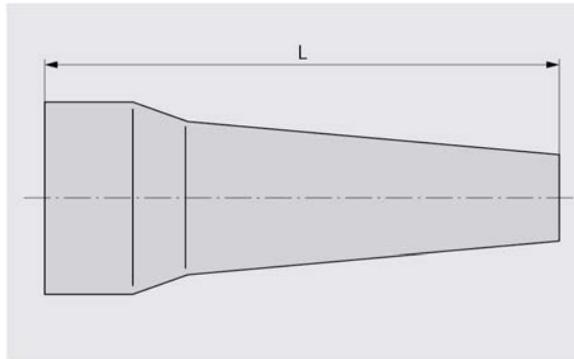
	Receptacle mating side	Plug mating side	Size				
			0	1	1.5	2	3
1			•	•	•	•	•
			•	•			
2							
					•	•	•
3			o				
				o			
					o	o	o

• Standard  
o On request

Additional layer of security is provided through the half shell coding. 3 different coding options are available with the style 1 coding being the standard.



## Accessories



### TEMPERATURE RANGE

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

### COLORS

Color code	Color	RAL no. <sup>1</sup> (similar)
202	Red	3020
203	White	9010
204	Yellow	1016
205	Green	6029
206	Blue	5002
207	Grey	7005
208	Black	9005

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

A PERFECT ALLIANCE.

## Markets and Applications



ODU MINI-SNAP® F 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® F Series offers:

- Circular Push-Pull locking connector solution
- Robust metal housing
- IP50 and IP68 rated
- Wide range of contact configurations
- Hybrid and high speed insert solutions available
- Multiple coding options to prevent cross connection
- Up to 5 sizes and three termination types



The ODU MINI-SNAP® F Series is a versatile circular Push-Pull locking connector solution with a robust metal housing that is IP50 and IP68 rated. Ideal for a wide range of applications due to its many contact configurations including its hybrid and high speed inserts. Available in 5 sizes, multiple coding options and 3 termination types, it becomes a viable solution for applications with specific requirements.